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PAGE CHANGES TO

ARTS IIIA PROGRAM CODING SPECIFICATIONS

VOLUME II OF III

FOR

ARTS IIIA FINAL APPROACH SPACING TOOL PHASE 1 CONFIGURATION CONTROL DECISIONS (CCD) T15712 AND T16295 CASE FILES CD300-CPT-OO3A and CD300-AR3A-003

A3.05

SEPTEMBER 13, 1993

FEDERAL AVIATION ADMINISTRATION
ATC TECHNOLOGY BRANCH, ACD-340
ATLANTIC CITY INTERNATIONAL AIRPORT, N.J., 08405

where:

$(A_p)_{n+1}$ = the azimuth in BAMS (Binary Angular Measurements), obtained by converting $(X_p,Y_p)_{n+1}$ from the preceding equation.

(A_p) = the last azimuth, in BAMS.

If the absolute value of ΔT is equal to or greater than 1/4 second, the predicted position is revised using the following corrections:

$$(X'_p)_{n+1} = (X_p)_{n+1} + (-\zeta_c)_n \Delta T$$

The correction for the Y coordinate is similar.

After prediction of any normal, parent or deviation track which is an active associated track, TPRED shall check to determine if CRDA is active. If so, the associated track number/address will be pushed on to the CRDA work stack if it correlated this scan or if it has a Ghost Track link. In all cases it must not be out of range. If CRDA is not active and the associated track has a Ghost track link then TPRED will set the delete request indicator in the Ghost data file and call GPAUSTACK to push the Ghost track number/address on to the PAUS work stack if it isn't already on the stack.

Following this prediction shall perform the Automatic Drop functions for normal, parent or parent trial tracks which are active associated. The automatic drop function disassociates the track data from the flight data and discards the flight data.

INSERT ATTACHMENT 1

If the track's newly predicted position results in a change of sector for the track or results in a change of position in its current azimuth-ordered sector thread, the sector thread change request in the CTS is set; and the track number is pushed onto the sector thread update stack by TUDSENSTK.

If Range/Azimuth Gating (RAG) is enabled make autodrop functions based on RAG range less 1/2 mile.

If the predicted position does not fall in an automatic drop area, a check will be made to determine if this active or active coast track is in handoff to the ARTCC. If it is, a counter in CTS is incremented to inform the interfacility I/O processing routine that a track update should be sent to the ARTCC.

If CA is not inhibited, and the track has a link to CACTS, the CACTS track number is pushed onto the CALERT processing stack.

After all tracks in the sector have been processed, those tracks that fall 180 degrees ahead of the sector just processed will have their following flags/counters in CTS cleared.

- Prediction Complete (P)
- Correlation Indicator (C)
- Inhibit Correlation (IC)
- Tracking Early Correlation (TEDCC)
- Use For Registration (R)
- Number of Reports (NR) and Index to RAT

The following subroutines are used by prediction and are described in section 3.2.40 (TSUB):

AUTODROPB1

COASTB1

FIRSTRKB1

POSPREDB1

ALTRKR1

The following routine is used by TPRED and is described in section 3.3.77:

GPAUSTACK

The following subroutines are used by prediction and are described in section 3.3 (Common Subroutines).

TUDSENSTK

GPAUSTACK

PAUSTACK

BROUT

Local Data

POSTEMP	—	Position temporary
TIMNT	—	Time temporary
VELT	—	Velocity temporary
PREDA	—	Adjust flag
PREDOA	—	Old azimuth temporary
PREDPT	—	Parent track temporary
PRGAZT	—	RGAZT temporary
PREVTN	—	Previous Track Number Temporary

Parameters

TCFCiQ	—	Tab coast time for auto drop of arrival
OVALTQ	—	Max altitude for auto drop of arrival
PARROTQ	—	Number of Permanent Echoes (parrots)

3.2.16.3 Outputs

To SDB1:

CTS	—	Status indicators and track data
PELOCK	—	SLINK PE stack lockout flag

When a Track qualifies for automatic drop a check is made to determine if the FAST function is enabled. If it is a drop track data packet will be constructed and forwarded to FAST.

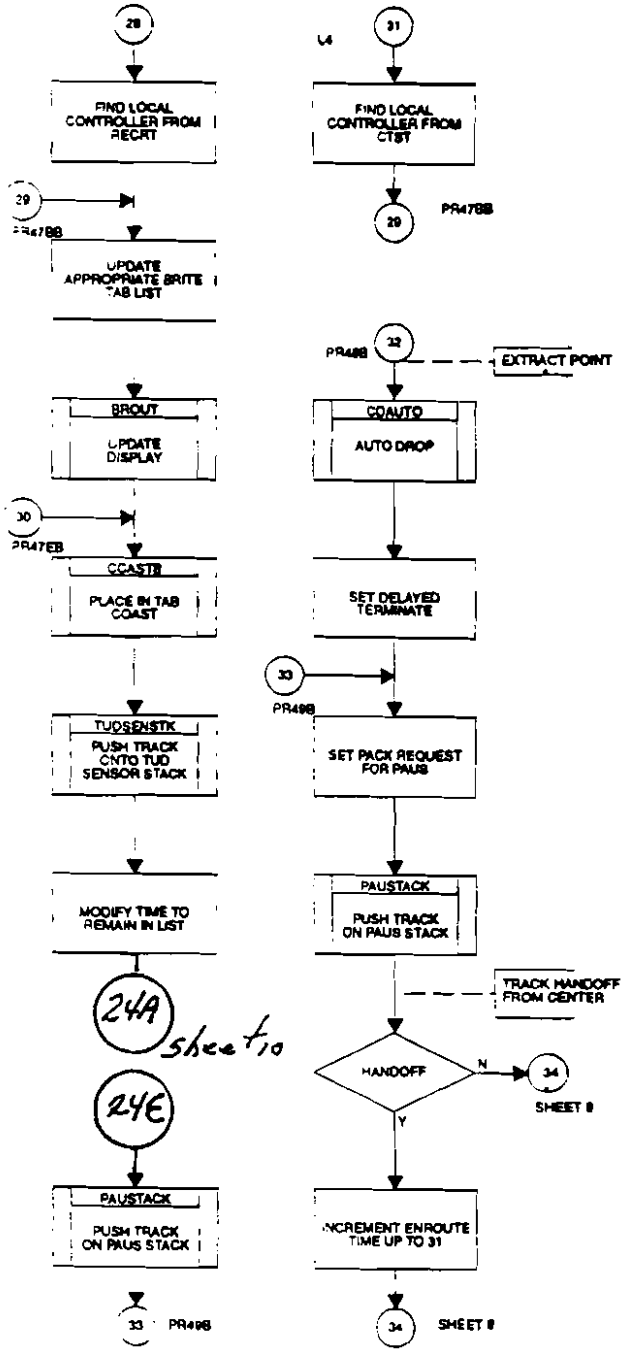


FIGURE 3.2.16–1. PREDICTION FLOWCHART (SHEET 7)

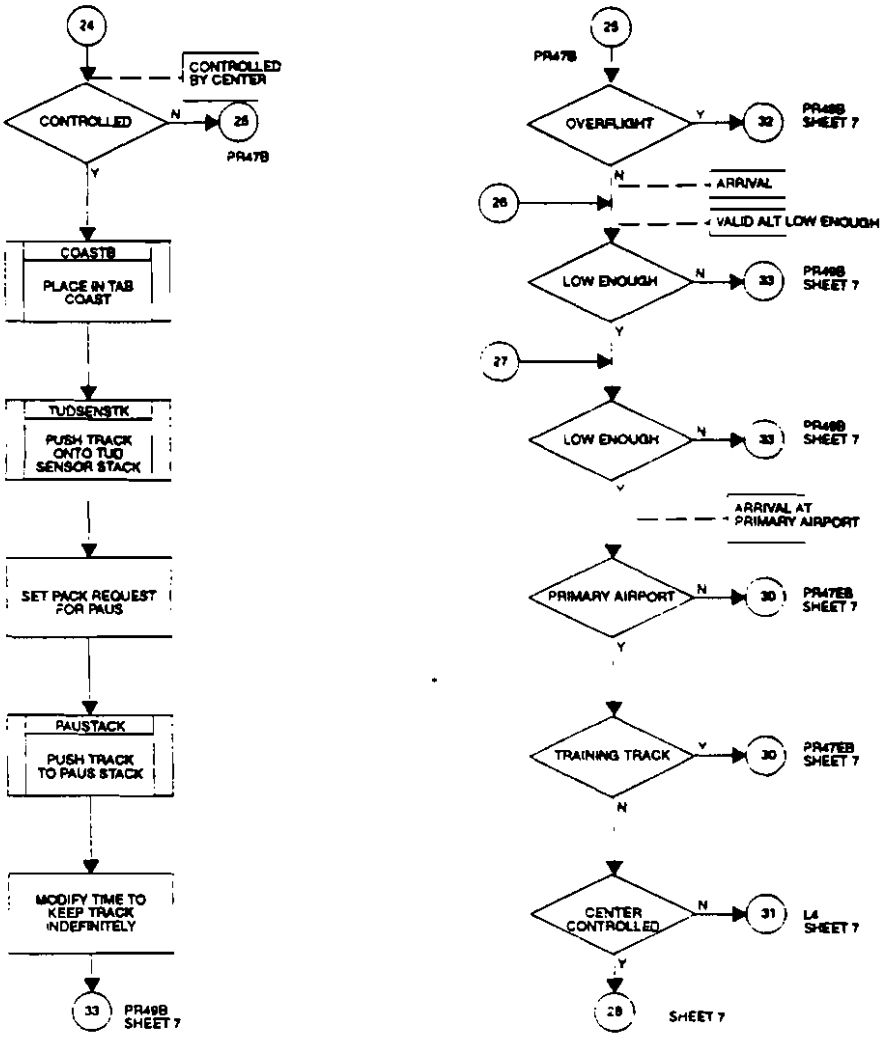


FIGURE 3.2.16-1. PREDICTION FLOWCHART (SHEET 6)

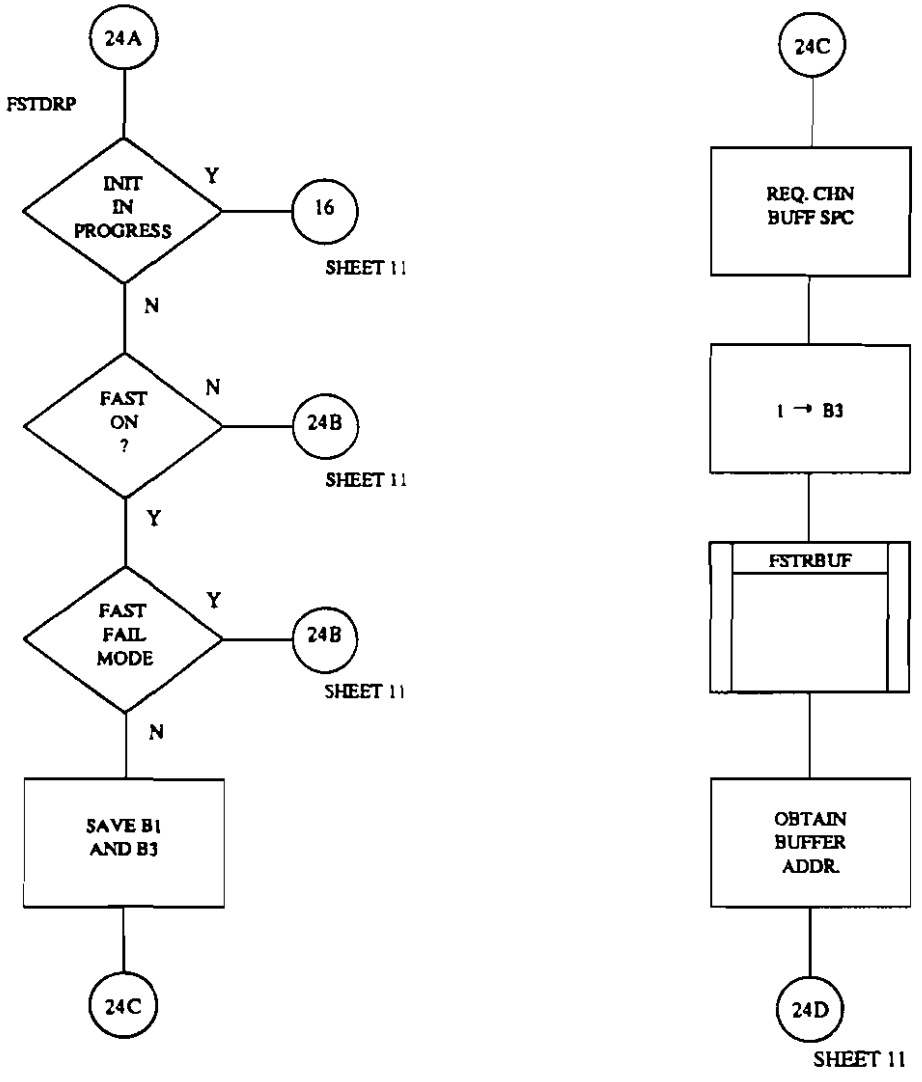


FIGURE 3.2.16-1 PREDICTION FLOW CHART (SHEET 10)

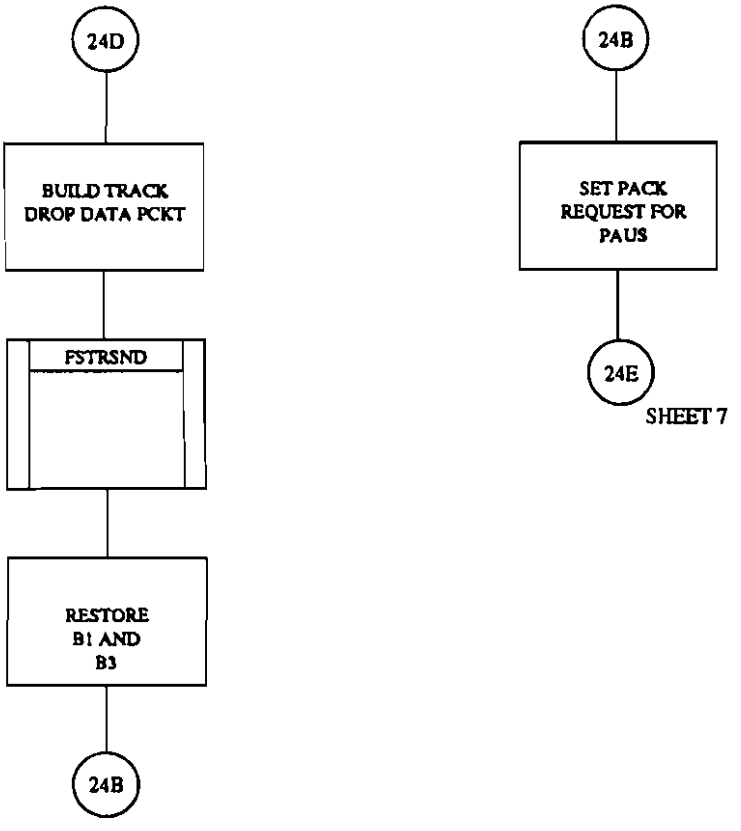


FIGURE 3.2.16-1 PREDICTION FLOW CHART (SHEET 11)

3.2.20 Tracking Output (TROUT)

This program follows the sector thread in sectors n−2, n−6 and n−11 and causes all displays to be updated. TROUT also decrements handoff countdown counter, aircraft type counter, limited data block readout counters if applicable and performs Auto Handoffs processing.

3.2.20.1 Inputs. The following are located in SDB1:

TRKXT

TRSENS

ADNSECT

TSSS1T

TSSS2T

The following are located in SDB2:

IDUBT INIFC

The following are located in SDB3:

SEN0RNG

INAHOP

AHOAMSK

AHOALT

AHOREC

The following are located in CTS:

CTST LINKCA

CFLGT RGAZT

RECRT ASOCT

TNPT ABEAT

CATB RBEAT

CATB1 PALT

HST4T LALT

CTSST

LGCT

LNKT

The following is located in IDAT:

ECIDT

The following are global equates:

NUMKQ

TRSEC1Q

TRSECTQ

The S registers are set by the executive program as follows:

S0 is set to 0

S1 is set to SDB1

S2 is set to SDB2 and SDB3

The local variable is:

STOB4 is temporary storage of B4

The following are local constants:

TSTXR is a two word execute remote table used to access the correct subsystem's sector summary store (TSSSiT)

TSTXR1 is a two word execute remote table used to get sector number in B6

External Subroutines:

PUSAVE

PUREST

CDAUTO

3.2.20.2 Design Logic. TROUT is a planned task which processes all tracks in sectors n−2, n−6 and n−11. It flags all tracks which need positional update for PAUS.

Upon entrance to TROUT, the subsystem is determined and the sector number is computed. TROUT then traces down the sector thread, track by track. All tracks which have been processed by TROUT in sector n−11 have their TROUT processed flag cleared, else the track is flagged for processing. If the track has not been processed and it is in the n−2 or n−6 sector thread and has been correlated, it is flagged for processing, else the next track is processed.

Tracks which have been flagged for processing are handled in the following manner.

If the track is an associated or unassociated delay terminate track, it is flagged for processing by PAU respectively. If the track is flagged for being dropped from the sector thread, TRAD is called to dele

INSERT ATTACHMENT 3

and the FAST function is enabled a thread drop data packet will be constructed and forwarded to FAST.

FAST

the track information from DBM memory. In addition, if the associated track has a valid link to a Ghost Track then TROUT will set up the Ghost Track to be deleted and push the Ghost Track number/address onto the PAUS work stack for processing by PAUS. If the track is none of the above conditions, positional updating is done and PAUS is flagged to process the track. All tracks which are flagged for PAUS processing have their aircraft type request counted down, if there was request. TROUT also handles handoff and beacon readout countdowns.

INSERT ATTACHMENT 4

If a track is associated with an IFR departure or overflight status interfacility flight plan, it is eligible for Automatic Handoff (AHO) Processing (AHOP). This function consists of 1) automatically placing eligible tracks in handoff status and 2) determining tracks that are eligible to display the late handoff condition indicator (flashing 'HO').

A track associated with an eligible flight plan is automatically flagged by TROUT for handoff status (to the ARTCC or adjacent ARTS AHOP defined handoff receiver) when all of the following conditions are satisfied:

1. Track meets all general eligibility criteria (defined AHI area).
2. AHOP is enabled for track, controlling position and system.
3. Track correlated Beacon/Radar reinforced.
4. Track's firmness is greater than 025.
5. Track is not in handoff status.
6. Track's RBC equals its ABC.
7. Track is not controlled by ARTCC or adjacent ARTS.
8. Track is not flashing "DM" or "IF".
9. The track is not suspended.
10. The track meets one of the following handoff area criteria:
    a. An overflight or departure track is within its AHOP defined AHI area and its reported altitude or, if non-Mode C, the assigned scratchpad altitude, equals or exceeds the AHOP defined minimum value for the area. If no reported or scratchpad altitude is available, the minimum altitude check is bypassed.
    b. A departure track's reported altitude equals or exceeds its AHOP defined maximum altitude regardless of its position.

Late handoff-processing occurs when a track associated with an eligible flight plan crosses a maximum range (SV) without initiation of an interfacility handoff (including tracks that did not satisfy the general eligibility criteria determined in IFI). Overflight tracks are monitored to ensure they pass the maximum range inbound before being considered for late handoff processing. When all of the following conditions are satisfied, the LINKCA word is flagged for PAUS to display a flashing "HO":

1. AHOP function is enabled for the system.
2. Track correlated Beacon/Radar reinforced.
3. Track's firmness is greater than 025.

INSERT ATTACHMENT 5

4. Track is not controlled by ARTCC or adjacent ARTS
5. Track is not flashing 'DM' or 'IF'
6. Track has no interfacility message pending.
7. Track is not in suspend status.
8. Overflights have passed the maximum range inbound.

Main Logic:

B-register usage:

B1 is unused

B2 is track index

B3 is a temporary loop index

B4 is the subsystem index

B5 is unused

B6 is temporarily used

B7 is a temporary loop index

Auto Handoff Processing B-register usage:

B1 is Auto Handoff Area Index

B2 is CTS address

B3 is Subsystem

B4 is Subsystem range table address

B5 is the track's sector

B6 is temporarily used

B7 is temporarily used

3.2.20.3 Outputs

IDUBT	—	is altered to update countdown
CTST	—	status of track may be changed
CATC1–CATC4	—	may be altered by PFDB or PLDB
HST1T–HST5T	—	will be changed on nontabular tracks
CTSST	—	handoff countdown will be decremented if the track is in countdown
RECRT	—	the new track bit is cleared

In addtition, if FAST is enabled all tracks that are flagged for PAUS processing will have a CTS (tracking data) data packet contructed which will be forwarded to FAST.

ATTACHMENT 5

When FAST is enabled, at the completion of the current execution of the TROUT program, a TROUT demarcation data packet will be constructed and forwarded to FAST.

DBM	—	display tables may be altered
LINKCA	—	Auto Handoff processing eligibility may be changed

3.2.20.4 Flowcharts. See figure 3.2.20–1.

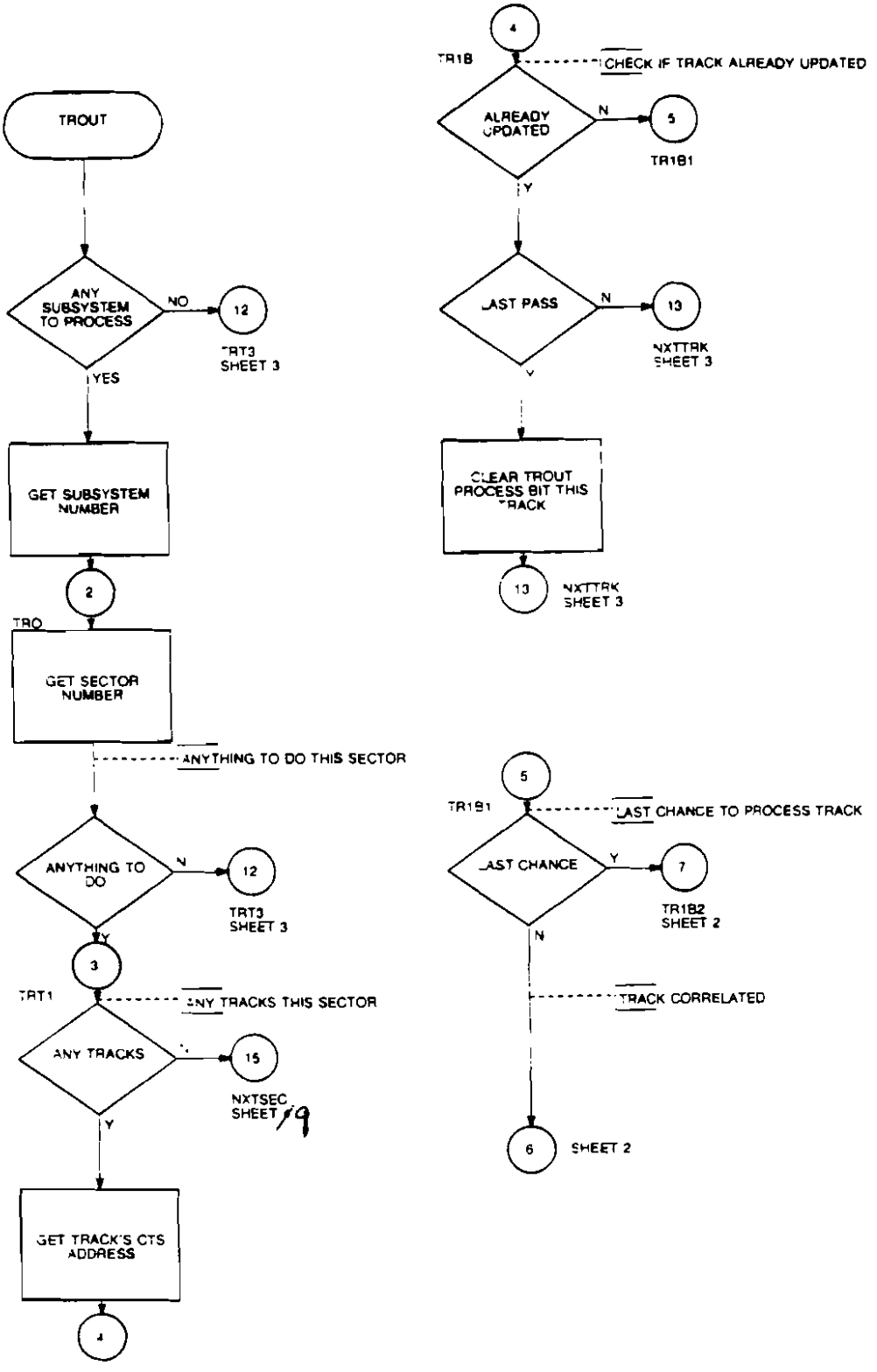


FIGURE 3.2.20–1. TRACKING OUTPUT FLOWCHART (SHEET 1)

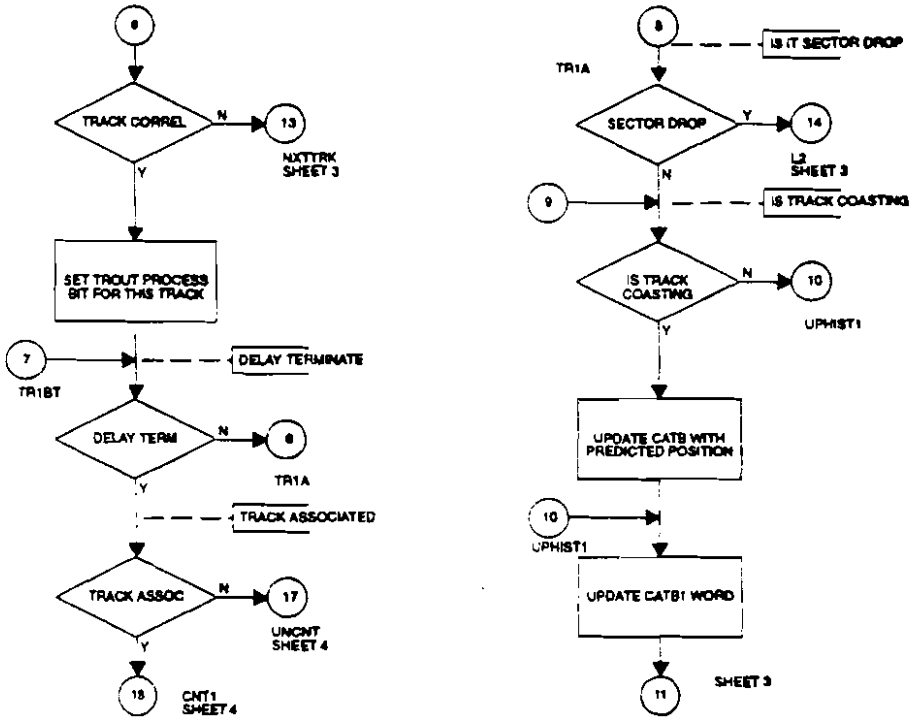


FIGURE 3.2.20-1. TRACKING OUTPUT FLOWCHART (SHEET 2)

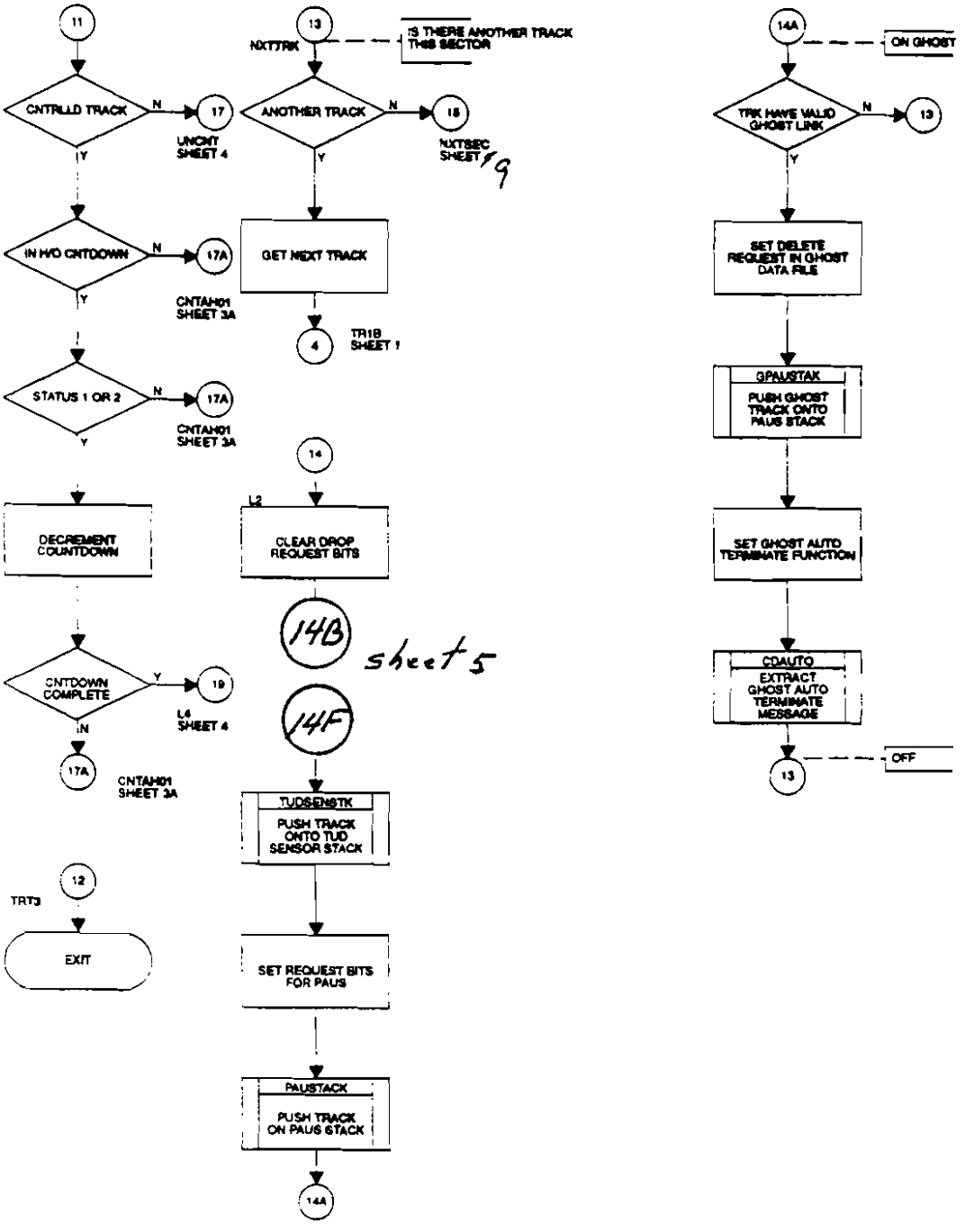


FIGURE 3.2.20–1. TRACKING OUTPUT FLOWCHART (SHEET 3)

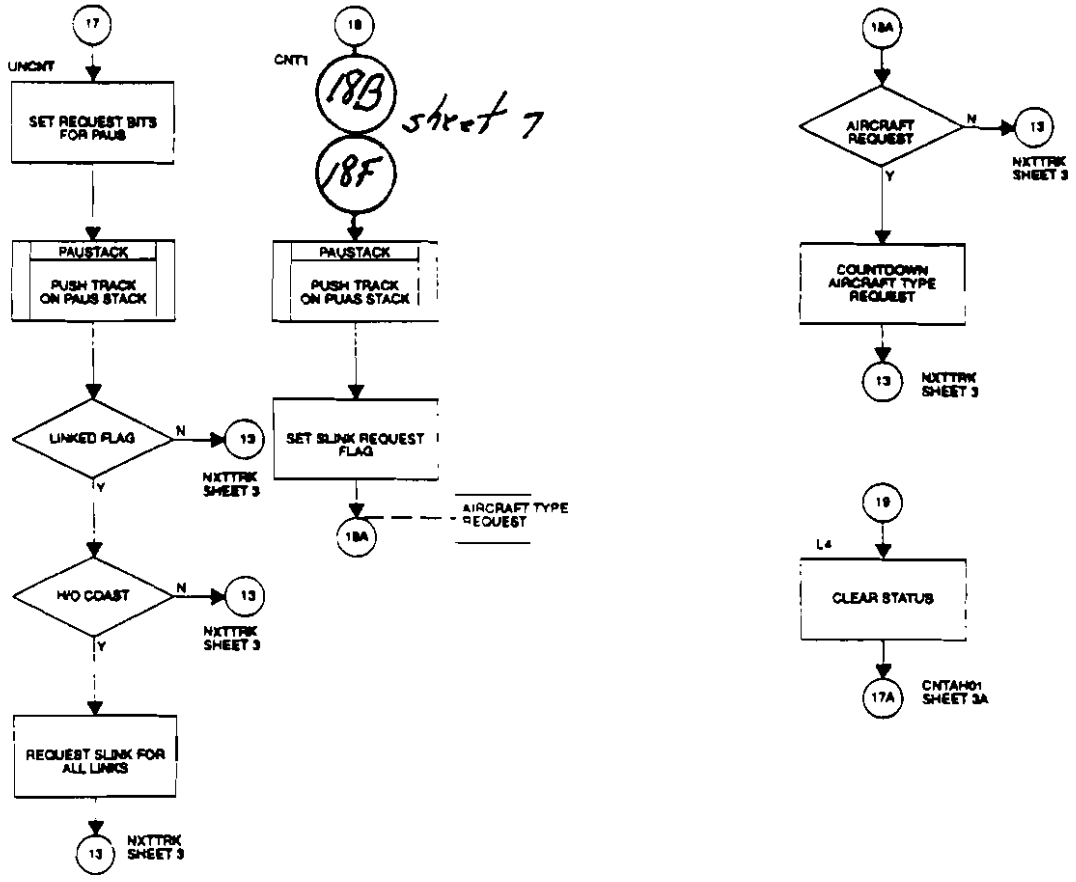


FIGURE 3.2.20–1. TRACKING OUTPUT FLOWCHART (SHEET 4 — END)

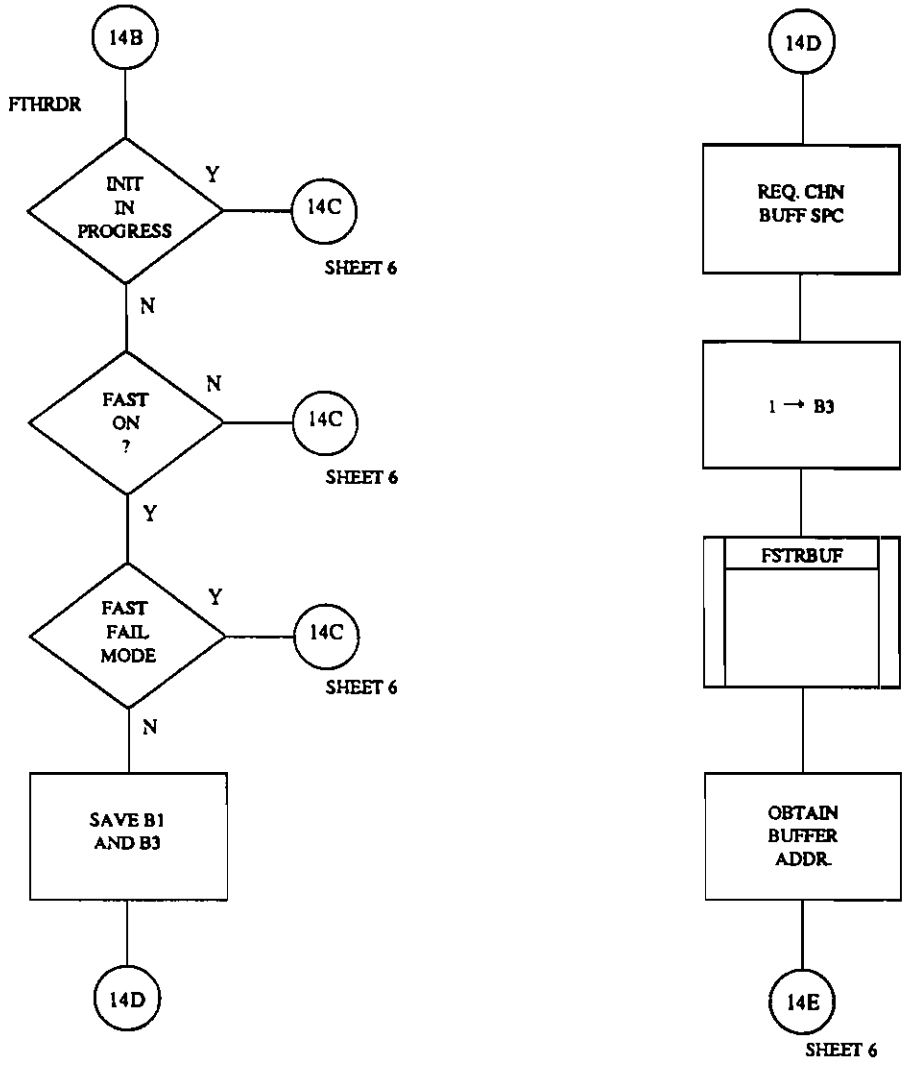


FIGURE 3.2.20-1 TRACKING OUTPUT FLOWCHART (SHEET 5)

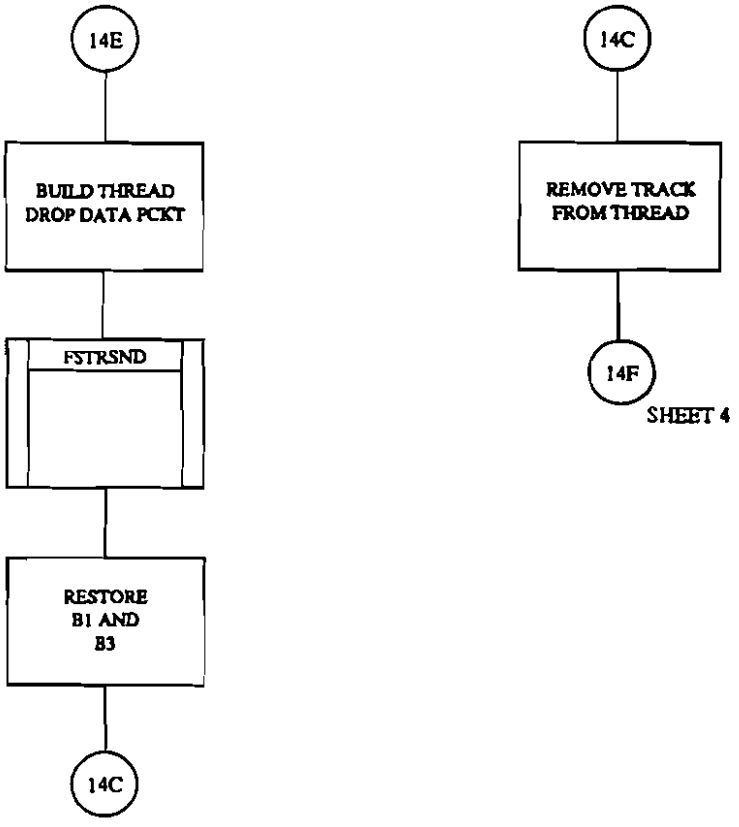


FIGURE 3.2.20-1 TRACKING OUTPUT FLOWCHART (SHEET 6)

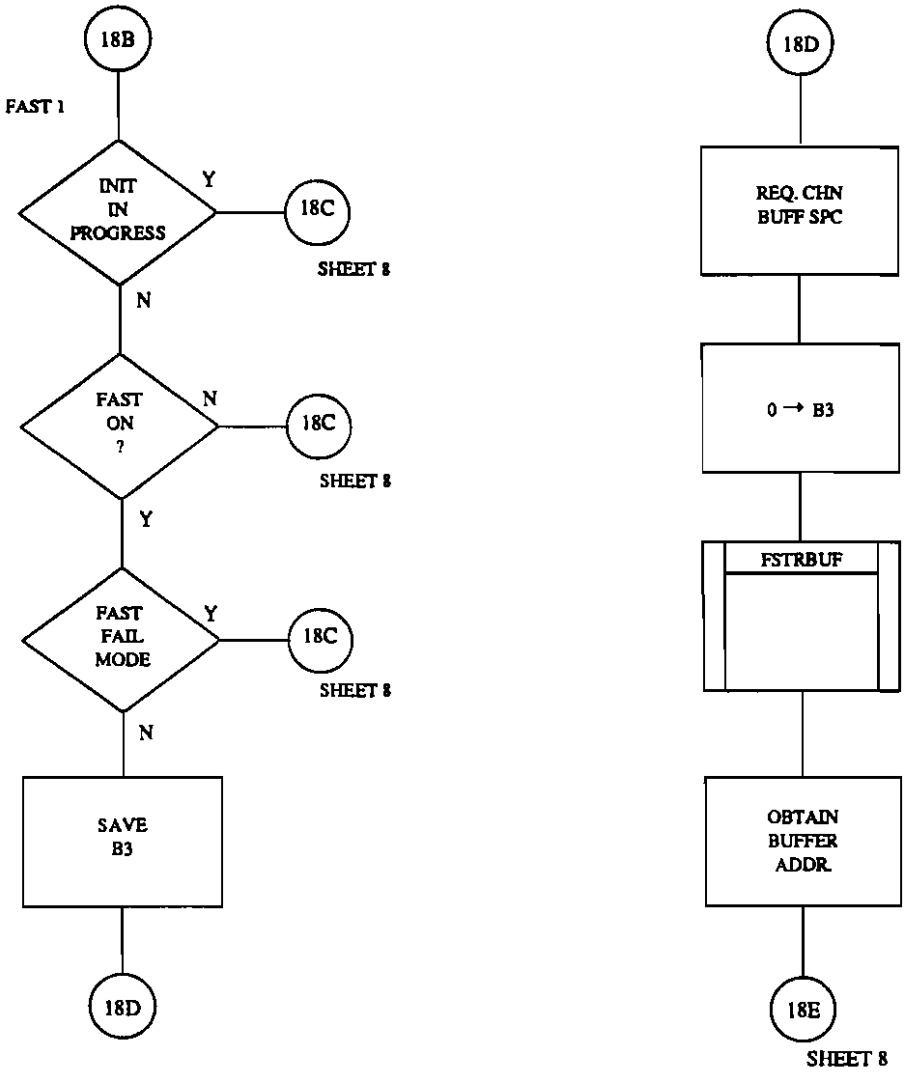


FIGURE 3.2.20-1 TRACKING OUTPUT FLOW CHART (SHEET 7)

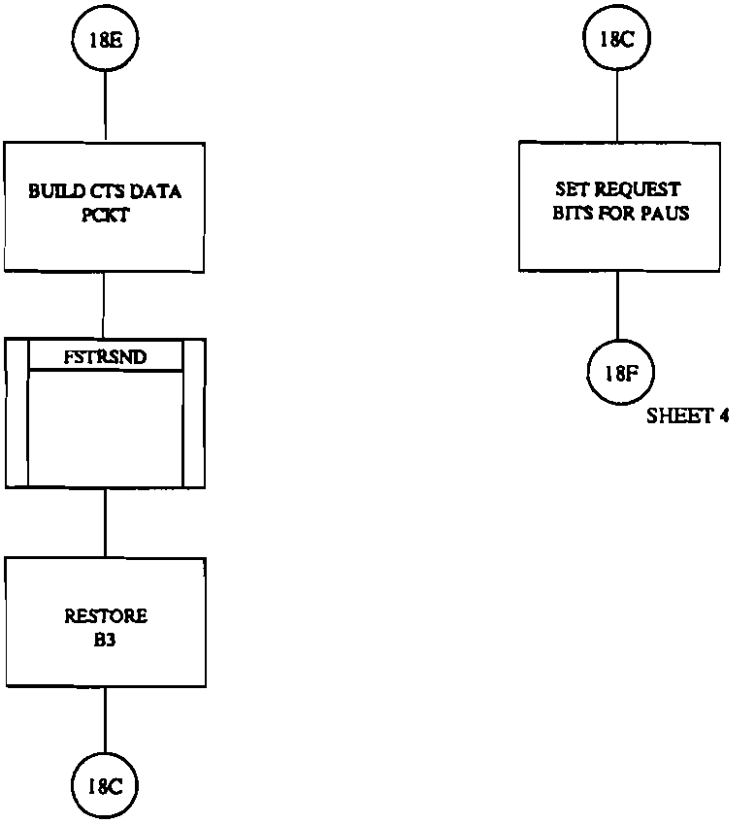


FIGURE 3.2.20-1 TRACKING OUTPUT FLOW CHART (SHEET 8)

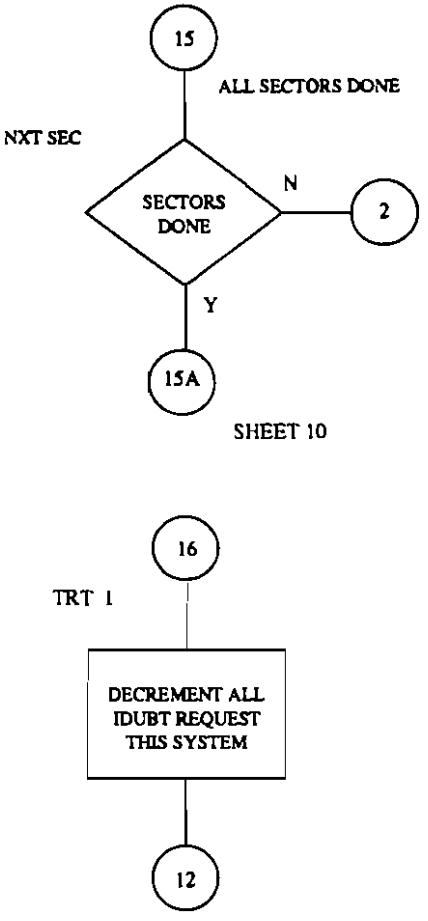


FIGURE 3.2.20-1 TRACKING OUTPUT FLOW CHART (SHEET 9)

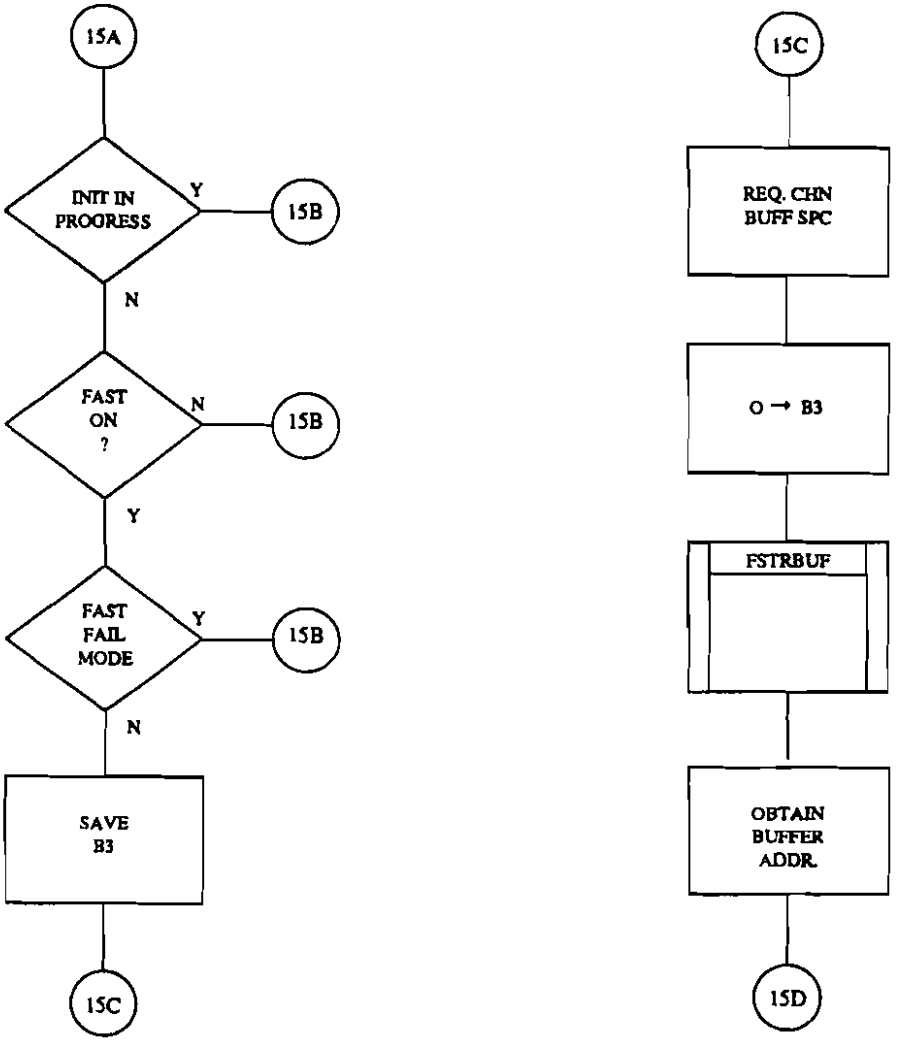


FIGURE 3.2.20-1 TRACKING OUTPUT FLOW CHART (SHEET 10)

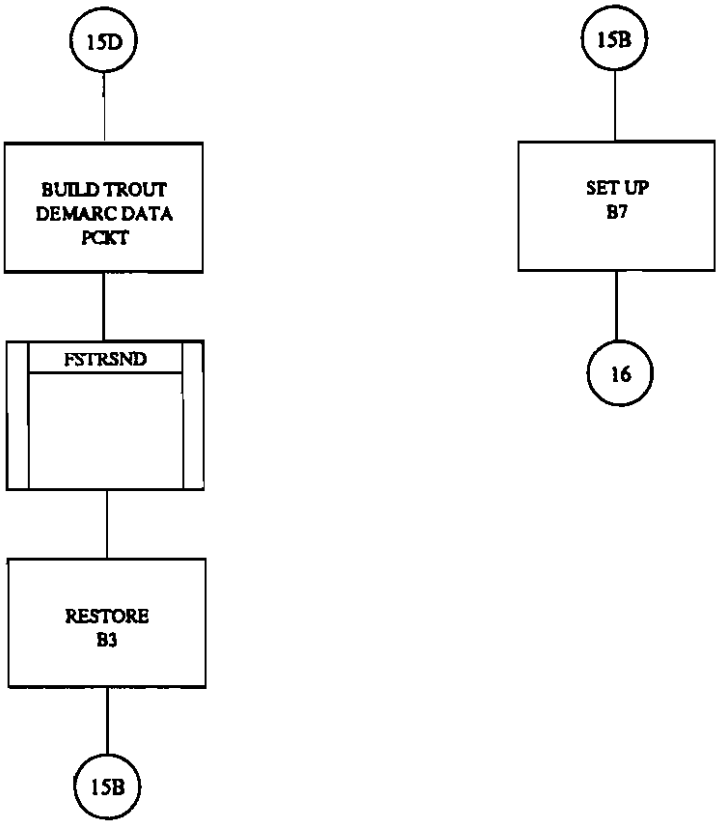


FIGURE 3.2.20-1 TRACKING OUTPUT FLOW CHART (SHEET 11)

YXINCZ — contains 8 words that will be multiplied by leader length and added to tracks map coordinates to determine full data block coordinates

YXINKZ — same as YXINCZ but also considering the MSAW warning

3.2.23.2 Design Logic. The automatic offset subprogram will accept control from the executive program once per six seconds per display. It has a prestored index (INDDEZ,L) for the display for which it must work.

AUT then checks to see if auto offset is inhibited on this display and exits if it is. If auto offset is not inhibited, it finds the leader length and stores it in the lower of ANSLLZ, then the alphanumeric size is stored in the upper. The 0° to 45° offset bit is stored in the upper of INDDEZ and the current display range is stored in the lower of RANGHZ.

In the 120 word AOT table a map is formed using the 30 word table PERIMZ. This map will consist of a matrix 60 bits by 60 bits, each bit representing a square 1/3 inch on a side. The origin (0,0) of the CRT is at a distance of 10 $\sqrt{2}$ inches from the center at an angle of 225° from north. Each bit set in this map will represent an area either of the scope or used by a full data block.

After the map is formed, a search is made of the associated thread for that displays subsystem to find all tracks that are active and being controlled at this display. If it is controlled at this display, its (x,y) coordinates are changed to map coordinates using the following equations and stored in MAPYXZ.

$$X_m = \left\{ \frac{X_t + O_cX}{R} \right\} \bullet 30 + 30$$

$$Y_m = \left\{ \frac{Y_t + O_cY}{R} \right\} \bullet 30 + 30$$

where:

X_m = horizontal map coordinate

Y_m = vertical map coordinate

X_t = X coordinate of track

Y_t = Y coordinate of track

O_cX = compliment of the product of display range times X off center (from CRTYXT, L)

O_cY = compliment of the product of display range times Y off center (from CRTYXT, U)

R = current display range

In order to find the coordinates of the full data block, YXINCZ (or YXINKZ if MSAW flag set) is multiplied by the leader length and is then added to the map coordinates and stored in NEWYXZ. The alphanumeric size is then checked to see how large an area is used by the full data block. The map is referenced for possible overlap in the full data block with another full data block or the perimeter of the display using the initial offset direction or the current offset direction if the INHRES bit is set. If none are found, bits are set in the map representing the area occupied by the full data block and the next track is processed.

If a conflict occurred, the next possible offset position in a clockwise direction is checked. However, if no conflict is found in one of the four positions, the offset direction is changed to that position unless it is equal to the initial offset direction with the INHRES bit set. This case is treated as a conflict. A check is then made to see if an ACID justification is necessary and if both C-words will be affected. Bit 8 of LGCT is set to reflect that the C-words need to be changed, if any, and flags are set so that the subprogram PASS will handle the C-words modification and leader change.

INSERT ATTACHMENT 9

When the offset has been completed, bits are set in the map representing the area occupied by the full data block and then the next associated track is processed.

After all associated tracks are processed for this display, AUT exits.

B-register usage:

- B1 — display index, alphanumeric size
- B2 — track number and CTS index
- B3 — map coordinate index, offset direction
- B4 — keyboard index
- B5 — subsystem, alphanumeric size
- B6 — map index, number of CATC words that changed
- B7 — map index, number of bits per line, changed offset direction.

3.2.23.3 Outputs. The leader direction and change and pack request bits in CTS will be set for all tracks which require a change in offset. A track which requires a change in offset will also have its address placed on the PAUS steck.

3.2.23.4 Flowcharts. See figure 3.2.23-1.

In addtition, if FAST is enabled all tracks that are flagged for PAUS processing will have a offset data packet contructed which will be forwarded to FAST.

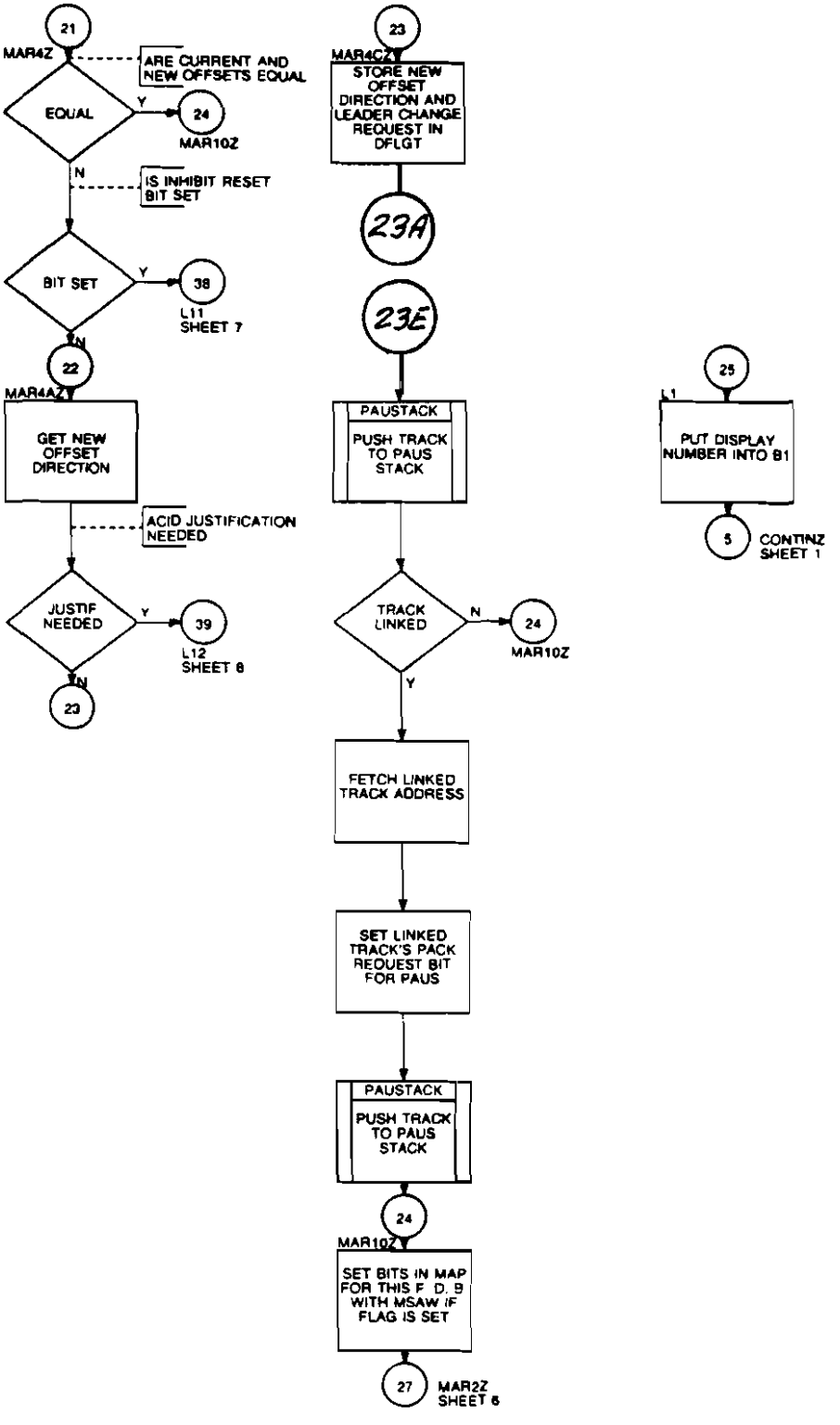


FIGURE 3.2.23–1. AUTOMATIC OFFSET FLOWCHART (SHEET 5)

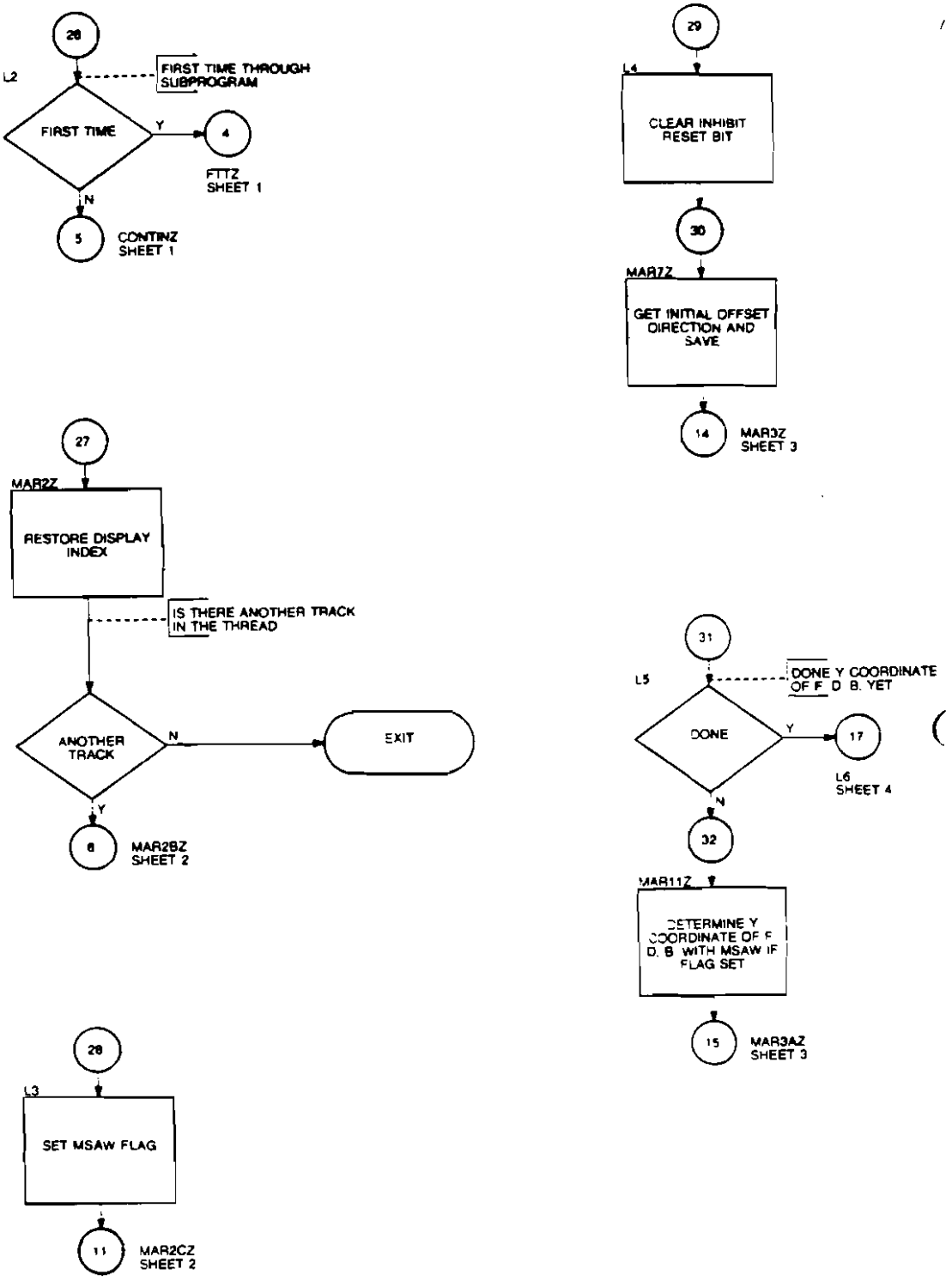


FIGURE 3.2.23–1. AUTOMATIC OFFSET FLOWCHART (SHEET 6)

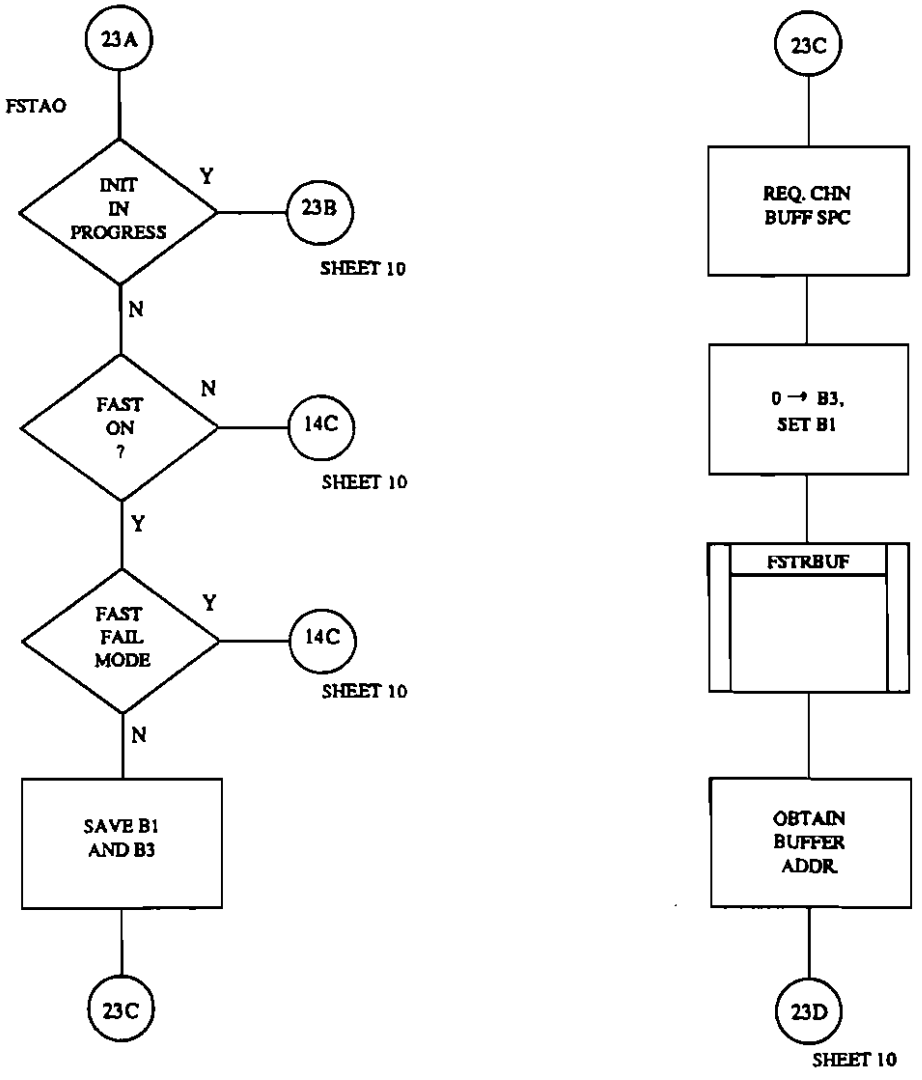


FIGURE 3.2.23-1 AUTOMATIC OFFSET FLOWCHART (SHEET 9)

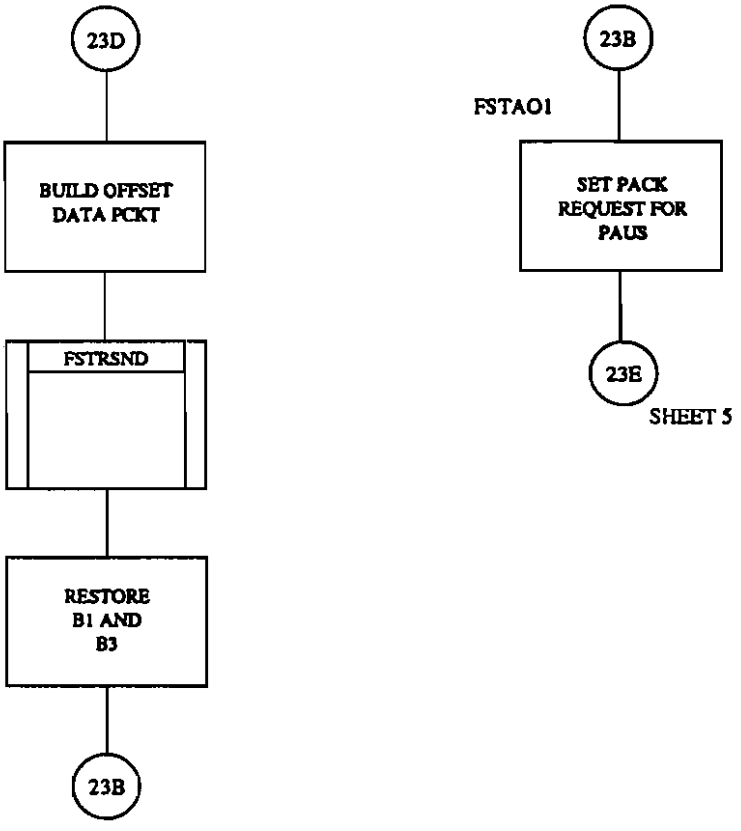


FIGURE 3.2.23-1 AUTOMATIC OFFSET FLOWCHART (SHEET 10)

3.2.25 Periodic Related and MDBM Miscellaneous Data (PDOP)

Periodic Display Output Processing (PDOP) is a planned task that updates the system time, memory readout, Abnormal Condition Code, Display of Beacon Only and Radar Only Test Targets, and Radar Overload Sensing and Protection. PDOP uses the common subroutine MDBM Pack EF and BCW (MPEB) to initiate update of the necessary areas in the Display Buffer Memories. PDOP also reenables range/off-center filtering if sufficient time has elapsed since last range or off-center switch change.

3.2.25.1 Inputs

CSBT	—	a keyboard table containing the X and Y coordinates for the coast/suspend list.
DCONT	—	a display table containing the associated sensor number and the MDBM refresh flag.
DFLAGT	—	a display table containing the number of keyboards on this display, the training position flag, the first associated keyboard number, the amplify select flag and the memory readout select flag. CA controller inhibit display flag.
DOVERT	—	MPEB packet for display of Radar Only Overload Sensing and protection function.
DTTBUF	—	MPEB packet for display of test target.
EMRFT	—	a version table containing counters for monitoring the display of EM and RF.
FREEZET	—	a word containing the system freeze flag.
HJT	—	a version table containing counters for monitoring the display of HJ.
MEMRT	—	a table containing the memory readout requests for the system.
ROCCH	—	RTQC of latest range/off-center change
ROCPSH	—	display table which if negative indicates a display update request is pending.
SAT	—	a sensor table containing counters for monitoring the display of SA.
SAVEB	—	temporary B−register storage.
SOVERT	—	word containing radar only overflow quadrant number in TI code.
STTSTR	—	buffer containing test targets in target report store format.
STAROR	—	upper is overload sensing and protection request flag; lower is requesting display number.
SYMT	—	a keyboard table containing the associated display number and the keyboard sequence number.
TBAL2T	—	a display table containing BROPM change and request flags.
TEMRFT	—	a sensor table containing counters for monitoring the display of EM, RF, HT and SA.

TESTFLG — upper is test target request flag; lower is requesting display's number.

TMDAMT — a word containing the time of day in minutes.

TMDAST — a word containing the time of day in seconds.

TMDACT — a word containing the number of training displays.

TRKXT — a table containing the CTS indices for tracks.

TMDAYC — a subroutine that obtains Greenwich Mean Line by correcting the system time.

3.2.25.2 Design Logic. PDOP has seven tasks, the update of the system time display buffer, the update of the memory readout display buffer, the update of the Abnormal Condition Codes: Emergency (EM); Radio Failure (RF); HIJACK (HJ); Suspect Aircraft (SA); display of test targets, display of radar only overload sensing and protection, and evaluates elapsed time of range/off-center switch changes. In all cases PDOP also updates DBM memory for affected displays.

System time is updated every half second and is formatted as a four digit number of hours and minutes followed by a virgule and two digits of seconds. Time is kept as a twenty-four hour clock. All DBM refreshed displays must have their memories updated to reflect the changed time.

If CA Zone Suppression is assembled in the operation program, and CA Zone Suppression is enabled, all DBM memories will be updated in the System Data Area to display "CA Zone Inhibit" message on all displays that are not in CA Controller inhibit status.

The memory readout buffer is updated every half second and is used to display the contents of up to ten memory locations. The address selected and its contents appear, one to the line, formatted with th six character address followed by two spaces and the ten character octal contents of that address. The selected addresses are found by searching the memory readout table (MEMRT) and, when an address is found, PDOP bypasses the possible lockout of that section of memory by doing an E$DATA. After packing all the selected addresses and contents, PDOP builds a buffer control word (BCW) describing the output buffer and searches the display control tables to find the displays which have requested display of the memory readout buffer. The BCW is added to the MDBM output chain via subroutine MPEB.

←——————INSERT ATTACHMENT II

Abnormal Condition Code Counters are interrogated every half second to determine if there is an Abnormal Condition code to output in the system data area. If a specific counter is non-zero, that code is output in the system data area, until the count word is decremented to zero.

Test targets are displayed via a keyboard entry. The test targets are displayed at their received coordinates on a subsystem basis. The display consists of single symbol, leader and modified data blocks of 'TESTG B' for beacon only test targets and 'TESTG R' for radar only test targets. Only test targets received will be displayed.

Radar only overload sensing and protection function is displayed via a keyboard entry. The function is displayed in the memory readout area and consists of 'RDR OVFL Qn' where n is the quadrant that radar only overload occurred. The display of radar only overload function will override any memory readout already active on the display.

The range/off-center filtering function is reenabled if sufficient time has elapsed since the last range and/or off-center change and an update request is not pending for that display.

Register Usage

Task 1 — update clock displayed in system data.

If the FAST function is resident and enabled, every half second a check is made to determine if the FAST function has failed. If it has FAST FAIL is displayed in the system data area. When memory readout is displayed it will be inhibited. After FAST FAIL has timed out FAST FAIL will be inhibited and memory readout will be restored.

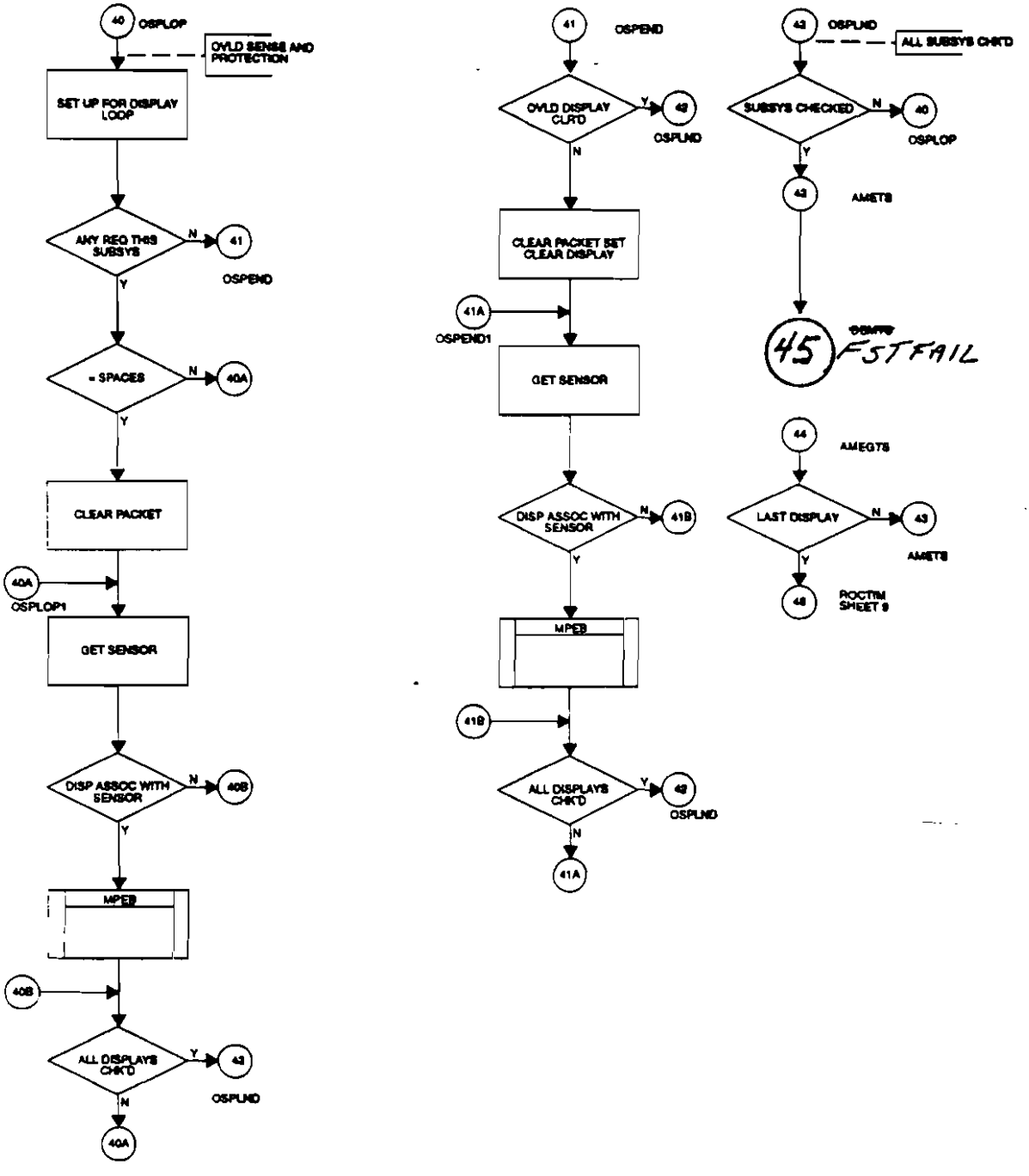


FIGURE 3.2.25-1. PERIODIC DISPLAY OUTPUT PROCESSING (SHEET 8)

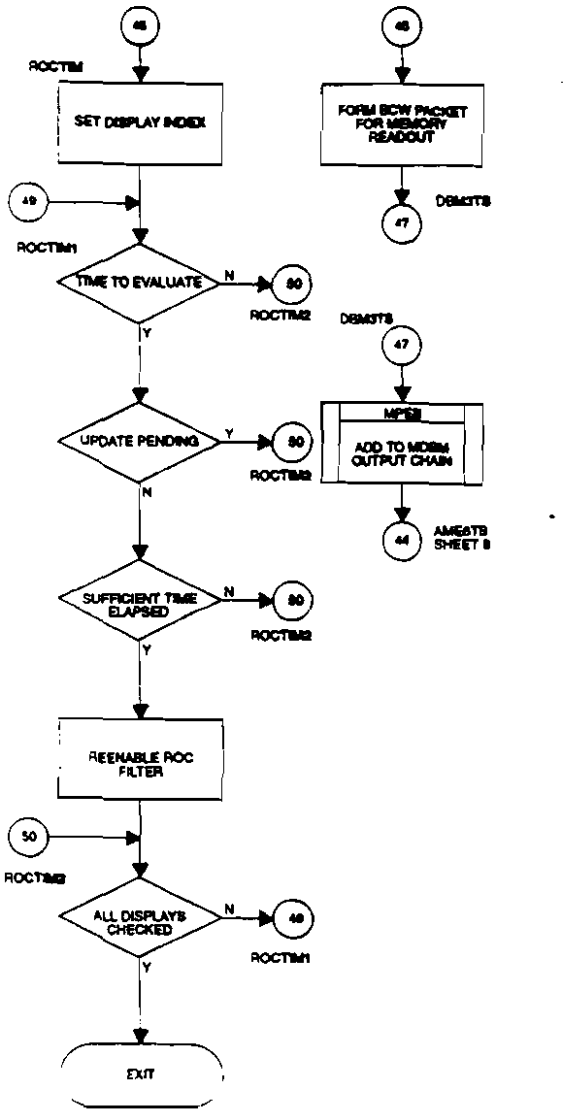


FIGURE 3.2.25-1. PERIODIC DISPLAY OUTPUT PROCESSING (SHEET 9 — END)

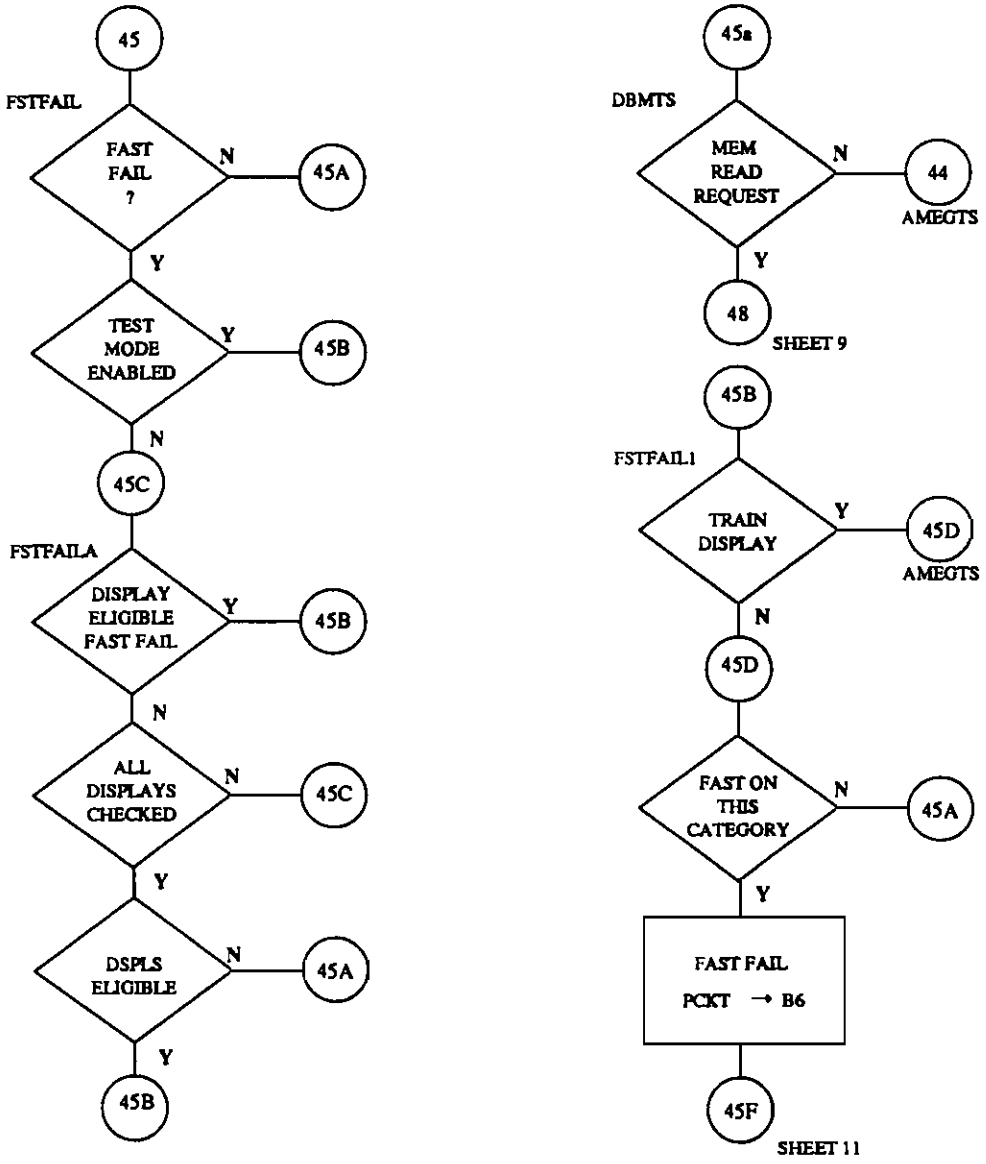


FIGURE 3.2.25-1 PERIODIC DISPLAY OUTPUT PROCESSING (SHEET 10)

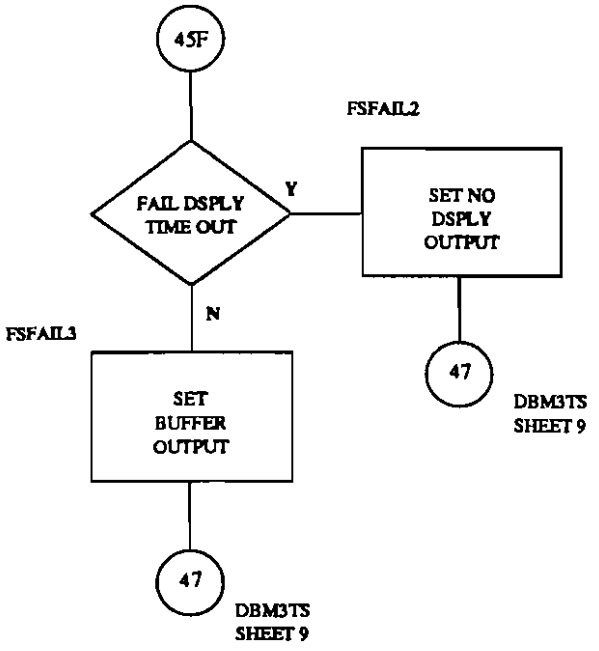


FIGURE 3.2.25-1 PERIODIC DISPLAY OUTPUT PROCESSING (SHEET 11)

3.2.29 Monitor Associated Tracks (MAT)

The purpose of this subprogram is to monitor associated tracks that are in flight plan status or tab coast status or tracks with duplicate aircraft IDs after one of the duplicates has become active.

3.2.29.1 Inputs. The following are located in SDB1:

FIRST

INIFC

LSR2TMP

NIOPT

TBCNT

TRKXT

MAUTTIM

The following are located in SDB2:

TMDAMT

TTMDAMT

The following are located in TMP:

ARCIDC

DUPOUC

INIT

MAXBYC

The following are global equates:

DPDTIQ

NSENSQ

NTMS2Q

TBCNTQ

TPADQ

TSPCQ

The following are located in CTS:

CATC1

CATC2

CFLGT

CTSST

CTST

LGCT

RECRT

TNT

The following are common subroutines referenced:

DUPIDC

PAUSTACK

RELTIC

STIMC

STRORFP

TUDSTACK

The following are local constants:

TMASK — constant with bits 27−29 set.

The following is located in SITEQ:

AUTOFLUSHQ

The following S−registers are set by the executive program:

S0 is set to 0

S1 is set to SDB1

S2 is set to SDB2

3.2.29.2 Design Logic. Monitor associated tracks subprogram only processes tracks once every minute unless the special run request flag (TBCNT,U) is set. MAT follows the first thread for all subsystems every time it processes tracks.

MAT handles four subfunctions, one of which is to monitor tab coast tracks. The tab coast count-down field is decremented each minute and when this field equals zero, the track is dropped from the system. Tab coast tracks are not monitored when the special run request flag is set.

←——————INSERT ATTACHMENT 13

Another subfunction of MAT is to monitor tracks in flight plan status or VFR flight plans in flight plan status whose FPR (flight plan received) bit is set. A check is first made to see if a flight plan track's ETA/PTD makes the track eligible for store status by calling STIMC. Then MAT interrogates the track's duplicate ACIDs, if any, to see if any of its matches require it to stay in flight plan status. If the duplicat ACID criteria is satisfied, the track is changed to store status (in STRORFP) and the next track is processed.

When associated tracks are dropped from the system a check is made to see if the FAST function has been enabled. If it has a track drop data packet will be constructed for the associated track and transmitted to FAST.

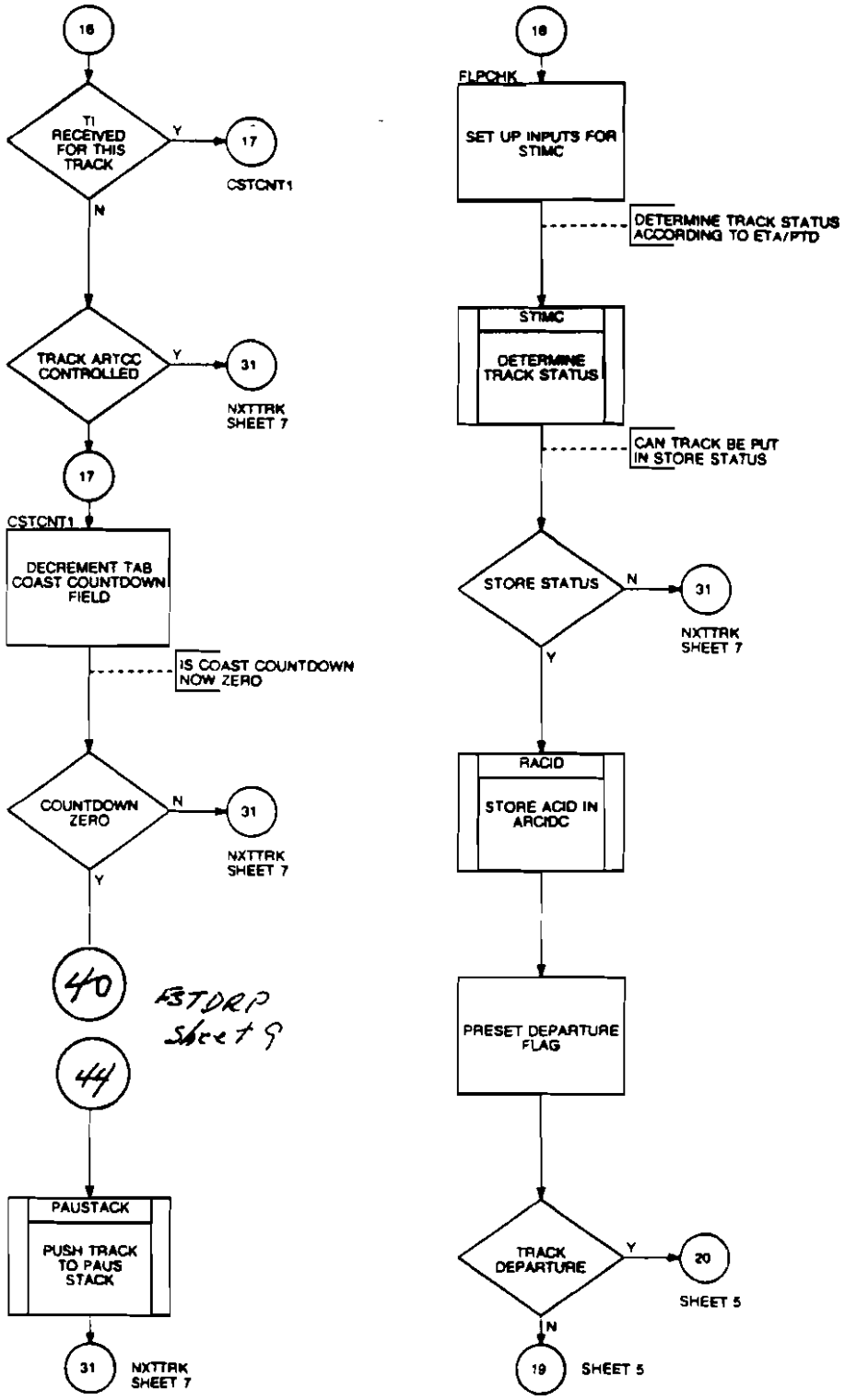


FIGURE 3.2.29-1. MONITOR ASSOCIATED TRACKS FLOWCHART (SHEET 4)

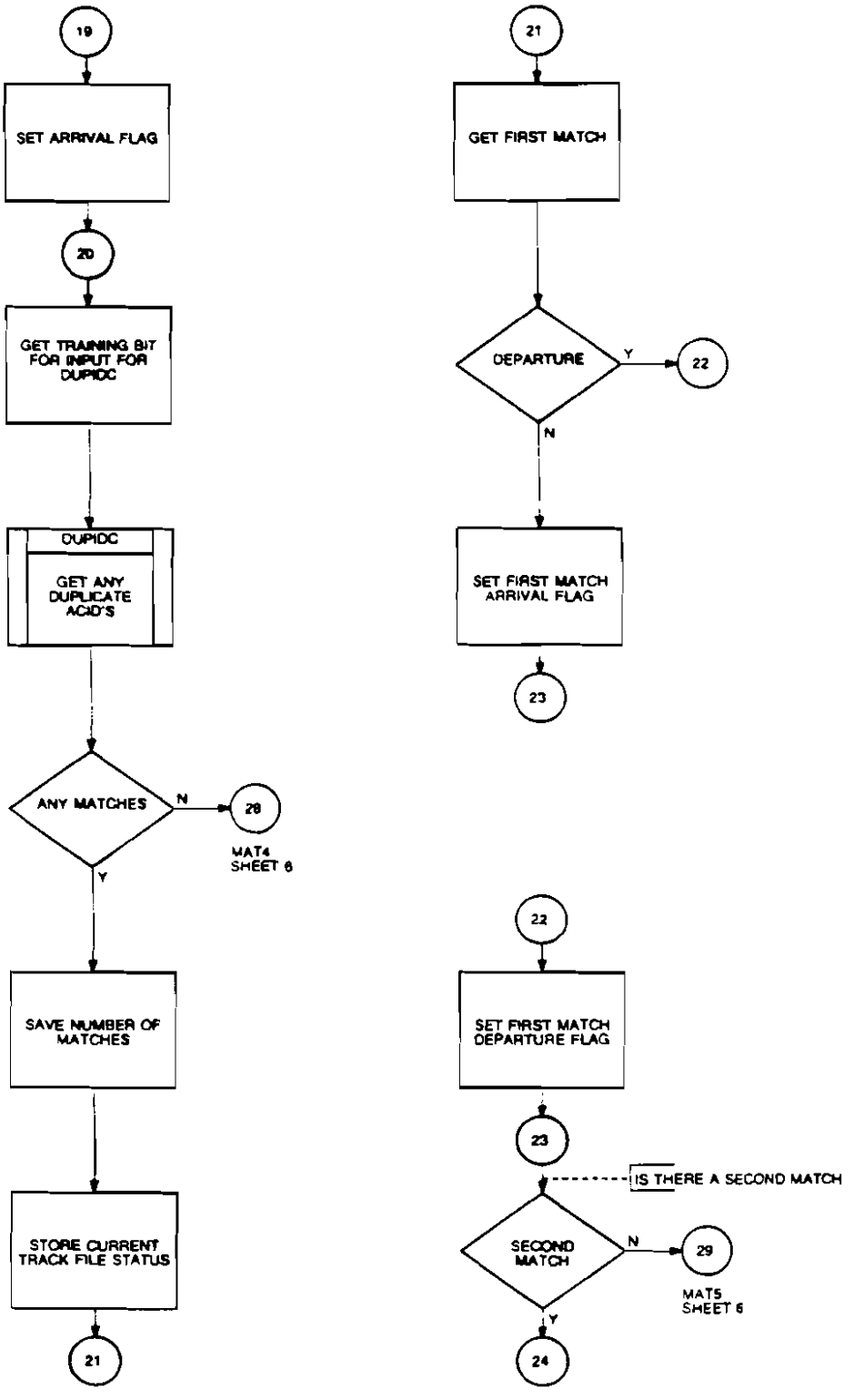


FIGURE 3.2.29-1. MONITOR ASSOCIATED TRACKS FLOWCHART (SHEET 5)

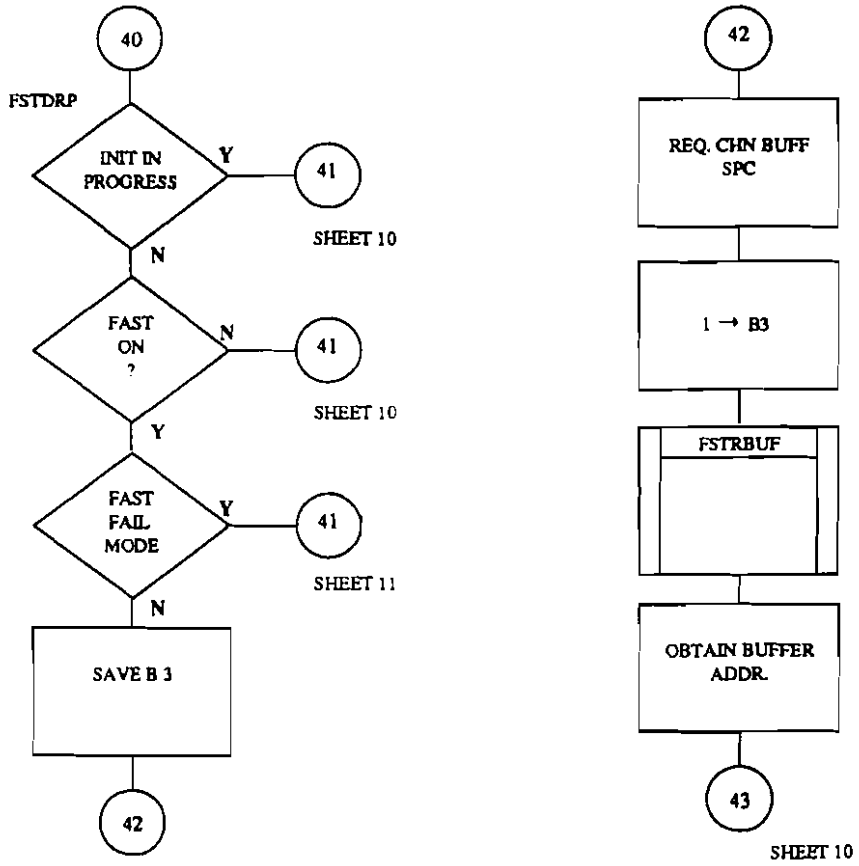


FIGURE 3.2.29-1 MONITOR ASSOCIATED TRACKS FLOWCHART (SHEET 9)

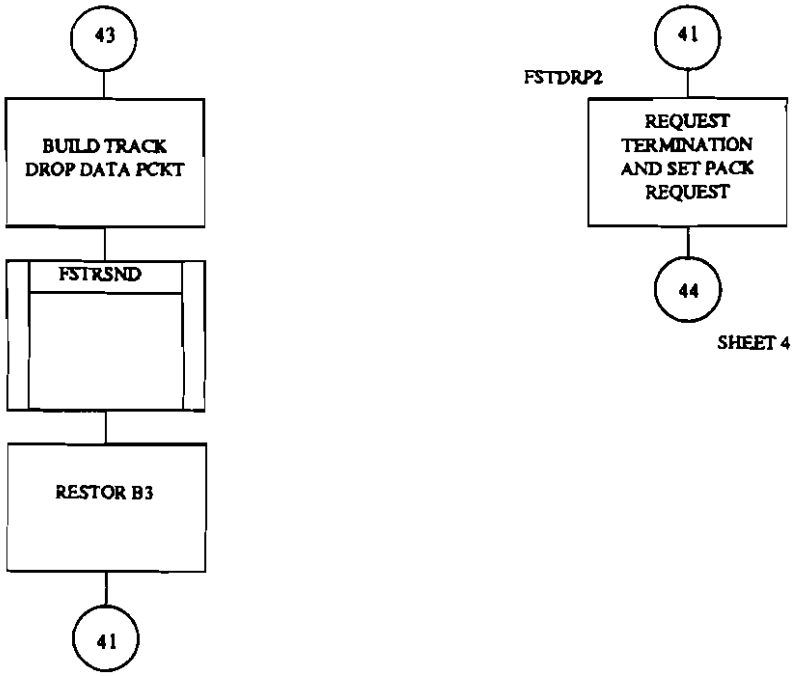


FIGURE 3.2.29-1 MONITOR ASSOCIATED TRACKS FLOWCHART (SHEET 10)

3.2.53.8 Interfacility Extraction Message Processing (CDINFM). Processes all interfacility extraction messages.

3.2.53.8.1 Inputs

B1	—	Buffer address of input message
CDSTATIF	—	Interfacility extraction status
CEXTON	—	Extractor status
IFBIB	—	Byte count of input message (3.4.7)
IFNWP	—	Word count of output message (3.4.7)
IFOBF	—	Buffer number of output message (3.4.7)
IFOSW	—	Buffer address of output message (3.4.7)

3.2.53.8.2 Design Logic. Before any processing, the subtask first checks the status of the extractor and the status of the interfacility extraction processor to see if both are enabled. Should either be disabled, then the subtask is exited. The B-registers are then saved and the type (input or output) of message determined. After the buffer locations are computed (based on message type), room is sought in the extraction buffers. Should no room exist, then the subtask is exited after restoration of the B-registers. The extraction message is then built, the user flag is decremented, and the subtask is exited after restoration of the B-registers.

REPLACE WITH ATTACHMENT 15

Subtasks Referenced:

CDBIC	—	Buffer index control
CDZULY	—	System time
PUREST	—	B-register restore
PUSAVE	—	B-register save

3.2.53.8.3 Outputs

CDRE2T	—	User status
CBUF0,1,2	—	Interfacility extraction message

3.2.53.8.4 Flowcharts. See figure 3.2.53–17.

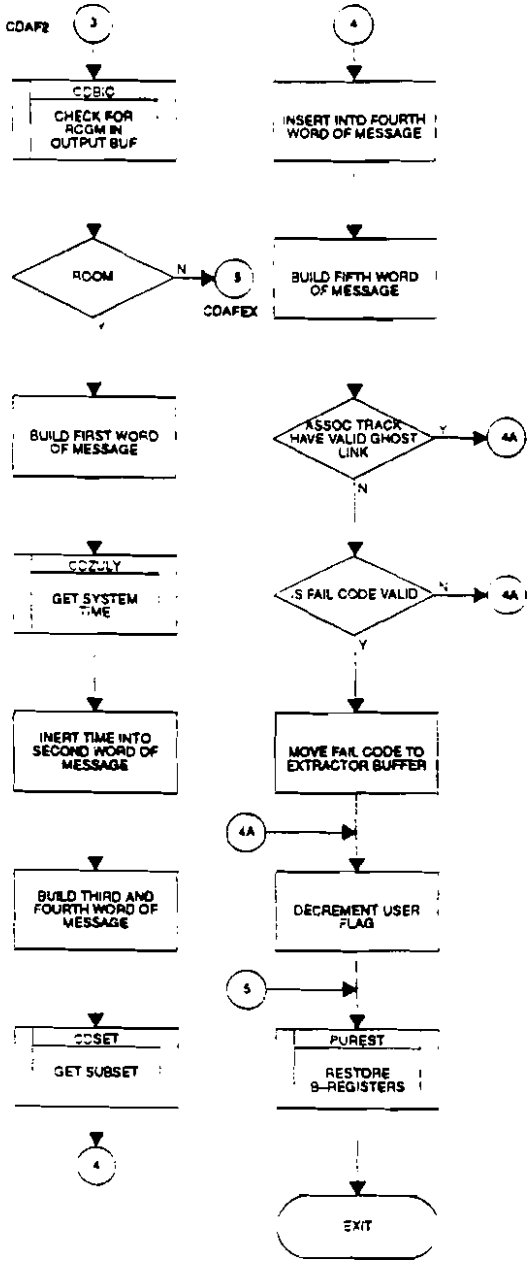


FIGURE 3.2.53-16. AUTOMATIC FUNCTION MSG PROCESSING (SHEET 2 — END)

3.2.53.8.2 **Design logic.** Before any processing, the subtask first checks the status of the extractor and the status of the interfacility extraction processor to see if both are enabled. Should either be disabled, a check is made to determine if the FAST function is enabled, if disabled the subtask is exited. If the FAST function is enabled and there is room in the FAST output buffers a FAST interfacility data packet is constructed and forwarded to the FAST subsystem and the subtask is exited. When there is no room in the FAST output buffers, the B-registers are restored and the subtask is exited.

If the extractor and the status of the interfacility extraction processor are both enabled the B-registers are saved and the type (input or output) of message determined. After the buffer locations are computed (based on message type) room is sought in the extraction buffers. Should no room exist a check is made to determine if the FAST function is enabled, if disabled the subtask is exited after restoration of the B-registers. If the FAST function is enabled and there is room in the FAST output buffers a FAST interfacility data packet is constructed and forwarded to the FAST subsystem and the subtask is exited. When there is no room in the FAST output buffers, the B-registers are restored and the subtask is exited.

When room exist in the extraction buffers the extraction message is built and the user flag decremented. A check is then made to determine if the FAST function is enabled, if disabled the subtask is exited after restoration of the B-registers. If the FAST function is enabled and there is room in the FAST output buffers a FAST interfacility data packet is constructed and forwarded to the FAST subsystem and the subtask is exited. When there is no room in the FAST output buffers, the B-registers are restored and the subtask is exited.

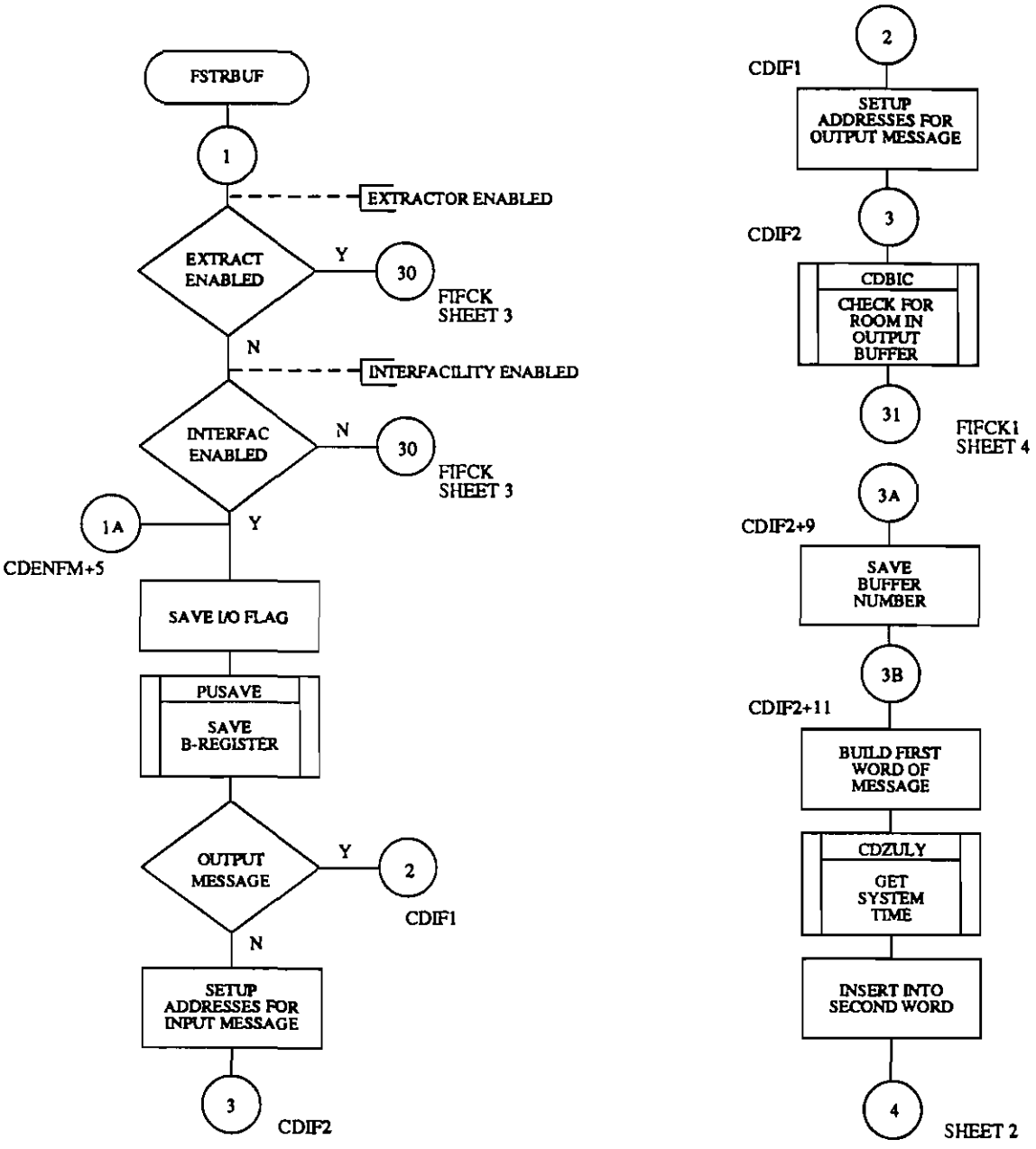


FIGURE 3.2.53-17. INTERFACILITY MSG PROCESSING (SHEET 1)

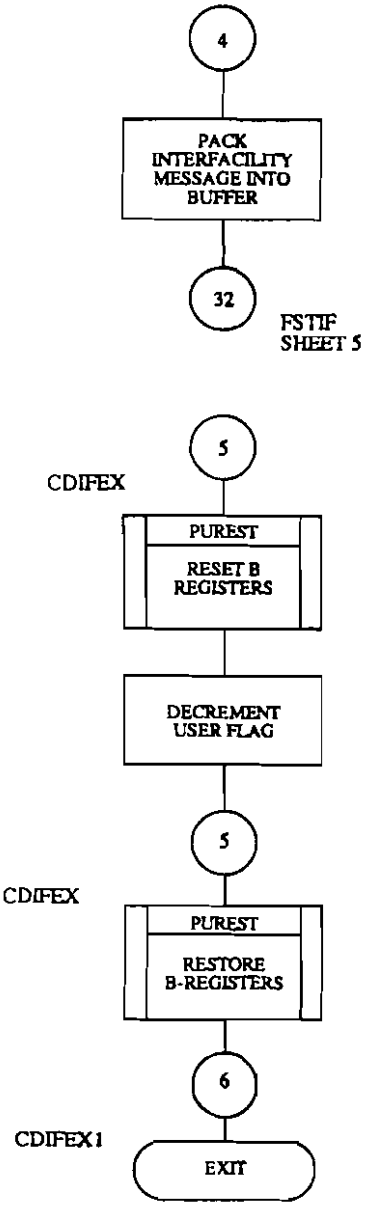


FIGURE 3.2.53-17. INTERFACILITY MSG PROCESSING (SHEET 2)

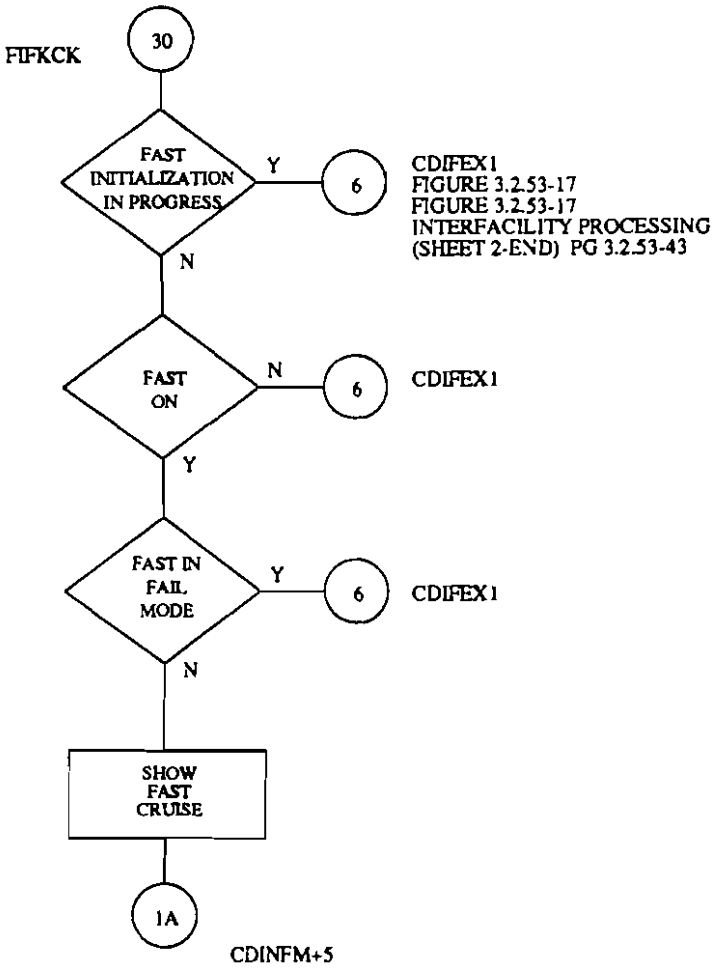


FIGURE 3.2.53-17. INTERFACILITY MSG PROCESSING (SHEET 3)

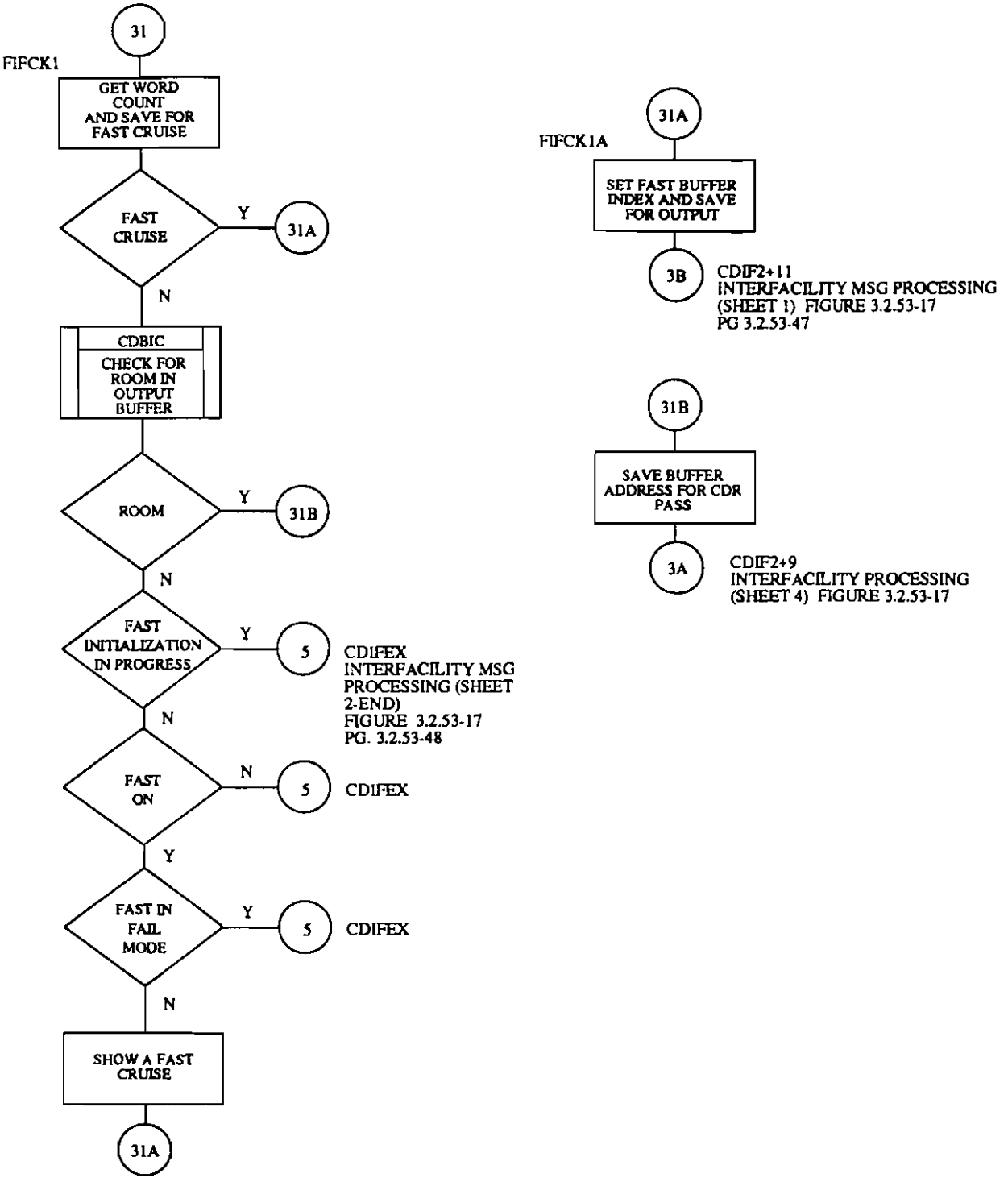


FIGURE 3.2.53-17. INTERFACILITY MSG PROCESSING (SHEET 4)

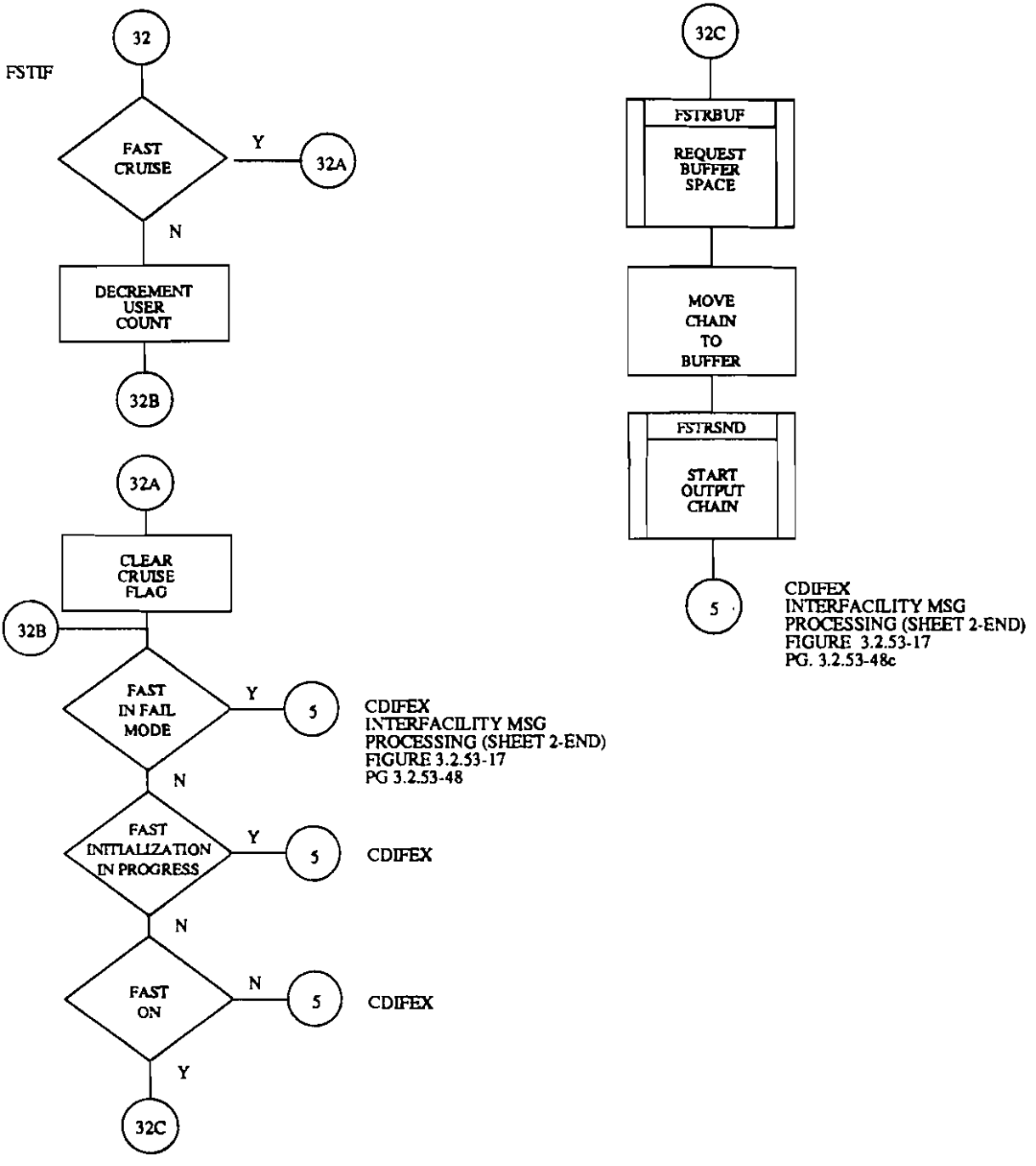


FIGURE 3.2.53-17. INTERFACILITY MSG PROCESSING (SHEET 5)

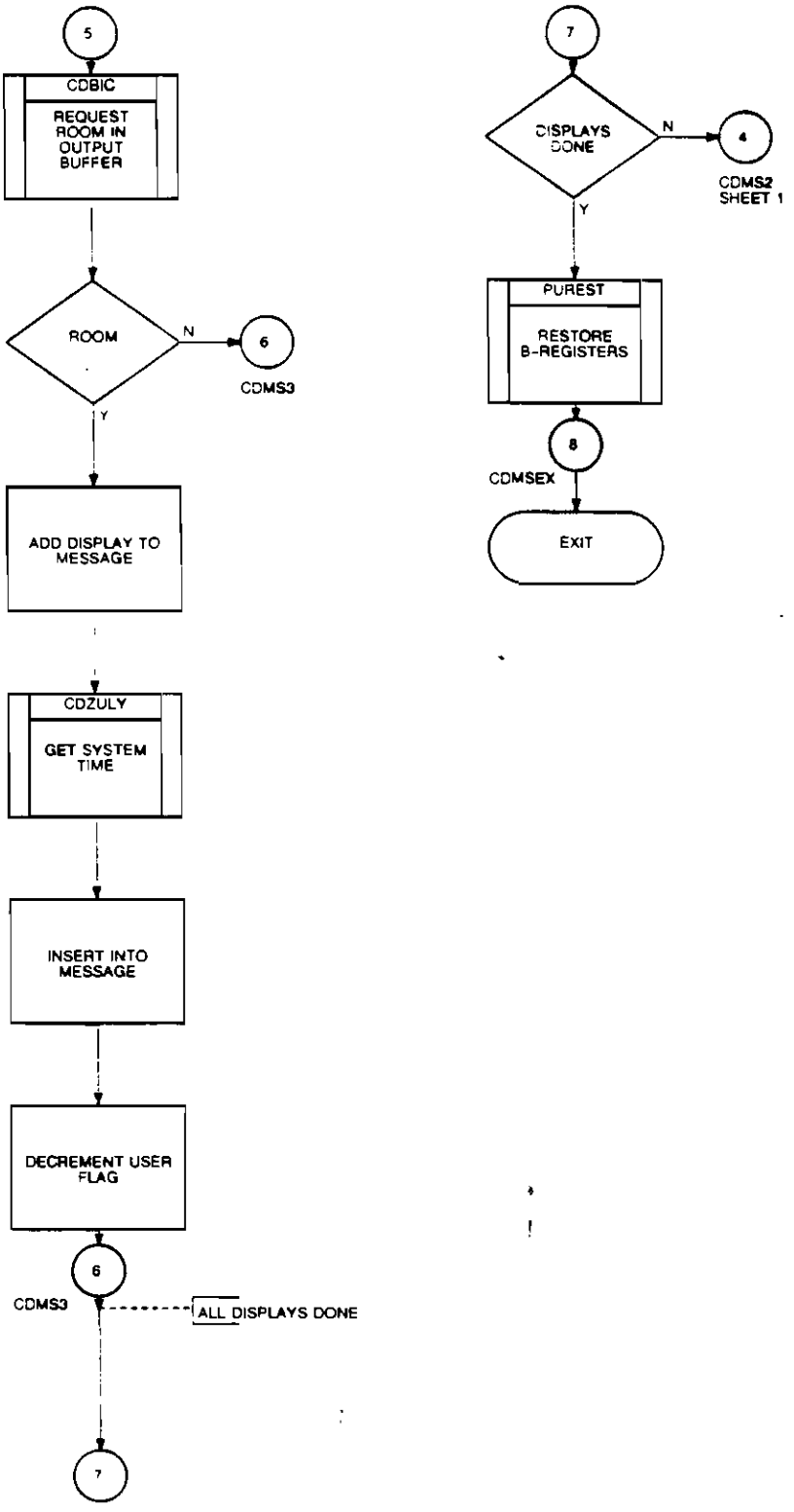


FIGURE 3.2.53-21. MSAW DISPLAY PROCESSING (SHEET 2 — END)

3.2.53.13 Keyboard Function Extraction Message Processing (CDKEYF). Processes all keyboard function extraction messages.

3.2.53.13.1 Inputs

B1	—	Keyboard number
B2	—	Track number
B4	—	TBPRET address
B6	—	Error indicator
B7	—	Display number
CDESFT	—	Subsystem/Training filter
CDEX4H	—	Implied function indicator
CDEX5H	—	ACID modified indicator
CDSTATKF	—	Keyboard function extraction status
CEXTON	—	Extractor status
CTS	—	Central track store
KYBDT	—	F7 M/D indicator (SDB2 3.4.3)
PREVT	—	Preview area (SDB2 3.4.3)
TBALnT	—	Trackball slow area (SDB2 3.4.3)

3.2.53.13.2 Design Logic. Before the B-registers are saved, the extractor status and the keyboard extraction status are checked. Should either status be disabled, the subtask is exited. The B-registers are saved and the filter checked. Should any of the filter apply, the B-registers are restored and the subtask exited. Room in the output buffer is requested and if no room exists, the B-registers are restored and the subtask is exited. The message is then built, the user flag decremented; the B-registers restored, and the subtask is exited. REPLACE WITH ATTACHMENT 17

Self Contained Data:

CDKFC1	—	F7 M/D Comparison Data
CDKFC2	—	F7 M/D Output Code

Subtasks Referenced:

CDBIC	—	Buffer index control
CDISFC	—	Display filter
CDZULY	—	System time
PUREST	—	B-register restore
PUSAVE	—	B-register save

3.2.53.13.2 **Design logic.** Before any processing, the subtask first checks the status of the extractor and the status of the keyboard extraction processor to see if both are enabled. Should either be disabled, a check is made to determine if the FAST function is enabled, if disabled the subtask is exited. If the FAST function is enabled and there is room in the FAST output buffers a FAST keyboard data packet is constructed and forwarded to the FAST subsystem and the subtask is exited. When there is no room in the FAST output buffers, the B-registers are restored and the subtask is exited.

If the extractor and the status of the keyboard extraction processor are both enabled the B-registers are saved and the filter checked. Should any of the filters apply a check is then made to determine if the FAST function is enabled, if disabled the subtask is exited after restoration of the B-registers. If the FAST function is enabled and there is room in the FAST output buffers a FAST keyboard data packet is constructed and forwarded to the FAST subsystem and the subtask is exited. When there is no room in the FAST output buffers, the B-registers are restored and the subtask is exited.

Room in the output buffer is requested and if no room exist a check is made to determine if the FAST function is enabled, if disabled the subtask is exited after restoration of the B-registers. If the FAST function is enabled and there is room in the FAST output buffers a FAST keyboard data packet is constructed and forwarded to the FAST subsystem and the subtask is exited. When there is no room in the FAST output buffers, the B-registers are restored and the subtask is exited.

When room exist in the extraction buffers the extraction message is built and the user flag decremented. A check is then made to determine if the FAST function is enabled, if disabled the subtask is exited after restoration of the B-registers. If the FAST function is enabled and there is room in the FAST output buffers a FAST keyboard data packet is constructed and forwarded to the FAST subsystem and the subtask is exited. When there is no room in the FAST output buffers, the B-registers are restored and the subtask is exited.

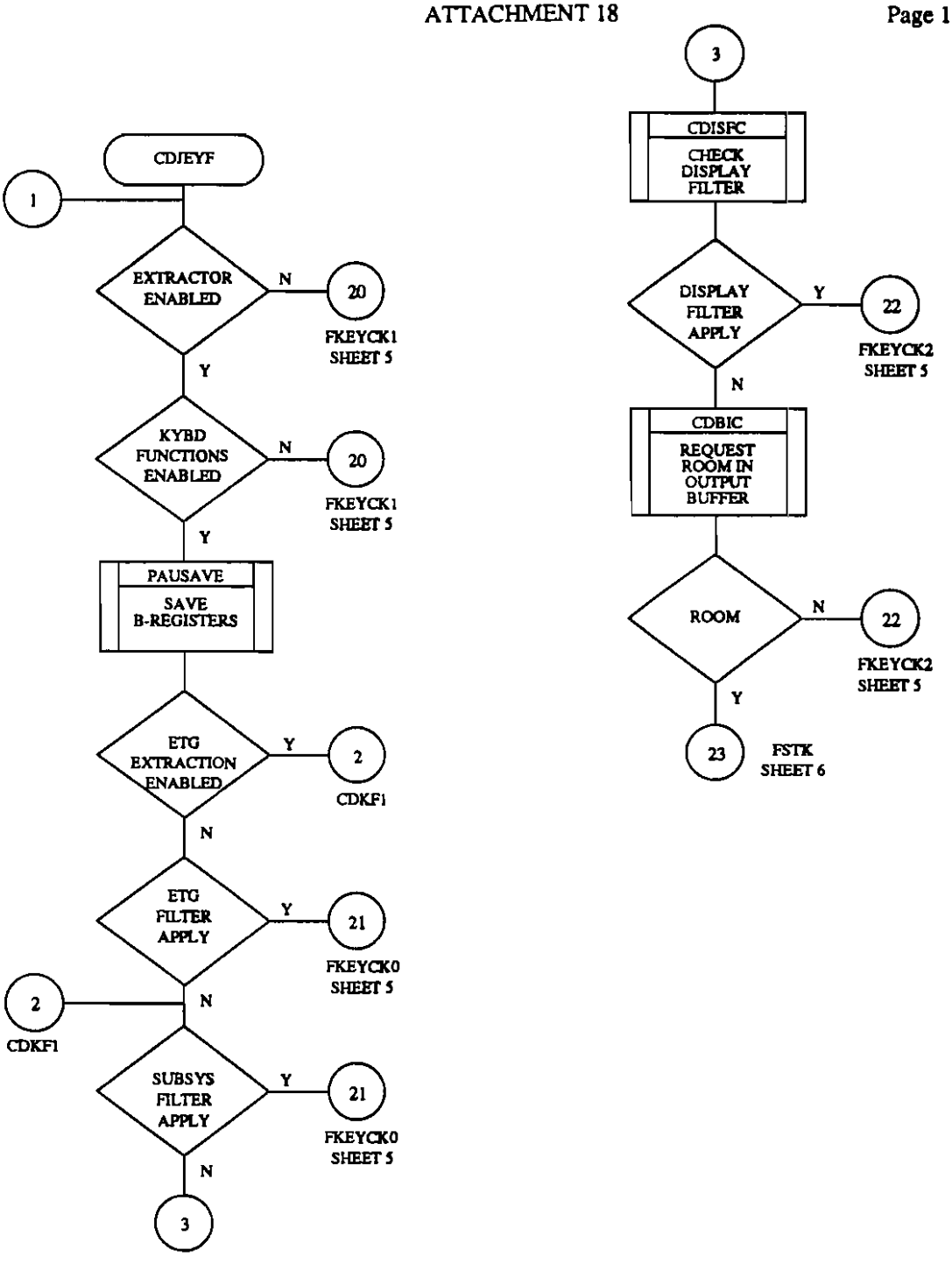


FIGURE 3.2.53-22 KEYBOARD FUNCTION EXTRACTION (SHEET 1)

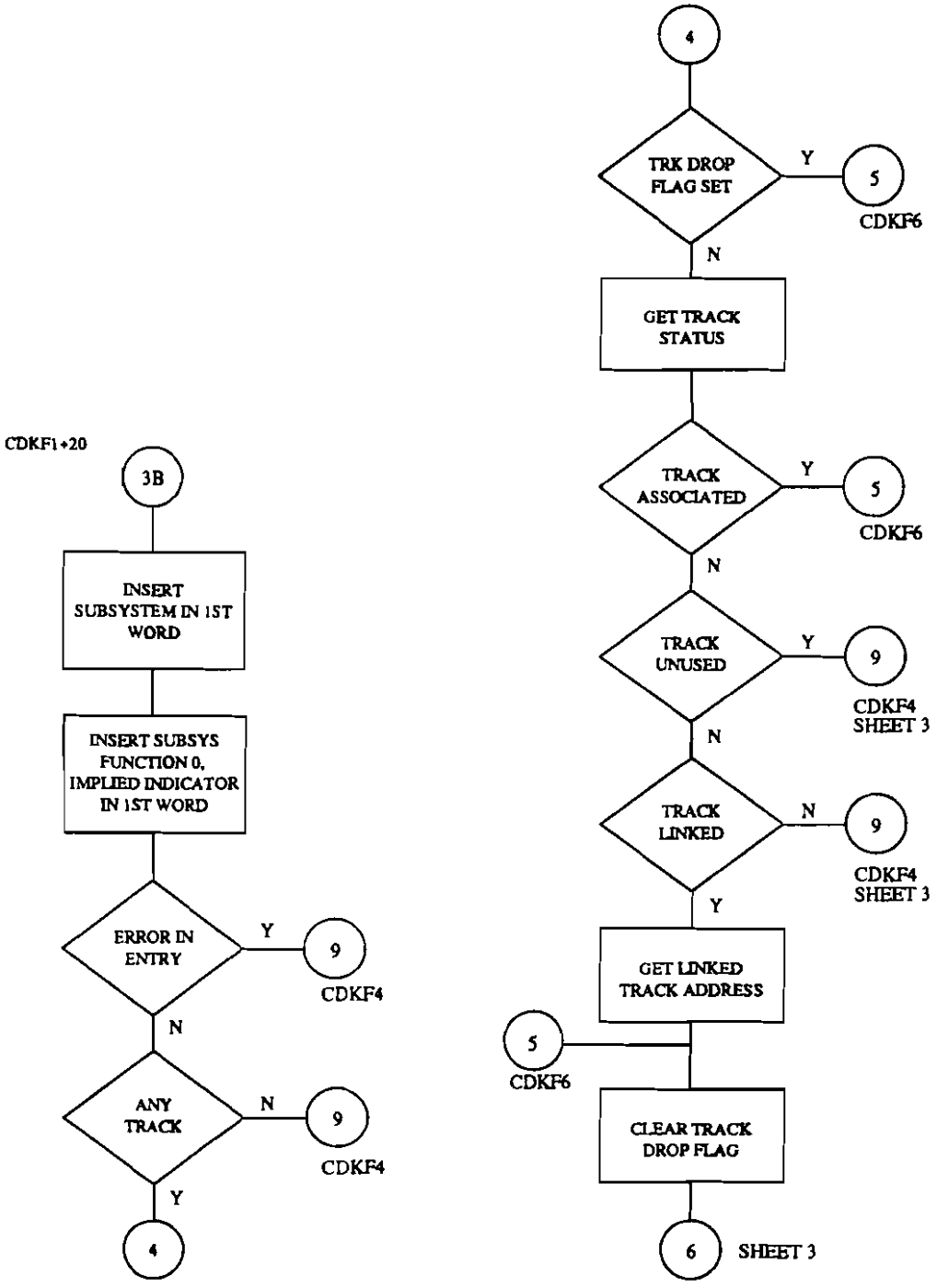


FIGURE 3.2.53-22 KEYBOARD FUNCTION EXTRACTION (SHEET 2)

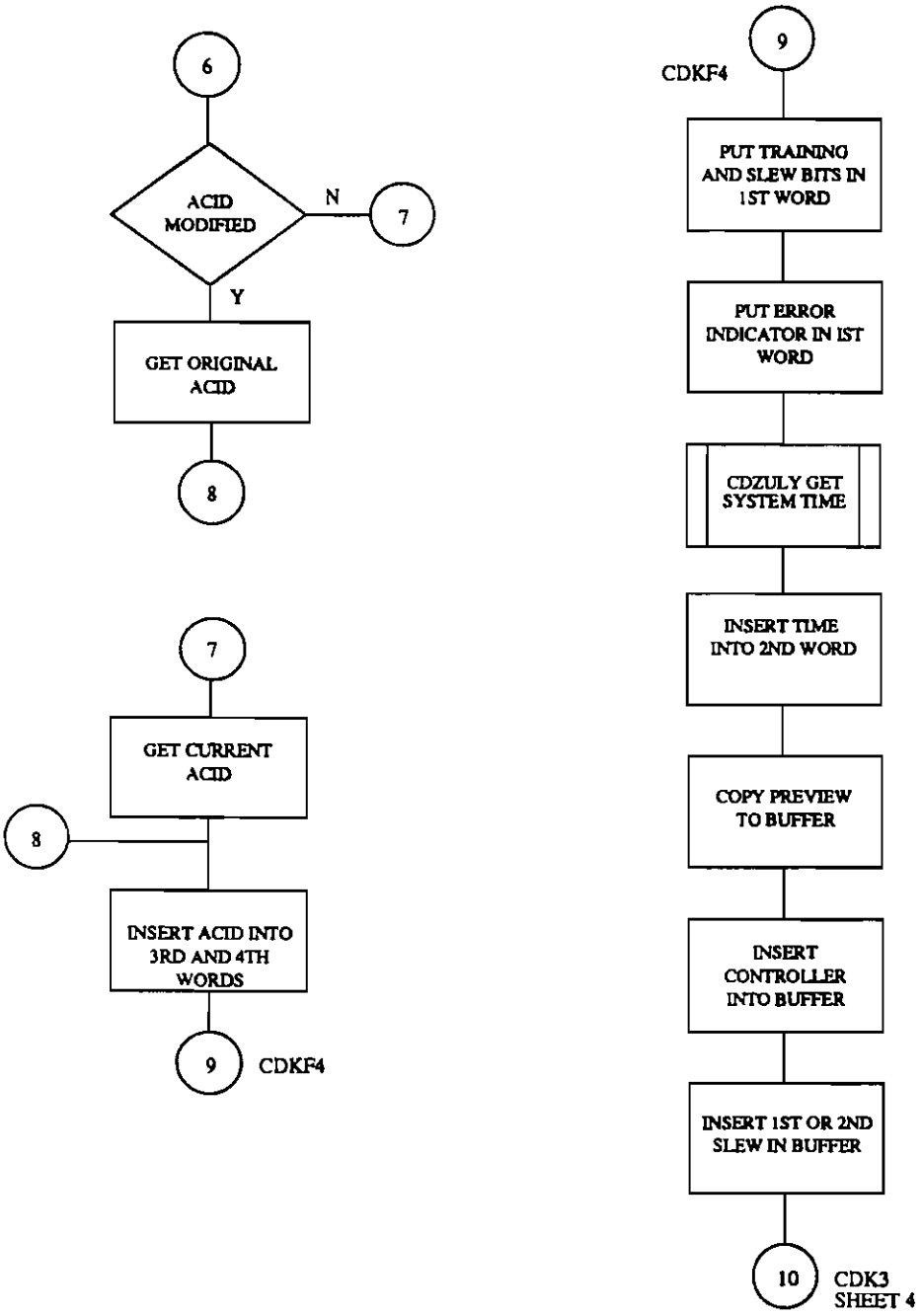


FIGURE 3.2.53-22 KEYBOARD FUNCTION EXTRACTION (SHEET 3)

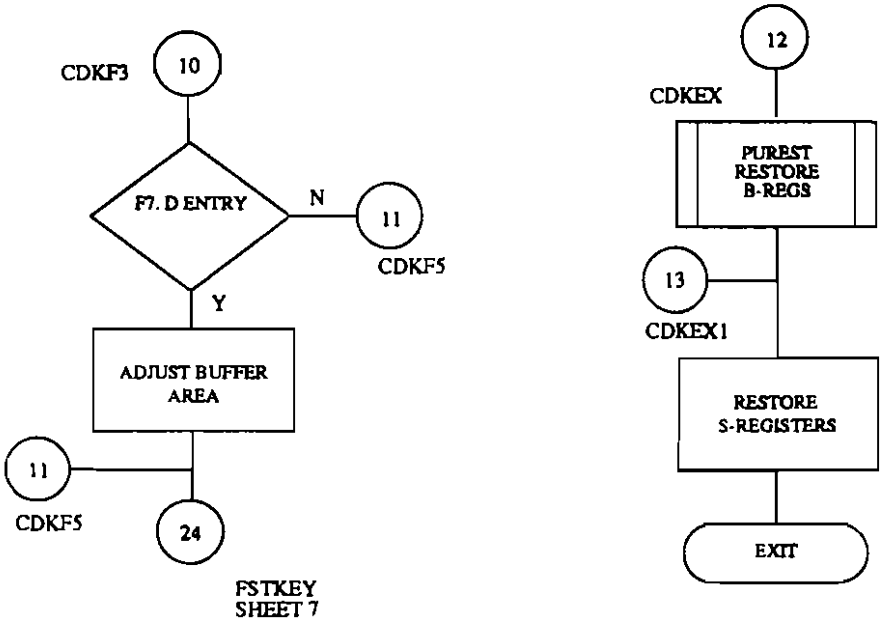


FIGURE 3.2.53-22 KEYBOARD FUNCTION EXTRACTION (SHEET 4)

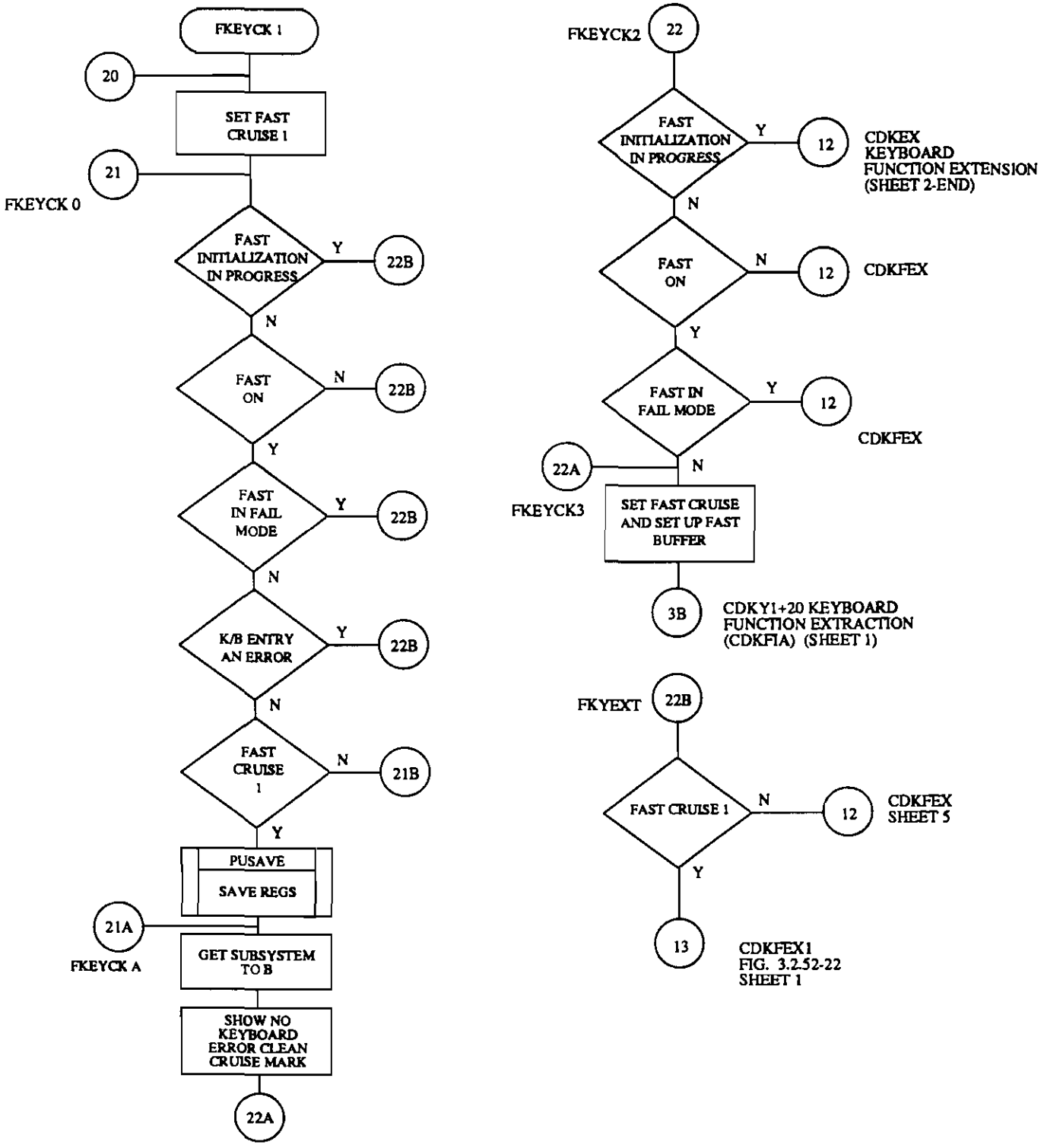


FIGURE 3.2.53-22 KEYBOARD FUNCTION EXTRACTION (SHEET 5)

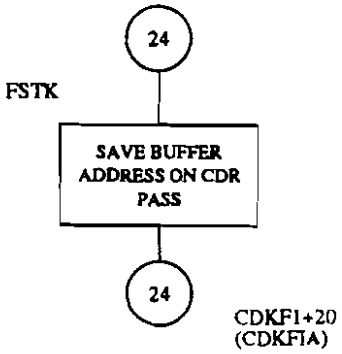


FIGURE 3.2.53-22 KEYBOARD FUNCTION EXTRACTION (SHEET 6)

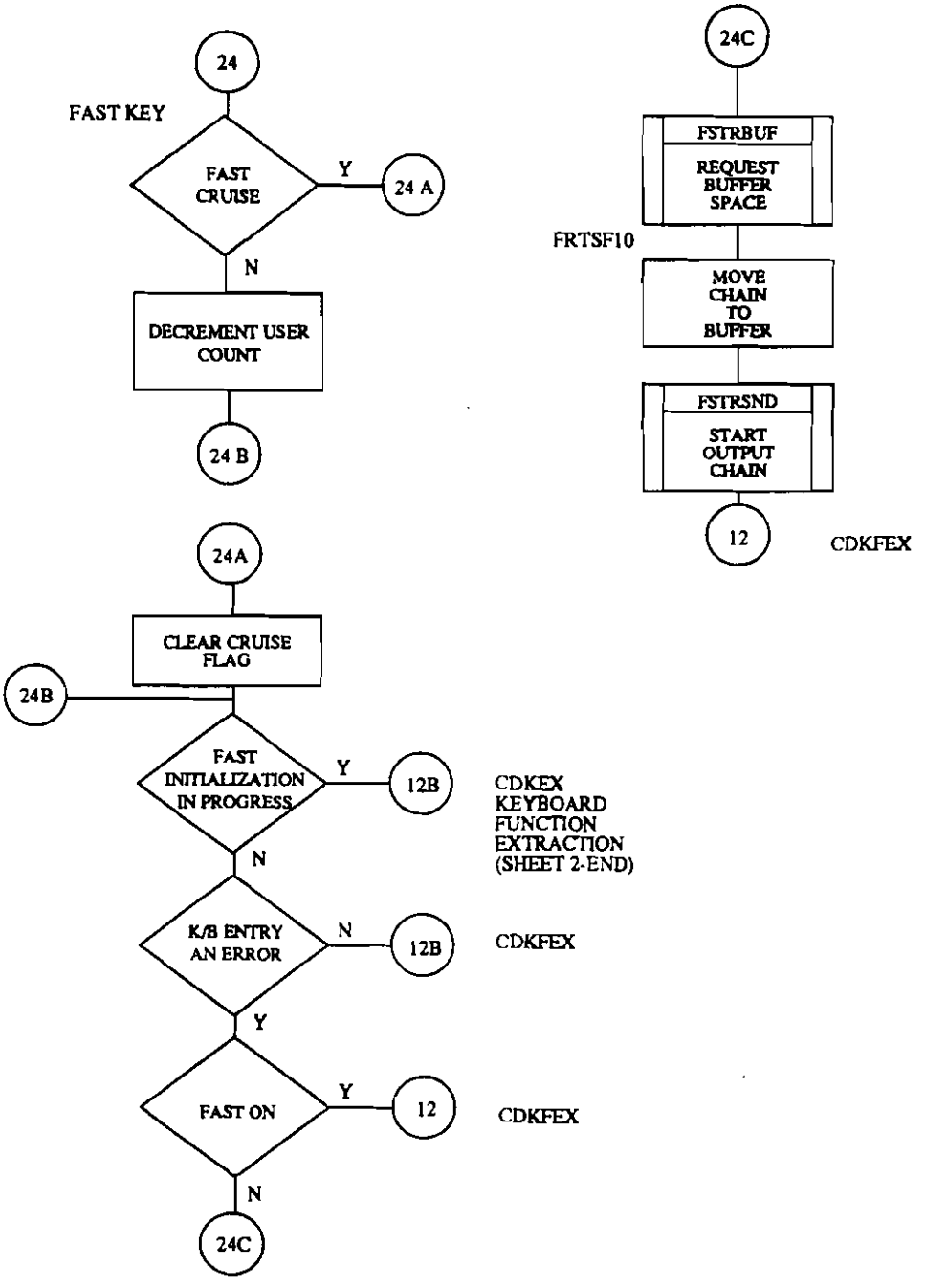


FIGURE 3.2.53-22 KEYBOARD FUNCTION EXTRACTION (SHEET 7)