

REPORT NO. DOT-TSC-FAA-72-10

AD 744876

A SURVEY TO DETERMINE FLIGHT PLAN DATA AND FLIGHT SCHEDULING ACCURACY

JOHN R. COONAN
TRANSPORTATION SYSTEMS CENTER
55 BROADWAY
CAMBRIDGE, MA. 02142

JANUARY 1972
TECHNICAL REPORT

transpo72
U.S. International Transportation Exposition
Dulles International Airport
Washington, D.C.
May 27-June 4, 1972



Availability is Unlimited. Document may be Released
To the National Technical Information Service,
Springfield, Virginia 22151, for Sale to the Public.

Prepared for
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, D. C. 20591

The contents of this report reflect the views of the Transportation Systems Center which is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policy of the Department of Transportation. This report does not constitute a standard, specification or regulation.

1. Report No. DOT-TSC-FAA-72-10	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle A SURVEY TO DETERMINE FLIGHT PLAN DATA AND FLIGHT SCHEDULE ACCURACY		5. Report Date January 1972	6. Performing Organization Code
		8. Performing Organization Report No.	
7. Author(s) John R. Coonan		10. Work Unit No. R2137	
9. Performing Organization Name and Address Department of Transportation Transportation Systems Center 55 Broadway, Cambridge, MA 02142		11. Contract or Grant No. FA206	
		13. Type of Report and Period Covered Technical Report	
12. Sponsoring Agency Name and Address Department of Transportation Federal Aviation Administration Washington, D.C. 20590		14. Sponsoring Agency Code	
		15. Supplementary Notes	
16. Abstract This survey determined Operational Flight Plan Data and Flight scheduling accuracy vs. published schedules and/or stored flight plan data. This accuracy was determined by sampling tracer flights of varying lengths, selected terminals, and high altitude sectors; then comparing this data with stored computer data, thus, revealing average delay areas. This information will aid operational analysts and programmers to construct flow control software programs.			
17. Key Words Flow Control, Terminals, enroute, sectors, position reports		18. Distribution Statement Availability is Unlimited. Document may be Released To the National Technical Information Service, Springfield, Virginia 22151, for Sale to the Public.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 125	22. Price



TABLE OF CONTENTS

	Page
INTRODUCTION.....	1
BACKGROUND.....	2
Report Format.....	4
TRACER FLIGHT EVALUATION.....	6
UA6.....	7
AA14.....	8
UA23.....	9
TWA842.....	10
UA921.....	11
NA408.....	11
NE21.....	12
TERMINAL EVALUATION.....	15
Chicago O'Hare (Sunday, 24 October 1971).....	15
Miami International (Wednesday, 27 October 1971)....	16
Los Angeles (Monday, 8 October 1971).....	17
St. Louis Municipal (Thursday, 21 October 1971).....	17
Philadelphia (Tuesday, 19 October 1971).....	18
Washington National (Friday, 15 October 1971).....	19
Atlanta (Friday, 15 October 1971).....	19
ENROUTE EVALUATION.....	21
OVERALL EVALUATION.....	26
Tracer Flights.....	26
Terminal Evaluation.....	26
Enroute Evaluation.....	27
APPENDIX A.....	A-1
APPENDIX B.....	B-1
APPENDIX C.....	C-1

Preceding page blank

ACKNOWLEDGEMENTS

The Transportation Systems Center (TSC) wishes to express appreciation to:

- The Personnel of MS-500 who researched and developed the prototype Central Flow Computer Model.
- Paul H. Petersen, FAA, RD152, who helped plan and carry out the operational data gathering.
- FAA personnel of the Central Flow Control Facility, AT402 and RD152 for the time and effort expended with the TSC investigators.

Preceding page blank



GLOSSARY OF ACRONYMS, ABBREVIATIONS AND TERMS

AIRS.....	Advanced Information Retrieval System - A flow control software model developed by DOT's Transportation Systems Center at Cambridge, Mass. for use in the Central Flow Control Facility in Hqs. FAA.
ARTCC.....	Air Route Traffic Control Center. Also called Center or Enroute Center. This operating facility provides air traffic control service to airplanes operating on Instrument Flight Rules (IFR) within controlled airspace. There are twenty-one in the U.S. Their abbreviation is three-lettered preceded by a Z., e.g., ZDV, Denver, ZMA Miami.
CFCF(CF ²).....	Central Flow Control Facility at Hqs. FAA.
Delay.....	Delay used in this report should not be assumed to be an air traffic control delay. In fact, most of the gate time late departures could be attributed to the company involved.
Fix.....	A geographical reference determined either visually, by reference to one or more radio aids, by celestial plotting or other navigation devices.
Fix Posting.....	A fix used in an air traffic control facility to check progress of flight.
Gate Time.....	In this report Gate Time was the OAG time published in the Official Airline Guide. It was used interchangeably with PTD (proposed time of departure) and PTA (planned time of arrival).
Location Identifiers...	See FAA's Manual Order 7350.lu, Title Location Identifiers.
NAS.....	National Airspace System
OAG.....	Official Airline Guide
PDP10.....	A computer
PTA.....	Planned time of arrival
PTD.....	Proposed time of departure Both PTA and PTD are the times used in the OAG and in this report as a bench mark to establish delays.
Sector.....	A geographical subdivision of an ARTCC's geographical area.

Preceding page blank

GLOSSARY OF ACRONYMS, ABBREVIATIONS AND TERMS (CONTINUED)

SID..... Standard Instrument Departure route
TD..... Touchdown
TO..... Takeoff
TSC..... Department of Transportation, Transportation Systems Center, Cambridge, Mass.

INTRODUCTION

The Transportation Systems Center, Cambridge, MA was tasked under Task I, FY'72 PPA - FA206 to report on the accuracy of current flight data and flight scheduling. This survey was directed specifically towards evaluating current data and by determining inaccuracies, factor into automated flow control software, values that would negate or decrease the degree of inaccuracy. Secondly, evaluate the current automated model now used in the Central Flow Control Facility. Thirdly, provide data for programmers, operations analysts and contractors who may be working on the automation of the Central Flow Control Facility.

The utopian desire would be to have negative inaccuracies, constantly up-dated flight information and zero error scheduling. Those well acquainted with air operations, air traffic control and ATC management are aware that this is impossible. There are too many variables in the system and any combination of two or more variables can negate the best laid plans of management.

BACKGROUND

The growth of air travel during the 1960's in the United States has created situations in major terminal areas where the demand on the National Airspace System (NAS) exceeds the system's aircraft processing capacity, especially during periods of bad weather. These situations place untenable demands on both controller ability and physical capacity causing extensive delay to aircraft, both enroute and at terminals. Aircraft being delayed enroute require additional service from controllers, thus increasing the workload. If aircraft continue to converge on a problem area, the airspace becomes saturated. When this condition is reached, the Air Route Traffic Control Center will halt acceptance of flights from adjoining centers, thus causing flights to be held in that area. This type of action soon causes a chain reaction which can involve centers from coast to coast.

It became apparent that a National coordination facility was needed to oversee aircraft flow among centers. Therefore, the Central Flow Control Facility (CFCF) was established in April 1970 with the objective of balancing National aircraft flow to minimize delays to the user without exceeding controller capacity and using safe and acceptable procedures.

Staffed with a limited number of controllers, CFCF began coordinating with flow controllers in the centers to resolve problems involving three or more centers. The Central Flow controller soon found that he needed information to help him forecast problem areas. In essence, he discovered he must do more than just react to problems. He must be able to forecast where and when problems will occur to take actions minimizing their severity.

The Air Traffic Service turned to several agency elements for help with the forecasting delay situations problem. The Office of Management Systems was asked to develop concepts for flow management and, if possible, provide a tool for interim use in forecasting delay.

Rather than repeat history, it is suggested to the reader that he obtain a copy of the FAA unnumbered report, Subject: "Toward Developing An Improved Central Flow Management System" dated October 1971. This document not only contains all the historical data but has a prototype model

of enroute and terminal forecasts. The model was developed by the FAA's Office of Management Systems, Management Analysis Division. Although the two models developed have limitations they provided a positive step toward meeting the requirement. Both models are time-shared computer based. The data base is the Reuben Donnelley Magnetic Tapes. Reuben H. Donnelley Corp. are publishers of the Official Airline Guide.

The time shared equipment terminates in Hqs. FAA's ATC System Command Center and specifically in the Central Flow Control Facility. The Transportation Systems Center assumed operational responsibility for the system in October 1971. The interim plan is to upgrade the system until such time as a dedicated computer, tied in to the NAS system, can be programmed to readily obtain constantly up-graded flight information for a National Flow Control Program. The upgrading of the current model has been initiated for the terminal model. It is known as "AIRS" (Advanced Information Retrieval System). It has been transferred from the MS Model computer equipment to a commercial time shared computer facility utilizing a PDP-10. It has been refined so its operational use by Central Flow Control Facility (CFCF) controllers has been simplified. It has been made more flexible and is in a constant upgrade posture and responsive to the needs of the controllers.

During this task, the original MS-500 Model was used as a bench mark to evaluate selected live operational data. FAA Headquarters in a letter dated 4 October 1971, directed selected enroute centers and terminals to collect data. Tracer Flights were identified and data collected for 14 consecutive days. Terminals and enroute sectors were identified by day and time of day to provide positive information. The times selected were during normal busy or peak periods so a good sampling could be obtained.

The information requested from the field units arrived in many different formats. A good percentage came in on FAA flight strips. The required information was then extracted and set up in tabular form similar to the output of the MS Model. This facilitated comparative analysis. The basic raw data will be on File in FAA Hqs, RD 152 and also at TSC, Code PTF, Cambridge, Mass. The extracted data will appear in Appendix A, B, and C of this report. During the analysis of the data the principal investigator conferred with at least twenty experienced controllers who provided expertise and assisted in the clarification of the data. They were particularly valuable in identifying situations and peculiarities of specific locations where they themselves had experience. Airline pilots, air operations specialists, general aviation

specialist were consulted on an informal basis and their contributions are also reflected in this report.

In addition, the author was involved in the evaluation of Advanced Flow Control Procedures (AFCP) for the New York Terminal Area. On 5 February 1971, AFCP was used. The final report has been published and is available.

Title: "Evaluation of the FAA Advanced Flow Control Procedures, dated January 1972. Report No. DOT-TSC-FAA-72-8.

REPORT FORMAT

The following three sections will be devoted to the evaluation of the three types of data collected. This will be followed by a section devoted to overall recommendations and conclusions.

The Official Airline Guide (OAG) is the data base for the MS Model and for the current TSC model and will probably continue to be until such time as NAS computers can be used by a dedicated computer in the Central Flow Control Facility (CF2). The actual data collected will be compared with OAG outputs from the MS Model for accuracy.

Tracer Flights

These flights should reveal the accuracy of flight scheduling plus delay factors in the different segments of flight. It should also show deviations of flight.

Terminal Arrivals

This data should reveal not only arrival delays but also the accuracy of OAG data in regards to identification of flights and numbers of flights.

Sector Loads

The MS sector model does not contain all the scheduled enroute flights. However, it does in many sectors have a sufficiency of flights that it can be used for sector analysis. This will be discussed more in detail in the sector analysis section of this report.

All Others - In the Arrival Output

All others includes General Aviation and Military aircraft. This figure was furnished by the FAA based on historical data.

OAG Arrival - Departure Times

The arrival and departure times listed in the OAG are supplied to the Reuben H. Donnelley Corporation by the air carriers themselves. The departure - arrival times are times leaving the passenger loading and unloading docks. It includes taxi-times, and other factors such as normal takeoff and arrival delays that the air carrier has experienced and the "fudge" factor is high. A comparison will be made in the Tracer Flight section and should be self-explanatory.

TRACER FLIGHT EVALUATION

The FAA data collection letter requested that the following information be provided on the flights listed below for 14 days beginning 15 October 1971.

1. Original Flight Plan
2. Flight Plan Origin
 - a. Bulk Storage Files
 - b. Area B
 - c. Airline B
 - d. Service F
3. Revised Flight Plan (if any)
4. Gate Departure Time
5. Departure Clearance
6. Take Off Time
7. Time Over Fix Postings
8. Landing Time
9. Gate Arrival

<u>IDENT</u>	<u>DEPARTURE TERMINAL</u>	<u>ARRIVAL TERMINAL</u>	<u>SCHEDULED DEPARTURE TIME (Z)</u>
UA6	LAX	JFK	1630
AA 14	SFO	JFK	1600
UA 23	JFK	SFO	1330
TW 842	ORD	JFK	1930
UA 921	LGA	ORD	2000
NA 408	MIA	EWR	1900
NE 21	JFK	MIA	2100

Most of the enroute centers and terminals supplied the information requested. Unfortunately, the Chicago Center misinterpreted the request and on the transcontinental flights, we have a gap of information. The Appendices contain detailed charts depicting the history of each flight.

UA6

Los Angeles to JFK, departing 1630Z, arriving 2045Z, enroute time 5 plus 15.

Flight Plan Origin.....Airline B - 14 days
Bulk Storage - 1 day

Revised Flight Plan.....5 days and within ZLA area.

Gate Departure Time.....The gate departure time was late
(OAG 1630Z) on all occasions. One flight delayed 3 hours and 20 minutes due to mechanical failure. Exclusive of this flight the average delay time was 8 minutes.

Takeoff Time.....The average proposed departure time (PTD) to actual takeoff was 16 minutes, exclusive of the delayed flight.

Route of Flight.....For 12 of the 15 days the route of flight was basically the same. A few minor deviations were noted enroute but not enough to be significant.

Time Enroute.....Once the aircraft completed its
(T.O. - T.D.) departure maneuvers and reached cruising altitude there was no evidence of delay enroute until the aircraft reached the center of destination and the terminal area. Exclusive of four aircraft that experienced terminal holding the shortest enroute time was 4 plus 28. Terminal delays for the 4 aircraft were 60', 30', 30', 31'.

Gate to Gate Time.....Excluding the 4 aircraft that
(OAG - 5 + 15) had terminal delay the time

varied from 4 plus 37 to 5 plus 15 with the average being 5 plus 2.

AA 14

San Francisco to JFK, departing 1600Z, arriving 2133Z, enroute time 5 plus 33.

Flight Plan Origin.....Airline "B" for all flights

Revised Flight Data.....No revisions

Gate Departure Time.....The gate departure time was late
(1600Z OAG) except for 3 flights. The longest delay was 19 minutes. The average delay was 6 minutes.

Takeoff Time.....The average PTD to takeoff time was 13 minutes.

Route of Flight.....This flight used two basic routes, either a SAC5-J32 route or a LIN6-J84 route. The SAC5 route proceeds north easterly from SFO to Battle Mountain, Lucin, Rock Springs and a way point 40 miles north of Cheyenne. This route was used 5 days. The Linden 6 route is to North Tonapah, easterly to Cheyenne and then to 4KE (Key, Nebraska). This was used 10 days. Because of limited information from Chicago ARTCC, it was impossible to determine the exact route of flight until the Cleveland ARTCC was entered. There appeared to be minor deviations in the route of flight but none of significance. All flights departed the Cleveland Area to NYARTCC via JHW (Jamestown, N.Y.) to 9LZ and then to 9EM.

Time Enroute.....The fastest time reported was 4
(T.O. - T.D.) plus 44, the slowest 5 plus 36. Six aircraft were delayed in the NY terminal area from 20 to 30

minutes. The average enroute time was approximately 5 plus 10 minutes.

Gate to Gate.....Gate to gate line varied from a minimum of 5 plus 4 to 5 plus 49. The average time was approximately 5 plus 30.
(OAG 5 + 33)

UA 23

JFK to San Francisco, departing 1255Z, arriving 1855Z, enroute time 6 plus 00.

Flight Plan Origin.....Service F

Revised Flight Plans.....Service F, but no indication from flight data that the flights were revised.

Gate Departure Time.....This flight generally departed the gate within 3 to 5 minutes of scheduled time. The average delay time was 4 minutes.
(1255Z OAG)

Takeoff Time.....The average PTD to takeoff time was 20 minutes.

Route of Flight.....Two Sids were used. Freehold Sid was via RBV (Robbinsville), PSB (Phillipsburg, Pa.) to Cle, (Cleveland). This was used 11 times. Oakwood Sid was via HUG (Hugenot) 70G (Oswego, N.Y. Int.) with negative reports from Cleveland or Chicago ARTCC. The Freehold departure aircraft were next picked up in the Denver area at HCT (Hayes City, Kansas, Vortac) and then proceeded over Denver to Grand Junction Colorado. The two Oakwood departures flying north of the other route were picked up at ONL (O'Neil Neb. Vortac) and at Cheyenne and Rock Springs Wyoming. The Salt Lake Center fix postings were not complete but it seemed that the

bulk of the flights flew over MLF (Milford, Utah), TPH (Tomapah) and into ZOA. The two flights flying north of this route came over OGD (Ogden).

Time Enroute.....The time enroute varied from a low of 5 plus 22 to a high of 5 plus 53 with an average of 5 plus 34 enroute. Most flights experienced a terminal delay from 15 to 30 minutes.
(T.O. - T.D.)

Gate to Gate.....Gate to Gate time varied from 5 plus 35 to 6 plus 32. The average time was 5 plus 54.
(OAG 6 + 00)

TWA 842

Chicago to JFK, departing 1930Z, arriving 2142Z, time enroute 2 plus 12.

Flight Plan Origin.....Bulk Storage Files

Revisions.....None

Gate Departure Time.....For all but one day, the gate departure was 1930Z. The exception was one day at 2015Z. One would doubt this accuracy but with no evidence to the contrary it is accepted for this survey.

Takeoff Time.....The average PTD to takeoff time was 18 minutes.

Route of Flight.....The records indicate that the route of flight did not change for 14 days.

Time Enroute.....Time enroute varied from a minimum of 1 plus 36 to a maximum of 2 plus 26. The average enroute time was 1 plus 50. eight aircraft experienced terminal delay from 10 to 30 minutes.
(T.O. - T.D.)

Gate to Gate.....8 of the 14 flights exceeded the
(OAG 2 + 12) OAG time. The minimum gate to
gate time was 2 plus 07, the
maximum 2 plus 48.

UA 921

LaGuardia to Chicago - departing 2000Z, arriving 2220Z,
enroute time 2 plus 20.

Flight Plan Origin.....Service F

Flight Plan Revisions.....None

Gate Departure Time.....The gate departure time was late
(OAG - 2000Z) each day from a minimum of 4
minutes to a maximum of 9. The
average delay time was 6 minutes.

Takeoff Time.....The average PTD to takeoff time
was 18 minutes.

Route of Flight.....For 13 consecutive days the
route of flight remained the
same. The flight was not
scheduled on the 16 and 23 of
October.

Time Enroute.....Flight time varied from 1 plus
(TO - TD) 39 to a maximum of 2 plus 22.
Excluding the one flight of 2
plus 22 the average flight time
was 1 plus 47. Only one aircraft
experienced terminal holding. It
was 30 minutes.

Gate to Gate Time.....The time varied from a minimum
of 1 plus 54 to a maximum of 2
plus 37. With the average time
of 2 plus 7.

NA 408

Miami to Newark, departing 1900Z, arriving 2159Z, time
enroute 2 plus 59.

Flight Plan Origin.....Service F

Revised Flight Plan.....None

Gate Departure Time.....On two days of the 15 days surveyed, the flight was cancelled. Once for mechanical difficulties and the other for lack of equipment. For 8 of the 13 days, gate departure time was on time. The maximum delay for the remaining 5 flights was 10 minutes.
(OAG 1900Z)

Takeoff Time.....The average PTD to actual take-off time was 12 minutes.

Route of Flight.....10 of the 13 flights filed Miami over the water to Wilmington. The three others filed the inland route to Wilmington to avoid thunderstorm activity over the water. The remainder of the flights for all aircraft was over Richmond to Nottingham. At this point, NYARTCC and Newark Tower, due to a misunderstanding failed to follow the remainder of the flight. From CATER records, seven arrival times at EWR were obtained.

Time Enroute.....For the seven flights that had an arrival time, we had a minimum enroute time of 2 plus 4 and a maximum of 2 plus 33 for an average of 2 plus 21. There was no indication of delay enroute.
(TO - TD)

Gate to Gate Time.....Gate time at EWR not available.

NE 21

JFK to Miami, departing 2100Z, arriving 2345Z, time enroute 2 plus 45.

Flight Plan Origin.....Bulk Storage Files

Revised Flight Plans.....None (Service F)

Gate Departure Time.....Gate Departure Time ranged from a low of 2100Z to 2114Z with an
(OAG 2100Z)

average time of 6 minutes. On 15 October, the flight departed at 2313Z. No given reason for the delay.

Takeoff Time.....The Average PTD to takeoff time was 15.5 minutes. This was exclusive of the late departure mentioned above.

Route of Flight.....For 15 days there was no known deviation in the route of flight. All departed via the Manta Sid and used the Manta Intersection, Willard's Intersection, over Norfolk to Wilmington and offshore to Miami.

Time Enroute.....Time enroute varied from a minimum of 2 plus 8 to a maximum of 2 plus 29. The average flight time was 2 plus 18. Although on a few days there were offshore thunderstorms north, northeast of Miami, the flights were able to top or avoid the activity without a reroute.

Gate to Gate Time.....The average gate to gate time (OAG 2 + 45) was 2 plus 32.

Findings

1. The OAG uses gate to gate time. The survey showed that most of the time, the time span was excessive. The air carriers have their reasons for doing it this way and at this time is no concern of ours, except that a program that used OAG data as a data base, must factor in to their program, time elements, that will compensate for it.
2. The flights surveyed usually left the gate late. The average varied at different terminals. To a program that uses the OAG PTD (proposed departure time) as an actual departure time, the factor could vary from 15 to 20 minutes.
3. High altitude flights are not usually delayed enroute unless weather such as line thunderstorms or reported areas of clear air turbulence cause rerouting or the terminal of destination is saturated and the enroute center has imposed restrictions.

4. Delays generally occur in the terminal area.
5. Short flights up to 1000 miles generally fly the same route each day. Again, weather or reported traffic congestion will cause rerouting.
6. Transcontinental flights fly pressure patterns and will take advantage of the "jet stream" or attempt to avoid it going westbound. This does cause some deviation in flight patterns. However, the patterns that the air carriers fly on any given day on the long distance hauls are generally planned well in advance and are obtainable from air carrier dispatchers.
7. There was no indication discernible to the investigator, either for or against, that showed that pilots attempted to make up for lost time. Most of the differences in flight times along the same route of flight could be attributed to winds aloft.
8. Once the aircraft cleared the terminal area and reached cruising altitude, the further pilot position reports and center estimates over fixes matched consistently.

TERMINAL EVALUATION

The following information was requested for the terminals and time periods listed:

1. Arrival times of all aircraft by identification (one day only)
2. Prevailing weather conditions during the period
3. Landing departing direction/runway combination(s)

<u>TERMINAL</u>	<u>DAY</u>	<u>(LOCAL) TIME PERIOD</u>
ORD	SUN	1700-1900
MIA	WED	1200-1300
LAX	MON	1800-2000
STL	THUR	1200-1400
PHL	TUE	1600-1800
DCA	FRI	0800-1000
ATL	FRI	1700-1900

The detailed data for the terminals is included in Appendix B. What follows here is a comparative analysis of the MS Model and actual conditions.

CHICAGO O'HARE (SUNDAY, 24 OCTOBER 1971)

O'Hare weather: 1800 CDT Measured ceiling three hundred overcast, visibility one mile, very light drizzle, fog, temperature six three, dew point five seven, wind zero six zero degrees, nine knots, altimeter two nine nine five, ceiling ragged.

Airport configuration during this time period. Landing on parallel runways 14. Departing on parallel runways 9.

During the two hour period, 132 aircraft were landed. The model called out 118 aircraft plus a factor of 17 for

others. There was a match or correlation of 88. If one adds 17 others to 88 it totals to 105 as opposed to 132 that actually landed. Below is a breakdown of the traffic:

Time	Model			Actuals
	Airc	Others		
2200Z-2230Z	27	4	= 31	32
2230Z-2300Z	35	5	= 40	32
2300Z-2330Z	27	4	= 31	37
2330Z-0000Z	<u>29</u>	<u>4</u>	= <u>33</u>	<u>31</u>
	118	+	17 = 135	132

There were 29 scheduled flights in the model that did not appear in the actual count. There were 22 flights of major air carriers that actually landed but were not in the model. So one might say, numerically, the two counts were not too far apart, i.e., 135 versus 132, but specifically, they were not that close. In other words, if one desires positive identification of flights, with the exception of others, we did not have it on this day.

MIAMI INTERNATIONAL (WEDNESDAY, 27 OCTOBER 1971)

Weather: Clear, 7 miles visibility

Landing Runways: 27L, 27 R and 30

During the one hour period, 39 aircraft landed at Miami as opposed to 32 in the model. The other factor was 6 for a total of 38. There was a match of 21 aircraft. Below is a detailed breakdown:

Time	Model			Actuals
	Airc	Others		
1600Z-1630Z	16	3	= 19	18
1630Z-1700Z	<u>16</u>	<u>3</u>	= <u>19</u>	<u>21</u>
	32	+	6 = 38	39

There were 11 scheduled flights in the model that did not appear in the hourly actual traffic. There were 8 flights of major air carriers that landed but did not appear in the model hourly output.

LOS ANGELES (MONDAY, 8 OCTOBER 1971)

Weather: High scattered, visibility 20 miles, winds 270, 12 knots

Runways: 25 L, 25 R, except for 16 aircraft that utilized 24 L and 24 R.

During the two hour period 92 aircraft were actually landed. The model identified 92 with a factor of 17 for all others. Breakdown as follows:

Time	Model			Actuals
	Airc	Others		
0100Z-0130Z	17	3 =	20	17
0130Z-0300Z	26	5 =	31	25
0200Z-0230Z	23	4 =	27	20
0230Z-0300Z	<u>26</u>	<u>5 =</u>	<u>31</u>	<u>30</u>
	92	+ 17 =	109	92

There was a match of 64 flights. 28 flights of the model did not arrive in the two hour period. 23 major flights landed that were not in the model output.

ST LOUIS MUNICIPAL (THURSDAY, 21 OCTOBER 1971)

Weather: 600 scattered, Measured 1000 overcast, visibility 2 1/2 miles, light rain and fog.

Runways: 24, one general aviation landed 12 L.

During the two hour period, 49 aircraft were landed. The model forecasted 38 flights with a factor of 10 for all others. The match was 28. Breakdown is as follows:

<u>Model</u>					Actuals
Time	Airc	Others			
1700Z-1730Z	8	2	=	10	11
1730Z-1800Z	7	2	=	9	12
1800Z-1830Z	9	2	=	11	14
1830Z-1900Z	<u>14</u>	<u>4</u>	=	<u>18</u>	<u>12</u>
	38	+	10	= 48	49

Nine flights in the model were not identified in the actuals. 7 flights of major flag carriers were not identified with the model.

PHILADELPHIA (TUESDAY, 19 OCTOBER 1971)

Weather: Clear, Visibility 12 miles, wind 080, 10 knots.

Runways: 17 and 9

76 aircraft were landed during the two hour period. The model called out 45 flights with a factor of 14 for others. The breakdown is as follows:

<u>Model</u>					Actuals
Time	Airc	Other			
0200Z-2030Z	6	2	=	8	14
2030Z-2100Z	14	4	=	18	25
2100Z-2130Z	16	5	=	21	23
2130Z-2200Z	<u>9</u>	<u>3</u>	=	<u>12</u>	<u>14</u>
	45	+	14	= 59	76

The match was 31 flights. 15 flights of the model were not identified in the actuals. 8 actual flights of flag carriers were not identified by the model. The other traffic (actual) was higher than forecasted by the model; 32 versus 14.

WASHINGTON NATIONAL (FRIDAY, 15 OCTOBER 1971)

Weather: Clear, visibility 6-7 miles, wind 4 knots or less.

Runways: 3, 36 and 33.

During the two hour period, 58 aircraft were landed. The model called out 46 plus a factor of 8 for a total of 54. The match was 36. The breakdown was as follows:

Time	Model			Actuals
	Airc	Other		
1200Z-1230Z	11	2 =	13	19
1230Z-1300Z	11	2 =	13	14
1300Z-1330Z	17	3 =	20	19
1330Z-1400Z	<u>7</u>	<u>1</u> =	<u>8</u>	<u>16</u>
	46 +	8 =	54	58

11 air carrier aircraft in the model did not appear in the actual traffic. 5 air carrier actually landed but were not in the model. 29 general aviation aircraft landed versus the 8 forecasted in the model.

ATLANTA (FRIDAY, 15 OCTOBER 1971)

Weather: 2055Z - 1200 scattered, estimated 2800 broken, 12,000 broken, visibility 8 miles.

2154Z - 1600 scattered, estimated 2800 broken, visibility 10 miles.

2255Z - 1600 scattered, 30,000 scattered,
10 miles.

Runways: 9 L and 9 R for both arrivals and takeoffs.

During the two hour period, 83 aircraft arrived. The model called out 79 with a factor of 16 for all others. The match was 61. Detailed breakdown as follows:

Time	Model			Actuals
	Airc	Other		
2100Z-2130Z	37	7 =	44	30
2130Z-2200Z	15	3 =	18	26
2200Z-2230Z	9	2 =	11	11
2230Z-2300Z	<u>18</u>	<u>4</u> =	<u>22</u>	<u>16</u>
	79 +	16 =	95	83

18 aircraft in the model did not land during this time period.
12 flag carriers arrived that did not appear in the model.

Findings

1. The MS Model only outputs OAG information plus a factor obtained from FAA historical data for all others. The OAG data is obtained from a monthly tape prepared by the Reuben Donnelley Corporation. Changes in schedules, errors detected in the schedule after publication are not corrected. Extra sections do not appear nor do cancellations.
2. Most cargo flights are included in "all others".
3. 1 and 2 above could account for some of the disparities between the Model output and the actual flights.
4. The historical data used for "others" could be out-of-date. In 1971, there was a 23% increase in air cargo tonnage and a 13.1% decrease in commuter flights. General aviation flying was also reported to be on the increase but a firm figure was not available.

ENROUTE EVALUATION

The following information was requested for the enroute sectors and time periods listed (one day only).

1. All aircraft in the sector by ten minute periods beginning on the hour, i.e., 00-10, 10-20, 20-30, etc.

<u>CENTER</u>	<u>SECTOR</u>	<u>(LOCAL) TIME PERIOD</u>
Cleveland	Detroit Hi	1700-1900
Cleveland	DVS (Dansville)	2000-2200
Washington	Wilmington Hi (D35)	0900-1100
Washington	Norfolk Hi (D34)	1500-1700
Miami	R 43 H	1100-1300
Miami	R 45 H	1400-1600
Chicago	Goshen Hi	1700-1900
Chicago	Des Moines Hi	1800-2000
Indianapolis	APE Hi	1500-1700
Indianapolis	DAY	1800-2000
New York	7	2000-2200
New York	8	0900-1100
Jacksonville	D50	1100-1300
Jacksonville	D33	1400-1600

These particular sectors were chosen because they are included in the MS-500 enroute model. The times selected resulted from conversations with either watch supervisors or flow controllers of the pertinent centers in order to insure sufficient traffic. The field response was excellent and all data was useful except the Indianapolis ARTCC Sector DAY(TON). Dayton Low Traffic was forwarded by the Center and the MS model only furnishes Dayton Hi. Also Jacksonville ARTCC submitted their

traffic numerically without aircraft identification so a comparison could not be made.

The collected data was sorted into ten minute time periods for each sector and then compared with the model output. The results were very poor. This was anticipated, since the enroute model has only storage between selected major city pairs and has no provision for unscheduled traffic. However, a reasonable correlation or match was expected between the flights of the model and the corresponding actual flights; the results of this were also poor. A comparison of the sectors will portray what resulted.

1. Cleveland ARTCC	Detroit Hi
2100Z-2200Z	Actual 25 aircraft
	Model 4 aircraft
	Match 0
2200Z-2300Z	Actual 28 aircraft
	Model 7 aircraft
	Match 1
0000Z-0100Z	Dansville Hi
	Actual 24 aircraft
	Model 4 aircraft
	Match 0
0100Z-0200Z	Actual 18 aircraft
	Model 0
	Match 0
2. Washington ARTCC	Norfolk Hi (D34)
1900Z-2000Z	Actual 22 aircraft
	Model 2 aircraft
	Match 2
2000Z-2100Z	Actual 12 aircraft
	Model 5 aircraft
	Match 2
1300Z-1400Z	Wilmington Hi (D35)
	Actual 16 aircraft
	Model 9
	Match 2
1400Z-1500Z	Actual 37 aircraft
	Model 14
	Match 9
3. Miami ARTCC	R 43 Hi
1100Z-1200Z	Actual 11 aircraft
	Model 2 aircraft
	Match 1
1200Z-1300Z	Actual 16 aircraft

	Model 2 aircraft Match 2 aircraft
1800Z-1900Z	R 45 Hi Actual 25 aircraft Model 0 aircraft Match 0
1900Z-2000Z	Actual 21 aircraft Model 0 aircraft Match 0 aircraft
4. Chicago ARTCC 2300Z-000Z	Des Moines Hi Actual 64 aircraft Model 61 aircraft Match 10
000Z-0100Z	Actual 37 aircraft Model 64 aircraft Match 14 6 of these aircraft appeared in the previous hour's model from 30-40 minutes early.
2200Z-2300Z	Goshen Hi Actual aircraft 28 Model 42 aircraft Match 2
2300Z-2400Z	Actual 35 aircraft Model 32 aircraft Match 3
5. Indianapolis ARTCC 2000Z-2100Z	Appleton Hi Actual 19 aircraft Model 12 aircraft Match 6
2100Z-2200Z	Actual 16 aircraft Model 10 aircraft Match 2
6. New York ARTCC 0000Z-0100Z	Sector 7 Actual 21 aircraft Model 0 aircraft Match 0
0100Z-0200Z	Actual 17 aircraft Model 0 Match 0
1300Z-1400Z	Sector 8 Actual 20 aircraft Model 6 aircraft Match 2
1400Z-1500Z	Actual 20 aircraft

	Model 6 aircraft
	Match 2
1400Z-1500Z	Actual 20 aircraft
	Model 6 aircraft
	Match 2
7. Jacksonville ARTCC	D50
1500Z-1600Z	Actual 23 aircraft
	Model 8 aircraft
	Match*
1600Z-1700Z	Actual 16 aircraft
	Model 12 aircraft
	Match*
1800z-1900Z	D33
	Actual 55 aircraft
	Model 0 aircraft
	Match*
1900Z-2000Z	Actual 34 aircraft
	Model 0 aircraft
	Match*

A match for this comparison is defined as an aircraft forecasted by the model that actually appeared in the reported traffic for the two hour period. The percentage of correlation was extremely low. This did not include figures for those sectors or hours that the model forecasted 0 (zero) traffic and where there existed an actual count e.g. Jacksonville ARTCC, sector D 33 reported 89 aircraft during the two hour period; the model reported 0 (zero).

Findings

1. As was expected, the match between the predicted MS Model traffic and actual sector loads was poor. The MS Model contains a limited number of major routes and city pair traffic. If, as recommended, the reader of this report, has read or will read the FAA/MS report referenced in the introduction of this report, it will explain in great detail the limitations of the enroute model.
2. The MS Model did not have a sector factor for "all others" but recommended a flat twenty-five percent. This will be difficult to predict but must be accomplished if a worthwhile model is to be developed.

*Jacksonville submitted their traffic numerically without Aircraft Identification, so a comparison could not be made.

3. The time correlation between model and actual flight time for the individual flight was reasonable in most cases.

OVERALL EVALUATION

TRACER FLIGHTS

The tracer flights selected were prime flights of major air carriers using major airports for arrival and takeoff. As a result, their performance was usually consistent. They did reveal however, that their problem is usually one of the terminal areas. Their takeoff delays vary from terminal to terminal but generally average 15 to 20 minutes.

Further investigation is required for other flights, particularly commuter flights, air taxi, and propeller driven aircraft who are part of the system and whose takeoff at other than congested airports may not be delayed at all on takeoff but contribute to the problem at the landing terminal.

Recommendation: Investigate the possibility of establishing takeoff delays by day, time of day and season for all airports utilized by air carriers. The delay factor obtained could be programmed into the computer program. The same investigation could be used to determine and establish average landing delays for selected airports and this could also be factored into the computer program.

As pointed out earlier, deviation from flight with the exception of transcontinental were limited and caused by predictable weather factors. Many of the air carriers subscribe to a service offered by commercial companies. These computerized services recommend altitudes and route of flight from day to day. R. Dixon Speas, Inc. and Eastern Airlines sell this service to many of the air carriers and many General Aviation Flights.

Recommendation: Investigate these services, their usage and the possibility of utilizing the information for updating the computer program used for flow control.

TERMINAL EVALUATION

The MS Model as well as the upgraded TSC Model uses the Official Airline Guide as a data base. As pointed out in the

findings the correlation between predicted flights and actual flights was not as good as expected. However, at the present time it is the only data base available.

Recommendation: Further investigation to determine why these inaccuracies in the comparison and its causes and what can be done to improve it.

For "all others", both models use a factor obtained from historical data. How gross this factor is could not be determined at this time.

Recommendations: Investigate and establish for at least the major air terminals, an "all other" factor that will more accurately reflect their air activity. Particular attention should be devoted to cargo flights.

ENROUTE EVALUATION

As pointed out earlier, the match between predicted sector loads and actual flights was poor. This was expected since the model did not have all the traffic and was not flexible enough to handle all others and/or reroutings. This will be the most difficult task of the team of operational analysts and programmers to solve. The variables, such as weather, takeoff delay, reroutings and unpredicted general aviation and military seem insurmountable. It might be that rather than attempt to identify the traffic by aircraft identification that a numerical factor based on historical data could be more useful.

Recommendation: That further investigation be conducted to determine what type of information would be more useful to the program, i.e., positive aircraft identification plus an "all other factor" versus a numerical factor based on historical data, that would vary for day, time of day, season, and could be updated by the program.

APPENDIX A

TECHNICAL FLIGHT DATA

UA6 Los Angeles - JFK D1530Z

DATE	TAXI	T.O.	4MN	FIXES DAG	(ZLA) BLD	KNB	(ZDV) 9CH	GUC	COS	GLD	(ZAU) ELX	(ZOB) CRL	JHW	(ZNY)	9LZ	9EM	Arvl	GATE	TO-TD	TAXI-GATE	PTD-TD
15 Oct	1545	1552	1602	1613	1624	1638	1648	1709	1723	1739	1908	1916	1938		1945	2002	2038	2048*	4:46	5:03	5:08
16 Oct	1850	1854	1907	1915	1928	1941	1951	2011	2024	HLC 2040					2252	2335	2337	2347*	4:43	4:57	8:07
17 Oct	1534	1541	1553	1602	1614	1629	1639	1659	1727						1930	1947	2024	2034*	4:43	5:00	4:54
18 Oct	1533	1541	SLI 1548	4PR 1554	TRM 1601	PKE 1610					1859	1907	1931		1939	1959	2030	2040*	4:49	5:07	5:00
19 Oct	1540	1554	1601	1613	LAS 1623	BCE 1642	1653	1714	Pub 1727		HCT 1751				2017		2040	2050*	4:46	5:10	5:10
20 Oct	1539	1547	1600	1606	1619	1634	1645	1705	1718	1735	1905	1914	1939				2033	2043*	4:46	5:04	5:03
21 Oct	1551	1601	1610	1621	1636	1651	1659	1720	1733	1750		1935	1954		2003	2023**	2130	2140*	5:29	5:49	6:00
22 Oct	1535	1540	1552	1602	1615	1629			1719	1736		1914	1933		1941	2001**	2054	2104*	5:14	5:29	5:24
23 Oct	1536	1543	1556	1603	1616	1631	1639	1700	1713	1730	1916	1920	1939		1948	2007	2033	2043*	4:50	5:07	5:03
24 Oct	1533	1544	1556	1605	1617	1631	1638	1657	1710	1725		1906	1931		1935	1954**	2105	2115*	5:21	5:42	5:35
25 Oct	1541	1551	1602	1613	1626	1644	1651	1712	1725	1740		1920	1944		1949	2009**	2057	2107*	5:06	5:26	5:27
26 Oct	1533	1538	1548	1553	TRM 1602	PKE 1610						1903	1924		1931	1950	2019	2029*	4:41	4:56	4:49
27 Oct	1533	1539	1552	1602	1613	1629	1636	1655	1707	1722		1902	1917		1929	1947	2013	2023*	4:34	4:50	4:43
28 Oct	1535	1556	1608	1617	1629	1635	1652	1711	1723	1738		1910	1928		1933	2002	2040	2050*	4:44	5:15	5:10
29 Oct	1535	1541	1552		1602	1611									1924	1942	2009	2019*	4:28	4:44	4:39

Abbreviations

TO - Takeoff
 TD - Touchdown
 4MN - Mt. SAN, Calif., Intersection
 SLI - Long Beach, Calif., VORTAC
 4PR - Perris, Calif., Intersection
 ARTCC - Enroute Traffic Control Center

DAG - Daggett, Calif., VORTAC
 TRM - Thermal, Calif., VORTAC
 LAS - Las Vegas, Nev., VORTAC
 BLD - Boulder City, Nev., VORTAC
 PKE - Parker, Calif., VORTAC
 KNB - Kanab, Utah, Airport
 ZLA - Los Angeles ARTCC
 ZDV - Denver ARTCC

Abbreviations

9CH - Chance, Utah Intersection
 GUC - Gunnison, Colo., VORTAC
 Pub - Pueblo, Colo., VORTAC
 COS - Colorado Springs, VORTAC
 HLC - Hill City, Kansas, VORTAC
 GLD - Goodland, Kansas, VORTAC
 HCT - Hayes Center, Neb., VORTAC
 ZAU - Chicago ARTCC

ELX - Keeler, Mich., VORTAC
 CRL - Carlton, Mich., VORTAC
 JHW - Jamestown, N.Y. Airport
 9LZ - Victor 72/164 Intersection
 9EM - Empire, N.Y. Intersection
 ZOB - Cleveland ARTCC
 ZNY - New York ARTCC

*10 minute Arvl to Gate time for JFK
 **Delay

UA6 Los Angeles - JFK D1530Z
 A2045Z (OAG 5:15)

TAXI	T.D.	Fixes (ZOA)		N/TPH	(ZLC)				(ZDV)				(ZAU)		(ZOB)			ZNY	9EM	TD	GATE	TO-TD	GATE-GATE	PDT-TD
		Dept.	Rte-No Times		BAM	LCU	DTA	OGD	RKS	EKR	CYS	4KE	9GD	PMM	3ZD	SVM	CRL	JHW	9LZ					
15 Oct	1605	1621	SAC5 - J32		1703	1919		1728	1745		1818		1954	2007		2025	2036	2053	M/A 2122 2144**	2154	5:23	5:49*	5.44	
16 Oct	1610	1616	Lin6 - J84	1656			1724			1748	1805	1833		1949		2024	2035	2054		2115	2125	4:59	5:15	5.15
17 Oct	1613	1618	SAC5 - J32			1723		1733	1753		1817		2003			2027	2034	2052		2124	2134	5:06	5:21	5.24
18 Oct	1619	1623	Lin6 - J84	1659		1726				1756	1813		1836		2005	2026	2035	2054		2113	2123	4:50	5:04	5.13
19 Oct	1600	1606	Lin6 - J84	1643						1738	1755	1824		1931	1944	2010	2025	2044		2103	2113	5:47	5:13	5.03
20 Oct	1600	1618	SAC5 - J32		1705						1809	1831		1950		2027	2036	2056		2121	2131	5:03	5:31	5.21
21 Oct	1603	1614	Lin6 - J84							1749	1806			1953		2021	2037	2056		2135	2145	5:21	5:42	5.35
22 Oct	1601	1611	SAC5 - J32								1811	1834		1951		2022	2035	2054		2132	2142	5:21	5:41	5.32
23 Oct	1607	1613	Lin6 - J84	1648			1713				1802				1952	2024	2033	2048		2130	2140	5:17	5:33	5.30
24 Oct	1604	1606	Lin6 - J84	1647			1714			1742	1758	1819			1953	2024	2034	2055		2142	2152	5:36	5:48	5.42
25 Oct	1602	1606	Lin6 - J84				1721			1744	1801	1827			1951	2014	2034	2053		2135	2145	5:29	5:43	5.35
26 Oct	1606	1609	Lin6 - J84				1716			1746	1831			1949		2012	2025	2044		2104	2114	4:55	5:08	5.04
27 Oct	1601	1613	Lin6 - J84	1646						1743	1759				1939	2003				2057	2107	4:44	5:06	4.57
28 Oct	1602	1611	SAC5 - J32								1808			1952	2010		2014	2034		2119	2129	5:08	5:27	5.19
29 Oct	1559	1612	Lin6 - J84														2023	2042		2110	2120	4:58	5:21	5.10

Abbreviations

TO - Takeoff
 TD - Touchdown
 PTL - Proposed Time of Departure
 ARTCC - Enroute Traffic Control Center

N/TPH - Tonopah, Nev., VORTAC
 BAM - Battle Mtn., Nev., VORTAC
 LCU - Lucin, Utah, VOR
 DTA - Delta, Utah, VORTAC
 OGD - Ogden, Utah, VORTAC
 RKS - Rock Springs, Wyo., VORTAC
 ZOA - Oakland ARTCC

EKR - Meeker, Colo., VORTAC
 CYS - Cheyenne, Wyo., VORTAC
 4KE - Key, Neb. Intersection
 9GD - Gandy, Neb., DME Fix
 ZLC - Salt Lake ARTCC
 ZDV - Denver ARTCC

Abbreviations

PMM - Pullman, Mich., VORTAC
 3ZD - Allendale, Mich., Intersection
 SVM - Salem, Mich., VORTAC
 CRL - Carleton, Mich., VORTAC
 JHW - Jamestown, N.Y. Airport
 ZAU - Chicago ARTCC
 ZOB - Cleveland ARTCC

*10 minute avg taxi time at JFK used
 **M/A missed Approach 2122Z, Landed 2144Z

AA14 San Francisco - JFK
 1600-2133 (OAG) 5:33

A-5/A-6

	TAXI	T.O.	Fixes (ZNY)		HUO	PSB	70G	(ZOB)	(ZAU)	(ZDV)		GJT	(ZLC)				ZOA					
			SID	RBV				CLE	No Reports	HCT	DEN		RKS	MLF	OGD	TPH	Fix	Posting	TD	GATE	TO-TD	GATE-GATE
15 Oct	1300	1356	Freehold	1410		1430	1457			1655	1720	1748	1816		1839			1929	1932	5:33	6:32	6:34
16 Oct	1313	1335	Freehold	1349		1409	1405			1633	1659	1728	1753		1818	1821		1858	1906	5:23	5:53	6:03
17 Oct	1300	1305	Freehold	1317		1338	1435			1610	1637	1707	1724		1749	1801		1828	1835	5:23	5:35	5:33
18 Oct	1257	1305	Oakwood		1317		1334			ONL 1619			1658		1752	1823		1833	1835	5:28	5:38	5:38
19 Oct	1257	1307	Freehold	1320		1339	1404			1607	1633	1701				1823		1841	1843	5:34	5:46	5:46
20 Oct	No Flight																					
21 Oct	1258	1307	Freehold	1318		1336	1403			1636	1705					1829		1835	1844	5:28	5:46	5:40
22 Oct	1301	1337	Freehold	1352		1412	1437			1638	1703	1728			1817	1848		1859	1904	5:22	6:03	6:04
23 Oct	1300	1312	Freehold	1327		1347	1412			1604	1630	1657	1730		1759	1833		1847	1851	5:35	5:51	5:52
24 Oct	1259	1306	Freehold	1320		1339	1403			1600	1628	1659	1730		1800	1801		1838	1841	5:32	5:42	5:43
25 Oct	1255	1305	Oakwood		1316		1333			1611		CYS 1640				1830		1855	1900	5:50	6:05	6:00
26 Oct	1302	1310	Freehold	1323		1343	1406			1622	1649	1716				1825		1849	1852	5:39	5:50	5:54
27 Oct	No Flight																					
28 Oct	1258	1306	Freehold	1322		1342	1412			1624	1654	1725				1843		1859	1902	5:53	6:04	6:04
29 Oct	1258	1308	Freehold	1323		1343				1620	1648	1719				1839		1850	1853	5:42	5:55	5:55

Abbreviations

TO - Takeoff
 TD - Touchdown
 SID - Standard Instrument Departures
 RBV - Robbinsville, N.J., VORTAC
 ZNY - New York ARTCC

HUO - Huguenot, N.Y., VORTAC
 PSB - Philipsburg, Pa., VORTAC
 70G - Owego, N.Y. Intersection
 CLE - Cleveland, Ohio, VORTAC
 ZOB - Cleveland ARTCC
 ZAU - Chicago ARTCC

Abbreviations

HCT - Hayes Center, Neb., VOR
 ONL - O'Neil, Neb., VORTAC
 DEN - Den, Colo., VORTAC
 CYS - Cheyenne, Wyo., VORTAC
 GJT - Grand Junction, Colo., VORTAC
 ZDV - Denver ARTCC

RKS - Rock Springs, Wyo., VORTAC
 MLF - Milford, Utah, VORTAC
 OGD - Ogden, Utah, VORTAC
 TPH - Tonopah, Nev., VORTAC
 ZLC - Salt Lake ARTCC
 ZOA - Oakland ARTCC

UA23 JFK - SFO 1255Z - 1855Z
 (OAG) 6:00

DATE	TAXI	TO	Fixes		CRL	JHW	9LZ	9EM	ARVL	GATE	Flight Time	Flight Time	PTD-TD
			ELX								TO-TD	GATE-GATE	
15 Oct	1930	1943	1959		2013	2035	2042	2100	2139	JFK	1:56	2:19	2.09
16 Oct	1930	1939	1955		2007	2035	2040	2059	2128	States 10 min	1:49	2:08	1.58
17 Oct	1930	1941	1958		2007	2032	2042	2101	2128	Normal Taxi to Gate	1:47	2:08	1.58
18 Oct	1930	1945	2000		2014	2037	2046	2105	2128		1:43	2:08	1.58
19 Oct	1930	1946	2001		2013	2040	2046	2106	2130		1:44	2:10	2.00
20 Oct	1930	1945	2001		2014	2039	2046	2106	2138		1:53	2:18	2.08
21 Oct	1930	2005	2021		2031	2056	2104	2123	2156		1:51	2:36	2.26
22 Oct	1930	1950	2006		2020	2045	2051	2116	2148		1:58	2:28	2.18
23 Oct	2015	2029	2045		2057	2120	2126	2147	2215		1:46	2:10	2.45
24 Oct	1930	1942	1959		2011	2036	2046	2110*	2208*		2:26	2:48	2.30
25 Oct	1930	1940	1957		2009	2037	2040	2105	2143		2:03	2:23	2.13
26 Oct	1930	1940	1955		2014	2037	2045	2104	2139		1:59	2:19	2.09
27 Oct	1930	1951	2006		2021	2040			2127		1:36	2:07	1.57
28 Oct	1930	1941	1958		2008	2030	2036	2107	2145		2:04	2:25	1.15
29 Oct							2043	2102	2127		1:46	2:07	1.57

*Indicates Air Hold

Abbreviations

TO - Takeoff
 TD - Touchdown
 ELX - Keeler, Mich., VOR
 CRL - Carleton, Mich., VOR
 JHW - Jamestown, N.Y.
 9LZ - Victor 72/164 Intersection
 9EM - Empire N.Y. Intersection
 N.B.- Doubt Gate-Gate time. First gate with one exception is 1930 - Highly Improbable

TWA 842 Chicago - JFK D1930Z
 A2142Z (OAG 2:12)

<u>DATE</u>	<u>TAXI</u>	<u>T.O.</u>	<u>SID</u>	<u>Fixes</u> <u>HUO</u>	<u>9LL</u>	<u>DKK</u>	<u>9LG</u>	<u>FNT</u>	<u>PMM</u>	<u>3PP</u>	<u>ARVL</u>	<u>GATE</u>	<u>Flight Time</u> <u>GATE-GATE</u>	<u>Flight Time</u> <u>TO-TD</u>	<u>PTD-TD</u>
15 Oct	2006	2012	Greenwood 4	2024	2042	2054	2114		2144	2155	2200	2206	2:00	1:48	2+08
16 Oct	Not Scheduled														
17 Oct	2005	2026	Greenwood 4			2126			2204	2214	2220	2225	2:20	1:54	2+20
18 Oct	2008	2017	Greenwood 4	2029	2046	2059	2118	2128	2156	2206	2211	2219	2:11	1:54	2+11
19 Oct	2005	2014	Greenwood 4	2025	2041	2055	2108	2118	2138	2149	2155	2200	1:55	1:41	1+55
20 Oct	2009	2022	Greenwood 4	2032	2049	2101		2131	2150	2201	2206	2214	2:05	1:44	2+06
21 Oct	2004	2016	Greenwood 4	2025	2043	2057	2115	2125	2143	2154	2200	2204	2:00	1:44	2+00
22 Oct	2007	2014	Greenwood 4	2024	2042	2054	2114	2123	2146	2157	2204	2213	2:06	1:50	2+04
23 Oct	Not Scheduled														
24 Oct	2007	2022	Greenwood 4	2032	2049	2101	2119	2129	2145	2155	2201	2206	1:59	1:39	2+01
25 Oct	2006	2015	Greenwood 4	2024	2042	2054	2114	2124	2138	2149	2155	2200	1:54	1:40	1+55
26 Oct	2009	2022	Greenwood 4	2034	2052	2106	2124	2135	2155	2206	2212	2221	2:11	1:50	2+12
27 Oct	2005	2017	Greenwood 4			2057	2120	2129	2151	2202*	2239	2242	2:37	2:22	2+39
28 Oct	2006	2017	Greenwood 4	2029	2047	2056	2113	2124	2149	2159	2205	2212	2:06	1:48	2+05
29 Oct	2004	2011	Greenwood 4	2021	2041										

Abbreviations

TO - Takeoff
 TD - Touchdown
 SID - Standard Instrument Departure
 HUO - Huguenot, N.Y., VORTAC

9LL - Lindley, N.Y. Intersection
 DKK - Dunkirk, N.Y., VOR
 9LG - Goose Lake, Ontario, Intersection
 FNT - Flint, Michigan, VORTAC

PMM - Pullman, Mich., VORTAC
 3PP - Papi, Ill., Intersection

UA 921 Laguardia - Chicago
 D2000Z A 2200Z (OAG 2:20)

DATE	SID	TAXI	T.O.	Fixes		71A	ORF	ILM	2XA	2XG	BC	KF	App	Fix	ARVL	GATE	Flight Time		PTD-TD
				7XM	71A												GATE-GATE	TO-TD	
15 Oct	Unk	Unk	2313	2319	2335	2349	0009	0026	0042	0048	0113	0120	0128	0130				2:15	4.28
16 Oct	MANTA	2102	2115	2126	2144	2155	2219	2236	2253	2257	2322	2335	2334	2338	2:36			2:19	2.34
17 Oct	MANTA	2104	2109	2118	2136	2145	2209	2222	2237	2247	2312	2315	2323	2328	2:24			2:14	2.23
18 Oct	MANTA	2104	2109	2118	2136	2147	2207	2223	2237	2242	2307	2311	2319	2322	2:18			2:10	2.19
19 Oct	MANTA	2109	2121	2130	2148	2201	2222	2237	2252	2256	2321	2325	2333	2338	2:29			2:12	2.33
20 Oct	MANTA	2104	2112	2121	2139	2151	2214	2229	2245	2249	2314	2322	2330	2333	2:29			2:18	2.30
21 Oct	MANTA	2103	2112	2122	2140	2156	2218	2234	2250	2255	2320	2329	2337	2340	2:37			2:25	2.37
22 Oct	MANTA	2109	2111	2131	2149	2156	2218	2241	2257	2305	2330	2330	2339	2345	2:36			2:28	2.39
23 Oct	MANTA	2106	2111	2124	2142	2154	2218	2236	2253	2257	2322	2329	2337	2341	2:35			2:26	2.37
24 Oct	MANTA	2111	2133	2145	2203	2215	2239	2256	2313	2317	2342	2354	0002	0006	2:55			2:29	3.02
25 Oct	MANTA	2108	2119	2131	2149	2204	2228	2240	2257	2303	2328	2334	2340	2345	2:37			2:21	2.40
26 Oct	MANTA	2103	2112	2121	2139	2151	2210	2223	2236	2245	2310		2320	2325	2:22			2:08	2.20
27 Oct	MANTA	2105	2113	2121	2139	2157	2216	2230	2244	2247	2312		2321	2327	2:22			2:08	2.21
28 Oct	MANTA	2114	2128	2139	2157	2209	2231	2246	2301	2309	2334		2346	2352	2:38			2:18	2.46
29 Oct	MANTA	2106	2112	2121	2140	2153	2215	2227	2244										

Abbreviations

SID - Standard Instrument Departure	ILM - Wilmington, N.C., VORTAC
T.O. - Takeoff	2XA - Azalea, S.C. Intersection
7XM - Manta, N.J. Intersection	2XG - Gateway, Fla. Intersection
71A - Willard, Md. Intersection	BC - Barracuda - Oceanic Reporting Point
ORF - Norfolk, Va., VORTAC	KF - Pike - Oceanic Reporting Point

NE 21 JFK - Miami D-2100Z
A-2345Z (OAG) Time 2:45

A-13/A-14

3/4

DATE	TAXI	T.O.	VRB	Fixes LBV	GNV	BC	DAB	JAX	CHS	AMG	CAE	2XG	2XA	RDU	ILM	GUMB	RIC	OTT	ARVL	TO-TD	PTD-TD
15 Oct	Flight Cancelled - Mechanical																				
16 Oct	1903	1911	1931				1943		2013					2035			2048	2057			
17 Oct	1900	1906		1923	1946					2006	2025			2046			2102	2111	2139	2:28	2:39
18 Oct	1900	1908				1943						1954	2009		2024	2041	2049	2057	2127	2:21	2:27
19 Oct	1900	1907	1925					1950	2010						2037	2045	2053	2101			
20 Oct	1900	1911				1946						1954	2010		2026	2040	2047	2059			
21 Oct	1900	1913				1948						1956	2010		2024		2046	2054			
22 Oct	1902	1914				1948						1956	2012		2027		2049	2059			
23 Oct	1900	1912				1947						1953	2006		2019		2045	2052			
24 Oct	1901	1913				1949						1954	2006		2026			2048	2117	2:04	2:17
25 Oct	1910	1920			1956							2008	2023		2034	2051	2058	2103	2146	2:26	2:46
26 Oct	1902	1911			1946							1958	2013		2029	2045	2054	2101	2132	2:21	2:32
27 Oct	1900(17)	1918			1958							2008	2025		2042	2059	2108	2117	2146	2:28	2:46
28 Oct	Flight Cancelled - Equipment																				
29 Oct	1900	1910							2020 (Reroute to CHS - Weather)			1957			2026	2044	2052	2100	2131	2:21	2:31

Abbreviations

T.O. - Takeoff
 TD - Touchdown
 VRB - Vero Beach, Fla., VORTAC
 LBV - LaBelle, Fla., VOR
 GNV - Gainesville, Fla., VORTAC

BC - Barracuda - Oceanic Reporting Point
 DAB - Daytona Beach, Fla., VORTAC
 JAX - Jacksonville, Fla., VORTAC
 CHS - Charlestown, S.C., VORTAC
 AMG - Alma, Ga., VORTAC

Abbreviations

CAE - Columbia, S.C., VORTAC
 2XG - Gateway, Fla. Intersection
 2XA - Azalea, S.C. Intersection
 RDU - Raleigh, N.C., VORTAC
 ILM - Wilmington, N.C., VORTAC
 GUMB - Gumberry, Va., Intersection
 RIC - Richmond, Va., VORTAC
 OTT - Nottingham, Md., VORTAC

NA 408 Miami to Newark D-1900Z
 A-21592 (2:59)

APPENDIX B

MODEL

SELECTED FLOW BY AIRCRAFT IDENTIFICATION

LEVEL II - OPERATIONAL PLAN

ORD TERMINAL ON SUNDAY

EVALUATION PERIOD 2200 TO 2400

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS		OTHER
		TIME	EQUIP	
2200 - 2230				4
	SR160-YUL	2200	JDC8	
	NW718-RST	2200	J727	
	SK941-YUL	2205	JD8S	
	NW72-BIL	2205	JB3F	
	ZW97-EKH	2210	TB9	
	TW403-BDL	2210	J880	
	IU12-ISW	2210	TB9	
	AL48*-DNV	2210	TB9	
	AL746-BMG	2210	IC5	
	AA423-IND	2212	JB2F	
	UA256-MSP	2213	J737	
	NW444-MSN	2213	J72S	
	EA256-SDF	2214	JD9S	
	UA217-IAD	2215	J727	

MODEL

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS TIME	EQUIP	OTHER
	NC458-MKE	2220	TC5	
	EA624-BNA	2216	JD9S	
	DL440-MEM	2217	JD9S	
	AA174-OKC	2218	J727	
	UA689-PHL	2219	JD8F	
	UA921-LGA	2220	J727	
	UD203-MQB	2220	TTC	
	UA235-CLE	2221	J72S	
	AA317-LGA	2221	J72S	
	UA617-PIT	2223	J737	
	EA998-MIA	2225	J727	
	AA459-YYZ	2225	J727	
	UA847-CMH	2228	J737	
2230 - 2300	TW439-CMH	2230	J880	5
	DL662-MSY	2230	JD9S	
	UA637-BDL	2231	J727	
	UA291-CLE	2232	J737	
	UA231-BOS	2233	J727	
	ZW203-LAF	2235	PT0	
	NC806-AZO	2235	TC5	
	UA461-DCA	2236	J72S	
	NW382-MSP	2237	J72S	
	UA389-BUF	2239	J727	
	UA727-DAY	2240	J737	

MODEL

GMT TIME ARRIVALS
 BY 1/2 HR A/C FROM TIME EQUIP OTHER

PP112-VPZ 2240 PZZ
 NC134-MSN 2240 TC5
 DL674-SDF 2240 JD9S
 C0616-DEN 2240 J747
 AC727-YYZ 2240 JD9S
 UA115-EWR 2242 JD8S
 AA205-EWR 2242 J727
 C04-LAX 2243 JB2F
 UA741-BAL 2244 J727
 UA145-JFK 2245 JD8F

TW169-BAL 2247 J72S
 TW207-DAY 2249 J727
 NW711-TPA 2250 J72S
 DL848-FLL 2250 JD8F

OZ964-STL 2253 JD9S
 TW203-PIT 2254 J880
 NC576-CWA 2254 JD9S
 TW423-DCA 2255 J72S
 NW723-MIA 2255 JB3F
 OZ878-BMI 2255 TFH

TW347-LGA 2256 J72S
 EA280-BHM 2258 JD9S
 DL357-EVV 2259 JDC9
 DL652-STL 2259 JD9S

2300 - 2330

4

QUI74-JVL 2300 PTO

MODEL

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS TIME	EQUIP	OTHER
	AL881-PIT	2300	JD9S	
	AA268-SAN	2301	J727	
	AA40-SLC	2302	J727	
	TW354-PHX	2303	J72S	
	OZ848-SPI	2304	TFH	
	NC462-MSP	2304	JD9S	
	BI333-DVN	2305	PB8	
	NW716-MSP	2306	J72S	
	TW437-BOS	2308	J880	
	PA59-LHR	2310	J707	
	OZ936-DSM	2310	JD9S	
	EA228-RDU	2310	JD9S	
	DL658-TYS	2310	JD9S	
	DL348-RDU	2310	JDC9	
	AL742-LAF	2314	TC5	
	AA655-ALB	2317	J72S	
	AA194-LAX	2318	J747	
	NW743-ATL	2319	J727	
	NC704-RST	2319	TC5	
	AA391-LGA	2319	J727	
	TW770-SFO	2320	J747	
	AA115-BOS	2320	J72S	
	UA770-LNK	2323	J727	
	AA507-BDL	2323	J72S	
	UA925-LGA	2325	J72S	
	BN256-MKC	2328	JBAC	

MODEL

GMT TIME
BY 1/2 HR
2330 - 2400

ARRIVALS
A/C FROM TIME EQUIP OTHER
4

TW426-MKC 2330 J72S
OZ798-CMI 2330 TFH

MX802-ACA 2330 J727

NC975-MKE 2330 TC5

NC808-SBN 2331 TC5

TW358-ABQ 2332 J727

NW57-CLE 2333 JB3F

UA278-SLC 2335 J727

UA232-OAK 2335 J727

UA228-DSM 2336 J737

UA150-SEA 2340 JD8F

UA128-SFO 2340 JDC8

UA746-SAN 2340 J727

NW231-DTW 2340 J727

OZ972-MLI 2340 JDC9

AZ668-MXP 2340 JD8S

UA492-DEN 2341 J727

TW26-LAX 2342 JB7F

EA610-MSY 2343 JD9S

AA254-SFO 2343 J747

UA108-LAX 2345 JD8F

NC572-MKE 2345 TC5

DL136-ATL 2350 JD8S

MODEL

GMT TIME BY 1/2 HR	ARRIVALS		
	A/C FROM	TIME	EQUIP OTHER
	AA139-BUF	2353	JB7F
	AA453-NOC	2353	J727
	AA503-SYR	2354	J72S
	AA273-DCA	2354	J72S
	TW179-PHL	2355	J72S
	AA293-DTW	2357	JB3F

TERMINAL ACTUAL - O'HARE ATCT

The information listed is data compiled Sunday, 24 October 1971,
from 1700 to 1900 CDT.

<u>AIRCRAFT IDENTIFICATION</u>	<u>ARRIVAL TIME</u>	<u>LANDING RUNWAY</u>
BN 148	1704 CDT	14R
AA 310	1706 CDT	14R
NW 72	1708 CDT	14R
NW 444	1710 CDT	14R
TW 186	1712 CDT	14R
DL 750	1714 CDT	14R
VER 48	1715 CDT	14R
MIS 12	1717 CDT	14R
OZ 960	1718 CDT	14R
NC 516	1720 CDT	14R
AA 174	1722 CDT	14R
DL 440	1724 CDT	14R
WIS 91	1726 CDT	14R
UA 689	1728 CDT	14R
CO 4	1729 CDT	14R
NC 134	1730 CDT	14R
BN 203	1732 CDT	14R
X21KM	1734 CDT	14R
CO 616	1736 CDT	14R
UA 235	1738 CDT	14R
DL 662	1739 CDT	14R
WIS 56	1742 CDT	14R
UA 847	1743 CDT	14R
AL 796	1745 CDT	14R
AA 268	1746 CDT	14R
EA 988	1748 CDT	14R
NW 723	1750 CDT	14R
DL 674	1752 CDT	14R
TW 354	1754 CDT	14R
TW 169	1756 CDT	14R
OZ 962	1757 CDT	14R
NC 462	1759 CDT	14R
UA 921	1701 CDT	14L
DL 954	1702 CDT	14L
AA 317	1705 CDT	14L
UA 217	1706 CDT	14L
NW 846	1707 CDT	14L
PH 412	1708 CDT	14L
EA 256	1710 CDT	14L
X41F	1712 CDT	14L
AA 423	1714 CDT	14L

AIRCRAFT IDENTIFICATIONARRIVAL TIMELANDING RUNWAY

X5MH	1716 CDT	14L
UA 213	1717 CDT	14L
NC 458	1719 CDT	14L
AA 459	1720 CDT	14L
AA 205	1725 CDT	14L
X18CM	1728 CDT	14L
EA 824	1730 CDT	14L
TW 439	1731 CDT	14L
UA 219	1732 CDT	14L
UA 145	1735 CDT	14L
UA 637	1737 CDT	14L
AL 897	1738 CDT	14L
UA 617	1741 CDT	14L
UA 115	1743 CDT	14L
NC 806	1746 CDT	14L
UA 727	1747 CDT	14L
UA 389	1748 CDT	14L
UA 461	1749 CDT	14L
AC 727	1752 CDT	14L
UA 741	1754 CDT	14L
TW 203	1756 CDT	14L
TW 423	1758 CDT	14L
EA 280	1759 CDT	14L
VER 150	1801 CDT	14R
TW 207	1802 CDT	14R
OZ 936	1804 CDT	14R
X49K	1805 CDT	14R
NW 716	1807 CDT	14R
DL 652	1808 CDT	14R
OZ 848	1810 CDT	14R
TW 770	1812 CDT	14R
MVA 174	1814 CDT	14R
DL 348	1816 CDT	14R
UA 770	1817 CDT	14R
TW 358	1819 CDT	14R
X333	1821 CDT	14R
AA 40	1822 CDT	14R
TW 426	1824 CDT	14R
UA 278	1825 CDT	14R
UA 746	1827 CDT	14R
UA 228	1829 CDT	14R
UA 232	1831 CDT	14R
UA 7743	1833 CDT	14R
UA 256	1836 CDT	14R
UA 492	1837 CDT	14R
UA 108	1839 CDT	14R

AIRCRAFT IDENTIFICATIONARRIVAL TIMELANDING RUNWAY

UA 128	1840 CDT	14R
V 235	1845 CDT	14R
UA 150	1846 CDT	14R
NC 704	1848 CDT	14R
OZ 972	1850 CDT	14R
WIS 48	1852 CDT	14R
TW 26	1854 CDT	14R
OZ 798	1857 CDT	14R
X4146N	1859 CDT	14R
AA 391	1800 CDT	14L
TW 347	1801 CDT	14L
NW 711	1802 CDT	14L
X123SC	1804 CDT	14L
AL 881	1805 CDT	14L
UA 5067	1806 CDT	14L
NW 743	1807 CDT	14L
DL 4357	1808 CDT	14L
DL 658	1809 CDT	14L
AA 635	1811 CDT	14L
X52Q	1812 CDT	14L
WIS 203	1814 CDT	14L
AA 507	1815 CDT	14L
TW 437	1816 CDT	14L
X41Q	1817 CDT	14L
SR 160	1821 CDT	14L
EA 228	1823 CDT	14L
AL 742	1824 CDT	14L
PA 59	1827 CDT	14L
NC 957	1832 CDT	14L
X3MR	1835 CDT	14L
NW 231	1836 CDT	14L
NC 808	1837 CDT	14L
DL 848	1838 CDT	14L
AZ 668	1839 CDT	14L
AA 503	1845 CDT	14L
NW 57	1846 CDT	14L
NC 975	1847 CDT	14L
AA 115	1848 CDT	14L
TW 351	1851 CDT	14L
AA 273	1852 CDT	14L
AA 139	1853 CDT	14L
AA 453	1854 CDT	14L
UA 749	1855 CDT	14L
DL 136	1857 CDT	14L
AA 293	1859 CDT	14L

O'Hare weather Sunday, 24 October 1971.

1800 CDT Measured ceiling three hundred overcast, visibility one mile very light drizzle, fog, temperature six three, dew point five seven, wind zero six degrees nine knots, altimeter two nine nine five, ceiling ragged.

Airport configuration during this time period. Landing on parallel runways 14. Departing on parallel runways 9.

MODEL

MIA TERMINAL ON WEDNESDAY

EVALUATION PERIOD 1600 TO 1700

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS TIME	EQUIP	OTHER
1600 - 1630				3
	NA103-BAL	1600	J727	
	EA181-BDL	1600	J727	
	CC122-BAQ	1600	P6A	
	DL21-ATL	1605	J747	
	TW496-STL	1606	J72S	
	NW700-ATL	1608	JB3F	
	EA959-CLE	1609	J727	
	NE1-JFK	1610	J727	
	JM23-MBJ	1610	JD9S	
	WB192-FPO	1615	TB9	
	PT612-APF	1615	PZZ	
	NE61-PHL	1620	J72S	
	EA175-DCA	1620	JD9S	
	NA15-PHL	1624	J72S	
	NE111-BDL	1625	J727	
	DL143-DTW	1626	JD8S	
1630 - 1700	OI60-BIM	1630	PTO	3
	FM456-SJU	1630	J707	
	NAR1-JFK	1630	J747	
	EX285-FMY	1630	TB9	
	EH993-ORD	1633	J727	
	EA537-DAL	1633	J727	

GMT TIME BY 1/2 HR	MODEL		
	A/C FROM	ARRIVALS TIME	EQUIP OTHER
	S041-MCO	1640	JDC9
	AV780-BAQ	1640	PD4
	NA55-LGA	1642	J72S
	EA11-JFK	1644	J727
	EA609-ATL	1644	J727
	AC604-YYZ	1645	JDC8
	MI403-FLL	1650	PC4
	EA283-STL	1650	J72S
	PA438-MBJ	1655	J727
	NA407-JAX	1655	J72S

ARRIVING AIRCRAFT AT MIAMI

1600Z - 1700Z, Wednesday, 27 October 1971

Weather - Clear, 7 miles visibility
 Landing Runways - 27L, 27 R and 30

<u>A/C Ident</u>	<u>Landing Time</u>	<u>A/C Ident</u>	<u>Landing Time</u>
DL 21	1602Z	EA 8257	1633Z
NE 61	1605Z	N2596A	1633Z
NE 111	1607Z	N401D	1634D
NA 15	1609Z	N7739J	1636Z
BN 79	1613Z	NE 121	1637Z
EA 8263	1615Z	MI 403	1638Z
EA 11	1616Z	SO 41	1638Z
PA 456	1617Z	PA 438	1640Z
N239PB	1618Z	N2627S	1641Z
NA 81	1621Z	EA 609	1643Z
EA 175	1621Z	EA 283	1645Z
SNE 192	1622Z	NA 407	1648Z
EA 537	1623Z	N222SG	1650Z
NA 55	1623Z	N5720K	1651Z
XEX 285	1642Z	EA 303	1652Z
N781N	1626Z	EA 1	1654Z
N980WL	1621Z	EA 993	1655Z
Out Island Airways 60	1628Z	EA 953	1657Z
		EA 531	1658Z
DL 143	1632Z	OV 184	1659Z

MODEL

SELECTED FLOW BY AIRCRAFT IDENTIFICATION

LEVEL II - OPERATIONAL PLAN

LAX TERMINAL ON TUESDAY

EVALUATION PERIOD 100 TO 300

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS		
		TIME	EQUIP	OTHER

100 - 130

3

C053-IAH	100	J72S
UA799-DEN	101	J727
SK935-SEA	105	JD8S

C0107-ELP	108	JDC9
UA809-SMF	109	JD8F
TW177-STL	109	J747

GQ513-OXR	110	PTO
IY221-SMX	110	PPN

RW689-PSP	116	TF7
TW405-PHX	117	J72S
WA236-OAK	118	J737
UA525-SFO	120	J72S

C077-DAL	121	JB2F
RW824-LAS	124	JD9S
NA185-IAH	125	J72S
LH450-AMS	125	J707
AA5-JFK	129	6 JB7F

130 - 200

5

MODEL

GMT TIME
BY 1/2 HR

ARRIVALS

A/C FROM TIME EQUIP OTHER

C031-MKC 130 JB2F
 BA592-HNL 130 JV10
 TW159-CVG 132 J880
 DL129-DAL 133 JD8S
 PS964-SJC 135 J72S
 AF3-ORD 135 J707
 C09-ORD 135 JB2F
 AA79-CLE 138 JB2F
 PS442-OAK 140 J72S
 PA875-JFK 140 J707

C0617-DEN 144 J747

AA119-OKC 145 J72S
 TW229-MKC 147 J880
 WA167-LAS 148 J737
 UA77-CLE 150 J720
 AA289-DAL 151 J747
 AA185-ORD 151 JD10
 TW21-DAY 153 JB7F
 GQ237-ONT 153 PTO
 RW535-BFL 154 TF7
 WA509-MSP 155 J727
 WA23-SLC 155 J737
 WA796-ACA 155 JB2F
 PS622-SFO 155 J72S
 PS541-SAN 155 J72S
 UA817-MRY 159 J737

200 - 230

4

GQ165-FUL 200 PTO
 RW493-SMX 202 TF7
 UA719-LAS 205 J727
 UA487-PDX 206 J720
 TW293-EWR 208 JE7F
 TE556-HNL 210 JD8F
 NW169-MSP 210 JB3F
 TW337-ABQ 211 J727
 AA387-STL 212 J727
 TW755-PIT 213 JB3F

GMT TIME BY 1/2 HR	MODEL			OTHER
	A/C FROM	ARRIVALS TIME	EQUIP	
	WA478-SMF	220	J737	
	UA529-SFO	220	J72S	
	UA87-DIW	220	JD8S	
	UA171-FAT	221	J727	
	TW189-IND	221	J880	
	CO71-COS	222	J72S	
	NA37-MSY	223	JDC8	
	GQ243-ONT	223	PTO	
	NA51-MIA	225	JD8S	
	NE405-MIA	225	J727	
	UA823-SBA	226	J737	
	RW787-TUS	226	JD9S	
	AA23-EWR	228	JB7F	
230 - 300	UA227-DSM	230	J727	5
	WA27-LAS	233	J737	
	TW65-E OS	233	JB7F	
	AA43-E OS	233	JB7F	
	PS762-SJC	235	J72S	
	GQ515-OXR	235	PTO	
	WA638-MEX	240	JB2F	
	GQ709-EMI	240	PTO	
	EA87-ATL	240	J727	
	AA633-MEM	244	J727	
	UA579-MKE	245	J720	
	TW3-ORD	245	J747	
	AA41-DIW	245	J747	
	WA417-SAN	250	JB2F	
	RW589-IPL	250	TF7	
	JL62-HNL	250	J747	
	WA645-PDX	252	J737	
	TW37-PHL	252	JB7F	
	AA371-BNA	252	J727	
	UA2802-ITO	255	JD8F	
	UA55-IAD	255	JDC8	

MODEL

GMT TIME BY 1/2 HR	ARRIVALS			OTHER
	A/C FROM	TIME	EQUIP	
	PS75-SAN	255	J72S	
	PS720-SFO	255	J72S	
	PS780-SMF	255	J72S	
	DL29-ATL	257	J747	
	AA75-IAD	258	J747	

LOS ANGELES AIRPORT

TIMES ARE GMT

<u>Aircraft Ident.</u>	<u>Time</u>	<u>Weather</u>	<u>Runway Used</u>
		250 - ø 20	
		61/47 27/12 30.04	
N37T	0108Z		25L
Rw689	0109Z	<u>Local Aircraft Coding</u>	25L
FS206	0111Z	Rw = Air West	26
W236	0111Z	A = American Airlines	25R
T405	0111Z	C = Continental Airlines	25L
U525	0114Z	D = Delta Airlines	25L
P462	0115Z	X = National Airlines	25R
W24	0117Z	P = Pacific Southwest Air.	25L
C31	0118Z	U = United Airlines	25R
W694	0121Z	G = Pan American Airlines	25L
U815	0122Z	W = Western Airlines	25L
A5	0126Z	Ba = BOAC Airlines	25L
C9	0128Z	NW = Northwest Airlines	25R
X185	0130Z	GLW= Golden West Airlines	25L
P442	0132Z	SW = Swift Air Airlines	25R
A79	0135Z	PK = Pinky Airlines	25L
N72U	0139Z	JL = Japan Airlines	25L
T159	0140Z	EA = Eastern Airlines	25R
W167	0142Z	NE = Northeast Airlines	25L
C107	0143Z	SK = Scandinavian Airlines	25L
W23	0144Z		25L
Ba591	0147Z		25L
Rw535	0147Z		25R
C323	0149Z		25L
T21	0150Z		25L
W509	0151Z		25L
U817	0152Z		25R

<u>Aircraft Ident.</u>	<u>Time</u>	<u>Weather</u>	<u>Runway Used</u>
D129	0152Z		25L
T229	0154Z		25L
U77	0156Z		25L
P622	0155Z		25R
P541	0157Z		25L
Rw493	0158Z		25R
U719	0158Z		25L
A185	0159Z		25L
		WX	
		250 - Ø 15 60/49	
		27/12 30.06	
A119	0201Z		25L
W796	0203Z		25R
T337	0204Z		25L
NW169	0207Z		25L
T189	0209Z		25L
T755	0213Z		25L
GLW243	0213Z		25R
C71	0217Z		25R
G816	0221Z		25L
U823	0222Z		25R
W27	0223Z		25
U227	0225Z		25L
X51	0226Z		25L
U529	0226Z		25R
RW787	0228Z		25L
JL34	0230Z		25L
A43	0231Z		25R
N305	0232Z		25L
X37	0233Z		25L
EA87	0234Z		25R

<u>Aircraft Ident.</u>	<u>Time</u>	<u>Weather</u>	<u>Runway Used</u>
W638	0235Z		25L
T65	0237Z		25L
NE405	0239Z		25L
T003	0240Z		25L
U7726	0241Z		25R
A633	0244Z		25L
W645	0247Z		25R
U55	0247Z		25L
U337	0248Z		25R
U579	0248Z		25L
P560	0250Z		25R
W639	0251Z		25R
W478	0253Z		25R
T37	0253Z		25L
U83	0254Z		25L
RW589	0256Z		25L
GLW173	0256Z		25R
A61	0257Z		25L
P720	0258Z		25R
P75	0259Z		25L
P780	0300Z		25R
GLw513	0102Z		24R
SW221	0116Z		24L
C716	0126Z		24L
N47Q	0137Z		24L
N165	0141Z		24L
G1W237	0148Z		24R
PK1	0152Z		24L
A289	0213Z		24L
N09E	0222Z		24L
GLW709	0229Z		24L

<u>Aircraft Ident.</u>	<u>Time</u>	<u>Weather</u>	<u>Runway Used</u>
GLW515	0226Z		24R
SK939	0239Z		24L
T177	0241Z		24L
JL62	0243Z		24L
A75	0255Z		24L
NW22	0255Z		24L

MODEL

SELECTED FLOW BY AIRCRAFT IDENTIFICATION

LEVEL II - OPERATIONAL PLAN

STL TERMINAL ON THURSDAY

EVALUATION PERIOD 1700 TO 1900

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS		OTHER	
		TIME	EQUIP		
1700 - 1730	UX123-IJX	1700	PTO	2	
	TW561-DTW	1700	J72S		
	TW91-CVG	1700	J72S		
		TW181-IND	1704	J727	
		DL359-MDW	1714	JDC9	
		OZ701-MVN	1715	TFH	
		XU305-DUE	1720	TTC	
	TW537-ATL	1720	J72S		
1730 - 1800	TW402-MKC	1730	J72S	2	
		OZ943-DSM	1730	JD9S	
		TW486-PHX	1738	J880	
		TW700-LAS	1740	JB3F	
		OZ952-SGF	1745	JD9S	
		OZ841-MWA	1750	TFH	
		OZ822-CGI	1755	TFH	

MODEL

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS TIME	EQUIP	OTHER
1800 - 1830	ZY63-COU	1800	PZZ	2
	EA515-DCA	1800	JD9S	
	FL14-MKC	1802	J737	
	EA274-ATL	1807	JD9S	
	TW101-PHL	1808	J727	
	AA366-PHX	1818	J727	
	TW171-LGA	1820	J727	
	EA95-SEA	1825	J727	
	TW503-CVG	1826	JDC9	
	1830 - 1900	TW456-DEN	1832	J727
XU206A-JEF		1835	TTC	
OZ902-DAL		1835	JD9S	
AA388-LAX		1836	J727	
BN201-DSM		1837	J727	
AA286-DAL		1840	J727	
OZ927-MKE		1845	JD9S	
AL835-IND		1848	JD9S	
AA231-ORD		1848	JB7F	
OZ829-SPI		1850	TFH	
OZ957-ORD		1854	JD9S	
TW107-BAL		1855	J727	
OZ863-MLI		1855	TFH	
TW136-LAX		1856	J747	

AIRCRAFT IDENT	ARRIVAL TIME GMT	PREVAILING WEATHER CONDITIONS DATE 10/21/71 TIME 1200 - 1400 CDST	LANDING DEPARTING DIRECTION/ RUNWAY COM- BINATION(S)
N920G	1701Z	6Ø M10 Ø 2½ R-F	Runway 24
TW91	1705Z	"	"
N87K	1707Z	"	"
OZ701	1708Z	"	"
FL570	1710Z	"	"
TW181	1712Z	"	"
DL356	1714Z	"	"
DL359	1716Z	"	"
OZ931	1718Z	"	"
N9000V	1721Z	"	"
N81MC	1729Z	"	"
OZ914	1732Z	"	"
TW537	1734Z	"	"
TW700	1736Z	"	"
N38L	1740Z	"	Runway 12L
OZ943	1743Z	"	Runway 24
N35W	1741Z	"	"
N135	1738Z	"	"
TW486	1744Z	"	"
TW402	1747Z	"	"
TW101	1750Z	"	"
OZ952	1753Z	"	"
EA515	1758Z	"	"
N741L	1800Z	6Ø M22 Ø 2½ F	"
FL14	1802Z	"	"
OZ846	1804Z	"	"
N5SL	1806Z	"	"
MSU63	1807Z	"	"
AA266	1811Z	"	"

AIRCRAFT IDENT	ARRIVAL TIME GMT	PREVAILING WEATHER CONDITIONS DATE 10/21/71 TIME 1200 - 1400 CDST	LANDING DEPARTING DIRECTION/ RUNWAY COM- BINATION(S)
OZ841	1814Z	6Ø M22 ⊕ 2½ F	Runway 24
TW171	1815Z	"	"
N6069C	1818Z	"	"
TW503	1820Z	"	"
AA388	1823Z	"	"
EA95	1825Z	"	"
TW456	1828Z	"	"
TW402	1829Z	"	"
BN201	1835Z	"	"
AA286	1838Z	"	"
AA231	1842Z	"	"
OZ902	1844Z	"	"
OZ927	1846Z	"	"
OZ829	1850Z	"	"
NOFE	1852Z	"	"
FA274	1854Z	"	"
SO40	1855Z	"	"
TW107	1858Z	"	"
AA366	1859Z	"	"
N51E	1900Z	"	"

MODEL

REPORT TYPE 6

SELECTED FLOW BY AIRCRAFT IDENTIFICATION

LEVEL II - OPERATIONAL PLAN

PHL TERMINAL ON TUESDAYEVALUATION PERIOD 2000 TO 2200

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS		
		TIME	EQUIP	OTHER
2000 - 2030	NE341-BOS	2000	JD9S	2
	EA46-MIA	2000	J727	
	NA415-EWR	2005	J72S	
	UA584-MDW	2007	J727	
	AZ638-BOS	2015	JD8S	
	AL686-ERI	2027	TC5	
2030 - 2100				4
	AL685-ALB	2033	TC5	
	AL953-BOS	2034	JD9S	
	UA82-LAX	2035	JD8S	
	UA60-SFO	2035	JD8S	
	TW422-ORD	2035	J72S	
	AK38-RIC	2035	TB9	
	AA60-LAX	2037	JB7F	
	TW38-LAX	2038	JB7F	
	TW34-SFO	2040	JB7F	
	UA694-DEN	2045	J727	
	DL918-ATL	2047	J880	
	AL836-PIT	2047	UD9S	
	TW578-PIT	2048	JDC9	
	PA63-LHR	2050	J707	

B-27

62

MODEL

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS TIME	EQUIP	OTHER
2100 - 2130				5
	DUI02-ILG	2100	PCE	
	AL127*-DCA	2100	TBT	
	AL122*-TTN	2100	TBT	
	AL174*-AIY	2100	PTO	
	UA350-MKC	2105	J727	
	BA521-LHR	2105	JV10	
	EA140-ATL	2108	JD9S	
	10448-ELM	2110	TFH	
	EA808-BAL	2111	J727	
	UA224-ORD	2117	J720	
	NA111-JFK	2120	J727	
	NE107-BOS	2120	J72S	
	AA138-DAL	2124	J72S	
	AL149*-DCA	2125	TBT	
	AL637-EWR	2125	TC5	
	AL172*-AIY	2129	PTO	
2130 - 2200				3
	AL837-BOS	2134	JD9S	
	TW532-PIT	2138	JDC9	
	AL616-DCA	2138	TC5	
	AL969-PVD	2139	JD9S	
	TW516-IND	2145	JDC9	
	AF29-BOS	2145	J707	
	NW540-CLE	2148	J72S	
	UQ611-LNS	2150	PTO	
	AL146*-PNE	2150	TBT	

PHILADELPHIA TOWER

TERMINAL TRAFFIC

TUESDAY 10/19/71 2000 Z - 2200 Z

AC'ID	TIME ARR.	DEP.	RNY'S INUSE	WX
N665	1600		17	Clear, Vis 12 miles, wind 080° 10K
N223	1600		Area B*	
N4725P		1600	9	
N75A		1602	17	
AL894		1603	9	
N36CS	1602		17	
TW1755		1603	9	
NA415	1605		9	
N993		1606	Area B	
RAN126		1606	9	
AL669		1609	9	
N536CS		1609	17	
N665		1606	17	
N4MA	1607		17	
UA584	1608		9	
N10W	1608		17	
N1976C		1610	17	
N20R	1611		17	
R17751		1611	Area B	
AAR38	1612		17	
N45MA		1613	17	
N10W		1614	17	
PA63		1618	9	
AL685	1619		9	
AL940		1620	9	
AI638	1622		9	

*Area B - Helicopter Landing Area

AC' ID	TIME ARR.	DEP.	RNY'S INUSE	WX
AL958	1624		9	
AA60	1626		9	
N08N	1627		17	
UA689		1628	9	
N87U		1628	17	
AL686	1630		9	
AL965		1631	9	
TW34	1632		9	
UA82	1632		9	
AAR68		1635	9	
EA46	1637		9	
N98Z	1638		17	
N27W	1639		17	
UA60	1639		9	
DA101	1640		17	
NE63		1640	9	
UA694	1641		9	
N08N		1641	17	
AAR12		1642	17	
N926S		1643	17	
TW38	1643		9	
TW578	1646		9	
N51L	1646		9	
NW57		1646	9	
TW422	1648		9	
N74P	1648		17	
NA415		1649	9	
AL836	1649		9	
OL517		1651	9	
N70R		1652	Area B	
SBN611	1652		9	
DL918	1652		9	

AC' ID	TIME		RNY'S INUSE	WX
	ARR.	DEP.		
N123W		1652	9	
N5934Y	1655		17	
TW238	1655		9	
RAN122	1655		17	
N60N		1655	Area B	
N61V	1656		17	
N19P	1656		17	
BA521	1657		17	
ACOM101	1658		17	Clear, Vis. 15 miles, wind 080° 13K
N34Y	1659		17	
ACOM174	1700		17	
N14K	1700		17	
N51R	1705		Area 13	
EA140	1701		9	
N24Y	1702		17	
UA353	1703		9	
N22VB	1704		17	
N1976L	1705		17	
MO448	1706		9	
N9RS	1707		17	
AL685	1707		9	
N72SP	1707		17	
RAN127	1709		17	
AAR203	1709		17	
N56L	1709		17	
N300UP		1710	9	
N2715A	1711		17	
EA808	1711		9	
N51L		1712	17	
N39N		1713	9	
N9300	1714		17	

AC' ID	TIME ARR.	DEP.	RNY'S INUSE	WX
N91U		1715	17	
N74P		1715	17	
AAR215		1716	17	
N7135C		1716	17	
N34Y		1716	9	
AAR204		1717	17	
N27N		1717	9	
NE107	1718		9	
N61T		1718	17	
ACOM10		1719	17	
N35W		1719	Area B	
N19P		1720	17	
AL953		1720	9	
AA138	1721		9	
N56L		1722	17	
N25J	1722		17	
AL172	1722		9	
AL693		1723	9	
N93N		1724	17	
NA111	1725		9	
ACOM9		1725	17	
UA399		1726	9	Clear, Vis. 15 miles, wind 080°15K
NE342		1726	9	
N727K		1727	9	
AL837		1727	9	
RAN122		1730	17	
N24Y		1728	17	
AL836		1729	9	
N16A		1730	17	
RAN127		1731	9	
N22UB		1731	17	

AC ' ID	ARR.	TIME DEP.	RNY ' S INUSE
AAR1203		1732	9
NSOUC		1732	9
N993	1734		9
EA121		1734	9
TW532	1735		9
N1923G		1736	17
MO449		1736	9
N96N		1737	17
AL969	1738		9
DL911		1739	9
TW516	1740		9
SBN612		1741	9
EA940	1741		9
N993	1742		17
N35W	1742		Area B
TW37		1743	9
N590UC		1744	17
ACOM173		1745	9
NW540	1745		9
UA83		1747	9
AL616	1747		9
N993	1747		9
RAN149	1749		9
N52W	1750		17
N91U		1750	17
DL923		1751	9
UA67		1751	9
TW549		1754	9
AL637		1754	9
N27A		1755	17
AA61		1756	9
RAN146	1756		17

AC' ID	TIME		RNY'S INUSE
	ARR.	DEP.	
NE107		1757	9
TW451		1758	9
N32C	1758		17
NA111		1759	9

MODEL

REPORT TYPE 6

SELECTED FLOW BY AIRCRAFT IDENTIFICATION

LEVEL II - OPERATIONAL PLAN

DCA TERMINAL ON FRIDAY

EVALUATION PERIOD 1200 TO 1400

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS TIME	EQUIP	OTHER
1200 - 1230				2
	EA504-LEX	1208	JD9S	
	AA567-BOS	1215	J72S	
	UA597-BUF	1216	J737	
	NE301-BOS	1220	JD9S	
	EA511-PVD	1220	JD9S	
	EA385-BOS	1220	JD9S	
	UA609-ORF	1224	J737	
	EB700-SCE	1225	PB8	
	AA400-CVG	1225	J727	
	NA401-PHL	1227	J72S	
	EA368-GSO	1228	J727	
1230 - 1300	EA160)-EWR	1230	JD9S	2
	AA429-LGA	1232	J727	
	MO548-SYR	1234	JBAC	
	NA471-BAL	1235	J72S	

MODEL

GMT TIME BY 1/2 HR	ARRIVALS			OTHER
	A/C FROM	TIME	EQUIP	
	PI46-FAY	1254	J737	
	VM38-FEL	1255	TB9	
	PI915-CHO	1255	TYS	
	AL114*-PNE	1255	TBT	
	AL911-ISP	1257	JD9S	
	NW302-CLE	1259	J727	
	AL967-BDL	1259	JD9S	
1300 - 1330				3
	EA889-BOS	1300	JD9S	
	AL3*-SBY	1300	TB9	
	AL675-BDR	1300	TC5	
	PI2-ROA	1304	J737	
	EA185-BDL	1305	JD9S	
	EA141)-LGA	1307	JD9S	
	PI980-RIC	1309	TYS	
	UA638-PIT	1311	J727	
	NE325-BOS	1315	J72S	
	MO540-HPN	1315	JBAC	
	AL891-PHL	1315	JD9S	
	EA370-CLT	1316	JD9S	
	TW106-ORD	1320	J727	
	AK25-MDT	1320	TB9	
	AL781-HVN	1320	TC5	
	NA481-PHL	1327	J727	
	MO430-ELM	1328	TFH	
1330 - 1400	NW310-DTW	1330	J727	1
	EA175-ABE	1330	JD9S	

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

OCT 20 REC'D

DATE: 18 OCT 1971

Airport Traffic Control Tower
 Washington National Airport
 Washington, D. C. 20001



IN REPLY REFER TO: DCA-T

SUBJECT: Data for Central Flow Control Facility Automation Program

TO: Chief, Air Traffic Division, EA-500

In consonance with your letter dated 8 October 1971, reference the above subject we submit the following data for the period 0800 to 1000 EDT, 15 October 1971:

A. Arrival times of all aircraft by identification (one day only).

<u>AIRCRAFT IDENT.</u>	<u>ARR. TIME (Z)</u>	<u>AIRCRAFT IDENT.</u>	<u>ARR. TIME (Z)</u>
HN 2	1201	RAN 114	1300
COM 800	1202	PI 46	1301
NW 300	1203	UA 638	1302
EA 511	1206	N 05 RJ	1305
UA 597	1208	MO 430	1307
N 64 AL	1210	N 36 BW	1309
N 1125	1212	NE 325	1311
EA 385	1213	MMN 38	1312
AA 567	1214	EA 370	1313
NE 301	1216	N 10 G	1314
COM 700	1217	N 26 S	1315
N 7267	1218	N 15 CA	1317
N 66 SC	1219	N 860	1320
MM 32	1220	N 32 P	1322
AA 400	1223	TW 106	1322
N 2426	1225	MO 540	1323
EA 1601	1226	AL 7001	1325
N 04 GA	1228	NW 301	1326
MO 548	1229	PI 980	1328
EA 368	1231	N 4129 W	1329
UA 609	1233	AAR 101	1331
N 063	1235	AAR 33	1333
CM 100	1241	UA 622	1334
EA 889	1246	N 338	1336
N 37 Z	1248	AA 429	1336
N 05 K	1250	AL 891	1337
EA 504	1252	UA 322	1338
NA 401	1254	N 64 MC	1340
NW 302	1255	HN 3	1341
N 919 S	1257	AAR 25	1342
PI 915	1257	N 07 EL	1345
PI 2	1259	EA 1411	1347

INITIALED
 OCT 1971

<u>AIRCRAFT IDENT.</u>	<u>ARR. TIME (Z)</u>
AA 551	1350
UA 324	1355
N 802	1356
N 37 Y	1358

B. Prevailing weather conditions during the period.

1200Z Sky clear, visibility 7 miles, wind 060° at 2 knots.
1234Z Sky clear, visibility 6 miles, wind 190° at 4 knots.
1300Z Sky clear, visibility 6 miles, wind calm.
1326Z Sky clear, visibility 6 miles, wind 360° at 4 knots.

C. Landing-departing direction/runway combinations.

North - runways 3, 36 and 33 in use.



HOWARD A. COCKLIN
Chief, Washington Tower

MODEL

REPORT TYPE 6

SELECTED FLOW BY AIRCRAFT IDENTIFICATION

LEVEL II - OPERATIONAL PLAN

ATL TERMINAL ON FRIDAY

EVALUATION PERIOD 2100 TO 2300

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS		
		TIME	EQUIP	OTHER
2100 - 2130	DL868-DAL	2100	JD8F	7
	DL136-MIA	2104	JD8S	
	EX296-TLH	2105	TB9	
	DL441-JAX	2105	JD9S	
	DL335-SDF	2105	JDC9	
	PI37-AVL	2106	J737	
	DL278-IAH	2106	JDC8	
	EA299-BNA	2107	JD9S	
	DL535-CVG	2108	JD9S	
	DL740-TPA	2110	JD9S	
	EA142-MGM	2111	JDC9	
	UA456-BHM	2113	J737	
	DL615-CAE	2113	JD9S	
	DL104-LAS	2114	JD8S	
	DL618-MGM	2114	JD9S	
	NJ354-ABY	2115	TBT	
	NW727-MIA	2116	J727	
	DL124-MSY	2116	JD8S	
	DL107-IAD	2116	J747	
	DL318-TYS	2117	JDC9	
	PI925-FLO	2120	TYS	
	EA721-CSG	2120	JDC9	

MODEL

GMT TIME BY 1/2 HR	A/C FROM	ARRIVALS		
		TIME	EQUIP	OTHER
	DL849-ORD	2121	JD8F	
	EA128-SAT	2122	J727	
	EA324-PBI	2122	JD9S	
	EA546-MOB	2123	JD9S	
	DL847-DAY	2123	JD8F	
	EA751-CHA	2124	JD9S	
	EA566-BHM	2125	JD9S	
	EA328-MCO	2125	JD9S	
	DL622-BHM	2125	JD9S	
	DL418-BTR	2126	JD9S	
	DL602-CSG	2126	JD9S	
	DL604-MEM	2126	JD9S	
	DL430-SHV	2126	JD9S	
	EA244-DAB	2127	J72S	
	EA342-PNS	2128	JD9S	
2130 - 2200	S0173-GSP	2130	PM4	3
	EA254-GNV	2130	JD9S	
	EA144-IAH	2132	J72S	
	EA272-MIA	2133	J727	
	EA87-JAX	2133	J727	
	S0194-GAD	2135	PM4	
	EA120-MSY	2135	J72S	
	EA616-FLL	2136	J72S	
	EA136-SRQ	2136	JD9S	
	EA110-TPA	2137	J72S	
	EA132-TLH	2139	J727	
	EA100-MLB	2139	JD9S	
	EA742-DAL	2140	J727	
	PI241-HKY	2143	TFH	

~~DL821-EWR 2157 JD8F~~

2200 - 2230

2

MODEL

GMT TIME ARRIVALS
 BY 1/2 HR A/C FROM TIME EQUIP OTHER

S0696-HSV 2210 PM4

DL521-AGS 2210 JD9S

UA671-TRI 2213 J737

EA567-RIC 2213 JD9S

TW562-STL 2217 J727

PI946-TRI 2219 TYS

DL822-MCO 2220 JD8F

DL442-BHM 2220 JD9S

DL334-CAE 2221 JDC9

2230 - 2300

4

EA695-BNA 2232 JD9S

UA599-PIT 2235 J72S

UA391-DCA 2239 J737

NJ156-AYS 2240 TBT

77

MODEL

GMT TIME BY 1/2 HR	ARRIVALS		
	A/C FROM	TIME	EQUIP OTHER
	DL701-SAV	2245	JD9S
	DL641-LEX	2247	JD9S
	WQ103-RMG	2250	TTC
	NW720-MKE	2251	J727
	EA129-BOS	2252	J72S
	EA297-IND	2253	JD9S
	EA131-BAL	2253	J72S
	EA784-DAL	2253	JD9S
	EA727-PVD	2254	J72S
	EA137-DCA	2255	J727
	EA327-PIT	2257	J72S
	EA121-PHL	2257	J727
	S0165-GAD	2259	PM4
	EA261-SDF	2259	JDC9

ATLANTA TOWER
Data Collection Form
Arrival Times in GMT

1700EST					
<u>Flight #</u>	<u>Time</u>	<u>Flight #</u>	<u>Time</u>	<u>Flight #</u>	<u>Time</u>
D278	2101	D615	2129	E110	2201
N05S	2130	S62	2130	D821	2202
E142	2104	E132	2131	E567	2204
D335	2105	S173	2132	T562	2208
D441	2106	D618	2133	E128	2210
D535	2108	S194	2133	D442	2217
D136	2109	X22G	2134	S696	2219
E566	2110	W354	2134	E299	2225
N7CA	2112	D107	2136	U671	2226
X30R	2113	E616	2137	D521	2227
E721	2113	E751	2138	N53W	2230
S175	2114	E100	2138	D334	2231
E324	2115	D430	2140	X81P	2234
E566	2116	D9475	2140	X77KK	2237
D4124	2117	D104	2141	GA254	2237
N727	2118	D849	2143	E784	2238
X65L	2119	E87	2145	D822	2241
D740	2120	P241	2145	P946	2242
E546	2121	D418	2146	E727	2249
E244	2122	D622	2147	E325	2252
U456	2122	E9010	2148	E695	2253
E144	2124	E742	2149	E84	2254
P37	2124	E136	2149	X39Y	2256
P925	2126	D604	2151	N720	2258
D318	2125	E120	2153	E593	2259
D847	2127	E328	2155	D701	2300
X37K	2127	D602	2156	E156	2300
E272	2128	E254	2158		

APPENDIX C
SECTION LOADS - MODEL
AND ACTUAL DATA

MODEL

Cleveland ARTCC - Detroit High

HOURLY SECTOR STATUS REPORT
CENTER ZOB SECTOR DET HOUR 2100 GMT

CAPACITY = 10						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	0	1	2	1	0	2
	UA00029	UA00029	TW00803			UA00026
		TW00803				UA00031

HOURLY SECTOR STATUS REPORT
CENTER ZOB SECTOR DET HOUR 2200 GMT

CAPACITY = 10						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	4	3	2	1	0	1
	UA00031	TW00012	AA00015	AA00015		UA00767
	UA00026	JL00002	AA00016			
	TW00012	AA00015				
	JL00002					

DET HI

2100-2110 AA399 NW219 AA509	2110-2120 U986 AA220 ASPER64 SEAT43 WELD98 UA682 AA278	2120-30 HA317 AA630 N5455 UA414	2130-2140 NW18 TW36 AA286 N555MH NW231 TW102
2140-2150 NW308 AC734 N100X		2150-2200 UA615 UA950	25 Actual Vs <u>4</u>
2200-2210 UA656 TW844 N600R	2210-2220 AA336 AA612 N2989 N87B MO485	2220-2230 AA564 AA507 UA925 UA26 JL2 N555U	2230-2240 AA358 NW5451 AA8 TW806 SANDY06
2240-2250 UA374 AA51	2250-2300 PA55 TW351 AF030 NW224 VU7Y02 N8999A		28 Actual Vs <u>7</u> Model

MODEL

CLEVELAND ARTCC - DANSVILLE HI

HOURLY SECTOR STATUS REPORT
CENTER ZOB SECTOR DVS HOUR 0 GMT

CAPACITY = 11
TIME PERIOD 00-10 10-20 20-30 30-40 40-50 50-60
NUMBER OF A/C 1 3 2 0 1 1

TW00043 TW00043 TW00046 UA00034 UA00034
 TW00046 AA00862

HOURLY SECTOR STATUS REPORT
CENTER ZOB SECTOR DVS HOUR 100 GMT

CAPACITY = 11
TIME PERIOD 00-10 10-20 20-30 30-40 40-50 50-60
NUMBER OF A/C 0 0 0 0 0 0

DANSVILLE HI

0000-0010	0010-0020	0020-0030	0030-0040
A2765	EA176	DORSA27	AA480
UA460	EJ430	AC793	N914Y
N295AR	UV303	NW237	AA193
UA623	AA66		AA345
CFW05			NW288
WRING47			AA412
AA167			
0040-0050	0050-0100		
MO583			24 ACTUAL
AC794			VS
AC794			4 MODEL
0100-0110	0110-0120	0120-0130	0130-0140
AC653	MO566	AA217	OV866
FUZZY01		WRING63	AA298
EA946		SB305	TW
TW359			
AA367			AA525
A80495			AA414
0140-0150	0150-0200		
	WRING 50		18 ACTUAL
	UA218		VS
	TW76		0 MODEL

MODEL

WASHINGTON ARTCC

HOURLY SECTOR STATUS REPORT
CENTER ZDC SECTOR 35 HOUR 1400 GMT

CAPACITY = 12

TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	4	1 5	5	1	6	11

NA00082	PA00315	PA00315	NE00001	NE00006	NE00006
EA00037	EA00037	NE00001		NE00004	NE00003
NA00003	EA00010	EA00010		NA00160	NE00004
EA00009	BN00984	BN00978		EA00897	NA00081
	BN00978	BN00984		NA00081	EA00011
				EA00034	NA00055
					LA00154
					NA00160
					LA00156
					EA00034
					EA00897

TRAFFIC SURVEY
 NORFOLK HI
 (D34)
 1500 - 1700 LOCAL
 10/27/71

AIRCRAFT ID	ENTERED SECTOR	DEPARTED SECTOR
EA 42	1900 Z	1901 Z
NA 4	1900	1905
EA 18	1900	1905
BN 905	1900	1906
NE 12	1900	1911
THEME 24	1900	1913
EA 154	1900	1917
NE 72	1900	1918
JIVE21	1902	1914
NE 54	1910	1929
MG 05	1917	1920
NE 42	1918	1940
THEME24	1928	1942
NA 54	1932	1950
NBDH	1933	1953
LH492	1933	1949
EA 23	1934	1949
VAC102	1936	1942
VAD100	1938	1942
SUB91	1945	2000
EA 46	1950	2001
EA 178	1953	2011
N22JW	2024	2043
DEAD17	2025	2046
KS 955	2030	2050
PA 210	2036	2058
A80468	2036	2045
EA 25	2041	2100 /
NA 66	2045	2100 /
NA 411	2049	2051
EA 22	2049	2100 /
VAD501	2049	2954
NA 415	2055	2100 /
DEAD17	2058	2100 /

SUMMARY:

TOTAL AIRCRAFT	34
PEAK IN SECTOR	8 (at 1940)
COUNT FOR	1920 - 1930 4
	2010 - 2020 1
	2030 - 2040 5

TRAFFIC SURVEY
WILMINGTON HI
(D35)
0900 - 1100 LOCAL
10/22/71

AIRCRAFT ID	ENTERED SECTOR	DEPARTED SECTOR
REACH 22	1300 Z	1303 Z
NA 418	1305	1318
EA 892	1313	1328
BN 075	1315	1340
NE 50	1325	1340
WD 255	1329	1341
NA 92	1332	1348
N66RP	1337	1355
A61735	1341	1342
CAMEL DRIVER 2	1346	1349
WOOL 86	1347	1359
NA 109	1348	1359
NA 100	1350	1400
V58383	1352	1412
N2DD	1352	1411
EA 871	1358	1416
NA 96	1400	1411
NA 82	1402	1417
NA 3	1402	1421
EA 152	1403	1416
PA 410	1406	1424
UA 7068	1406	1429
VAD512	1407	1429
N5419	1408	1428
EA 8270	1409	1426
EXALTO1	1412	1423
EA 150	1415	1433
T70027	1418	1437
EA 10	1419	1434
EA 49	1419	1438
BN 984	1419	1435
NE 100	1419	1435
T40638	1424	1443
LA 452	1429	1444
EA 9	1429	1445
NE 41	1429	1446
RISK10	1429	1432
EA 151	1430	1447
T50227	1432	1447
NA 160	1438	1453
NE 95	1438	1453

2

NA 407	1443	1458
NE 6	1443	1500
NE 4	1446	1508
SJ232R	1446	1508
CL4902C	1447	1507
A24494	1447	1454
251MA	1449	1508
EA 34	1451	1504
INLETO2	1455	1459
EA 878	1457	1506
UAF314	1458	1518
A24498	1500	1519

SUMMARY:

TOTAL AIRCRAFT	53
PEAK IN SECTOR	13 (at 1432)
COUNT FOR 1320 - 1330	- 4
1410 - 1420	- 19
1430 - 1440	- 15

C-10

89

MODEL

HOURLY SECTOR STATUS REPORT
 CENTER ZMA SECTOR R43 HOUR 1500 GMT

CAPACITY = 13
 TIME PERIOD
 NUMBER OF A/C

00-10	10-20	20-30	30-40	40-50	50-60
1	2	1	1	0	0
LA00150	EA00014 LA00150	EA00014	EA00014		

HOURLY SECTOR STATUS REPORT
 CENTER ZMA SECTOR R43 HOUR 1600 GMT

CAPACITY = 13
 TIME PERIOD
 NUMBER OF A/C

00-10	10-20	20-30	30-40	40-50	50-60
0	2	2	2	0	0
	NA00018 EA00016	NA00018 EA00016	NA00018 EA00016		

HOURLY SECTOR STATUS REPORT
 CENTER ZMA SECTOR R45 HOUR 1800 GMT

CAPACITY = 12
 TIME PERIOD
 NUMBER OF A/C

00-10	10-20	20-30	30-40	40-50	50-60
0	0	0	0	0	0

HOURLY SECTOR STATUS REPORT
 CENTER ZMA SECTOR R45 HOUR 1900 GMT

CAPACITY = 12
 TIME PERIOD
 NUMBER OF A/C

00-10	10-20	20-30	30-40	40-50	50-60
0	0	0	0	0	0

MIAMI ARTCC

All times EDT for data on sectors R-43 and R-45. All counts actual.

R-43 1100-1300 - Peak instantaneous count: between 1230-1240 - 7 aircraft.

<u>1100-1110</u>	<u>1110-1120</u>	<u>1120-1130</u>	<u>1130-1140</u>	<u>1140-1150</u>	<u>1150-1200</u>
PA221	PA221	NE40	NE40	NE40	NE40
NE75	EA14	EA14	PA205	PA205	NE61
	PA205	PA205	EA14	EA14	EA947
		EA947	W0801	EA947	N345BM
			EA947	N345BM	
				NE61	
<u>1200-1210</u>	<u>1210-1220</u>	<u>1220-1230</u>	<u>1230-1240</u>	<u>1240-1250</u>	<u>1250-1300</u>
N345BM	N345BM	NA55	JM010	EA961	AV51
NA55	NA55	NE117	EA16	EA16	JM010
	NE117	EA16	NE117	NA18	JM014
		JM010	NA18	JM010	EA995
			EA961	EA1	PA209
			N42G	N364G	N364G
			EA1	AV51	EA33
			N364G	JM014	

R-45 1400-1600 - Peak instantaneous count: between 1410-1420 - 8 aircraft.

<u>1400-1410</u>	<u>1410-1420</u>	<u>1420-1430</u>	<u>1430-1440</u>	<u>1440-1450</u>	<u>1450-1500</u>
DL343	VAA300	N960GA	DL4144	EA177	TW474
DL845	DL343	EA732	EA8259	DL547	NE62
UA901	AC605	DL638	EA732	UA577	EA178
EA8351	N2222R	AC605	DL472	NE11	EA46
EA608	N905K	DL472	DL547	NE62	
VAA300	EA608	EA8259	EA177	EA46	
N2222R	UA5792	DL4144	UA577	EA178	
AC605	N960GA	EA177	NE11		
	DL638				
	EA732				
<u>1500-1510</u>	<u>1510-1520</u>	<u>1520-1530</u>	<u>1530-1540</u>	<u>1540-1550</u>	<u>1550-1600</u>
TW474	DL1	UA568	N960GA	UA396	EA289
EA46	NA124	DL1	UA692	UA692	WEDGY02
NE62	UA568	EA105	EA235	N960GA	WEDGY03
DL1	EA105	UA692	UA396	EA235	N960GA
NA124	RITZY26	EA235	N804GA	WEDGY02	DL139
				EA287	DL136
				WEDGY03	

MODEL

CHICAGO ARTCC - GOSHEN HI

HOURLY SECTOR STATUS REPORT

CENTER ZAU SECTOR GSH HOUR 2200 GMT

CAPACITY = 9

TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	12	14	11	7	12	15

UA00776	UA00611	UA00925	UA00925	UA00531	UA00008
UA00611	UA00922	UA00922	UA00531	UA00012	UA00086
UA00890	UA00776	UA00717	UA00127	UA00084	UA00012
UA00115	UA00890	UA00127	UA00017	UA00008	TW00350
UA00358	UA00717	UA00017	UA00084	UA00086	NW00369
UA00087	UA00358	TW00844	AA00391	NW00369	NW00057
TW00806	TW00844	NW00364	AA00023	NW00057	FT00144
TW00346	TW00806	AA00509		AA00008	AA00490
TW00293	UA00087	AA00620		AA00070	AA00467
TW00347	TW00293	AA00391		AA00041	AA00096
FT00146	TW00347	AA00023		AA00234	AA00041
AA00205	NW00364			AA00096	AA00070
	AA00620				AA00234
	AA00509				AA00008
					AA00091

HOURLY SECTOR STATUS REPORT

CENTER ZAU SECTOR GSH HOUR 2300 GMT

CAPACITY = 9

TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	11	10	12	11	6	5

UA00165	UA00749	UA00927	UA00927	UA00608	UA00222
TW00845	UA00924	UA00924	UA00608	UA00222	TW00354
TW00350	UA00165	UA00749	UA00078	TW00216	AA00268
TW00351	UA00015	TW00708	TW00708	NW00548	AA00515
TW00165	TW00845	UA00015	TW00216	AA00268	AA00032
NW00231	TW00165	UA00078	NW00382	AA00032	
NW00072	TW00351	NW00382	NW00548		
FT00144	NW00072	AA00320	AA00604		
AA00467	NW00231	AA00293	AA00293		
AA00490	AA00320	AA00604	AA00237		
AA00091		AA00021	AA00021		
		AA00237			

HI CHICAGO ARTCC

2200-2210	2210-2220	2220-2230	2230-2240	2240-2250	2250-2300
UA8327	UA461	UA689	N991	TW429	
TW439	TW203	N713MR	AL881	(TW429)	UA531
(TW439)	AL897	TW169	AL142	(TW423)	NW369
UA687	UA145	N747UP	TW423	(TW423)	KL7116
QF531	MO601	(N747UP)	TW609	(TW429)	UA67
(UA8327)	UA29		TW803	(TW429)	
UA741	N111FL				
	TW167				28 VS 42
					2 Corre-
					lated
23-2310	2310-2320	2320-2330	2330-2340	2340-2350	2350-0000
AA41(2250)	UA488	CHAIN16	UA165	UA66	UA354
TW526	UA57	(CHAIN16)	TW438	TW261	N66RP
UA548		UA583	AA116	N66RP	TW180
NC427		UA152	TW179	NW57	TW120
UA65		UA78	(TW261)	(NW57)	
		AA273	(TW261)		
		UA565	UA967		
		UA165	UA717		
		TW165	AA15		
		TW753	AA87		
		TW35	N255CT		
					35 VS 32
					3 Corre-
					lated

C-14

93

MODEL

CHICAGO ARTCC - DES MOINES HI

HOURLY SECTOR STATUS REPORT
 CENTER ZAU SECTOR DSM HOUR 2300 GMT

CAPACITY = 15

TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	19	17	18	20	20	23

UA02832	UA02832	UA02832	UA02832	UA02822	UA02822
UA00385	UA00492	UA00611	UA00492	UA00921	UA00461
UA00492	UA00385	UA00717	UA00964	UA00964	UA00689
UA00611	UA00717	UA00492	UA00717	UA00174	UA00652
UA00717	UA00611	UA00178	UA00174	UA00167	UA00964
UA00278	UA00087	UA00127	UA00354	UA00131	UA00921
UA00170	UA00127	UA00087	UA00127	UA00354	UA00167
UA00108	UA00178	UA00354	TW00403	UA00127	UA00165
UA00178	UA00057	UA00062	UA00017	UA00017	UA00177
UA00087	UA00055	TW00403	UA00062	TW00403	UA00174
UA00062	TW00403	UA00017	UA00057	UA00057	UA00115
UA00055	UA00062	UA00057	UA00065	UA00065	UA00131
TW00293	UA00017	TW00289	TW00252	TW00252	UA00354
TW00026	TW00289	TW00293	TW00289	TW00063	TW00811
TW00074	TW00003	TW00003	TW00063	TW00289	UA00065
TW00003	TW00293	TW00252	TW00003	AA00023	TW00845
CO00025	AA00023	AA00023	AA00075	AA00091	TW00165
AA00254		AA00075	AA00180	AA00041	TW00063
AA00032			AA00041	AA00180	TW00252
			AA00023	AA00075	AA00075
					AA00091
					AA00180
					AA00041

MODEL

HOURLY SECTOR STATUS REPORT
 CENTER ZAU SECTOR DSM HOUR O GMT

CAPACITY = 15

TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	24	25	22	16	16	11

UA02822	UA02822	UA02894	UA02894	UA02894	UA02846
UA00461	UA02894	UA00461	UA00494	UA00494	UA00583
UA00689	UA00921	UA00494	UA00018	UA00583	UA00494
UA00921	UA00461	UA00652	UA00015	UA00130	UA00130
UA00652	UA00689	UA00689	TW00236	UA00018	TW00366
UA00964	UA00652	UA00165	TW00068	TW00028	UA00018
UA00065	UA00167	UA00177	TW00006	TW00019	FI00242
UA00177	UA00165	UA00115	TW00090	TW00006	CO00010
UA00165	UA00115	TW00811	TW00028	TW00236	AA00166
UA00174	UA00177	TW00845	TW00019	FI00242	AA00072
UA00167	UA00131	UA00015	CO00010	CO00601	AA00176
UA00131	TW00811	TW00165	CO00601	CO00010	
UA00115	UA00015	TW00006	CO00039	AA00072	
UA00015	TW00845	TW00090	AA00021	AA00176	
TW00845	TW00006	TW00068	AA00176	AA00021	
TW00811	TW00090	TW00028	AA00072	AA00166	
TW00063	TW00028	TW00019			
TW00090	TW00019	TW00236			
TW00165	TW00068	CO00601			
TW00068	TW00236	CO00039			
CO00039	TW00165	CO00010			
AA00180	CO00039	AA00021			
AA00041	CO00601				
AA00091	AA00091				
	AA00021				

MODEL

INDIANAPOLIS ARTCC - APPLETON HI

HOURLY SECTOR STATUS REPORT
 CENTER ZID SECTOR APE HOUR 2000 GMT

CAPACITY = 9	00-10	10-20	20-30	30-40	40-50	50-60
TIME PERIOD						
NUMBER OF A/C	5	4	0	1	1	1

UA00142 UA00120 TW00429 UA00217 UA00632
 UA00052 UA00064
 TW00754 TW00432
 TW00064 AA00076
 AA00380

HOURLY SECTOR STATUS REPORT
 CENTER ZID SECTOR APE HOUR 2100 GMT

CAPACITY = 9	00-10	10-20	20-30	30-40	40-50	50-60
TIME PERIOD						
NUMBER OF A/C	1	3	2	2	1	1

TW00018 UA00461 UA00741 TW00169 UA00055 TW00424
 TW00118 TW00810 TW00423
 AL00882

HOURLY SECTOR STATUS REPORT
 CENTER ZID SECTOR DAY HOUR 2300 GMT

CAPACITY = 9	00-10	10-20	20-30	30-40	40-50	50-60
TIME PERIOD						
NUMBER OF A/C	3	0	2	2	0	4

UA00177 TW00019 UA00574 UA00457
 TW00811 AA00174 UA00636 UA00170
 AL00898 UA00564
 TW00074

ILLEGAL TIME-RPT1

MODEL

HOURLY SECTOR STATUS REPORT
CENTER ZID SECTOR DAY HOUR O GMT

CAPACITY =	9						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60	
NUMBER OF A/C	3	0	1	2	1	2	
	UA00133		UA00062	UA00278	TW00252	UA00174	
	AL00884			TW00026		AA00377	
	AA00040						

9. Indianapolis ARTCC

Strip Count - Appleton High Altitude Sector (1500-1700 Local) - 18 Oct 1971

<u>Time</u>	<u>Aircraft Ident</u>	<u>Total</u>
1500/10	A24450 - UA 426 - AL975 - DIKE64	4
1510/20	RACER75 - UA658 - UA142 - U52726	4
1520/30	CL776 - N711L	2
1530/40	UA727 - TW459 - UA5787	3
1540/50	TW432 - TW299 - UA432 - TW516	4
1550/1600	TW545 - TW429	2
1600/10	AL855	1
1610/20	AA387 - AA473 - TW147 - AA5 - PA743 - UA692 - TW161	7
1620/30	AL995	1
1630/40	UA282 - N356WC - TW475 - TW531	4
1640/50	TW278 - TW169	2
1650/1700	✓ TW423	1
	Total	35

Radar Count - Appleton High Sector

1530/40	UA727 - V52726 - UA432 - N7116 - TW299 - TW432 - TW516	7
1540/50	TW432 - TW299 - TW516 - TW459 - UA5787 - TW545 - TW429	7
1620/30	AA5 - AA473 - TW147 - PA473 - TW161 - AL995 - UA282 - TW475	8

Peak Instantaneous Count

6 Aircraft

Strip Count - Dayton Low Sector (1800-2000 Local) - 18 Oct 1971

<u>Time</u>	<u>Aircraft Ident</u>	<u>Total</u>
1800/10	LUKE91 - AL978 - N9847G - N3350	4
1810/20	N5998Y - N3471X - N931M - TW571 - N9847G - DL740	6
1820/30	PAVY11	1
1830/40	ASPER64 - PEPPY29 - TW548 - DL545 - AL733	5
1840/50	N5025Y	1
1850/1900	AL861 - AL979 - TW294	3
1900/10	TW557 - AL769	2
1910/20	AL856	1
1920/30	TW559 - TW184	2
1930/40	NASA917 - R23861 - N725HG - N950M	4
1940/50	DL822 - AL737 - N9847G - AL969 - AL856	5
1950/2000	AA543 - TW508	2
	Total	36

Radar Count - Dayton Low Sector

1800/10	N5998Y - LUKE91 - N3350 - N931M - AL978 - N9847G - DL740 - TW571 - LUKE91 - DANDY14	10
1900/10	AL769 - AL979 - TW557 - TW294 - N5025Y	5

10.

Radar Count - Dayton Low Sector (cont.)

1940/50 AL969 - AL737 - N950M - N7847G - N725HG - DL822 - AL856 7

Peak Instantaneous Count

8 Aircraft

No strips enclosed.

MODEL

NEW YORK ARTCC

HOURLY SECTOR STATUS REPORT
CENTER ZNY SECTOR 7 HOUR 0 GMT

CAPACITY = 10						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	0	0	0	0	0	0

HOURLY SECTOR STATUS REPORT
CENTER ZNY SECTOR 7 HOUR 100 GMT

CAPACITY = 10						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	0	0	0	0	0	0

HOURLY SECTOR STATUS REPORT
CENTER ZNY SECTOR 8 HOUR 1300 GMY

CAPACITY = 9						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	1	1	1	1	2	3

LA00454	EA00009	EA00009	PA00315	PA00315	NE00001
				NE00001	LA00452
					LA00450

MODEL

HOURLY SECTOR STATUS REPORT
CENTER ZNY SECTOR 8 HOUR 1400 GMT

CAPACITY =	9						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60	
NUMBER OF A/C	3	3	3	2	2	4	
	LA00450	NE00003	EA00011	NA00082	NE00121	NE00121	
	NA00081	NA00081	NE00003	BN00978	NA00082	EA00010	
	LA00452	EA00011	BN00978			BN00984	
						BN00978	

Item 3. Enroute Model - All aircraft in the sector (7 & 8) are tabulated for ten (10) minute periods, beginning on the hour. All counts are actual.

a. Sector 7 - 28 October 1971 - 2000 to 2200 EDST

2000/2010 period

EA2031 - EA561 - EA157 - TW704 - EA546

2010/2020 period

EA546 - NA73 - NA93 - AM403

Peak instantaneous count = 4 at 2016 EDST

2020/2030 period

NA93 - AM403 - N200SR - PA106 - PI53 - A70743

2030/2040 period

PA106 - PI53 - A70743 - EA128 - EA373 - EA391

Peak instantaneous count = 4 at 2039 EDST

2040/2050 period

A70743 - EA128 - EA391 - EA543 - EA205

Peak instantaneous count = 4 at 2041 EDST

2050/2100 period

EA543 - N1107M - EA587 - TW6848

2100/2110 period

EA587 - TW6848 - N540G

2110/2120 period

N540G - NA603 - EA357 - NE59 - AA130

Peak instantaneous count = 5 at 2120 EDST

2120/2130 period

NA603 - EA357 - NE59 - AA130 - EA403

Peak instantaneous count = 5 at 2121 EDST

a. Sector 7 - 28 October 1971 - 2000 to 2200 EDST (Cont'd)

2130/2140 period

EA403 - NA622

2140/2150 period

EA415 - EA565 - CL4907C

2150/2200 period

EA565 - CL4907C - DL985 - EA417 - EA445

Peak instantaneous count = 4 at 2153 EDST

b. Sector 8 - 28 October 1971 - 0900 to 1100 EDST

0900/0910 period

PA454 - NA407

0910/0920 period

EA871 - N200SR - EA151 - AL950

0920/0930 period

EA871 - N200SR - EA151 - EA9 - AC700 - NE75 - EA43

Peak instantaneous count = 7 at 0929 EDST

0930/0940 period

EA151 - N200SR - EA43 - EA9 - AC700 - NA3 - NE75 - EA37 - PA221

Peak instantaneous count = 7 at 0930 EDST

0940/0950 period

AC700 - NE75 - EA37 - PA221 - EA943 - EA963

Peak instantaneous count = 4 at 0940 EDST

0950/1000 period

EA37 - PA221 - NE41 - EA49 - AL911

b. Sector 8 - 28 October 1971 - 0900 to 1100 EDST (Cont'd)

1000/1010 period

NE41 - EA49 - AL911 - NE95 - TV727 - VLC32

1010/1020 period

NE95 - TV727 - NE50 - VLC32 - NE1

1020/1030 period

NE1 - NE50 - PA205 - NE61 - NA1081 - N1107M - PI77 - NA15

1030/1040 period

NE61 - PA205 - PI77 - NA15 - NA1081 - N1107M - EA11 - NE3 - EA152 - NA55 - VLL23

Peak instantaneous count = 8 at 1037 EDST

1040/1050 period


N1107M - EA152 - VLL23 - EA11 - NE3 - NA55 - EA181 - NE111 - NA103 - CFJLJ -
GYRO91 - NA82 - JMO10

Peak instantaneous count = 9 at 1045 EDST

1050/1100 period

NA55 - GYRO91 - NA82 - EA181 - NE111 - NA103 - JMO10 - CFJLJ - V57313 - NE131 -
EA10 - T50274 - PI72

Peak instantaneous count = 10 at 1050 EDST


DANIEL G. VIAFORE
Acting Facility Chief
New York Center

MODEL

JACKSONVILLE ARTCC SECTION D50

HOURLY SECTOR STATUS REPORT
CENTER ZJX SECTOR D50 HOUR 1500 GMT

CAPACITY =	8						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60	
NUMBER OF A/C	1	0	3	3	1	0	
	NE00001		NA00081 EA00897 LA00150	NE00003 NA00055 EA00011	EA00014		

HOURLY SECTOR STATUS REPORT
CENTER ZJX SECTOR D50 HOUR 1600 GMT

CAPACITY =	8						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60	
NUMBER OF A/C	2	1	0	6	2	1	
	NE00117 NE00121	EA00001		PA00457 NE00057 PA00503 PA00585 EA00033 AV00055	NA00018 EA00016	NA00163	

MODEL

JACKSONVILLE ARTCC SECTION D33

HOURLY SECTOR STATUS REPORT
CENTER ZJX SECTOR D33 HOUR 1800 GMT

CAPACITY = 11						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	0	0	0	0	0	0

HOURLY SECTOR STATUS REPORT
CENTER ZJX SECTOR D33 HOUR 1900 GMT

CAPACITY = 11						
TIME PERIOD	00-10	10-20	20-30	30-40	40-50	50-60
NUMBER OF A/C	0	0	0	0	0	0

2

B. EN ROUTE MODEL

1. Sector 33

<u>Time GMT</u>	<u>Aircraft</u>	<u>Time GMT</u>	<u>Aircraft</u>
1800-1809	9	1900-1909	11*
1810-1819	8	1910-1919	3
1820-1829	10*	1920-1929	4
1830-1839	8	1930-1939	3
1840-1849	10	1940-1949	7*
1850-1859	10	1950-1959	6


Peak Count 11

2. Sector 50

<u>Time GMT</u>	<u>Aircraft</u>	<u>Time GMT</u>	<u>Aircraft</u>
1500-1510	6*	1600-1609	2
1510-1520	3	1610-1619	3
1520-1530	3	1620-1629	1
1530-1540	6*	1630-1639	2
1540-1550	3	1640-1649	3
1550-1600	2	1650-1659	5*

Peak Count 6

* Actual count of aircraft radar identified.


JAMES E. POUND
Chief

cc:
SO-500

