

SYSTEM INITIALIZATION PROCEDURES NO. 2B ELECTRONIC SWITCHING SYSTEM

CONTENTS	PAGE	CONTENTS	PAGE
1. GENERAL	1	TTY INITIALIZATION	28
2. ALARMS, CONTROL KEYS, AND INDICATORS USED FOR SYSTEM INITIALIZATION	2	EMERGENCY LINE TRANSFER	29
ALARMS	2	4. HANDS-ON PROCEDURE	29
CONTROL KEYS	6		
INDICATORS	11	FIGURES	
3. PROCEDURES FOR MANUAL INITIALIZATION	11	1. System Status and Control Keys, Lamps, and LEDs	3
A. Initialization Postmortem Dump	11	2. Initialization Sequence and Level Counts	7
B. Call Store Dump	12	3. 3A Central Control Panel Open	30
C. Premanual Initialization Check Procedure	12	TABLES	
D. Postmanual Initialization Check Procedure	12	A. System Initializations	5
EMERGENCY AUDIT INITIALIZATION	13	1. GENERAL	
TRANSIENT CLEAR INITIALIZATION	14	1.01 This section describes the procedures for manually selecting and initiating system initialization for the No. 2B Electronic Switching System (ESS) central offices. This section also describes the automatic and manual sources which may request initialization, certain audit programs (in general terms) used to effect system initialization, and the effects of initialization on call handling.	
STABLE CLEAR INITIALIZATION	16	1.02 This section is reissued to include changes and updates since the last issue. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.	
RECENT CHANGE CLEAR INITIALIZATION	18		
STABLE AND RECENT CHANGE CLEAR INITIALIZATION	20		
MEMORY RELOAD	23		
BACKDATE OFFICE DATA	25		

NOTICE

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- 1.03 The keys on the system status panel (SSP) are momentary and alternate action types.

Caution: *If the system is failing to process calls properly (is not able to complete test calls, etc.), the system should be automatically attempting to recover itself by taking automatic emergency actions. This should be indicated to office personnel by the apparent switching of control units, teletypewriter printouts, etc. If automatic emergency actions do not restore the system to a working control unit, manual emergency actions or system recovery procedures 232-305-301 will be required.*

Note: Proper operation of the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP (Fig. 1) is enhanced by following the sequence of operations indicated in 3.08 through 3.25.

- 1.04 Serious system difficulties may be caused by equipment (hardware) troubles, by difficulties in executing the program (software), or by human error. In any case, the stimulus of an initialization is the failure of a check that indicates the integrity of the processor or its data base is questionable. Initialization is caused by a signal which is generated when the hardware or software detects an error, or manually by operation of SYSTEM INITIALIZATION keys located on the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP.

- 1.05 An initialization consists of some or all of the following:

- Restoring the CU to a known good state
- Restoring the periphery to a known good state
- Aborting certain activities
- Zeroing or setting temporary data to a known good state
- Reloading the program store from tape.

- 1.06 Not all of the preceding actions are performed on every initialization. An initialization can

be more or less drastic depending on which and how many of the preceding routines are performed. The degree of initialization is determined by the system level count. The level count is incremented each time a recovery attempt fails within a pre-determined time-lapse (1024 program scans). The higher the level count the more drastic the recovery actions become. Table A is a list of system initializations which shows the type of initialization, the source from which it was generated, the level count, and the effect on call processing.

- 1.07 After an initialization occurs, the timing of the initialization interval will exist for approximately 1-1/2 to 2 minutes and is identified by the flashing SERVICE LOSS lamp (Fig. 1). If no other initializations occur within this time interval, the level count will be reset to zero. Figure 2 shows a functional flow diagram of both automatic and manual system initializations and the associated level count.

2. ALARMS, CONTROL KEYS, AND INDICATORS USED FOR SYSTEM INITIALIZATION

- 2.01 The keys used in performing manual system initialization, teletypewriter (TTY) initialization, and emergency line transfer are located on the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP. The SSP is located on the maintenance frame directly above the maintenance TTY.

ALARMS

- 2.02 The audible alarms associated with initialization are **MAJOR** and **MINOR**. Minor alarms are not directly associated with initialization but are incidental to some initializations.

- 2.03 **MAJOR ALARM**—Major alarms are indicated visually by the ALARMS—MAJOR indicator on the SYSTEM STATUS AND CONTROL panel being lighted and audibly by the gong sounding at 1-1/2 second intervals. The software program reports major alarms via the maintenance TTY whenever an equipment failure of major importance to the operation of the system occurs. A major alarm is also reported whenever the system or a major portion of the system is inoperable. Some specific conditions that will cause a major alarm are as follows:

- (1) Alarm circuit bit is set

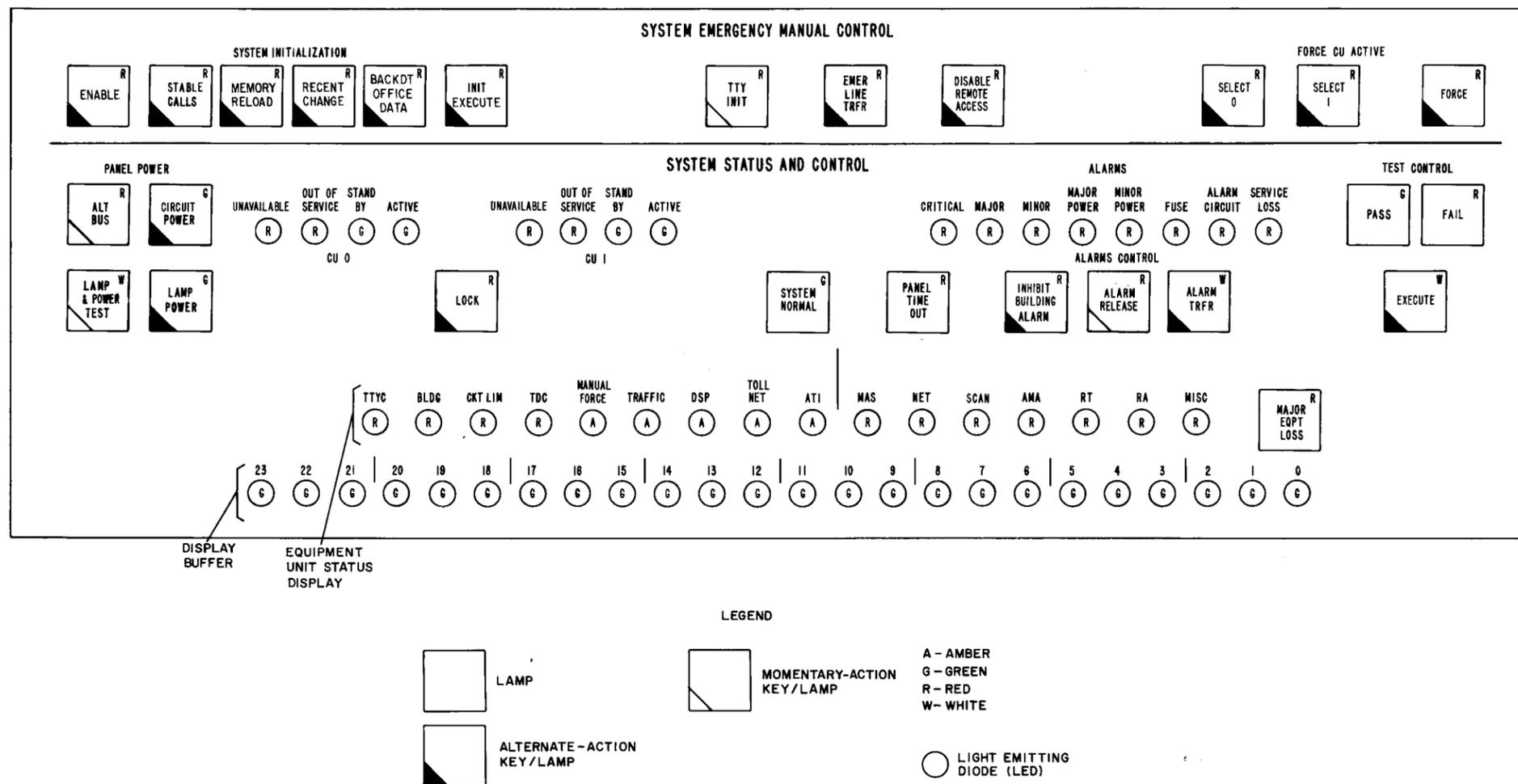


Fig. 1—System Status and Control Keys, Lamps, and LEDs

TABLE A

SYSTEM INITIALIZATIONS

TYPE INITIALIZATION	SOURCE REQUESTED	LEVEL COUNT	EFFECT ON CALL PROCESSING
Nominal (No Memory)	Automatic	1	Fails all outpulsing originating registers (ORs).
Partial Clear	Automatic	2	Partially clears areas of call store (CS) based on program pointer.
		3	Same as 2 except more drastic clears are taken.
Emergency Audit (See 3.08)	Automatic	4	(a) Runs all audits except TSB audits. (b) Reconstructs some areas of call store. (c) Zeros failing call store areas. (d) Restores line ferroids.
	Automatic & Manual	5	Same as 4 and will occur only if 4 does not complete.
Transient Clear (See 3.10)	Automatic & Manual	6	(a) Zeros all transient data. (b) Runs selected audits. (c) Disconnects all transient calls. (d) Restores line ferroids.
Stable Clear (See 3.12)	Manual	6	Zeros all stable and transient data in call store and initializes the physical equipment, including line ferroids. Runs audits of the CF list and the SCAT tables. Recent change is not zeroed.
Recent Change Clear (See 3.14)	Manual	6	All recent data in call store is zeroed in conjunction with a transient clear initialization.
Stable & Recent Change Clear (See 3.16)	Manual	6	All calls are disconnected. Zeros all transient data. Zeros all recent change data in call store. Zeros all stable data in call store and initializes the physical equipment, including line ferroids.
Memory Reload (See 3.18)	Manual	6	Performs all functions of a transient clear initialization. Reloads the generic program and translation tables into the memory from magnetic tape.
Backdate Office Data (See 3.20)	Manual	6	Performs all functions of a memory reload initialization. Clears recent changes in call store area of memory. Reloads the translation data in memory from the backdate tape file.

SECTION 232-313-301

- (2) Service loss bit is set
- (3) Some specific building alarm scan points become active
- (4) A scanner row or column is automatically removed from service
- (5) No working members in a trunk or service circuit group are available for use
- (6) All members in a trunk or service circuit are out of service.

A major alarm requires immediate action. A major alarm may be retired by operation of the ALARMS CONTROL—ALARM RLS key on the SYSTEM STATUS AND CONTROL panel.

2.04 MINOR ALARM—Minor alarms are indicated visually by the ALARMS-MINOR indicator on the System Status and Control panel being lighted and audibly by a bell ringing continuously. The software program reports minor alarms via the maintenance TTY. A minor alarm may be retired by operation of the ALARMS CONTROL—ALARM RLS key on the SYSTEM STATUS AND CONTROL panel.

CONTROL KEYS

2.05 Control keys associated with system initialization are as follows:

- (a) ENABLE key
- (b) STABLE CALLS key
MEM RELOAD key
RECENT CHANGE key
BACKDT OFFICE DATA key
- (c) INIT EXECUTE key.

2.06 The keys listed in 2.05 control the initialization function and are operated in (a), (b), (c) sequence. Any one or a combination of these keys may be depressed depending on how much of the call processing equipment is malfunctioning. Automatic (program controlled) system recovery procedures are implemented up to level count 6 (Table A). Whenever automatic recovery procedures fail to restore the system, manual initialization procedures are implemented. The system will not respond to any manual initialization until the SYSTEM

INITIALIZATION—INIT EXECUTE key is depressed. If one of these keys is accidentally depressed or depressed in error, it may be released by depressing it again.

2.07 ENABLE—Depressing the ENABLE key enables manual control of the initialization function keys (2.05(b)) and causes the ENABLE key to light. Depressing the ENABLE key and the INIT EXECUTE keys in sequence will cause an initialization which performs an emergency audit (level 5) initialization. If the same keys are depressed a second time during the initialization interval, a transient clear (level 6) initialization will be performed. The ENABLE key is automatically reset when the INIT EXECUTE key is depressed or it may be manually reset by depressing it a second time.

2.08 STABLE CALLS—Depressing the STABLE CALLS key provides a means of clearing the transient and stable area of the memory and causes the STABLE CALLS key to light. The STABLE CALLS key is automatically reset when the INIT EXECUTE key is depressed or it may be manually reset by depressing it a second time.

Caution: Operation of the STABLE CALLS key destroys all stable calls in the office at the time of initialization. The system time and date are initialized to all zeros by a stable clear initialization. AMA machines will be initialized to zero causing AMA-0 to be switched to on-line or remain on-line. Care should be taken to preserve AMA data that can be destroyed during initialization.

2.09 RECENT CHANGE—Depressing the RECENT CHANGE key provides a means of clearing the recent change area of the memory and causes the RECENT CHANGE key to light. A recent change initialization causes a zeroing (clear out) of all recent change data in CS in conjunction with an all transient clear initialization (clearing data errors from lines in a transient state). The RECENT CHANGE key is automatically reset by the program when initialization has been completed. Also, it may be manually reset by depressing it a second time before the INIT EXECUTE key is depressed.

Caution: Operating RECENT CHANGE key clears all recent change data in call store. This data must be reinserted

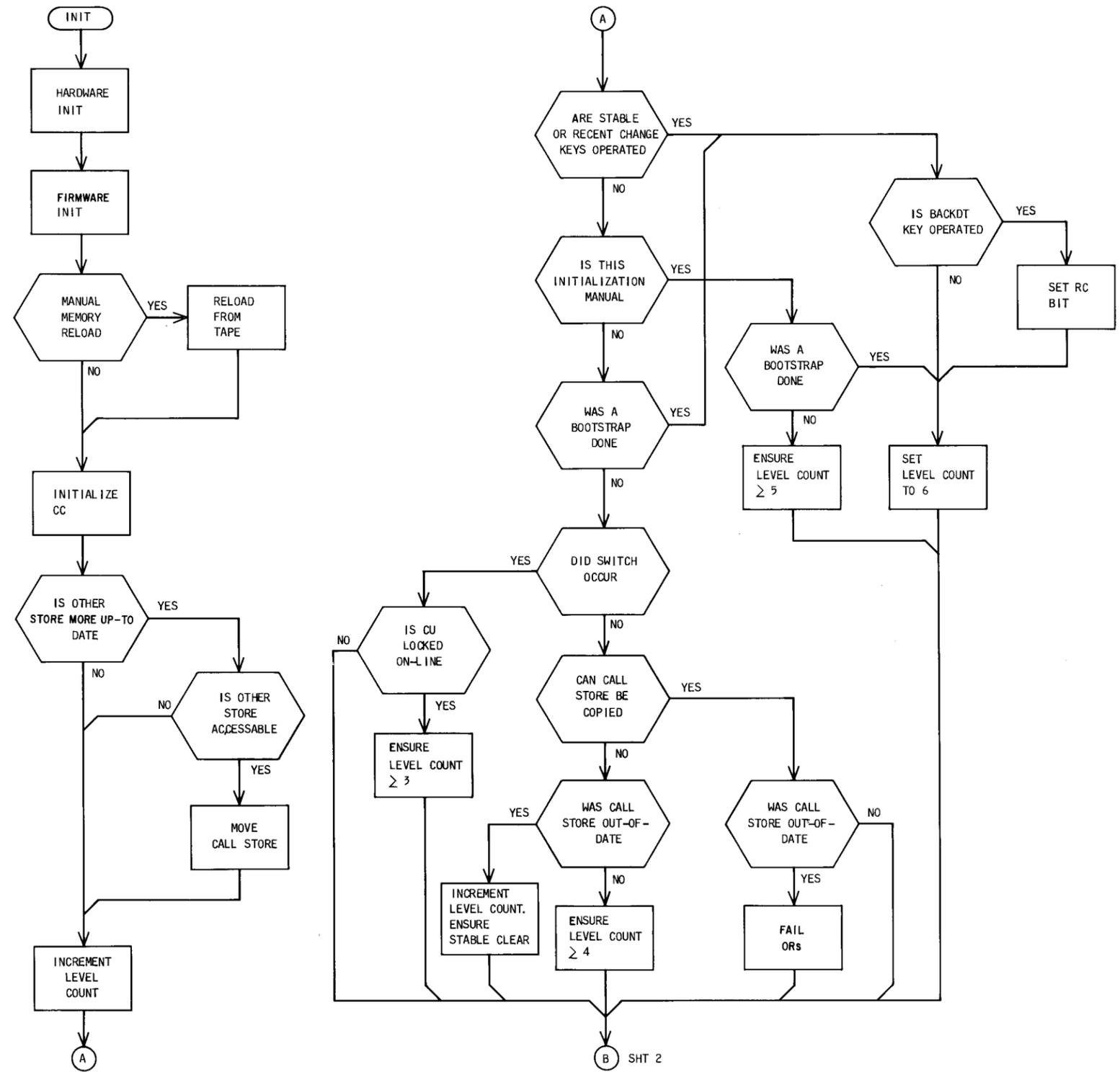


Fig. 2—Initialization Sequence and Level Counts (Sheet 1 of 2)

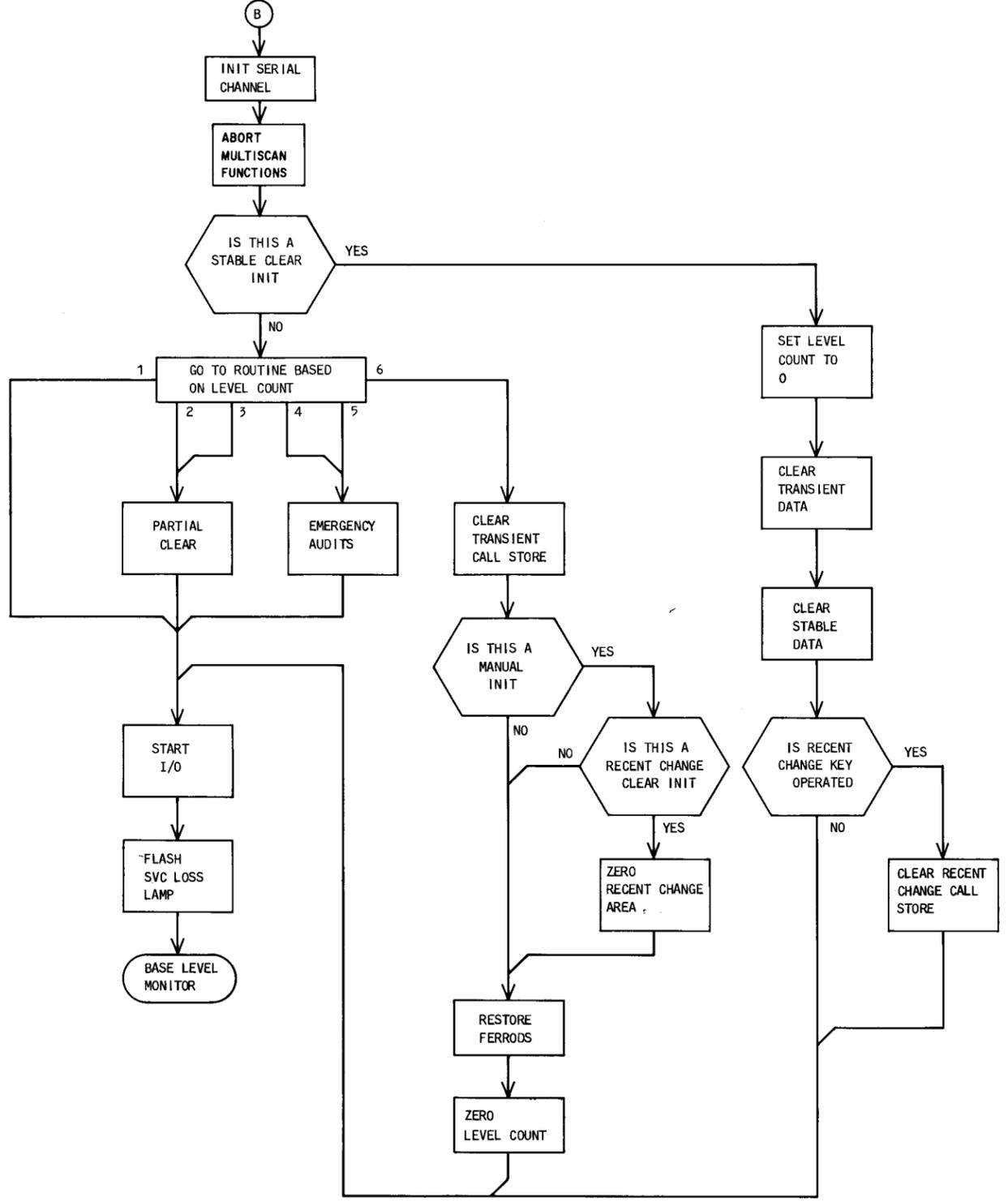


Fig. 2—Initialization Sequence and Level Counts (Sheet 2 of 2)

from paper tape record of service orders, customer dialed speed calling, etc. Customer changes cannot be reconstructed. AMA machines will be initialized to zero causing AMA-0 to be switched to on-line or remain on-line. Care should be taken to preserve AMA data that can be destroyed during initialization.

2.10 MEM RELOAD—Depressing the MEM RELOAD key provides a means of reloading memory from magnetic tape and causes the MEM RELOAD key to light. The MEM RELOAD key is reset when initialization action has been completed or it may be manually reset by depressing it a second time before the INIT EXECUTE key is depressed.

2.11 BACKDT OFFICE DATA—The BACKDT OFFICE DATA key lights red when operated. This initialization makes the system assume the state that existed immediately prior to the last translation update. To manually perform a BACKDT OFFICE DATA initialization the MEM RELOAD key must also be operated. The BACKDT OFFICE DATA lamp remains lighted after the initialization sequence to provide a visual reminder that the office data in memory is out of date with the translation data contained on the tape cartridge. The same flip-flop (F/F) that keeps the BACKDT OFFICE DATA lamp lighted is used to ensure that future automatically generated bootstraps also cause a backdate initialization. The BACKDT OFFICE DATA lamp will not extinguish until the Recovery from Backdate procedure is performed (Section 232-304-301).

2.12 INIT EXECUTE—The INIT EXECUTE key lights red when depressed. When the INIT EXECUTE key is depressed, the enable F/F is reset and an initialization signal (MRF pulse) is generated and sent to both control units. The initialization program interrogates the states of the other system initialization F/Fs to determine the initialization level. The init execute F/F is reset automatically by the program when the initialization action has been completed.

2.13 Any combination of initialization function keys may be depressed. If none of the keys are depressed, an emergency audit initialization

will be performed when the ENABLE and INIT EXECUTE keys are depressed in sequence.

INDICATORS

2.14 Indicators directly associated with system initialization are located within the SYSTEM INITIALIZATION keys on the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP. Some of these indicators were discussed in 2.07 through 2.12. The SERVICE LOSS lamp will *not* flash while an initialization is in progress. The SERVICE LOSS lamp (Fig. 1) flashes after the initialization program has completed its action and will remain flashing through the initialization interval. The DB lamps (Fig. 1) indicate the proper progression of the initialization program.

2.15 There are other lamps and indicators indirectly associated with system initialization that aid maintenance personnel to determine the state of the system. These lamps and indicators are located on the SYSTEM STATUS AND CONTROL section of the SSP and are described in Section 232-309-104.

3. PROCEDURES FOR MANUAL INITIALIZATION

A. Initialization Postmortem Dump

3.01 An initialization postmortem dump is normally printed via the maintenance TTY to permit analysis of the cause of system initialization. The postmortem dump occurs automatically at the end of the initialization interval of the last initialization unless a utility request is active. Refer to the output message manual (OM-2H200) for interpretation of postmortem dumps.

3.02 To manually cause a postmortem dump to be printed, type the following message at the maintenance TTY:

OP:POSTMORT!

This message will cause the entire 64 words of the postmortem area of the memory to be printed. This area of memory contains information which was stored at the time of the first and last initialization in this sequence.

B. Call Store Dump

3.03 Call Store Dump—If a printed record of the contents of the call store area of memory at the time an initialization occurs is needed, a dump of this area may be obtained by typing the following message on the maintenance TTY:

DMP:INITQ aa, LENGTH nn!

where:

aa = address of first word to be dumped

nn = length of block to be dumped in number of words.

Caution: *This message delays putting the system back in the update mode until after the requested dump is complete.*

3.04 To abort the initialization call store dump prior to an initialization, type the following message on the maintenance TTY:

STOP:UTIL!

If it is desired to end the call store dump during the course of the output, this can be accomplished by operating the BREAK key on the TTY.

C. Premanual Initialization Check Procedure

3.05 Before a manual initialization of the system is attempted certain lamps and conditions at the SSP and the 3A Central Control (3A CC) control panel must be met to ensure the success of the initialization. The following checks should be made.

- Make sure power is not removed from the control units of SSP.
- On the SSP if the display buffer bit lamps 21 through 16 are lighted and 15 through 0 are counting, an initialization is in progress. If initialization is in progress, make sure it is completed before attempting a manual initialization.

- At the SYSTEM STATUS AND CONTROL section of the SSP, make sure that the LOCK key is not lighted; thus, preventing the control units from switching.
- At the SSP ensure that the FORCE CU ACTIVE keys are not lighted; thus, allowing CU switching if necessary.
- At the 3A CC control panel, ensure that the STATUS—TEST MODE lamp is not lighted and on the inside of the 3A CC control panel ensure that the TEST MODE—NORMAL switch is in the NORMAL position.

3.06 Some initialization procedures will cause the AMA machines to be initialized to zero, and cause AMA-0 to be switched on-line or to remain on-line. Care should be taken to prevent the loss of information recorded on AMA tape. These procedures are described at the beginning of each type of initialization where required. A manual emergency audit initialization does not require protection of AMA data.

D. Postmanual Initialization Check Procedure

3.07 Determine if the initialization has successfully recovered the system. If the system has not recovered, a higher level of initialization will be required. The following are indications of system recovery.

- After an initialization, the SERVICE LOSS lamp on the SYSTEM STATUS AND CONTROL section of the SSP will flash for approximately 1-1/2 to 2 minutes. The SERVICE LOSS lamp will remain lighted after a level 6 or greater initialization, and must be extinguished by typing the following message at the maintenance TTY:

M SY:RSL!

- The display buffer lamps should show a dynamic display of lamp operation after an initialization is completed.
- The presence of network activity. The restoral of line ferrods (high level initialization) should be heard.

- The ability to place test calls. A test call cannot be placed if the line being used was in use during the initialization until its line ferrod is restored. (A test call is to a normal telephone and includes disconnect).
- TTY printout of the initialization messages on the maintenance TTY.

EMERGENCY AUDIT INITIALIZATION

3.08 Emergency Audit Initialization—The emergency audit is an initialization that is performed automatically when the system level count reaches 4 (Fig. 2). Emergency audit initializations may be performed either automatically or manually when the system level count reaches 5. Emergency audits which are program-controlled are discussed in detail in PD-2H109 for 2B-EF-1. The emergency audits do the following:

- Idle all peripheral order buffers (POBs)
- Idle some types of transient call records (TCRs). Some of the items included in this category are:

Most custom calling TCRs
TCRs where a tone is connected

TCRs included in maintenance

All TCRs that were executing a POB.

Certain other TCRs are not idled unless a correctness check fails. Some of the items included in this category are:

TCRs in the digit collection state

TCRs in the ringing state.

- Idle originating registers (ORs) except those associated with the designated TCRs
- Idle all transient terminal memory records (TMRs) except those associated with the retained TCRs
- Restores the line ferrods of those lines still marked idle in memory after resumption of call processing (some lines may have originated before this step can be completed)
- Restore system network map.

3.09 The emergency audits are manually enabled as follows:

STEP	PROCEDURE
1	At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP— Depress the ENABLE key. Major alarm sounds, and the MAJOR lamp on the SSP lights, the maintenance TTY prints REPT ERR SSP KEY.
2	At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP— Depress the INIT EXECUTE key.
3	Observe that lamps on the display buffer on the SSP indicate a system initialization.
4	At the SYSTEM STATUS AND CONTROL section of the SSP— The SERVICE LOSS lamp flashes and the ATI lamp is lighted during initialization. These lamps automatically extinguished upon completion of initialization.
	Note: The time required for emergency audits is variable depending on traffic and the office size.

STEP	PROCEDURE
5	<p>At the maintenance TTY—</p> <p>Observe one or more of the following printouts:</p> <pre> ** tt RCOVRY CU INIT 5 5 = level count 5 ** tt MI SY CLR EAU ** tt UPD OMAS COMPL ** tt MA AU RLF ATP </pre>
6	<p>At the SYSTEM STATUS AND CONTROL section of the SSP—</p> <p>Depress the ALARMS CONTROL—ALARM RLS key to retire the major alarm.</p>
7	<p>Ensure the system has returned to normal operation (3.07).</p>

TRANSIENT CLEAR INITIALIZATION

3.10 A transient clear initialization is based on a system level count of 6 (Fig. 2). This initialization is done after the emergency audit procedure has failed to restore the system. The transient clear initialization does the following:

- Zeros all transient data except transient call records (TCRs) and transient memory records (TMRs)
- Forms a list of customer lines involved in TCRs
- Idles all TCRs

- Sets up a special peripheral order buffer (POB) to restore customer line ferrets upon resumption of call processing on those lines that were involved with a TCR
- Calls in a TMR audit to zero transient TMRs and billing information in stable TCRs, calls in a line status bit (LSB) audit to reconstruct line status bits for stable calls and a network audit to rebuild network map(s) based on stable calls.

3.11 The transient clear initialization is manually enabled as follows:

STEP	PROCEDURE
1	<p>To ensure that the AMA block currently being recorded is properly ended.</p> <p>At maintenance TTY, type in (for each frame):</p> <pre>M AM:SWO:fg h!</pre> <p>fg = two-digit AMA frame number (0-1)</p>

STEP

PROCEDURE

- h = Transport on AMA frame to be switched off-line (0-1)
- 2a If transport 1 is now on-line, type the following message to put AMA 0 on-line (for each frame).
- At maintenance TTY, type in:
- M AM:SWO:fg 1!
- fg = two-digit AMA frame number (0-1)
- 3 At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP—
- Depress the ENABLE key.
- Major office alarm sounds, ALARMS—MAJOR lamp on the SYSTEM STATUS AND CONTROL section of the SSP lights, the maintenance TTY prints REPT ERR SSP KEY only if the system is in a “sane” base level loop.
- 4 Depress the INIT EXECUTE key.
- 5 Again, depress the ENABLE key and the INIT EXECUTE key within one minute.
- 6 Observe that lamps on the display buffer indicate a system initialization.
- 7 At the SYSTEM STATUS AND CONTROL section of the SSP—
- The ALARMS—SERVICE LOSS lamp flashes and remains lighted after initialization.
- Note:** The time required for a transient clear initialization is variable depending on traffic and office size.
- 8 At the maintenance TTY—
- Observe one or more of the following printouts:
- ** tt
RCOVRY CU INIT 0
0 = level count 6
- ** tt MI SY CLR TRN
** tt A AU RC ATP
** tt MA AU RLF ATP
- 9 At the SYSTEM STATUS AND CONTROL section of the SSP—
- Depress the ALARMS CONTROL—ALARM RLS key to retire the major alarm.
- 10 Ensure the system has returned to normal operation (3.07).

STEP	PROCEDURE
11	<p data-bbox="256 359 605 384">At the maintenance TTY—</p> <p data-bbox="256 422 1414 485">Restore the ALARMS—SERVICE LOSS lamp on the SYSTEM STATUS AND CONTROL section of the SSP by typing the following message:</p> <p data-bbox="678 516 818 541" style="text-align: center;">M SY:RSL!</p>

STABLE CLEAR INITIALIZATION

3.12 The stable clear initialization (Fig. 2) provides for clearing all stable data in the call store, initializing the physical equipment, and restoring customer lines that were disconnected. When the stable clear initialization is performed, the system does the following:

- Clears all of call store except recent change area
- Idles all trunks and service circuits
- Restores the line ferroids of those lines still marked idle in memory after resumption of call processing (some lines may have originated before this step can be completed)
- Causes traffic monitor to print out on the traffic TTY that all traffic, plant, and performance measurements have been lost

- The system time and date are initialized to zeros.

Note: The correct time and date must be restored as soon as possible after a stable calls initialization. See Section 232-316-301.

Caution: *Operation of the STABLE CALLS key destroys all stable calls in the office at the time of initialization. The system time and date are initialized to all zeros by a stable clear initialization. AMA machines will be initialized to zero causing AMA-0 to be switched to on-line or remain on-line. Care should be taken to preserve AMA data that can be destroyed during initialization.*

- 3.13** The STABLE CALLS key is manually enabled as follows:

STEP	PROCEDURE
1	<p data-bbox="256 1493 1227 1518">To ensure that the AMA block currently being recorded is properly ended.</p> <p data-bbox="256 1556 948 1581">At maintenance TTY, type in (for each AMA frame):</p> <p data-bbox="345 1619 578 1644" style="padding-left: 40px;">M AM:SWO:fg h!</p> <p data-bbox="337 1682 867 1707" style="padding-left: 40px;">fg = two-digit AMA frame number (0-1)</p> <p data-bbox="345 1776 1110 1801" style="padding-left: 40px;">h = transport on AMA frame to be switched off-line (0-1)</p>
2a	<p data-bbox="256 1871 1341 1896">If transport 1 is now on-line, type in the following message to put AMA 0 on-line.</p>

STEP	PROCEDURE
	<p>At maintenance TTY, type in (for each frame):</p> <p style="padding-left: 40px;">M AM:SWO:fg 1!</p> <p style="padding-left: 40px;">fg = two-digit AMA frame number (0-1)</p>
3	<p>At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP (Fig. 1)—</p> <p>Depress the ENABLE key.</p> <p>Major office alarm sounds, ALARMS—MAJOR lamp on the SYSTEM STATUS AND CONTROL section of the SSP lights, the maintenance TTY prints REPT ERR SSP KEY only if the system is in a “sane” base level loop.</p>
4	Depress the STABLE CALLS key.
5	Depress the INIT EXECUTE key.
6	Observe that lamps on the display buffer indicate a system initialization.
7	<p>At the SYSTEM STATUS AND CONTROL section of the SSP—</p> <p>The ALARMS—SERVICE LOSS lamp flashes and remains lighted after initialization.</p> <p>Note: The time required for a stable calls initialization is variable depending on traffic and office size.</p>
8	<p>At the maintenance TTY—</p> <p>Observe one or more of the following printouts:</p> <p style="padding-left: 40px;">** tt RCOVRY CU INIT 0 0 = level count 6</p> <p style="padding-left: 40px;">** tt MA SY CLR STB ** tt MA AU RLF ATP</p>
9	<p>At the SYSTEM STATUS AND CONTROL section of the SSP—</p> <p>Depress the ALARMS CONTROL—ALARM RLS key to retire the major alarm.</p>
10	Ensure the system has returned to normal operation (3.07).
11	At the maintenance TTY—

STEP

PROCEDURE

Restore the ALARMS—SERVICE LOSS lamp on the SYSTEM STATUS AND CONTROL section of the SSP by typing the following message:

M SY:RSL!

12 At the maintenance TTY—

Insert the correct time and date using the procedure in Section 232-316-301.

RECENT CHANGE CLEAR INITIALIZATION

3.14 A recent change initialization (Fig. 2) provides the maintenance personnel a means of clearing recent changes placed in call store whose data may be causing trouble. When the recent change initialization is initiated the system does the following:

- Clears recent change data such as service orders, customer originated changes to custom calling features (speed dialing lists, call forwarding list), traffic and plant measurements
- Does transient clear procedure.

Caution: Operating RECENT CHANGE key clears all recent change data in call store. This data must be reinserted

from paper tape record of service orders, customer dialed speed calling, etc. Customer changes cannot be reconstructed. AMA machines will be initialized to zero causing AMA-0 to be switched to on-line or remain on-line. Care should be taken to preserve AMA data that can be destroyed during initialization.

Note: Backup paper tapes of service order input messages and customer dialed speed call changes should be available when a recent change procedure is initiated to restore customer service order information in the call store.

3.15 The recent change initialization is enabled as follows:

STEP

PROCEDURE

1 Make sure backup paper tapes are available (see **Caution** in 3.14).

2a If a TTY (service order maintenance) with a paper tape punch is available, punch out the call forwarding list using the following message:

At (SO or maintenance) TTY, type in:

A CF:PUN!

Save the tape for a later step.

STEP	PROCEDURE
3b	<p>If a paper tape punch is not available, print call forwarding list using the following message:</p> <p>At maintenance TTY, type in:</p> <p style="padding-left: 40px;">A CF:PR!</p>
4	<p>To ensure that the AMA block currently being recorded is properly ended.</p> <p>At maintenance TTY, type in (for each frame):</p> <p style="padding-left: 40px;">M AM SWO:fg h-!</p> <p style="padding-left: 40px;">fg = two-digit AMA frame number (0-1)</p> <p style="padding-left: 40px;">h = transport on AMA frame to be switched off-line (0-1)</p>
5c	<p>If transport 1 is now on-line, type in the following message to put AMA 0 on-line:</p> <p>At maintenance TTY, type in (for each frame):</p> <p style="padding-left: 40px;">M AM:SWO:fg 1-!</p> <p style="padding-left: 40px;">fg = two-digit AMA frame number (0-1)</p>
6	<p>At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP (Fig. 1)—</p> <p>Depress the ENABLE key.</p> <p>Major office alarm sounds, ALARMS—MAJOR lamp on the SYSTEM STATUS AND CONTROL section of the SSP lights, the maintenance TTY prints REPT ERR SSP KEY only if the system is in a “sane” base level loop.</p>
7	<p>Depress the RECENT CHANGE key.</p>
8	<p>Depress the INIT EXECUTE key.</p>
9	<p>Observe that lamps on the display buffer indicate a system initialization.</p>
10	<p>At the SYSTEM STATUS AND CONTROL section of the SSP—</p> <p>The ALARMS—SERVICE LOSS lamp flashes and remains lighted after initialization.</p>
	<p>Note: The time required for a recent change initialization is variable depending on traffic and the office size.</p>
11	<p>At the maintenance TTY—</p>

STEP	PROCEDURE
	Observe one or more of the following printouts: <pre> **tt RCOVRTY CU INIT 0 **tt 0 = level count 6 **tt MI SY CLR RC **tt MA AU RLF ATP **tt MA AU RC ATP </pre>
12	At the SYSTEM STATUS AND CONTROL section of the SSP— Depress the ALARMS CONTROL—ALARM RLS key to retire the major alarm.
13	Ensure the system has returned to normal operation (3.07).
14	At the maintenance TTY— Restore the ALARMS—SERVICE LOSS lamp on the SYSTEM STATUS AND CONTROL section of the SSP by typing the following message: <pre> M SY:RSL! </pre>
15	Restore recent change service order requests with punched tape from Step 1 as per local office procedures. <i>also make sure you put T WP: AMS:1??! so AMA will switch at 13:00 every day!</i>
16d	Read in the paper tapes of the call forwarding lists from Step 2a and/or the speed call changes from Step 1.
17e	If call forwarding lists were printed out, restore the recent change service order requests from TTY printouts in Step 3b as per local office procedures using the following message: <pre> A CF:ENT! </pre>

STABLE AND RECENT CHANGE CLEAR INITIALIZATION

3.16 The stable and recent change clear initialization is based on a level count of 6 (Fig. 2). This procedure is performed after either a stable or recent change clear initialization procedure has failed to restore the system. This procedure incorporates the functions of both the stable clear and the recent change clear initializations (3.12 and 3.14, respectively).

Caution: Operation of the **STABLE CALLS** and **RECENT CHANGE** keys destroys all stable calls in the office at the time of initialization and clears

all recent change data in call store. Recent change data must be reinserted from paper tape record of service orders, customer dialed speed calling, etc. Customer changes cannot be reconstructed. AMA machines will be initialized to zero causing AMA-0 to be switched to on-line or remain on-line. Care should be taken to preserve AMA data that can be destroyed during initialization.

Note: The correct time and date must be restored as soon as possible after a stable and recent change clear initialization. See

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Section 232-316-301). Also backup tapes of service order input messages and customer dialed speed call changes should be available when a recent change procedure is initiated to restore customer service order information in the call store.

3.17 The stable and recent change clear initialization procedure is enabled manually as follows:

STEP	PROCEDURE
1	Make sure backup paper tapes are available (see Caution in 3.16).
2a	If a TTY (service order or maintenance) with a paper tape punch is available, punch out the call forwarding list using the following message: At (SO or maintenance) TTY, type in: A CF:PUN! Save the tape for a later step.
3b	If a paper tape punch is not available, print call forwarding list using the following message: At maintenance TTY, type in: A CF:PR!
4	To ensure that the AMA block currently being recorded is properly ended. At maintenance TTY, type in (for each frame): M AM:SWO:fg h-! fg = two-digit AMA frame number (0-1) h = transport on AMA frame to be switched off-line (0-1)
5c	If transport 1 is now on-line, type in the following message to put AMA 0 on-line. At maintenance TTY, type in (for each frame): M AM:SWO:fg 1-! fg = two-digit AMA frame number (0-1)
6	At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP (Fig. 1)— Depress the ENABLE key. Major office alarm sounds, ALARMS—MAJOR lamp on the SYSTEM STATUS AND CONTROL section of the SSP lights, the maintenance TTY prints REPT ERR SSP KEY only if the system is in a “sane” base level loop.

STEP	PROCEDURE
7	Depress the STABLE CALLS key.
8	Depress the RECENT CHANGE key.
9	Depress the INIT EXECUTE key.
10	Observe that lamps on the display buffer indicate a system initialization.
11	<p data-bbox="240 604 1073 630">At the SYSTEM STATUS AND CONTROL section of the SSP—</p> <p data-bbox="240 667 1349 693">The ALARMS—SERVICE LOSS lamp flashes and remains lighted after initialization.</p> <p data-bbox="240 730 1398 789">Note: The time required for a stable calls and recent change initialization is variable depending on traffic and the office size.</p>
12	<p data-bbox="240 827 586 852">At the maintenance TTY—</p> <p data-bbox="240 890 862 915">Observe one or more of the following printouts:</p>
	<pre data-bbox="326 953 683 1167"> ** tt RCOVRY CU INIT 0 0 = level count 6 ** tt MI SY CLR STB RC ** tt MA AU RLF ATP ** tt MR SY RSL </pre>
13	<p data-bbox="240 1205 1073 1230">At the SYSTEM STATUS AND CONTROL section of the SSP—</p> <p data-bbox="240 1268 1276 1293">Depress the ALARMS CONTROL—ALARM RLS key to retire the major alarm.</p>
14	Ensure the system has returned to normal operation (3.07).
15	<p data-bbox="240 1394 586 1419">At the maintenance TTY—</p> <p data-bbox="240 1486 1398 1545">Restore the ALARMS—SERVICE LOSS lamp on the SYSTEM STATUS AND CONTROL section of the SSP by typing the following message:</p>
	M SY:RSL!
16	Restore recent change service orders with punched backup tape from Step 1 as per local office procedures.
17d	Read in the proper tapes of the call forwarding lists from Step 2a and/or the speed call changes from Step 1.

STEP	PROCEDURE
18e	If call forwarding lists were printed out, restore the recent change service order requests from TTY printouts in Step 3b as per local office procedures using the following message: A CF:ENT!
19	At the maintenance TTY— Insert the correct time and date using the procedure in Section 232-316-301.

MEMORY RELOAD

3.18 Depressing the SYSTEM INITIALIZATION-MEM RELOAD key on the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP will “bootstrap” a copy of the generic program and office translation data from the tape cartridges unit into the main store. The generic program and translation data on the tape should normally agree with the data in the main store. The tape copy of the office data is updated from memory during recent change updates.

Caution: AMA machines will be initialized to zero causing AMA-0 to be switched to on-line or remain on-line. Care should be taken to preserve AMA data that can be destroyed during initialization.

Note: The correct time should be updated as soon as possible after a memory reload initialization. See Section 232-316-301.

3.19 The memory reload initialization is enabled as follows:

STEP	PROCEDURE
1	Make sure backup paper tapes are available (see <i>Caution</i> in 3.18).
2a	If a TTY (service order or maintenance) with a paper tape punch is available, punch out the call forwarding list using the following message: At (SO or maintenance) TTY, type in: A CF:PUN! Save the tape for a later step.
3b	If a paper tape punch is not available, print call forwarding list using the following message: At maintenance, TTY type in: A CF:PR!
4	To ensure that the AMA block currently being recorded is properly ended.

STEP	PROCEDURE
	<p>At maintenance TTY, type in (for each frame):</p> <p style="padding-left: 40px;">M AM SWO:fg h-!</p> <p style="padding-left: 40px;">fg = two-digit AMA frame number (0-1)</p> <p style="padding-left: 40px;">h = transport on AMA frame to be switched off-line (0-1)</p>
5c	<p>If transport 1 is now on-line, type in the following message to put AMA 0 on-line.</p> <p>At maintenance TTY, type in (for each frame):</p> <p style="padding-left: 40px;">M AM:SWO:fg 1-!</p> <p style="padding-left: 40px;">fg = two-digit AMA frame number (0-1)</p>
6	<p>At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP (Fig. 1)—</p> <p>Depress the ENABLE key.</p> <p>Major office alarm sounds, ALARMS—MAJOR lamp on the SYSTEM STATUS AND CONTROL section of the SSP lights, the maintenance TTY prints REPT ERR SSP KEY only if the system is in a “sane” base level loop.</p>
7	Depress the MEM RELOAD key.
8	Depress the INIT EXECUTE key.
9	Observe that lamps on the display buffer indicate a system initialization.
10	<p>At the SYSTEM STATUS AND CONTROL section of the SSP—</p> <p>The PANEL TIMEOUT lamp is lighted and the ALARMS—SERVICE LOSS lamp flashes and remains lighted after initialization.</p> <p>Note: The time required for a memory reload initialization is variable depending on traffic and the office size, but may take up to 3 minutes.</p>
11	<p>At the maintenance TTY—</p> <p>Observe one or more of the following printouts:</p> <p style="padding-left: 40px;">** tt RCOVRY CU INIT 0 0 = level count 6</p> <p style="padding-left: 40px;">** tt MI SY CLR TRN ** tt UPD OMAS COMPL ** tt MA AU RLF ATP</p>

STEP	PROCEDURE
12	At the SYSTEM STATUS AND CONTROL section of the SSP— Depress the ALARM CONTROL—ALARM RLS key to retire the major alarm.
13	Ensure the system has returned to normal operation (3.07).
14	At the maintenance TTY— Restore the ALARMS—SERVICE LOSS lamp on the SYSTEM STATUS AND CONTROL section of the SSP by typing the following message: M SY:RSL!
15	Restore recent change service orders with punched backup tape or printouts from Steps 1 as per local office procedures.
16d	Read in the paper tapes of the call forwarding lists from Step 2a and/or the speed call changes from Step 1.
17e	If call forwarding lists were printed out, restore the recent change service order requests from TTY printouts in Step 3b as per local office procedures using the following message: A CF:ENT!
18	At the maintenance TTY— Insert the correct time and date using the procedure in Section 232-316-301.

BACKDATE OFFICE DATA

3.20 The backdate office data initialization will clear all recent changes placed in the call store area of the memory and backdate the translation data in the memory to the state existing immediately prior to the last recent change update. This backdating of the memory is accomplished by overwrites to the translation data from the backdate tape file. Paper tapes of service order information and customer dialed speed call changes from the **previous** recent change update should be available when this initialization is performed. Customer service order information in the call store area of the memory may be restored via the paper tape reader on the service order TTY.

3.21 After a backdate initialization, the system is placed in an abnormal condition called the **backdate state**. This condition is recognized

by an operated BACKDT OFFICE DATA key on the SSP. This key may not be retired manually. No recent changes may be entered while the system remains in this state. To restore the system to normal, follow the procedures outlined in Section 232-304-301 as soon after a backdate initialization as possible. The system should never be allowed to remain in the backdate state for more than a few hours.

Caution: Operating the MEM RELOAD and BACKDT OFFICE DATA keys clears all recent change data in the call store. This data must be reinserted from paper tape record of service orders, customer dialed speed calling, etc. Customer changes cannot be reconstructed. AMA machines will be initialized to zero causing AMA-0 to be switched to on-line or remain

SECTION 232-313-301

on-line. Care should be taken to preserve AMA data that can be destroyed during initialization.

3.22 The backdate initialization is enabled as follows:

Note: The correct time should be updated as soon as possible after a backdate office data initialization. See 232-316-301.

STEP	PROCEDURE
1	Make sure backup paper tapes are available (see Caution in 3.21).
2a	If a TTY (service order or maintenance) with a paper tape punch is available, punch out the call forwarding list using the following message: At (SO or maintenance) TTY, type in: A CF:PUN! Save the tape for a later step.
3b	If a paper tape punch is not available, print call forwarding list using the following message: At maintenance TTY, type in: A CF:PR!
4	To ensure that the AMA block currently being recorded is properly ended. At maintenance TTY, type in (for each frame): M AM SWO:fg h-! fg = two-digit AMA frame number (0-1) h = transport on AMA frame to be switched off-line (0-1)
5c	If transport 1 is now on-line, type in the following message to put AMA 0 on-line. At maintenance TTY, type in (for each frame): M AM:SWO:fg 1-! fg = two-digit AMA frame number (0-1)
6	At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP (Fig. 1)— Depress the ENABLE key.

STEP

PROCEDURE

Major office alarm sounds, ALARMS—MAJOR lamp on the SYSTEM STATUS AND CONTROL section of the SSP lights, the maintenance TTY prints REPT ERR SSP KEY only if the system is in a “sane” base level loop.

- 7 Depress the MEM RELOAD key.
- 8 Depress the RECENT CHANGE key.
- 9 Depress the BACKDT OFFICE DATA key.
- 10 Depress the INIT EXECUTE key.
- 11 Observe that lamps on the display buffer indicate a system initialization.
- 12 At the SYSTEM STATUS AND CONTROL section of the SSP—
The ALARMS—SERVICE LOSS lamp flashes and remains lighted after initialization.
- Note:** The time required for a backdate office data initialization is variable depending on traffic and the office size, but should take no longer than approximately 3 minutes.
- 13 At maintenance TTY—
Observe one or more of the following printouts:
** tt
RCOVRY CU INIT 0
0 = level count 6

** tt TI PR LSM
** tt MA AU RLF ATP
** tt UPD OMAS COMPL
- 14 At the SYSTEM STATUS AND CONTROL section of the SSP—
Depress the ALARMS CONTROL—ALARM RLS key to retire the major alarm.
- 15 Ensure the system has returned to normal operation (3.07).
- 16 At maintenance TTY—
Restore the ALARMS—SERVICE LOSS lamp on the SYSTEM STATUS AND CONTROL section of the SSP by typing the following message:

M SY:RSL!

- 17 Follow the Recovery From Backdate Procedures as given in Section 232-304-301.

STEP	PROCEDURE
18	Restore recent change service orders with punched backup tape or printouts from Step 1 as per local office procedures.
19d	Read in the paper tapes of the call forwarding lists from Step 2a and/or the speed call changes from Step 1.
20e	If call forwarding lists were printed out, restore the recent change service order requests from TTY printouts in Step 3b as per local office procedures using the following message: A CF:ENT!
21	At the maintenance TTY— Insert the correct time and date using the procedure in Section 232-316-301.

TTY INITIALIZATION

3.23 The TTY initialization is intended to be used when it is felt that the TTY is in trouble but there is still network action indicating that call processing is taking place.

Caution: The TTY INIT key is not to be used to stop undesired printouts, as TTYs other than the maintenance TTY are affected by the operation of the TTY INIT key.

The TTY initialization does the following:

- Zeros all waiting list slots

- Zeros the message forming area
- Zeros the TTY program control words
- Initializes and activates the appropriate MTC TTY controller of the mated TTYC pair
- Shuts off all tape punches
- Properly turns off all linked output messages
- Prints out on all equipped TTYs that the TTY controller has been initialized.

3.24 The TTY clear initialization is enabled as follows:

STEP	PROCEDURE
1	At the SYSTEM EMERGENCY MANUAL CONTROL section of the SSP— Depress the TTY INIT for at least 1 second.
2	At maintenance TTY— Observe printout: tt INIT TTYC ALL
3	If neither the alarm nor a TTY message occurs after depressing TTY INIT key, a system initialization should be attempted.

EMERGENCY LINE TRANSFER

3.25 The emergency line transfer is used to provide manual telephone service for certain designated customers if an emergency occurs which prevents call processing in the No. 2B ESS office.

Enabling the emergency line transfer connects the designated customers to an operator circuit in another office.

3.26 The emergency line transfer is enabled as follows:

STEP	PROCEDURE
1	Determine that call processing of both CUs is not possible. Perform one or several major initialization procedures described in this practice.
2	If system cannot be brought back to normal— At SYSTEM EMERGENCY MANUAL CONTROL section of the SSP— Depress the EMER LINE TRFR key. <i>Note:</i> The EMER LINE TRFR key should remain lighted until the No. 2B ESS office has returned to normal.
3	Proceed with hands-on procedures (Part 4) to eliminate trouble in system.
4	When system is back to normal and can process calls, depress the EMER LINE TRFR key.

4. HANDS-ON PROCEDURE

4.01 If it is necessary gain access for manual testing to the on-line CU, the following steps must be performed.

Caution: *The following procedures are to be used only in extreme emergency when neither CU will run. Section 232-305-301 should be consulted first.*

- (1) At the 2B processor frame, behind the 3A Central Control panel (Fig. 3)—

Set the TEST MODE—NORMAL switch to TEST MODE position.

- (2) At the 3A Central Control panel—

Depress the MANUAL key.

This provides access to the on-line CU via the controls on the control panel.

- (3) Refer to the following sections for further information for hands-on procedures:

(a) Section 232-305-301—System Recovery Guidelines

(b) Section 232-306-301—Control and Display Procedures

(c) Section 232-305-101—General System Maintenance

(d) Trouble Locating Manual (TLM-1C900) Section B

(e) Schematic Diagram (SD-1C900).

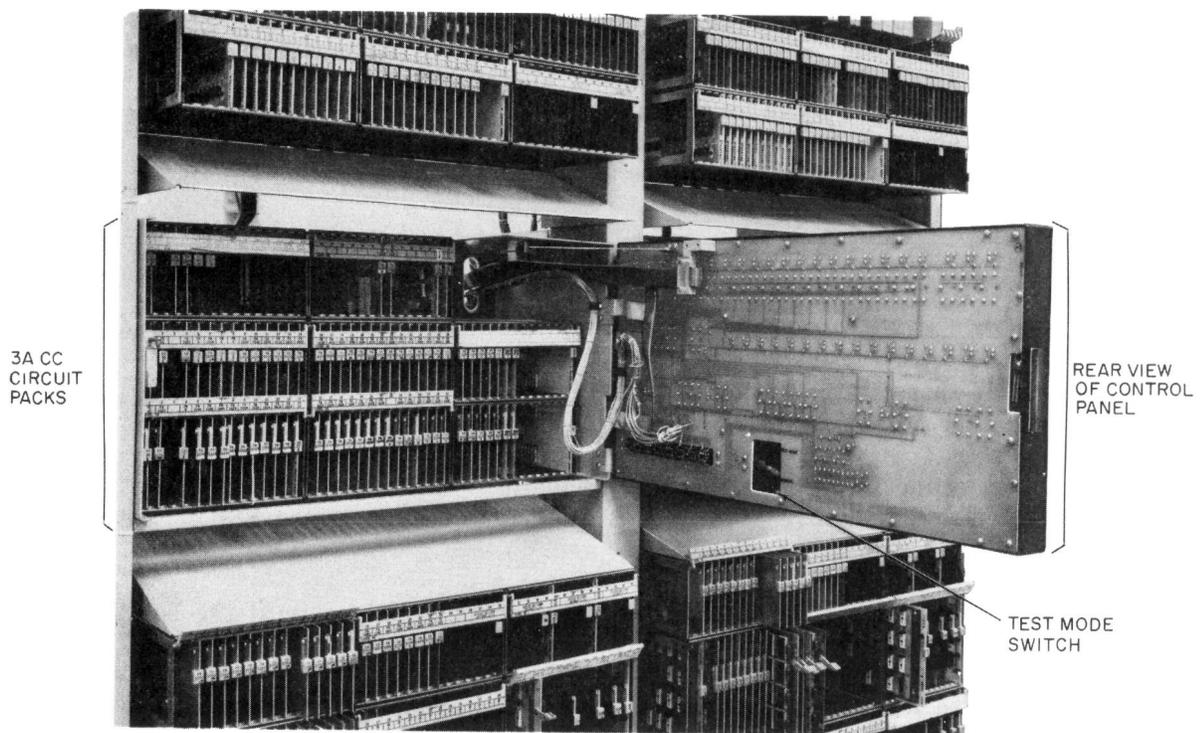


Fig. 3—3A Central Control Panel Open