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FAA Technical Point of Contact: Daniel A. Herschler, 202-267-9853

16. ABSTRACT

The Next Generation Air Transportation System (NextGen) consists of a series of transformations designed to increase the capacity, safety, and security of air traffic operations. A key element of NextGen is trajectory operations. This research addresses minimum human factors requirements for flight deck interface design and operating procedures to be used for trajectory operation, in particular the procedures for disseminating trajectory clearances using voice, data comm, or a combination of both, and for entering those clearances into aircraft navigation systems. Cognitive task analyses were conducted using several techniques to better understand the human factors issues associated with disseminating and entering trajectory clearances. These task analysis methods were used to examine five tasks on each of three flight management systems (FMS). The tasks included clearances which ranged from simple to the more complex Required Time of Arrival (RTA) clearances, delivered by either voice or data comm. The models indicate that receipt of a voice clearance takes less time than receipt of a data comm clearance, unless the crew decides to write down the voice clearance. A voice clearance that is written down requires considerably more time than a data comm clearance that is printed. This supports the idea that data comm is better suited for more complex clearances since such clearances would be more likely to be written down by the crew when received via voice, and therefore less efficient by voice. In addition to the response time results, the cognitive task analyses resulted in the identification of several human factors issues and a few recommendations for NextGen data comm operations.

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# Trajectory Operations Human Factors Study Disseminating and Entering Trajectory Clearances

Final Report
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Kelley M. Baker
Chia-Hsuan Chang
Sara K. DiMare
Erik Nelson
M. Ross Thornton
William Benson
Devon Kelley
Ryan Olmstead
Simone Erchov
Deborah A. Boehm-Davis

June 2013



George Mason University Psychology Department Fairfax, VA 22030



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## **Executive Summary**

The Next Generation Air Transportation System (NextGen) consists of a series of transformations designed to increase the capacity, safety, and security of air traffic operations. A key element of NextGen is trajectory operations, where aircraft operate on negotiated paths represented by a four dimensional trajectory (4DT). Research is necessary to support the development of minimum human factors requirements for flight deck interface design and operating procedures to be used for trajectory operations. Specifically, procedures will be needed for disseminating 2½- to 4-DT clearances using voice, data comm, or a combination of both, and for entering those clearances into aircraft navigation systems.

Cognitive task analyses were conducted using several techniques to better understand the human factors issues associated with disseminating and entering 2½- to 4-DT clearances. The techniques employed were Natural GOMS (Goals, Operators, Methods, and Selection Rules) Language (NGOMSL), CogTool, and SANLab-CM. These task analysis methods were used to examine five tasks on each of three flight management systems (FMS). The tasks included clearances which ranged from simple to the more complex Required Time of Arrival (RTA) clearances, and they were delivered by either voice or data comm.

For the five tasks, across the three FMSs, all three modeling techniques resulted in very similar estimates. NGOMSL and CogTool provide single point estimates of the time it will take an expert user to complete a given task. The minimum values produced by the SANLab-CM model represent the prediction for an expert user who makes no mistakes and has no hesitations or distractions, which generally places the estimate below the NGOMSL and CogTool estimates. The SANLab-CM mean values represent more realistic human performance, and are closer to the NGOMSL and CogTool estimates, since users likely will exhibit variability in their response times.

The models indicate that receipt of a voice clearance takes less time than receipt of a data comm clearance, unless the crew decides to write down the voice clearance. A voice clearance that is written down requires considerably more time than a data comm clearance that is printed. This supports the idea that data comm is better suited for more complex clearances since such clearances would be more likely to be written down by the crew when received via voice, and therefore less efficient by voice.

In addition to the response time results, the cognitive task analyses resulted in the identification of several human factors issues, and the following recommendations.

- When the crew must wait for feedback from the system, the system should provide both positive and negative feedback. The system should not use a lack of negative feedback to indicate positive feedback.
- Given current avionics, RTA clearances should be disseminated separately from other clearance parameters. This will allow the crew to accept and execute the other parameters before having to determine whether they can accept the RTA. When technology advances to the point where the avionics are capable of calculating whether an RTA is achievable given additional proposed parameters, such complex clearances should be disseminated as a single clearance. Then, entering an RTA and additional crossing restrictions (altitude and/or speed) together, rather than separately, would increase efficiency.
- As avionics are developed to handle TBO-type clearances, developers should be encouraged to consider industry-wide standardization. Industry-wide standardization reduces the need for training and reduces the risk of error.
- More research should be done to identify additional human factors issues and recommendations for the dissemination and entry of TBO-type clearances. SANLab-CM is a useful tool for such research since it provides for user variability and results in more realistic time predictions likely to be observed either within users over time or across different users.

#### Introduction

The Next Generation Air Transportation System (NextGen) consists of a series of transformations designed to increase the capacity, safety, and security of air traffic operations. A key element of NextGen is trajectory operations. Trajectory operations are defined as an air traffic management system where each aircraft in the system operates on a negotiated path represented by a four dimensional trajectory (4DT). Trajectory operations will require pilot negotiation, selection, implementation, and monitoring of aircraft status relative to position, altitude, and time.

It is envisioned that ATC clearances that modify trajectories may be delivered via voice or data communications (data comm), depending on the aircraft equipage and the complexity of the communication. Data comm would be used to deliver more complex clearances to equipped aircraft, while voice would be the secondary delivery mode, used to provide all clearances to unequipped aircraft and simpler clearances to equipped aircraft. On the flight deck, data comm clearances will likely be displayed on the multi-function control display unit (MCDU). The clearances will then be manually entered into the aircraft navigation system or, if the navigation system is integrated, the clearances can be autoloaded into the system. If clearances are autoloaded, pilots will be procedurally required to review and accept all clearances prior to execution.

Research is necessary to support the development of minimum human factors requirements for flight deck interface design and operating procedures to be used for trajectory operations. Specifically, procedures will be needed for disseminating 2½- to 4-DT clearances using voice, data comm, or a combination of both, and for entering those clearances into aircraft navigation systems.

This report describes cognitive task analyses conducted using several techniques to better understand the human factors issues associated with disseminating and entering 2½- to 4-DT clearances. These techniques include Natural GOMS (Goals, Operators, Methods, and Selection Rules) Language (NGOMSL), CogTool, and SANLab-CM. The NGOMSL technique was used to create a baseline model for the receipt and entry of clearance information. The cognitive modeling software CogTool was used to provide independent estimates of the time required to perform these activities. The cognitive modeling software, SANLab-CM, which uses the output of the CogTool model as input, provides additional quantitative predictions of user behavior. The information derived from these models provides insight into the dissemination and clearance entry processes, which can be used to identify human factors issues and ultimately to provide recommendations for the development of procedures that might reduce errors or improve efficiency.

## **Cognitive Task Analyses**

A cognitive task analysis is the systematic analysis of the cognitive and physical activities required to complete a task. There are numerous task analysis techniques, and numerous uses of a task analysis, including equipment design, procedure development, training design, and the development of decision support systems. In this project, several task analysis methods were used to examine each of several tasks on each of several flight management systems. The tasks and equipment used in the task analyses are described briefly below and discussed in more detail in a previous report from Baker, Gee, Nelson, Chang, and Boehm-Davis (2012).

## **Tasks and Equipment**

The tasks used in the cognitive task analysis ranged from simple to more complex. They were delivered by both voice (radio clearance) and data comm (FMS clearance), and they included Required Time of Arrival (RTA) clearances. These tasks were:

#### Task 1

Voice: "Proceed direct to HELPR."

Data Comm: PROCEED DIRECT TO HELPR

#### Task 2

Voice: "Cross HELPR at flight level one niner zero."

Data Comm: CROSS HELPR AT FL190

#### Task 3

Voice: "Cross HELPR at one eight zero zero Zulu."

Data Comm: CROSS HELPR AT TIME 1800Z

#### Task 4

Voice: "Cross HELPR at one eight zero zero Zulu at flight level one niner zero."

Data Comm: CROSS HELPR AT TIME 1800Z AT FL190

#### Task 5

Voice: "Cross HELPR at one eight zero zero Zulu at or above flight level one niner zero."

Data Comm: CROSS HELPR AT TIME 1800Z AT OR ABOVE FL190

Three flight management systems (FMS) were used in the cognitive task analysis.

#### **NGOMSL**

GOMS (Goals, Operators, Methods, and Selection Rules) is a method of modeling user behavior in order to evaluate interface design (Card, Moran, & Newell, 1983). A GOMS model describes how a user would accomplish a task by listing the goals required to complete the task, the steps (methods) to accomplish the goals, the actions (operators) to complete the methods, and the selection rules in the event that there is more than one method to accomplish a goal.

Natural GOMS Language, or NGOMSL, is a variant of the GOMS technique (Kieras, 1996). Like GOMS, the NGOMSL technique describes the steps required to accomplish a task using goals, methods, operators, and selection rules. The steps are structured sequentially and hierarchically, and execution times are assigned for each operator, method, and selection. Once a model is complete, specific task scenarios are traced through the model (a "trace") to determine an execution time for that task scenario on a given system. Multiple traces are run to allow identification of usability issues and to compare the usability of alternate designs.

In this analysis, an NGOMSL model was developed for the receipt of a clearance by the flight deck from air traffic control via either voice or data communications, the acceptance or rejection of the clearance, and the entry of the clearance information into the FMS. Due to differences between the three FMSs, a separate model was developed for each FMS. The three base NGOMSL models are provided in Appendix A.

Traces were then run based on scenarios generated from the tasks described above. For each FMS, two traces were run for each of the five tasks and for both voice and data comm conditions, resulting in 20 traces per FMS and 60 total traces. The traces are provided in Appendix B.

#### CogTool

CogTool (John, 2011) is prototyping software for developing and evaluating user interfaces. The tool allows the developer to create a representation, or prototype, of a display. The developer then uses this representation to simulate how the user would interact with the display to complete a specific task. The tool uses a predictive human performance model (which takes into account cognitive, perceptual, and physical task components) to evaluate how long it will take a skilled user to complete the task using the display. It creates the task analysis using the keystroke level model (KLM) combined with estimates based on the Adaptive Control of Thought – Rational (ACT-R) cognitive architecture (Anderson & Lebiere, 1998), and provides a trace of the task analysis, along with the time estimates arising from the ACT-R model.

In this analysis, CogTool models were developed based on the NGOMSL models. Example figures depicting a CogTool task representation and a portion of a trace are provided in Appendix C.

#### **SANLab-CM**

SANLab-CM (Stochastic Activity Network Laboratory for Cognitive Modeling; Patton & Gray, 2010) is software that was developed to model a task while accounting for individual variation in response time. The other cognitive models in this analysis (NGOMSL and CogTool) assume expert performance with no errors and a single value for estimating individual parameters (e.g., the use of 0.4 seconds to move the hand to the keyboard). Although pilots are highly trained

experts, it is unrealistic to assume that every pilot, or even a single pilot, will react with exactly the same response time on every occasion. Inserting variability into the model acknowledges that different pilots, or the same pilot over time, will sometimes take more time to complete an operation than at other times.

SANLab-CM provides for variability by assigning a distribution of response times for each individual parameter in the model. On any given trace of the model, a value for each parameter is pulled from its distribution, and the critical path is computed using those values. The model is then run hundreds or even thousands of times, producing many unique critical paths, as well as the time required for each unique critical path. This then creates a distribution of critical path times. This can provide the developer with a range of times likely to be observed either within users over time or across different users.

In this analysis, SANLab-CM models were developed based on the output from the CogTool models; a segment of a SANLab-CM trace is included in Appendix D.

#### **Results**

#### **NGOMSL Models**

Using the three NGOMSL models, representing the three flight management systems, twenty traces were run with each model, four for each of the five tasks, two with a voice clearance and two with a data comm clearance. The assumptions for each of the twenty traces were varied across the traces to obtain time estimates based on a larger range of conditions. These assumptions included, for example, how the clearance information was retained (remembered, written down, printed), whether the clearance was accepted or rejected, and whether the pilot's hand was already positioned on the FMS when the clearance was received. A summary of the basic assumptions is provided in Table 1, while the detailed assumptions for each trace are included with the traces in Appendix B. The results from the traces are summarized in Table 2.

Table 1. Assumptions for NGOMSL Traces

Trace	Task	Modality	Remembered, Written, or Printed?	Remembered when Entering?	Hands Start on FMS?	Clearance Acceptable
1	1	Voice	Remembered	Yes	No	Yes
2	1	Voice	Remembered	Yes	No	No
3	1	Data Comm	Printed	Yes	Yes	No
4	1	Data Comm	Remembered	Yes	Yes	No
5	2	Voice	Written	No	No	Yes
6	2	Voice	Remembered	Yes	No	Yes
7	2	Data Comm	Printed	No	Yes	Yes
8	2	Data Comm	Remembered	Yes	Yes	Yes
9	3	Voice	Remembered	Yes	No	Yes
10	3	Voice	Written	Yes	No	No
11	3	Data Comm	Remembered	Yes	Yes	Yes
12	3	Data Comm	Printed	Yes	Yes	No
13	4	Voice	Written	No	No	Yes
14	4	Voice	Remembered	Yes	No	Yes
15	4	Data Comm	Printed	No	No	Yes (non-RTA) No (RTA)
16	4	Data Comm	Remembered	Yes	Yes	Yes (non-RTA) No (RTA)
17	5	Voice	Written	No	No	Yes
18	5	Voice	Remembered	Yes	No	Yes
19	5	Data Comm	Printed	No	No	Yes
20	5	Data Comm	Remembered	Yes	Yes	Yes

**Table 2. Execution time resulting from NGOMSL traces** 

Trace	Task	Modality	FMS 1 (time in seconds)	FMS 2 (time in seconds)	FMS 3 (time in seconds)
1	1	Voice	18.68	18.68	18.68
2	1	Voice	15.79	15.79	15.79
3	1	Data Comm	25.62	23.24	23.24
4	1	Data Comm	21.71	19.33	19.33
5	2	Voice	48.51	48.51	48.51
6	2	Voice	26.35	26.35	26.35
7	2	Data Comm	36.78	34.40	34.40
8	2	Data Comm	28.87	26.49	26.49
9	3	Voice	23.11	35.60	37.96
10	3	Voice	34.37	45.77	48.13
11	3	Data Comm	25.81	36.02	38.28
12	3	Data Comm	29.72	38.84	41.10
13	4	Voice	68.62	80.52	84.99
14	4	Voice	37.85	49.75	54.22
15	4	Data Comm	50.57	60.09	64.56
16	4	Data Comm	38.65	48.17	52.54
17	5	Voice	74.31	86.21	90.68
18	5	Voice	40.84	52.74	57.21
19	5	Data Comm	54.65	64.17	68.64
20	5	Data Comm	41.93	51.45	55.92

Note. Different traces of the same task made different assumptions, as shown in Table 1. These different assumptions led to different execution times.

An examination of these results is informative.

- There is a considerable difference between receipt of a voice clearance and receipt of a data comm clearance when the crew decides to write down the voice clearance. The trace results indicate that a voice clearance that is simply remembered requires less time (M = 31.76 seconds, SD = 16.11) than a data comm clearance that is remembered (M = 35.40, SD = 12.57), but that a voice clearance that is written down requires more time (M = 63.26, SD = 20.62) than a data comm clearance that is printed (M = 43.33, SD = 16.42). This supports the idea that data comm is better suited for more complex clearances since such clearances would be much more likely to be written down by the crew when received via voice, and therefore less efficient by voice.
- For non-RTA clearances (Tasks 1 and 2), the results for FMSs 2 and 3 are identical. This suggests that there has been some standardization in avionics for entering current clearances. In comparison, for RTA clearances (Tasks 3, 4, and 5), the results for the

- same two FMSs are different. This suggests that RTA implementation has not been standardized in avionics development.
- For non-RTA clearances, FMS 1 results in the same or slightly longer times, while for RTA clearances, it appears to result in the shortest times. However, FMS 1 does not have automatic RTA capability. The time appears shortest because there is no clearance entry for an RTA clearance. With FMS 1, the crew can attempt to manually manage the RTA. However, using flight control to manage RTA was beyond the scope of the NGOMSL; thus, it is not modeled.
- In comparing times for RTA clearances between FMS 2 and FMS 3, FMS 2 appears to result in shorter times. However, the times were also affected by the modeling assumptions. With FMS 2, the FMS performs an internal RTA calculation that can take approximately 10 to 15 seconds. However, system performance and system delays were not included in the model. An additional 10 to 15 seconds would make the times for FMS 2 longer than those for FMS 3.

#### CogTool

CogTool was used to generate models of four of the NGOMSL traces. Like NGOMSL, CogTool yields mean times for task completion; however, it also produces output in a format that can be imported into other programs for more complex analyses. Tasks 1 through 4 were modeled using each of the three FMSs. Specifically, Traces 4, 8, 11, and 16 were modeled. The CogTool results are provided in Table 3.

**Table 3. Execution time resulting from CogTool traces** 

Trace	Task	Modality	FMS 1 (time in seconds)	FMS 2 (time in seconds)	FMS 3 (time in seconds)
4	1	Data Comm	20.8	17.6	17.6
8	2	Data Comm	25.1	22.3	22.3
11	3	Data Comm	22.9	32.2	30.3
16	4	Data Comm	33.4	41.2	42.5

#### **SANLab-CM**

SANLab-CM models were then developed from the CogTool analyses. As described above, SANLab-CM allows a distribution to be applied to each component of the model. These distributions provide a better understanding of the ranges of performance that can be expected on the flight deck. As recommended by the creators of SANLab-CM, Gaussian (normal) distributions were used, and their variance was randomly set to a value between 0.1 and 1.0 times the mean, which were imported from CogTool. Using these settings, SANLab-CM

randomly selected a value from each of the distributions for every iteration. All SANLab-CM analysis consisted of 1,000 iterations.

## **Comparison of Results**

Four traces (Traces 4, 8, 11, and 16) were analyzed using the three task analysis techniques. The results are summarized in Table 4, and displayed in Figure 1.

Table 4. Execution time resulting from NGOMSL, CogTool, and SANLab-CM

			FMS 1 (time in seconds)	FMS 2 (time in seconds)	FMS 3 (time in seconds)
	NGOMSL		21.7	19.3	19.3
Trace 4: Task 1, PROCEED DIRECT TO	CogT	Tool .	20.8	17.6	17.6
		Mean	23.09	19.3	19.3
HELPR	SANLab	SD	2.8	2.7	2.7
	SANLAD	Min	13.9	11.6	11.6
		Max	34.2	33.1	33.1
	NGO	MSL	28.9	26.5	26.5
	CogT	Tool .	25.1	22.3	22.3
Trace 8: Task 2,		Mean	27.7	24.6	24.3
CROSS HELPR AT FL190	SANLab	SD	3.5	3.4	3.2
	SAINLAD	Min	18.6	14.7	16.8
		Max	44.1	37.0	38.7
	NGOMSL		25.8	36.0	38.3
	CogT	<b>Tool</b>	22.9	32.2	30.3
Trace 11: Task 3, CROSS HELPR AT		Mean	24.6	36.2	33.7
TIME 1800Z	SANLab	SD	3.3	3.8	3.5
	SANLAD	Min	15.1	25.8	21.6
		Max	36.8	57.2	47.7
	NGO	MSL	38.7	48.2	52.5
	CogT	Tool .	33.4	41.2	42.5
Trace 16: Task 4, CROSS HELPR AT		Mean	37.6	47.0	47.8
TIME 1800Z AT FL190	SANLab	SD	4.2	4.4	4.5
	SAINLAD	Min	27.4	33.9	34.9
		Max	57.2	65.3	64.5

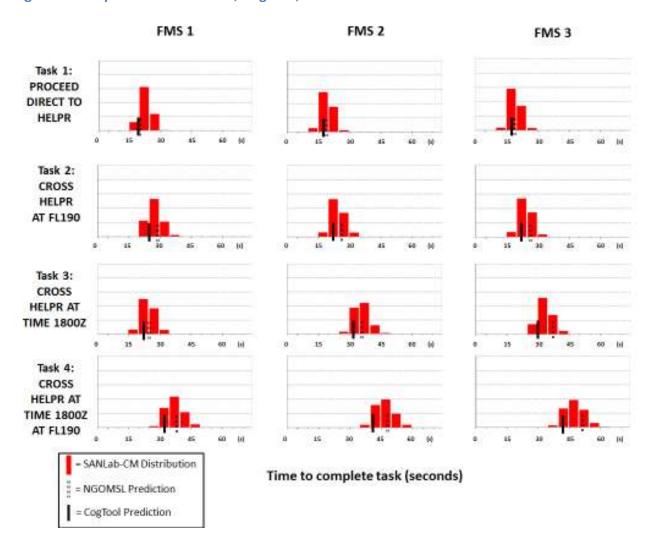


Figure 1. Comparison of NGOMSL, CogTool, and SANLab-CM Results

Note. SANLab-CM distribution shows the frequency with which each time point was estimated by a run of the model. The lines for NGOMSL and CogTool show the point estimates for each of those models.

As shown in both Table 4 and Figure 1, all three modeling techniques provide very similar estimates using a given FMS to complete a given task. NGOMSL and CogTool provide single point estimates of the time it will take an expert user to complete a given task. The minimum value produced by the SANLab-CM model represents the approximation for an expert who makes no mistakes and has no pauses or interruptions. The mean value produced by the SANLab-CM model is closer to the NGOMSL and CogTool predictions. The somewhat faster time predictions from the CogTool model are likely due to CogTool's use of Fitt's Law to calculate unique operator times for individual hand movements, while NGOMSL uses an average time for all hand movements. It may also be due to CogTool's use of ACT-R estimates for some parameters in lieu of NGOMSL estimates.

In all cases, the SANLab-CM average time is higher than the CogTool result but equal to or less than the NGOMSL result. The SANLab-CM estimates may be more reflective of observed times in the real world as people do vary in their responses from time to time and the individual component distributions may be more realistic than the CogTool or NGOMSL results. Performance at the lower end of the distribution is limited by the time it takes to complete physical movements and minimum cognitive processing times. The upper end of the distribution may be reflective of a pilot being distracted by something, or being somewhat unfamiliar with new or seldom-used FMS functionality. Thus, the SANLab-CM predictions may be the most reasonable to use when making decisions about how long it might take for a pilot to complete a particular task.

#### **Human Factors Issues**

During development of the cognitive task analyses, several human factors issues were identified.

- In one of the flight management systems, after the crew enters the RTA, they must wait for the system to calculate whether the RTA is achievable. If the RTA is not achievable, the message "Unable RTA" is displayed. However, if the RTA is achievable, no positive message is displayed. This means that after the crew enters the RTA, they must wait for an unspecified time, during which they are not sure whether the RTA is achievable or whether the system has not finished calculating whether the RTA is achievable.
- None of the FMSs investigated appears to have the capability to handle a complex clearance that includes both RTA and additional information. For a clearance that includes both an RTA and an altitude and/or speed restriction, the crew would first enter the altitude and/or speed restriction since the change in altitude or speed would affect the RTA calculation. The crew would have to execute the altitude and/or speed change in order for the system to be able to accurately calculate whether the RTA is achievable. This presents the crew with a dilemma. They cannot execute the altitude and/or speed change without accepting the clearance, but they do not yet know if they can accept the RTA portion of the clearance. If a clearance is disseminated as a single message via data comm, there is currently no provision for partial acceptance.
- Currently, speed and altitude crossing restrictions are entered at the same place on the FMS. However, time restrictions are entered on a separate page. For a clearance that includes both an RTA and an altitude and/or speed restriction (e.g., cross position at time at level), the altitude and speed restrictions are entered on one FMS page, while the time restriction is entered on a different FMS page.

#### Recommendations

Based on the development of the cognitive models and the results of the traces, the following recommendations are provided.

- When the crew must wait for feedback from the system, the system should provide both positive and negative feedback. The system should not use a lack of negative feedback to indicate positive feedback.
- Given current avionics, RTA clearances should be disseminated separately from other clearance parameters. This will allow the crew to accept and execute the other parameters before having to determine whether they can accept the RTA. When technology advances to the point where the avionics are capable of calculating whether an RTA is achievable given additional proposed parameters, such complex clearances should be disseminated as a single clearance. Then, entering an RTA and additional crossing restrictions (altitude and/or speed) together, rather than separately, would increase efficiency.
- As avionics are developed to handle TBO-type clearances, developers should be encouraged to consider industry-wide standardization. Industry-wide standardization reduces the need for training and reduces the risk of error.
- More research should be done to identify additional human factors issues and recommendations for the dissemination and entry of TBO-type clearances. SANLab-CM is a useful tool for such research since it provides for user variability and results in more realistic time predictions likely to be observed either within users over time or across different users.

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## **Appendix A: NGOMSL Models for Receiving and Entering Clearances**

#### FMS<sub>1</sub>

#### **Assumptions:**

ATC has sent one or more clearances

Only one crew member reads each written clearance

For initial reading of clearance and for readback, clearances must be read aloud. Other readings may be aloud or silent

Crew will initially reply "Standby" to ATC before deciding whether to accept an RTA clearance

Waypoint in clearance is in flight plan

Must enter non-RTA portion of mixed clearance into FMS before deciding on RTA portion

Clearances changing current flight parameters (altitude, speed, heading) are not entered into the FMS

Crew can choose to accept a clearance or report unable

"Unable" = "Reject"

To get back to an open clearance still need to press "DLK" then "NEW MSGS"

System response time is negligible

Model only includes receiving, responding to, and entering clearances. It does not include any other aircraft manipulation

Model included RTA clearances, proceed direct to clearance, and crossing restrictions; Other clearances can be added to the model

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method for Goal: Handle a clearance		0.1			0.1	
Step 1	Selection Rule: Receive a clearance	0.1			0.1	
	Decide: IF clearance includes RTA, THEN					
Step 2	Retain <response> = "Standby" and</response>	0.1			0.1	
	Selection Rule: Respond to a clearance					
Step 3	Accomplish Goal: Enter a clearance	0.1			0.1	
Step 4	Selection Rule: Decide on a clearance	0.1			0.1	
Step 5	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword></response>	0.1			0.1	
Step 6	Selection Rule: Respond to a clearance	0.1			0.1	
Step 7	Decide: IF there are more clearances, THEN GOTO Step 1	0.1			0.1	
Step 8	Return with goal accomplished	0.1			0.1	

Total time 0.9

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection Rule for Goal: Receive a clearance		0.1			0.1	
Step 1	IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance	0.1			0.1	
Step 2	IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
		•	•	Total time	0.3	

Method for Goal: Receive a radio clearance		0.1			0.1	
Step 1	Listen to clearance and retain <clearance information=""></clearance>	0.1	Listen(n)	0.4	variable	Estimated using time to speak, 150 wpm (0.4 sec/word)
Step 2	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time		

Method	d for Goal: Receive an FMS clearance	0.1			0.1	
Step 1	Decide: IF hand not on FMS, THEN move	0.1	Н	0.4	0.5	
	hand to FMS	0.1	"		0.5	
Step 2	Accomplish Goal: Open clearance	0.1			0.1	
Step 3	Accomplish Goal: Read the clearance	0.1			0.1	
Step 4	Decide: IF printed clearance is desired,	0.1			0.1	
Step 4	THEN Selection Rule: Get printed copy	0.1			0.1	
Step 5	Return with goal accomplished	0.1			0.1	
		Total time	1			

Method	for Goal: Open clearance	0.1			0.1	
Step 1	Remember <menu key=""> = "DLK" and</menu>	0.1			0.1	
	Accomplish Goal: Menu key	0.1			0.1	
Step 2	Remember <keyword> = "NEW MSGS"</keyword>	0.1			0.1	
	and Accomplish Goal: Line select key	0.1				
Step 3	Remember <keyword> = clearance to</keyword>	0.1			0.1	
step s	open and Accomplish Goal: Line select key	0.1			0.1	
Step 4	Return with goal accomplished	0.1			0.1	
				Total time	0.5	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Get printed copy	0.1			0.1	
Step 1	IF printer is available, THEN Accomplish Goal: Print the clearance	0.1			0.1	
Step 2	IF pen and paper are available, THEN Accomplish Goal: Write down clearance	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
		•		Total time	0.3	

Method	for Goal: Print the clearance	0.1			0.1	
Step 1	Remember <keyword> = "Print" and</keyword>	0.1		0.1	0.1	
	Accomplish Goal: Line select key	0.1			0.1	
Step 2	Reach for print out	0.1	R	0.41	0.51	
Step 3	Grasp print out	0.1	G	0.7	0.8	
Step 4	Transport paper to reading position	0.1	R	0.41	0.51	
Step 5	Return with goal accomplished	0.1			0.1	
		•		Total time	2.12	

Method	for Goal: Write down clearance	0.1			0.1	
Step 1	Decide: IF paper is not readily available,	0.1			0.1	
Step 1	THEN Accomplish Goal: Obtain paper	0.1			0.1	
Step 2	Decide: IF pen is not in hand,	0.1			0.1	
	THEN Accomplish Goal: Obtain pen	0.1				
Step 3	Recall <clearance information=""> and write</clearance>	0.1	W(n)	2.7	variable	Writing, 22 wpm
step 5	<clearance information=""></clearance>	0.1				(2.7 sec/word)
Step 4	Return pen to original location	0.1	R	0.41	0.51	
Step 5	Release pen	0.1	RL	0.07	0.17	
Step 6	Move hand back to starting location	0.1	Н	0.4	0.5	
Step 7	Return with goal accomplished	0.1			0.1	
,		•	•	Total time		

Method	for Goal: Obtain paper	0.1			0.1	
Step 1	Reach for paper	0.1	R	0.41	0.51	
Step 2	Grasp paper	0.1	G	0.7	0.8	
Step 3	Transport paper to writing space	0.1	R	0.41	0.51	
Step 4	Release paper	0.1	RL	0.07	0.17	
Step 5	Return with goal accomplished	0.1			0.1	
		Total time	2.19			

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	l for Goal: Obtain pen	0.1			0.1	
Step 1	Reach for pen	0.1	R	0.41	0.51	
Step 2	Grasp pen	0.1	G	0.7	0.8	
Step 3	Transport pen to paper	0.1	R	0.41	0.51	
Step 4	Position the pen over paper	0.1	PN	0.06	0.16	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	2.18	

Method	d for Goal: Read the clearance	0.1			0.1	
Step 1	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""></clearance></clearance>	0.2	Sp(n) or Read(n)	0.4 or 0.24	variable	Reading aloud, use time to speak, 150 wpm (0.4 sec/word) Reading silently, use time to read, 250 wpm (0.24 sec/word)
Step 2	Decide: IF there are no more pages of clearances, THEN Return with goal accomplished	0.1			0.1	
Step 3	Remember <menu key=""> = "Next" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 4	GOTO Step 1	0.1			0.1	
				Total time		

Selection	on Rule for Goal: Method of reading	0.1			0.1	
Step 1	IF clearance is in writing, THEN Accomplish	0.1	1		0.1	
	Goal: Read clearance from paper	0.1			0.1	
	IF clearance is not in writing and is on					
Step 2	screen, THEN Accomplish Goal: Read the	0.1			0.1	
	clearance					
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Decide on a clearance	0.1			0.1	
Step 1	IF clearance includes only RTA, THEN Accomplish Goal: Compare ETA to RTA	0.1			0.1	
Step 2	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable	0.1			0.1	
Step 3	IF clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable	0.1			0.1	
Step 4	Return with goal accomplished	0.1			0.1	
		,		Total time	0.3	

Method	for Goal: Compare ETA to RTA	0.1			0.1	
Step 1	Compare clearance RTA to displayed ETA	0.1	М	1.2	1.3	
Step 2	Decide: IF speed can be managed to maintain a predicted ETA that conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.2	M(n)	1.2	variable	A standard time is not available for this parameter, so a mental (1.2 sec) has been assigned. For more complex decisions, additional mentals can be added.
Step 3	Return with goal accomplished	0.1			0.1	
				Total time		

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method for Goal: Determine whether non-RTA clearance is acceptable		0.1			0.1	
Step 1	Determine whether non-RTA clearance is acceptable	0.1	M(n)	1.2	variable	A standard time is not available for this parameter, so a mental (1.2 sec) has been assigned. For more complex decisions, additional mentals can be added.
Step 2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.2			0.2	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time		

	Method for Goal: Determine whether mixed clearance is acceptable			0.1	
Step 1	Accomplish Goal: Determine whether non-RTA clearance is acceptable	0.1		0.1	
Step 2	Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>	0.1		0.1	
Step 3	Accomplish Goal: Compare ETA to RTA	0.1		0.1	
Step 4	Return with goal accomplished	0.1		0.1	
			Total time	0.5	

Method	d for Goal: Read clearance from paper	0.1			0.1	
Step 1	Decide: IF paper not visible, THEN move paper	0.1	R	0.41	0.51	
Step 2	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on paper aloud and retain <clearance information="">, ELSE Read information on paper and retain <clearance information=""></clearance></clearance>	0.2	Sp(n) or Read(n)	0.4 or 0.24	variable	Reading aloud, use time to speak, 150 wpm (0.4 sec/word) Reading silently, use time to read, 250 wpm (0.24 sec/word)
Step 3	Return with goal accomplished	0.1			0.1	
				Total time		

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Respond to a clearance	0.1			0.1	
Step 1	IF responding by voice, THEN Accomplish Goal: Respond by voice	0.1			0.1	
Step 2	IF responding by FMS, THEN Accomplish Goal: Respond by FMS	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

Method	for Goal: Respond by voice	0.1			0.1	
Step 1	Move hand to yoke and "Push to talk"	0.1	Н	0.4	0.5	
	button	0.1		<b>.</b> .		
Step 2	Press "Push to talk" button	0.1	В	0.1	0.2	
Cton 2	Recall <response> and Decide: IF</response>		Sp(n)	0.4	variable	
	<response> = "Wilco," THEN Selection</response>	0.2				Speaking, 150 wpm
Step 3	Rule: Method of clearance readback, ELSE					(0.4 sec/word)
	state call sign followed by <response></response>					
Step 4	Release "Push to talk" button	0.1	В	0.1	0.2	
Step 5	Return hand to FMS	0.1	Н	0.4	0.5	
Step 6	Return with goal accomplished	0.1			0.1	
		•		Total time		

Selection readba	on Rule for Goal: Method of clearance ck	0.1		0.1	
Step 1	IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>	0.1		0.1	
Step 2	IF <clearance information=""> is not remembered, THEN Accomplish Goal: Readback clearance by reading</clearance>	0.1		0.1	
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.3	

Method memor	d for Goal: Readback clearance from y	0.1			0.1	
Step 1	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>	0.1	Sp(n)	0.4	variable	Speaking, 150 wpm (0.4 sec/word)
Step 2	Return with goal accomplished	0.1			0.1	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Readback clearance by reading	0.1			0.1	
Step 1	Selection Rule: Method of reading	0.1			0.1	
Step 2	State call sign	0.1	Sp(n)	0.4	variable	Speaking, 150 wpm (0.4 sec/word)
Step 3	Return with goal accomplished	0.1			0.1	
		•		Total time		

Method	d for Goal: Respond by FMS	0.1			0.1	
Step 1	Decide: IF hand not on FMS, THEN move hand to FMS	0.1	Н	0.4	0.5	
Step 2	Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance	0.1			0.1	
Step 3	Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>	0.1			0.1	
Step 4	Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>	0.1			0.1	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	1	

Method	d for Goal: Enter a clearance	0.1			0.1	
	Decide: IF clearance is remembered, THEN					
Step 1	Recall <clearance information="">, ELSE</clearance>	0.2			0.2	
	Selection Rule: Method of reading					
Step 2	Decide: IF hand not on FMS, THEN move	0.1	Н	0.4	0.5	
Step 2	hand to FMS	0.1	П	0.4	0.5	
Step 3	Selection Rule: Specific clearance type	0.1			0.1	
Step 4	Return with goal accomplished	0.1			0.1	
			•	Total time	1	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Specific clearance type	0.1			0.1	
Step 1	IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed direct to	0.1			0.1	
Step 2	IF clearance is crossing restriction, THEN Accomplish Goal: Enter crossing restriction	0.1			0.1	
Step 3	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter crossing restriction	0.1			0.1	
Step 4	IF clearance is only RTA, THEN Accomplish Goal: Locate waypoint	0.1			0.1	
Step 5	Return with goal accomplished	0.1			0.1	
		•		Total time	0.3	

Method	for Goal: Enter proceed direct to	0.1			0.1	
Step 1	Accomplish Goal: Locate waypoint	0.1			0.1	
Step 2	Point finger to left line select key next to waypoint	0.1	R	0.41	0.51	
Step 3	Press and release left line select key next to waypoint	0.1	К	0.28	0.38	
Step 4	Decide: IF not on first page of flight plan, THEN Remember <menu key=""> = "FPL" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 5	Point finger to second left line select key	0.1	R	0.41	0.51	
Step 6	Press and release second left line select key	0.1	К	0.28	0.38	
Step 7	Return with goal accomplished	0.1			0.1	
			•	Total time	2.18	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Enter crossing restriction	0.1			0.1	
Step 1	Accomplish Goal: Locate waypoint	0.1			0.1	
	Decide: IF speed restriction, THEN Retain					
Step 2	<clearance value=""> = digits in clearance and</clearance>	0.1			0.1	
	Accomplish Goal: Enter into scratchpad					
Step 3	Remember <menu key=""> = "/" and</menu>	0.1			0.1	
Steh 3	Accomplish Goal: Menu key				0.1	
	Decide: IF altitude restriction,					
Stop 1	THEN Retain <clearance value=""> = digits in</clearance>	0.1			0.1	
Step 4	clearance and Accomplish Goal: Enter into				0.1	
	scratchpad					
Cton F	Point finger to right line select key next to	0.1	R	0.41	0.51	
Step 5	waypoint	0.1	, n	0.41	0.51	
Stop 6	Press and release right line select key next	0.1	К	0.28	0.20	
Step 6	to waypoint	0.1	K	0.28	0.38	
Step 7	Return with goal accomplished	0.1			0.1	
		•	•	Total time	1.49	

Method	for Goal: Enter into scratchpad	0.1		0.1	
Step 1	Remember <menu key=""> = first digit/character in restrictions and Accomplish Goal: Menu key</menu>	0.1		0.1	
Step 2	Remember <menu key=""> = next digit/character in restriction and Accomplish Goal: Menu key</menu>	0.1		0.1	
Step 3	Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2	0.1		0.1	
Step 4	If <clearance value=""> is an altitude or speed with an above or below, THEN Selection Rule: At and above or below</clearance>	0.1		0.1	
Step 5	Return with goal accomplished	0.1		0.1	
			Total time	0.6	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection Rule for Goal: At and above or below		0.1			0.1	
	IF restriction is at or above,					
Step 1	THEN Remember <menu key=""> = "A" and</menu>	0.1			0.1	
	Accomplish Goal: Menu key					
	IF restriction is below,					
Step 2	THEN Remember <menu key=""> = "B" and</menu>	0.1			0.1	
	Accomplish Goal: Menu key					
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

Method	l for Goal: Menu key	0.1			0.1	
Step 1	Recall <menu key=""> and point finger to</menu>	0.1	R	0.41	0.51	
	appropriate menu key	0.1		0.41	0.51	
Step 2	Press and release appropriate menu key	0.1	K	0.28	0.38	
Step 3	Return with goal accomplished	0.1			0.1	
		Total time	1.09			

Method	for Goal: Line select key	0.1			0.1	
Step 1	Recall <keyword> and point finger to line select key next to keyword</keyword>	0.1	R	0.41	0.51	
Step 2	Press and release appropriate line select key	0.1	К	0.28	0.38	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	1.09	

Method	for Goal: Locate waypoint	0.1			0.1	
Step 1	Remember <menu key=""> = "FPL" and</menu>	0.1			0.1	
- 4000	Accomplish Goal: Menu key					
Step 2	Search for waypoint	0.1	Read(n)	0.24	variable	Reading, 250 wpm
- 4	7,500.00					(0.24 sec/word)
Step 3	Decide: IF waypoint is found,					
step 5	THEN Return with goal accomplished	0.1			0.1	
Step 4	Remember <menu key=""> = "Next" and</menu>					
Step 4	Accomplish Goal: Menu key	0.1			0.1	
Step 5	GOTO Step 2	0.1			0.1	
				Total time		

#### FMS 2

#### **Assumptions:**

ATC has sent one or more clearances

Only one crew member reads each written clearance

For initial reading of clearance and for readback, clearances must be read aloud. Other readings may be aloud or silent

Crew will initially reply "Standby" to ATC before deciding whether to accept an RTA clearance

Waypoint in clearance is in flight plan

Avionics are capable of handling complex RTA clearances (RTA plus altitude and/or speed restrictions)

Must enter non-RTA portion of mixed clearance into FMS before deciding on RTA portion

Do not need to be on a specific page to determine whether a non-RTA clearance is acceptable

Clearances changing current flight parameters (altitude, speed, heading) are not entered into the FMS

Crew can choose to accept a clearance or report unable

"Unable" = "Reject"

System response time is negligible

Model only includes receiving, responding to, and entering clearances. It does not include any other aircraft manipulation

Model included RTA clearances, proceed direct to clearance, and crossing restrictions; Other clearances can be added to the model

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Metho	d for Goal: Handle a clearance	0.1			0.1	
Step 1	Selection Rule: Receive a clearance	0.1			0.1	
	Decide: IF clearance includes RTA,					
Step 2	THEN Retain <response> = "Standby" and</response>	0.1			0.1	
	Selection Rule: Respond to a clearance					
Step 3	Accomplish Goal: Enter a clearance	0.1			0.1	
Step 4	Selection Rule: Decide on a clearance	0.1			0.1	
Step 5	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu></response>	0.1			0.1	
Step 6	Selection Rule: Respond to a clearance	0.1			0.1	
Step 7	Decide: IF there are more clearances, THEN GOTO Step 1	0.1			0.1	
Step 8	Return with goal accomplished	0.1			0.1	
		•	•	Total time	0.9	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Receive a clearance	0.1			0.1	
Step 1	IF clearance is text, THEN Accomplish	0.1		0.1	0.1	
	Goal: Receive an FMS clearance				0.1	
Step 2	IF clearance is audio, THEN Accomplish	0.1			0.1	
Step 2	Goal: Receive a radio clearance				0.1	
Step 3	Return with goal accomplished	0.1			0.1	
		•	•	Total time	0.3	

Method	for Goal: Receive a radio clearance	0.1			0.1	
Step 1	Listen to clearance and retain <clearance information=""></clearance>	0.1	Listen(n)	0.4	variable	Estimated using time to speak, 150 wpm (0.4 sec/word)
Step 2	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
		Total time				

Method	d for Goal: Receive an FMS clearance	0.1			0.1	
Step 1	Decide: IF hand not on FMS, THEN move	0.1	Н	0.4	0.5	
	hand to FMS	0.1	11	0.1	0.5	
Step 2	Accomplish Goal: Open clearance	0.1			0.1	
Step 3	Accomplish Goal: Read the clearance	0.1			0.1	
Step 4	Decide: IF printed clearance is desired,	0.1			0.1	
Step 4	THEN Selection Rule: Get printed copy	0.1		0.1	0.1	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	1	

Method	d for Goal: Open clearance	0.1			0.1	
Step 1	Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 2	Remember <keyword> = clearance to open and Accomplish Goal: Line select key</keyword>	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
					0.4	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Get printed copy	0.1			0.1	
Step 1	IF printer is available, THEN Accomplish Goal: Print the clearance	0.1			0.1	
Step 2	IF pen and paper are available, THEN Accomplish Goal: Write down clearance	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

Method	d for Goal: Print the clearance	0.1			0.1	
Step 1	Remember <keyword> = "Print" and</keyword>	0.1			0.1	
	Accomplish Goal: Line select key	0.1			0.1	
Step 2	Reach for print out	0.1	R	0.41	0.51	
Step 3	Grasp print out	0.1	G	0.7	0.8	
Step 4	Transport paper to reading position	0.1	R	0.41	0.51	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	2.12	

Method	for Goal: Write down clearance	0.1			0.1	
Step 1	Decide: IF paper is not readily available,	0.1			0.1	
- 4	THEN Accomplish Goal: Obtain paper					
Step 2	Decide: IF pen is not in hand,	0.1			0.1	
Step 2	THEN Accomplish Goal: Obtain pen	0.1			0.1	
Step 3	Recall <clearance information=""> and write</clearance>	0.1	W(n)	2.7	variable	Writing, 22 wpm
Step 3	<clearance information=""></clearance>		VV(11)	2.7		(2.7 sec/word)
Step 4	Return pen to original location	0.1	R	0.41	0.51	
Step 5	Release pen	0.1	RL	0.07	0.17	
Step 6	Move hand back to starting location	0.1	Н	0.4	0.5	
Step 7	Return with goal accomplished	0.1			0.1	
				Total time		

Method	for Goal: Obtain paper	0.1			0.1	
Step 1	Reach for paper	0.1	R	0.41	0.51	
Step 2	Grasp paper	0.1	G	0.7	0.8	
Step 3	Transport paper to writing space	0.1	R	0.41	0.51	
Step 4	Release paper	0.1	RL	0.07	0.17	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	2.19	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method for Goal: Obtain pen		0.1			0.1	
Step 1	Reach for pen	0.1	R	0.41	0.51	
Step 2	Grasp pen	0.1	G	0.7	0.8	
Step 3	Transport pen to paper	0.1	R	0.41	0.51	
Step 4	Position the pen over paper	0.1	PN	0.06	0.16	
Step 5	Return with goal accomplished	0.1			0.1	
			•	Total time	2.18	

Method	d for Goal: Read the clearance	0.1			0.1	
Step 1	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""></clearance></clearance>	0.2	Sp(n) or Read(n)	0.4 or 0.24	variable	Reading aloud, use time to speak, 150 wpm (0.4 sec/word) Reading silently, use time to read, 250 wpm (0.24 sec/word)
Step 2	Decide: IF there are no more pages of clearances, THEN Return with goal accomplished	0.1			0.1	
Step 3	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 4	GOTO Step 1	0.1			0.1	
		Total time				

Selection	on Rule for Goal: Method of reading	0.1		0.1	
Step 1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from paper	0.1		0.1	
Step 2	IF clearance is not in writing and is on screen, THEN Accomplish Goal: Read the clearance	0.1		0.1	
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.3	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	Selection Rule for Goal: Decide on a clearance				0.1	
	IF clearance includes only RTA,					
Step 1	THEN Accomplish Goal: Determine	0.1			0.1	
	whether RTA clearance is acceptable					
	IF clearance includes only non-RTA,	0.1				
Step 2	THEN Accomplish Goal: Determine				0.1	
	whether non-RTA clearance is acceptable					
	IF clearance includes both RTA and other					
Step 3	information, THEN Accomplish Goal:	0.1			0.1	
Step 3	Determine whether mixed clearance is	0.1			0.1	
	acceptable					
Step 4	Return with goal accomplished	0.1			0.1	
		•		Total time	0.3	

Method for Goal: Determine whether RTA clearance is acceptable		0.1			0.1	
Step 1	Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page	0.1			0.1	
Step 2	Wait for system response	0.1			0.1	System response time is not included in the model.
Step 3	Decide: IF system returns "Unable RTA",  THEN Retain <response> = "Unable," ELSE  Retain <response> = "Wilco"</response></response>	0.2	Μ	1.2	1.4	
Step 4	Return with goal accomplished	0.1			0.1	
				Total time	1.8	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method for Goal: Determine whether non-RTA clearance is acceptable		0.1			0.1	
Step 1	Determine whether non-RTA clearance is acceptable	0.1	M(n)	1.2	variable	A standard time is not available for this parameter, so a mental (1.2 sec) has been assigned. For more complex decisions, additional mentals can be added.
Step 2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.2			0.2	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time		

Method for Goal: Determine whether mixed clearance is acceptable		0.1		0.1	
Step 1	Accomplish Goal: Determine whether non-RTA clearance is acceptable	0.1		0.1	
Step 2	Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>	0.1		0.1	
Step 3	Accomplish Goal: Determine whether RTA clearance is acceptable	0.1		0.1	
Step 4	Return with goal accomplished	0.1		0.1	
			Total time	0.5	

Method	d for Goal: Read clearance from paper	0.1			0.1	
Step 1	Decide: IF paper not visible, THEN move paper	0.1	R	0.41	0.51	
Step 2	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on paper aloud and retain <clearance information="">, ELSE Read information on paper and retain <clearance information=""></clearance></clearance>	0.2	Sp(n) or Read(n)	0.4 or 0.24	variable	Reading aloud, use time to speak, 150 wpm (0.4 sec/word) Reading silently, use time to read, 250 wpm (0.24 sec/word)
Step 3	Return with goal accomplished	0.1			0.1	
				Total time		

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Respond to a clearance	0.1			0.1	
Step 1	IF responding by voice, THEN Accomplish Goal: Respond by voice	0.1			0.1	
Step 2	IF responding by FMS, THEN Accomplish Goal: Respond by FMS	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

Method	d for Goal: Respond by voice	0.1			0.1	
Step 1	Move hand to yoke and "Push to talk" button	0.1	Н	0.4	0.5	
Step 2	Press "Push to talk" button	0.1	В	0.1	0.2	
Step 3	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection Rule: Method of clearance readback, ELSE state call sign followed by <response></response></response></response>	0.2	Sp(n)	0.4	variable	Speaking, 150 wpm (0.4 sec/word)
Step 4	Release "Push to talk" button	0.1	В	0.1	0.2	
Step 5	Return hand to FMS	0.1	Н	0.4	0.5	
Step 6	Return with goal accomplished	0.1			0.1	
				Total time		

Selection Rule for Goal: Method of clearance readback		0.1		0.1	
Step 1	IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>	0.1		0.1	
Step 2	IF <clearance information=""> is not remembered, THEN Accomplish Goal: Readback clearance by reading</clearance>	0.1		0.1	
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.3	

Method memor	d for Goal: Readback clearance from Y	0.1			0.1	
Step 1	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>	0.1	Sp(n)	0.4	variable	Speaking, 150 wpm (0.4 sec/word)
Step 2	Return with goal accomplished	0.1			0.1	

Total time

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Readback clearance by reading	0.1			0.1	
Step 1	Selection Rule: Method of reading	0.1			0.1	
Step 2	State call sign	0.1	Sp(n)	0.4	variable	Speaking, 150 wpm (0.4 sec/word)
Step 3	Return with goal accomplished	0.1			0.1	
		•		Total time		

Method	d for Goal: Respond by FMS	0.1			0.1	
Step 1	Decide: IF hand not on FMS, THEN move hand to FMS	0.1	Н	0.4	0.5	
Step 2	Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance	0.1			0.1	
Step 3	Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>	0.1			0.1	
Step 4	Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>	0.1			0.1	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	1	

Method	d for Goal: Enter a clearance	0.1			0.1	
	Decide: IF clearance is remembered, THEN					
Step 1	Recall <clearance information="">, ELSE</clearance>	0.2			0.2	
	Selection Rule: Method of reading					
Step 2	Decide: IF hand not on FMS, THEN move	0.1	Н	0.4	0.5	
Step 2	hand to FMS	0.1				
Step 3	Selection Rule: Specific clearance type	0.1			0.1	
Step 4	Return with goal accomplished	0.1			0.1	
				Total time	1	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Specific clearance type	0.1			0.1	
Step 1	IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed direct to	0.1			0.1	
Step 2	IF clearance is only crossing restriction, THEN Accomplish Goal: Enter crossing restriction	0.1			0.1	
Step 3	IF clearance is only RTA, THEN Accomplish Goal: Enter RTA	0.1			0.1	
Step 4	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter mixed clearance	0.1			0.1	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

Method	for Goal: Enter proceed direct to	0.1			0.1	
Step 1	Accomplish Goal: Locate waypoint	0.1			0.1	
Step 2	Point finger to left line select key next to waypoint	0.1	R	0.41	0.51	
Step 3	Press and release left line select key next to waypoint	0.1	К	0.28	0.38	
Step 4	Decide: IF not on first page of flight plan, THEN Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 5	Point finger to first left line select key	0.1	R	0.41	0.51	
Step 6	Press and release first left line select key	0.1	K	0.28	0.38	
Step 7	Return with goal accomplished	0.1			0.1	
				Total time	2.18	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Enter crossing restriction	0.1			0.1	
Step 1	Accomplish Goal: Locate waypoint	0.1			0.1	
Step 2	Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad</clearance>	0.1			0.1	
Step 3	Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 4	Decide: IF altitude restriction,  THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad</clearance>	0.1			0.1	
Step 5	Point finger to right line select key next to waypoint	0.1	R	0.41	0.51	
Step 6	Press and release right line select key next to waypoint	0.1	К	0.28	0.38	
Step 7	Return with goal accomplished	0.1			0.1	
				Total time	1.49	

Method	d for Goal: Enter into scratchpad	0.1		0.1	
	Remember <menu key=""> = first</menu>				
Step 1	digit/character in <clearance value=""> and</clearance>	0.1		0.1	
	Accomplish Goal: Menu key				
	Remember <menu key=""> = next</menu>				
Step 2	digit/character in <clearance value=""> and</clearance>	0.1		0.1	
	Accomplish Goal: Menu key				
Step 3	Decide: IF more digits/characters in	0.1		0.1	
Step 3	restriction to enter, THEN GOTO Step 2	0.1		0.1	
	Decide: IF <clearance value=""> is an altitude</clearance>				
Step 4	or speed with an above or below, THEN	0.1		0.1	
	Selection Rule: At and above or below				
Step 5	Return with goal accomplished	0.1		0.1	
		•	Total time	0.6	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection Rule for Goal: At and above or below		0.1			0.1	
Step 1	IF restriction is at or above, THEN Remember <menu key=""> = "A" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 2	IF restriction is below, THEN Remember <menu key=""> = "B" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

Method	for Goal: Enter RTA	0.1			0.1	
Step 1	Decide: IF waypoint not located, THEN Accomplish Goal: Locate waypoint	0.1			0.1	
Step 2	Point finger to left line select key next to waypoint	0.1	R	0.41	0.51	
Step 3	Press and release left line select key next to waypoint	0.1	К	0.28	0.38	
Step 4	Accomplish Goal: Go to RTA page	0.1			0.1	
Step 5	Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key</keyword>	0.1			0.1	
Step 6	Retain <clearance value=""> = digits/characters in clearance and Accomplish Goal: Enter into scratchpad</clearance>	0.1			0.1	
Step 7	Point finger to right line select key next to waypoint	0.1	R	0.41	0.51	
Step 8	Press and release right line select key next to waypoint	0.1	К	0.28	0.38	
Step 9	Return with goal accomplished	0.1			0.1	
				Total time	2.38	

Method for Goal: Enter mixed clearance		0.1			0.1	
Step 1	Accomplish Goal: Enter crossing restriction	0.1			0.1	
Step 2	Accomplish Goal: Enter RTA	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	d for Goal: Menu key	0.1			0.1	
Step 1	Recall <menu key=""> and point finger to appropriate menu key</menu>	0.1	R	0.41	0.51	
Step 2	Press and release appropriate menu key	0.1	K	0.28	0.38	
Step 3	Return with goal accomplished	0.1			0.1	
		•		Total time	1.09	

Method	for Goal: Line select key	0.1			0.1	
Step 1	Recall <keyword> and point finger to line select key next to keyword</keyword>	0.1	R	0.41	0.51	
Step 2	Press and release appropriate line select key	0.1	К	0.28	0.38	
Step 3	Return with goal accomplished	0.1			0.1	
		Total time	1.09			

Method	d for Goal: Locate waypoint	0.1			0.1	
Step 1	Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 2	Search for waypoint	0.1	Read(n)	0.24	variable	Reading, 250 wpm (0.24 sec/word)
Step 3	Decide: IF waypoint is found, THEN Return with goal accomplished	0.1			0.1	
Step 4	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 5	GOTO Step 2	0.1			0.1	
				Total time		

Method	for Goal: Go to RTA page	0.1		0.1	
Step 1	Remember <menu key=""> = "Prog" and Accomplish Goal: Menu key</menu>	0.1		0.1	
Step 2	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key</menu>	0.1		0.1	
Step 3	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key</menu>	0.1		0.1	
Step 4	Return with goal accomplished	0.1		0.1	
			Total time	0.5	

## FMS3

#### **Assumptions:**

ATC has sent one or more clearances

Only one crew member reads each written clearance

For initial reading of clearance and for readback, clearances must be read aloud. Other readings may be aloud or silent

Crew will initially reply "Standby" to ATC before deciding whether to accept an RTA clearance

Waypoint in clearance is in flight plan

Avionics are capable of handling complex RTA clearances (RTA plus altitude and/or speed restrictions)

Must enter non-RTA portion of mixed clearance into FMS before deciding on RTA portion

Do not need to be on a specific page to determine whether a non-RTA clearance is acceptable

Clearances changing current flight parameters (altitude, speed, heading) are not entered into the FMS

Crew can choose to accept a clearance or report unable

"Unable" = "Reject"

System response time is negligible

Model only includes receiving, responding to, and entering clearances. It does not include any other aircraft manipulation

Model included RTA clearances, proceed direct to clearance, and crossing restrictions; Other clearances can be added to the model

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Metho	d for Goal: Handle a clearance	0.1			0.1	
Step 1	Selection Rule: Receive a clearance	0.1			0.1	
	Decide: IF clearance includes RTA,					
Step 2	THEN Retain <response> = "Standby" and</response>	0.1			0.1	
	Selection Rule: Respond to a clearance					
Step 3	Accomplish Goal: Enter a clearance	0.1			0.1	
Step 4	Selection Rule: Decide on a clearance	0.1			0.1	
Step 5	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu></response>	0.1			0.1	
Step 6	Selection Rule: Respond to a clearance	0.1			0.1	
Step 7	Decide: IF there are more clearances, THEN GOTO Step 1	0.1			0.1	
Step 8	Return with goal accomplished	0.1			0.1	
				Total time	0.9	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Receive a clearance	0.1			0.1	
Step 1	IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance	0.1			0.1	
Step 2	IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
		•	•	Total time	0.3	

Method	d for Goal: Receive a radio clearance	0.1			0.1	
Step 1	Listen to clearance and retain <clearance information=""></clearance>	0.1	Listen (n)	0.4	variable	Estimated using time to speak, 150 wpm (0.4 sec/word)
Step 2	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
			•	Total time		

Method	for Goal: Receive an FMS clearance	0.1			0.1	
Step 1	Decide: IF hand not on FMS,	0.1	Н	0.4	0.5	
Step 1	THEN move hand to FMS	0.1	11	0.1	0.5	
Step 2	Accomplish Goal: Open clearance	0.1			0.1	
Step 3	Accomplish Goal: Read the clearance	0.1			0.1	
Step 4	Decide: IF printed clearance is desired,	0.1			0.1	
эсер 4	THEN Selection Rule: Get printed copy	0.1			0.1	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	1	

Method	Method for Goal: Open clearance			0.1	
Step 1	Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>	0.1		0.1	
Step 2	Remember < keyword> = clearance to open and Accomplish Goal: Line select key	0.1		0.1	
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.4	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Get printed copy	0.1			0.1	
Step 1	IF printer is available, THEN Accomplish Goal: Print the clearance	0.1			0.1	
Step 2	IF pen and paper are available, THEN Accomplish Goal: Write down clearance	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

Method	Method for Goal: Print the clearance				0.1	
Step 1	Remember <keyword> = "Print" and</keyword>	0.1			0.1	
	Accomplish Goal: Line select key	0.1			0.1	
Step 2	Reach for print out	0.1	R	0.41	0.51	
Step 3	Grasp print out	0.1	G	0.7	0.8	
Step 4	Transport paper to reading position	0.1	R	0.41	0.51	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	2.12	

Method	for Goal: Write down clearance	0.1			0.1	
Step 1	Decide: IF paper is not readily available,	0.1			0.1	
Step 1	THEN Accomplish Goal: Obtain paper	0.1			0.1	
Step 2	Decide: IF pen is not in hand,	0.1			0.1	
Step 2	THEN Accomplish Goal: Obtain pen	0.1			0.1	
Step 3	Recall <clearance information=""> and write</clearance>	0.1	W(n)	2.7	variable	Writing, 22 wpm
Step 3	<clearance information=""></clearance>	0.1	VV(11)			(2.7 sec/word)
Step 4	Return pen to original location	0.1	R	0.41	0.51	
Step 5	Release pen	0.1	RL	0.07	0.17	
Step 6	Move hand back to starting location	0.1	Н	0.4	0.5	
Step 7	Return with goal accomplished	0.1			0.1	
				Total time		

Method for Goal: Obtain paper		0.1			0.1	
Step 1	Reach for paper	0.1	R	0.41	0.51	
Step 2	Grasp paper	0.1	G	0.7	0.8	
Step 3	Transport paper to writing space	0.1	R	0.41	0.51	
Step 4	Release paper	0.1	RL	0.07	0.17	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	2.19	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Obtain pen	0.1			0.1	
Step 1	Reach for pen	0.1	R	0.41	0.51	
Step 2	Grasp pen	0.1	G	0.7	0.8	
Step 3	Transport pen to paper	0.1	R	0.41	0.51	
Step 4	Position the pen over paper	0.1	PN	0.06	0.16	
Step 5	Return with goal accomplished	0.1			0.1	
		•	•	Total time	2.18	

Method	for Goal: Read the clearance	0.1			0.1	
Step 1	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""></clearance></clearance>	0.2	Sp(n) or Read(n)	0.4 or 0.24	variable	Reading aloud, use time to speak, 150 wpm (0.4 sec/word) Reading silently, use time to read, 250 wpm (0.24 sec/word)
Step 2	Decide: IF there are no more pages of clearances, THEN Return with goal accomplished	0.1			0.1	
Step 3	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 4	GOTO Step 1	0.1			0.1	
		•		Total time		

Selection	on Rule for Goal: Method of reading	0.1		0.1	
Step 1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from paper	0.1		0.1	
Step 2	IF clearance is not in writing and is on screen, THEN Accomplish Goal: Read the clearance	0.1		0.1	
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.3	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Selection	on Rule for Goal: Decide on a clearance	0.1			0.1	
Step 1	IF clearance includes only RTA,					
	THEN Accomplish Goal: Determine	0.1			0.1	
	whether RTA clearance is acceptable					
	IF clearance includes only non-RTA,	0.1				
Step 2	THEN Accomplish Goal: Determine				0.1	
	whether non-RTA clearance is acceptable					
	IF clearance includes both RTA and other					
Ctop 2	information, THEN Accomplish Goal:	0.1			0.1	
Step 3	Determine whether mixed clearance is	0.1			0.1	
	acceptable					
Step 4	Return with goal accomplished	0.1			0.1	
				Total time	0.3	

	d for Goal: Determine whether RTA ce is acceptable	0.1			0.1	
Step 1	Decide: IF not on RTA page, THEN	0.1			0.1	
Step 1	Accomplish Goal: Go to RTA page	0.1			0.1	
	Decide: IF RTA is between minimum and	0.2	М	1.2	1.4	
Stop 2	maximum RTAs,					
Step 2	THEN Retain <response> = "Wilco"</response>					
	ELSE Retain <response> = "Unable"</response>					
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	1.7	

	d for Goal: Determine whether non-RTA ce is acceptable	0.1			0.1	
Step 1	Determine whether non-RTA clearance is acceptable	0.1	M(n)	1.2	variable	A standard time is not available for this parameter, so a mental (1.2 sec) has been assigned. For more complex decisions, additional mentals can be added.
Step 2	Decide: IF clearance is acceptable,  THEN Retain <response> = "Wilco,"</response>	0.2			0.2	
Step 3	ELSE Retain <response> = "Unable"  Return with goal accomplished</response>	0.1			0.1	

Total time

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
	d for Goal: Determine whether mixed ce is acceptable	0.1			0.1	
Step 1	Accomplish Goal: Determine whether non-RTA clearance is acceptable	0.1			0.1	
Step 2	Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>	0.1			0.1	
Step 3	Accomplish Goal: Determine whether RTA clearance is acceptable	0.1			0.1	
Step 4	Return with goal accomplished	0.1			0.1	
				Total time	0.5	

Method	d for Goal: Read clearance from paper	0.1			0.1	
Step 1	Decide: IF paper not visible, THEN move paper	0.1	R	0.41	0.51	
Step 2	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on paper aloud and retain <clearance information="">, ELSE Read information on paper and retain <clearance information=""></clearance></clearance>	0.2	Sp(n) or Read(n)	0.4 or 0.24	variable	Reading aloud, use time to speak, 150 wpm (0.4 sec/word) Reading silently, use time to read, 250 wpm (0.24 sec/word)
Step 3	Return with goal accomplished	0.1			0.1	
				Total time		

Selection	on Rule for Goal: Respond to a clearance	0.1		0.1	
Step 1	IF responding by voice, THEN Accomplish Goal: Respond by voice	0.1		0.1	
Step 2	IF responding by FMS, THEN Accomplish Goal: Respond by FMS	0.1		0.1	
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.3	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Respond by voice	0.1			0.1	
Step 1	Move hand to yoke and "Push to talk" button	0.1	Н	0.4	0.5	
Step 2	Press "Push to talk" button	0.1	В	0.1	0.2	
Step 3	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection Rule: Method of clearance readback, ELSE state call sign followed by <response></response></response></response>	0.2	Sp(n)	0.4	variable	Speaking, 150 wpm (0.4 sec/word)
Step 4	Release "Push to talk" button	0.1	В	0.1	0.2	
Step 5	Return hand to FMS	0.1	Н	0.4	0.5	
Step 6	Return with goal accomplished	0.1		Total time	0.1	

Selection readback	on Rule for Goal: Method of clearance ck	0.1		0.1	
Step 1	IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>	0.1		0.1	
Step 2	IF <clearance information=""> is not remembered, THEN Accomplish Goal: Readback clearance by reading</clearance>	0.1		0.1	
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.3	

Method memor	d for Goal: Readback clearance from Y	0.1			0.1	
Step 1	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>	0.1	Sp(n)	0.4	variable	Speaking, 150 wpm (0.4 sec/word)
Step 2	Return with goal accomplished	0.1			0.1	
				Total time		

Method	for Goal: Readback clearance by reading	0.1			0.1	
Step 1	Selection Rule: Method of reading	0.1			0.1	
Step 2	State call sign	0.1	Sp(n)	0.4	variable	Speaking, 150 wpm (0.4 sec/word)
Step 3	Return with goal accomplished	0.1			0.1	
				Total time		

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Respond by FMS	0.1			0.1	
Step 1	Decide: IF hand not on FMS, THEN move hand to FMS	0.1	Н	0.4	0.5	
Step 2	Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance	0.1			0.1	
Step 3	Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>	0.1			0.1	
Step 4	Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>	0.1			0.1	
Step 5	Return with goal accomplished	0.1			0.1	
				Total time	1	

Method	d for Goal: Enter a clearance	0.1			0.1	
	Decide: IF clearance is remembered, THEN					
Step 1	Recall <clearance information="">, ELSE</clearance>	0.2			0.2	
	Selection Rule: Method of reading					
Step 2	Decide: IF hand not on FMS,	0.1	Н	0.4	0.5	
Step 2	THEN move hand to FMS	0.1	П	0.4	0.5	
Step 3	Selection Rule: Specific clearance type	0.1			0.1	
Step 4	Return with goal accomplished	0.1			0.1	
				Total time	1	

Selection	on Rule for Goal: Specific clearance type	0.1		0.1	
Step 1	IF clearance is proceed direct to, THEN	0.1		0.1	
Step 1	Accomplish Goal: Enter proceed direct to	0.1		0.1	
	IF clearance is only crossing restriction,				
Step 2	THEN Accomplish Goal: Enter crossing	0.1		0.1	
	restriction				
Step 3	IF clearance is only RTA,	0.1		0.1	
Step 3	THEN Accomplish Goal: Enter RTA	0.1		0.1	
	IF clearance is crossing restriction with				
Step 4	RTA, THEN Accomplish Goal: Enter mixed	0.1		0.1	
	clearance				
Step 5	Return with goal accomplished	0.1		0.1	
			Total time	0.3	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Enter proceed direct to	0.1			0.1	
Step 1	Accomplish Goal: Locate waypoint	0.1			0.1	
Step 2	Point finger to left line select key next to waypoint	0.1	R	0.41	0.51	
Step 3	Press and release left line select key next to waypoint	0.1	К	0.28	0.38	
Step 4	Decide: IF not on first page of flight plan, THEN Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 5	Point finger to first left line select key	0.1	R	0.41	0.51	
Step 6	Press and release first left line select key	0.1	K	0.28	0.38	
Step 7	Return with goal accomplished	0.1			0.1	
				Total time	2.18	

Method	for Goal: Enter crossing restriction	0.1			0.1	
Step 1	Accomplish Goal: Locate waypoint	0.1			0.1	
Step 2	Decide: IF speed restriction,  THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad</clearance>	0.1			0.1	
Step 3	Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 4	Decide: IF altitude restriction,  THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad</clearance>	0.1			0.1	
Step 5	Point finger to right line select key next to waypoint	0.1	R	0.41	0.51	
Step 6	Press and release right line select key next to waypoint	0.1	К	0.28	0.38	
Step 7	Return with goal accomplished	0.1			0.1	
				Total time	1.49	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method	for Goal: Enter into scratchpad	0.1			0.1	
	Remember <menu key=""> = first</menu>					
Step 1	digit/character in <clearance value=""> and</clearance>	0.1			0.1	
	Accomplish Goal: Menu key					
	Remember <menu key=""> = next</menu>	0.1				
Step 2	digit/character in <clearance value=""> and</clearance>				0.1	
	Accomplish Goal: Menu key					
Step 3	Decide: IF more digits/characters in	0.1			0.1	
step 3	restriction to enter, THEN GOTO Step 2	0.1			0.1	
	Decide: IF <clearance value=""> is an altitude</clearance>					
Step 4	or speed with an above or below, THEN	0.1			0.1	
	Selection Rule: At and above or below					
Step 5	Return with goal accomplished	0.1			0.1	
			•	Total time	0.6	

Selection	on Rule for Goal: At and above or below	0.1		0.1	
	IF restriction is at or above,				
Step 1	THEN Remember <menu key=""> = "A" and</menu>	0.1		0.1	
	Accomplish Goal: Menu key				
	IF restriction is below,				
Step 2	THEN Remember <menu key=""> = "B" and</menu>	0.1		0.1	
	Accomplish Goal: Menu key				
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.3	

	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Metho	d for Goal: Enter RTA	0.1			0.1	
Step 1	Accomplish Goal: Go to RTA page	0.1			0.1	
	Retain <clearance value=""> = characters in</clearance>					
Step 2	waypoint and Accomplish Goal: Enter into	0.1			0.1	
	scratchpad					
Ctop 2	Remember <keyword> = "RTA Waypoint"</keyword>	0.1			0.1	
Step 3	and Accomplish Goal: Line select key				0.1	
	Retain <clearance value=""> = digits in</clearance>					
Step 4	clearance and Accomplish Goal: Enter into	0.1			0.1	
	scratchpad					
Step 5	Point finger to right line select key next to	0.1	R	0.41	0.51	
step 5	waypoint	0.1	I.	0.41	0.51	
Stop 6	Press and release right line select key next	0.1	К	0.28	0.38	
Step 6	to waypoint	0.1	I.	0.20	0.56	
Step 7	Return with goal accomplished	0.1			0.1	
	1	ı		Total time	1.49	

Method	for Goal: Enter mixed clearance	0.1		0.1	
Step 1	Accomplish Goal: Enter crossing	0.1		0.1	
	restriction				
Step 2	Accomplish Goal: Enter RTA	0.1		0.1	
Step 3	Return with goal accomplished	0.1		0.1	
			Total time	0.4	

Method	d for Goal: Menu key	0.1			0.1	
Step 1	Recall <menu key=""> and point finger to appropriate menu key</menu>	0.1	R	0.41	0.51	
Step 2	Press and release appropriate menu key	0.1	K	0.28	0.38	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	1.09	

Method	for Goal: Line select key	0.1			0.1	
Step 1	Recall <keyword> and point finger to line select key next to keyword</keyword>	0.1	R	0.41	0.51	
Step 2	Press and release appropriate line select key	0.1	К	0.28	0.38	
Step 3	Return with goal accomplished	0.1			0.1	

Total time	1.09	
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	Action	Statement time	Operator	Operator time	Total time	Assumptions/ Comments
Method for Goal: Locate waypoint		0.1			0.1	
Step 1	Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 2	Search for waypoint	0.1	Read(n)	0.24	variable	Reading, 250 wpm (0.24 sec/word)
Step 3	Decide: IF waypoint is found, THEN Return with goal accomplished	0.1			0.1	
Step 4	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key</menu>	0.1			0.1	
Step 5	GOTO Step 2	0.1			0.1	
		•		Total time		

Method	for Goal: Go to RTA page	0.1			0.1	
Step 1	Remember <menu key=""> = "VNAV" and</menu>	0.1			0.1	
Step 1	Accomplish Goal: Menu key	0.1			0.1	
Step 2	Remember <keyword> = "RTA" and</keyword>		0.1		0.1	
Step 2	Accomplish Goal: Line select key	0.1			0.1	
Step 3	Return with goal accomplished	0.1			0.1	
				Total time	0.4	

# Appendix B: Traces for NGOMSL Models for Receiving and Entering Clearances

## **FMS 1**

# Trace 1 - Task 1, Voice

Equipment: FMS 1

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 4 words ("Proceed direct to HELPR")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by voice

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action				
0.1	Method for Goal: Handle a clearance				
0.1	1 Selection Rule: Receive a clearance				
0.1	.1 Selection Rule for Goal: Receive a clearance				
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance				
0.1	1 Method for Goal: Receive a radio clearance				
2.9	1 Listen to clearance and retain <clearance information=""></clearance>				
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down				
0.1	clearance				
0.1	3 Return with goal accomplished				
0.1	3 Return with goal accomplished				

0.1	2	F	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>			
0.1		•	Respond to a clearance			
0.1	3		Accomplish Goal: Enter a clearance			
0.1			Method for Goal: Enter a clearance			
0.2			Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>			
0.2	Selection Rule: Method of reading					
0.5			2 T Decide: IF hand not on FMS, THEN move hand to FMS			
0.1			3 Selection Rule: Specific clearance type			
0.1			Selection Rule for Goal: Specific clearance type			
0.1			IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed			
0.1			direct to			
0.1			Method for Goal: Enter proceed direct to			
0.1			1 Accomplish Goal: Locate waypoint			
0.1			Method for Goal: Locate waypoint			
0.1			Remember <menu key=""> = "FPL" and Accomplish Goal:</menu>			
0.1			Menu key			
0.1			Method for Goal: Menu key			
0.51			Recall <menu key=""> and point finger to</menu>			
0.51			appropriate menu key			
0.38			2 Press and release appropriate menu key			
0.1			3 Return with goal accomplished			
0.82			2 Search for waypoint			
0.1			Decide: IF waypoint is found, THEN Return with goal			
0.1			accomplished			
0.51			2 Point finger to left line select key next to waypoint			
0.38			3 Press and release left line select key next to waypoint			
0.1			Decide: IF not on first page of flight plan, THEN Remember < menu			
0.1			key> = "FPL" and Accomplish Goal: Menu key			
0.51			5 Point finger to second left line select key			
0.38			6 Press and release second left line select key			
0.1			7 Return with goal accomplished			
0.1			5 Return with goal accomplished			
0.1			4 Return with goal accomplished			

0.1	A Soloction Buley Decide on a clearance
0.1	4 Selection Rule: Decide on a clearance Selection Rule for Goal: Decide on a clearance
0.1	
0.1	2 T IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	Determine whether non-RTA clearance is acceptable
1.3	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.2	2 T Retain <response>= "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2	3 T Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:</clearance>
0.1	Readback clearance from memory
0.1	Method for Goal: Readback clearance from memory
2.9	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
2.3	information> followed by call sign
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
18.68	Total time

## Trace 2 - Task 1, Voice

Equipment: FMS 1

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 4 words ("Proceed direct to HELPR")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

Response is sent by voice

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
2.9	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	2 F clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	2	F	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>			
			Respond to a clearance			
0.1	3		Accomplish Goal: Enter a clearance			
0.1			Method for Goal: Enter a clearance			
0.2			Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>			
0.2	Selection Rule: Method of reading					
0.5			2 T Decide: IF hand not on FMS, THEN move hand to FMS			
0.1			3 Selection Rule: Specific clearance type			
0.1			Selection Rule for Goal: Specific clearance type			
0.1			1 T IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed			
0.1			direct to			
0.1			Method for Goal: Enter proceed direct to			
0.1			1 Accomplish Goal: Locate waypoint			
0.1			Method for Goal: Locate waypoint			
0.1			Remember <menu key=""> = "FPL" and Accomplish Goal:</menu>			
0.1			Menu key			
0.1			Method for Goal: Menu key			
0.51			Recall <menu key=""> and point finger to</menu>			
0.51			appropriate menu key			
0.38			2 Press and release appropriate menu key			
0.1			3 Return with goal accomplished			
0.82			2 Search for waypoint			
0.1			Decide: IF waypoint is found, THEN Return with goal			
0.1			accomplished			
0.51			2 Point finger to left line select key next to waypoint			
0.38			3 Press and release left line select key next to waypoint			
0.1			Decide: IF not on first page of flight plan, THEN Remember < menu			
0.1			key> = "FPL" and Accomplish Goal: Menu key			
0.51			5 Point finger to second left line select key			
0.38			6 Press and release second left line select key			
0.1			7 Return with goal accomplished			
0.1			5 Return with goal accomplished			
0.1			4 Return with goal accomplished			

0.4	
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
0.1	non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.0	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.2	2 F Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	5 F THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
	5 1
15.79	Total time
	· = ==: = · · · · =

# Trace 3 - Task 1, Data Comm

Equipment: FMS 1

NGOMSL Trace: Proceed Direct to HELPR

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen or paper it is 4 words ("Proceed direct to HELPR")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Clearance information is remembered when entering clearance

Hand is not on FMS after grasping print out

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is no clearance information to enter into the FMS

Time	Action					
0.1	Method for Goal: Handle a clearance					
0.1	1 Selection Rule: Receive a clearance					
0.1	Selection Rule for Goal: Receive a clearance					
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance					
0.1	Method for Goal: Receive an FMS clearance					
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS					
0.1	2 Accomplish Goal: Open clearance					
0.1	Method for Goal: Open clearance					
0.1	1 Remember <menu key=""> = "DLK" and Accomplish Goal: Menu key</menu>					
0.1	Method for Goal: Menu key					
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>					
0.51	key					
0.38	2 Press and release appropriate menu key					
0.1	3 Return with goal accomplished					

	Remember < keyword > = "NEW MSGS" and Accomplish Goal: Line
0.1	select key
0.1	Method for Goal: Line select key
	Recall < keyword > and point finger to line select key next
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
	to keyword
0.38	· · · · · · · · · · · · · · · · · · ·
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
1.8	aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	copy Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
	Recall < keyword> and noint finger to line select
0.51	1 key next to keyword
0.38	
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	Respond to a clearance								
0.1	3 Accomplish Goal: Enter a clearance								
0.1	Method for Goal: Enter a clearance								
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>								
0.5	Selection Rule: Method of reading								
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS								
0.1	3 Selection Rule: Specific clearance type								
0.1	Selection Rule for Goal: Specific clearance type								
0.1	1 T IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed direct to								
0.1	Method for Goal: Enter proceed direct to								
0.1	1 Accomplish Goal: Locate waypoint								
0.1	Method for Goal: Locate waypoint								
0.4	Remember < menu key> = "FPL" and Accomplish Goal:								
0.1	1 Menu key								
0.1	Method for Goal: Menu key								
0.54	Recall <menu key=""> and point finger to</menu>								
0.51	appropriate menu key								
0.38	2 Press and release appropriate menu key								
0.1	3 Return with goal accomplished								
0.82	2 Search for waypoint								
0.1	3 T Decide: IF waypoint is found, THEN Return with goal accomplished								
0.51	2 Point finger to left line select key next to waypoint								
0.38	3 Press and release left line select key next to waypoint								
0.1	Decide: IF not on first page of flight plan, THEN Remember <menu key=""> = "FPL" and Accomplish Goal: Menu key</menu>								
0.51	5 Point finger to second left line select key								
0.38	6 Press and release second left line select key								
0.1	7 Return with goal accomplished								
0.1	5 Return with goal accomplished								
0.1	4 Return with goal accomplished								
0.1	4 Selection Rule: Decide on a clearance								
0.1	Selection Rule for Goal: Decide on a clearance								
0.4	2 T IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether								
0.1	non-RTA clearance is acceptable								
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable								
1.3	1 Determine whether non-RTA clearance is acceptable								
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE  Potain <response> = "Unable"</response></response>								
0.1	Retain <response> = "Unable"  Return with goal accomplished</response>								
0.1	000								
0.1	4 Return with goal accomplished								

0.1	5	F	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	0.1 3	5 F	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	6		Selection Rule: Respond to a clearance
0.1			Selection Rule for Goal: Respond to a clearance
0.1			2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1			Method for Goal: Respond by FMS
0.1			1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1			2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1			Method for Goal: Open clearance
0.1			1 Remember <menu key=""> = "DLK" and Accomplish Goal: Menu key</menu>
0.1			Method for Goal: Menu key
0.51			Recall <menu key=""> and point finger to appropriate menu</menu>
0.51			key
0.38			2 Press and release appropriate menu key
0.1			3 Return with goal accomplished
0.1			Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1			select key
0.1			Method for Goal: Line select key
0.51			Recall <keyword> and point finger to line select key next</keyword>
0.31			to keyword
0.38			2 Press and release appropriate line select key
0.1			3 Return with goal accomplished
0.1			Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1			Line select key
0.1			Method for Goal: Line select key
0.51			Recall <keyword> and point finger to line select key next</keyword>
0.31			to keyword
0.38			2 Press and release appropriate line select key
0.1			3 Return with goal accomplished
0.1			4 Return with goal accomplished

0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
25.62	Total time

# Trace 4 - Task 1, Data Comm

Equipment: FMS 1

NGOMSL Trace: Proceed Direct to HELPR

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 4 words ("Proceed direct to HELPR")

Clearance is one page

Clearance is not printed upon receipt

Clearance information is remembered when entering clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.31	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

	Demonstrate discoursely of several Association (P. L. C. J.
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key  Mathed for Coal Line select key
0.1	Method for Goal: Line select key  Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
1.8	aloud, THEN Read information on screen aloud and retain
1.8	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	4 г сору
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.1	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 T Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed
0.1	direct to
0.1	Method for Goal: Enter proceed direct to
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "FPL" and Accomplish Goal:
0.1	Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.02	2 Canada farricana int					
0.82	2 Search for waypoint					
0.1	Decide: IF waypoint is found, THEN Return with goal accomplished					
0.51	2 Point finger to left line select key next to waypoint					
0.38	3 Press and release left line select key next to waypoint					
	Decide: IF not on first page of flight plan. THEN Remember < menu					
0.1	4 F key> = "FPL" and Accomplish Goal: Menu key					
0.51	5 Point finger to second left line select key					
0.38	6 Press and release second left line select key					
0.1	7 Return with goal accomplished					
0.1	5 Return with goal accomplished					
0.1	4 Return with goal accomplished					
0.1	4 Selection Rule: Decide on a clearance					
0.1	Selection Rule for Goal: Decide on a clearance					
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether					
0.1	non-RTA clearance is acceptable					
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable					
1.3	1 Determine whether non-RTA clearance is acceptable					
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>					
0.2	Retain <response> = "Unable"</response>					
0.1	3 Return with goal accomplished					
0.1	4 Return with goal accomplished					
0.1	5 Selection Rule: Respond to a clearance					
0.1	Selection Rule for Goal: Respond to a clearance					
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS					
0.1	Method for Goal: Respond by FMS					
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS					
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance					
0.1	Method for Goal: Open clearance					
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key					
0.1	Method for Goal: Menu key					
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>					
	key					
0.38	2 Press and release appropriate menu key					
0.1	3 Return with goal accomplished					
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>					
	select key					
0.1	Method for Goal: Line select key					
0.51	Recall <keyword> and point finger to line select key next</keyword>					
	to keyword					
0.38	2 Press and release appropriate line select key					
0.1	3 Return with goal accomplished					

0.1			າ	3	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>	
0.1				3		Line select key
0.1						Method for Goal: Line select key
0.54						Recall <keyword> and point finger to line select key next</keyword>
0.51						1 to keyword
0.38						2 Press and release appropriate line select key
0.1						3 Return with goal accomplished
0.1					4	Return with goal accomplished
0.1				3	Remei	mber <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1					Metho	od for Goal: Line select key
0.51					1	Recall <keyword> and point finger to line select key next to</keyword>
0.51					1	keyword
0.38					2	Press and release appropriate line select key
0.1					3	Return with goal accomplished
0.1				4	Remei	mber <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1					Metho	od for Goal: Line select key
0.51					1	Recall <keyword> and point finger to line select key next to</keyword>
0.51					1	keyword
0.38					2	Press and release appropriate line select key
0.1					3	Return with goal accomplished
0.1				5	Returr	n with goal accomplished
0.1			3	Returr	with go	al accomplished
0.1	6	F	Decide	: IF <res< td=""><td>ponse&gt;=</td><td>"Wilco" and there is clearance information to enter into the FMS,</td></res<>	ponse>=	"Wilco" and there is clearance information to enter into the FMS,
0.1			THEN F	Rememb	er <keyv< td=""><td>vord&gt; = "Activate" and Accomplish Goal: Line select key</td></keyv<>	vord> = "Activate" and Accomplish Goal: Line select key
0.1	7	F	Decide	: IF ther	e are mo	re clearances, THEN GOTO Step 1
0.1	8		Return	with go	al accom	plished
21.71		Tot	al time			

## Trace 5 - Task 2, Voice

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 8 words ("Cross HELPR at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Need to obtain pen and paper

Clearance is written as 4 words ("Cross HELPR at FL190")

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Once visible, paper will remain visible until hand moved to FMS

Hand returns to paper after replacing pen

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by voice

Clearance information is not remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
4.5	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	2 T clearance
0.1	Method for Goal: Write down clearance
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:
0.1	1 T Obtain paper
0.1	Method for Goal: Obtain paper
0.51	1 Reach for paper
0.8	2 Grasp paper
0.51	3 Transport paper to writing space
0.17	4 Release paper
0.1	5 Return with goal accomplished

0.1	2 T Decide: IF pen is not in hand, THEN Accomplish Goal: Obtain pen
0.1	Method for Goal: Obtain pen
0.51	1 Reach for pen
0.8	2 Grasp pen
0.51	3 Transport pen to paper
0.16	4 Position the pen over paper
0.1	5 Return with goal accomplished
10.9	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>
0.51	4 Return pen to original location
0.17	5 Release pen
0.5	6 Move hand back to starting location
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	2 F Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.3	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 F Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.4	IF clearance is in writing, THEN Accomplish Goal: Read clearance from
0.1	1 T paper
0.1	Method for Goal: Read clearance from paper
0.1	1 F Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
	aloud, THEN Read information on paper aloud and retain
3.4	2 T <clearance information="">, ELSE Read information on paper and</clearance>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.3	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	_ IF clearance is crossing restriction, THEN Accomplish Goal: Enter crossing
0.1	2 T restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "FPL" and Accomplish Goal:
0.1	Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
	accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> = 2 F</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.38	key  2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.1	4 T digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < menu kev> = next digit/character in
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1						
THEN GOTO Step 2 Remember <menu key=""> = next digit/character in restriction and Accomplish Goal: Menu key  0.1</menu>	0.1	3 1				
O.1		THEN GOTO Step 2				
Nethod for Goal: Menu key	0.1	, · · · · · · · · · · · · · · · · · · ·				
1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 4 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  1</menu>	0.1	restriction and Accomplish Goal: Menu key				
0.51	0.1	Method for Goal: Menu key				
appropriate menu key   2   Press and release appropriate menu key   0.1   3   Return with goal accomplished   0.1   3   F   Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2   0.1   4   F   If <clearance value=""> is an altitude or speed with an above or below, THEN Selection Rule: At and above or below   0.1   5   Return with goal accomplished   0.51   5   Point finger to right line select key next to waypoint   0.38   6   Press and release right line select key next to waypoint   0.1   7   Return with goal accomplished   0.1   5   Return with goal accomplished   0.1   4   Return with goal accomplished   0.1   4   Return with goal accomplished   0.1   4   Selection Rule: Decide on a clearance   0.1   Selection Rule for Goal: Decide on a clearance   0.1   Selection Rule for Goal: Determine whether non-RTA clearance is acceptable   0.1   Method for Goal: Determine whether non-RTA clearance is acceptable   0.1   Determine whether non-RTA clearance is acceptable   0.2   T   Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"   0.1   3   Return with goal accomplished   0.1   4   Return with goal accomplished   0.1   3   Return with goal accomplished   0.1   3   Return with goal accomplished   0.1   4   Return with goal accomplished   0.1   5   T   Decide: IF <re></re></response></response></clearance>	0.51	1				
0.1   3 Return with goal accomplished   0.1   3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2   4 F If <clearance value=""> is an altitude or speed with an above or below, THEN Selection Rule: At and above or below   0.1   5 Return with goal accomplished   0.51   5 Point finger to right line select key next to waypoint   0.38   6 Press and release right line select key next to waypoint   0.1   7 Return with goal accomplished   0.1   5 Return with goal accomplished   0.1   4 Return with goal accomplished   0.1   4 Return with goal accomplished   0.1   4 Selection Rule: Decide on a clearance   0.1   Selection Rule for Goal: Decide on a clearance   0.1   Selection Rule for Goal: Decide on a clearance   0.1   Selection Rule for Goal: Decide on a clearance   0.1   Determine whether non-RTA clearance is acceptable   0.1   Method for Goal: Determine whether non-RTA clearance is acceptable   0.1   Determine whether non-RTA clearance is acceptable   0.2   The Decide: IF clearance is acceptable, THEN Retain <repsonse> = "Wilco," ELSE   Retain <repsonse> = "Unable"   0.1   3 Return with goal accomplished   0.1   4 Return with goal accomplished   0.1   1 Recall &lt;</repsonse></repsonse></clearance>	0.51	appropriate menu key				
0.1  3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  4 F If <a href="THEN GOTO Step">THEN GOTO Step 2</a> 0.1  4 F Return with goal accomplished  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint  0.1  7 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  4 Return with goal accomplished  0.1  4 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  6 Press and release right line select key next to waypoint  7 Return with goal accomplished  0.1  9 Return with goal accomplished  0.1  1 Selection Rule: Decide on a clearance  0.1  2 T If clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable  1.3  1 Determine whether non-RTA clearance is acceptable  1.3  1 Determine whether non-RTA clearance is acceptable  0.1  2 T Retain <a <="" <a="" href="Retain &lt;a href=" retain="" td=""><td>0.38</td><td></td></a>	0.38					
0.1  4 F If <a href="Clearance">Clearance</a> If	0.1	3 Return with goal accomplished				
THEN GOTO Step 2  1	0.1	Decide: IF more digits/characters in restriction to enter,				
0.1   S Return with goal accomplished	0.1	THEN GOTO Step 2				
O.1 Selection Rule: At and above or below  O.5 Return with goal accomplished  O.5 Point finger to right line select key next to waypoint  O.38 6 Press and release right line select key next to waypoint  O.1 7 Return with goal accomplished  O.1 5 Return with goal accomplished  O.1 4 Return with goal accomplished  O.1 4 Selection Rule: Decide on a clearance  O.1 Selection Rule for Goal: Decide on a clearance  O.1 Picture of Goal: Determine whether non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable  O.1 Method for Goal: Determine whether non-RTA clearance is acceptable  O.2 Decide: IF clearance is acceptable, THEN Retain <response>= "Wilco," ELSE Retain <response>= "Unable"  O.1 Return with goal accomplished  O.1 A Return with goal accomplished  O.1 A Return with goal accomplished  O.1 Bettermine whether is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  O.1 Method for Goal: Line select key  O.2 Press and release appropriate line select key</keyword></response></response>	0.1	If <clearance value=""> is an altitude or speed with an above</clearance>				
0.51   5	0.1	or below, THEN Selection Rule: At and above or below				
0.38	0.1	5 Return with goal accomplished				
O.1	0.51	5 Point finger to right line select key next to waypoint				
O.1	0.38	6 Press and release right line select key next to waypoint				
O.1	0.1	7 Return with goal accomplished				
0.1       4       Selection Rule: Decide on a clearance         0.1       Selection Rule for Goal: Decide on a clearance         0.1       2       T         IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable         0.1       Method for Goal: Determine whether non-RTA clearance is acceptable         1.3       1       Determine whether non-RTA clearance is acceptable         0.2       2       T       Decide: IF clearance is acceptable, THEN Retain        Retain        Response> = "Wilco," ELSE Retain          0.1       3       Return with goal accomplished         0.1       4       Return with goal accomplished         0.1       5       T       Decide: IF        Presponse> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember          0.1       Method for Goal: Line select key         0.51       1       Recall	0.1	5 Return with goal accomplished				
O.1 Selection Rule for Goal: Decide on a clearance  O.1 2 T IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable  O.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1.3 1 Determine whether non-RTA clearance is acceptable  O.2 2 T Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  O.1 3 Return with goal accomplished  O.1 4 Return with goal accomplished  O.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  O.1 Method for Goal: Line select key  O.2 Press and release appropriate line select key</keyword></response></response></response>	0.1	4 Return with goal accomplished				
O.1   2 T   IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable     O.1	0.1	4 Selection Rule: Decide on a clearance				
O.1   Determine whether non-RTA clearance is acceptable	0.1	Selection Rule for Goal: Decide on a clearance				
non-RTA clearance is acceptable  0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1.3 1 Determine whether non-RTA clearance is acceptable  0.2 2 T Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.5 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response></response></response>	0.4	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether				
1.3	0.1	non-RTA clearance is acceptable				
0.2 2 T Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response></response></response>	0.1	Method for Goal: Determine whether non-RTA clearance is acceptable				
Retain < response > = "Unable"	1.3	1 Determine whether non-RTA clearance is acceptable				
Retain < response > = "Unable"	0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>				
0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response>	0.2	/				
0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  Method for Goal: Line select key  1 Recall <keyword> and point finger to line select key next to keyword  Press and release appropriate line select key</keyword></keyword></response>	0.1	3 Return with goal accomplished				
0.1 THEN Remember < keyword > = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall < keyword > and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key	0.1	4 Return with goal accomplished				
0.1 THEN Remember < keyword > = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall < keyword > and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key	0.4	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>				
0.51 1 Recall < keyword > and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key	0.1	THEN Remember < keyword > = "Activate" and Accomplish Goal: Line select key				
0.38 2 Press and release appropriate line select key	0.1	Method for Goal: Line select key				
	0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>				
0.1 3 Return with goal accomplished	0.38	2 Press and release appropriate line select key				
[ 0.1] 3 Neturn with goal accomplished	0.1	3 Return with goal accomplished				

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 T Rule: Method of clearance readback, ELSE state call sign followed by</response></response>
0.2	<pre><response></response></pre>
0.1	Selection Rule for Goal: Method of clearance readback
	IF <clearance information=""> is not remembered. THEN Accomplish</clearance>
0.1	2 T Goal: Readback clearance by reading
0.1	Method for Goal: Readback clearance by reading
0.1	1 Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
2.1	IF clearance is in writing THEN Accomplish Goal:
0.1	1 T Read clearance from paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move
	paper  Decide: IF clearance must be read aloud
	or crew wants to read aloud, THEN Read
	information on naner aloud and retain
3.4	2 T <a href="clearance">clearance</a> information on paper aloud and retain <a href="clearance">clearance</a> information <a href="clearance">clearance</a>
	information on paper and retain
	<pre></pre>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
1.3	2 State call sign
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
40 54	Total time
48.51	Total time

## Trace 6 - Task 2, Voice

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 8 words ("Cross HELPR at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by voice

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action			
0.1	Method for Goal	: Handle	e a clearance	
0.1	1 Selectio	n Rule:	Receive a clearance	
0.1	Selectio	n Rule f	or Goal: Receive a clearance	
0.1	2 T	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance		
0.1		Method	d for Goal: Receive a radio clearance	
4.5		1	Listen to clearance and retain <clearance information=""></clearance>	
0.1	Decide: IF printed clearance is desired	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down		
0.1		2 F	clearance	
0.1	_	3	Return with goal accomplished	
0.1	3	Return	with goal accomplished	

0.1	2 F Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE  Selection Rule: Method of reading</clearance>
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	2 T IF clearance is crossing restriction, THEN Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "FPL" and Accomplish Goal:  Menu key</menu>
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	3 T Decide: IF waypoint is found, THEN Return with goal accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> =  digits in clearance and Accomplish Goal: Enter into scratchpad</clearance>
0.1	3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.4	Decide: IF altitude restriction. THFN Retain <clearance value=""> =</clearance>
0.1	4 T digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in restrictions and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.1	3 Neturn with goal accompnished

0.1	Remember <menu key=""> = next digit/character in</menu>				
	restriction and Accomplish Goal: Menu key				
0.1	Method for Goal: Menu key				
0.51	Recall <menu key=""> and point finger to</menu>				
0.20	appropriate menu key				
0.38	2 Press and release appropriate menu key				
0.1	3 Return with goal accomplished				
0.1	3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2				
0.1	Remember < menu key> = next digit/character in				
0.1	restriction and Accomplish Goal: Menu key				
0.1	Method for Goal: Menu key				
0.51	Recall <menu key=""> and point finger to</menu>				
	appropriate menu key				
0.38	2 Press and release appropriate menu key				
0.1	3 Return with goal accomplished				
0.1	Decide: IF more digits/characters in restriction to enter,  THEN GOTO Step 2				
0.4	If <clearance value=""> is an altitude or speed with an above</clearance>				
0.1	4 F or below, THEN Selection Rule: At and above or below				
0.1	5 Return with goal accomplished				
0.51	5 Point finger to right line select key next to waypoint				
0.38	6 Press and release right line select key next to waypoint				
0.1	7 Return with goal accomplished				
0.1	5 Return with goal accomplished				
0.1	4 Return with goal accomplished				
0.1	4 Selection Rule: Decide on a clearance				
0.1	Selection Rule for Goal: Decide on a clearance				
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable				
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable				
1.3					
	Decide: IF clearance is acceptable. THEN Retain <response> = "Wilco." ELSE</response>				
0.2	2   Retain <response> = "Unable"</response>				
0.1	3 Return with goal accomplished				
0.1	4 Return with goal accomplished				
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>				
0.1	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>				
0.1	Method for Goal: Line select key				
0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>				
0.38	2 Press and release appropriate line select key				
0.1	3 Return with goal accomplished				

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 T Rule: Method of clearance readback, ELSE state call sign followed by  <response></response></response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>
0.1	Method for Goal: Readback clearance from memory
4.5	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
26.35	Total time

## Trace 7 - Task 2, Data Comm

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen or paper it is 8 words ("Cross HELPR at flight level one niner zero")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Once visible, paper will remain visible until hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
2.4	aloud, THEN Read information on screen aloud and retain
3.4	1 T <clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 T with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	4 Т сору
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
0.51	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>			
	Respond to a clearance			
0.1	3 Accomplish Goal: Enter a clearance			
0.1	Method for Goal: Enter a clearance			
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>			
	Selection Rule: Method of reading			
0.1	Selection Rule for Goal: Method of reading			
0.1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from 1 T			
- 0.4	paper			
0.1	Method for Goal: Read clearance from paper			
0.1	1 F Decide: IF paper not visible, THEN move paper			
	Decide: IF clearance must be read aloud or crew wants to read			
3.4	aloud, THEN Read information on paper aloud and retain			
	<clearance information="">, ELSE Read information on paper and</clearance>			
	retain <clearance information=""></clearance>			
0.1	3 Return with goal accomplished			
0.1	3 Return with goal accomplished			
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS			
0.1	3 Selection Rule: Specific clearance type			
0.1	Selection Rule for Goal: Specific clearance type			
0.1	2 T IF clearance is crossing restriction, THEN Accomplish Goal: Enter crossing restriction			
0.1	Method for Goal: Enter crossing restriction			
0.1	1 Accomplish Goal: Locate waypoint			
0.1	Method for Goal: Locate waypoint			
0.1	Remember < menu key> = "FPL" and Accomplish Goal:			
0.1	Menu key			
0.1	Method for Goal: Menu key			
0.51	Recall <menu key=""> and point finger to</menu>			
0.51	appropriate menu key			
0.38	2 Press and release appropriate menu key			
0.1	3 Return with goal accomplished			
0.82	2 Search for waypoint			
0.1	Decide: IF waypoint is found, THEN Return with goal accomplished			
	Decide: IF speed restriction THFN Retain <clearance value=""> =</clearance>			
0.1	2 F digits in clearance and Accomplish Goal: Enter into scratchpad			
0.1	3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>			
0.1	Method for Goal: Menu key			
	Recall <menu key=""> and point finger to appropriate menu</menu>			
0.51	1 key			
0.38	2 Press and release appropriate menu key			
0.1	3 Return with goal accomplished			

0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < menu key> = next digit/character in
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to enter
0.1	THEN GOTO Step 2
	Remember <menu kev=""> = next digit/character in</menu>
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to enter
0.1	3 F THEN GOTO Step 2
	If <clearance value=""> is an altitude or speed with an above</clearance>
0.1	4 F or below, THEN Selection Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
	IF clearance includes only non-RTA. THEN Accomplish Goal: Determine whether
0.1	2 T non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	Determine whether non-RTA clearance is acceptable
	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.2	2 T  Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	-
0.1	4 Return with goal accomplished

0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "DLK" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
36.78	Total time

## Trace 8 - Task 2, Data Comm

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 8 words ("Cross HELPR at flight level one niner zero")

Clearance is one page

Clearance is not printed upon receipt

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key > = "DLK" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.31	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.4	Remember < keyword > = clearance to open and Accomplish Goal:			
0.1	Line select key			
0.1	Method for Goal: Line select key			
0.51	Recall <keyword> and point finger to line select key next</keyword>			
	to keyword			
0.38	2 Press and release appropriate line select key			
0.1	3 Return with goal accomplished			
0.1	4 Return with goal accomplished 3 Accomplish Goal: Read the clearance			
0.1	Method for Goal: Read the clearance			
0.1	Decide: IF clearance must be read aloud or crew wants to read			
	aloud, THEN Read information on screen aloud and retain			
3.4	1 T <clearance information="">, ELSE Read information on screen and</clearance>			
	retain <clearance information=""></clearance>			
0.4	Decide: IF there are no more pages of clearances, THEN Return			
0.1	2 T with goal accomplished			
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed			
0.1	4 г сору			
0.1	5 Return with goal accomplished			
0.1	3 Return with goal accomplished			
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>			
0.1	3 Accomplish Goal: Enter a clearance			
0.1	Method for Goal: Enter a clearance			
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>			
	Selection Rule: Method of reading			
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS			
0.1	3 Selection Rule: Specific clearance type			
0.1	Selection Rule for Goal: Specific clearance type			
0.1	IF clearance is crossing restriction, THEN Accomplish Goal: Enter crossing			
0.1	restriction  Mothod for Goal: Enter crossing restriction			
0.1	Method for Goal: Enter crossing restriction  1 Accomplish Goal: Locate waypoint			
0.1	Method for Goal: Locate waypoint			
	Remember < menu key> = "FPL" and Accomplish Goal:			
0.1	1 Menu key			
0.1	Method for Goal: Menu key			
0.51	Recall <menu key=""> and point finger to</menu>			
0.51	1 appropriate menu key			
0.38	2 Press and release appropriate menu key			
0.1	3 Return with goal accomplished			

0.82	2 Search for waypoint
	Decide: IF waynoint is found THEN Return with goal
0.1	3 T accomplished
0.1	_ Decide: IF speed restriction, THEN Retain <clearance value="">=</clearance>
	2 F digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.1	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	If <clearance value=""> is an altitude or speed with an above</clearance>
	or below, THEN Selection Rule: At and above or below
0.1	5 Return with goal accomplished

0.51	5 Point finger to right line select key next to waypoint				
0.38	6 Press and release right line select key next to waypoint				
0.1	7 Return with goal accomplished				
0.1	5 Return with goal accomplished				
0.1	4 Return with goal accomplished				
0.1	4 Selection Rule: Decide on a clearance				
0.1	Selection Rule for Goal: Decide on a clearance				
	IF clearance includes only non-RTA. THEN Accomplish Goal: Determine whether				
0.1	2 T non-RTA clearance is acceptable				
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable				
1.3	1 Determine whether non-RTA clearance is acceptable				
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE  Retain <response> = "Unable"</response></response>				
0.1	3 Return with goal accomplished				
0.1	4 Return with goal accomplished				
0.1	5 Selection Rule: Respond to a clearance				
0.1	Selection Rule for Goal: Respond to a clearance				
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS				
0.1	Method for Goal: Respond by FMS				
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS				
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance				
0.1	Method for Goal: Open clearance				
0.1	1 Remember < menu key > = "DLK" and Accomplish Goal: Menu key				
0.1	Method for Goal: Menu key				
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>				
0.38	2 Press and release appropriate menu key				
0.1	3 Return with goal accomplished				
0.1	Remember <keyword> = "NFW MSGS" and Accomplish Goal: Line</keyword>				
0.1	select key				
0.1	Method for Goal: Line select key				
	Recall <keyword> and point finger to line select key next</keyword>				
0.51	to keyword				
0.38	2 Press and release appropriate line select key				
0.1	3 Return with goal accomplished				
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>				
0.1	Line select key				
0.1	Method for Goal: Line select key				
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>				
0.38	•				
0.38	<ul> <li>2 Press and release appropriate line select key</li> <li>3 Return with goal accomplished</li> </ul>				
0.1	4 Return with goal accomplished				
0.1	4 Neturn with goal accomplished				

0.1			3 Remember <keyword> = <response> and Accomplish Goal: Li</response></keyword>	ne select key
0.1			Method for Goal: Line select key	
0.51			Recall <keyword> and point finger to line select key keyword</keyword>	next to
0.38			2 Press and release appropriate line select key	
0.1			3 Return with goal accomplished	
0.1			4 Remember < keyword > = "Send" and Accomplish Goal: Line se	elect key
0.1			Method for Goal: Line select key	
0.51			Recall <keyword> and point finger to line select key keyword</keyword>	next to
0.38			2 Press and release appropriate line select key	
0.1			3 Return with goal accomplished	
0.1			5 Return with goal accomplished	
0.1			3 Return with goal accomplished	
0.1	6	Т	Decide: IF <response> = "Wilco" and there is clearance information to enter in THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword></response>	
0.1			Method for Goal: Line select key	
0.51			1 Recall <keyword> and point finger to line select key next to keyword</keyword>	
0.38			2 Press and release appropriate line select key	
0.1			3 Return with goal accomplished	
0.1	7	F	Decide: IF there are more clearances, THEN GOTO Step 1	
0.1	8		Return with goal accomplished	
28.87		Tot	tal time	

## Trace 9 - Task 3, Voice

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at 1800Z

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 8 words ("Cross HELPR at one eight zero zero

Zulu")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
4.5	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	4 T IF clearance is only RTA, THEN Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	1 Remember <menu key=""> = "FPL" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	3 T Decide: IF waypoint is found, THEN Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	1 T IF clearance includes only RTA, THEN Accomplish Goal: Compare ETA to RTA
0.1	Method for Goal: Compare ETA to RTA
1.3	1 Compare clearance RTA to displayed ETA
	Decide: IF speed can be managed to maintain a predicted ETA that
1.4	2 T conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE</response>
	Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	5	F	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1			THEN Remember < keyword > = "Activate" and Accomplish Goal: Line select key
0.1	6		Selection Rule: Respond to a clearance
0.1			Selection Rule for Goal: Respond to a clearance
0.1			1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1			Method for Goal: Respond by voice
0.5			1 Move hand to yoke and "Push to talk" button
0.2			2 Press "Push to talk" button
			Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2			3 T Rule: Method of clearance readback, ELSE state call sign followed by
			<response></response>
0.1			Selection Rule for Goal: Method of clearance readback
0.1			IF <clearance information=""> is remembered, THEN Accomplish Goa</clearance>
0.1			Readback clearance from memory
0.1			Method for Goal: Readback clearance from memory
4.5			Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
4.5	1		information> followed by call sign
0.1			2 Return with goal accomplished
0.1			3 Return with goal accomplished
0.2			4 Release "Push to talk" button
0.5			5 Return hand to FMS
0.1			6 Return with goal accomplished
0.1			3 Return with goal accomplished
0.1	7	F	Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8		Return with goal accomplished
23.11		Tot	al time

## Trace 10 - Task 3, Voice

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at 1800Z

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 8 words ("Cross HELPR at one eight zero zero Zulu")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Paper is available

Pen is not in hand

Clearance is written as 4 words ("Cross HELPR at 1800Z")

Response is sent by voice

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
4.5	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	2 T Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	Method for Goal: Write down clearance
0.1	IF paper is not readily available, THEN Accomplish Goal: Obtain paper
0.1	2 T IF pen is not in hand, THEN Accomplish Goal: Obtain pen
0.1	Method for Goal: Obtain pen
0.51	1 Reach for pen
0.8	2 Grasp pen
0.51	3 Transport pen to paper
0.16	4 Position the pen over paper
0.1	5 Return with goal accomplished

40.0	
10.9	
0.51	4 Return pen to original location
0.17	5 Release pen
0.5	6 Move hand back to starting location
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	,
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	-
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.1	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	4 T IF clearance is only RTA, THEN Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	1 Remember <menu key=""> = "FPL" and Accomplish Goal: Menu key  Method for Coal: Manu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.38	key  2 Press and release appropriate menu key
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished
0.1	2 Search for waypoint
0.62	2 Search for waypoint
0.1	3 T Decide: IF waypoint is found, THEN Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	1 T IF clearance includes only RTA, THEN Accomplish Goal: Compare ETA to RTA
0.1	Method for Goal: Compare ETA to RTA
1.3	1 Compare clearance RTA to displayed ETA
1.4	Decide: IF speed can be managed to maintain a predicted ETA that  2 F conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword></response>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
1.8	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 F Rule: Method of clearance readback, ELSE state call sign followed by  <response></response></response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
34.37	Total time

# Trace 11 - Task 3, Data Comm

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at time 1800Z

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 9 words ("Cross HELPR at time one eight zero zero Zulu")

Clearance is one page

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

	Developed a second of the control of
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.4	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
	to keyword
0.38	
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
2.0	aloud, THEN Read information on screen aloud and retain
3.8	1 T <clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.4	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 T with goal accomplished
	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	4 F copy
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.4	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	2 T Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to</keyword>
0.38	
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to</keyword>
0.38	·
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	o netam with goal accomplished

ioal: Enter a clearance	
oal: Enter a clearance	51.05
de: IF clearance is remembered, THEN Recall <clearance informatio<="" td=""><td>1&gt;, ELSE</td></clearance>	1>, ELSE
ction Rule: Method of reading	
de: IF hand not on FMS, THEN move hand to FMS	
ction Rule: Specific clearance type	
ction Rule for Goal: Specific clearance type	
T IF clearance is only RTA, THEN Accomplish Goal: Locate waypoin	t
Method for Goal: Locate waypoint	
1 Remember <menu key=""> = "FPL" and Accomplish Goal: N</menu>	lenu key
Method For Goal: Menu key	
1 Recall <menu key=""> and point finger to appropr</menu>	ate menu
2 Press and release appropriate menu key	
3 Return with goal accomplished	
2 Search for waypoint	
3 T Decide: IF waypoint is found, THEN Return with goal ac	complished
Return with goal accomplished	
rn with goal accomplished	
e: Decide on a clearance	
e for Goal: Decide on a clearance	
arance includes only RTA, THEN Accomplish Goal: Compare ETA to F	λTA
nod for Goal: Compare ETA to RTA	
Compare clearance RTA to displayed ETA	
Decide: IF speed can be managed to maintain a predicted ETA th	ıat
T conforms with the assigned RTA, THEN Retain <response> = "Wi</response>	co," ELSE
Retain <response> = "Unable"</response>	
Return with goal accomplished	
rn with goal accomplished	
esponse> = "Wilco" and there is clearance information to enter into	the FMS,
nber <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>	
e: Respond to a clearance	
e for Goal: Respond to a clearance	
nod for Goal: Respond by FMS	
F Decide: IF hand not on FMS, THEN move hand to FMS	
T Decide: IF clearance is not open, THEN Accomplish Goal: Open c	earance
Method for Goal: Open clearance	
1 Remember <menu key=""> = "DLK" and Accomplish Goal: N</menu>	/lenu key
Method For Goal: Menu key	
Recall <menu kev=""> and point finger to appropr</menu>	ate menu
1	
,	
2 Press and release appropriate menu key	
esponse>= "Wilco" and there is clearance information to enter into ober <keyword> = "Activate" and Accomplish Goal: Line select key e: Respond to a clearance e for Goal: Respond to a clearance sponding by FMS, THEN Accomplish Goal: Respond by FMS nod for Goal: Respond by FMS  F Decide: IF hand not on FMS, THEN move hand to FMS  T Decide: IF clearance is not open, THEN Accomplish Goal: Open complish Goal: Open clearance  1 Remember <menu key=""> = "DLK" and Accomplish Goal: Method For Goal: Menu key</menu></keyword>	learance ⁄lenu key

						Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1					2	select key
0.1						Method for Goal: Line select key
0.1						Recall <keyword> and point finger to line select key next</keyword>
0.51						to keyword
0.38						Press and release appropriate line select key
0.1						3 Return with goal accomplished
0.1					3	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1					3	Line select key
0.1						Method for Goal: Line select key
0.51						Recall <keyword> and point finger to line select key next</keyword>
0.51						to keyword
0.38						2 Press and release appropriate line select key
0.1						3 Return with goal accomplished
0.1					4	Return with goal accomplished
0.1				3	Remen	mber <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1					Metho	od for Goal: Line select key
0.51					1	Recall <keyword> and point finger to line select key next to</keyword>
0.38					2	Press and release appropriate line select key
0.1					3	Return with goal accomplished
0.1				4	Remen	mber <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1					Metho	od for Goal: Line select key
0.51					1	Recall <keyword> and point finger to line select key next to</keyword>
0.38					2	Press and release appropriate line select key
0.1					3	Return with goal accomplished
0.1				5	Return	n with goal accomplished
0.1			3	Return	with go	al accomplished
0.1	7	F C	Decide:	: IF there	are mo	re clearances, THEN GOTO Step 1
0.1	8	F	Return	with go	al accom	plished
			·			
25.81	Т	otal	time			

## Trace 12 - Task 3, Data Comm

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at time 1800Z

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 9 words ("Cross HELPR at time one eight zero zero Zulu")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Hand is not on FMS after grasping print out

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Demonshor drawwards - "NITIA/NGCC" and Accomplish Coalcling
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	·
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
	Recall < keyword > and point finger to line select key next
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
3.8	Decide: IF clearance must be read aloud or crew wants to read
5.6	aloud, THEN Read information on screen aloud and retain
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
	сору
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	
0.1	<u> </u>
0.51	2 Reach for print out
0.8	
0.51	
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword> = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.3	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 T Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	4 T IF clearance is only RTA, THEN Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	1 Remember < menu key> = "FPL" and Accomplish Goal: Menu key
0.1	Method For Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	3 T Decide: IF waypoint is found, THEN Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	

0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	1 T IF clearance includes only RTA, THEN Accomplish Goal: Compare ETA to RTA
0.1	Method for Goal: Compare ETA to RTA
1.3	1 Compare clearance RTA to displayed ETA
	Decide: IF speed can be managed to maintain a predicted ETA that
1.4	2 F conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE</response>
	Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key > = "DLK" and Accomplish Goal: Menu key
0.1	Method For Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	2 select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished

_					
0.1			3	Remen	nber <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1				Method	d for Goal: Line select key
0.51				1	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38				2	Press and release appropriate line select key
0.1				3	Return with goal accomplished
0.1			4	Remen	nber <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1				Method	d for Goal: Line select key
0.51				1	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38				2	Press and release appropriate line select key
0.1				3	Return with goal accomplished
0.1			5	Return	with goal accomplished
0.1		3	Return	with goa	l accomplished
0.1	7	F Decide	: IF there	are mor	e clearances, THEN GOTO Step 1
0.1	8	Return	with go	al accomp	plished
29.72		Total time			
ь					

## Trace 13 - Task 4, Voice

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at 1800Z at FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 14 words ("Cross HELPR at one eight zero zero Zulu at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Need to obtain pen and paper

Clearance is written as 6 words ("Cross HELPR at 1800Z at FL190")

Response is sent by voice

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

It takes one mental to determine if RTA portion of clearance is acceptable or not

RTA portion of clearance is acceptable and pilot will comply

Clearance information is not remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
6.9	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	Method for Goal: Write down clearance
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:
0.1	1 T Obtain paper
0.1	Method for Goal: Obtain paper
0.51	1 Reach for paper
0.8	2 Grasp paper
0.51	3 Transport paper to writing space
0.17	4 Release paper
0.1	5 Return with goal accomplished

0.4	
0.1	2 T Decide: IF pen is not in hand, THEN Accomplish Goal: Obtain pen
0.1	Method for Goal: Obtain pen
0.51	1 Reach for pen
0.8	2 Grasp pen
0.51	3 Transport pen to paper
0.16	4 Position the pen over paper
0.1	5 Return with goal accomplished
16.3	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>
0.51	4 Return pen to original location
0.17	5 Release pen
0.5	6 Move hand back to starting location
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.1	1 T IF clearance is in writing, THEN Accomplish Goal: Read clearance from paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
F 0	aloud, THEN Read information on paper aloud and retain
5.8	2 T <clearance information="">, ELSE Read information on paper and</clearance>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
	IF clearance is crossing restriction with RTA_THEN_Accomplish Goal: Enter
0.1	3 T crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "FPL" and Accomplish Goal:
0.1	1 Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
0.1	accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value="">=</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
1	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.4	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished
0.1	3 Return with goal accomplished Remember <menu key=""> = next digit/character in</menu>
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.1	5 Neturn with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	If <clearance value=""> is an altitude or speed with an above</clearance>
0.1	or below, THEN Selection Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Compare ETA to RTA
0.1	Method for Goal: Compare ETA to RTA
1.3	1 Compare clearance RTA to displayed ETA
	Decide: IF speed can be managed to maintain a predicted ETA that
1.4	2 T conforms with the assigned RTA, THEN Retain <response> =</response>
	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  T THEN Becomes the release of the response of the r</response>
0.1	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  Method for Goal: Line select key</keyword>
0.1	Method for Goal: Line select key  1 Recall <keyword> and point finger to line select key next to keyword</keyword>
0.31	6
0.38	,
0.1	
0.1	Selection Rule for Goal: Respond to a clearance  1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.1	1 Move hand to yoke and "Push to talk" button
0.3	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2	3 T Rule: Method of clearance readback, ELSE state call sign followed by
0.2	-
0.1	<pre><response> Selection Rule for Goal: Method of clearance readback</response></pre>
	IF <clearance information=""> is not remembered. THEN Accomplish</clearance>
0.1	2 T Goal: Readback clearance by reading
0.1	Method for Goal: Readback clearance by reading
0.1	1 Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.4	IF clearance is in writing THEN Accomplish Goal:
0.1	1 T Read clearance from paper
0.1	Method for Goal: Read clearance from paper
0.51	Decide: IF paper not visible, THEN move
0.51	paper paper
	Decide: IF clearance must be read aloud
	or crew wants to read aloud, THEN Read
5.8	information on paper aloud and retain
5.0	<pre><clearance information="">, ELSE Read</clearance></pre>
	information on paper and retain
	<clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
1.3	2 State call sign
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
68.62	Total time

# Trace 14 - Task 4, Voice

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at 1800Z at FL190

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 14 words ("Cross HELPR at one eight zero zero

Zulu at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

It takes one mental to determine if RTA portion of clearance is acceptable or not

RTA portion of clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
6.9	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
0.1	crossing restriction  Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
	Remember < menu kev> = "FPL" and Accomplish Goal:
0.1	1 Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
0.1	accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> =</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.20	key  2. Proce and release appropriate many key
0.38	2 Press and release appropriate menu key  2 Poturn with goal accomplished
U. I	3 Return with goal accomplished

	Deside, IF eletands constitution. TUEN Deside releases
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.4	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.4	Decide: IF more digits/characters in restriction to enter,
0.1	3 T THEN GOTO Step 2
0.4	Remember <menu key=""> = next digit/character in</menu>
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits /characters in restriction to enter
0.1	3 F THEN GOTO Step 2
	If <clearance value=""> is an altitude or speed with an above</clearance>
0.1	4 F or below, THEN Selection Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	. Hetain with boar accompliance

0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	3 T Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	·
	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response>=</response>
0.1	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Compare ETA to RTA
0.1	Method for Goal: Compare ETA to RTA
1.3	1 Compare clearance RTA to displayed ETA
	Decide: IF speed can be managed to maintain a predicted ETA that
1.4	2 T conforms with the assigned RTA, THEN Retain <response>=</response>
	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  T</response>
	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2	3 T Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:</clearance>
	Readback clearance from memory
0.1	Method for Goal: Readback clearance from memory
6.9	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
0.3	information> followed by call sign
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished

0.2				4	Release "Push to talk" button
0.5				5	Return hand to FMS
0.1				6	Return with goal accomplished
0.1			3	Ret	urn with goal accomplished
0.1	7	F	Decide	e: IF th	ere are more clearances, THEN GOTO Step 1
0.1	8		Returr	n with	goal accomplished
37.85		Tota	al time		

### Trace 15 - Task 4, Data Comm

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at time 1800Z at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands do not start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu") and page two is 6 words ("At flight level one niner zero")

Clearance is two pages

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Hand is not on FMS after grasping print out

Once opened, clearance remains open until clearance information is entered

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

When clearance is read from paper it is 15 words ("Cross HELPR at time one eight zero zero Zulu at flight level one niner zero")

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable

It takes one mental to determine if RTA portion of clearance is acceptable or not

RTA portion of clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action				
0.1	Method for Goal: Handle a clearance				
0.1	1 Selection Rule: Receive a clearance				
0.1	Selection Rule for Goal: Receive a clearance				
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance				
0.1	Method for Goal: Receive an FMS clearance				
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS				
0.1	2 Accomplish Goal: Open clearance				
0.1	Method for Goal: Open clearance				
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key				
0.1	Method for Goal: Menu key				
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>				
0.51	1 key				
0.38	2 Press and release appropriate menu key				
0.1	3 Return with goal accomplished				

	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
3.8	aloud, THEN Read information on screen aloud and retain
3.0	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	3 Remember <menu key=""> = "Next" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.31	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	4 GOTO Step 1
2.6	Decide: IF clearance must be read aloud or crew wants to read
	aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	сору
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
0.51	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from
0.1	paper paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
6.2	aloud, THEN Read information on paper aloud and retain
0.2	<clearance information="">, ELSE Read information on paper and</clearance>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
	crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "FPL" and Accomplish Goal:</menu>
	Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.82	2 Search for waypoint
	Decide: IF waypoint is found. THEN Return with goal
0.1	3 T accomplished
	Decide: IF speed restriction THEN Retain <clearance value=""> =</clearance>
0.1	2 F digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.1	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	appropriate menu key  2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	3 F THEN GOTO Step 2
	If <clearance value=""> is an altitude or speed with an above</clearance>
0.1	4 F or below, THEN Selection Rule: At and above or below
0.1	5 Return with goal accomplished
0.1	5 Inctum with goal accomplished

0.51	5 Point finger to right line select key next to waypoint						
0.38	6 Press and release right line select key next to waypoint						
0.38	7 Return with goal accomplished						
0.1	5 Return with goal accomplished						
0.1	4 Return with goal accomplished						
0.1	4 Selection Rule: Decide on a clearance						
0.1	Selection Rule for Goal: Decide on a clearance						
0.12	IF clearance includes both RTA and other information. THEN Accomplish Goal:						
0.1	3 T Determine whether mixed clearance is acceptable						
0.1	Method for Goal: Determine whether mixed clearance is acceptable						
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable						
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable						
1.3	1 Determine whether non-RTA clearance is acceptable						
0.2	Decide: IF clearance is acceptable. THEN Retain <response>=</response>						
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>						
0.1	3 Return with goal accomplished						
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>						
0.1	3 Accomplish Goal: Compare ETA to RTA						
0.1	Method for Goal: Compare ETA to RTA						
1.3	<ol> <li>Compare clearance RTA to displayed ETA</li> </ol>						
	Decide: IF speed can be managed to maintain a predicted ETA that						
1.4	2 F conforms with the assigned RTA, THEN Retain <response> =</response>						
	"Wilco," ELSE Retain <response> = "Unable"</response>						
0.1	3 Return with goal accomplished						
0.1	4 Return with goal accomplished						
0.1	4 Return with goal accomplished						
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  F =</response>						
	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>						
0.1	6 Selection Rule: Respond to a clearance						
0.1	Selection Rule for Goal: Respond to a clearance						
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS						
0.1	Method for Goal: Respond by FMS						
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS						
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance						
0.1	Method for Goal: Open clearance  1 Remember <menu key=""> = "DLK" and Accomplish Goal: Menu key</menu>						
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key  Method for Goal: Menu key						
0.1	Recall <menu key=""> and point finger to appropriate menu</menu>						
0.51	1 key						
0.38	2 Press and release appropriate menu key						
0.38	3 Return with goal accomplished						
0.1	5 Retain with goal accomplished						

0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	3 Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.4	2. Demonstrate discovered and Assessed in Contribution and at the contribution of the
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
O E1	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
50.57	Total time

# Trace 16 - Task 4, Data Comm

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at time 1800Z at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu")

and page two is 6 words ("At flight level one niner zero")

Clearance is two pages

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable

It takes one mental to determine if RTA portion of clearance is acceptable or not

RTA portion of clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action						
0.1	Method	for G	oal: H	andle	a clear	ance	
0.1	1	Selec	ction F	Rule:	Receive	a cleara	nce
0.1		Selec	ction F	Rule f	or Goal	: Receive	a clearance
0.1		1	T IF	clear	ance is	text, THE	N Accomplish Goal: Receive an FMS clearance
0.1			M	etho	d for Go	al: Recei	ve an FMS clearance
0.1			1	. F	Decid	e: IF hand	not on FMS, THEN move hand to FMS
0.1			2		Accon	plish Go	al: Open clearance
0.1					Metho	d for Go	al: Open clearance
0.1					1	Remer	mber <menu key=""> = "DLK" and Accomplish Goal: Menu key</menu>
0.1						Metho	d for Goal: Menu key
0.51						1	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51						1	key
0.38						2	Press and release appropriate menu key
0.1						3	Return with goal accomplished

	Domamhar skauwards - "NEW MCCC" and Accomplish Coalcling
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	Line select key
0.1	Method for Goal: Line select key
	Recall < keyword > and point finger to line select key next
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
2.0	aloud, THEN Read information on screen aloud and retain
3.8	1 T <clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 F with goal accomplished
0.1	3 Remember <menu key=""> = "Next" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 GOTO Step 1
	Decide: IF clearance must be read aloud or crew wants to read
2.6	aloud, THEN Read information on screen aloud and retain
2.0	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 T with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	сору
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished

	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	2 T Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keywor</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keywor</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
	crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "FPL" and Accomplish Goal:</menu>
	Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.82	2 Search for waypoint
5.52	Decide: IF waynoint is found. THEN Return with goal
0.1	3 T accomplished
1	_ Decide: IF speed restriction, THEN Retain <clearance value=""> =</clearance>
0.1	2 F digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF altitude restriction. THFN Retain <clearance value=""> =</clearance>
0.1	4 T digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu kev> = first digit/character in
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.4	Remember < menu kev> = next digit/character in
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.4	Decide: IF more digits/characters in restriction to enter,
0.1	3 T THEN GOTO Step 2
0.4	Remember <menu key=""> = next digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,  THEN GOTO Step 2
0.1	4 F If <clearance value=""> is an altitude or speed with an above or below, THEN Selection Rule: At and above or below</clearance>
0.1	
0.1	
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	3 T _ IF clearance includes both RTA and other information, THEN Accomplish Goal:
	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.2	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Compare ETA to RTA
0.1	Method for Goal: Compare ETA to RTA
1.3	1 Compare clearance RTA to displayed ETA
	Decide: IF speed can be managed to maintain a predicted ETA that
1.4	2 F conforms with the assigned RTA, THEN Retain <response>=</response>
	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "DLK" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1
0.30	key  2. Proce and release appropriate many key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

			Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1			2 select key
0.1			Method for Goal: Line select key
0.1			Recall <keyword> and point finger to line select key next</keyword>
0.51			to keyword
0.38			2 Press and release appropriate line select key
0.1			3 Return with goal accomplished
0.1			Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1			Line select key
0.1			Method for Goal: Line select key
0.54			Recall <keyword> and point finger to line select key next</keyword>
0.51			to keyword
0.38			2 Press and release appropriate line select key
0.1			3 Return with goal accomplished
0.1			4 Return with goal accomplished
0.1			3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1			Method for Goal: Line select key
0.51			Recall <keyword> and point finger to line select key next to</keyword>
0.51			keyword
0.38			2 Press and release appropriate line select key
0.1			3 Return with goal accomplished
0.1			4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1			Method for Goal: Line select key
0.51			Recall <keyword> and point finger to line select key next to</keyword>
			keyword
0.38			2 Press and release appropriate line select key
0.1			3 Return with goal accomplished
0.1			5 Return with goal accomplished
0.1			3 Return with goal accomplished
0.1	6	F	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
		•	THEN Remember < keyword > = "Activate" and Accomplish Goal: Line select key
0.1	7	F	Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8		Return with goal accomplished
38.65		Tot	al time

### Trace 17 - Task 5, Voice

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at 1800Z at or above FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 16 words ("Cross HELPR at one eight zero zero Zulu at or above flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Paper is available

Pen is not in hand

Clearance is written as 8 words ("Cross HELPR at 1800Z at or above FL190")

Response is sent by voice

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

It takes one mental to determine if RTA portion of clearance is acceptable or not

RTA portion of clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
7.7	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	2 T Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	Method for Goal: Write down clearance
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:  Obtain paper
0.1	2 T Decide: IF pen is not in hand, THEN Accomplish Goal: Obtain pen

0.1	Mathad for Coal, Obtain non
0.1	Method for Goal: Obtain pen
0.51	1 Reach for pen
0.8	2 Grasp pen
0.51	3 Transport pen to paper
0.16	4 Position the pen over paper
0.1	5 Return with goal accomplished
21.7	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>
0.51	4 Return pen to original location
0.17	5 Release pen
0.5	6 Move hand back to starting location
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from
0.1	1 T paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
	aloud, THEN Read information on paper aloud and retain
6.6	2 T <clearance information="">, ELSE Read information on paper and</clearance>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
	IF clearance is crossing restriction with RTA_THEN_Accomplish Goal: Enter
0.1	3 T crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "FPL" and Accomplish Goal:
0.1	1 Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
0.31	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
	accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> = 2 F</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.38	key  2 Press and release appropriate menu key
0.38	
0.1	3 Return with goal accomplished Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.1	4 T  digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember < menu kev> = next digit/character in
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1		
THEN GOTO Step 2  Remember <menu key=""> = next digit/character in restriction and Accomplish Goal: Menu key  0.1  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Found in the first in the select key next to waypoint  0.1  4 Tour in the selection Rule is accomplished  0.1  5 Return with goal accomplished  1 Tour in the selection Rule or to restrict in to enter, the selection Rule is a caceptable  0.1  8 Found in the selection Rule for Goal: At and above or below or below. THEN Selection Rule is at or above, THEN Remember  1 Tour in the selection Rule is a caceptable  0.1  8 Found in the selection Rule is a caceptable  0.2  1 Recall <menu key=""> = "A" and Accomplish Goal: Menu key  Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  0.1 Selection Rule is a complished  0.1 Selection Rule is a complished  0.2 Selection Rule is a complished  0.3 Return with goal accomplished  0.1 A Return with goal accomplished  0.2 Belection Rule is of Goal: Decide on a clearance  0.3 Televance includes both RTA and other information, THEN Accomplish Goal:  0.4 Determine whether mixed clearance is acceptable  0.5 Determine whether mixed clearance is acceptable  0.6 Determine whether mixed clearance is acceptable  0.7 Determine whether non-RTA clearance is acceptable  0.8 Decide: IF clearance is acceptable  0.9 Decide: IF clearance is acceptable  0.9 Decide:</menu></menu></menu></menu></menu>	0.1	Decide: IF more digits/characters in restriction to enter,
O.1		THEN GOTO Step 2
nestriction and Accomplish Goal: Menu key  0.51  0.51  1 Recall menu key> and point finger to appropriate menu key  0.1  0.2 Press and release appropriate menu key  0.1  0.1  3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  0.1  0.1  4 T Selection Rule for Goal: At and above or below  0.1 Selection Rule for Goal: At and above or below  0.1 Selection Rule for Goal: At and above or below  0.1 If restriction is at or above, THEN Remember  1 T <menu key=""> = "A" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.2 Press and release appropriate menu key  0.3 Return with goal accomplished  0.1 S Point finger to right line select key next to waypoint  0.2 Return with goal accomplished  0.1 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 Determine whether mixed clearance is acceptable  0.1 Accomplish Goal: Determine whether non-RTA clearance is acceptable  0.1 Determine whether mixed clearance is acceptable  0.1 Determine whether non-RTA clearance is acceptable  0.2 T Decide: IF clearance is acceptable  0.3 Decide: IF clearance is acceptable  0.4 Determine whether non-RTA clearance is acceptable  0.5 Wilco," ELSE Retain <response> = "Unable"</response></menu></menu></menu></menu></menu></menu></menu></menu>	0.1	,
1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 4 T Recarance value is an altitude or speed with an above or below Selection Rule for Goal: At and above or below  0.1 Selection Rule for Goal: At and above or below  0.1 Frestriction is at or above, THEN Remember  1 T <menu key=""> = "A" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.2 Press and release appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 S Return with goal accomplished  0.1 S Return with goal accomplished  0.2 Press and release right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint  0.4 Return with goal accomplished  0.1 S Return with goal accomplished  0.1 S Return with goal accomplished  0.1 A Return with goal accomplished  0.2 Belection Rule for Goal: Decide on a clearance  0.3 T IF clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable  0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  0.2 T Decide: IF clearance is acceptable  0.3 T Determine whether non-RTA clearance is acceptable  0.4 Return with goal accomplished on the right in select key next to waypoint  0.5 Return with goal accomplished  0.6 Press and release right line select key next to waypoint  0.7 Return with goal accomplished  0.8 Return with goal accomp</menu></menu></menu></menu>		
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Nethod for Goal: Menu key		IF restriction is at or above, THEN Remember
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0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint  0.1 7 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 Br Clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable  0.1 Method for Goal: Determine whether mixed clearance is acceptable  0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  0.1 Determine whether non-RTA clearance is acceptable  0.1 Determine whether non-RTA clearance is acceptable  0.1 Determine whether non-RTA clearance is acceptable  0.2 Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.1	3 Return with goal accomplished
0.51	0.1	3 Return with goal accomplished
0.38 6 Press and release right line select key next to waypoint  7 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 3 T IF clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable  0.1 Method for Goal: Determine whether mixed clearance is acceptable  0.1 1 Accomplish Goal: Determine whether non-RTA clearance is acceptable  0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1 Determine whether non-RTA clearance is acceptable  1 Determine whether non-RTA clearance is acceptable  1 Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.1	5 Return with goal accomplished
0.1 5 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 3 T Determine whether mixed clearance is acceptable  0.1 Method for Goal: Determine whether mixed clearance is acceptable  0.1 1 Accomplish Goal: Determine whether non-RTA clearance is acceptable  0.1 Determine whether mixed clearance is acceptable  0.1 Determine whether non-RTA clearance is acceptable  0.1 Determine whether non-RTA clearance is acceptable  0.1 Determine whether non-RTA clearance is acceptable  0.2 Decide: IF clearance is acceptable, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"</response></response>	0.51	5 Point finger to right line select key next to waypoint
0.1 Selection Rule: Decide on a clearance 0.1 Selection Rule Decide on a clearance 0.1 Selection Rule for Goal: Decide on a clearance 0.1 The clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable 0.1 Method for Goal: Determine whether mixed clearance is acceptable 0.1 Method for Goal: Determine whether non-RTA clearance is acceptable 0.1 Method for Goal: Determine whether non-RTA clearance is acceptable 0.1 Determine whether non-RTA clearance is acceptable 0.1 Determine whether non-RTA clearance is acceptable 0.2 Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.38	6 Press and release right line select key next to waypoint
0.1 4 Selection Rule: Decide on a clearance 0.1 Selection Rule for Goal: Decide on a clearance 0.1 Selection Rule for Goal: Decide on a clearance 0.1	0.1	7 Return with goal accomplished
0.1 Selection Rule: Decide on a clearance 0.1 Selection Rule for Goal: Decide on a clearance 0.1 IF clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable 0.1 Method for Goal: Determine whether mixed clearance is acceptable 0.1 1 Accomplish Goal: Determine whether non-RTA clearance is acceptable 0.1 Method for Goal: Determine whether non-RTA clearance is acceptable 1.3 1 Determine whether non-RTA clearance is acceptable 0.2 T Decide: IF clearance is acceptable, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"</response></response>	0.1	5 Return with goal accomplished
0.1 Selection Rule: Decide on a clearance 0.1 Selection Rule for Goal: Decide on a clearance 0.1 IF clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable 0.1 Method for Goal: Determine whether mixed clearance is acceptable 0.1 1 Accomplish Goal: Determine whether non-RTA clearance is acceptable 0.1 Method for Goal: Determine whether non-RTA clearance is acceptable 1.3 1 Determine whether non-RTA clearance is acceptable 0.2 T Decide: IF clearance is acceptable, THEN Retain <response>= "Wilco," ELSE Retain <response>= "Unable"</response></response>	0.1	4 Return with goal accomplished
0.1 3 T   IF clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable  0.1   Method for Goal: Determine whether mixed clearance is acceptable  0.1   1   Accomplish Goal: Determine whether non-RTA clearance is acceptable  0.1   Method for Goal: Determine whether non-RTA clearance is acceptable  1.3   1   Determine whether non-RTA clearance is acceptable  1.3   Decide: IF clearance is acceptable, THEN Retain <response> =    Decide: IF clearance is acceptable   THEN Retain &lt; THEN Re</response>	0.1	
Determine whether mixed clearance is acceptable  Method for Goal: Determine whether mixed clearance is acceptable  1 Accomplish Goal: Determine whether non-RTA clearance is acceptable  Method for Goal: Determine whether non-RTA clearance is acceptable  Method for Goal: Determine whether non-RTA clearance is acceptable  Determine whether non-RTA clearance is acceptable  Decide: IF clearance is acceptable, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"</response></response>	0.1	Selection Rule for Goal: Decide on a clearance
Determine whether mixed clearance is acceptable  Method for Goal: Determine whether mixed clearance is acceptable  1 Accomplish Goal: Determine whether non-RTA clearance is acceptable  Method for Goal: Determine whether non-RTA clearance is acceptable  Method for Goal: Determine whether non-RTA clearance is acceptable  Determine whether non-RTA clearance is acceptable  Decide: IF clearance is acceptable, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"</response></response>		IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1 Accomplish Goal: Determine whether non-RTA clearance is acceptable  0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1.3 Determine whether non-RTA clearance is acceptable  1.5 Decide: IF clearance is acceptable, THEN Retain <response> =  "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.1	Determine whether mixed clearance is acceptable
0.1 1 Accomplish Goal: Determine whether non-RTA clearance is acceptable 0.1 Method for Goal: Determine whether non-RTA clearance is acceptable 1.3 1 Determine whether non-RTA clearance is acceptable 0.2 T Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.1	·
0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1.3 1 Determine whether non-RTA clearance is acceptable  0.2 2 T Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.1	·
1.3 Determine whether non-RTA clearance is acceptable  0.2 Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	0.1	
0.2 Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>	1.3	Determine whether non-RTA clearance is acceptable
0.2 2 1 "Wilco," ELSE Retain <response> = "Unable"</response>		Decide: IF clearance is acceptable, THEN Retain <response> =</response>
·	0.2	)
	0.1	·

0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Compare ETA to RTA
0.1	Method for Goal: Compare ETA to RTA
1.3	1 Compare clearance RTA to displayed ETA
	Decide: IF speed can be managed to maintain a predicted ETA that
1.4	2 T conforms with the assigned RTA, THEN Retain <response> =</response>
	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2	3 T Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:</clearance>
0.1	Readback clearance from memory
0.1	Method for Goal: Readback clearance from memory
7.7	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
7.7	information>followed by call sign
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
74.31	Total time

# Trace 18 - Task 5, Voice

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at 1800Z at or above FL190

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 16 words ("Cross HELPR at one eight zero zero

Zulu at or above flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

It takes one mental to determine if RTA portion of clearance is acceptable or not

RTA portion of clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
7.7	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
0.1	crossing restriction  Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "FPL" and Accomplish Goal:</menu>
0.1	1 Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
0.1	3 T accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> =</clearance>
0.1	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key > = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu ke</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	e el mellos de come entre el come el c
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.00	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	If <clearance value=""> is an altitude or speed with an above</clearance>
0.1	or below, THEN Selection Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
0.4	IF restriction is at or above, THEN Remember
0.1	1 T <menu key=""> = "A" and Accomplish Goal: Menu</menu>
0.4	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished
0.1	
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished

0.51		
O.1	0.51	5 Point finger to right line select key next to waypoint
Selection Rule: Decide on a clearance	0.38	6 Press and release right line select key next to waypoint
0.1 4 Return with goal accomplished 0.1 4 Selection Rule: Decide on a clearance 0.1 Selection Rule for Goal: Decide on a clearance 0.1 3 T El Clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable 0.1 Method for Goal: Determine whether nixed clearance is acceptable 0.1 Accomplish Goal: Determine whether non-RTA clearance is acceptable 0.1 Method for Goal: Determine whether non-RTA clearance is acceptable 0.1 Method for Goal: Determine whether non-RTA clearance is acceptable 0.2 Determine whether non-RTA clearance is acceptable 0.3 Determine whether non-RTA clearance is acceptable 0.4 Decide: IF clearance is acceptable, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable" 0.1 3 Return with goal accomplished 0.1 3 Accomplish Goal: Compare ETA to RTA 0.1 Method for Goal: Compare ETA to RTA 0.1 Method for Goal: Compare ETA to RTA 1.3 Decide: IF speed can be managed to maintain a predicted ETA that 1.4 Decide: IF speed can be managed to maintain a predicted ETA that 1.4 Decide: IF speed can be managed to maintain a predicted ETA that 1.4 Return with goal accomplished 0.1 A Return with goal accomplished 0.1 Becide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <a <response="" else="" href="https://www.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numembers.numember&lt;/td&gt;&lt;td&gt;0.1&lt;/td&gt;&lt;td&gt;7 Return with goal accomplished&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;0.1 4 Selection Rule: Decide on a clearance 0.1 Selection Rule for Goal: Decide on a clearance 0.1&lt;/td&gt;&lt;td&gt;0.1&lt;/td&gt;&lt;td&gt;5 Return with goal accomplished&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;0.1 Selection Rule for Goal: Decide on a clearance  0.1 3 T IF clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable  0.1 Method for Goal: Determine whether mixed clearance is acceptable  0.1 1 Accomplish Goal: Determine whether non-RTA clearance is acceptable  0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1.3 1 Determine whether non-RTA clearance is acceptable  1.3 1 Determine whether non-RTA clearance is acceptable  1.4 1 Determine whether non-RTA clearance is acceptable  1.5 1 Decide: IF clearance is acceptable, THEN Retain &lt;response&gt;=  " retain="" wilco,"="">= "Unable"  1.0 1 3 Return with goal accomplished  1.1 2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished  1.2 Accomplish Goal: Compare ETA to RTA  1.3 1 Compare clearance RTA to displayed ETA  1.4 Decide: IF speed can be managed to maintain a predicted ETA that  1.4 Decide: IF speed can be managed to maintain a predicted ETA that  1.4 Decide: IF speed can be managed to maintain a predicted ETA that  1.5 T Conforms with the assigned RTA, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"  1.6 Return with goal accomplished  1.7 A Return with goal accomplished  1.8 Return with goal accomplished  1.9 Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  1.0 Method for Goal: Line select key  1.1 Recall <keyword> and point finger to line select key next to keyword  2. Press and release appropriate line select key</keyword></keyword></response></response></response></response></a></response></response></response>	0.1	4 Return with goal accomplished
1	0.1	4 Selection Rule: Decide on a clearance
Determine whether mixed clearance is acceptable	0.1	Selection Rule for Goal: Decide on a clearance
Determine whether mixed clearance is acceptable  0.1	0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	0.1	Determine whether mixed clearance is acceptable
0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1.3 Determine whether non-RTA clearance is acceptable  1.4 Determine whether non-RTA clearance is acceptable  1.5 Decide: IF clearance is acceptable, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"  1.0 Return with goal accomplished  1.1 Recall   1.2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished  1.3 Accomplish Goal: Compare ETA to RTA  1.4 Decide: IF speed can be managed to maintain a predicted ETA that  1.5 T Compare clearance RTA to displayed ETA  1.6 Decide: IF speed can be managed to maintain a predicted ETA that  1.7 Decide: IF speed can be managed to maintain a predicted ETA that  1.8 Return with the assigned RTA, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"  1.9 Return with goal accomplished  1.0 Return with goal accomplished  1.1 Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword>= "Activate" and Accomplish Goal: Line select key  1.9 Method for Goal: Line select key  1.0 Recall <keyword> and point finger to line select key next to keyword  2. Press and release appropriate line select key</keyword></keyword></response></response></response></response></response></response>	0.1	Method for Goal: Determine whether mixed clearance is acceptable
1 Determine whether non-RTA clearance is acceptable  0.2 Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1 3 Return with goal accomplished  0.1 3 Accomplish Goal: Compare ETA to RTA  0.1 Method for Goal: Compare ETA to RTA  1.3 1 Compare clearance RTA to displayed ETA  Decide: IF speed can be managed to maintain a predicted ETA that  2 T conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response></response></response></response></response>	0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.2  2 T Decide: IF clearance is acceptable, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"  3 Return with goal accomplished  0.1 2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished  0.1 3 Accomplish Goal: Compare ETA to RTA  0.1 Method for Goal: Compare ETA to RTA  1.3 1 Compare clearance RTA to displayed ETA  Decide: IF speed can be managed to maintain a predicted ETA that  1.4 2 T conforms with the assigned RTA, THEN Retain <response>=  "Wilco," ELSE Retain <response>= "Unable"  0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword>= "Activate" and Accomplish Goal: Line select key  0.5 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response></response></response></response></response></response>	0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
O.1	1.3	1 Determine whether non-RTA clearance is acceptable
O.1  3 Return with goal accomplished  0.1  2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished  0.1  3 Accomplish Goal: Compare ETA to RTA  0.1 Method for Goal: Compare ETA to RTA  1.3  1 Compare clearance RTA to displayed ETA  Decide: IF speed can be managed to maintain a predicted ETA that  2 T conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1  3 Return with goal accomplished  0.1  4 Return with goal accomplished  0.1  5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.2 Press and release appropriate line select key</keyword></response></response></response></response>	0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.1 2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished 0.1 3 Accomplish Goal: Compare ETA to RTA 0.1 Method for Goal: Compare ETA to RTA 1.3 1 Compare clearance RTA to displayed ETA 1.4 Decide: IF speed can be managed to maintain a predicted ETA that 1.4 2 T conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable" 0.1 3 Return with goal accomplished 0.1 4 Return with goal accomplished 0.1 4 Return with goal accomplished 0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key 0.1 Method for Goal: Line select key 0.5 1 Recall <keyword> and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key</keyword></keyword></response></response></response></response>	0.2	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1 3 Accomplish Goal: Compare ETA to RTA  0.1 Method for Goal: Compare ETA to RTA  1.3 1 Compare clearance RTA to displayed ETA  Decide: IF speed can be managed to maintain a predicted ETA that  1.4 2 T conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.2 Press and release appropriate line select key</keyword></response></response></response>	0.1	3 Return with goal accomplished
0.1 Method for Goal: Compare ETA to RTA  1.3 1 Compare clearance RTA to displayed ETA  Decide: IF speed can be managed to maintain a predicted ETA that  1.4 2 T conforms with the assigned RTA, THEN Retain <response> =  "Wilco," ELSE Retain <response> = "Unable"  0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.2 Press and release appropriate line select key</keyword></response></response></response>	0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
1.3   1   Compare clearance RTA to displayed ETA   Decide: IF speed can be managed to maintain a predicted ETA that  1.4   2   T   conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1   3   Return with goal accomplished  0.1   4   Return with goal accomplished  0.1   4   Return with goal accomplished  0.1   5   T   Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1   Method for Goal: Line select key  0.2   Method for Goal: Line select key  0.3   2   Press and release appropriate line select key</keyword></response></response></response>	0.1	3 Accomplish Goal: Compare ETA to RTA
Decide: IF speed can be managed to maintain a predicted ETA that  2 T conforms with the assigned RTA, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  2 Press and release appropriate line select key</keyword></keyword></response></response></response>	0.1	Method for Goal: Compare ETA to RTA
1.4 2 T conforms with the assigned RTA, THEN Retain <response> =</response>	1.3	1 Compare clearance RTA to displayed ETA
"Wilco," ELSE Retain <response> = "Unable"  0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response></response>		Decide: IF speed can be managed to maintain a predicted ETA that
0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response>="Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword>= "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response>	1.4	2 T conforms with the assigned RTA, THEN Retain <response> =</response>
0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response>		"Wilco," ELSE Retain <response> = "Unable"</response>
0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></response>	0.1	3 Return with goal accomplished
0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  1 Recall <keyword> and point finger to line select key next to keyword  2 Press and release appropriate line select key</keyword></keyword></response>	0.1	4 Return with goal accomplished
THEN Remember < keyword > = "Activate" and Accomplish Goal: Line select key  Method for Goal: Line select key  1 Recall < keyword > and point finger to line select key next to keyword  Press and release appropriate line select key	0.1	4 Return with goal accomplished
THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword>	0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.51 1 Recall < keyword > and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key	0.1	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.38 2 Press and release appropriate line select key	0.1	Method for Goal: Line select key
	0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>
0.1 3 Return with goal accomplished	0.38	2 Press and release appropriate line select key
	0.1	3 Return with goal accomplished

0.4	Colorting Duly Demond to a degree
0.1	
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 T Rule: Method of clearance readback, ELSE state call sign followed by  <response></response></response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	1 T IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>
0.1	Method for Goal: Readback clearance from memory
7.7	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	·
40.84	Total time

### **Trace 19 - Task 5, Data Comm**

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at time 1800Z at or above FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands do not start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu") and page two is 8 words ("At or above flight level one niner zero")

Clearance is two pages

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Hand is not on FMS after grasping print out

Once opened, clearance remains open until clearance information is entered

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

When clearance is read from paper it is 17 words ("Cross HELPR at time one eight zero zero Zulu at or above flight level one niner zero")

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

It takes one mental to determine if RTA portion of clearance is acceptable or not

RTA portion of clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Remember < keyword > = "NEW MSGS" and Accomplish Goal: Line
0.1	select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	Line select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
2.0	aloud, THEN Read information on screen aloud and retain
3.8	1 T <a href="https://www.neithild.com/street/aloug data/retain/"></a>
	retain <clearance information=""></clearance>
0.4	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 F with goal accomplished
0.1	3 Remember <menu key=""> = "Next" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	A COTO Stop 1
0.1	4 GOTO Step 1
	Decide: IF clearance must be read aloud or crew wants to read
3.4	aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed 4 T
	copy
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished

0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
	Decide: IF clearance is remembered. THEN Recall <clearance information=""> FLSE</clearance>
0.2	1 F Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
	IF clearance is in writing THEN Accomplish Goal: Read clearance from
0.1	1 T paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
7	aloud, THEN Read information on paper aloud and retain
7	<ul> <li><clearance information="">, ELSE Read information on paper and</clearance></li> </ul>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
	crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "FPL" and Accomplish Goal:</menu>
0.1	Menu key  Mathod for Cool: Manu koy
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.82	2 Search for waypoint
	Decide: IF waypoint is found. THEN Return with goal
0.1	3 T accomplished
	Decide: IF speed restriction. THEN Retain <clearance value=""> =</clearance>
0.1	2 F digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	no el le lui de le le manera el le le
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.00	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	If <clearance value=""> is an altitude or speed with an above</clearance>
0.4	or below, THEN Selection Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
0.4	IF restriction is at or above, THEN Remember
0.1	1 T <menu key=""> = "A" and Accomplish Goal: Menu</menu>
	key
0.1	,
0.51	Recall <menu key=""> and point finger to</menu>
0.30	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished

0.51	5 Point finger to right line select key next to waypoint
0.38	
0.38	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	·
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	3 T Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	·
	Decide: IF clearance is acceptable THEN Retain <response> =</response>
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Compare ETA to RTA
0.1	Method for Goal: Compare ETA to RTA
1.3	·
	Decide: IF speed can be managed to maintain a predicted ETA that
1.4	· · · · · · · · · · · · · · · · · · ·
	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS</response>
0.1	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	, , , , , , , , , , , , , , , , , , , ,
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	<ul> <li>1 F Decide: IF hand not on FMS, THEN move hand to FMS</li> <li>2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance</li> </ul>
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance  Method for Goal: Open clearance
0.1 0.1 0.1 0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance  Method for Goal: Open clearance  1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key  Method for Goal: Menu key  Recall < menu key> and point finger to appropriate menu
0.1 0.1 0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance  Method for Goal: Open clearance  1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key  Method for Goal: Menu key  Recall < menu key> and point finger to appropriate menu
0.1 0.1 0.1 0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance  Method for Goal: Open clearance  1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key  Method for Goal: Menu key  Recall < menu key> and point finger to appropriate menu key

0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	3 Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.4	2 Demonstrate discussed - december 2 and Accomplish Cool Line colort love
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
54.65	Total time

# **Trace 20 - Task 5, Data Comm**

Equipment: FMS 1

NGOMSL Trace: Cross HELPR at time 1800Z at or above FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu")

and page two is 8 words ("At or above flight level one niner zero")

Clearance is two pages

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

It takes one mental to determine if RTA portion of clearance is acceptable or not

RTA portion of clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Time	Action						
0.1	Method	for G	oal: H	andle	a clear	ance	
0.1	1	Selec	ction F	Rule:	Receive	a cleara	nce
0.1		Selec	ction F	Rule f	or Goal:	Receive	a clearance
0.1		1	T IF	clear	ance is t	ext, THE	N Accomplish Goal: Receive an FMS clearance
0.1			M	etho	for Go	al: Receiv	ve an FMS clearance
0.1			1	F	Decide	: IF hand	I not on FMS, THEN move hand to FMS
0.1			2		Accom	plish Go	al: Open clearance
0.1					Metho	d for Go	al: Open clearance
0.1					1	Remer	mber <menu key=""> = "DLK" and Accomplish Goal: Menu key</menu>
0.1						Metho	d for Goal: Menu key
0.51						1	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51						1	key
0.38						2	Press and release appropriate menu key
0.1						3	Return with goal accomplished

	Demonstrate Account Account Account to Control of the Control of t
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.4	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
3.8	aloud, THEN Read information on screen aloud and retain
3.0	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.6	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 F with goal accomplished
0.1	3 Remember < menu key> = "Next" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 GOTO Step 1
	Decide: IF clearance must be read aloud or crew wants to read
2.4	aloud, THEN Read information on screen aloud and retain
3.4	1 T <clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.4	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 T with goal accomplished
0.4	Decide: IF printed clearance is desired. THEN Selection Rule: Get printed
0.1	4 F copy
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Keturn with goal accomplished

		Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	2 T	Respond to a clearance
0.1		Selection Rule for Goal: Respond to a clearance
0.1		2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1		Method for Goal: Respond by FMS
0.1		1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1		2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1		3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1		Method for Goal: Line select key
0.54		Recall <keyword> and point finger to line select key next to</keyword>
0.51		1 keyword
0.38		2 Press and release appropriate line select key
0.1		3 Return with goal accomplished
0.1		4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1		Method for Goal: Line select key
0.51		Recall <keyword> and point finger to line select key next to</keyword>
0.51		1 keyword
0.38		2 Press and release appropriate line select key
0.1		3 Return with goal accomplished
0.1		5 Return with goal accomplished
0.1		3 Return with goal accomplished
0.1	3	Accomplish Goal: Enter a clearance
0.1		Method for Goal: Enter a clearance
0.2		Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2		Selection Rule: Method of reading
0.1		2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1		3 Selection Rule: Specific clearance type
0.1		Selection Rule for Goal: Specific clearance type
0.1		IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
		crossing restriction
0.1		Method for Goal: Enter crossing restriction
0.1		1 Accomplish Goal: Locate waypoint
0.1		Method for Goal: Locate waypoint
0.1		Remember <menu key=""> = "FPL" and Accomplish Goal:</menu>
		Menu key
0.1		Method for Goal: Menu key
0.51		Recall <menu key=""> and point finger to</menu>
		appropriate menu key
0.38		2 Press and release appropriate menu key
0.1		3 Return with goal accomplished

0.82	2 Search for waypoint
0.4	Decide: IF waypoint is found, THEN Return with goal
0.1	3 T accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value="">=</clearance>
0.1	2 F digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu ke</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.1	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	restriction and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	restrictions and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,							
0.1	THEN GOTO Step 2							
0.1	If <clearance value=""> is an altitude or speed with an above</clearance>							
	or below, THEN Selection Rule: At and above or below							
0.1	Selection Rule for Goal: At and above or below							
	IF restriction is at or above, THEN Remember							
0.1	1 T <menu key=""> = "A" and Accomplish Goal: Menu</menu>							
	key							
0.1	Method for Goal: Menu key							
0.51	Recall <menu key=""> and point finger to</menu>							
	appropriate menu key							
0.38								
0.1	3 Return with goal accomplished							
0.1	3 Return with goal accomplished							
0.1	5 Return with goal accomplished							
0.51	5 Point finger to right line select key next to waypoint							
0.38	, , , , , , , , , , , , , , , , , , , ,							
0.1	7 Return with goal accomplished							
0.1	5 Return with goal accomplished							
0.1	4 Return with goal accomplished							
0.1	4 Selection Rule: Decide on a clearance							
0.1	Selection Rule for Goal: Decide on a clearance							
0.1	3 T IF clearance includes both RTA and other information, THEN Accomplish Goal:							
0.1	Determine whether mixed clearance is acceptable							
0.1	Method for Goal: Determine whether mixed clearance is acceptable							
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable							
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable							
1.3	1 Determine whether non-RTA clearance is acceptable							
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>							
0.2	"Wilco," ELSE Retain < response > = "Unable"							
0.1	3 Return with goal accomplished							
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>							
0.1	3 Accomplish Goal: Compare ETA to RTA							
0.1	Method for Goal: Compare ETA to RTA							
1.3	1 Compare clearance RTA to displayed ETA							
	Decide: IF speed can be managed to maintain a predicted ETA that							
1.4								
	"Wilco," ELSE Retain <response> = "Unable"</response>							
0.1	3 Return with goal accomplished							
0.1	4 Return with goal accomplished							
0.1	4 Return with goal accomplished							

0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
	THEN Remember <keyword> = "Activate" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "DLK" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "NEW MSGS" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.20	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key  Recall <keyword> and point finger to line select key next to</keyword>
0.51	1
0.38	keyword  2 Press and release appropriate line select key
0.38	3 Return with goal accomplished
0.1	5 Neturn with goal accomplished

0.1		4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1		Method for Goal: Line select key
0.51		Recall <keyword> and point finger to line select key next to</keyword>
0.51		1 keyword
0.38		2 Press and release appropriate line select key
0.1		3 Return with goal accomplished
0.1		5 Return with goal accomplished
0.1		3 Return with goal accomplished
0.1	7	F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8	Return with goal accomplished
41.93		Total time

#### FMS 2

# Trace 1 - Task 1, Voice

Equipment: FMS 2

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 4 words ("Proceed direct to HELPR")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by voice

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
2.9	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	2	F	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
			Respond to a clearance
0.1	3		Accomplish Goal: Enter a clearance
0.1			Method for Goal: Enter a clearance
0.2			Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2			Selection Rule: Method of reading
0.5			2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1			3 Selection Rule: Specific clearance type
0.1			Selection Rule for Goal: Specific clearance type
0.1			1 T IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed
0.1			direct to
0.1			Method for Goal: Enter proceed direct to
0.1			1 Accomplish Goal: Locate waypoint
0.1			Method for Goal: Locate waypoint
0.1			Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
0.1			Menu key
0.1			Method for Goal: Menu key
0.51			Recall <menu key=""> and point finger to</menu>
0.51			appropriate menu key
0.38			2 Press and release appropriate menu key
0.1			3 Return with goal accomplished
0.82			2 Search for waypoint
0.1			Decide: IF waypoint is found, THEN Return with goal
0.1			accomplished
0.51			2 Point finger to left line select key next to waypoint
0.38			3 Press and release left line select key next to waypoint
0.1			Decide: IF not on first page of flight plan, THEN Remember < menu
0.1			key> = "FPL" and Accomplish Goal: Menu key
0.51			5 Point finger to second left line select key
0.38			6 Press and release second left line select key
0.1			7 Return with goal accomplished
0.1			5 Return with goal accomplished
0.1			4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
	IF clearance includes only non-RTA. THEN Accomplish Goal: Determine whether
0.1	2 T non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE  Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2	Rule: Method of clearance readback, ELSE state call sign followed by
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:</clearance>
0.1	Readback clearance from memory
0.1	Method for Goal: Read back clearance from memory
2.9	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
	information> followed by call sign
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
10.00	Total No. 2
18.68	Total time

# Trace 2 - Task 1, Voice

Equipment: FMS 2

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 4 words ("Proceed direct to HELPR")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

Response is sent by voice

There is no clearance information to enter into the FMS

Time	Action					
0.1	Method for Goal: Handle a clearance					
0.1	1 Selection Rule: Receive a clearance					
0.1	Selection Rule for Goal: Receive a clearance					
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance					
0.1	Method for Goal: Receive a radio clearance					
2.9	1 Listen to clearance and retain <clearance information=""></clearance>					
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down					
0.1	clearance					
0.1	3 Return with goal accomplished					
0.1	3 Return with goal accomplished					

0.1	2	F	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
			Respond to a clearance
0.1	3		Accomplish Goal: Enter a clearance
0.1			Method for Goal: Enter a clearance
0.2			Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2			Selection Rule: Method of reading
0.5			2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1			3 Selection Rule: Specific clearance type
0.1			Selection Rule for Goal: Specific clearance type
0.1			1 T IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed
0.1			direct to
0.1			Method for Goal: Enter proceed direct to
0.1			1 Accomplish Goal: Locate waypoint
0.1			Method for Goal: Locate waypoint
0.1			Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
0.1			Menu key
0.1			Method for Goal: Menu key
0.51			Recall <menu key=""> and point finger to</menu>
0.51			appropriate menu key
0.38			2 Press and release appropriate menu key
0.1			3 Return with goal accomplished
0.82			2 Search for waypoint
0.1			Decide: IF waypoint is found, THEN Return with goal
0.1			accomplished
0.51			2 Point finger to left line select key next to waypoint
0.38			3 Press and release left line select key next to waypoint
0.1			Decide: IF not on first page of flight plan, THEN Remember < menu
0.1			key> = "FPL" and Accomplish Goal: Menu key
0.51			5 Point finger to second left line select key
0.38			6 Press and release second left line select key
0.1			7 Return with goal accomplished
0.1			5 Return with goal accomplished
0.1			4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
	non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.2	2 F Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	5 F THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	·
	•
15.79	Total time

# Trace 3 - Task 1, Data Comm

Equipment: FMS 2

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen or paper it is 4 words ("Proceed direct to HELPR")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Clearance information is remembered when entering clearance

Hand is not on FMS after grasping print out

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
	key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
1.8	1 T aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	4 T copy
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select</keyword>
0.51	1 key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished

	Deside: IF allowance includes DTA THEN Detain groupes - "Chandle," and Colortion Dule.
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:  2 F</response>
0.1	Respond to a clearance  Accomplish Goal: Enter a clearance
	Method for Goal: Enter a clearance
0.1	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1
0.5	Selection Rule: Method of reading
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	1 T IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed direct to
0.1	Method for Goal: Enter proceed direct to
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
	Remember < menu kev> = "Legs" and Accomplish Goal:
0.1	1 Menu key
0.1	Method for Goal: Menu key
	Recall <menu kev=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
	Decide: IF waypoint is found. THEN Return with goal
0.1	3 T accomplished
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.4	Decide: IF not on first page of flight plan, THEN Remember < menu
0.1	4 F key>= "Legs" and Accomplish Goal: Menu key
0.51	5 Point finger to second left line select key
0.38	6 Press and release second left line select key
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
0.1	2 T non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.2	Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished

		Decide IF was a server with the server is also were information to contain the the FMC
0.1	5	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1		THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6	Selection Rule: Respond to a clearance Selection Rule for Goal: Respond to a clearance
0.1		·
0.1		2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS  Method for Goal: Respond by FMS
		· · ·
0.1		<ol> <li>F Decide: IF hand not on FMS, THEN move hand to FMS</li> <li>T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance</li> </ol>
0.1		Method for Goal: Open clearance
0.1		1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1		Method for Goal: Menu key
0.1		Recall <menu key=""> and point finger to appropriate menu</menu>
0.51		1 key
0.38		2 Press and release appropriate menu key
0.38		3 Return with goal accomplished
0.1		Remember < keyword> = clearance to open and Accomplish Goal:
0.1		Line select key
0.1		Method for Goal: Line select key
		Recall <keyword> and point finger to line select key next</keyword>
0.51		to keyword
0.38		2 Press and release appropriate line select key
0.1		3 Return with goal accomplished
0.1		3 Return with goal accomplished
0.1		3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1		Method for Goal: Line select key
		Recall <keyword> and point finger to line select key next to</keyword>
0.51		1 keyword
0.38		2 Press and release appropriate line select key
0.1		3 Return with goal accomplished
0.1		4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1		Method for Goal: Line select key
0.51		Recall <keyword> and point finger to line select key next to</keyword>
0.51		1 keyword
0.38		2 Press and release appropriate line select key
0.1		3 Return with goal accomplished
0.1		5 Return with goal accomplished
0.1		3 Return with goal accomplished
0.1	7	F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8	Return with goal accomplished
23.24		Total time

# Trace 4 - Task 1, Data Comm

Equipment: FMS 2

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 4 words ("Proceed direct to HELPR")

Clearance is one page

Clearance is not printed upon receipt

Clearance information is remembered when entering clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is no clearance information to enter into the FMS

Timo	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
0.1	Decide: IF clearance must be read aloud or crew wants to read
1.8	1 Taloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
	Decide: IF there are no more pages of clearances. THEN Return
0.1	2 T with goal accomplished
0.4	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	4 F copy
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed
	direct to
0.1	Method for Goal: Enter proceed direct to
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
	Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	appropriate menu key
0.38	<ul> <li>2 Press and release appropriate menu key</li> <li>3 Return with goal accomplished</li> </ul>
0.1	2 Search for waypoint
0.62	Decide: IF waypoint is found, THEN Return with goal
0.1	3 T accomplished
0.51	2 Point finger to left line select key next to waypoint
0.31	
	Decide: IF not on first page of flight plan, THEN Remember <menu< td=""></menu<>
0.1	4 F key> = "Legs" and Accomplish Goal: Menu key
0.51	5 Point finger to second left line select key
0.38	•
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	. netari with Sour accomplished

0.1	4 Selection Rule: Decide on a clearance
0.1	
0.1	Selection Rule for Goal: Decide on a clearance  IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
0.1	2 T non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	Determine whether non-RTA clearance is acceptable
	Decide: IF clearance is acceptable. THEN Retain <response> = "Wilco." FLSE</response>
0.2	2 F Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
U. 1	5

0.1		4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1		Method for Goal: Line select key
0.51		Recall <keyword> and point finger to line select key next to</keyword>
0.51	L	1 keyword
0.38		2 Press and release appropriate line select key
0.1		3 Return with goal accomplished
0.1		5 Return with goal accomplished
0.1		3 Return with goal accomplished
0.1	7	F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8	Return with goal accomplished
19.33		Total time

# Trace 5 - Task 2, Voice

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 8 words ("Cross HELPR at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Need to obtain pen and paper

Clearance is written as 4 words ("Cross HELPR at FL190")

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Once visible, paper will remain visible until hand moved to FMS

Hand returns to paper after replacing pen

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by voice

Clearance information is not remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
4.5	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	2 T clearance
0.1	Method for Goal: Write down clearance
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:
0.1	1 T Obtain paper
0.1	Method for Goal: Obtain paper
0.51	1 Reach for paper
0.8	2 Grasp paper
0.51	3 Transport paper to writing space
0.17	4 Release paper
0.1	5 Return with goal accomplished

Obtain pen
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information>
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election Rule:
tions FICE
tion>, ELSE
nce from
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ts to read
etain
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al: Enter
plish Goal:
to
u key

0.82	2 Search for waypoint
	Decide: IF waynoint is found. THEN Return with goal
0.1	3 T accomplished
	Decide: IF speed restriction. THEN Retain <clearance value=""> =</clearance>
0.1	2 F digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	·
0.1	3 Return with goal accomplished
0.4	Decide: IF altitude restriction THEN Retain <clearance value=""> =</clearance>
0.1	4 T digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	ě i
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
0.1	an above or below, THEN Selection Rule: At and above or
0.1	
0.51	
0.38	
0.1	7 Return with goal accomplished

0.1	5 Return with goal accomplished			
0.1	4 Return with goal accomplished			
0.1	4 Selection Rule: Decide on a clearance			
0.1	Selection Rule for Goal: Decide on a clearance			
	IF clearance includes only non-RTA THEN Accomplish Goal: Determine whether			
0.1	2 T non-RTA clearance is acceptable			
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable			
1.3	Determine whether non-RTA clearance is acceptable			
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>			
0.2	Retain <response> = "Unable"</response>			
0.1	3 Return with goal accomplished			
0.1	4 Return with goal accomplished			
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>			
	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>			
0.1	Method for Goal: Menu key			
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>			
0.38	2 Press and release appropriate menu key			
0.1	3 Return with goal accomplished			
0.1	6 Selection Rule: Respond to a clearance			
0.1	Selection Rule for Goal: Respond to a clearance			
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice			
0.1	Method for Goal: Respond by voice			
0.5	1 Move hand to yoke and "Push to talk" button			
0.2	2 Press "Push to talk" button			
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>			
0.1	Rule: Method of clearance readback, ELSE state call sign followed by			
0.1	Selection Rule for Goal: Method of clearance readback			
0.1	IF <clearance information=""> is not remembered, THEN Accomplish</clearance>			
0.1	Goal: Readback clearance by reading  Method for Goal: Readback clearance by reading			
0.1	1 Selection Rule: Method of reading			
0.1	Selection Rule for Goal: Method of reading			
0.1	IF clearance is in writing, THEN Accomplish Goal:			
0.1	1 T Read clearance from paper			
0.1	Method for Goal: Read clearance from paper			
	Decide: IF paper not visible. THEN move			
0.51	1 T paper			
	Decide: IF clearance must be read aloud			
	or crew wants to read aloud, THEN Read			
3.4	2 T information on paper aloud and retain			
	<clearance information="">, ELSE Read</clearance>			
	information on paper and retain			
0.1	3 Return with goal accomplished			
0.1	3 Return with goal accomplished			

1.3		2 State call sign
0.1		3 Return with goal accomplished
0.1		3 Return with goal accomplished
0.2		4 Release "Push to talk" button
0.5		5 Return hand to FMS
0.1		6 Return with goal accomplished
0.1		3 Return with goal accomplished
0.1	7	F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8	Return with goal accomplished
48.51		Total time

# Trace 6 - Task 2, Voice

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 8 words ("Cross HELPR at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by voice

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action		
0.1	Method for Goa	l: Hand	dle a clearance
0.1	1 Selection	n Rule	e: Receive a clearance
0.1	Selectio	n Rule	e for Goal: Receive a clearance
0.1	2 T	IF cle	arance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1		Meth	nod for Goal: Receive a radio clearance
4.5		1	Listen to clearance and retain <clearance information=""></clearance>
0.1		2	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1		2	clearance
0.1	_	3	Return with goal accomplished
0.1	3	Retu	rn with goal accomplished

	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	)
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE  T Selection Rule: Method of reading</clearance>
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is only crossing restriction, THEN Accomplish Goal: Enter
0.1	2 T crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
0.1	1 Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
	Decide: IF waypoint is found. THEN Return with goal
0.1	3 T accomplished
0.1	Decide: IF speed restriction THEN Retain  =
0.1	2 F digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key Math ad for Coal: Many law</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1   2   2   Remember < menu key> = next digit/character in < clearance value> and Accomplish Goal: Menu key   0.51   1   Recall < menu key> and point finger to appropriate menu key   0.1   3   THEN GOTO Step 2		
	0.1	Remember <menu key=""> = next digit/character in</menu>
1 Recall <menu key=""> and point finger to appropriate menu key  3 Return with goal accomplished  1 appropriate menu key  3 Return with goal accomplished  3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  8 Remember <menu key=""> = next digit/character in <a href="#cdearance">cdearance value&gt; and Accomplish Goal: Menu key</a>  9 Recall <menu key=""> = next digit/character in <a href="#cdearance">cdearance value&gt; and Accomplish Goal: Menu key</a>  9 Recall <menu key=""> and point finger to appropriate menu key  9 Recall <menu key=""> and point finger to appropriate menu key  1 Recall <menu key=""> and point finger to appropriate menu key  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  4 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  2 Press and release appropriate menu key  3 Return with goal accomplished  4 F Decide: IF colearance value&gt; is an altitude or speed with an above or below, THEN Selection Rule: At and above or Below, THEN Selection Rule: Decide on a clearance lease right line select key next to waypoint  5 Return with goal accomplished  1 A Return with goal accomplished  2 T F IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable  Method for Goal: Determine whether non-RTA clearance is acceptable  1 Determine whether non-RTA clearance is acceptable  1 Determine whether non-RTA clearance is acceptable  2 T Pecide: IF clearance is acceptable, THEN Retain <re>THEN Retain <re>TH</re></re></re></re></re></re></re></re></re></re></re></re></re></re></re></re></re></re></re></menu></menu></menu></menu></menu></menu></menu>		<clearance value=""> and Accomplish Goal: Menu key</clearance>
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appropriate menu key   2   Press and release appropriate menu key   3   Return with goal accomplished   3   T   Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2   Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key   Method for Goal: Determine whether non-RTA clearance is acceptable   Method for Goal: Determine whether non-RTA clearance is acceptable   Method for Goal: Determine whether non-RTA clearance is acceptable   Method for Goal: Menu key   Method for</clearance></menu>	0.51	Recall <menu key=""> and point finger to</menu>
O.1		appropriate menu key
0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1	0.38	2 Press and release appropriate menu key
0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1	0.1	
THEN GOTO Step 2 Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  1</clearance></menu>	0.1	Decide: IF more digits/characters in restriction to enter,
Column   C	0.1	THEN GOTO Step 2
O.1	0.1	· · · · · ·
1		<clearance value=""> and Accomplish Goal: Menu key</clearance>
O.38	0.1	
0.38  2 Press and release appropriate menu key  0.1  0.1  3 Return with goal accomplished  0.1  0.1  4 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  0.1  0.1  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint  0.1  7 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  4 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  4 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  6 Press and release right line select key next to waypoint  0.1  5 Return with goal accomplished  0.1  6 Press and release right line select key next to waypoint  7 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  4 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  6 Press and release acceptable  1.3  1 Determine whether non-RTA Clearance is acceptable  1.3  1 Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1  4 Return with goal accomplished  0.1  4 Return with goal accomplished  0.1  5 T Decide: IF   7 Decide: IF   7 Decide: IF   7 Decide: IF   7 Decide: IF   8 Return with goal accomplished  0.1  1 Recall <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.5  1 Recall <menu key=""> and point finger to appropriate menu key  0.5  2 Press and release appropriate menu key</menu></menu></response></response>	0.51	
O.1		
0.1  0.1  0.1  0.1  0.1  0.1  0.2  0.3  0.5  0.5  0.5  0.1  0.5  0.1  0.2  0.3  0.3  0.3  0.1  0.3  0.1  0.3  0.1  0.3  0.1  0.3  0.1  0.3  0.1  0.1		
0.1  0.1  1	0.1	
THEN GOTO Step 2  Decide: IF < learning between the waypoint of the properties of th	0.1	<b>₹ F</b>
0.1		THEN GOTO Step 2
O.51	0.1	4 F
Selection Rule: Decide on a clearance		
O.38		· · · · · · · · · · · · · · · · · · ·
O.1	-	
0.1		· · · · · · · · · · · · · · · · · · ·
0.1 4 Return with goal accomplished  0.1 4 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 2 T		<u> </u>
0.1 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1	0.1	
O.1 Selection Rule for Goal: Decide on a clearance  O.1 2 T IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable  O.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1.3 1 Determine whether non-RTA clearance is acceptable  O.2 2 T Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  O.1 3 Return with goal accomplished  O.1 4 Return with goal accomplished  O.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  O.1 Method for Goal: Menu key  O.2 Press and release appropriate menu key  O.38 Press and release appropriate menu key</menu></response></response></response>	0.1	
Determine whether	0.1	4 Selection Rule: Decide on a clearance
0.1 Method for Goal: Determine whether non-RTA clearance is acceptable  1.3 1 Determine whether non-RTA clearance is acceptable  1.4 Return with goal accomplished  1.5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  1.5 T Recall <menu key=""> and point finger to appropriate menu key  2.7 Nethod for Goal: Menu key  3.7 Recall <menu key=""> and point finger to appropriate menu key  3.8 Press and release appropriate menu key</menu></menu></menu></response>	0.1	
non-RTA clearance is acceptable  1.3	0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
1 Determine whether non-RTA clearance is acceptable  2 T Decide: IF clearance is acceptable, THEN Retain <response>="Wilco," ELSE Retain <response>="Unable"  1 Return with goal accomplished  2 T Decide: IF clearance is acceptable, THEN Retain <response>="Wilco," ELSE Retain <response>="Unable"  3 Return with goal accomplished  4 Return with goal accomplished  Decide: IF <response>="Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key="">="Exec" and Accomplish Goal: Menu key  Method for Goal: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key</menu></menu></response></response></response></response></response>	0.1	non-RTA clearance is acceptable
0.2 2 T Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"  0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu></response></response></response>	-	
0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu></response>	1.3	·
0.1 3 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu></response>	0.2	, · · · · · · · · · · · · · · · · · · ·
0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu></response>		Retain <response> = "Unable"</response>
0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  Method for Goal: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key</menu></menu></response>	0.1	0 1
<ul> <li>THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu></li> <li>Method for Goal: Menu key</li> <li>1 Recall <menu key=""> and point finger to appropriate menu key</menu></li> <li>2 Press and release appropriate menu key</li> </ul>	0.1	
THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu>	0.1	5 1
<ul> <li>0.51 1 Recall <menu key=""> and point finger to appropriate menu key</menu></li> <li>0.38 2 Press and release appropriate menu key</li> </ul>		THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.38 2 Press and release appropriate menu key	0.1	
	0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.1 3 Return with goal accomplished	0.38	2 Press and release appropriate menu key
	0.1	Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	3 T Recall <response> and Decide: IF <response> = "Wilco," THEN Selection Rule: Method of clearance readback, ELSE state call sign followed by</response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>
0.1	Method for Goal: Readback clearance from memory
4.5	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
4.5	information> followed by call sign
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
26.35	Total time

# Trace 7 - Task 2, Data Comm

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen or paper it is 8 words ("Cross HELPR at flight level one niner zero")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Once visible, paper will remain visible until hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is clearance information to enter into the FMS

Time	Action		
0.1	Method for Goal: Handle a clearance		
0.1	1 Selection Rule: Receive a clearance		
0.1	Selection Rule for Goal: Receive a clearance		
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance		
0.1	Method for Goal: Receive an FMS clearance		
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS		
0.1	2 Accomplish Goal: Open clearance		
0.1	Method for Goal: Open clearance		
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key		
0.1	Method for Goal: Menu key		
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>		
0.51	key		
0.38	2 Press and release appropriate menu key		
0.1	3 Return with goal accomplished		
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>		
0.1	Line select key		
0.1	Method for Goal: Line select key		
0.51	Recall <keyword> and point finger to line select key next</keyword>		
0.51	to keyword		
0.38	2 Press and release appropriate line select key		
0.1	3 Return with goal accomplished		

0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
3.4	1 T aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
0.4	Decide: IF there are no more pages of clearances. THEN Return
0.1	2 T with goal accomplished
0.4	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	4 т сору
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.4	Remember < keyword > = "Print" and Accomplish Goal: Line
0.1	select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select</keyword>
0.51	1 key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from
	paper
0.1	Method for Goal: Read clearance from paper
0.1	1 F Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
3.4	2 T aloud, THEN Read information on paper aloud and retain
	<pre><clearance information="">, ELSE Read information on paper and</clearance></pre>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is only crossing restriction, THEN Accomplish Goal: Enter
0.1	crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
- 0.4	Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	appropriate menu key
	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
	accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> =</clearance>
0.1	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.20	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.1	digits in clearance and Accomplish Goal: Enter into scratchpad  Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
	Recall <menu kev=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu kev=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.54	Recall <menu kev=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,			
0.1	THEN GOTO Step 2			
0.1	Remember <menu key=""> = next digit/character in</menu>			
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>			
0.1	Method for Goal: Menu key			
0.51	Recall <menu key=""> and point finger to</menu>			
0.51	appropriate menu key			
0.38	2 Press and release appropriate menu key			
0.1	3 Return with goal accomplished			
0.1	Decide: IF more digits/characters in restriction to enter,			
0.1	THEN GOTO Step 2			
0.1	Decide: IF <clearance value=""> is an altitude or speed with 4 F</clearance>			
0.1	an above or below, THEN Selection Rule: At and above or			
0.1	5 Return with goal accomplished			
0.51	5 Point finger to right line select key next to waypoint			
0.38	6 Press and release right line select key next to waypoint			
0.1	7 Return with goal accomplished			
0.1	5 Return with goal accomplished			
0.1	4 Return with goal accomplished			
0.1	4 Selection Rule: Decide on a clearance			
0.1	Selection Rule for Goal: Decide on a clearance			
0.4	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether			
0.1	2 T non-RTA clearance is acceptable			
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable			
1.3	Determine whether non-RTA clearance is acceptable			
0.0	Decide: IF clearance is acceptable. THEN Retain <response> = "Wilco " FLSE</response>			
0.2	2 T Retain <response> = "Unable"</response>			
0.1	3 Return with goal accomplished			
0.1	4 Return with goal accomplished			
	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS.</response>			
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>			
0.1	Method for Goal: Menu key			
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>			
0.38	2 Press and release appropriate menu key			
0.1	3 Return with goal accomplished			
0.1	5 Neturn With Boar accompliance			

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	·
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
34.4	Total time

# Trace 8 - Task 2, Data Comm

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 8 words ("Cross HELPR at flight level one niner zero")

Clearance is one page

Clearance is not printed upon receipt

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is clearance information to enter into the FMS

Timo	Action		
0.1	Method for Goal: Handle a clearance		
0.1	1 Selection Rule: Receive a clearance		
0.1	Selection Rule for Goal: Receive a clearance		
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance		
0.1	Method for Goal: Receive an FMS clearance		
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS		
0.1	2 Accomplish Goal: Open clearance		
0.1	Method for Goal: Open clearance		
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>		
0.1	Method for Goal: Menu key		
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>		
0.51	1 key		
0.38	2 Press and release appropriate menu key		
0.1	3 Return with goal accomplished		
0.1	Remember < keyword > = clearance to open and Accomplish Goal:		
0.1	Line select key		
0.1	Method for Goal: Line select key		
0.51	Recall <keyword> and point finger to line select key next</keyword>		
0.51	to keyword		
0.38	2 Press and release appropriate line select key		
0.1	3 Return with goal accomplished		
0.1	3 Return with goal accomplished		

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
0.1	Decide: IF clearance must be read aloud or crew wants to read
3.4	1 T aloud, THEN Read information on screen aloud and retain
3.4	<clearance information="">, ELSE Read information on screen and</clearance>
	Decide: If there are no more pages of clearances, THEN Return
0.1	2 T with goal accomplished
	Decide: IF printed clearance is desired. THEN Selection Rule: Get printed
0.1	4 F copy
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is only crossing restriction, THEN Accomplish Goal: Enter
0.1	crossing restriction
0.1	Method for Goal: Enter crossing restriction  1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
0.1	1 Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found. THEN Return with goal
0.1	3 T accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> =</clearance>
0.1	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu  1</menu>
	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	_ Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.1	4 T digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2  Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
	an above or below, THEN Selection Rule: At and above or
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
	non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	· · · · · · · · · · · · · · · · · · ·
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE  2 T Petric response = "Wilco," ELSE</response>
	Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	1 5 7	т	Decide:	IF <resp< td=""><td>onse&gt;=</td><td>"Wilco"</td><td>and there is clearance information to enter into the FMS,</td></resp<>	onse>=	"Wilco"	and there is clearance information to enter into the FMS,
0.1			THEN Re	membe	r <ment< td=""><td>ı key&gt; = '</td><td>"Exec" and Accomplish Goal: Menu key</td></ment<>	ı key> = '	"Exec" and Accomplish Goal: Menu key
0.1			Method	for Goa	l: Menu	key	
0.51			1	Recall <	menu k	ey> and <sub>l</sub>	point finger to appropriate menu key
0.38			2	Press a	nd relea	se appro	priate menu key
0.1			3	Return	with goa	al accom <sub>i</sub>	plished
0.1	6		Selectio	n Rule:	Respond	d to a cle	arance
0.1			Selectio	n Rule f	or Goal:	Respond	d to a clearance
0.1			2 T	IF respo	onding b	y FMS, T	HEN Accomplish Goal: Respond by FMS
0.1				Method	d for Goa	al: Respo	nd by FMS
0.1				1 F	Decide	: IF hand	I not on FMS, THEN move hand to FMS
0.1				2 T	Decide	: IF clear	rance is not open, THEN Accomplish Goal: Open clearance
0.1					Metho	d for Goa	al: Open clearance
0.1					1	Remen	mber <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1						Metho	d for Goal: Menu key
0.51						1	Recall <menu key=""> and point finger to appropriate menu</menu>
0.38						2	Press and release appropriate menu key
0.1						3	Return with goal accomplished
0.1					2	Remen	mber <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1						Line se	elect key
0.1						Metho	d for Goal: Line select key
0.51						1	Recall <keyword> and point finger to line select key next</keyword>
0.51							to keyword
0.38						2	Press and release appropriate line select key
0.1						3	Return with goal accomplished
0.1					3	Return	with goal accomplished

0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
26.49	Total time

### **Trace 9 - Task 3, Voice**

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at 1800Z

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 8 words ("Cross HELPR at one eight zero zero

Zulu")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Waypoint needs to be located

Desired waypoint is the third waypoint listed on the first page of the flight plan

Clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action							
0.1	Method	for (	Goal:	Han	dle	a clearance		
0.1	1	Sele	ectio	n Ru	le: I	Receive a clearance		
0.1		Sele	ectio	n Ru	le f	or Goal: Receive a clearance		
0.1		2	Т	IF cl	eara	ance is audio, THEN Accomplish Goal: Receive a radio clearance		
0.1				Met	hod	for Goal: Receive a radio clearance		
4.5				1		Listen to clearance and retain <clearance information=""></clearance>		
0.1				2	F	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance		
0.1				3		Return with goal accomplished		
0.1		3		Retu	ırn v	with goal accomplished		
0.1	2 T	Dec	ide: I	IF cle	eara	nce includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>		
0.1	۷ ۱	Respond to a clearance						
0.1		Sele	ectio	n Ru	le f	or Goal: Respond to a clearance		
0.1		1	Т	IF re	spc	nding by voice, THEN Accomplish Goal: Respond by voice		
0.1				Met	hod	for Goal: Respond by voice		
0.5				1		Move hand to yoke and "Push to talk" button		
0.2				2		Press "Push to talk" button		
1.8				3	F	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>		
1.6				<u> </u>	э г	Rule: Method of clearance readback, ELSE state call sign followed by		
0.2				4		Release "Push to talk" button		
0.5				5		Return hand to FMS		
0.1				6		Return with goal accomplished		
0.1		3		Retu	ırn	with goal accomplished		

0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.1	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 T Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	3 T IF clearance is only RTA, THEN Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	_ Decide: IF waypoint is not located, THEN Accomplish Goal: Locate
0.1	1 1
0.1	waypoint  Mathad for Coal Locate wayneint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish Goal:  1</menu>
0.1	Menu key
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.1	2 Search for waypoint
0.82	Decide: IF waypoint is found, THEN Return with goal
0.1	3 T accomplished
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.30	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember <menu key=""> = "Prog" and Accomplish Goal:</menu>
0.1	1 Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember < menu key> = "Next Page" and Accomplish
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Remember <menu key=""> = "Next Page" and Accomplish</menu>
	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember < keyword > = "RTA Waypoint" and Accomplish Goal:
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = digits/characters in clearance and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
0.1	an above or below, THEN Selection Rule: At and above or
0.1	5 Return with goal accomplished
0.51	7 Point finger to right line select key next to waypoint
0.38	8 Press and release right line select key next to waypoint
0.1	9 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA
0.1	clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
0.1	2 Wait for system response
1.4	Decide: IF system returns "Unable RTA", THEN Retain <response> =</response>
1.4	"Unable," ELSE Retain <response> = "Wilco"</response>
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.4	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	5 T THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Ŭ i

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	3 T Recall <response> and Decide: IF <response> = "Wilco," THEN Selection Rule: Method of clearance readback, ELSE state call sign followed by</response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	1 T IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>
0.1	Method for Goal: Readback clearance from memory
4.5	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
4.5	information> followed by call sign
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
35.6	Total time

### Trace 10 - Task 3, Voice

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at 1800Z

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 8 words ("Cross HELPR at one eight zero zero

Zulu")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Paper is available

Pen is not in hand

Clearance is written as 4 words ("Cross HELPR at 1800Z")

Response is sent by voice

Clearance information is remembered when entering the clearance

Waypoint needs to be located

Desired waypoint is the third waypoint listed on the first page of the flight plan

Clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
4.5	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	2 T Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	Method for Goal: Write down clearance
0.1	IF paper is not readily available, THEN Accomplish Goal: Obtain paper
0.1	2 T IF pen is not in hand, THEN Accomplish Goal: Obtain pen
0.1	Method for Goal: Obtain pen
0.51	1 Reach for pen
0.8	2 Grasp pen
0.51	3 Transport pen to paper
0.16	4 Position the pen over paper
0.1	5 Return with goal accomplished

40.0	
10.9	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>
0.51	4 Return pen to original location
0.17	5 Release pen
0.5	6 Move hand back to starting location
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
1.8	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.0	Rule: Method of clearance readback, ELSE state call sign followed by
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	3 T IF clearance is only RTA, THEN Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	Decide: IF waypoint is not located, THEN Accomplish Goal: Locate
0.1	waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
0.1	Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.82	2 Search for waypoint
0.02	Decide: IF waypoint is found, THEN Return with goal
0.1	3 T accomplished
0.51	·
0.38	
0.1	
0.1	
	Remember <menu key=""> = "Prog" and Accomplish Goal:</menu>
0.1	1 Menu key
0.1	·
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < menu key> = "Next Page" and Accomplish
0.1	Goal: Menu key
0.1	•
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	
0.1	Remember < menu key> = "Next Page" and Accomplish
0.1	Goal: Menu key
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.1	
0.1	<u> </u>
	Remember < keyword> = "RTA Waynoint" and Accomplish Goal:
0.1	5 Line select key
0.1	,
	Recall < keyword > and point finger to line select key next
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	1 ,
	Retain <clearance value=""> = digits/characters in clearance and</clearance>
0.1	6 Accomplish Goal: Enter into scratchpad
0.1	·
0.1	Remember < menu key> = first digit/character in
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	,
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

	Remember < menu key> = next digit/character in
0.1	, · · · · · · · · · · · · · · · · · · ·
0.1	<clearance value=""> and Accomplish Goal: Menu key Mathed for Coal: Manu key</clearance>
0.1	Method for Goal: Menu key Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	3 T THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu kev=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits /characters in restriction to enter
0.1	3 T THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter
0.1	3 F THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
0.1	an above or below, THEN Selection Rule: At and above or
0.1	5 Return with goal accomplished
0.51	7 Point finger to right line select key next to waypoint
0.38	8 Press and release right line select key next to waypoint
0.1	9 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
	IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA
0.1	1 T clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
0.1	2 Wait for system response
	Decide: IF system returns "Unable RTA" THEN Retain <resnonse>=</resnonse>
1.4	3 T "Unable," ELSE Retain <response> = "Wilco"</response>
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished

			Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	5	5 F	·
			THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6		Selection Rule: Respond to a clearance
0.1			Selection Rule for Goal: Respond to a clearance
0.1			1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1			Method for Goal: Respond by voice
0.5			1 Move hand to yoke and "Push to talk" button
0.2			2 Press "Push to talk" button
1.8			Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.0			Rule: Method of clearance readback, ELSE state call sign followed by
0.2			4 Release "Push to talk" button
0.5			5 Return hand to FMS
0.1			6 Return with goal accomplished
0.1			3 Return with goal accomplished
0.1	7	F	Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8	•	Return with goal accomplished
45.77		Tot	tal time

# Trace 11 - Task 3, Data Comm

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at time 1800Z

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 9 words ("Cross HELPR at time one eight zero zero Zulu")

Clearance is one page

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Waypoint needs to be located

Desired waypoint is the third waypoint listed on the first page of the flight plan

Clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
	key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	2 Accomplish Coals Board the clearance
_	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
3.8	1 T aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed  4 F
0.1	сору
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.1	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 T Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	3 T IF clearance is only RTA, THEN Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
	Decide: IF waypoint not located THEN Accomplish Goal: Locate
0.1	1 T waypoint
0.1	Method for Goal: Locate waypoint
	Remember < menu kev> = "Legs" and Accomplish Goal:
0.1	1 Menu key
0.1	Method For Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
0.1	accomplished
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember < menu key> = "Prog" and Accomplish Goal:
0.1	Menu key
0.1	Method For Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and Accomplish</menu>
0.1	Goal: Menu key
0.1	Method For Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	5 Neturn with goal accompliance

	Demonstrate translation of the New March Description of Assessed School
0.1	Remember <menu key=""> = "Next Page" and Accomplish</menu>
	Goal: Menu key
0.1	Method For Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish Goal:</keyword>
	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = digits/characters in clearance and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1		
1 1	0.1	Decide: IF more digits/characters in restriction to enter,
O.1	0.1	THEN GOTO Step 2
O.1	0.1	Remember < menu key> = next digit/character in
1		<clearance value=""> and Accomplish Goal: Menu key</clearance>
1	0.1	Method for Goal: Menu key
O.38	0.51	Recall <menu key=""> and point finger to</menu>
0.1  0.1  3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  0.1  4 F Decide: IF < Clearance value > is an altitude or speed with an above or below, THEN Selection Rule: At and above or 0.51  7 Point finger to right line select key next to waypoint  0.38  8 Press and release right line select key next to waypoint  0.1 9 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 T T Clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA clearance is acceptable  0.1 Method for Goal: Determine whether RTA clearance is acceptable  0.1 Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page  0.1 Wait for system response  1.4 Return with goal accomplished  0.1 A Return with goal accomplished  0.1 A Return with goal accomplished  0.1 Becide: IF <	0.51	appropriate menu key
0.1  3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <a href="#clearance">Clearance</a> Decide: IF <a href="#clearance">Clearance</a> Seed with an above or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or or below, THEN Selection Rule: At and above or select key next to waypoint select key next to w	0.38	2 Press and release appropriate menu key
0.1  0.1  4 F Decide: IF < Clearance value > is an altitude or speed with an above or below, THEN Selection Rule: At and above or below, The Selection Rule: At and above or below, THEN Selection Rule: At and above or below, THEN Selection Rule: At and above or below, THEN Selection Rul	0.1	3 Return with goal accomplished
THEN GOTO Step 2  O.1  4 F  Decide: IF <a href="IF=N GOTO Step">Clearance value</a> is an altitude or speed with an above or below, THEN Selection Rule: At and above or Between THEN GOTO Step 2  O.51  7 Point finger to right line select key next to waypoint  O.38  8 Press and release right line select key next to waypoint  O.1  9 Return with goal accomplished  O.1  4 Return with goal accomplished  O.1  4 Return with goal accomplished  O.1  5 Return with goal accomplished  O.1  4 Return with goal accomplished  O.1  5 Return with goal accomplished  O.1  4 Return with goal accomplished  O.1  5 Return with goal accomplished  O.1  6 Selection Rule: Decide on a clearance  O.1  F Clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA clearance is acceptable  O.1  Method for Goal: Determine whether RTA clearance is acceptable  O.1  A Weit for system response  O.1  1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page  O.1  2 Wait for system response  1.4  3 F Decide: IF system returns "Unable RTA," THEN Retain <a href="response">response</a> O.1  4 Return with goal accomplished  O.1  4 Return with goal accomplished  O.1  5 T Decide: IF <a href="response">response</a> = "Wilco"  THEN Remember <a href="response">response</a> = "Exec" and Accomplish Goal: Menu key  O.1  Method for Goal: Menu key  O.38  2 Press and release appropriate menu key  Press and release appropriate menu key	0.1	Decide: IF more digits/characters in restriction to enter,
0.1 5 Return with goal accomplished  0.20 7 Point finger to right line select key next to waypoint  0.38 8 Press and release right line select key next to waypoint  0.1 9 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 4 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 If Clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA clearance is acceptable  0.1 Method for Goal: Determine whether RTA clearance is acceptable  0.1 Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page  0.1 2 Wait for system response  1.4 3 F Decide: IF system returns "Unable RTA," THEN Retain <response>=  1.4 3 F "Unable," ELSE Retain <response>= "Wilco"  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF   1 Recall <memu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.3 Press and release appropriate menu key  0.4 Press and release appropriate menu key</memu></response></response>	0.1	THEN GOTO Step 2
an above or below, THEN Selection Rule: At and above or  0.1	0.1	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
O.51	0.1	an above or below, THEN Selection Rule: At and above or
0.38	0.1	5 Return with goal accomplished
O.1	0.51	7 Point finger to right line select key next to waypoint
O.1	0.38	8 Press and release right line select key next to waypoint
0.1 4 Return with goal accomplished  0.1 4 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 If Clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA clearance is acceptable  0.1 Method for Goal: Determine whether RTA clearance is acceptable  0.1 Method for Goal: Determine whether RTA clearance is acceptable  0.1 If Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page  0.1 2 Wait for system response  1.4 3 F Decide: IF system returns "Unable RTA," THEN Retain <response>=  "Unable," ELSE Retain <response>= "Wilco"  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.38 Press and release appropriate menu key</menu></menu></response></response></response>	0.1	9 Return with goal accomplished
0.1 4 Selection Rule: Decide on a clearance  0.1 Selection Rule for Goal: Decide on a clearance  0.1 If Clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA clearance is acceptable  0.1 Method for Goal: Determine whether RTA clearance is acceptable  0.1 If Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page  0.1 Zeroide: IF system response  1.4 Jeroide: IF system returns "Unable RTA," THEN Retain <response>=  1.4 Jeroide: IF system returns "Unable RTA," THEN Retain <response>=  1.4 Return with goal accomplished  0.1 A Return with goal accomplished  0.1 A Return with goal accomplished  0.1 Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.38 Press and release appropriate menu key</menu></menu></response></response></response>	0.1	5 Return with goal accomplished
O.1 Selection Rule for Goal: Decide on a clearance  O.1 If clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA clearance is acceptable  O.1 Method for Goal: Determine whether RTA clearance is acceptable  O.1 If Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page  O.1 2 Wait for system response  O.1 3 F Decide: IF system returns "Unable RTA," THEN Retain <response>=  "Unable," ELSE Retain <response>= "Wilco"  O.1 4 Return with goal accomplished  O.1 5 T Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  O.1 Method for Goal: Menu key  O.2 Press and release appropriate menu key  O.38 Press and release appropriate menu key</menu></response></response></response>	0.1	4 Return with goal accomplished
1 T   IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA clearance is acceptable  0.1   Method for Goal: Determine whether RTA clearance is acceptable  0.1   1 F   Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page  0.1   2 Wait for system response  1.4   3 F   Decide: IF system returns "Unable RTA," THEN Retain <response>=</response>	0.1	4 Selection Rule: Decide on a clearance
0.1	0.1	Selection Rule for Goal: Decide on a clearance
O.1   Method for Goal: Determine whether RTA clearance is acceptable	0.1	IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA
1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page  O.1 2 Wait for system response  1.4 3 F Decide: IF system returns "Unable RTA," THEN Retain <response>=  "Unable," ELSE Retain <response>= "Wilco"  O.1 4 Return with goal accomplished  O.1 4 Return with goal accomplished  O.1 5 T Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS,  THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  O.1 Method for Goal: Menu key  O.51 1 Recall <menu key=""> and point finger to appropriate menu key  O.38 2 Press and release appropriate menu key</menu></menu></response></response></response>	0.1	clearance is acceptable
0.1 2 Wait for system response  1.4 3 F Decide: IF system returns "Unable RTA," THEN Retain <response>=  "Unable," ELSE Retain <response>= "Wilco"  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS,  THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu></response></response></response>	0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1 2 Wait for system response  1.4 3 F Decide: IF system returns "Unable RTA," THEN Retain <response>= "Unable," ELSE Retain <response>= "Wilco"  0.1 4 Return with goal accomplished  0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key="">= "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu></response></response></response>	0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4  3 F  Decide: IF system returns "Unable RTA," THEN Retain <response>=  "Unable," ELSE Retain <response>= "Wilco"  0.1  4 Return with goal accomplished  0.1  5 T  Decide: IF <response>= "Wilco" and there is clearance information to enter into the FMS,  THEN Remember <menu key="">= "Exec" and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key</menu></menu></response></response></response>	0.1	
"Unable," ELSE Retain <response> = "Wilco"  0.1</response>	1 1	Decide: IF system returns "Unable RTA," THEN Retain <response>=</response>
0.1 4 Return with goal accomplished  0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  Method for Goal: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key</menu></menu></response>	1.4	"Unable," ELSE Retain <response>= "Wilco"</response>
0.1 5 T Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS, THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu></response>	0.1	4 Return with goal accomplished
0.1 THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu>	0.1	4 Return with goal accomplished
THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key</menu></menu>	0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.51 1 Recall <menu key=""> and point finger to appropriate menu key 0.38 2 Press and release appropriate menu key</menu>	0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.38 2 Press and release appropriate menu key	0.1	Method for Goal: Menu key
0.38 2 Press and release appropriate menu key	0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
	0.38	2 Press and release appropriate menu key
	0.1	

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF riand not of Fivis, THEN move hand to Fivis 2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method For Goal: Menu key
0.1	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
36.02	Total time

### Trace 12 - Task 3, Data Comm

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at time 1800Z

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 9 words ("Cross HELPR at time one eight zero zero Zulu")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Hand is not on FMS after grasping print out

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Waypoint needs to be located

Desired waypoint is the third waypoint listed on the first page of the flight plan

Clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action
-	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key > = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
0.1	Decide: IF clearance must be read aloud or crew wants to read
3.8	1 T aloud, THEN Read information on screen aloud and retain
3.0	<pre><clearance information="">, ELSE Read information on screen and</clearance></pre>
	Decide: IF there are no more pages of clearances. THEN Return
0.1	2 T with goal accomplished
	Decide: IF printed clearance is desired. THEN Selection Rule: Get printed
0.1	4 T copy
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select</keyword>
0.51	1 key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
	Decide: IF clearance includes RTA. THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	2 T Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	3 T IF clearance is only RTA, THEN Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	Decide: IF waypoint not located, THEN Accomplish Goal: Locate
0.1	Waypoint  Mathed for Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint  Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
0.1	1 Menu key
0.1	Method For Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
0.1	3 T accomplished
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember <menu key=""> = "Prog" and Accomplish Goal:</menu>
0.1	Menu key
0.1	Method For Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Remember < menu key> = "Next Page" and Accomplish
0.1	2 Goal: Menu key
0.1	Method For Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	
	Remember < menu key> = "Next Page" and Accomplish
0.1	Goal: Menu key
0.1	·
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	
0.1	4 Return with goal accomplished
0.1	Remember < keyword> = "RTA Waynoint" and Accomplish Goal:
0.1	5 Line select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	
0.1	Retain <clearance value=""> = digits/characters in clearance and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	· ·
0.1	Remember < menu key> = first digit/character in
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key Mathed for Coal Many key</clearance>
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	1 ' ' '
0.20	appropriate menu key  2 Press and release appropriate menu key
0.38	
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,							
	THEN GOTO Step 2							
0.1	Remember <menu key=""> = next digit/character in</menu>							
	<clearance value=""> and Accomplish Goal: Menu key</clearance>							
0.1	Method for Goal: Menu key							
0.51	Recall <menu key=""> and point finger to</menu>							
	appropriate menu key							
0.38	2 Press and release appropriate menu key							
0.1	3 Return with goal accomplished							
0.1	Decide: IF more digits/characters in restriction to enter,							
0.1	THEN GOTO Step 2							
0.1	Remember <menu key=""> = next digit/character in</menu>							
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>							
0.1	Method for Goal: Menu key							
0.51	Recall <menu key=""> and point finger to</menu>							
0.51	appropriate menu key							
0.38	2 Press and release appropriate menu key							
0.1	3 Return with goal accomplished							
0.1	Decide: IF more digits/characters in restriction to enter,							
0.1	THEN GOTO Step 2							
0.1	Decide: IF <clearance value=""> is an altitude or speed with</clearance>							
0.1	an above or below, THEN Selection Rule: At and above or							
0.1	5 Return with goal accomplished							
0.51	7 Point finger to right line select key next to waypoint							
0.38	8 Press and release right line select key next to waypoint							
0.1	9 Return with goal accomplished							
0.1	5 Return with goal accomplished							
0.1	4 Return with goal accomplished							
0.1	4 Selection Rule: Decide on a clearance							
0.1	Selection Rule for Goal: Decide on a clearance							
0.1	1 T IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA							
0.1	Method for Goal: Determine whether RTA clearance is acceptable							
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page							
0.1	2 Wait for system response							
0.1	Decide: IF system returns "Unable RTA " THEN Retain <response> =</response>							
1.4	3 T "Unable," ELSE Retain <response> = "Wilco"</response>							
0.1								
0.1	4 Return with goal accomplished							
0.1	- neturn with goal accomplished							

0.1 5 F THEN Remember xmenu keys = "Exec" and Accomplish Goal: Menu key  0.1 6 Selection Rule: Respond to a clearance  0.1 2 T I Fresponding by FMS, THEN Accomplish Goal: Respond by FMS  0.1 Method for Goal: Respond by FMS  0.1 1 F Decide: IF hand not on FMS, THEN Accomplish Goal: Open clearance  0.1 2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance  0.1 Method for Goal: Open clearance  0.1 Remember xmenu key> = "ATC" and Accomplish Goal: Menu key  0.1 Recall xmenu key> = "ATC" and Accomplish Goal: Menu key  0.1 Recall xmenu key> = "ATC" and Accomplish Goal: Menu key  0.2 Press and release appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 Recall xmenu key> = clearance to open and Accomplish Goal: Line select key  0.1 Recall xmenu key> = clearance to open and Accomplish Goal: Line select key  0.2 Remember xmenu key> = "ATC" and Accomplish Goal: Menu key  0.38 2 Press and release appropriate menu key  0.1 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.2 Remember xmenu key> = "ATC" and Accomplish Goal: Line select key  0.3 Return with goal accomplished  0.4 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.5 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.6 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.7 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.8 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.9 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.1 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.2 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.3 Return with goal accomplished  0.4 Remember xmenu key> = "ATC" and Accomplish Goal: Line select key  0.5 Recall xmenu key> = "ATC" and Accomplish Goal: Line select key  0.6 Recall xmenu key> = "ATC" and Accomplished  0.7 F Decide: IF there are more clearances, THEN GOTO Step 1  0.8 Return with goal accomplished  0.9 Return with goal accomplished		Deside, IF (verses)     M/Stell and there is also were information to autominte the FMC								
0.1   Selection Rule: Respond to a clearance 0.1   Selection Rule for Goal: Respond to a clearance 0.1   2   T   F   Fesponding by FMS, THEN Accomplish Goal: Respond by FMS 0.1   Method for Goal: Respond by FMS 0.1   1   F   Decide: IF hand not on FMS, THEN Move hand to FMS 0.1   2   T   Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance 0.1   Method for Goal: Open clearance 0.1   Method for Goal: Open clearance 0.1   Method For Goal: Menu key> = "ATC" and Accomplish Goal: Menu key 0.1   Method For Goal: Menu key> = "ATC" and Accomplish Goal: Menu key 0.1   Method For Goal: Menu key> and point finger to appropriate menu key 0.2   Press and release appropriate menu key 0.3   Return with goal accomplished 0.1   2   Remember ≺keyword> = clearance to open and Accomplish Goal: Line select key 0.1   Method for Goal: Line select key 0.1   Method for Goal: Line select key 0.2   Recall ≺keyword> and point finger to line select key next to keyword 0.38   2   Press and release appropriate line select key 0.1   Recall ≺keyword> and point finger to line select key 0.1   Recall ≺keyword> = < response> and Accomplish Goal: Line select key 0.1   Recall ≺keyword> = < response> and Accomplish Goal: Line select key 0.1   Method for Goal: Line select key 0.1   Recall ≺keyword> = < response> and Accomplish Goal: Line select key 0.1   Recall ≺keyword> = < response> and Accomplish Goal: Line select key 0.2   Recall ≺keyword> = < response> and Accomplish Goal: Line select key 0.3   Return with goal accomplished 0.4   Remember ≺keyword> = < response> and Accomplish Goal: Line select key 0.5   Recall ≺keyword> = < response> and Point finger to line select key 0.6   Recall ≺keyword> = < response> and Point finger to line select key 0.7   Recall ≺keyword> = < response> and Point finger to line select key 0.8   Press and release appropriate line select key 0.9   Recall ≺keyword> = < response> and Point finger to line select key 0.1   Recall ≺keyword> = < response> and Point finger to line select key 0.1   Recall ≺keywo	0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>								
O.1   Selection Rule for Goal: Respond to a clearance										
O.1   2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS										
O.1		·								
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O.1	-	· · ·								
O.1										
O.1										
0.1  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.1  2 Remember <keyword> = clearance to open and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 3 Remember <keyword> = clearance to open and Accomplish Goal: Line select key  0.1 3 Return with goal accomplished  0.1 4 Remember <keyword> = clearance to open and Accomplish Goal: Line select key  0.1 5 Recall <keyword> and point finger to line select key  0.1 6 Recall <keyword> = clearance to open and Accomplish Goal: Line select key  0.1 7 Recall <keyword> = clearance to open and Accomplish Goal: Line select key  0.2 Press and release appropriate line select key  0.3 Return with goal accomplished  0.4 Remember <keyword> = clearance to open and Accomplish Goal: Line select key  0.5 Return with goal accomplished  0.1 Recall <keyword> = clearance to open and Accomplish Goal: Line select key  0.5 Return with goal accomplished  0.1 Recall <keyword> and point finger to line select key next to keyword  0.3 Return with goal accomplished  0.1 Period : If there are more clearances, THEN GOTO Step 1  0.1 Return with goal accomplished</keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></menu>		·								
1   Recall <menu key=""> and point finger to appropriate menu key    </menu>	_	·								
0.38	0.1									
0.38	0.51	<b>1</b>								
3 Return with goal accomplished   2 Remember < keyword> = clearance to open and Accomplish Goal: Line select key		·								
Remember < keyword > = clearance to open and Accomplish Goal: Line select key										
Line select key	0.1									
0.1 Method for Goal: Line select key  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 3 Remember <keyword> = <re>0.51</re></keyword>	0.1	/								
1 Recall <keyword>and point finger to line select key next to keyword  0.38</keyword>		•								
1 to keyword  1	0.1									
2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 3 Remember <keyword> = <response> and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.1 Method for Goal: Line select key  0.2 Press and release appropriate line select key  0.38 2 Press and release appropriate line select key next to keyword  0.38 2 Press and release appropriate line select key next to  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword> and point finger to line select key next to keyword  1 Recull <keyword< keyword=""> and point finger to line select key next to keyword  1 Recull <keyword< keyword=""> and point finger to line select key next to keyword  1 Recull <keyword< keyword=""> and point finger to line select key next</keyword<></keyword<></keyword<></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></keyword></response></keyword>	0.51									
0.1 3 Return with goal accomplished 0.1 3 Remember <keyword> = <response> and Accomplish Goal: Line select key 0.1 Method for Goal: Line select key 0.51 1 Recall <keyword> and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key 0.1 3 Return with goal accomplished 0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key 0.1 Method for Goal: Line select key 0.1 Method for Goal: Line select key 0.1 Press and release appropriate line select key 0.1 Recall <keyword> and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key next to keyword 0.38 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.1 5 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1 0.1 8 Return with goal accomplished</keyword></keyword></keyword></response></keyword>		•								
O.1   3   Return with goal accomplished										
0.1 3 Remember <keyword> = <response> and Accomplish Goal: Line select key 0.1 Method for Goal: Line select key 0.51 1 Recall <keyword> and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key 0.1 3 Return with goal accomplished 0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key 0.1 Method for Goal: Line select key 0.1 Method for Goal: Line select key 0.51 1 Recall <keyword> and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key 0.1 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1 0.1 8 Return with goal accomplished</keyword></keyword></keyword></response></keyword>										
0.1 Method for Goal: Line select key  0.51  1 Recall < keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 4 Remember < keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.1 Recall < keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1  0.1 8 Return with goal accomplished										
1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1  0.1 8 Return with goal accomplished</keyword></keyword></keyword>		, , , , , , , , , , , , , , , , , , , ,								
1	0.1	· · · · · · · · · · · · · · · · · · ·								
0.38 2 Press and release appropriate line select key 0.1 3 Return with goal accomplished 0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key 0.1 Method for Goal: Line select key 0.51 1 Recall <keyword> and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key 0.1 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1 0.1 8 Return with goal accomplished</keyword></keyword>	0.51									
0.1 3 Return with goal accomplished 0.1 4 Remember < keyword> = "Send" and Accomplish Goal: Line select key 0.1 Method for Goal: Line select key 0.51 1 Recall < keyword> and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key 0.1 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1 0.1 8 Return with goal accomplished		keyword								
0.1										
0.1 Method for Goal: Line select key  0.51  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1  0.1 8 Return with goal accomplished</keyword>	_	5								
0.51  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1  0.1 8 Return with goal accomplished</keyword>										
0.31	0.1									
0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1  0.1 8 Return with goal accomplished	0.51									
0.1 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1 0.1 8 Return with goal accomplished		keyword								
0.1 5 Return with goal accomplished 0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1 0.1 8 Return with goal accomplished										
0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1 0.1 8 Return with goal accomplished		• •								
0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1 0.1 8 Return with goal accomplished		0								
0.1 8 Return with goal accomplished	0.1									
	0.1									
38.84 Total time	0.1	8 Return with goal accomplished								
38.84 Total time										
	38.84	Total time								

## Trace 13 - Task 4, Voice

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at 1800Z at FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 14 words ("Cross HELPR at one eight zero

zero Zulu at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Need to obtain pen and paper

Clearance is written as 6 words ("Cross HELPR at 1800Z at FL190")

Response is sent by voice

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

After initially locating waypoint, it remains located until FMS is navigated to a different page

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

Clearance information is not remembered during readback

There is clearance information to enter into the FMS

Time	Action							
0.1	Nethod for Goal: Handle a clearance							
0.1	1 Selection Rule: Receive a clearance							
0.1	Selection Rule for Goal: Receive a clearance							
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance							
0.1	Method for Goal: Receive a radio clearance							
6.9	1 Listen to clearance and retain <clearance information=""></clearance>							
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down							
	clearance							
0.1	Method for Goal: Write down clearance							
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:							
0.1	Obtain paper							
0.1	Method for Goal: Obtain paper							
0.51	1 Reach for paper							
0.8	2 Grasp paper							
0.51	3 Transport paper to writing space							
0.17	4 Release paper							
0.1	5 Return with goal accomplished							

0.1	2 T Decide: IF pen is not in hand. THEN Accomplish Goal: Obtain pen							
0.1	2 T Decide: IF pen is not in hand, THEN Accomplish Goal: Obtain pen  Method for Goal: Obtain pen							
0.51	1 Reach for pen							
0.8	·							
0.51	3 Transport pen to paper							
0.16								
0.1	5 Return with goal accomplished							
16.3	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>							
0.51	4 Return pen to original location							
0.17	5 Release pen							
0.5	6 Move hand back to starting location							
0.1	7 Return with goal accomplished							
0.1	3 Return with goal accomplished							
0.1	3 Return with goal accomplished							
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>							
0.1	Respond to a clearance							
0.1	Selection Rule for Goal: Respond to a clearance							
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice							
0.1	Method for Goal: Respond by voice							
0.5								
0.2	2 Press "Push to talk" button							
1.8	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>							
0.3	Rule: Method of clearance readback, ELSE state call sign followed by							
0.2	4 Release "Push to talk" button							
0.5	5 Return hand to FMS 6 Return with goal accomplished							
0.1	500							
0.1	<ul><li>3 Return with goal accomplished</li><li>3 Accomplish Goal: Enter a clearance</li></ul>							
0.1	Method for Goal: Enter a clearance							
	Decide: IF clearance is remembered, THEN Recall sclearance information > FLSE							
0.2	1 F Selection Rule: Method of reading							
0.1	Selection Rule for Goal: Method of reading							
	IF clearance is in writing. THEN Accomplish Goal: Read clearance from							
0.1	1 T paper							
0.1	Method for Goal: Read clearance from paper							
0.51	1 T Decide: IF paper not visible, THEN move paper							
	Decide: IF clearance must be read aloud or crew wants to read							
5.8	• • • • • • • • • • • • • • • • • • • •							
	<clearance information="">, ELSE Read information on paper and</clearance>							
0.1	3 Return with goal accomplished							
0.1	3 Return with goal accomplished							

0.5	2. T. Davida IS hand ask on EMC TUEM many bounds EMC									
0.5										
0.1	3 Selection Rule: Specific clearance type									
0.1	Selection Rule for Goal: Specific clearance type									
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter									
	mixed clearance									
0.1	Method for Goal: Enter mixed clearance									
0.1	1 Accomplish Goal: Enter crossing restriction									
0.1	Method for Goal: Enter crossing restriction									
0.1	1 Accomplish Goal: Locate waypoint									
0.1	Method for Goal: Locate waypoint									
0.1	Remember < menu key> = "Legs" and Accomplish									
0.1	Goal: Menu key									
0.1	Method for Goal: Menu key									
0.51	Recall <menu key=""> and point finger to</menu>									
0.51	appropriate menu key									
0.38	2 Press and release appropriate menu key									
0.1	3 Return with goal accomplished									
0.82	2 Search for waypoint									
0.1	Decide: IF waypoint is found, THEN Return with									
0.1	goal accomplished									
0.1	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>									
	value> = digits in clearance and Accomplish Goal: Enter									
0.1	Remember < menu key> = "/" and Accomplish Goal: Menu									
	key									
0.1	Method for Goal: Menu key									
0.51	Recall <menu key=""> and point finger to</menu>									
	appropriate menu key									
0.38	2 Press and release appropriate menu key									
0.1	3 Return with goal accomplished									
0.1	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>									
	value> = digits in clearance and Accomplish Goal: Enter									
0.1	Method for Goal: Enter into scratchpad									
0.1	Remember < menu key> = first digit/character in									
	<clearance value=""> and Accomplish Goal: Menu</clearance>									
0.1	Method for Goal: Menu key									
0.51	Recall <menu key=""> and point finger to</menu>									
	appropriate menu key									
0.38										
0.1	3 Return with goal accomplished									

0.1	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	1
0.1	ů i
0.1	3 T Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	
	Recall <menu key=""> and noint finger to</menu>
0.51	appropriate menu key
0.38	····
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	'
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	
0.1	5 1
0.1	'
0.1	
0.1	Decide: IF waypoint not located, THEN Accomplish Goal:
0.51	Locate waypoint  2 Point finger to left line select key next to waypoint
0.31	
0.38	
0.1	· · · · ·
	Remember < menu kev> = "Prog" and Accomplish
0.1	1 Goal: Menu key
0.1	·
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < menu key> = "Next Page" and 2
	Accomplish Goal: Menu key
0.1	•
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

0.1	Remember <menu key=""> = "Next Page" and</menu>
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish</keyword>
0.4	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = digits/characters in clearance</clearance>
	and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in 2</menu>
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2								
	Remember <menu key=""> = next digit/character in</menu>								
0.1	,								
0.1	<clearance value=""> and Accomplish Goal: Menu Mathed for Coal: Many law</clearance>								
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>								
0.51	1 appropriate menu key								
0.38	2 Press and release appropriate menu key								
0.1	3 Return with goal accomplished								
	Decide: IF more digits/characters in restriction to								
0.1	3 F enter, THEN GOTO Step 2								
	Decide: IF <clearance value=""> is an altitude or</clearance>								
0.1	4 F speed with an above or below, THEN Selection								
	Rule: At and above or below								
0.1	5 Return with goal accomplished								
0.51	7 Point finger to right line select key next to waypoint								
0.38	8 Press and release right line select key next to waypoint								
0.1	9 Return with goal accomplished								
0.1	3 Return with goal accomplished								
0.1	5 Return with goal accomplished								
0.1	4 Return with goal accomplished								
0.1	4 Selection Rule: Decide on a clearance								
0.1	Selection Rule for Goal: Decide on a clearance								
	IF clearance includes both RTA and other information. THEN Accomplish Goal:								
0.1	3 T Determine whether mixed clearance is acceptable								
0.1	Method for Goal: Determine whether mixed clearance is acceptable								
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable								
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable								
1.3	1 Determine whether non-RTA clearance is acceptable								
0.0	Decide: IF clearance is accentable THEN Retain <resnonse>=</resnonse>								
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>								
0.1	3 Return with goal accomplished								
0.1	2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished</response>								
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable								
0.1	Method for Goal: Determine whether RTA clearance is acceptable								
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page								
0.1	2 Wait for system response								
	Decide: IF system returns "Inable RTA" THEN Retain <response> =</response>								
1.4	3 F "Unable," ELSE Retain <response> = "Wilco"</response>								
0.1	4 Return with goal accomplished								
0.1	4 Return with goal accomplished								
0.1	4 Return with goal accomplished								
-	<u> </u>								

	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>							
0.1	5 T THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>							
0.1								
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>							
0.38	2 Press and release appropriate menu key							
0.38	3 Return with goal accomplished							
0.1	6 Selection Rule: Respond to a clearance							
0.1	Selection Rule for Goal: Respond to a clearance							
0.1	T IF responding by voice, THEN Accomplish Goal: Respond by voice							
0.1	Method for Goal: Respond by voice							
0.5	1 Move hand to yoke and "Push to talk" button							
0.2	2 Press "Push to talk" button							
	Recall <response> and Decide: IF <response> = "Wilco " THEN Selection</response></response>							
0.2	T Rule: Method of clearance readback, ELSE state call sign followed by							
0.1	Selection Rule for Goal: Method of clearance readback							
	IF <clearance information=""> is not remembered. THEN Accomplish</clearance>							
0.1	2 T Goal: Readback clearance by reading							
0.1	Method for Goal: Readback clearance by reading							
0.1	1 Selection Rule: Method of reading							
0.1	Selection Rule for Goal: Method of reading							
0.1	IF clearance is in writing, THEN Accomplish Goal:							
	Read clearance from paper							
0.1	Method for Goal: Read clearance from paper							
0.51	Decide: IF paper not visible, THEN move							
0.51	paper							
	Decide: IF clearance must be read aloud							
	or crew wants to read aloud, THEN Read							
5.8	2 T information on paper aloud and retain							
	<pre><clearance information="">, ELSE Read</clearance></pre>							
0.4	information on paper and retain							
0.1	3 Return with goal accomplished							
0.1	3 Return with goal accomplished							
1.3	2 State call sign							
0.1	3 Return with goal accomplished							
0.1	3 Return with goal accomplished							
0.2	4 Release "Push to talk" button							
0.5	5 Return hand to FMS							
0.1	6 Return with goal accomplished							
0.1	3 Return with goal accomplished							
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1							
0.1	8 Return with goal accomplished							
00 E2	Total time							
80.52	Total time							

## Trace 14 - Task 4, Voice

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at 1800Z at FL190

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 14 words ("Cross HELPR at one eight zero zero

Zulu at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

After initially locating waypoint, it remains located until FMS is navigated to a different page

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action							
0.1	Method for Goal: Handle a clearance							
0.1	1	1 Selection Rule: Receive a clearance						
0.1		Sele	ction	n Ru	le f	or Goal: Receive a clearance		
0.1		2	Т	IF cle	eara	ance is audio, THEN Accomplish Goal: Receive a radio clearance		
0.1						for Goal: Receive a radio clearance		
6.9				1		Listen to clearance and retain <clearance information=""></clearance>		
0.1				2	F	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance		
0.1				3		Return with goal accomplished		
0.1		3		Retu	ırn v	with goal accomplished		
0.1	2 T	Deci	ide: I	IF cl€	eara	nce includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>		
0.1	2 1	Res	pond	l to a	cle	arance		
0.1		Sele	ection	n Ru	le f	or Goal: Respond to a clearance		
0.1		1	Т	IF re	spc	nding by voice, THEN Accomplish Goal: Respond by voice		
0.1				Met	hod	for Goal: Respond by voice		
0.5				1		Move hand to yoke and "Push to talk" button		
0.2				2		Press "Push to talk" button		
1.8				3	F	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>		
1.0				<u> </u>	Г	Rule: Method of clearance readback, ELSE state call sign followed by		
0.2				4		Release "Push to talk" button		
0.5				5		Return hand to FMS		
0.1				6		Return with goal accomplished		
0.1		3		Retu	ırn	with goal accomplished		

0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.1	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 T Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
0.1	4 T mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>
0.1	1 Goal: Menu key
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
	Decide: IF waynoint is found THEN Return with
0.1	3 T goal accomplished
	Decide: IF speed restriction. THEN Retain <clearance< td=""></clearance<>
0.1	2 F value>= digits in clearance and Accomplish Goal: Enter
0.4	Remember <menu key=""> = "/" and Accomplish Goal: Menu</menu>
0.1	3 key
0.1	Method for Goal: Menu key
0.51	Recall <menu kev=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	De manage hang des annu las var an anti-diaite /ah anna at an in
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu Method for Goal: Menu key</clearance>
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.1	
	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
0.1	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	
0.1	7 Return with goal accomplished
0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
	Decide: IF waynoint not located THEN Accomplish Goal:
0.1	1 F Locate waypoint
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	4 Accomplish Goal: Go to RTA page
0.1	
0.1	Remember <menu key=""> = "Prog" and Accomplish</menu>
	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	,
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and</menu>
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.38	
0.1	3 Neturn with goal accomplished

0.1	Remember < menu key> = "Next Page" and
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish</keyword>
0.4	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
0.00	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = digits/characters in clearance</clearance>
0.1	and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.4	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or 4 F</clearance>
	speed with an above or below, THEN Selection
0.1	5 Return with goal accomplished
0.51	
0.38	8 Press and release right line select key next to waypoint
0.1	9 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	3 T IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response>=</response>
0.2	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
0.1	2 Wait for system response
0.1	Decide: IF system returns "Unable RTA" THEN Retain <resnonse>=</resnonse>
1.4	3 F "Unable," ELSE Retain <response> = "Wilco"</response>
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
	4 Return with goal accomplished 4 Return with goal accomplished
0.1	

0.1	5 -	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	J	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1		Method for Goal: Menu key
0.51		1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38		2 Press and release appropriate menu key
0.1		3 Return with goal accomplished
0.1	6	Selection Rule: Respond to a clearance
0.1		Selection Rule for Goal: Respond to a clearance
0.1		1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1		Method for Goal: Respond by voice
0.5		1 Move hand to yoke and "Push to talk" button
0.2		2 Press "Push to talk" button
0.2		Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2		Rule: Method of clearance readback, ELSE state call sign followed by
0.1		Selection Rule for Goal: Method of clearance readback
0.1		IF <clearance information=""> is remembered, THEN Accomplish Goal:</clearance>
		Readback clearance from memory
0.1		Method for Goal: Readback clearance from memory
6.9		Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
		information> followed by call sign
0.1		2 Return with goal accomplished
0.1		3 Return with goal accomplished
0.2		4 Release "Push to talk" button
0.5		5 Return hand to FMS
0.1		6 Return with goal accomplished
0.1		3 Return with goal accomplished
0.1		Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8	Return with goal accomplished
49.75	To	otal time

# Trace 15 - Task 4, Data Comm

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at time 1800Z at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands do not start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu")

and page two is 6 words ("At flight level one niner zero")

Clearance is two pages

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Hand is not on FMS after grasping print out

Once opened, clearance remains open until clearance information is entered

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

When clearance is read from paper it is 15 words ("Cross HELPR at time one eight zero zero Zulu at flight level one niner zero")

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

After initially locating waypoint, it remains located until FMS is navigated to a different page

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable

RTA portion of clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Damanahan drawwanda alaananaa ka anaa and Aasawallah Caal
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.00	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
3.8	1 T aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu</menu>
0.1	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 GOTO Step 1
	Decide: IF clearance must be read aloud or crew wants to read
2.6	1 T aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed 4 T
	сору
0.1	Selection Rule: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
0.51	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
O E1	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
6.2	2 T aloud, THEN Read information on paper aloud and retain
	<clearance information="">, ELSE Read information on paper and</clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.3	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	_ IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
0.1	4 T mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>
0.1	1
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with
	goal accomplished  Decide: IF speed restriction, THEN Retain < clearance
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
	Remember <menu key=""> = "/" and Accomplish Goal: Menu</menu>
0.1	3 key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF altitude restriction. THEN Retain <clearance< td=""></clearance<>
0.1	4 T value>= digits in clearance and Accomplish Goal: Enter
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.31	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Deside II may digita (above to us in rectuistion to
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.4	Decide: IF waypoint not located, THEN Accomplish Goal:
0.1	1 F Locate waypoint
0.51	2 Point finger to left line select key next to waypoint
0.38	
0.1	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
	Remember < menu key> = "Prog" and Accomplish
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.1	
	Remember < menu key> = "Next Page" and
0.1	2 Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.1	
0.1	1 3 neturn with goal accomplished

0.1	Remember <menu key=""> = "Next Page" and</menu>
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish</keyword>
	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = digits/characters in clearance</clearance>
0.1	and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in</menu>
0.1	· · · · · · · · · · · · · · · · · · ·
0.1	<clearance value=""> and Accomplish Goal: Menu Mathod for Coal: Many key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	
0.1	4 F speed with an above or below, THEN Selection
0.1	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	7 Point finger to right line select key next to waypoint
0.38	8 Press and release right line select key next to waypoint
0.1	9 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	Determine whether non-RTA clearance is acceptable
0.3	Decide: IF clearance is acceptable, THEN Retain <response>=</response>
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
	·
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
0.1	2 Wait for system response
1.4	Decide: IF system returns "Unable RTA", THEN Retain <response> =</response>
1.4	"Unable," ELSE Retain <response> = "Wilco"</response>
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished

	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.38	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
60.09	Total time

# Trace 16 - Task 4, Data Comm

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at time 1800Z at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu") and page two is 6 words ("At flight level one niner zero")

Clearance is two pages

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

After initially locating waypoint, it remains located until FMS is navigated to a different page

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable

RTA portion of clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Demonstrate disconnents also are to see and Assessatish Cool.						
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>						
0.4	Line select key						
0.1	Method for Goal: Line select key						
0.51	Recall <keyword> and point finger to line select key next</keyword>						
	to keyword						
0.38	2 Press and release appropriate line select key						
0.1	3 Return with goal accomplished						
0.1	3 Return with goal accomplished						
0.1	3 Accomplish Goal: Read the clearance						
0.1	Method for Goal: Read the clearance						
	Decide: IF clearance must be read aloud or crew wants to read						
3.8	1 T aloud, THEN Read information on screen aloud and retain						
	<clearance information="">, ELSE Read information on screen and</clearance>						
0.1	Decide: IF there are no more pages of clearances, THEN Return						
0.1	with goal accomplished						
0.1	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu 3</menu>						
0.1	key						
0.1	Method for Goal: Menu key						
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>						
0.51	key						
0.38	2 Press and release appropriate menu key						
0.1	3 Return with goal accomplished						
0.1	4 GOTO Step 1						
	Decide: IF clearance must be read aloud or crew wants to read						
2.6	1 T aloud, THEN Read information on screen aloud and retain						
	<clearance information="">, ELSE Read information on screen and</clearance>						
0.1	Decide: IF there are no more pages of clearances, THEN Return						
0.1	with goal accomplished						
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed						
0.1	4 F copy						
0.1	5 Return with goal accomplished						
0.1	3 Return with goal accomplished						
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>						
0.1	2 T Respond to a clearance						
0.1	Selection Rule: Respond to a clearance						
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS						
0.1	Method for Goal: Respond by FMS						
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS						
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance						
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>						
0.1	Method for Goal: Line select key						
	Recall < keyword > and point finger to line select key next to						
0.51	1 keyword						
0.38	2 Press and release appropriate line select key						
0.38	3 Return with goal accomplished						
0.1	5 Neturn with goal accomplished						

0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
	mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish  Goal: Menu key</menu>
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with
0.1	goal accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
	value> = digits in clearance and Accomplish Goal: Enter
0.1	Remember <menu key=""> = "/" and Accomplish Goal: Menu 3</menu>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	appropriate menu key  2 Press and release appropriate menu key
0.38	<ul> <li>2 Press and release appropriate menu key</li> <li>3 Return with goal accomplished</li> </ul>
0.1	5 Neturn with goal accomplished

0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1		
Value> = digits in clearance and Accomplish Goal: Enter	0.1	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
Remember < menu key> = first digit/character in < clearance value> and Accomplish Goal: Menu		
O.1   Method for Goal: Menu key	0.1	· · · · · · · · · · · · · · · · · · ·
Color   Method for Goal: Menu key	0.1	1
1   Recall <menu key=""> and point finger to appropriate menu key    </menu>		•
1	0.1	
O.38   2   Press and release appropriate menu key	0.51	Recall <menu key=""> and point finger to</menu>
O.1   2   Remember < menu key> = next digit/character in < clearance value> and Accomplished   O.1   Method for Goal: Menu key	0.51	appropriate menu key
Remember < menu key> = next digit/character in < clearance value> and Accomplish Goal: Menu	0.38	2 Press and release appropriate menu key
Color	0.1	3 Return with goal accomplished
O.1   Method for Goal: Menu key	0.1	Remember < menu key> = next digit/character in
1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu  0.1 Method for Goal: Menu key  0.51 Recall <menu key=""> and point finger to appropriate menu key  0.1 Recall <menu key=""> and point finger to appropriate menu key  0.2 Press and release appropriate menu key  0.3 Return with goal accomplished  0.1 3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  0.1 4 F speed with an above or below. THEN Selection Rule: At and above or below  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</clearance></menu></menu></clearance></menu></menu>	0.1	<clearance value=""> and Accomplish Goal: Menu</clearance>
1 appropriate menu key	0.1	Method for Goal: Menu key
O.38   2   Press and release appropriate menu key	0.51	Recall <menu key=""> and point finger to</menu>
O.1   3   T   Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2	0.51	appropriate menu key
0.1  3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu  Method for Goal: Menu key  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  4 F speed with an above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint</clearance></menu></clearance></menu>	0.38	2 Press and release appropriate menu key
0.1  2 Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu  0.1 Method for Goal: Menu key  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.1  3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  0.1  4 F speed with an above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint</clearance></menu></clearance></menu>	0.1	3 Return with goal accomplished
enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu  Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  4 F speed with an above or below, THEN Selection Rule: At and above or below  0.1 S Return with goal accomplished  0.51 S Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</clearance></menu></clearance></menu>	0.1	Decide: IF more digits/characters in restriction to
Clearance value> and Accomplish Goal: Menu	0.1	enter, THEN GOTO Step 2
Clearance value> and Accomplish Goal: Menu	0.1	Remember < menu key> = next digit/character in
0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  0.1  4 F speed with an above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint</clearance></menu>	0.1	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.51  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <a href="Clearance value">Decide: IF <a href="Clearance value">Decide: IF <a href="Clearance value">S an altitude or <a href="Otolor Step 2">Otolor Step 2</a>  Decide: IF <a href="Clearance value">Clearance value</a> is an altitude or  0.1  4 F speed with an above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint</a></a></a>	0.1	Method for Goal: Menu key
0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2 Decide: IF <a href="Clearance value">Clearance value</a> is an altitude or  0.1 4 F speed with an above or below, THEN Selection Rule: At and above or below  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint	0.51	Recall <menu key=""> and point finger to</menu>
0.1 3 Return with goal accomplished  0.1 3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2 Decide: IF <clearance value=""> is an altitude or  4 F speed with an above or below, THEN Selection Rule: At and above or below  5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</clearance>	0.51	appropriate menu key
0.1  3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  4 F speed with an above or below, THEN Selection Rule: At and above or below  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  6 Press and release right line select key next to waypoint</clearance>	0.38	2 Press and release appropriate menu key
0.1  enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  4 F speed with an above or below, THEN Selection Rule: At and above or below  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint</clearance>	0.1	3 Return with goal accomplished
enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  4 F speed with an above or below, THEN Selection Rule: At and above or below  5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</clearance>	0.1	Decide: IF more digits/characters in restriction to
0.1 4 F speed with an above or below, THEN Selection Rule: At and above or below  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint	0.1	enter, THEN GOTO Step 2
Rule: At and above or below  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint		Decide: IF <clearance value=""> is an altitude or</clearance>
0.15Return with goal accomplished0.515Point finger to right line select key next to waypoint0.386Press and release right line select key next to waypoint	0.1	4 F speed with an above or below, THEN Selection
0.51 5 Point finger to right line select key next to waypoint 0.38 6 Press and release right line select key next to waypoint		Rule: At and above or below
0.38 6 Press and release right line select key next to waypoint	0.1	5 Return with goal accomplished
0.38 6 Press and release right line select key next to waypoint	0.51	5 Point finger to right line select key next to waypoint
	0.38	
	0.1	

0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	Decide: IF waypoint not located, THEN Accomplish Goal:
0.1	1 F Locate waypoint
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember < menu key> = "Prog" and Accomplish
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < menu key> = "Next Page" and
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and</menu>
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish</keyword>
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
0.51	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.1	Retain <clearance value=""> = digits/characters in clearance</clearance>
0.1	6 and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
0.00	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu Method for Goal: Menu key</clearance>
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
- 0.4	Remember < menu kev> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu Method for Goal: Menu key</clearance>
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	7 Point finger to right line select key next to waypoint
0.38	8 Press and release right line select key next to waypoint
0.1	9 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance						
0.1	Selection Rule for Goal: Decide on a clearance						
0.1							
0.1	3 T Determine whether mixed clearance is acceptable						
0.1	Method for Goal: Determine whether mixed clearance is acceptable						
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable						
-							
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable						
1.3	1 Determine whether non-RTA clearance is acceptable Decide: IF clearance is acceptable, THEN Retain <response>=</response>						
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>						
0.1	3 Return with goal accomplished						
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>						
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable						
0.1	Method for Goal: Determine whether RTA clearance is acceptable						
0.1	Method for doar. Determine whether KTA clearance is acceptable						
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page						
0.1	2 Wait for system response						
0.1	Decide: IF system returns "Inable RTA" THEN Retain <resnonse>=</resnonse>						
1.4	3 T "Unable," ELSE Retain <response> = "Wilco"</response>						
0.1	4 Return with goal accomplished						
0.1	4 Return with goal accomplished						
0.1	4 Return with goal accomplished						
0.4	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS</response>						
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>						
0.1	6 Selection Rule: Respond to a clearance						
0.1	Selection Rule for Goal: Respond to a clearance						
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS						
0.1	Method for Goal: Respond by FMS						
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS						
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance						
0.1	Method for Goal: Open clearance						
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key						
0.1	Method for Goal: Menu key						
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>						
0.51	key						
0.38	2 Press and release appropriate menu key						
0.1	3 Return with goal accomplished						
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>						
0.1	Line select key						
0.1	Method for Goal: Line select key						
0.51	Recall <keyword> and point finger to line select key next</keyword>						
	to keyword						
0.38	2 Press and release appropriate line select key						
0.1	3 Return with goal accomplished						
0.1	3 Return with goal accomplished						

0.1		3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>				
0.1					Method	d for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>					
0.38					2	Press and release appropriate line select key
0.1					3	Return with goal accomplished
0.1				4	Remen	nber <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1					Method	d for Goal: Line select key
0.51					1	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38					2	Press and release appropriate line select key
0.1					3	Return with goal accomplished
0.1				5	Return	with goal accomplished
0.1			3	Return	with goa	l accomplished
0.1	7	F (	Decide:	IF there	are mor	e clearances, THEN GOTO Step 1
0.1	8	F	Return	with goa	l accomp	plished
48.17		Total	l time			

### Trace 17 - Task 5, Voice

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at 1800Z at or above FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 16 words ("Cross HELPR at one eight zero zero Zulu at or above flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Paper is available

Pen is not in hand

Clearance is written as 8 words ("Cross HELPR at 1800Z at or above FL190")

Response is sent by voice

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

After initially locating waypoint, it remains located until FMS is navigated to a different page

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
7.7	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	2 T Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	Method for Goal: Write down clearance
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:  Obtain paper
0.1	2 T Decide: IF pen is not in hand, THEN Accomplish Goal: Obtain pen

0.1	Method for Goal: Obtain pen					
0.51	1 Reach for pen					
0.31	2 Grasp pen					
0.51	3 Transport pen to paper					
0.16						
0.1	5 Return with goal accomplished					
21.7	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>					
0.51	4 Return pen to original location					
0.17	5 Release pen					
0.5	6 Move hand back to starting location					
0.1	7 Return with goal accomplished					
0.1	3 Return with goal accomplished					
0.1	3 Return with goal accomplished					
0.1	Decide: IF clearance includes RTA. THEN Retain <response> = "Standby" and Selection Rule:</response>					
0.1	Respond to a clearance					
0.1	Selection Rule for Goal: Respond to a clearance					
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice					
0.1	Method for Goal: Respond by voice					
0.5	1 Move hand to yoke and "Push to talk" button					
0.2	2 Press "Push to talk" button					
1.8	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>					
	Rule: Method of clearance readback, ELSE state call sign followed by					
0.2	4 Release "Push to talk" button					
0.5	5 Return hand to FMS					
0.1	6 Return with goal accomplished					
0.1	3 Return with goal accomplished					
0.1	3 Accomplish Goal: Enter a clearance					
0.1	Method for Goal: Enter a clearance					
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>					
0.1	Selection Rule: Method of reading					
0.1	Selection Rule for Goal: Method of reading					
0.1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from					
	paper					
0.1	Method for Goal: Read clearance from paper					
0.51	1 T Decide: IF paper not visible, THEN move paper					
	Decide: IF clearance must be read aloud or crew wants to read					
6.6	• • • • • • • • • • • • • • • • • • • •					
0.4	<pre><clearance information="">, ELSE Read information on paper and</clearance></pre>					
0.1	3 Return with goal accomplished					
0.1	3 Return with goal accomplished					

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
	IF clearance is crossing restriction with RTA. THEN Accomplish Goal: Enter
0.1	4 T mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	<ol> <li>Accomplish Goal: Enter crossing restriction</li> </ol>
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>
	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	appropriate menu key
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished
0.1	2 Search for waypoint
0.02	Decide: IF waynoint is found THEN Return with
0.1	3 T goal accomplished
0.1	Decide: IF speed restriction, THFN Retain <dearance< td=""></dearance<>
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
0.1	Remember <menu key="">= "/" and Accomplish Goal: Menu</menu>
0.1	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished
0.1	3 Return with goal accomplished Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
0.1	Method for Goal: Enter into scratchpad
	Remember < menu kev> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished
0.1	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.4	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 T speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
_	IF restriction is at or above, THEN
0.1	1 T Remember < menu key> = "A" and
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point</menu>
	finger to appropriate menu key
0.38	Press and release appropriate
0.1	menu key  3 Return with goal accomplished
0.1	
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	
0.1	7 Return with goal accomplished
0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	Decide: IF waypoint not located, THEN Accomplish Goal:
0.54	Locate waypoint
0.51	2 Point finger to left line select key next to waypoint
0.38	, , ,
0.1	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember < menu key> = "Prog" and Accomplish
0.4	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	appropriate menu key  2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Remember < menu key> = "Next Page" and 2
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	
0.1	Ŭ I
0.1	Remember <menu key=""> = "Next Page" and</menu>
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	
0.1	Ů I
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish</keyword>
	Goal: Line select key
0.1	,
0.51	Recall <keyword> and point finger to line select</keyword>
0.51	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	
0.1	Retain <clearance value=""> = digits/characters in clearance</clearance>
0.1	and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
0.1	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < menu kev> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	• • • • • • • • • • • • • • • • • • • •
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu kev> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.30	
0.1	1 S neturn with goal accomplished

0.1	3 T Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
0.4	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	7 Point finger to right line select key next to waypoint
0.38	
0.1	9 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = 2 T</response>
	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
0.1	2 Wait for system response
4.4	Decide: IF system returns "Unable RTA" THEN Retain <response>=</response>
1.4	3 F "Unable," ELSE Retain <response> = "Wilco"</response>
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember < menu key> = "Exec" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2	Rule: Method of clearance readback, ELSE state call sign followed by
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:</clearance>
	Readback clearance from memory
0.1	Method for Goal: Readback clearance from memory
7.7	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
	information> followed by call sign
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	
0.1	8 Return with goal accomplished
86.21	Total time

# Trace 18 - Task 5, Voice

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at 1800Z at or above FL190

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 16 words ("Cross HELPR at one eight zero zero

Zulu at or above flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

After initially locating waypoint, it remains located until FMS is navigated to a different page

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	ction
0.1	Nethod for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
7.7	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

	1		
0.1	2 T	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Ru</response>	ule:
		Respond to a clearance	
0.1		Selection Rule for Goal: Respond to a clearance	
0.1		1 T IF responding by voice, THEN Accomplish Goal: Respond by voice	
0.1		Method for Goal: Respond by voice	
0.5		1 Move hand to yoke and "Push to talk" button	
0.2		2 Press "Push to talk" button	
		Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>	1
1.8		3 F Rule: Method of clearance readback, ELSE state call sign followed by	ļ
		<response></response>	
0.2		4 Release "Push to talk" button	
0.5		5 Return hand to FMS	
0.1		6 Return with goal accomplished	
0.1		3 Return with goal accomplished	
0.1	3	Accomplish Goal: Enter a clearance	
0.1		Method for Goal: Enter a clearance	
0.2		Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSI</clearance>	E
0.2		1 T Selection Rule: Method of reading	
0.1		2 F Decide: IF hand not on FMS, THEN move hand to FMS	
0.1		3 Selection Rule: Specific clearance type	
0.1		Selection Rule for Goal: Specific clearance type	
0.1		IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Ent	ter
0.1		mixed clearance	
0.1		Method for Goal: Enter mixed clearance	
0.1		1 Accomplish Goal: Enter crossing restriction	
0.1		Method for Goal: Enter crossing restriction	
0.1		1 Accomplish Goal: Locate waypoint	
0.1		Method for Goal: Locate waypoint	
0.1		Remember <menu key=""> = "Legs" and Accompl</menu>	lish
0.1		Goal: Menu key	
0.1		Method for Goal: Menu key	
0.51		Recall <menu key=""> and point finger to 1</menu>	0
0.51		appropriate menu key	
0.38		2 Press and release appropriate menu	key
0.1		3 Return with goal accomplished	

0.82	2 Search for waypoint
	Decide: IF waypoint is found. THEN Return with
0.1	3 T goal accomplished
	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Remember < menu key> = "/" and Accomplish Goal: Menu
0.1	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	·
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

0.1	3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 T speed with an above or below, THEN Selection
0.1	Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
0.1	
0.1	IF restriction is at or above, THEN  1 T Remember <menu key=""> = "A" and</menu>
0.1	
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point  1</menu>
	finger to appropriate menu key
0.38	Press and release appropriate
	menu key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	Decide: IF waypoint not located, THEN Accomplish Goal:
0.1	Locate waypoint
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember < menu key> = "Prog" and Accomplish
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember < menu key> = "Next Page" and
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and noint finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	5 Neturn with goal accomplished

	Domombor (manulay) - "Novt Dogo" and
0.1	Remember <menu key=""> = "Next Page" and</menu>
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish</keyword>
	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = digits/characters in clearance</clearance>
0.1	and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	3 Neturn with goal accomplished

0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	7 Point finger to right line select key next to waypoint
0.38	8 Press and release right line select key next to waypoint
0.1	9 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.2	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
0.1	2 Wait for system response
1.4	Decide: IF system returns "Unable RTA", THEN Retain <response> =</response>
1.4	"Unable," ELSE Retain <response> = "Wilco"</response>
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember < menu key> = "Exec" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	
0.1	
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2	3 T Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goa</clearance>
0.1	Readback clearance from memory
0.1	Method for Goal: Readback clearance from memory
7.7	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
7.7	information> followed by call sign
0.1	2 Return with goal accomplished
0.1	6 1
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
52.74	Total time

### **Trace 19 - Task 5, Data Comm**

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at time 1800Z at or above FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands do not start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu")

and page two is 8 words ("At or above flight level one niner zero")

Clearance is two pages

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Hand is not on FMS after grasping print out

Once opened, clearance remains open until clearance information is entered

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

When clearance is read from paper it is 17 words ("Cross HELPR at time one eight zero zero Zulu at or above flight level one niner zero")

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

After initially locating waypoint, it remains located until FMS is navigated to a different page

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	Line select key
0.1	Method for Goal: Line select key
	Recall < keyword > and point finger to line select key next
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain
3.8	1 T <clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
	Decide: IF there are no more pages of clearances. THEN Return
0.1	2 F with goal accomplished
	Remember < menu kev> = "Next Page" and Accomplish Goal: Menu
0.1	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 GOTO Step 1
	Decide: IF clearance must be read aloud or crew wants to read
3.4	aloud, THEN Read information on screen aloud and retain
3.1	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
	сору
0.1	Selection Rule: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
	Recall < keyword > and noint finger to line select
0.51	1 key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
	The tariff with goal accomplished

0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	2 T Respond to a clearance
0.1	Selection Rule: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.51	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from
0.1	paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
7	2 T aloud, THEN Read information on paper aloud and retain
	<clearance information="">, ELSE Read information on paper and</clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.5	2 T Deside: If hand not an EMC TUEN may bend to EMC
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
	mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>
	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with
	goal accomplished
	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Remember <menu key=""> = "/" and Accomplish Goal: Menu 3</menu>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.4	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
0.4	into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 T speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
	IF restriction is at or above, THEN
0.1	1 T Remember <menu key=""> = "A" and</menu>
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point</menu>
0.51	finger to appropriate menu key
	Press and release appropriate
0.38	2 menu key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	

0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	Decide: IF waypoint not located, THEN Accomplish Goal:  Locate waypoint
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember < menu key> = "Prog" and Accomplish  Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and</menu>
0.1	Accomplish Goal: Menu key  Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < menu key> = "Next Page" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember < keyword> = "RTA Waypoint" and Accomplish  Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

	Retain <clearance value=""> = digits/characters in clearance</clearance>
0.1	6 and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	·
0.1	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.00	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.4	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
	Recall < menu key> and point finger to
0.51	1 appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	5 Netarii Witi godi decomprisiicu

0.1	Decide: IF more digits/characters in restriction to									
	enter, THEN GOTO Step 2									
	Decide: IF <clearance value=""> is an altitude or</clearance>									
0.1	4 F speed with an above or below, THEN Selection									
	Rule: At and above or below									
0.1	5 Return with goal accomplished									
0.51	7 Point finger to right line select key next to waypoint									
0.38	8 Press and release right line select key next to waypoint									
0.1	9 Return with goal accomplished									
0.1	3 Return with goal accomplished									
0.1	5 Return with goal accomplished									
0.1	4 Return with goal accomplished									
0.1	4 Selection Rule: Decide on a clearance									
0.1	Selection Rule for Goal: Decide on a clearance									
0.4	JE clearance includes both RTA and other information, THEN Accomplish Goal:									
0.1	3 T Determine whether mixed clearance is acceptable									
0.1	Method for Goal: Determine whether mixed clearance is acceptable									
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable									
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable									
1.3	Determine whether non-RTA clearance is acceptable									
	Decide: IF clearance is acceptable. THEN Retain <response> =</response>									
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>									
0.1	3 Return with goal accomplished									
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>									
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable									
0.1	Method for Goal: Determine whether RTA clearance is acceptable									
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page									
0.1	2 Wait for system response									
	Decide: IF system returns "Ilnable RTA" THEN Retain < resnonse > -									
1.4	3 F "Unable," ELSE Retain <response> = "Wilco"</response>									
0.1	4 Return with goal accomplished									
0.1	4 Return with goal accomplished									
0.1	4 Return with goal accomplished									
	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>									
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>									
0.1	Method for Goal: Menu key									
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>									
0.38	2 Press and release appropriate menu key									
0.1	3 Return with goal accomplished									
	0 1									

0.1	6 Selection Rule: Respond to a clearance								
0.1	Selection Rule for Goal: Respond to a clearance								
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS								
0.1	Method for Goal: Respond by FMS								
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS								
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance								
0.1	Method for Goal: Open clearance								
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key								
0.1	Method for Goal: Menu key								
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>								
0.38	2 Press and release appropriate menu key								
0.1	3 Return with goal accomplished								
0.1	Remember <keyword> = clearance to open and Accomplish Goal: Line select key</keyword>								
0.1	Method for Goal: Line select key								
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>								
0.38	2 Press and release appropriate line select key								
0.1	3 Return with goal accomplished								
0.1	3 Return with goal accomplished								
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>								
0.1	Method for Goal: Line select key								
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>								
0.38	2 Press and release appropriate line select key								
0.1	3 Return with goal accomplished								
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>								
0.1	Method for Goal: Line select key								
0.51	Recall <keyword> and point finger to line select key next to</keyword>								
0.51	1 keyword								
0.38	2 Press and release appropriate line select key								
0.1	3 Return with goal accomplished								
0.1	5 Return with goal accomplished								
0.1	3 Return with goal accomplished								
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1								
0.1	8 Return with goal accomplished								
64.17	Total time								

# **Trace 20 - Task 5, Data Comm**

Equipment: FMS 2

NGOMSL Trace: Cross HELPR at time 1800Z at or above FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu")

and page two is 8 words ("At or above flight level one niner zero")

Clearance is two pages

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

After initially locating waypoint, it remains located until FMS is navigated to a different page

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Timo	Action							
0.1	Method for Goal: Handle a clearance							
0.1	1 Selection Rule: Receive a clearance							
0.1	Selection Rule for Goal: Receive a clearance							
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance							
0.1	Method for Goal: Receive an FMS clearance							
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS							
0.1	2 Accomplish Goal: Open clearance							
0.1	Method for Goal: Open clearance							
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key							
0.1	Method for Goal: Menu key							
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>							
0.51	key							
0.38	2 Press and release appropriate menu key							
0.1	3 Return with goal accomplished							

O.1   2   Remember < keyword> = clearance to open and Accomplish Goal: Line select key		
O.1   Method for Goal: Line select key	0.1	,
1   Recall < keyword > and point finger to line select key next to keyword   0.38		·
1 to keyword  1	0.1	· · · · · · · · · · · · · · · · · · ·
1	0.51	1
3 Return with goal accomplished	0.51	to keyword
0.1 3 Return with goal accomplished 0.1 3 Accomplish Goal: Read the clearance 0.1 Method for Goal: Read the clearance 0.2 Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""> 0.1 2 F Decide: IF there are no more pages of clearances, THEN Return with goal accomplished 0.1 Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key 0.1 Method for Goal: Menu key 0.2 Press and release appropriate menu key 0.3 Return with goal accomplished 0.1 3 Return with goal accomplished 0.1 4 GOTO Step 1 0.1 Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""> 0.1 Decide: IF there are no more pages of clearances, THEN Return with goal accomplished 0.1 Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy 0.1 S Return with goal accomplished</clearance></clearance></clearance></menu></clearance></clearance></clearance>	0.38	
0.1 Method for Goal: Read the clearance  1 T Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">  1 T Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">  0.1 2 F Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1 3 Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 4 GOTO Step 1  Decide: IF clearance must be read aloud or crew wants to read aloud or trew wants to read aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1 2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1 4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  0.1 5 Return with goal accomplished</clearance></clearance></clearance></menu></clearance></clearance>	0.1	3 Return with goal accomplished
0.1 Method for Goal: Read the clearance    Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <  clearance information >	0.1	3 Return with goal accomplished
3.8  1 T Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1 Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key  Method for Goal: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  0.1 4 GOTO Step 1 Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">  1 T Decide: IF clearance information&gt;  2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1 4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  5 Return with goal accomplished</clearance></menu></menu></clearance></clearance></clearance></clearance>	0.1	3 Accomplish Goal: Read the clearance
3.8  1 T aloud, THEN Read information on screen aloud and retain <pre><clearance information="">, ELSE Read information on screen and retain </clearance></pre> 1 T aloud, THEN Read information on screen aloud and retain <pre><clearance information=""></clearance></pre> 1 Decide: IF there are no more pages of clearances, THEN Return with goal accomplished 1 Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key 1 Method for Goal: Menu key 1 Recall <menu key=""> and point finger to appropriate menu key 1 Recall <menu key=""> and point finger to appropriate menu key 1 Recall <menu key=""> and point finger to appropriate menu key 1 Recall <menu key=""> and point finger to appropriate menu key 1 Recall <menu key=""> and point finger to appropriate menu key 2 Press and release appropriate menu key 3 Return with goal accomplished 2 Press and release appropriate menu key 3 Return with goal accomplished 4 GOTO Step 1 5 Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <pre><clearance information=""></clearance></pre> 1 T Decide: IF Clearance information&gt; 2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished 1 T Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy 1 Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy</menu></menu></menu></menu></menu></menu>	0.1	Method for Goal: Read the clearance
Clearance information   ELSE Read information on screen and retain   Clearance information		Decide: IF clearance must be read aloud or crew wants to read
<ul> <li><clearance information="">, ELSE Read information on screen and retain <clearance information=""> </clearance></clearance></li> <li>0.1</li> <li>2 F</li> <li>Decide: IF there are no more pages of clearances, THEN Return with goal accomplished</li> <li>0.1</li> <li>Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key</menu></li> <li>0.51</li> <li>Method for Goal: Menu key</li> <li>Recall <menu key=""> and point finger to appropriate menu key</menu></li> <li>0.38</li> <li>2 Press and release appropriate menu key</li> <li>0.1</li> <li>3 Return with goal accomplished</li> <li>0.1</li> <li>4 GOTO Step 1</li> <li>Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""></clearance></clearance></li> <li>0.1</li> <li>2 T</li> <li>Decide: IF there are no more pages of clearances, THEN Return with goal accomplished</li> <li>0.1</li> <li>4 F</li> <li>Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy</li> <li>5 Return with goal accomplished</li> </ul>	2.0	aloud, THEN Read information on screen aloud and retain
2 F Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  3 Remember < menu key> = "Next Page" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 PRecall < menu key> and point finger to appropriate menu key  0.38 Press and release appropriate menu key  0.1 Recall < menu key> and point finger to appropriate menu key  0.1 Recall < menu key> and point finger to appropriate menu key  0.1 Press and release appropriate menu key  1 Tress and release appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  1 Tress and release appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  2 Tress and release appropriate menu key  3 Return with goal accomplished  2 Tress and release appropriate menu key  3 Return with goal accomplished  4 F Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  5 Return with goal accomplished	3.8	<clearance information="">, ELSE Read information on screen and</clearance>
0.1 3 Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 4 GOTO Step 1 Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1 2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1 4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  0.1 5 Return with goal accomplished</clearance></clearance></menu></menu>		retain <clearance information=""></clearance>
With goal accomplished   Remember < menu key> = "Next Page" and Accomplish Goal: Menu key	0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 4 GOTO Step 1  Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1 2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1 4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  0.1 5 Return with goal accomplished</clearance></clearance></menu>	0.1	with goal accomplished
0.1 Method for Goal: Menu key  0.51	0.1	Remember < menu key> = "Next Page" and Accomplish Goal: Menu
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0.38  2 Press and release appropriate menu key  3 Return with goal accomplished  0.1 4 GOTO Step 1  Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1 2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1 4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  0.1 5 Return with goal accomplished</clearance></clearance>	0.1	Method for Goal: Menu key
0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 4 GOTO Step 1  Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1 2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1 4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  0.1 5 Return with goal accomplished</clearance></clearance>	O E1	Recall <menu key=""> and point finger to appropriate menu</menu>
O.1  3 Return with goal accomplished  0.1  4 GOTO Step 1  Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1  2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1  4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  5 Return with goal accomplished</clearance></clearance>	0.51	
0.1  4 GOTO Step 1  Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1  2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1  4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  5 Return with goal accomplished</clearance></clearance>	0.38	2 Press and release appropriate menu key
Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  1</clearance></clearance>	0.1	3 Return with goal accomplished
3.4  1 T aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information="">  0.1  2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1  4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  5 Return with goal accomplished</clearance></clearance>	0.1	4 GOTO Step 1
3.4		Decide: IF clearance must be read aloud or crew wants to read
clearance information>, ELSE Read information on screen and retain <clearance information=""> 0.1 Decide: IF there are no more pages of clearances, THEN Return with goal accomplished 0.1 Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy 0.1 Seturn with goal accomplished Return with goal accomplished</clearance>	2.4	aloud, THEN Read information on screen aloud and retain
0.1  2 T Decide: IF there are no more pages of clearances, THEN Return with goal accomplished  0.1  4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  0.1  5 Return with goal accomplished	3.4	<clearance information="">, ELSE Read information on screen and</clearance>
0.1 with goal accomplished  0.1 Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  0.1 S Return with goal accomplished		retain <clearance information=""></clearance>
with goal accomplished  0.1  4 F  Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy  0.1  5 Return with goal accomplished	0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1 4 F copy 0.1 5 Return with goal accomplished	0.1	with goal accomplished
copy  0.1 5 Return with goal accomplished	0.4	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
	0.1	
	0.1	5 Return with goal accomplished
	0.1	3 Return with goal accomplished

0.1	2	2 T	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>								
0.1			Respond to a clearance								
0.1		Selection Rule: Respond to a clearance									
0.1			2	Т	IF re	espo	nding b	by FMS, THEN Accomplish Goal: Respond by FMS			
0.1					Met	hoc	for Go	al: Respond by FMS			
0.1					1	F	Decide	e: IF hand not on FMS, THEN move hand to FMS			
0.1					2	F	Decide	e: IF clearance is not open, THEN Accomplish Goal: Open clearance			
0.1					3		Remer	mber <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>			
0.1							Metho	nd for Goal: Line select key			
0.54							4	Recall <keyword> and point finger to line select key next to</keyword>			
0.51							1	keyword			
0.38							2	Press and release appropriate line select key			
0.1							3	Return with goal accomplished			
0.1					4		Remer	mber <keyword> = "Send" and Accomplish Goal: Line select key</keyword>			
0.1							Metho	d for Goal: Line select key			
0.54							4	Recall <keyword> and point finger to line select key next to</keyword>			
0.51							1	keyword			
0.38							2	Press and release appropriate line select key			
0.1							3	Return with goal accomplished			
0.1					5		Return	with goal accomplished			
0.1			3		Ret	urn	with go	al accomplished			

0.1	3 Accomplish Goal: Enter a clearance									
0.1	Method for Goal: Enter a clearance									
	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>									
0.2	1 T Selection Rule: Method of reading									
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS									
0.1	3 Selection Rule: Specific clearance type									
0.1	Selection Rule for Goal: Specific clearance type									
0.1	4 T IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter mixed clearance									
0.1	Method for Goal: Enter mixed clearance									
0.1	1 Accomplish Goal: Enter crossing restriction									
0.1	Method for Goal: Enter crossing restriction									
0.1	1 Accomplish Goal: Locate waypoint									
0.1	Method for Goal: Locate waypoint									
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>									
	Goal: Menu key									
0.1	Method for Goal: Menu key									
0.51	Recall <menu key=""> and point finger to</menu>									
0.20	appropriate menu key									
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished									
0.1	Ü									
0.82	2 Search for waypoint  Decide: IF waypoint is found, THEN Return with									
0.1	3 T goal accomplished									
	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>									
0.1	2 F value>= digits in clearance and Accomplish Goal: Enter									
0.1	into scratchpad									
	Remember < menu kev> = "/" and Accomplish Goal: Menu									
0.1	3 key									
0.1	Method for Goal: Menu key									
0.54	Recall <menu key=""> and point finger to</menu>									
0.51	appropriate menu key									
0.38	2 Press and release appropriate menu key									
0.1	3 Return with goal accomplished									

	Decide II altitude restriction THEN Potain relearance
0.1	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	·
1	into scratchpad
0.1	
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	·
	Recall <menu key=""> and noint finger to</menu>
0.51	appropriate menu key
0.38	
0.1	
0.1	Decide: IF more digits /characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	,
0.1	<u> </u>
0.1	key
0.1	
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	
0.1	0 1
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	·
	Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
	IF restriction is at or above, THEN
0.1	· ·
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point</menu>
0.51	finger to appropriate menu key
0.00	Press and release appropriate
0.38	2 menu key
0.1	·
0.1	1 S Neturn with goal accomplished

0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	Decide: IF waypoint not located, THEN Accomplish Goal:
0.1	Locate waypoint
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	4 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember <menu key=""> = "Prog" and Accomplish</menu>
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and</menu>
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and</menu>
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Remember < keyword > = "RTA Waypoint" and Accomplish
	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.1	Retain <clearance value=""> = digits/characters in clearance</clearance>
	and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished

0.51	7 Point finger to right line select key next to waypoint
0.38	8 Press and release right line select key next to waypoint
0.1	9 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	3 T Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	Determine whether non-RTA clearance is acceptable
	Decide: IF clearance is acceptable, THEN Retain <response>=</response>
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
0.1	2 Wait for system response
1.4	Decide: IF system returns "Unable RTA", THEN Retain <response> =</response>
1.4	3 F "Unable," ELSE Retain <response> = "Wilco"</response>
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword> = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.38	keyword  2 Press and release appropriate line select key
0.38	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
51.45	

#### FMS3

# Trace 1 - Task 1, Voice

Equipment: FMS 3

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 4 words ("Proceed direct to HELPR")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Response is sent by voice

Clearance information is remembered during readback

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
2.9	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type

0.1	Selection Rule for Goal: Specific clearance type
	IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed
0.1	1 T direct to
0.1	Method for Goal: Enter proceed direct to
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish Goal:  Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.00	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
	accomplished
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	Decide: IF not on first page of flight plan, THEN Remember < menu
	key> = "Legs" and Accomplish Goal: Menu key
0.51	5 Point finger to first left line select key
0.38	6 Press and release first left line select key
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
	non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.4	Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  T</response>
	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
0.2	3 T Rule: Method of clearance readback, ELSE state call sign followed by
0.2	
0.1	<pre><response> Sologtion Pule for Cool Mathed of degrance readback</response></pre>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:</clearance>
	Readback clearance from memory
0.1	Method for Goal: Readback clearance from memory
2.9	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>
	information> followed by call sign
0.1	
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
18.68	Total time

# Trace 2 - Task 1, Voice

Equipment: FMS 3

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 4 words ("Proceed direct to HELPR")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

There is no clearance information to enter into the FMS

Response is sent by voice

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
2.9	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	2 F Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type

0.1	Soloction Bulg for Cool: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed direct to
0.1	Method for Goal: Enter proceed direct to
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish Goal:</menu>
	Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal accomplished
0.51	2 Point finger to left line select key next to waypoint
0.38	
0.50	Decide: IF not on first page of flight plan THEN Remember < menu
0.1	4 F key> = "Legs" and Accomplish Goal: Menu key
0.51	5 Point finger to first left line select key
0.38	
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	2 T IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
0.1	2 T non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.2	Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	5	F	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1			THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6		Selection Rule: Respond to a clearance
0.1			Selection Rule for Goal: Respond to a clearance
0.1			1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1			Method for Goal: Respond by voice
0.5			1 Move hand to yoke and "Push to talk" button
0.2			2 Press "Push to talk" button
			Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8			3 F Rule: Method of clearance readback, ELSE state call sign followed by
			<response></response>
0.2			4 Release "Push to talk" button
0.5			5 Return hand to FMS
0.1			6 Return with goal accomplished
0.1			3 Return with goal accomplished
0.1	7	F	Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8		Return with goal accomplished
15.79		Tot	al time

# Trace 3 - Task 1, Data Comm

Equipment: FMS 3

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen or paper it is 4 words ("Proceed direct to HELPR")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Clearance information is remembered when entering clearance

Hand is not on FMS after grasping print out

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

Response is sent by FMS

There is no clearance information to enter into the FMS

Once opened, clearance remains open until clearance information is entered

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
1.0	aloud, THEN Read information on screen aloud and retain
1.8	1 T <clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	сору
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
	Selection Rule: Method of reading
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed  1 T
	direct to

0.1	Method for Goal: Enter proceed direct to
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "Legs" and Accomplish Goal:  Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal accomplished
0.51	2 Point finger to left line select key next to waypoint
0.38	3 Press and release left line select key next to waypoint
0.1	Decide: IF not on first page of flight plan, THEN Remember < menu key> = "Legs" and Accomplish Goal: Menu key
0.51	5 Point finger to first left line select key
0.38	
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	2 T IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	Determine whether non-RTA clearance is acceptable
0.3	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.2	2 F Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  F</response>
	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
23.24	Total time

# Trace 4 - Task 1, Data Comm

Equipment: FMS 3

NGOMSL Trace: Proceed direct to HELPR

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 4 words ("Proceed direct to HELPR")

Clearance is one page

Clearance is not printed upon receipt

Clearance information is remembered when entering clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is not acceptable

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
0.1	Decide: IF clearance must be read aloud or crew wants to read
	aloud, THEN Read information on screen aloud and retain
1.8	1 1
	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed  4 F
	сору
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.4	IF clearance is proceed direct to, THEN Accomplish Goal: Enter proceed
0.1	1 T direct to
0.1	Method for Goal: Enter proceed direct to
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
	Remember < menu key> = "Legs" and Accomplish Goal:
0.1	1 Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.02	Decide: IF waypoint is found, THEN Return with goal
0.1	3 T accomplished
0.51	2 Point finger to left line select key next to waypoint
0.31	3 Press and release left line select key next to waypoint
0.36	Decide: IF not on first page of flight plan, THEN Remember < menu
0.1	4 F key> = "Legs" and Accomplish Goal: Menu key
0.51	· · · · · · · · · · · · · · · · · · ·
0.51	5 Point finger to first left line select key
0.38	6 Press and release first left line select key
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance	
0.1	Selection Rule for Goal: Decide on a clearance	
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether	
0.1	non-RTA clearance is acceptable	
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable	
1.3	Determine whether non-RTA clearance is acceptable	
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>	
	Retain <response> = "Unable"</response>	
0.1	3 Return with goal accomplished	
0.1	4 Return with goal accomplished	
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>	
	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>	
0.1	6 Selection Rule: Respond to a clearance	
0.1	Selection Rule for Goal: Respond to a clearance	
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS	
0.1	Method for Goal: Respond by FMS	
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS	
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance	
0.1	Method for Goal: Open clearance	
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key	
0.1	Method for Goal: Menu key	
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>	
0.38	2 Press and release appropriate menu key	
0.1	3 Return with goal accomplished	
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>	
0.1	Line select key	
0.1	·	
0.51	Recall <keyword> and point finger to line select key next</keyword>	
0.51	to keyword	
0.38	2 Press and release appropriate line select key	
0.1	3 Return with goal accomplished	
0.1	3 Return with goal accomplished	

0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
19.33	Total time

# Trace 5 - Task 2, Voice

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 8 words ("Cross HELPR at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Need to obtain pen and paper

Clearance is written as 4 words ("Cross HELPR at FL190")

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Once visible, paper will remain visible until hand moved to FMS

Hand returns to paper after replacing pen

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by voice

Clearance information is not remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
4.5	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	Method for Goal: Write down clearance
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:
0.1	Obtain paper
0.1	Method for Goal: Obtain paper
0.51	1 Reach for paper
0.8	2 Grasp paper
0.51	3 Transport paper to writing space
0.17	4 Release paper
0.1	5 Return with goal accomplished

0.1	2 T Decide: IF pen is not in hand, THEN Accomplish Goal: Obtain pen
0.1	
0.54	Method for Goal: Obtain pen
0.51	1 Reach for pen
0.8	2 Grasp pen
0.51	3 Transport pen to paper
0.16	4 Position the pen over paper
0.1	5 Return with goal accomplished
10.9	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>
0.51	4 Return pen to original location
0.17	5 Release pen
0.5	6 Move hand back to starting location
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.3	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.4	IF clearance is in writing, THEN Accomplish Goal: Read clearance from
0.1	1 T paper
0.1	Method for Goal: Read clearance from paper
0.1	1 F Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
	aloud, THEN Read information on paper aloud and retain
3.4	2 T <clearance information="">, ELSE Read information on paper and</clearance>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.5     2     T     Decide: IF hand not on FMS, THEN move hand to FMS       0.1     3     Selection Rule: Specific clearance type       0.1     Selection Rule for Goal: Specific clearance type       0.1     2     T     IF clearance is only crossing restriction, THEN Accordance type       0.1     Method for Goal: Enter crossing restriction	mnlich Goal: Enter
0.1 Selection Rule for Goal: Specific clearance type  0.1 2 T IF clearance is only crossing restriction, THEN Accordance crossing restriction	mplish Goal: Enter
0.1 2 T IF clearance is only crossing restriction, THEN According restriction	mnlish Goal: Enter
0.1 2 1 crossing restriction	
	iipiisii Goai. Liitei
Without of dod. Enter crossing restriction	
0.1 1 Accomplish Goal: Locate waypoint	
0.1 Method for Goal: Locate waypoint	
Remember <menu kev=""> = "legs" a</menu>	and Accomplish Goal:
0.1 1 Menu key	μ
0.1 Method for Goal: Menu key	
Recall <menu key=""> and po</menu>	oint finger to
0.51 appropriate menu key	-
0.38 2 Press and release approp	riate menu key
0.1 3 Return with goal accompl	
0.82 2 Search for waypoint	
0.1 Decide: IF waypoint is found, THEI	N Return with goal
accomplished	
0.1 Decide: IF speed restriction, THEN Retain <	<clearance value="">=</clearance>
digits in clearance and Accomplish Goal: Er	
0.1 3 Remember < menu key> = "/" and Accompl	ish Goal: Menu key
0.1 Method for Goal: Menu key	
0.51 Recall <menu key=""> and point finge</menu>	er to appropriate menu
key	
0.38 2 Press and release appropriate me	nu key
0.1 3 Return with goal accomplished	
0.1 Decide: IF altitude restriction, THEN Retain	
digits in clearance and Accomplish Goal: Er	nter into scratchpad
0.1 Method for Goal: Enter into scratchpad	it/charactoria
0.1 Remember <menu key=""> = first dig</menu>	
<clearance value=""> and Accomplish 0.1 Method for Goal: Menu key</clearance>	i dodi. ivienu Key
Recall <menu key=""> and po</menu>	oint finger to
0.51 1 appropriate menu key	טוווג ווווצבו נט
0.38 2 Press and release approp	riate menu key
0.50 2 Press and release approp  0.1 3 Return with goal accompl	-
Remember <menu key=""> = next dig</menu>	
0.1 2 cclearance value > and Accomplish	
0.1 Method for Goal: Menu key	. Joan Mena Rey
Recall <menu key=""> and no</menu>	oint finger to
0.51 appropriate menu key	Since iniger to
0.38 2 Press and release approp	riate menu kev
0.1 3 Return with goal accompl	

0.1	Decide: IF more digits/characters in restriction to enter,	
0.1	THEN GOTO Step 2	
0.1	Remember <menu key=""> = next digit/character in</menu>	
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>	
0.1	Method for Goal: Menu key	
0.51	Recall <menu key=""> and point finger to</menu>	
0.31	appropriate menu key	
0.38	2 Press and release appropriate menu key	
0.1	3 Return with goal accomplished	
0.1	3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2	
	Decide: IF <clearance value=""> is an altitude or speed with</clearance>	
0.1	4 F an above or below, THEN Selection Rule: At and above or	
	below	
0.1	1 S Return with goal accomplished	
0.51	5 Point finger to right line select key next to waypoint	
0.38		
0.1	·	
0.1	5 Return with goal accomplished	
0.1	4 Return with goal accomplished	
0.1	4 Selection Rule: Decide on a clearance	
0.1	Selection Rule for Goal: Decide on a clearance	
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether	
0.1	non-RTA clearance is acceptable	
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable	
1.3	Determine whether non-RTA clearance is acceptable	
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>	
0.2	Retain <response> = "Unable"</response>	
0.1	Return with goal accomplished	
0.1	4 Return with goal accomplished	
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>	
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>	
0.1	Method for Goal: Menu key	
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>	
0.38	2 Press and release appropriate menu key	
0.1	3 Return with goal accomplished	

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 T Rule: Method of clearance readback, ELSE state call sign followed by  <response></response></response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	2 T IF <clearance information=""> is not remembered, THEN Accomplish Goal: Readback clearance by reading</clearance>
0.1	Method for Goal: Readback clearance by reading
0.1	1 Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.1	1 T IF clearance is in writing, THEN Accomplish Goal: Read clearance from paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
3.4	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on paper aloud and retain clearance information on paper and retain clearance information>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
1.3	2 State call sign
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
48.51	Total time

# Trace 6 - Task 2, Voice

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by voice

When clearance is read stated aloud or heard over the radio it is 8 words ("Cross HELPR at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Clearance information is remembered when entering the clearance

Hands do not start on FMS

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by voice

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
4.5	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	2 F Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is only crossing restriction, THEN Accomplish Goal: Enter
0.1	crossing restriction

0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "Legs" and Accomplish Goal:  Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	3 T Decide: IF waypoint is found, THEN Return with goal accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad</clearance>
0.1	3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad</clearance>
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,	
	THEN GOTO Step 2	
0.1	Remember <menu key=""> = next digit/character in</menu>	
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>	
0.1	Method for Goal: Menu key	
0.51	Recall <menu key=""> and point finger to</menu>	
0.51	appropriate menu key	
0.38	2 Press and release appropriate menu key	
0.1	3 Return with goal accomplished	
0.1	3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2	
	Decide: IF <clearance value=""> is an altitude or speed with</clearance>	
0.1	4 F an above or below, THEN Selection Rule: At and above or	
	below	
0.1	5 Return with goal accomplished	
0.51	5 Point finger to right line select key next to waypoint	
0.38	6 Press and release right line select key next to waypoint	
0.1	7 Return with goal accomplished	
0.1	5 Return with goal accomplished	
0.1	4 Return with goal accomplished	
0.1	4 Selection Rule: Decide on a clearance	
0.1	Selection Rule for Goal: Decide on a clearance	
0.1	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether	
0.1	non-RTA clearance is acceptable	
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable	
1.3	·	
0.3	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>	
0.2	Retain <response> = "Unable"</response>	
0.1	Return with goal accomplished	
0.1	·	
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>	
0.1	5 T THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>	
0.1		
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>	
0.38	2 Press and release appropriate menu key	
0.1	3 Return with goal accomplished	

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 T Rule: Method of clearance readback, ELSE state call sign followed by  <response></response></response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:  Readback clearance from memory</clearance>
0.1	Method for Goal: Readback clearance from memory
4.5	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
26.35	Total time

### Trace 7 - Task 2, Data Comm

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen or paper it is 8 words ("Cross HELPR at flight level one niner zero")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Once visible, paper will remain visible until hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	2 Line select key
0.1	Method for Goal: Line select key
0.1	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.38	3 Return with goal accomplished
0.1	0 -
0.1	
	3 Accomplish Goal: Read the clearance Method for Goal: Read the clearance
0.1	Decide: IF clearance must be read aloud or crew wants to read
3.4	aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
	copy
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember < keyword > = "Print" and Accomplish Goal: Line
0.1	select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select</keyword>
0.51	1 key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished

O.1 2 Feedore   Fedorance includes RTA, THEN Retain <pre>  Testandby"   and Selection Rule: Respond to a clearance    </pre>		
Respond to a clearance  0.1	0.1	7 F
O.1   Method for Goal: Enter a clearance		·
1 F   Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE    </clearance>	-	·
0.1 Selection Rule: Method of reading 0.1 Selection Rule: Method of reading 0.1 If F clearance is in writing, THEN Accomplish Goal: Read clearance from paper 0.1 Method for Goal: Read clearance from paper 0.1 1 F Decide: IF paper not visible, THEN move paper 0.1 1 F Decide: IF paper not visible, THEN move paper 0.1 1 Decide: IF clearance must be read aloud or crew wants to read aloud and retain celearance information on paper aloud and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and retain celearance information, ELSE Read information on paper and elaerance information, ELSE Read information on paper and elaerance information, ELSE Read information on paper and elaerance information, ELSE Read information, ELSE Read information on paper and elaerance information, ELSE Read information, ELSE Read information on paper and elaerance information, ELSE Read information, else Read information, else	0.1	
0.1 Selection Rule for Goal: Method of reading  1 T paper  0.1 Method for Goal: Read clearance from paper  0.1 Method for Goal: Read clearance from paper  0.2 Decide: IF paper not visible, THEN move paper  0.3 Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on paper aloud and retain celearance informations, ELSE Read information on paper and retain celearance informations, ELSE Read information on paper and retain celearance informations, ELSE Read information on paper and retain celearance informations  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 3 Selection Rule: Specific clearance type  0.1 Selection Rule for Goal: Specific clearance type  0.1 Selection Rule for Goal: Specific clearance type  0.1 Piccearance is only crossing restriction, THEN Accomplish Goal: Enter crossing restriction  0.1 Method for Goal: Enter crossing restriction  0.1 Accomplish Goal: Locate waypoint  0.1 Method for Goal: Locate waypoint  0.1 Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.3 Return with goal accomplished  0.82 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.2 Search for waypoint  0.3 Return with goal accomplished  0.4 Pecide: IF waypoint is found, THEN Return with goal accomplished  0.5 Recall <menu key=""> = "If the Return with goal accomplished accomplished accomplished  0.6 Recall <menu key=""> = "If the Return with goal accomplished accomplished accomplished accomplished accomplished and accomplished accomplished and Accomplish Goal: Enter into scratchpad  0.1 Recall <menu key=""> = "If the Return with goal accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key = "If the Return well well accomplished and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key = "If the Return well accomplished accomplished accomplished and Accomplish Goal: Menu key  0.1 Method for Go</menu></menu></menu></menu>	0.2	1 F
1 T   T   paper		
0.1 Method for Goal: Read clearance from paper  0.1 1 F Decide: IF paper not visible, THEN move paper  Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on paper aloud and retain clearance information>, ELSE Read information on paper and retain clearance information>, ELSE Read information on paper and retain clearance information>  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.5 2 T Decide: IF hand not on FMS, THEN move hand to FMS  0.1 3 Selection Rule: Specific clearance type  0.1 Selection Rule: Specific clearance type  0.1 Psecific clearance type  0.1 Psecific clearance type  0.1 Psecific clearance type  0.1 Accomplish Goal: Enter crossing restriction, THEN Accomplish Goal: Enter crossing restriction  0.1 Method for Goal: Enter crossing restriction  0.1 Accomplish Goal: Locate waypoint  0.1 Method for Goal: Locate waypoint  0.1 Method for Goal: Locate waypoint  0.1 Method for Goal: Menu key = "Legs" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.3 Return with goal accomplished  0.82 2 Search for waypoint  0.1 3 Return with goal accomplished  0.2 5 Search for waypoint is found, THEN Return with goal accomplished  0.3 6 Pecide: IF speed restriction, THEN Retain <a href="#clearance">Clearance value &gt;</a>	0.1	
0.1 Method for Goal: Read clearance from paper  0.1 1 F Decide: IF paper not visible, THEN move paper  Decide: IF clearance must be read aloud or crew wants to read  1 aloud, THEN Read information on paper aloud and retain clearance information on paper aloud and retain retain clearance information on paper and retain clearance information on paper and retain retain clearance information on paper and retain clearance type  0.1 3 Selection Rule for Goal: Specific clearance type  0.1 4 Clearance is only crossing restriction, THEN Accomplish Goal: Enter crossing restriction  0.1 5 Method for Goal: Locate waypoint  0.1 6 Method for Goal: Locate waypoint  0.1 7 Remember <menu 0.1="" 0.2="" 0.3="" 0.4="" 0.5="" 2="" 3="" <menu="" accomplish="" accomplished="" and="" appropriate="" decide:="" f="" for="" found,="" goal="" goal:="" if="" is="" key="" menu="" method="" press="" recall="" release="" remember="" return="" search="" then="" waypoint="" with=""> and point finger to appropriate menu key</menu>	0.1	1 1
O.1		
Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on paper aloud and retain sclearance informations, ELSE Read information on paper and retain sclearance informations, ELSE Read information on paper and retain sclearance informations.  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.5 2 T Decide: IF hand not on FMS, THEN move hand to FMS  0.1 3 Selection Rule: Specific clearance type  0.1 Selection Rule for Goal: Specific clearance type  0.1 2 T F clearance is only crossing restriction, THEN Accomplish Goal: Enter crossing restriction  0.1 Method for Goal: Enter crossing restriction  0.1 Method for Goal: Locate waypoint  0.1 Method for Goal: Locate waypoint  0.1 Method for Goal: Locate waypoint  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.38 2 Press and release appropriate menu key  0.4 3 Return with goal accomplished  0.6 2 Search for waypoint  0.7 3 T Decide: IF waypoint is found, THEN Return with goal accomplished  0.8 2 Search for waypoint  0.1 2 F Decide: IF speed restriction, THEN Retain sclearance value = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 3 Remember semenu key = "/" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Remember semenu key = "/" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key	-	
3.4  2 T   aloud, THEN Read information on paper aloud and retain   clearance information>, ELSE Read information on paper and retain   clearance information>   0.1	0.1	
3.44   2		
retain <clearance information=""> 0.1 3 Return with goal accomplished 0.5 2 T Decide: IF hand not on FMS, THEN move hand to FMS 0.1 3 Selection Rule: Specific clearance type 0.1 Selection Rule for Goal: Specific clearance type 0.1 Selection Rule for Goal: Specific clearance type 0.1</clearance>	3.4	)
O.1   3 Return with goal accomplished		
0.1       3       Return with goal accomplished         0.5       2       T       Decide: IF hand not on FMS, THEN move hand to FMS         0.1       3       Selection Rule: Specific clearance type         0.1       Selection Rule for Goal: Specific clearance type         0.1       1       IF clearance is only crossing restriction, THEN Accomplish Goal: Enter crossing restriction         0.1       Method for Goal: Enter crossing restriction         0.1       1       Accomplish Goal: Locate waypoint         0.1       Method for Goal: Locate waypoint         0.1       Method for Goal: Menu key = "Legs" and Accomplish Goal: Menu key         0.1       Method for Goal: Menu key and point finger to appropriate menu key         0.38       2       Press and release appropriate menu key         0.1       3       Return with goal accomplished         0.82       2       Search for waypoint         0.1       3       T         0.2       Poecide: IF speed restriction, THEN Return with goal accomplished         0.1       2       F         0.2       F       Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad         0.1       3       Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu></clearance>		
0.5       2 T Decide: IF hand not on FMS, THEN move hand to FMS         0.1       3 Selection Rule: Specific clearance type         0.1       Selection Rule for Goal: Specific clearance type         0.1       2 T IF clearance is only crossing restriction, THEN Accomplish Goal: Enter crossing restriction         0.1       Method for Goal: Enter crossing restriction         0.1       1 Accomplish Goal: Locate waypoint         0.1       Method for Goal: Locate waypoint         0.1       Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key         0.1       Method for Goal: Menu key         0.2       Recall <menu key=""> and point finger to appropriate menu key         0.38       2 Press and release appropriate menu key         0.1       3 Return with goal accomplished         0.82       2 Search for waypoint         0.1       3 T Decide: IF waypoint is found, THEN Return with goal accomplished         0.1       2 F Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad         0.1       3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key         0.1       Method for Goal: Menu key         0.2       Recall <menu key=""> and point finger to appropriate menu key</menu></menu></clearance></menu></menu>	-	- · · · · · · · · · · · · · · · · · · ·
O.1   Selection Rule: Specific clearance type	<b>—</b>	- · · · · · · · · · · · · · · · · · · ·
0.1 Selection Rule for Goal: Specific clearance type  0.1 2 T IF clearance is only crossing restriction, THEN Accomplish Goal: Enter crossing restriction  0.1 Method for Goal: Enter crossing restriction  0.1 1 Accomplish Goal: Locate waypoint  0.1 Method for Goal: Locate waypoint  0.1 1 Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.82 2 Search for waypoint  0.1 2 F Decide: IF speed restriction, THEN Return with goal accomplished  0.1 3 Remember <menu 0.1="" 0.51="" 1="" <menu="" accomplish="" and="" for="" goal:="" key="" legs"="" menu="" method="" recall=""> and point finger to appropriate menu key         0.38       2       Press and release appropriate menu key         0.1       3       Return with goal accomplished         0.82       2       Search for waypoint         0.1       3       T         0.2       Decide: IF waypoint is found, THEN Return with goal accomplished         0.1       2       F         0.2       Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad         0.1       3       Remember <menu key=""> = "/" and Accomplish Goal: Menu key         0.1       Method for Goal: Menu key         0.51       1       Recall <menu key=""> and point finger to appropriate menu key</menu></menu></clearance></menu></menu>	0.1	)   · · · · · · · · · · · · · · · · · ·
0.1     1     Accomplish Goal: Locate waypoint       0.1     Remember < menu key> = "Legs" and Accomplish Goal: Menu key       0.1     Method for Goal: Menu key       0.51     Recall < menu key> and point finger to appropriate menu key       0.38     2     Press and release appropriate menu key       0.1     3     Return with goal accomplished       0.82     2     Search for waypoint       0.1     3     T     Decide: IF waypoint is found, THEN Return with goal accomplished       0.1     2     F     Decide: IF speed restriction, THEN Retain < (learance value> = digits in clearance and Accomplish Goal: Enter into scratchpad       0.1     3     Remember < menu key> = "/" and Accomplish Goal: Menu key       0.1     Method for Goal: Menu key       0.51     Recall < menu key> and point finger to appropriate menu key	0.1	
O.1		
1   Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key    </menu>	-	·
O.1   Menu key	0.1	
Method for Goal: Menu key	0.1	1
0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.82  2 Search for waypoint  3 T Decide: IF waypoint is found, THEN Return with goal accomplished  0.1  2 F Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1  3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.51  Recall <menu key=""> and point finger to appropriate menu key</menu></menu></clearance></menu>	0.1	·
0.51  1 appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  0.82  2 Search for waypoint  0.1  3 T  Decide: IF waypoint is found, THEN Return with goal accomplished  0.1  2 F  Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1  3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.51  Recall <menu key=""> and point finger to appropriate menu key</menu></menu></clearance>	0.1	•
0.38     2     Press and release appropriate menu key       0.1     3     Return with goal accomplished       0.82     2     Search for waypoint       0.1     3     T     Decide: IF waypoint is found, THEN Return with goal accomplished       0.1     2     F     Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad       0.1     3     Remember <menu key=""> = "/" and Accomplish Goal: Menu key       0.1     Method for Goal: Menu key       0.51     1     Recall <menu key=""> and point finger to appropriate menu key</menu></menu></clearance>	0.51	1
0.1  0.1  3 Return with goal accomplished  2 Search for waypoint  3 T Decide: IF waypoint is found, THEN Return with goal accomplished  0.1  2 F Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1  3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key</menu></menu></clearance>	0.20	• • • • • • • • • • • • • • • • • • • •
0.82  0.1  2 Search for waypoint  3 T  Decide: IF waypoint is found, THEN Return with goal accomplished  0.1  2 F  Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1  3 Remember &lt; menu key&gt; = "/" and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.51  Recall &lt; menu key&gt; and point finger to appropriate menu key</clearance>		
0.1  3 T Decide: IF waypoint is found, THEN Return with goal accomplished  0.1 2 F Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51  1 Recall <menu key=""> and point finger to appropriate menu key</menu></menu></clearance>		<u> </u>
0.1  0.1  2 F  Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1  3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key</menu></menu></clearance>		Decide: IF waypoint is found. THEN Return with goal
0.1 2 F Decide: IF speed restriction, THEN Retain <clearance value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 3 Remember &lt; menu key&gt; = "/" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall &lt; menu key&gt; and point finger to appropriate menu key</clearance>	0.1	3 T " "
0.1 digits in clearance and Accomplish Goal: Enter into scratchpad 0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key 0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key</menu></menu>		Decide: IF speed restriction THEN Retain <clearance value=""> =</clearance>
0.1 3 Remember < menu key> = "/" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 Recall < menu key> and point finger to appropriate menu key	0.1	/ F
0.1 Method for Goal: Menu key  0.51 Recall <menu key=""> and point finger to appropriate menu key</menu>	0.1	
0.51 Recall <menu key=""> and point finger to appropriate menu key</menu>	-	
0.51 key		Recall <menu key=""> and point finger to appropriate menu</menu>
·		1
	0.38	,
0.1 3 Return with goal accomplished		· · · · · · · · · · · · · · · · · · ·
and the contract of th	0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key</menu>

	_ Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance>
0.1	4 T digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	·
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.20	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	3 F THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
0.1	4 F an above or below, THEN Selection Rule: At and above or
	below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
<u> </u>	

0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	J F clearance includes only non-RTA, THEN Accomplish Goal: Determine whether
0.1	2 T non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>
0.2	Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

Remember <keyword> = clearance to open and Accomplish Goal: Line select key  0.1</keyword>			
Content of the select key   Content of the select key	0.1	Remember < keyword > = clearance to open and A	ccomplish Goal:
1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 3 Remember <keyword> = <response> and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.1 Method for Goal: Line select key  0.2 Press and release appropriate line select key next to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.1 Method for Goal: Line select key  0.2 Press and release appropriate line select key  0.3 Return with goal accomplished  0.4 Recall <keyword> = "Send" and Accomplish Goal: Line select key  0.5 Press and release appropriate line select key next to keyword  0.6 Recall <keyword> and point finger to line select key next to keyword  0.7 Press and release appropriate line select key  0.8 Return with goal accomplished  0.9 Return with goal accomplished  0.1 Return with goal accomplished  0.1 Return with goal accomplished  0.2 Press and release appropriate line select key  0.3 Return with goal accomplished  0.4 Return with goal accomplished  0.5 Return with goal accomplished</keyword></keyword></keyword></response></keyword></keyword>	0.1	Line select key	
1 to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 3 Remember <keyword> = <response> and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.2 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.1 Press and release appropriate line select key  0.1 Press and release appropriate line select key  0.1 Recall <keyword> = "Send" and Accomplish Goal: Line select key  0.2 Recall <keyword> and point finger to line select key next to keyword  0.38 Press and release appropriate line select key next to keyword  0.38 Return with goal accomplished  0.1 Return with goal accomplished</keyword></keyword></keyword></keyword></response></keyword>	0.1	Method for Goal: Line select key	
0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 3 Remember <keyword> = <response> and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.1 Method for Goal: Line select key  0.1 Recall <keyword> and point finger to line select key  0.1 Method for Goal: Line select key  0.1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key next to keyword  0.38 5 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1</keyword></keyword></keyword></keyword></keyword></response></keyword>	0.51	Recall <keyword> and point finger to line</keyword>	select key next
0.13 Return with goal accomplished0.13 Return with goal accomplished0.13 Remember < keyword> = < response> and Accomplish Goal: Line select key0.1Method for Goal: Line select key0.511 Recall < keyword> and point finger to line select key next to keyword0.382 Press and release appropriate line select key0.13 Return with goal accomplished0.14 Remember < keyword> = "Send" and Accomplish Goal: Line select key0.1Method for Goal: Line select key0.511 Recall < keyword> and point finger to line select key next to keyword0.382 Press and release appropriate line select key0.13 Return with goal accomplished0.15 Return with goal accomplished0.13 Return with goal accomplished0.17 F Decide: IF there are more clearances, THEN GOTO Step 1	0.51	to keyword	
0.13 Return with goal accomplished0.13 Return with goal accomplished0.13 Remember < keyword> = < response> and Accomplish Goal: Line select key0.1Method for Goal: Line select key0.511 Recall < keyword> and point finger to line select key next to keyword0.382 Press and release appropriate line select key0.13 Return with goal accomplished0.14 Remember < keyword> = "Send" and Accomplish Goal: Line select key0.1Method for Goal: Line select key0.511 Recall < keyword> and point finger to line select key next to keyword0.382 Press and release appropriate line select key0.13 Return with goal accomplished0.15 Return with goal accomplished0.13 Return with goal accomplished0.17 F Decide: IF there are more clearances, THEN GOTO Step 1	0.38	2 Press and release appropriate line select	key
0.1	0.1		
0.1 Method for Goal: Line select key  0.51  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1</keyword></keyword></keyword>	0.1	3 Return with goal accomplished	
0.1 Method for Goal: Line select key  0.51  1 Recall < keyword > and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 4 Remember < keyword > = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.1 Method for Goal: Line select key  0.51  1 Recall < keyword > and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1	0.4	2 Demandra dan mandra dan mandra dan dan dan dan dan dan dan dan dan da	. Line enlantier.
0.51  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1  3 Return with goal accomplished  0.1  4 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1  3 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  3 Return with goal accomplished  0.1  7 F Decide: IF there are more clearances, THEN GOTO Step 1</keyword></keyword></keyword>	0.1	3 Kemember < Keyword > = < response > and Accomplish Goal	: Line select key
0.51  1 keyword  0.38  2 Press and release appropriate line select key  0.1  3 Return with goal accomplished  0.1  4 Remember <keyword> = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1  3 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  7 F Decide: IF there are more clearances, THEN GOTO Step 1</keyword></keyword>	0.1	Method for Goal: Line select key	
0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 4 Remember < keyword > = "Send" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall < keyword > and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1	0.54	Recall <keyword> and point finger to line select k</keyword>	ey next to
0.1 3 Return with goal accomplished 0.1 4 Remember <keyword> = "Send" and Accomplish Goal: Line select key 0.1 Method for Goal: Line select key 0.51 1 Recall <keyword> and point finger to line select key next to keyword 0.38 2 Press and release appropriate line select key 0.1 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1</keyword></keyword>	0.51	keyword	•
0.1	0.38	2 Press and release appropriate line select key	
0.1	0.1	3 Return with goal accomplished	
0.51  1 Recall <keyword> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1</keyword>	0.1		e select key
0.51	0.1	Method for Goal: Line select key	·
0.51		Recall <keyword> and point finger to line select k</keyword>	ey next to
0.1 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1	0.51	keyword	•
0.1 5 Return with goal accomplished 0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1	0.38	2 Press and release appropriate line select key	
0.1 3 Return with goal accomplished 0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1	0.1	3 Return with goal accomplished	
0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1	0.1	5 Return with goal accomplished	
0.1 7 F Decide: IF there are more clearances, THEN GOTO Step 1	0.1	·	
·	0.1	· · · · · · · · · · · · · · · · · · ·	
÷	0.1	·	
34.4 Total time	34.4	Total time	

### Trace 8 - Task 2, Data Comm

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 8 words ("Cross HELPR at flight level one niner zero")

Clearance is one page

Clearance is not printed upon receipt

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if clearance is acceptable or not

Clearance is acceptable and pilot will comply

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

There is clearance information to enter into the FMS

T:	Astico		
	Action		
0.1	1 Method for Goal: Handle a clearance		
0.1	1 Selection Rule: Receive a clearance		
0.1	Selection Rule for Goal: Receive a clearance		
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance		
0.1	Method for Goal: Receive an FMS clearance		
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS		
0.1	2 Accomplish Goal: Open clearance		
0.1	Method for Goal: Open clearance		
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key		
0.1	Method for Goal: Menu key		
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>		
0.51	1 key		
0.38	2 Press and release appropriate menu key		
0.1	3 Return with goal accomplished		
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>		
0.1	Line select key		
0.1	Method for Goal: Line select key		
0.54	Recall <keyword> and point finger to line select key next</keyword>		
0.51	to keyword		
0.38	2 Press and release appropriate line select key		
0.1	3 Return with goal accomplished		
0.1	3 Return with goal accomplished		

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
3.4	aloud, THEN Read information on screen aloud and retain
5.4	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.4	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 T with goal accomplished
0.4	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	4 F copy
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is only crossing restriction, THEN Accomplish Goal: Enter
0.1	crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "Legs" and Accomplish Goal:
0.1	<sup>1</sup> Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.31	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal
0.1	accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance value=""> =</clearance>
	digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	<pre>_ Decide: IF altitude restriction, THEN Retain <clearance value=""> =</clearance></pre>
0.1	4 T digits in clearance and Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	clearance value> and Accomplish Goal: Menu key
0.1	· · · · · · · · · · · · · · · · · · ·
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	appropriate menu key
<b>—</b>	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
0.1	4 F an above or below, THEN Selection Rule: At and above or
	below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance	
0.1	Selection Rule for Goal: Decide on a clearance	
	IF clearance includes only non-RTA, THEN Accomplish Goal: Determine whether	
0.1	2 T non-RTA clearance is acceptable	
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable	
1.3	1 Determine whether non-RTA clearance is acceptable	
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE</response>	
0.2	Retain <response> = "Unable"</response>	
0.1	3 Return with goal accomplished	
0.1	4 Return with goal accomplished	
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,  T</response>	
	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>	
0.1	Method for Goal: Menu key	
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>	
0.38	2 Press and release appropriate menu key	
0.1	3 Return with goal accomplished	
0.1	6 Selection Rule: Respond to a clearance	
0.1	Selection Rule for Goal: Respond to a clearance	
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS	
0.1	Method for Goal: Respond by FMS	
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS	
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance	
0.1	Method for Goal: Open clearance	
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key	
0.1	Method for Goal: Menu key	
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>	
0.51	1 key	
0.38	2 Press and release appropriate menu key	
0.1	3 Return with goal accomplished	
0.1	Remember < keyword > = clearance to open and Accomplish Goal:	
0.1	0.1 2 Line select key	
0.1	Method for Goal: Line select key	
0.51	Recall <keyword> and point finger to line select key next</keyword>	
0.31	to keyword	
0.38	2 Press and release appropriate line select key	
0.1	3 Return with goal accomplished	
0.1	3 Return with goal accomplished	

0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>						
0.1	Method for Goal: Line select key						
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>						
0.38	2 Press and release appropriate line select key						
0.1	3 Return with goal accomplished						
0.1	4 Remember < keyword> = "Send" and Accomplish Goal: Line select key						
0.1	Method for Goal: Line select key						
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>						
0.38	2 Press and release appropriate line select key						
0.1	3 Return with goal accomplished						
0.1	·						
0.1	3 Return with goal accomplished						
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1						
0.1	8 Return with goal accomplished						
26.49	Total time						

# Trace 9 - Task 3, Voice

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at 1800Z

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 8 words ("Cross HELPR at one eight zero zero

Zulu")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action							
0.1	Method for Goal: Handle a clearance							
0.1	1 Selection Rule: Receive a clearance							
0.1	Selection Rule for Goal: Receive a clearance							
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance							
0.1	Method for Goal: Receive a radio clearance							
4.5	1 Listen to clearance and retain <clearance information=""></clearance>							
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance							
0.1	3 Return with goal accomplished							
0.1	3 Return with goal accomplished							
0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>							
0.1	Selection Rule for Goal: Respond to a clearance							
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice							
0.1								
0.5	1 Move hand to yoke and "Push to talk" button							
0.2	2 Press "Push to talk" button							
1.8	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 F Rule: Method of clearance readback, ELSE state call sign followed by <response></response></response></response>							
0.2	4 Release "Push to talk" button							
0.5	5 Return hand to FMS							
0.1	6 Return with goal accomplished							
0.1	3 Return with goal accomplished							

0.1	3 Accomplish Goal: Enter a clearance							
0.1	Method for Goal: Enter a clearance							
0.1	Decide: IF clearance is remembered, THEN Recall <clearance information="">,</clearance>							
0.2	1 T Selection Rule: Method of reading							
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS							
0.1	3 Selection Rule: Specific clearance type							
0.1	Selection Rule for Goal: Specific clearance type							
0.1	3 T IF clearance is only RTA, THEN Accomplish Goal: Enter RTA							
0.1	Method for Goal: Enter RTA							
0.1	1 Accomplish Goal: Go to RTA page							
0.1	Method for Goal: Go to RTA page							
0.4	Remember <menu key=""> = "VNAV" and Accomplish Goal:</menu>							
0.1	1 Menu key							
0.1	Method for Goal: Menu key							
0.51	Recall <menu key=""> and point finger to</menu>							
0.51	appropriate menu key							
0.38	2 Press and release appropriate menu key							
0.1	3 Return with goal accomplished							
0.1	Remember <keyword> = "RTA" and Accomplish Goal: Line</keyword>							
0.1	select key							
0.1	Method for Goal: Line select key							
0.51	Recall <keyword> and point finger to line select</keyword>							
	key next to keyword							
0.38	2 Press and release appropriate line select key							
0.1	3 Return with goal accomplished							
0.1	3 Return with goal accomplished							
0.1	Retain <clearance value=""> = characters in waypoint and Accomplish</clearance>							
0.1	Goal: Enter into scratchpad							
0.1	Method for Goal: Enter into scratchpad							
0.1	Remember <menu key=""> = first digit/character in</menu>							
0.1	<clearance value=""> and Accomplish Goal: Menu key Method for Goal: Menu key</clearance>							
0.1	Method for Goal: Menu key Recall <menu key=""> and point finger to</menu>							
0.51	1 appropriate menu key							
0.38	2 Press and release appropriate menu key							
0.38	3 Return with goal accomplished							
	Remember <menu kev=""> = next digit/character in</menu>							
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>							
0.1	Method for Goal: Menu key							
	Recall <menu key=""> and point finger to</menu>							
0.51	appropriate menu key							
0.38	2 Press and release appropriate menu key							
0.1	3 Return with goal accomplished							

0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	3 F THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or speed, THEN</clearance>
0.1	4 F Selection Rule: At and above or below
0.1	5 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.1	Retain <clearance value=""> = digits in clearance and Accomplish</clearance>								
	Goal: Enter into scratchpad								
0.1	Method for Goal: Enter into scratchpad								
0.1	Remember <menu key=""> = first digit/character in</menu>								
	<clearance value=""> and Accomplish Goal: Menu key</clearance>								
0.1	Method for Goal: Menu key								
0.51	Recall <menu key=""> and point finger to</menu>								
	appropriate menu key								
0.38	2 Press and release appropriate menu key								
0.1	3 Return with goal accomplished								
0.1	Remember <menu key=""> = next digit/character in</menu>								
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>								
0.1	Method for Goal: Menu key								
0.51	Recall <menu key=""> and point finger to</menu>								
0.51	appropriate menu key								
0.38	2 Press and release appropriate menu key								
0.1	3 Return with goal accomplished								
0.1	Decide: IF more digits/characters in restriction to enter,								
0.1	THEN GOTO Step 2								
0.1	Remember < menu key> = next digit/character in								
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>								
0.1	Method for Goal: Menu key								
0.51	Recall <menu key=""> and point finger to</menu>								
0.51	appropriate menu key								
0.38	2 Press and release appropriate menu key								
0.1	3 Return with goal accomplished								
0.1	Decide: IF more digits/characters in restriction to enter,								
0.1	THEN GOTO Step 2								
0.1	Remember <menu key=""> = next digit/character in</menu>								
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>								
0.1	Method for Goal: Menu key								
0.51	Recall <menu key=""> and point finger to</menu>								
0.51	appropriate menu key								
0.38	2 Press and release appropriate menu key								
0.1	3 Return with goal accomplished								
0.1	Decide: IF more digits/characters in restriction to enter,								
0.1	THEN GOTO Step 2								
0.1	Decide: IF <clearance value=""> is an altitude or speed, THEN</clearance>								
0.1	Selection Rule: At and above or below								
0.1	5 Return with goal accomplished								
0.51	5 Point finger to right line select key next to waypoint								
0.38	6 Press and release right line select key next to waypoint								
0.1	7 Return with goal accomplished								
0.1	5 Return with goal accomplished								
0.1	4 Return with goal accomplished								

0.1	4 Selection Rule: Decide on a clearance								
0.1	Selection Rule for Goal: Decide on a clearance								
	IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA								
0.1	1 T clearance is acceptable								
0.1	·								
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page								
	Decide: IF RTA is between minimum and maximum RTAs. THEN Retain								
1.4	2 T <response>= "Wilco" ELSE Retain <response> = "Unable"</response></response>								
0.1	3 Return with goal accomplished								
0.1	4 Return with goal accomplished								
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>								
0.1	T THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>								
0.1	Method for Goal: Menu key								
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>								
0.38	2 Press and release appropriate menu key								
0.1	3 Return with goal accomplished								
0.1	6 Selection Rule: Respond to a clearance								
0.1	Selection Rule for Goal: Respond to a clearance								
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice								
0.1	Method for Goal: Respond by voice								
0.5	1 Move hand to yoke and "Push to talk" button								
0.2	2 Press "Push to talk" button								
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>								
0.2	Rule: Method of clearance readback, ELSE state call sign followed by								
0.1	Selection Rule for Goal: Method of clearance readback								
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:</clearance>								
0.1	Readback clearance from memory								
0.1	Method for Goal: Readback clearance from memory								
4.5	Recall <clearance information=""> and state <clearance< td=""></clearance<></clearance>								
1.5	information> followed by call sign								
0.1	2 Return with goal accomplished								
0.1	3 Return with goal accomplished								
0.2	4 Release "Push to talk" button								
0.5	5 Return hand to FMS								
0.1	6 Return with goal accomplished								
0.1	3 Return with goal accomplished								
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1								
0.1	8 Return with goal accomplished								
37.96	Total time								

### Trace 10 - Task 3, Voice

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at 1800Z

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 8 words ("Cross HELPR at one eight zero zero

Zulu")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Paper is available

Pen is not in hand

Clearance is written as 4 words ("Cross HELPR at 1800Z")

Response is sent by voice

Clearance information is remembered when entering the clearance

Clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action								
0.1	Method for Goal: Handle a clearance								
0.1	1 Selection Rule: Receive a clearance								
0.1	Selection Rule for Goal: Receive a clearance								
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance								
0.1	Method for Goal: Receive a radio clearance								
4.5	1 Listen to clearance and retain <clearance information=""></clearance>								
0.1	2 T Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance								
0.1	Method for Goal: Write down clearance								
0.1	IF paper is not readily available, THEN Accomplish goal: Obtain paper								
0.1	2 T IF pen is not in hand, THEN Accomplish goal: Obtain pen								
0.1	Method for Goal: Obtain pen								
0.51	1 Reach for pen								
0.8	2 Grasp pen								
0.51	3 Transport pen to paper								
0.16	4 Position pen over paper								
0.1	5 Return with goal accomplished								
10.9	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>								
0.51	4 Return pen to original location								
0.17	5 Release pen								
0.5	6 Move hand back to starting location								
0.1	7 Return with goal accomplished								

0.1	3 Return with goal accomplished								
0.1	3 Return with goal accomplished								
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>								
	2 T Respond to a clearance								
0.1	Selection Rule for Goal: Respond to a clearance								
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice								
0.1	Method for Goal: Respond by voice								
0.5	1 Move hand to yoke and "Push to talk" button								
0.2	2 Press "Push to talk" button								
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>								
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by								
	<pre><response></response></pre>								
0.2	4 Release "Push to talk" button								
0.5	5 Return hand to FMS								
0.1	6 Return with goal accomplished								
0.1	3 Return with goal accomplished								
0.1	3 Accomplish Goal: Enter a clearance								
0.1	Method for Goal: Enter a clearance								
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>								
	Selection Rule: Method of reading								
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS								
0.1	3 Selection Rule: Specific clearance type								
0.1	Selection Rule for Goal: Specific clearance type								
0.1	3 T IF clearance is only RTA, THEN Accomplish Goal: Enter RTA								
0.1	Method for Goal: Enter RTA								
0.1	1 Accomplish Goal: Go to RTA page								
0.1	Method for Goal: Go to RTA page								
0.1	Remember <menu key=""> = "VNAV" and Accomplish Goal:</menu>								
0.1	Menu key								
0.1	Method for Goal: Menu key								
0.51	Recall <menu key=""> and point finger to</menu>								
0.20	appropriate menu key								
0.38	2 Press and release appropriate menu key 3 Return with goal accomplished								
0.1									
0.1	Remember < keyword> = "RTA" and Accomplish Goal: Line select key								
0.1	Method for Goal: Line select key								
	Recall < keyword > and point finger to line select								
0.51	1 key next to keyword								
0.38	2 Press and release appropriate line select key								
0.1	3 Return with goal accomplished								
0.1	3 Return with goal accomplished								

	Retain <clearance value=""> = characters in waypoint and Accomplish</clearance>
0.1	Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
	Remember <menu kev=""> = next digit/character in</menu>
0.1	clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	3 T THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	,
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
	appropriate menu key
0.38	,
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,  THEN GOTO Step 2
	·
0.1	Decide: IF <clearance value=""> is an altitude or speed, THEN  4 F</clearance>
	Selection Rule: At and above or below
0.1	5 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = digits in clearance and Accomplish</clearance>
0.1	Goal: Enter into scratchpad
0.1	·
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
	Recall <menu key=""> and noint finger to</menu>
0.51	1 appropriate menu key
0.38	
0.1	., .
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	·
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	3 T THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1
0.20	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to enter,							
	THEN GOTO Step 2							
0.1	Remember <menu key=""> = next digit/character in</menu>							
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>							
0.1	Method for Goal: Menu key							
0.51	Recall <menu key=""> and point finger to</menu>							
0.51	appropriate menu key							
0.38	2 Press and release appropriate menu key							
0.1	3 Return with goal accomplished							
0.1	Decide: IF more digits/characters in restriction to enter,							
0.1	3 F THEN GOTO Step 2							
0.4	Decide: IF <clearance value=""> is an altitude or speed, THEN</clearance>							
0.1	4 F Selection Rule: At and above or below							
0.1	5 Return with goal accomplished							
0.51	5 Point finger to right line select key next to waypoint							
0.38	6 Press and release right line select key next to waypoint							
0.1	7 Return with goal accomplished							
0.1	5 Return with goal accomplished							
0.1	4 Return with goal accomplished							
0.1	4 Selection Rule: Decide on a clearance							
0.1	Selection Rule for Goal: Decide on a clearance							
0.1	IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA							
0.1	clearance is acceptable							
0.1	Method for Goal: Determine whether RTA clearance is acceptable							
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page							
4.4	Decide: IF RTA is between minimum and maximum RTAs, THEN Retain							
1.4	2 F <pre></pre>							
0.1	3 Return with goal accomplished							
0.1	4 Return with goal accomplished							

						Heart II and the state of the s			
0.1	5	5 F	Decide	: IF <r< td=""><td>esp</td><td>onse&gt; = "Wilco" and there is clearance information to enter into the FMS,</td></r<>	esp	onse> = "Wilco" and there is clearance information to enter into the FMS,			
			THEN R	emer	nbe	r <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>			
0.1	6	6 Selection Rule: Respond to a clearance							
0.1		Selection Rule for Goal: Respond to a clearance							
0.1		1 T IF responding by voice, THEN Accomplish Goal: Respond by voice							
0.1		Method for Goal: Respond by voice							
0.5				1		Move hand to yoke and "Push to talk" button			
0.2				2		Press "Push to talk" button			
						Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>			
1.8				3	F	Rule: Method of clearance readback, ELSE state call sign followed by			
						<response></response>			
0.2				4		Release "Push to talk" button			
0.5				5		Return hand to FMS			
0.1				6		Return with goal accomplished			
0.1			3	Ret	urn	with goal accomplished			
0.1	7	F	Decide	: IF th	ere	are more clearances, THEN GOTO Step 1			
0.1	8		Return	with	goa	laccomplished			
48.13		Tot	al time						

# Trace 11 - Task 3, Data Comm

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at time 1800Z

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 9 words ("Cross HELPR at time one eight zero zero Zulu")

Clearance is one page

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	1 key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	2 Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
3.8	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""></clearance></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return with goal accomplished
0.1	4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.1	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 T Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	3 T IF clearance is only RTA, THEN Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.4	Remember < menu key> = "VNAV" and Accomplish Goal:
0.1	1 Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "RTA" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = characters in waypoint and Accomplish</clearance>
0.1	Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key Method for Goal: Menu key</clearance>
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
	Remember <menu kev=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1  2 Remember <a href="mailto:smooth">Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2</a> Remember <a href="mailto:smooth">THEN GOTO Step 2</a> Remember <a href="mailto:smooth">Remember <a href="mailto:smooth">THEN GOTO Step 2</a>  Recall <a href="mailto:smooth">Remember <a href="mailto:smooth">THEN GOTO Step 2</a>  0.1  3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Remember <a href="mailto:smooth">Remember <a href="mailto:smooth">smooth smooth smooth smooth smooth smooth smooth smooth smooth"&gt;smooth smooth sm</a></a></a></a>		
THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  0.1  1 Recall <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  0.1  1 Recall <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  0.2  1 Recall <menu key=""> = next digit/character in <clearance value=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.1  2 Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  2 Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  3 Return with goal accomplished  0.1  4 Recall <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  8 Recall <menu key=""> = next digit/character in appropriate menu key  1 Recall <menu key=""> = next digit/character in <clearance value=""> and accomplish Goal: Menu key  0.1  3 Return with goal accomplished  0.1  4 Fan above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal accomplished  0.1  5 Return with goal accomplished  1 Remember &lt; keyword&gt; = "RTA Waypoint" and Accomplish Goal: Line select key  0.1  0.2  Remember &lt; Revall &lt; keyword&gt; = "RTA Waypoint" and Accomplish Goal: Line select key  0.3  0.38  2 Press and release appropriate line select key next to keyword  0.38  2 Press and release appropriate line select key next to keyword  0.38  0.4  0.5  1 Recall &lt; keyword  0.5  1 Recall &lt; keyword  0.7  1 Recall &lt; key word  0.8  1 Recall &lt; keyword  0.9  1 Recall &lt; key</clearance></menu></menu></clearance></menu></clearance></menu></clearance></menu></clearance></menu></clearance></menu></clearance></menu></clearance></menu></menu></clearance></menu>	0.1	3 1
Column		THEN GOTO Step 2
Clearance value> and Accomplish Goal: Menu key	0.1	,
1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  3 T THEN GOTO Step 2  2 Remember <menu key=""> = next digit/character in restriction to enter, THEN GOTO Step 2  1 Recall <menu key=""> = next digit/character in expression fool: Menu key  1 Recall <menu key=""> = next digit/character in expression fool: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  3 Return with goal accomplished  2 Press and release appropriate menu key  3 Return with goal accomplished  2 Remember <menu key=""> = next digit/character in restriction to enter, THEN GOTO Step 2  2 Remember <menu key=""> = next digit/character in exclearance value&gt; and Accomplish Goal: Menu key  Method for Goal: Menu key  Method for Goal: Menu key  Method for Goal: Menu key  Are for more digits/characters in restriction to enter, THEN GOTO Step 2  Press and release appropriate menu key  3 Return with goal accomplished  2 Press and release appropriate menu key  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF wore digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF seclearance value&gt; is an altitude or speed with for an above or below, THEN Selection Rule: At and above or below  Decide: IF seclearance value&gt; is an altitude or speed with for goal: Line select key  Method for Goal: Line select key  Method for Goal: Line select key  Recall <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  Recall <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  Recall <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  Press and release appropriate line select key next to keyword  2 Press and release appropriate line select key</keyword></keyword></keyword></menu></menu></menu></menu></menu></menu></menu>		<clearance value=""> and Accomplish Goal: Menu key</clearance>
1 appropriate menu key	0.1	·
2 Press and release appropriate menu key  0.1 3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  0.1 2 Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key 0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 T Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 2 Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplished 0.1 2 Remember <menu key=""> = next digit/character in restriction to enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key 0.1 Recall <menu key=""> and point finger to appropriate menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.1 2 Press and release appropriate menu key  0.2 Press and release appropriate menu key  0.3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 6 Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  0.2 Press and release appropriate line select key next to keyword  0.3 Press and release appropriate line select key next to keyword  0.3 Press and release appropriate line select key</keyword></menu></menu></clearance></menu></menu></clearance></menu></menu></menu></clearance></menu>	0.51	1
3 Return with goal accomplished		appropriate menu key
0.1  0.1  0.1  2 Remember < menu key> = next digit/character in restriction to enter, THEN GOTO Step 2  Remember < menu key> = next digit/character in <	0.38	2 Press and release appropriate menu key
O.1   2   Remember < menu key> = next digit/character in <   clearance value> and Accomplish Goal: Menu key	0.1	3 Return with goal accomplished
THEN GOTO Step 2  Remember < menu key> = next digit/character in < clearance value> and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  1 Recall < menu key> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Remember < menu key> = next digit/character in < clearance value> and Accomplish Goal: Menu key  0.1  Recall < menu key> = next digit/character in < clearance value> and Accomplish Goal: Menu key  0.1  Recall < menu key> = next digit/character in < clearance value> and Accomplish Goal: Menu key  0.51  Recall < menu key> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF sclearance value> is an altitude or speed with  4 F an above or below, THEN Selection Rule: At and above or below  0.1  3 Remember < keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  0.1  Recall < keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  0.38  2 Press and release appropriate line select key next to keyword	0.1	Decide: IF more digits/characters in restriction to enter,
O.1	0.1	THEN GOTO Step 2
Clearance value> and Accomplish Goal: Menu key	0.1	Remember < menu key> = next digit/character in
0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  0.1  3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  0.1  1 Recall <monu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1  1 Recall <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.51  2 Press and release appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.1  4 F an above or below, THEN Selection Rule: At and above or below  0.1  3 Return with goal accomplished  0.1  4 F an above or below, THEN Selection Rule: At and above or below  0.1  3 Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  0.1  Nethod for Goal: Line select key  0.2  Press and release appropriate line select key next to keyword  0.38  2 Press and release appropriate line select key</keyword></clearance></menu></clearance></monu></clearance></menu></menu>	0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.38  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.	0.1	Method for Goal: Menu key
0.38  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.	0.51	Recall <menu key=""> and point finger to</menu>
0.1  3 Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  2 Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.1  4 F an above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal accomplished  0.1  5 Return with goal accomplished  0.1  3 Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  0.51  Method for Goal: Line select key  0.51  Recall <keyword> and point finger to line select key next to keyword  2 Press and release appropriate line select key</keyword></keyword></menu></clearance></menu>	0.51	appropriate menu key
0.1  3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  Method for Goal: Menu key  Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.1  3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or speed with  4 F an above or below, THEN Selection Rule: At and above or below  0.1  3 Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  0.1  Method for Goal: Line select key  0.2  Press and release appropriate line select key next to keyword  2 Press and release appropriate line select key</keyword></clearance></menu></clearance></menu>	0.38	2 Press and release appropriate menu key
1 THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  Method for Goal: Menu key  Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key  Return with goal accomplished  Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or speed with an above or below, THEN Selection Rule: At and above or below  Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  Method for Goal: Line select key  Recall <keyword> and point finger to line select key next to keyword  Press and release appropriate line select key  Press and release appropriate line select key</keyword></keyword></clearance></menu></clearance></menu>	0.1	3 Return with goal accomplished
THEN GOTO Step 2  Remember <menu key=""> = next digit/character in <clearance value=""> and Accomplish Goal: Menu key  Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key  Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key  Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or speed with an above or below, THEN Selection Rule: At and above or below  Delow  Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  Method for Goal: Line select key  Recall <keyword> and point finger to line select key next to keyword  Press and release appropriate line select key</keyword></keyword></clearance></menu></menu></clearance></menu>	0.1	Decide: IF more digits/characters in restriction to enter,
Cclearance value> and Accomplish Goal: Menu key	0.1	THEN GOTO Step 2
O.1  O.51  O.51  O.51  O.52  O.53  O.54  O.55  O.55  O.55  O.55  O.56  O.57  O.59  O.59  O.50  O.50  O.51  O.52  O.53  O.54  O.54  O.55  O.54  O.55  O.56  O.57  O.58  O.58  O.58  O.59  O.59  O.50  O	0.1	Remember < menu key> = next digit/character in
1   Recall <menu key=""> and point finger to appropriate menu key    </menu>	0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <a href="Color: IF Note 10 pt 1 pt 2">Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2</a> Decide: IF <a href="Color: IF Clearance value">Clearance value</a> is an altitude or speed with  4 F an above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal accomplished  Remember <a href="Reyword">Reyword</a> = "RTA Waypoint" and Accomplish Goal: Line select key  0.1  Method for Goal: Line select key  0.51  1 Recall <a href="Reyword">Recall <a href="Reyword">Reyword</a> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key</a>	0.1	Method for Goal: Menu key
2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <a href="Color: Figure 4">Color: Figure 4</a> 0.1 4 F an above or below, THEN Selection Rule: At and above or below  0.1 5 Return with goal accomplished  0.1 8 Remember <a href="Revenue">Remember <a href="Revenue">Revenue <a 0.1="" 0.51="" 1="" <keyword="" accomplish="" and="" for="" goal:="" href="Re&lt;/td&gt;&lt;td&gt;0.51&lt;/td&gt;&lt;td&gt;Recall &lt;menu key&gt; and point finger to&lt;/td&gt;&lt;/tr&gt;&lt;tr&gt;&lt;td&gt;0.1  3 Return with goal accomplished  0.1  3 F  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF &lt;clearance value&gt; is an altitude or speed with  4 F an above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal accomplished  Remember &lt;keyword&gt; = " key="" line="" method="" recall="" rta="" select="" waypoint"=""> and point finger to line select key next to keyword  0.38  2 Press and release appropriate line select key</a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a></a>	0.51	appropriate menu key
0.1  3 F  Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or speed with an above or below, THEN Selection Rule: At and above or below  0.1 5 Return with goal accomplished  0.1 3 Remember <keyword>= "RTA Waypoint" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword></keyword></clearance>	0.38	2 Press and release appropriate menu key
THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or speed with  4 F an above or below, THEN Selection Rule: At and above or below  5 Return with goal accomplished  Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  1 Recall <keyword> and point finger to line select key next to keyword  2 Press and release appropriate line select key</keyword></keyword></clearance>	0.1	3 Return with goal accomplished
THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or speed with  4 F an above or below, THEN Selection Rule: At and above or below  5 Return with goal accomplished  Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  0.1 Method for Goal: Line select key  0.51 Recall <keyword> and point finger to line select key next to keyword  2 Press and release appropriate line select key</keyword></keyword></clearance>	0.1	Decide: IF more digits/characters in restriction to enter,
0.1  0.1  3  Remember < keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  0.1  0.1  Method for Goal: Line select key  0.51  1  Recall < keyword> and point finger to line select key next to keyword  2  Press and release appropriate line select key	0.1	THEN GOTO Step 2
below0.15Return with goal accomplished0.13Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key0.1Method for Goal: Line select key0.511Recall <keyword> and point finger to line select key next to keyword0.382Press and release appropriate line select key</keyword></keyword>		Decide: IF <clearance value=""> is an altitude or speed with</clearance>
0.1     5     Return with goal accomplished       0.1     3     Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key       0.1     Method for Goal: Line select key       0.51     1     Recall <keyword> and point finger to line select key next to keyword       0.38     2     Press and release appropriate line select key</keyword></keyword>	0.1	4 F an above or below, THEN Selection Rule: At and above or
Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key  Method for Goal: Line select key  Recall <keyword> and point finger to line select key next to keyword  Press and release appropriate line select key</keyword></keyword>		below
0.1 Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword>	0.1	5 Return with goal accomplished
0.1 Line select key  0.1 Method for Goal: Line select key  0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword>	2.4	Remember < keyword> = "RTA Waynoint" and Accomplish Goal:
0.1     Method for Goal: Line select key       0.51     1     Recall <keyword> and point finger to line select key next to keyword       0.38     2     Press and release appropriate line select key</keyword>	0.1	· · · · · · · · · · · · · · · · · · ·
0.51 1 Recall <keyword> and point finger to line select key next to keyword  0.38 2 Press and release appropriate line select key</keyword>	0.1	·
0.51 to keyword 0.38 2 Press and release appropriate line select key		Recall < keyword > and point finger to line select key next
0.38 2 Press and release appropriate line select key	0.51	1
	0.38	·
OLE NO CONTROL WILLIE SOUL ACCOUNTS INCLA	0.1	3 Return with goal accomplished

	Detete edecares colors distribute decares and Assessable
0.1	Retain <clearance value=""> = digits in clearance and Accomplish</clearance>
0.1	Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.4	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
0.1	4 F an above or below, THEN Selection Rule: At and above or
	below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA
	1 T clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN Retain
1.4	<pre><response>= "Wilco" ELSE Retain <response> = "Unable"</response></response></pre>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
38.28	Total time

# Trace 12 - Task 3, Data Comm

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at time 1800Z

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen it is 9 words ("Cross HELPR at time one eight zero zero Zulu")

Clearance is one page

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
0.51	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Read the clearance
0.1	
0.1	Method for Goal: Read the clearance  Decide: IF clearance must be read aloud or crew wants to read
3.8	aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed 4 T
	copy
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	2 Pamambar skawwards - srachances and Accomplish Goals Line colort kay
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select key next to</keyword>
0.51	keyword
0.38	·
0.1	3 Return with goal accomplished

0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to  1</keyword>
0.20	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.4	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	3 T IF clearance is only RTA, THEN Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember <menu key=""> = "VNAV" and Accomplish Goal:  1  Manu key</menu>
0.1	Menu key  Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.38	3 Return with goal accomplished
0.1	Remember < keyword> = "RTA" and Accomplish Goal: Line
0.1	select key
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select</keyword>
0.51	1 key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
	Retain <clearance value=""> = characters in waypoint and Accomplish</clearance>
0.1	Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu kev> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter,
0.1	3 T THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to enter,
0.1	3 F THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or speed with</clearance>
0.1	4 F an above or below, THEN Selection Rule: At and above or
	below
0.1	5 Return with goal accomplished

	Remember < keyword > = "RTA Waypoint" and Accomplish Goal:
0.1	3 Line select key
0.1	Method for Goal: Line select key
0.1	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
	Retain <clearance value=""> = digits in clearance and Accomplish</clearance>
0.1	Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember < menu key> = first digit/character in
0.1	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
	<clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
0.20	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu key</clearance>
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to enter.
0.1	3 T THEN GOTO Step 2
0.4	Remember <menu key=""> = next digit/character in</menu>
0.1	clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or speed with  4 F an above or below, THEN Selection Rule: At and above or</clearance>
	below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes only RTA, THEN Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN Retain
1.4	<pre><response>="Wilco" ELSE Retain <response>= "Unable"</response></response></pre>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.30	3 Return with goal accomplished
0.1	5 Metalli Willi Boul decomplished

0.1				3	Return with goal accomplished
0.1			3	Remen	mber <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1				Metho	d for Goal: Line select key
0.51				1	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38				2	Press and release appropriate line select key
0.1				3	Return with goal accomplished
0.1			4	Remen	nber <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1				Metho	d for Goal: Line select key
0.51				1	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38				2	Press and release appropriate line select key
0.1				3	Return with goal accomplished
0.1			5	Return	with goal accomplished
0.1		3	Returr	with go	al accomplished
0.1	7 1	Decide	: IF ther	e are mo	re clearances, THEN GOTO Step 1
0.1	8	Return	with go	al accom	plished
40.7	To	otal time			

## Trace 13 - Task 4, Voice

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at 1800Z at FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 14 words ("Cross HELPR at one eight zero zero Zulu at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Need to obtain pen and paper

Clearance is written as 6 words ("Cross HELPR at 1800Z at FL190")

Response is sent by voice

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

Clearance information is not remembered during readback

There is clearance information to enter into the FMS

-	
Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
6.9	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down
0.1	clearance
0.1	Method for Goal: Write down clearance
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:
0.1	Obtain paper
0.1	Method for Goal: Obtain paper
0.51	1 Reach for paper
0.8	2 Grasp paper
0.51	3 Transport paper to writing space
0.17	4 Release paper
0.1	5 Return with goal accomplished

0.1	2 T Decide: IF pen is not in hand, THEN Accomplish Goal: Obtain pen			
0.1	Method for Goal: Obtain pen			
0.51	1 Reach for pen			
0.8	2 Grasp pen			
0.51	3 Transport pen to paper			
0.16	4 Position the pen over paper			
0.1	5 Return with goal accomplished			
16.3	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>			
0.51	4 Return pen to original location			
0.17	5 Release pen			
0.5	6 Move hand back to starting location			
0.1	7 Return with goal accomplished			
0.1	3 Return with goal accomplished			
0.1	3 Return with goal accomplished			
	Decide: IF clearance includes RTA. THEN Retain <response> = "Standby" and Selection Rule:</response>			
0.1	2 T Respond to a clearance			
0.1	Selection Rule for Goal: Respond to a clearance			
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice			
0.1	Method for Goal: Respond by voice			
0.5	1 Move hand to yoke and "Push to talk" button			
0.2	2 Press "Push to talk" button			
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>			
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by			
	<response></response>			
0.2	4 Release "Push to talk" button			
0.5	5 Return hand to FMS			
0.1	6 Return with goal accomplished			
0.1	3 Return with goal accomplished			
0.1	3 Accomplish Goal: Enter a clearance			
0.1	Method for Goal: Enter a clearance			
0.3	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>			
0.2	1 F Selection Rule: Method of reading			
0.1	Selection Rule for Goal: Method of reading			
0.1	IF clearance is in writing, THEN Accomplish Goal: Read clearance from			
0.1	1 T paper			
0.1	Method for Goal: Read clearance from paper			
0.51	1 T Decide: IF paper not visible, THEN move paper			
	Decide: IF clearance must be read aloud or crew wants to read			
5.8	aloud, THEN Read information on paper aloud and retain			
	<clearance information="">, ELSE Read information on paper and</clearance>			
	retain <clearance information=""></clearance>			
0.1	3 Return with goal accomplished			
0.1	3 Return with goal accomplished			

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA. THEN Accomplish Goal: Enter
	4 T mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with
	goal accomplished
0.4	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
0.1	into scratchpad  3 Remember <menu key=""> = "/" and Accomplish Goal: Menu k</menu>
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Domombou emonu kous – nout digit/obougetou in
0.4	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.4	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	
0.38	
0.1	7 Return with goal accomplished
0.1	·
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
	Remember < menu key> = "VNAV" and
0.1	1 Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	· · · · · · · · · · · · · · · · · · ·
0.1	3 Return with goal accomplished

	Demonstrate de la
0.1	Remember <keyword> = "RTA" and Accomplish</keyword>
	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line</keyword>
0.01	select key next to keyword
0.38	Press and release appropriate line select
0.50	key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = characters in waypoint and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.38	· · · ·
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish</keyword>
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
	key next to keyword
0.38	
0.1	
0.1	Retain <clearance value=""> = digits in clearance and</clearance>
	Accomplish Goal: Enter into scratchpad
0.1	·
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	·
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	
0.38	, , , , , ,
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
	3 T Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.2	"Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN
1.4	Retain <response> = "Wilco" ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance			
0.1	Selection Rule for Goal: Respond to a clearance			
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice			
0.1	Method for Goal: Respond by voice			
0.5	1 Move hand to yoke and "Push to talk" button			
0.2	2 Press "Push to talk" button			
0.0	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>			
0.2	3 T Rule: Method of clearance readback, ELSE state call sign followed by			
0.1	<pre><response> Selection Rule for Goal: Method of clearance readback</response></pre>			
0.1				
0.1	2 T   IF <clearance information=""> is not remembered, THEN Accomplish Goal: Readback clearance by reading</clearance>			
0.1	Method for Goal: Readback clearance by reading			
0.1	1 Selection Rule: Method of reading			
0.1	Selection Rule for Goal: Method of reading			
0.4	IF clearance is in writing THEN Accomplish Goal:			
0.1	1 T Read clearance from paper			
0.1	Method for Goal: Read clearance from paper			
0.51	Decide: IF paper not visible, THEN move			
0.51	paper			
	Decide: IF clearance must be read aloud			
	or crew wants to read aloud, THEN Read			
5.8	information on paper aloud and retain			
3.0	<clearance information="">, ELSE Read</clearance>			
	information on paper and retain			
	<clearance information=""></clearance>			
0.1	3 Return with goal accomplished			
0.1	3 Return with goal accomplished			
1.3	2 State call sign			
0.1	3 Return with goal accomplished			
0.1	3 Return with goal accomplished			
0.2	4 Release "Push to talk" button			
0.5	5 Return hand to FMS			
0.1	6 Return with goal accomplished			
0.1	3 Return with goal accomplished			
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1			
0.1	8 Return with goal accomplished			
84.99	Total time			
07.55	rour time			

## Trace 14 - Task 4, Voice

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at 1800Z at FL190

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 14 words ("Cross HELPR at one eight zero zero

Zulu at flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

Clearance information is remembered during readback

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
6.9	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished

0.1	3 Return with goal accomplished
0.1	
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
0.1	mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with
0.1	goal accomplished
	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Remember <menu key=""> = "/" and Accomplish Goal: Menu</menu>
0.1	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	· '
	into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	,
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
	Remember < menu key> = next digit/character in
0.1	·
	key
0.1	
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	· · · · · · · · · · · · · · · · · · ·
0.1	ę i
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	·
	Rule: At and above or below
0.1	
0.51	, , , , , , , , , , , , , , , , , , ,
0.38	
0.1	7 Return with goal accomplished

0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember <menu key=""> = "VNAV" and 1</menu>
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "RTA" and Accomplish</keyword>
	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line</keyword>
0.51	select key next to keyword
0.38	Press and release appropriate line select
0.50	key
0.1	
0.1	
0.1	Retain <clearance value=""> = characters in waypoint and</clearance>
	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	· .
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	,
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

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	. Retain <clearance value=""> = digits in clearance and</clearance>
0.1	4 Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	<u> </u>
0.1	key Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	• • • • • • • • • • • • • • • • • • • •
0.38	3 Return with goal accomplished
0.1	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	·
0.1	key Mathad for Goal: Manu kay
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	1
0.38	appropriate menu key  2 Press and release appropriate menu key
0.38	
0.1	
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key  Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	
0.38	appropriate menu key  2 Press and release appropriate menu key
0.38	
0.1	3 Return with goal accomplished Decide: IF more digits/characters in restriction to
0.1	3 T
	enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.38	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
0.1	Rule: At and above or below
0.1	
0.1	5 Return with goal accomplished

0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN
1.4	Retain <response> = "Wilco" ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 T Rule: Method of clearance readback, ELSE state call sign followed by <response></response></response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	1 T   IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>
0.1	Method for Goal: Readback clearance from memory
6.9	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
54.22	Total time

## Trace 15 - Task 4, Data Comm

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at time 1800Z at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands do not start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu") and page two is 6 words ("At flight level one niner zero")

Clearance is two pages

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Hand is not on FMS after grasping print out

Once opened, clearance remains open until clearance information is entered

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

When clearance is read from paper it is 15 words ("Cross HELPR at time one eight zero zero Zulu at flight level one niner zero")

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable

RTA portion of clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Domombor skouwards - dogrange to open and Accountiely Cools
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.20	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
3.8	aloud, THEN Read information on screen aloud and retain
	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
<u> </u>	with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu 3</menu>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu</menu>
	key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 GOTO Step 1
	Decide: IF clearance must be read aloud or crew wants to read
2.6	aloud, THEN Read information on screen aloud and retain
2.0	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Decide: IF printed clearance is desired, THEN Selection Rule: Get printed
0.1	сору
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select</keyword>
0.54	
0.51	1 key next to keyword
0.51	key next to keyword  Press and release appropriate line select key

0.51	2 Reach for print out
0.8	3 Grasp print out
0.51	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	<ul> <li>Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response></li> <li>Respond to a clearance</li> </ul>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.5	1 T Decide: If hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select key next to</keyword>
0.51	1 keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
	Decide: IF clearance is remembered. THEN Recall <clearance information="">. FLSF</clearance>
0.2	1 F Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
	IF clearance is in writing. THEN Accomplish Goal: Read clearance from
0.1	1 T paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
	aloud. THEN Read information on paper aloud and retain
6.2	2 T <clearance information="">, ELSE Read information on paper and</clearance>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 neturn with Both determination

0.5	2 T Decide: If hand not on EMC THEN move hand to EMC
0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
	mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "Legs" and Accomplish
	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with
	goal accomplished
	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Remember < menu key> = "/" and Accomplish Goal: Menu
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Method for Goal: Enter into scratchpad
_	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Danis and horizontal and district the construction
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	
0.1	7 Return with goal accomplished
0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
	Remember < menu key> = "VNAV" and
0.1	1 Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	, , , , , , , , , , , , , , , , , , , ,
0.38	, , , , , , , , , , , , , , , , , , , ,
0.1	5 Return with goal accomplished

	Demonstrate demonstration LA DEL
0.1	Remember <keyword> = "RTA" and Accomplish</keyword>
	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line</keyword>
	select key next to keyword
0.38	Press and release appropriate line select
0.50	key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = characters in waypoint and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	
	Remember < menu key> = next digit/character in
0.1	· -
	key
0.1	Method for Goal: Menu key
	Recall < menu key> and point finger to
0.51	appropriate menu key
0.38	· · · · · · · · · · · · · · · · · · ·
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	
0.1	key
0.1	·
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.38	
0.1	3 Return with goal accomplished

0.1	3 T Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.31	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
	Remember < keyword > = "RTA Waypoint" and Accomplish
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
	Recall < keyword > and point finger to line select
0.51	1 key next to keyword
0.38	
0.1	3 Return with goal accomplished
	Retain <clearance value=""> = digits in clearance and</clearance>
0.1	4 Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
3.1	Remember <menu key=""> = first digit/character in</menu>
0.1	, -
3.1	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.38	3 Return with goal accomplished
0.1	I S Neturn with goal accomplished

	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	· · · · · · · · · · · · · · · · · · ·
0.1	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to  1</menu>
0.20	appropriate menu key
0.38	· · · · · · · · · · · · · · · · · · ·
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
0.1	Rule: At and above or below
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.31	
0.38	7 Return with goal accomplished
0.1	
0.1	<b>o</b> -
0.1	4 Return with goal accomplished

0.1	4 Selection Rule: Decide on a clearance					
0.1						
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:					
0.1	3 T  Determine whether mixed clearance is acceptable					
0.1	Method for Goal: Determine whether mixed clearance is acceptable					
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable					
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable					
1.3	Determine whether non-RTA clearance is acceptable					
	Decide: IF clearance is acceptable, THEN Retain <response> =</response>					
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>					
0.1	3 Return with goal accomplished					
0.1	2 F Decide: IF <response>= "Unable," THEN Return with goal accomplished</response>					
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable					
0.1	Method for Goal: Determine whether RTA clearance is acceptable					
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page					
0.1	Decide: IF RTA is between minimum and maximum RTAs. THEN					
1.4	2 F Retain <response> = "Wilco" ELSE Retain <response> = "Unable"</response></response>					
0.1	3 Return with goal accomplished					
0.1	4 Return with goal accomplished					
0.1	4 Return with goal accomplished					
	Decide: IF <response> = "Wilco" and there is clearance information to enter into the EMS</response>					
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>					
0.1	6 Selection Rule: Respond to a clearance					
0.1	Selection Rule for Goal: Respond to a clearance					
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS					
0.1	Method for Goal: Respond by FMS					
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS					
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance					
0.1	Method for Goal: Open clearance					
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key					
0.1	Method for Goal: Menu key					
0.54	Recall <menu key=""> and point finger to appropriate menu</menu>					
0.51	1 key					
0.38	2 Press and release appropriate menu key					
0.1	3 Return with goal accomplished					
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>					
0.1	2 Line select key					
0.1	Method for Goal: Line select key					
0.51	Recall <keyword> and point finger to line select key next</keyword>					
0.51	to keyword					
0.38	2 Press and release appropriate line select key					
0.1	3 Return with goal accomplished					
0.1	3 Return with goal accomplished					

0.1			3	Remem	nber <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1				Method	d for Goal: Line select key
0.51				1	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38				2	Press and release appropriate line select key
0.1				3	Return with goal accomplished
0.1			4	Remen	nber <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1				Method	d for Goal: Line select key
0.51				1	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38				2	Press and release appropriate line select key
0.1				3	Return with goal accomplished
0.1			5	Return	with goal accomplished
0.1		3	Return	with goa	laccomplished
0.1	7	F Decide	: IF there	e are mor	e clearances, THEN GOTO Step 1
0.1	8	Return	with go	al accomp	olished
64.56	Т	otal time			

## Trace 16 - Task 4, Data Comm

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at time 1800Z at FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu")

and page two is 6 words ("At flight level one niner zero")

Clearance is two pages

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable

RTA portion of clearance is not acceptable

There is no clearance information to enter into the FMS

Time	Action			
0.1	Method for Goal: Handle a clearance			
0.1	1 Selection Rule: Receive a clearance			
0.1	Selection Rule for Goal: Receive a clearance			
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance			
0.1	Method for Goal: Receive an FMS clearance			
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS			
0.1	2 Accomplish Goal: Open clearance			
0.1	Method for Goal: Open clearance			
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>			
0.1	Method for Goal: Menu key			
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>			
0.38	2 Press and release appropriate menu key			
0.1	3 Return with goal accomplished			
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>			
0.1	2 Line select key			
0.1	Method for Goal: Line select key			
0.51	Recall <keyword> and point finger to line select key next</keyword>			
0.31	to keyword			
0.38	2 Press and release appropriate line select key			
0.1	3 Return with goal accomplished			

0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
3.8	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""></clearance></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return with goal accomplished
0.1	Remember <menu key=""> = "Next Page" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 GOTO Step 1
2.6	Decide: IF clearance must be read aloud or crew wants to read aloud, THEN Read information on screen aloud and retain <clearance information="">, ELSE Read information on screen and retain <clearance information=""></clearance></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return with goal accomplished
0.1	4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed copy
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: If hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key				
0.1	Method for Goal: Line select key				
	Recall <keyword> and point finger to line select key next to</keyword>				
0.51	1 keyword				
0.38	2 Press and release appropriate line select key				
0.1	3 Return with goal accomplished				
0.1	5 Return with goal accomplished				
0.1	3 Return with goal accomplished				
0.1	3 Accomplish Goal: Enter a clearance				
0.1	Method for Goal: Enter a clearance				
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>				
0.1	Selection Rule: Method of reading  2 F Decide: IF hand not on FMS, THEN move hand to FMS				
0.1	3 Selection Rule: Specific clearance type				
0.1	Selection Rule for Goal: Specific clearance type				
0.1	IF clearance is crossing restriction with RTA_THEN_Accomplish Goal: Enter				
0.1	4 T mixed clearance				
0.1	Method for Goal: Enter mixed clearance				
0.1	1 Accomplish Goal: Enter crossing restriction				
0.1	Method for Goal: Enter crossing restriction				
0.1	1 Accomplish Goal: Locate waypoint				
0.1	Method for Goal: Locate waypoint				
0.4	Remember < menu kev> = "Legs" and Accomplish				
0.1	Goal: Menu key				
0.1	Method for Goal: Menu key				
0.51	Recall <menu key=""> and point finger to</menu>				
0.51	appropriate menu key				
0.38	2 Press and release appropriate menu key				
0.1	3 Return with goal accomplished				
0.82	2 Search for waypoint				
0.1	Decide: IF waypoint is found, THEN Return with				
0.1	goal accomplished				
	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>				
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter				
	into scratchpad				
0.1	Remember <menu key=""> = "/" and Accomplish Goal: Menu 3</menu>				
	key				
0.1	Method for Goal: Menu key				
0.51	Recall <menu key=""> and point finger to</menu>				
	appropriate menu key				
0.38	2 Press and release appropriate menu key				
0.1	3 Return with goal accomplished				

	Decide: IF altitude restriction, THEN Retain <clearance< th=""></clearance<>
0.1	
0.1	into scratchpad
0.1	·
	Remember <menu key=""> = first digit/character in</menu>
0.1	· · ·
	key
0.1	·
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	3 T Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	•
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	5 1
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	· ·
	Rule: At and above or below
0.1	ě .
0.51	, , , , , , , , , , , , , , , , , , , ,
0.38	
0.1	7 Return with goal accomplished

0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.4	Remember < menu key> = "VNAV" and
0.1	1 Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "RTA" and Accomplish</keyword>
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line</keyword>
0.51	select key next to keyword
0.38	Press and release appropriate line select
0.36	key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = characters in waypoint and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
_	key
0.1	·
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

digit/character in lish Goal: Menu dipoint finger to ropriate menu key mplished
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an altitude or
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ger to line select
line select key

0.1	Retain <clearance value=""> = digits in clearance and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.4	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.2	2 T "Wilco," ELSE Retain <response>= "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN
1.4	Retain <response> = "Wilco" ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished

0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.1	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.20	keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
52.54	Total time

#### Trace 17 - Task 5, Voice

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at 1800Z at or above FL190

Assumptions:

Clearance received by voice

When clearance is read from paper or heard over the radio it is 16 words ("Cross HELPR at one eight zero zero Zulu at or above flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is written down

Paper is available

Pen is not in hand

Clearance is written as 8 words ("Cross HELPR at 1800Z at or above FL190")

Response is sent by voice

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Clearance information is remembered during readback

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
7.7	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	2 T Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	Method for Goal: Write down clearance
0.1	Decide: IF paper is not readily available, THEN Accomplish Goal:  Obtain paper
0.1	2 T Decide: IF pen is not in hand, THEN Accomplish Goal: Obtain pen

0.1	Method for Goal: Obtain pen
0.51	1 Reach for pen
0.8	2 Grasp pen
0.51	3 Transport pen to paper
0.16	4 Position the pen over paper
0.1	5 Return with goal accomplished
	j i
21.7	3 Recall <clearance information=""> and write <clearance information=""></clearance></clearance>
0.51	4 Return pen to original location
0.17	5 Release pen
0.5	6 Move hand back to starting location
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection</response></response>
1.8	3 F Rule: Method of clearance readback, ELSE state call sign followed by
	<response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.3	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 F Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.4	IF clearance is in writing, THEN Accomplish Goal: Read clearance from
0.1	1 T paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
6.6	aloud, THEN Read information on paper aloud and retain
	<ul> <li><clearance information="">, ELSE Read information on paper and</clearance></li> </ul>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	_ IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
0.1	4 T mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with
	goal accomplished
0.4	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Remember < menu key> = "/" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 T speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
	IF restriction is at or above, THEN
0.1	1 T Remember <menu key=""> = "A" and</menu>
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point</menu>
0.51	1 finger to appropriate menu key
	illiger to appropriate mena key
0.38	Press and release appropriate
0.38	menu key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished

0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember < menu key> = "VNAV" and
0.1	1 Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.31	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "RTA" and Accomplish</keyword>
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line</keyword>
0.51	select key next to keyword
0.38	Press and release appropriate line select
0.30	key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = characters in waypoint and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in  2 < clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in 2 < clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or 4 F speed with an above or below, THEN Selection Rule: At and above or below</clearance>
0.1	5 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	
0.1	

	Retain <clearance value=""> = digits in clearance and</clearance>
0.1	4 Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
0.4	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	· · · · · · · · · · · · · · · · · · ·
0.38	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
0.1	5 Neturn With Both decomplianed

0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	3 T IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN Retain <response> = "Wilco" ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 T Rule: Method of clearance readback, ELSE state call sign followed by <response></response></response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal: Readback clearance from memory</clearance>
0.1	Method for Goal: Readback clearance from memory
7.7	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	
0.1	8 Return with goal accomplished
90.68	Total time

#### Trace 18 - Task 5, Voice

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at 1800Z at or above FL190

Assumptions:

Clearance received by voice

When clearance is stated aloud or heard over the radio it is 16 words ("Cross HELPR at one eight zero zero

Zulu at or above flight level one niner zero")

Call sign is stated before audio clearance

Airline call sign is 3 words

Clearance is not written down

Response is sent by voice

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Clearance information is remembered during readback

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	2 T IF clearance is audio, THEN Accomplish Goal: Receive a radio clearance
0.1	Method for Goal: Receive a radio clearance
7.7	1 Listen to clearance and retain <clearance information=""></clearance>
0.1	Decide: IF printed clearance is desired, THEN Accomplish Goal: Write down clearance
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	2 T Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule: Respond to a clearance</response>
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
1.8	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 F Rule: Method of clearance readback, ELSE state call sign followed by  <response></response></response></response>
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished

O.1   Method for Goal: Enter a clearance	0.4	
Method for Goal: Enter a clearance   1	0.1	3 Return with goal accomplished
1 T   Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE    </clearance>		-
0.1   Selection Rule: Method of reading 0.1   2   F   Decide: F hand not on FMS, THEN move hand to FMS 0.1   3   Selection Rule: Specific clearance type 0.1   Selection Rule: Specific clearance type 0.1   Selection Rule: Specific clearance type 0.1   A   T   F clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter mixed clearance 0.1   Method for Goal: Enter mixed clearance 0.1   1   Accomplish Goal: Enter crossing restriction 0.1   Method for Goal: Enter crossing restriction 0.1   Accomplish Goal: Locate waypoint 0.1   Method for Goal: Locate waypoint 0.1   Method for Goal: Locate waypoint 0.1   Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key 0.1   Method for Goal: Menu key 0.2   Recall <menu key=""> and point finger to appropriate menu key 0.3   Recall <menu key=""> and point finger to appropriate menu key 0.1   3   Return with goal accomplished 0.82   2   Search for waypoint is found, THEN Return with goal accomplished 0.82   2   Search for waypoint is found, THEN Return with goal accomplished 0.1   3   Return with goal accomplished 0.1   2   F value&gt; = digits in clearance and Accomplish Goal: Enter into scratchpad 0.1   Method for Goal: Menu key&gt; 0.1   Recall <menu key=""> = "/" and Accomplish Goal: Menu Method for Goal: Menu key 0.1   Recall <menu key=""> = first digit/character in clearance and Remember <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Enter into scratchpad 0.1   Method for Goal: Enter into scratchpad 0.1   Remember <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key 0.1   Method for Goal: Enter into scratchpad 0.1   Method for Goal: Menu key&gt; = first digit/character in clearance value&gt; and Accomplish Goal: Menu key 0.1   Method for Goal: Menu key = first digit/character in clearance value&gt; and Accomplish Goal: Menu key</menu></menu></menu></menu></menu></menu></menu>	0.1	
Selection Rule: Method of reading	0.2	1 1
0.1   Selection Rule: Specific clearance type		Selection Rule: Method of reading
O.1   Selection Rule for Goal: Specific clearance type     O.1	<b>—</b>	
1	0.1	
O.1   Method for Goal: Enter mixed clearance	0.1	
mixed clearance  0.1 Method for Goal: Enter mixed clearance  0.1 1 Accomplish Goal: Enter crossing restriction  0.1 1 Accomplish Goal: Enter crossing restriction  0.1 1 Accomplish Goal: Locate waypoint  0.1 1 Method for Goal: Locate waypoint  0.1 1 Method for Goal: Locate waypoint  0.1 1 Method for Goal: Locate waypoint  1 Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Method for Goal: Menu key  0.3 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.8 2 2 Search for waypoint  0.1 3 T Decide: IF waypoint is found, THEN Return with goal accomplished  0.8 2 1 Search for waypoint  0.1 2 F value> digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Enter into scratchpad  0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu Method for Goal: Menu key  0.1 3 Return with goal accomplished  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.3 Return with goal accomplished  0.1 Decide: IF altitude restriction, THEN Retain <clearance 0.1="" a="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 Method for Goal: Enter into scratchpad  0.1 Recall <menu key=""> = first digit/character in to scratchpad  0.1 Method for Goal: Enter into scratchpad  0.1 Method for Goal: Enter into scratchpad  0.1 Recall <menu key=""> = first digit/character in to clearance value&gt; and Accomplish Goal: Menu key  0.1 Recall <menu key=""> = first digit/character in to clearance value&gt; and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key</menu></menu></menu></clearance></menu></menu>	0.1	IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter
O.1	0.1	mixed clearance
O.1   Method for Goal: Enter crossing restriction	0.1	Method for Goal: Enter mixed clearance
O.1	0.1	1 Accomplish Goal: Enter crossing restriction
O.1	0.1	Method for Goal: Enter crossing restriction
1   Remember <menu key=""> = "Legs" and Accomplish Goal: Menu key    </menu>	0.1	1 Accomplish Goal: Locate waypoint
O.1	0.1	Method for Goal: Locate waypoint
Goal: Menu key	0.1	Remember < menu key> = "Legs" and Accomplish
1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.2 Search for waypoint  0.1 3 T Decide: IF waypoint is found, THEN Return with goal accomplished  0.1 Decide: IF speed restriction, THEN Retain <clearance 0.1="" 2="" f="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Recall <menu key=""> and point finger to clearance value&gt; and Accomplish Goal: Menu key  0.3 Recall <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key  0.3 Recall <menu key=""> and point finger to clearance value&gt; and Accomplish Goal: Menu key</menu></menu></menu></menu></menu></clearance></menu></clearance></menu>	0.1	Goal: Menu key
1 appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.82 2 Search for waypoint  0.1 3 T Decide: IF waypoint is found, THEN Return with goal accomplished  0.1 2 F value>= digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 3 Remember <menu key="">= "/" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 4 T value&gt;= digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 1 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 4 T value&gt;= digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 4 T value&gt;= digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 4 T value&gt;= digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 4 T value&gt;= digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 Method for Goal: Enter into scratchpad  Remember <menu key="">= first digit/character in 1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 Recall <menu key=""> and point finger to</menu></clearance></menu></menu>	0.1	Method for Goal: Menu key
0.38 2 Press and release appropriate menu key 0.1 3 Return with goal accomplished 0.82 2 Search for waypoint  0.1 3 T Decide: IF waypoint is found, THEN Return with goal accomplished  Decide: IF speed restriction, THEN Retain <clearance 0.1="" 2="" f="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad 0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key 0.51 1 Recall <menu key=""> and release appropriate menu key 0.1 3 Return with goal accomplished Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad 0.1 4 T value&gt; digits in clearance and Accomplish Goal: Enter into scratchpad 0.1 Remember <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key 0.1 Remember <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key 0.1 Recall <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key 0.1 Recall <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key 0.1 Recall <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key 0.1 Recall <menu key=""> = first digit/character in clearance value&gt; and Accomplish Goal: Menu key 0.51</menu></menu></menu></menu></menu></menu></clearance></menu></menu></menu></clearance>	0.51	Recall <menu key=""> and point finger to</menu>
O.1   3 Return with goal accomplished	0.51	appropriate menu key
0.82  2 Search for waypoint  3 T Decide: IF waypoint is found, THEN Return with goal accomplished  Decide: IF speed restriction, THEN Retain <clearance 0.1="" 2="" f="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in 1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Method for Goal: Menu key  0.3 Method for Goal: Menu key  0.4 Method for Goal: Menu key  0.5 Method for Goal: Menu key</clearance></menu></clearance></menu></clearance>	0.38	2 Press and release appropriate menu key
0.1  3 T Decide: IF waypoint is found, THEN Return with goal accomplished  Decide: IF speed restriction, THEN Retain <clearance 1="" 2="" f="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Press and release appropriate menu key  0.3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu></clearance></menu></clearance></menu></clearance></menu></clearance>	0.1	3 Return with goal accomplished
0.1 Decide: IF speed restriction, THEN Retain <clearance 0.1="" 2="" f="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad 0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu Method for Goal: Menu key 0.51 1 Recall <menu key=""> and point finger to appropriate menu key 0.38 2 Press and release appropriate menu key 0.1 3 Return with goal accomplished 0.1 4 T value&gt; = digits in clearance and Accomplish Goal: Enter into scratchpad 0.1 Method for Goal: Enter into scratchpad 0.1 Remember <menu key=""> = first digit/character in 1 <clearance value=""> and Accomplish Goal: Menu key 0.1 Method for Goal: Menu key 0.1 Method for Goal: Menu key 0.1 Recall <menu key=""> and point finger to 1 method for Goal: Menu key 0.1 Method for Goal: Menu key 0.2 Recall <menu key=""> and point finger to 1 method for Goal: Menu key</menu></menu></clearance></menu></menu></menu></clearance>	0.82	2 Search for waypoint
goal accomplished  Decide: IF speed restriction, THEN Retain <clearance 0.1="" 2="" f="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1  3 Remember <menu key=""> = "/" and Accomplish Goal: Menu Method for Goal: Menu key  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.1  Method for Goal: Menu key  0.1  Recall <menu key=""> and point finger to</menu></clearance></menu></clearance></menu></menu></clearance>	0.1	Decide: IF waypoint is found, THEN Return with
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into scratchpad  0.1 3 Remember <menu key=""> = "/" and Accomplish Goal: Menu   0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to   appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter   into scratchpad  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in   1 <clearance value=""> and Accomplish Goal: Menu   key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.2 Recall <menu key=""> and point finger to   1 Recal</menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></menu></clearance></menu></clearance></menu></menu>		Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
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0.1		into scratchpad
0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1  Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.1  Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu></clearance></menu></clearance></menu>	0.1	3 Remember < menu key> = "/" and Accomplish Goal: Menu k
0.51  1 appropriate menu key  0.38  2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Recall <menu key=""> and point finger to</menu></clearance></menu></clearance>	0.1	Method for Goal: Menu key
appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1  Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.1  Method for Goal: Menu key  0.1  Recall <menu key=""> and point finger to</menu></clearance></menu></clearance>	0 51	Recall <menu key=""> and point finger to</menu>
0.1  3 Return with goal accomplished  Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  O.1  Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.1  Recall <menu key=""> and point finger to</menu></clearance></menu></clearance>	0.51	appropriate menu key
Decide: IF altitude restriction, THEN Retain <clearance 0.1="" 4="" t="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.1 Recall <menu key=""> and point finger to</menu></clearance></menu></clearance>	0.38	2 Press and release appropriate menu key
0.1  4 T value> = digits in clearance and Accomplish Goal: Enter into scratchpad  O.1  Method for Goal: Enter into scratchpad  Remember < menu key> = first digit/character in  1 < clearance value> and Accomplish Goal: Menu key  O.1  Method for Goal: Menu key  Recall < menu key> and point finger to	0.1	3 Return with goal accomplished
into scratchpad  0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu></clearance></menu>		Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1 Method for Goal: Enter into scratchpad  Remember <menu key=""> = first digit/character in  1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu></clearance></menu>	0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
Remember < menu key> = first digit/character in  1		into scratchpad
0.1 1 <clearance value=""> and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu></clearance>	0.1	Method for Goal: Enter into scratchpad
0.1 Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>		Remember < menu key> = first digit/character in
0.1 Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>	0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
Recall <menu key=""> and point finger to</menu>		key
Recall <menu key=""> and point finger to</menu>	0.1	Method for Goal: Menu key
[ U.51] 1	0.54	Recall <menu kev=""> and point finger to</menu>
appropriate menu key	0.51	appropriate menu key
	0.38	
0.1 3 Return with goal accomplished		

	Danis and horse and a state of the state of
	Remember <menu key=""> = next digit/character in</menu>
0.1	·
	key
0.1	,
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 T speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
	IF restriction is at or above, THEN
0.1	1 T Remember < menu key> = "A" and
	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point</menu>
0.51	finger to appropriate menu key
0.00	Press and release appropriate
0.38	2 menu key
0.1	·
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.51	Ÿ ·
0.38	
0.1	, , , , , ,
0.1	, netarn with goal accompliance

0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember < menu key> = "VNAV" and
0.1	1 Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.31	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "RTA" and Accomplish</keyword>
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line</keyword>
0.51	select key next to keyword
0.38	Press and release appropriate line select
0.36	key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = characters in waypoint and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished

0.1	3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in  2 < clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in 2 < clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or 4 F speed with an above or below, THEN Selection Rule: At and above or below</clearance>
0.1	5 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	
0.1	

	. Retain <clearance value=""> = digits in clearance and</clearance>
0.1	4 Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
- 0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished

0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
0.1	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
0.2	2 T "Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN
1.4	Retain <response> = "Wilco" ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	1 T IF responding by voice, THEN Accomplish Goal: Respond by voice
0.1	Method for Goal: Respond by voice
0.5	1 Move hand to yoke and "Push to talk" button
0.2	2 Press "Push to talk" button
0.2	Recall <response> and Decide: IF <response> = "Wilco," THEN Selection  3 T Rule: Method of clearance readback, ELSE state call sign followed by  <response></response></response></response>
0.1	Selection Rule for Goal: Method of clearance readback
0.1	IF <clearance information=""> is remembered, THEN Accomplish Goal:  Readback clearance from memory</clearance>
0.1	Method for Goal: Readback clearance from memory
7.7	Recall <clearance information=""> and state <clearance information=""> followed by call sign</clearance></clearance>
0.1	2 Return with goal accomplished
0.1	3 Return with goal accomplished
0.2	4 Release "Push to talk" button
0.5	5 Return hand to FMS
0.1	6 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	
0.1	8 Return with goal accomplished
57.21	Total time

### **Trace 19 - Task 5, Data Comm**

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at time 1800Z at or above FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands do not start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu")

and page two is 8 words ("At or above flight level one niner zero")

Clearance is two pages

Clearance is printed upon receipt

Printer is available

Response is sent by FMS

Hand is not on FMS after grasping print out

Once opened, clearance remains open until clearance information is entered

Clearance information is not initially remembered, and must be read aloud, when entering the clearance

Paper is not visible after hand moved to FMS

When clearance is read from paper it is 17 words ("Cross HELPR at time one eight zero zero Zulu at or above flight level one niner zero")

Hand is not on FMS after reading clearance from paper

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.5	1 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	Line select key
0.1	Method for Goal: Line select key
0.54	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
3.8	aloud, THEN Read information on screen aloud and retain
3.0	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	with goal accomplished
0.1	Remember < menu key> = "Next Page" and Accomplish Goal: Menu
0.1	key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 GOTO Step 1
	Decide: IF clearance must be read aloud or crew wants to read
3.4	aloud, THEN Read information on screen aloud and retain
3.4	<clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 T with goal accomplished
0.1	4 T Decide: IF printed clearance is desired, THEN Selection Rule: Get printed cop
0.1	Selection Rule for Goal: Get printed copy
0.1	1 T IF printer is available, THEN Accomplish Goal: Print the clearance
0.1	Method for Goal: Print the clearance
0.1	Remember <keyword> = "Print" and Accomplish Goal: Line</keyword>
0.1	select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select</keyword>
0.51	key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

0.51	2 Reach for print out
0.31	·
0.8	
	4 Transport paper to reading position
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.5	1 T Decide: If hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keywor</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword > = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keywor</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.2	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 F Selection Rule: Method of reading
0.1	Selection Rule for Goal: Method of reading
0.1	1 T IF clearance is in writing, THEN Accomplish Goal: Read clearance from paper
0.1	Method for Goal: Read clearance from paper
0.51	1 T Decide: IF paper not visible, THEN move paper
	Decide: IF clearance must be read aloud or crew wants to read
	aloud THEN Read information on paper aloud and retain
7	2 T <clearance information="">, ELSE Read information on paper and</clearance>
	retain <clearance information=""></clearance>
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	2 retuin with goal accomplished

0.5	2 T Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
	IF clearance is crossing restriction with RTA. THEN Accomplish Goal: Enter
0.1	4 T mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember <menu key=""> = "Legs" and Accomplish</menu>
0.1	Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with
	goal accomplished
	Decide: IF speed restriction, THEN Retain <clearance< td=""></clearance<>
0.1	2 F value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Remember <menu key=""> = "/" and Accomplish Goal: Menu</menu>
0.1	key  Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1  2		
Nethod for Goal: Menu key		Remember <menu key=""> = next digit/character in</menu>
0.1  0.51  0.51  0.51  0.51  0.51  0.51  0.51  0.51  0.55  0.38  2 Press and release appropriate menu key 0.1  3 Return with goal accomplished 0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1	0.1	·
1 Recall <menu key=""> and point finger to appropriate menu key  0.1 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in exerved in the enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in exerved in e</menu></menu></menu>		·
0.51   1   appropriate menu key   0.38   2   Press and release appropriate menu key   0.1   3   Return with goal accomplished   0.1   3   T   Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2   Remember <menu key=""> = next digit/character in   0.1   2   <clearance value=""> and Accomplish Goal: Menu key   0.1   Method for Goal: Menu key   Method for Goal: Menu key   0.51   1   Recall <menu key=""> and point finger to appropriate menu key   0.38   2   Press and release appropriate menu key   0.1   3   Return with goal accomplished   0.1   3   F   Decide: IF more digits/character in restriction to enter, THEN GOTO Step 2   Decide: IF <clearance value=""> is an altitude or   0.1   4   T   speed with an above or below, THEN Selection Rule: At and above or below   Selection Rule for Goal: At and above or below   IF restriction is at or above, THEN   0.1   T   Remember <menu key=""> = "A" and Accomplish Goal: Menu key   0.1   Recall <menu key=""> = "A" and Accomplish Goal: Menu key   0.51   Recall <menu key=""> and point finger to appropriate menu key   0.38   Return with goal accomplished   0.1   3   Return with goal accomplished   0.1   3   Return with goal accomplished   0.1   3   Return with goal accomplished   0.1   5   Return with goal accomplished   0.51   5   Point finger to right line select key next to waypoint   0.38   6   Press and release right line select key next to waypoint   0.38   Contact   Co</menu></menu></menu></clearance></menu></clearance></menu>	0.1	
appropriate menu key   2   Press and release appropriate menu key   0.1   3   Return with goal accomplished   0.1   3   T   Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2   Remember xmenu key> = next digit/character in   2   xelearance value> and Accomplish Goal: Menu key   0.1   Method for Goal: Menu key   0.51   Recall xmenu key> and point finger to appropriate menu key   0.51   Recall xmenu key> and point finger to appropriate menu key   0.51   Return with goal accomplished   0.1   Retur	0.51	Recall <menu key=""> and point finger to</menu>
0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.1	0.51	appropriate menu key
0.1  3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2 Remember <menu key=""> = next digit/character in celearance value&gt; and Accomplish Goal: Menu key  0.1  0.1  0.1  0.1  0.1  0.2  Remember <menu key=""> = next digit/character in celearance value&gt; and Accomplish Goal: Menu key  0.31  0.51  0.51  1 Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.1  0.1  4 T speed with an above or below, THEN Selection Rule: At and above or below  0.1  5 Return with goal: At and above or below  IF restriction is at or above, THEN  0.1  1 Remember <menu key=""> = "A" and Accomplish Goal: Menu key  0.1  0.1  1 Recall <menu key=""> = "A" and Accomplish Goal: Menu key  0.1  0.1  1 Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate  menu key  0.1  3 Return with goal accomplished  0.1  3 Return with goal accomplished  0.1  5 Return with goal accomplished  0.5  6 Press and release right line select key next to waypoint</menu></menu></menu></menu></menu></menu>	0.38	
O.1   Semember   Sem	0.1	3 Return with goal accomplished
Remember <menu key=""> = next digit/character in  2</menu>	0.1	Decide: IF more digits/characters in restriction to
0.1  0.1  0.1  0.1  0.51  0.51  0.38  0.1  0.1  0.1  0.1  0.1  0.2  0.38  0.1  0.1  0.1  0.1  0.1  0.1  0.1  0.	0.1	enter, THEN GOTO Step 2
Nethod for Goal: Menu key		Remember <menu key=""> = next digit/character in</menu>
0.1  0.51  0.51  1 Recall <menu 0.1="" 0.38="" 2="" 3="" <a="" and="" appropriate="" characters="" decide:="" digits="" enter,="" fdoecide:="" goto="" href="Lection Rule" if="" in="" key="" menu="" more="" press="" release="" restriction="" step="" then="" to="">Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  0.1  4 T speed with an above or below, THEN Selection Rule: At and above or below  0.1  5 Selection Rule for Goal: At and above or below IF restriction is at or above, THEN 0.1  1 T Remember <menu key=""> = "A" and Accomplish Goal: Menu key 0.1  0.51  1 Recall <menu 0.1="" 0.38="" 3="" 5="" 6="" accomplished="" and="" appropriate="" finger="" goal="" key="" line="" menu="" next="" point="" press="" release="" return="" right="" select="" td="" to="" waypoint="" waypoint<="" with=""><td>0.1</td><td>2 <clearance value=""> and Accomplish Goal: Menu</clearance></td></menu></menu></menu>	0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 0.1 3 FDecide: IF more digits/characters in restriction to enter, THEN GOTO Step 2 Decide: IF <clearance value=""> is an altitude or speed with an above or below, THEN Selection Rule: At and above or below  0.1 0.1 0.1 1 TRemember <menu key=""> = "A" and Accomplish Goal: At and above or below  IF restriction is at or above, THEN  1 TRemember <menu key=""> = "A" and Accomplish Goal: Menu key  0.1 0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.1 0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</menu></menu></menu></clearance></menu>		key
1 appropriate menu key	0.1	Method for Goal: Menu key
O.38   2   Press and release appropriate menu key	0.51	Recall <menu key=""> and point finger to</menu>
O.1   3   F   Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2	0.51	appropriate menu key
0.1  3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2  Decide: IF <clearance value=""> is an altitude or  4 T speed with an above or below, THEN Selection Rule: At and above or below or below  1 F restriction is at or above, THEN  1 T Remember <menu key=""> = "A" and Accomplish Goal: Menu key  1 Recall <menu 0.1="" <menu="" for="" goal:="" key="" menu="" method="" recall=""> and point finger to appropriate menu key  0.38 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</menu></menu></clearance>	0.38	2 Press and release appropriate menu key
0.1 Decide: IF <clearance value=""> is an altitude or 0.1 Selection Rule: At and above or below, THEN Selection Rule: At and above or below 0.1 Selection Rule for Goal: At and above or below IF restriction is at or above, THEN 0.1 IT Remember <menu key=""> = "A" and Accomplish Goal: Menu key 0.1 Method for Goal: Menu key 0.1 Method for Goal: Menu key 0.1 Recall <menu key=""> and point finger to appropriate menu key 0.38 Press and release appropriate 0.1 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.5 Point finger to right line select key next to waypoint 0.38 6 Press and release right line select key next to waypoint</menu></menu></clearance>	0.1	3 Return with goal accomplished
Decide: IF <clearance value=""> is an altitude or  0.1  4 T speed with an above or below, THEN Selection Rule: At and above or below  0.1  Selection Rule for Goal: At and above or below  IF restriction is at or above, THEN  0.1  1 T Remember <menu key=""> = "A" and Accomplish Goal: Menu key  0.1  Method for Goal: Menu key  0.1  Recall <menu key=""> and point finger to appropriate menu key  0.38  2 Press and release appropriate menu key  0.1  3 Return with goal accomplished  0.1  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint</menu></menu></clearance>	0.1	Decide: IF more digits/characters in restriction to
0.1 Selection Rule: At and above or below, THEN Selection Rule: At and above or below  0.1 Selection Rule for Goal: At and above or below  IF restriction is at or above, THEN  0.1 1 T Remember <menu key=""> = "A" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  0.51 1 Recall <menu key=""> and point finger to appropriate menu key  0.38 2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</menu></menu>	0.1	enter, THEN GOTO Step 2
Rule: At and above or below  O.1  Selection Rule for Goal: At and above or below  IF restriction is at or above, THEN  O.1  1 T Remember <menu key=""> = "A" and Accomplish Goal: Menu key  O.1  Method for Goal: Menu key  O.51  1 Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key  O.1  3 Return with goal accomplished  O.1  5 Return with goal accomplished  O.1  5 Return with goal accomplished  O.51  5 Point finger to right line select key next to waypoint  O.38  6 Press and release right line select key next to waypoint</menu></menu>		Decide: IF <clearance value=""> is an altitude or</clearance>
O.1  Selection Rule for Goal: At and above or below  IF restriction is at or above, THEN  O.1  1 T Remember <menu key=""> = "A" and Accomplish Goal: Menu key  O.1  Method for Goal: Menu key  O.51  1 Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key  O.1  3 Return with goal accomplished  O.1  5 Return with goal accomplished  O.51  5 Point finger to right line select key next to waypoint  O.38  6 Press and release right line select key next to waypoint</menu></menu>	0.1	4 T speed with an above or below, THEN Selection
IF restriction is at or above, THEN  1 T Remember <menu key=""> = "A" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</menu></menu>		Rule: At and above or below
1 T Remember <menu key=""> = "A" and Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</menu></menu>	0.1	Selection Rule for Goal: At and above or below
Accomplish Goal: Menu key  0.1 Method for Goal: Menu key  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</menu>		IF restriction is at or above, THEN
0.1  0.51  Method for Goal: Menu key  Recall <menu key=""> and point finger to appropriate menu key  Press and release appropriate menu key  2  Press and release appropriate menu key  3  Return with goal accomplished  3  Return with goal accomplished  5  Return with goal accomplished  5  Point finger to right line select key next to waypoint  7  Press and release right line select key next to waypoint</menu>	0.1	1 T Remember < menu key> = "A" and
0.51  1 Recall <menu key=""> and point finger to appropriate menu key  2 Press and release appropriate menu key  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint</menu>		Accomplish Goal: Menu key
0.51  0.38  2 Press and release appropriate menu key  2 menu key  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint	0.1	Method for Goal: Menu key
0.38  2 Press and release appropriate menu key menu key  0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint	0.54	Recall <menu key=""> and point</menu>
0.38  2 menu key  0.1  3 Return with goal accomplished  0.1  3 Return with goal accomplished  5 Return with goal accomplished  0.51  5 Point finger to right line select key next to waypoint  0.38  6 Press and release right line select key next to waypoint	0.51	finger to appropriate menu key
0.1 3 Return with goal accomplished  0.1 3 Return with goal accomplished  0.1 5 Return with goal accomplished  0.51 5 Point finger to right line select key next to waypoint  0.38 6 Press and release right line select key next to waypoint	0.00	Press and release appropriate
0.1 3 Return with goal accomplished 0.1 5 Return with goal accomplished 0.51 5 Point finger to right line select key next to waypoint 0.38 6 Press and release right line select key next to waypoint	0.38	menu key
0.1     3     Return with goal accomplished       0.1     5     Return with goal accomplished       0.51     5     Point finger to right line select key next to waypoint       0.38     6     Press and release right line select key next to waypoint	0.1	3 Return with goal accomplished
0.1     5     Return with goal accomplished       0.51     5     Point finger to right line select key next to waypoint       0.38     6     Press and release right line select key next to waypoint	0.1	
0.51 5 Point finger to right line select key next to waypoint 0.38 6 Press and release right line select key next to waypoint		<u> </u>
0.38 6 Press and release right line select key next to waypoint	0.51	ě ·
· · · · · · · · · · · · · · · · · · ·		
	0.1	

0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.1	Remember < menu key> = "VNAV" and
0.1	1 Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.31	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "RTA" and Accomplish</keyword>
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line</keyword>
0.51	select key next to keyword
0.38	Press and release appropriate line select
0.30	key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = characters in waypoint and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to 1</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in  2 < clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	3 T Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Remember < menu key> = next digit/character in 2 < clearance value> and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.38	
0.1	3 Return with goal accomplished
0.1	3 F Decide: IF more digits/characters in restriction to enter, THEN GOTO Step 2
0.1	Decide: IF <clearance value=""> is an altitude or 4 F speed with an above or below, THEN Selection Rule: At and above or below</clearance>
0.1	5 Return with goal accomplished
0.1	Remember <keyword> = "RTA Waypoint" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	
0.1	

	. Retain <clearance value=""> = digits in clearance and</clearance>
0.1	4 Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
- 0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished

0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	3 T  IF clearance includes both RTA and other information, THEN Accomplish Goal: Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> = "Wilco," ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN  Retain <response> = "Wilco" ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
0.1	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu ke</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal:</keyword>
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.31	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keywor</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keywor</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
68.64	Total time

### **Trace 20 - Task 5, Data Comm**

Equipment: FMS 3

NGOMSL Trace: Cross HELPR at time 1800Z at or above FL190

Assumptions:

Clearance received by data communications (Data Comm)

Hands start on FMS

Entire clearance is read aloud upon receipt

When clearance is read from screen page one is 9 words ("Cross HELPR at time one eight zero zero Zulu")

and page two is 8 words ("At or above flight level one niner zero")

Clearance is two pages

Clearance is not printed upon receipt

Response is sent by FMS

Once opened, clearance remains open until clearance information is entered

Clearance information is remembered when entering the clearance

Desired waypoint is the third waypoint listed on the first page of the flight plan

It takes one mental to determine if non-RTA portion of clearance is acceptable or not

Non-RTA portion of clearance is acceptable and pilot will comply

RTA portion of clearance is acceptable and pilot will comply

There is clearance information to enter into the FMS

Time	Action
0.1	Method for Goal: Handle a clearance
0.1	1 Selection Rule: Receive a clearance
0.1	Selection Rule for Goal: Receive a clearance
0.1	1 T IF clearance is text, THEN Accomplish Goal: Receive an FMS clearance
0.1	Method for Goal: Receive an FMS clearance
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember < menu key> = "ATC" and Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember < keyword > = clearance to open and Accomplish Goal:
0.1	Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next</keyword>
0.51	to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	3 Accomplish Goal: Read the clearance
0.1	Method for Goal: Read the clearance
	Decide: IF clearance must be read aloud or crew wants to read
	aloud. THEN Read information on screen aloud and retain
3.8	1 T <clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
	Decide: IF there are no more pages of clearances. THEN Return
0.1	2 F with goal accomplished
	Remember < menu key> = "Next Page" and Accomplish Goal: Menu
0.1	key
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu ke</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	4 GOTO Step 1
	Decide: IF clearance must be read aloud or crew wants to read
2.4	aloud, THEN Read information on screen aloud and retain
3.4	1 T <clearance information="">, ELSE Read information on screen and</clearance>
	retain <clearance information=""></clearance>
0.1	Decide: IF there are no more pages of clearances, THEN Return
0.1	2 T with goal accomplished
0.1	4 F Decide: IF printed clearance is desired, THEN Selection Rule: Get printed cor
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Decide: IF clearance includes RTA, THEN Retain <response> = "Standby" and Selection Rule:</response>
0.1	Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: If hand not on FMS, THEN move hand to FMS
0.1	2 F Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keywor</keyword>
0.38	, , , , , , , , , , , , , , , , , , , ,
0.1	3 Return with goal accomplished
0.1	4 Remember <keyword> = "Send" and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	1 Recall <keyword> and point finger to line select key next to keywor</keyword>
0.38	
0.1	3 Return with goal accomplished

0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Accomplish Goal: Enter a clearance
0.1	Method for Goal: Enter a clearance
0.1	Decide: IF clearance is remembered, THEN Recall <clearance information="">, ELSE</clearance>
0.2	1 T Selection Rule: Method of reading
0.1	2 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	3 Selection Rule: Specific clearance type
0.1	Selection Rule for Goal: Specific clearance type
0.1	4 T IF clearance is crossing restriction with RTA, THEN Accomplish Goal: Enter mixed clearance
0.1	Method for Goal: Enter mixed clearance
0.1	1 Accomplish Goal: Enter crossing restriction
0.1	Method for Goal: Enter crossing restriction
0.1	1 Accomplish Goal: Locate waypoint
0.1	Method for Goal: Locate waypoint
0.1	Remember < menu key> = "Legs" and Accomplish  Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.82	2 Search for waypoint
0.1	Decide: IF waypoint is found, THEN Return with goal accomplished
0.1	Decide: IF speed restriction, THEN Retain <clearance 2="" f="" value=""> = digits in clearance and Accomplish Goal: Enter into scratchpad</clearance>
0.1	Remember <menu key=""> = "/" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

	Decidence for the contract of the
	Decide: IF altitude restriction, THEN Retain <clearance< td=""></clearance<>
0.1	4 T value> = digits in clearance and Accomplish Goal: Enter
	into scratchpad
0.1	Method for Goal: Enter into scratchpad
	Remember < menu key> = first digit/character in
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.54	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	
0.1	3 Return with goal accomplished
	Decide: IF more digits /characters in restriction to
0.1	3 T enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	· · · · · · · · · · · · · · · · · · ·
	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 T speed with an above or below, THEN Selection
0.1	Rule: At and above or below
0.1	Selection Rule for Goal: At and above or below
0.1	
0.1	IF restriction is at or above, THEN
0.1	1 T Remember <menu key=""> = "A" and</menu>
0.4	Accomplish Goal: Menu key
0.1	·
0.51	Recall <menu key=""> and point  1 figure to appropriate many leads</menu>
	finger to appropriate menu key
0.38	Press and release appropriate 2
	menu key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished

0.1	5 Return with goal accomplished
0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	2 Accomplish Goal: Enter RTA
0.1	Method for Goal: Enter RTA
0.1	1 Accomplish Goal: Go to RTA page
0.1	Method for Goal: Go to RTA page
0.4	Remember <menu key=""> = "VNAV" and</menu>
0.1	Accomplish Goal: Menu key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = "RTA" and Accomplish</keyword>
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line</keyword>
0.51	select key next to keyword
0.38	Press and release appropriate line select 2
	key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	Retain <clearance value=""> = characters in waypoint and</clearance>
0.1	Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in <clearance value=""> and Accomplish Goal: Menu</clearance></menu>
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key
	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	Decide: IF more digits/characters in restriction to
1	enter, THEN GOTO Step 2
	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	3 T Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key > = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.31	appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	enter, THEN GOTO Step 2
	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
	key
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
	Rule: At and above or below
0.1	5 Return with goal accomplished
	Remember < keyword> = "RTA Waypoint" and Accomplish
0.1	Goal: Line select key
0.1	Method for Goal: Line select key
	Recall <keyword> and point finger to line select</keyword>
0.51	1 key next to keyword
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished

	. Retain <clearance value=""> = digits in clearance and</clearance>
0.1	4 Accomplish Goal: Enter into scratchpad
0.1	Method for Goal: Enter into scratchpad
0.1	Remember <menu key=""> = first digit/character in</menu>
0.1	1 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	<u> </u>
0.1	key Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	• • • • • • • • • • • • • • • • • • • •
0.38	3 Return with goal accomplished
0.1	Remember < menu key> = next digit/character in
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	·
0.1	key Mathad for Goal: Manu kay
0.1	Method for Goal: Menu key  Recall <menu key=""> and point finger to</menu>
0.51	1
0.38	appropriate menu key  2 Press and release appropriate menu key
0.38	
0.1	
0.1	Decide: IF more digits/characters in restriction to
	enter, THEN GOTO Step 2
0.1	Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key  Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	
0.38	appropriate menu key  2 Press and release appropriate menu key
0.38	
0.1	3 Return with goal accomplished Decide: IF more digits/characters in restriction to
0.1	3 T
	enter, THEN GOTO Step 2  Remember <menu key=""> = next digit/character in</menu>
0.1	2 <clearance value=""> and Accomplish Goal: Menu</clearance>
0.1	key
0.1	Method for Goal: Menu key
0.1	Recall <menu key=""> and point finger to</menu>
0.51	1 appropriate menu key
0.38	
0.38	3 Return with goal accomplished
0.1	Decide: IF more digits/characters in restriction to
0.1	3 F enter, THEN GOTO Step 2
	Decide: IF <clearance value=""> is an altitude or</clearance>
0.1	4 F speed with an above or below, THEN Selection
0.1	Rule: At and above or below
0.1	
0.1	5 Return with goal accomplished

0.51	5 Point finger to right line select key next to waypoint
0.38	6 Press and release right line select key next to waypoint
0.1	7 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Selection Rule: Decide on a clearance
0.1	Selection Rule for Goal: Decide on a clearance
0.1	IF clearance includes both RTA and other information, THEN Accomplish Goal:
	Determine whether mixed clearance is acceptable
0.1	Method for Goal: Determine whether mixed clearance is acceptable
0.1	1 Accomplish Goal: Determine whether non-RTA clearance is acceptable
0.1	Method for Goal: Determine whether non-RTA clearance is acceptable
1.3	1 Determine whether non-RTA clearance is acceptable
0.2	Decide: IF clearance is acceptable, THEN Retain <response> =</response>
	2 T "Wilco," ELSE Retain <response> = "Unable"</response>
0.1	3 Return with goal accomplished
0.1	2 F Decide: IF <response> = "Unable," THEN Return with goal accomplished</response>
0.1	3 Accomplish Goal: Determine whether RTA clearance is acceptable
0.1	Method for Goal: Determine whether RTA clearance is acceptable
0.1	1 F Decide: IF not on RTA page, THEN Accomplish Goal: Go to RTA page
1.4	Decide: IF RTA is between minimum and maximum RTAs, THEN
	Retain <response> = "Wilco" ELSE Retain <response> = "Unable"</response></response>
0.1	3 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	4 Return with goal accomplished
0.1	Decide: IF <response> = "Wilco" and there is clearance information to enter into the FMS,</response>
	THEN Remember <menu key=""> = "Exec" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	1 Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished

0.1	6 Selection Rule: Respond to a clearance
0.1	Selection Rule for Goal: Respond to a clearance
0.1	2 T IF responding by FMS, THEN Accomplish Goal: Respond by FMS
0.1	Method for Goal: Respond by FMS
0.1	1 F Decide: IF hand not on FMS, THEN move hand to FMS
0.1	2 T Decide: IF clearance is not open, THEN Accomplish Goal: Open clearance
0.1	Method for Goal: Open clearance
0.1	1 Remember <menu key=""> = "ATC" and Accomplish Goal: Menu key</menu>
0.1	Method for Goal: Menu key
0.51	Recall <menu key=""> and point finger to appropriate menu key</menu>
0.38	2 Press and release appropriate menu key
0.1	3 Return with goal accomplished
0.1	Remember <keyword> = clearance to open and Accomplish Goal: Line select key</keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	3 Remember <keyword> = <response> and Accomplish Goal: Line select key</response></keyword>
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to keyword</keyword>
0.38	2 Press and release appropriate line select key
0.1	3 Return with goal accomplished
0.1	4 Remember < keyword> = "Send" and Accomplish Goal: Line select key
0.1	Method for Goal: Line select key
0.51	Recall <keyword> and point finger to line select key next to</keyword>
0.38	keyword  2 Press and release appropriate line select key
0.38	3 Return with goal accomplished
0.1	5 Return with goal accomplished
0.1	3 Return with goal accomplished
0.1	7 F Decide: IF there are more clearances, THEN GOTO Step 1
0.1	8 Return with goal accomplished
55.92	

## **Appendix C: CogTool Model for Receiving and Entering Clearances**

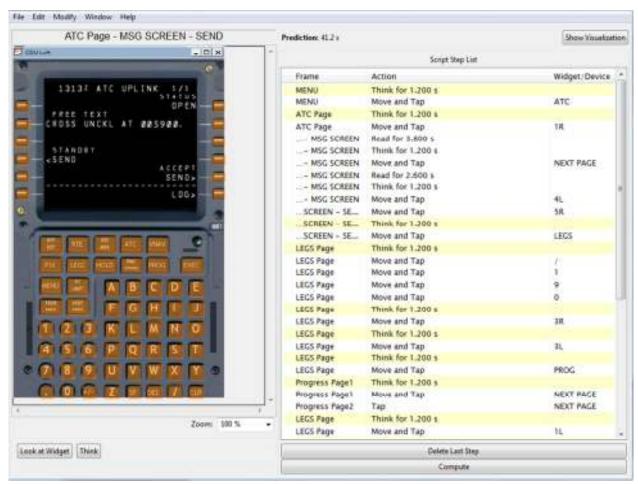


Figure C.1. FMS 2, Trace 16 - CogTool Task Representation

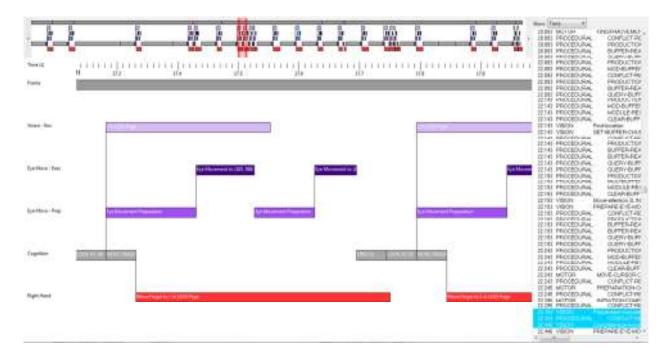


Figure C.2. FMS 2, Trace 16 – CogTool Trace

# **Appendix D: SANLab-CM Model for Receiving and Entering Clearances**

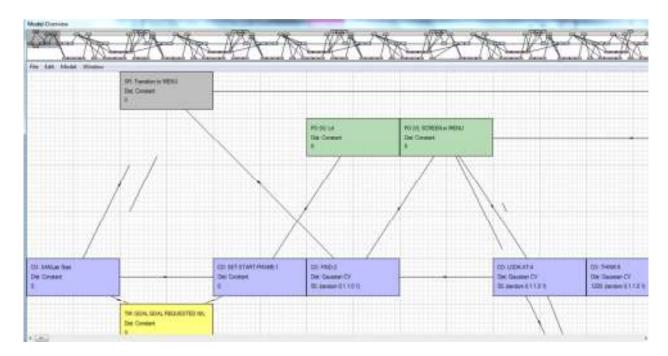


Figure D.1. FMS 3, Trace 11 - SANLab-CM Trace