UPDATING PROGRAM STORE TRANSLATION INFORMATION NO. 2B ELECTRONIC SWITCHING SYSTEM

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1. GENERAL

1.01 This section describes the procedures for updating program store translation information in the No. 2B Electronic Switching System (ESS). The program store (PS) refers to that portion of the main store (MAS) which is normally write protected. Some of the program features are mentioned for background information; however, the program routines are not described in detail in this section. The general procedure is provided in Part 4 of this section and must be read and understood before attempting to use the more detailed procedure covered in Part 5.

1.02 This section is reissued to include changes since the last issue. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 When a change is required in the translation data, the new information is temporarily stored in the recent change (RC) buffers of the call store (CS). This information may become effective for immediate use or may be simply stored until the PS is updated depending upon the particular program using the data. When translation information is being updated, information in the RC buffers supersedes the information located at the corresponding address in PS. The RC buffers will hold only a certain amount of information. Therefore, it eventually becomes necessary to transfer the information from the RC buffers to the permanent memory of the PS and to clear the RC buffers so that additional recent changes may be entered into the system.

1.04 After both the on-line and off-line PSs have been updated, the translation portion of the system tape cartridges are rewritten to reflect the new main store contents. The system tapes must always be capable of restoring the main memory to its current state.

1.05 All No. 2B ESS offices should maintain three pairs (six tape cartridges) of good tape cartridges in the office at all times. One pair would be the primary or on-line pair and the other two pairs would be backup tape cartridges having the same point issue of the generic program and containing two previous versions of office data. All backup tape cartridges should be so marked and dated whenever updated from the primary tape using the tape "audit correct" function.

1.06 Prior to the incorporation of any major data change to the primary tapes, a pair of duplicate tapes must be created from the primary tapes using the tape copy procedure in Section 232-309-305, and the two oldest backup tape cartridges. Any one of the following constitutes a major change:

- Any ODA update

- Several recent change updates

- Several small overwrites
- A single large overwrite to either generic or translation data.

Do not perform the tape duplication procedure unless a high degree of confidence has already been established in the remaining backup tapes. Normally, the tape duplication procedure does not need to be performed more than once a week.

1.07 The system periodically provides teletypewriter (TTY) printouts of plant counts, including the number of changes in each RC buffer. The system will also indicate when the RC area of the CS is approximately 81 percent filled. At this time the PS memory update should begin. Recent change messages can continue to be inputted even after the update process is started. When a 93 percent filled message is given, RCs are turned-off automatically.

1.08 The process of transferring RC information from the CS to the PS is called updating PS translation information. This process is carried-out by the Recent Change Update Program (MAGER) under the control of a craftsperson who directs the system as to which routine must be used and when it should be initiated. The role of the craftsperson in the procedure consists entirely of processing input and output messages at the maintenance TTY.

1.09 To maintain reliability, it is important that normal operation of the system be affected as little as possible by the updating procedure. During the update process, the off-line CU is unavailable for system use and the on-line control unit (CU) must be locked on-line. Therefore, update and verification functions, once begun, must be completed as quickly as possible.

1.10 The update process consists mainly of initiating system routines by inputting the appropriate TTY messages. The sequence of operations necessary to update the PS is briefly outlined as follows:

(1) The system tape data controllers (TDCs) and transports are diagnosed for faults which would later prevent the update of the tape cartridges.

(2) The RCs are frozen to provide a consistent set of data for update.

(3) Translation data to be overwritten is saved in the backdate file for possible use during a system bootstrap.

(4) The off-line PS is updated with the frozen RC information and verified. After the verification, the off-line CU is switched on-line.

(5) The duplicated PS is updated and verified.

(6) The new copy of translation data is recorded onto the tape cartridges.

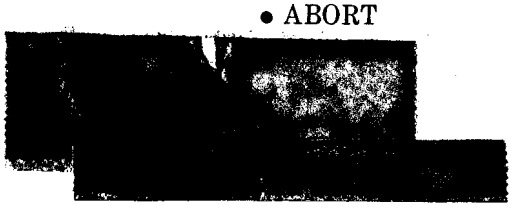
(7) The frozen RCs are cleared from temporary storage.

1.11 Before attempting to update, ensure that the system is in the normal standby state with the ability to function in the simplex mode. This can be done by inspecting the system status panel for an indication of an abnormal condition. Putting the system into simplex operation (via the recent change update procedure) with certain types of memory faults in the on-line MAS can cause a system initialization.

2. ROUTINES INVOLVED IN TRANSLATION UPDATING

2.01 The update procedure basically consists of initiating system routines by TTY message. There are nine independent routines for this purpose:

- DIAGNOSE (DGN) TAPE
- RC AUDIT
- RC FREEZE
- OUTPUT BACKDATE
- BEGIN
- VERIFY
- OUTPUT TRANSLATION
- END
- ABORT



A brief description and purpose of the routines follows:

- DGN TAPE Routine: The DGN TAPE routine is requested by a TTY input message. This request exercises the tape transport and TDC for testing purposes. It is necessary that an ATP message be received (on both units) before proceeding to the RC AUDIT routine.

- RC AUDIT Routine: It is required to have audits performed on the RC area in CS and the RC bits in PS before moving the contents of the RC area into PS. The AUDIT message from the TTY must be given just prior to the FREEZE routine. It is necessary that only ATP messages be received before proceeding to the RC FREEZE routine.

- RC FREEZE Routine: It is desirable to update the PSs without denying additional RC entries into the system. The system contains duplicated program stores, and it is essential that the same data is placed into both. Therefore, a request to freeze the contents of the RC area of CS is made at the start of the update process. This allows the updating routines to retrieve a uniform set of data from the CS at different points in the procedure. The freeze request flags only the current RC data. It does not prohibit additional information from entering the unoccupied portions of the buffers. Any additional information that does enter the RC area will be unflagged and, therefore, not used to update the PS.

- OUTPUT BACKDATE Routine: Once the RC area has been frozen, a request to output the backdate (BACKDT) file writes backdating information onto the BACKDT file of both tape cartridges. The backdate information consists of the old data corresponding to frozen RC entries and their respective PS addresses. This information can be used on an emergency system bootstrap to remove the most recently updated RC data.

- BEGIN Routine: The begin request causes the RC data to be written into the off-line PS from CS. The RC bits of the off-line PS words are automatically zeroed, unless a new RC change has been entered since the freeze routine was executed. The RC bit is left set for these PS words. The 3A CC common system main store audit is stopped and the double store read mechanism is disabled putting the system into the simplex mode. The active CU must be locked on-line for this request to be honored.

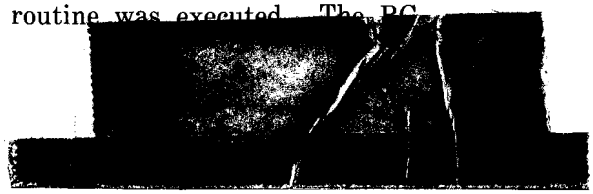
- VERIFY Routine: After the affected words have been updated, a request to verify is entered into the system. The result of this request is a matching of RC information which has been written into PS to that which is still in CS. In addition, PS words not affected (generic and translation) are checked to ensure that they were not changed. After the information has been correctly verified, the processors should be manually switched. After verifying that the system will perform properly on the new data, the duplicate PS is updated (via the BEGIN routine) and again verified to ensure that the duplicate PS was correctly updated. When the duplicated PS has been verified successfully, the system automatically reenters the double store read mode and the 3A CC main store audit is restarted.

- OUTPUT TRANSLATION Routine: After both program stores have been updated and verified, the output translation (TRNSLN) request is entered. This causes the entire translation area of PS to be copied on tape as backup to the system's main store. The checksum file, also stored on each tape, is then updated. Each tape cartridge must be written separately by independent TTY requests.

- END Routine: After both tape cartridges have been updated, the end request is entered. This request removes all data in the RC area of the CS that was flagged as being frozen. The system must be in the normal system state before the request will be accepted.

- ABORT Routine: The abort request causes a graceful halt to the work that was being done. The TTY abort printout includes an abort code that gives an indication of the cause of the abort. The ABORT routine can be activated from three different sources:

  (a) The base level maintenance monitor can cause an abort if it has some higher



priority routine to perform that may interfere with the MAGER program.

(b) The MAGER program itself may cause an abort when certain system or hardware errors are detected.

(c) The craftsperson can request an abort.

3. CAPABILITIES AND RESTRICTIONS

3.01 In order to initiate the update or recovery from backdate process, the following requirements must be met:

(1) The system must be in a normal standby state, and capable of running in the simplex mode (double store read blocked). This can be determined from the MAS LED on the system status panel.

(2) The tape data controllers, the system status panel, and the maintenance TTY must be in service.

3.02 Updating the PS translation information as described in this section is capable of being controlled from a switching control center (SCC) location if a remote system status panel (SSP) is available.

4. METHOD OF OPERATION

4.01 When the system types a message indicating that the RC buffer is 81 percent filled, the craftsperson should arrange to update the recent changes as soon as possible. In preparing to update, the craftsperson ensures that the maintenance TTY, control unit 0, control unit 1, and all units on the maintenance (MTCE) frame are in service. The system must be in the normal update mode, and the ATI (automatic test inhibit) lamp and MAS LED must be extinguished on the system status panel.

5. PROCEDURE

5.01 The duplicated features of the system must at all times be operational. The time that a CU is locked on-line while updating and verifying the off-line PS must be kept at a minimum.

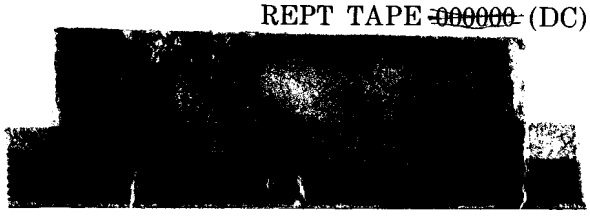
5.02 A letter a, b, c, etc, added to a step number in this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or series of lettered steps should be made is given in the ACTION column. All steps governed by the same condition are designated by the same letter within a procedure. Where a condition does not apply, all steps designated by that letter should be omitted.

5.03 The keys on the control and display equipment may be either a momentary-action or alternate-action key. The alternate-action key is depressed once to activate and depressed again to deactivate.

A. Tape Diagnostic Procedure

5.04 The following procedure is used to perform status and diagnostic checks on the system tape transports and controllers.

STEP	ACTION	VERIFICATION
A. Update Process for the First CU		
1	Ensure that control unit 0, control unit 1, system status panel and maintenance TTY are in service.	
2	At the system status panel— Verify that the system is in normal update, the MAS, ATI, TDC, MISC, and MANUAL FORCE LEDs are extinguished.	
3	At maintenance TTY— Type in: REPT:TAPE STAT! (Check both tapes in-service)	At TTY— Output message: REPT TAPE ~~000000~~ (DC)



913-8979940

STEP	ACTION	VERIFICATION
		(DC) = don't care (Refer to Output Message Manual (OM-2H200) for further explanation of this or any of the following output messages.)
	Caution: Do not proceed unless the specified system response is given in Step 3.	
4	Type in: DGN:TAPE 0! 2-3 min. 5 min.	Output message: INIT TAPE Compl+ DGN TAPE 0 ATP
	Caution: Do not proceed unless an ATP response is given.	
5	Type in: DGN:TAPE 1!	Output message: INIT Tape Compl+ DGN TAPE 1 ATP
	Caution: Do not proceed unless an ATP response is given.	
6	Type in: INIT:TAPE!	Output message: INIT TAPE COMPL
7	Type in: A AU:RC!	If the audit passes, one or more of the following output messages is printed: AR AU RC ATP modswd modswd modswd modswd AR AU RCBIT ~~ATP~~ END
		If the audit fails, one or more of the following output messages is printed: AR AU RC modswd badcit cdtcit cdtcdt plantc AR AU RC CIT citadd citwd AR AU RC CDT cdtadd cdtwd1 cdtwd2 AR AU RCBIT aaaaaaaa AR AU RCBIT ERR
	Note: The audit message, shown above, must be given just prior to the freeze message to minimize the possibility of incorrect data being inserted into the RC area of call store between the time of the last audit and Step 9.	

7 lines → about 4 minutes wait for it

STEP	ACTION	VERIFICATION
	(Approximately 2 to 5 minutes may lapse before the response to this message is concluded by a AR AU RCBIT message.)	
8a	If all replies are ATP, proceed to Step 9. If the audit fails, locate the problem and eliminate it before proceeding.	
9	Type in: M CW:FRZ!	Output message: MR CW FRZ
10	Type in: OP:BACKDT;TAPE!	Output message: OP BACKDT COMPL
11	At the system status panel— Depress the LOCK key.	Output message: REPT CU STAT UAV At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE— On-line SELECT and FORCE lamps lighted. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE LED and the LOCK lamp lighted.
12	Type in: M CW:BGN! ***Note:*** This input message inhibits the double store read mechanism and restricts the system MAS audit since the off-line and on-line PSs will not contain the same information. This condition will exist until the duplicate PS has been verified. For this reason, time spent between Steps 12 and 20 should be minimized.	Output message: MR CW UPD
13	After receiving the MR CW UPD output response, type in: M CW:VER!	The system verifies the contents of the off-line PS and if no errors are found, system responds with the output message: MR CW VER ATP ***Note:*** If the above message is received, go to Step 16. If any PS word fails verification, the system responds with the output message: MR CW VERERR aaaaaaa nnnnnnnn ffffffff MR CW VER ERR ***Note 1:*** If ffffffff = 77777777, the off-line data could not be read reliably (for example, bad access or bad parity).

STEP	ACTION	VERIFICATION
		Note 2: Data bit 23 must always be zero.
	Caution: If any action causes the main store audit to restart between the execution of Step 12 and the execution of Step 13, the procedure must be reentered at Step 12.	
14b	If the off-line PS failed verification, repeat Step 12 and Step 13.	
15c	If verification still fails, proceed as follows until verification test passes. Manually request MAS audits (AU:MAS!) and/or CU diagnostics to check the off-line main store hardware. Replace any bad memory planes and repeat execution of Step 12 and Step 13.	
16	At the system status panel— Depress LOCK key. ***Note:*** After the second PS write and verification, go to Step 20.	Output message: REPT CU STAT AVL At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE—On-line SELECT and FORCE lamps extinguished. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE LED and the LOCK lamp extinguished.
B. Update Process for the Second CU		
17	At maintenance TTY— Type in: SW:CU!	The system switches control units and responds with the output message: REPT SW CU a b
18	Allow the system to operate on the new translation data for 15 to 30 minutes before proceeding. ***Caution: Since the system is not locked during the "soak" period, care must be taken to ensure an automatic CU switch does not take place unnoticed. If it is necessary to stop the update procedure temporarily at this point, switch to the original CU (if not done automatically) and type UPD:OMAS! Resume at Step 12 when all troubles have been resolved.***	
19	Repeat Step 11 through Step 16 to update the duplicate PS.	

STEP	ACTION	VERIFICATION
C. Completion Process		
	Caution: If a system bootstrap is initiated anytime between the completion of Step 20 and the completion of Step 21, depress the SYSTEM INITIALIZATION—BACKDT OFFICE DATA key on the system status panel. Follow the RECOVERY FROM BACKDATE procedure (Part 7) after the system stabilizes.	
20	At maintenance TTY— Type in: OP:TRNSLN;TAPE 0! about 18 minutes. each tape ***Caution: If the tape operation fails (does not respond with output message, OP TRNSLN COMPL), repeat the input message on the same tape. However, do not proceed beyond Step 21d until an OP TRNSLN COMPL response is received for this tape.***	Output message: OP TRNSLN COMPL
21d	If the second attempt fails to give the OP TRNSLN COMPL response, locate and correct the problem, then reenter the input message.	
22	Repeat Step 20 for tape unit 1.	
23	Type in: M CW:END!	The system zeroes the information that was flagged in the RC buffer of CS and responds: MR CW END + AR AU TBL xxx xxx (This message indicates that the recent change update process is finished.) + Size of Table

6. BACKDATE BOOTSTRAP

6.01 ***Recent changes which have been updated, via the procedure described in Part 5, become a permanent part of the office translation data both in the PS and on the tape cartridge in the translation (TRNSLN) file. However, if the updated changes are adversely affecting the ability of the office to process calls, it is possible to remove the most recently updated data from the translations by means of a backdate bootstrap. This procedure should be taken only as an emergency measure after all other efforts to restore service have failed.***

6.02 A backdate bootstrap is a bootstrap which restores the system's main store to the information it contained prior to the last RC update. Therefore, the most recently updated RCs are eliminated. This action is realized by the read-in of the backdate (BACKDT) tape file as part of a bootstrap operation. This file contains the old translation data that was superseded at the time of the last RC update.

6.03 A backdate bootstrap is obtained by depressing the SYSTEM INITIALIZATION—BACKDT OFFICE DATA key on the system status panel in conjunction with a bootstrap initialization. A bootstrap initialization can occur either as the result of an automatic recovery action or can be requested

manually by operating the SYSTEM INITIALIZATION—MEMORY RELOAD key and BACKDT OFFICE DATA key. The call store RC buffers are automatically cleared on a backdate bootstrap initialization, regardless of the state of the SYSTEM INITIALIZATION— RECENT CHANGE lamp.

6.04 After a backdate bootstrap has been used to recover the system, the SYSTEM INITIALIZATION—BACKDT OFFICE DATA lamp will remain lighted indicating that the system is in the backdate state. In this state the TRNSLN tape file and the translation data in PS do not agree. Consequently, subsequent bootstrap requests will be backdate bootstraps and all RC activity is inhibited. To recover from the backdate state, a recovery from backdate procedure must be executed. This procedure restores the system to its normal function by causing the PS and tape file versions of translation to be equal again. The SYSTEM INITIALIZATION—BACKDT OFFICE DATA lamp will be extinguished automatically at this time.

7. RECOVERY FROM BACKDATE PROCEDURE

7.01 Two methods are given in this practice to recover from a backdate bootstrap:

Method A—will reload the exact translation data that existed just prior to the backdate bootstrap. Therefore, if bad translation data was the cause of the original trouble, do not use this method of recovery from backdate.

Method B—will allow the office to resume from backdate state. In this case RCs lost through the action of the backdate bootstrap would have to be reentered, one at a time. For this reason, it is recommended that punched paper tapes of all service orders be kept at least through two update periods.

A. Method A—RECOVERY FROM BACKDATE (TAPE TO STORE)

7.02 This procedure is based on the assumption that the translation data contained on the tape is good information. Because the SYSTEM BACKDT OFFICE DATA lamp is lighted until the conclusion of the procedure, a bootstrap initialization will make it necessary to restart the procedure from the beginning.

STEP	ACTION	VERIFICATION
1	At the system status panel— Depress the LOCK key.	At TTY— Output message: REPT CU STAT UAV At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE—On-line SELECT and FORCE lamps lighted. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE LED and the LOCK lamp lighted.
2	At maintenance TTY— Type in: IN:TRNSLN;TAPE a! a = 0 or 1 ***Caution: If any action causes the MAS audit to restart anytime between Step 2 and Step 6, restart the entire procedure.***	Output message: IN TRNSLN COMPL (This message inhibits the MAS audits.)

STEP	ACTION	VERIFICATION
3	At the system status panel— Depress LOCK key.	Output message: REPT CU STAT AVL At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE—On-line SELECT and FORCE lamps extinguished. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE LED and the LOCK lamp extinguished.
4	Type in: SW:CU!	The system switches control units and responds with output message: REPT SW CU a b
5	At the system status panel— Depress LOCK key.	Output message: REPT CU STAT UAV At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE—On-line SELECT and FORCE lamps lighted. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE LED and the LOCK lamp lighted.
6	Type in: IN:TRNSLN;TAPE a! a = digit used in Step 2.	Output message: IN TRNSLN COMPL At SYSTEM EMERGENCY MANUAL CONTROL— SYSTEM INITIALIZATION—BACKDT OFFICE DATA lamp is extinguished.
7	At the system status panel— Depress LOCK key.	Output message: REPT CU STAT AVL At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE—On-line SELECT and FORCE lamps extinguished. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE LED and the LOCK lamp extinguished.
8	Type in: SW:CU!	The system switches control units and responds with output message: REPT SW CU a b
9	Type in: A AU:RC!	If the audit passes, one or more of the following messages is given: AR AU RC ATP modswd modswd modswd modswd AR AU RCBIT ATP

STEP	ACTION	VERIFICATION
		If the audit fails, one or more of the following messages is given: AR AU RC modswd badcit cdtcit cdtcdt plantc AR AU RC CIT citadd citwd AR AU RC CDT cdtadd cdtwd1 cdtwd2 AR AU RCBIT aaaaaaaa AR AU RCBIT ERR
10a	If all replies are ATP, proceed to Step 11. If the audit fails, locate the problem and eliminate it before proceeding.	
11	At the system status panel— Depress LOCK key.	Output message: REPT CU STAT UAV At SYSTEM EMERGENCY MANUAL CONTROL— FORCE ACTIVE—On-line SELECT and FORCE lamps lighted. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE LED and the LOCK lamp lighted.
12	Type in: M CW:VER!	The system verifies the contents of the off-line PS and if no errors are found, the system responds with the output message: MR CW VER ATP ***Note 1:*** If the above message is received, go to Step 14. If any PS words fail verification, the system responds with output message: MR CW VERERR aaaaaaa nnnnnnnnn ffffffff MR CW VER ERR ***Note 2:*** If ffffffff = 77777777, the off-line data could not be read reliably (for example, bad access or bad parity). ***Note 3:*** Data bit 23 must always be zero.
13b	If verification fails, proceed as follows until verification test passes. Manually request CU diagnostics to diagnose the off-line main store	

STEP	ACTION	VERIFICATION
	hardware. Replace any bad memory planes and restart first execution of Step 12.	
14	At the system status panel— Depress LOCK key.	Output message: REPT CU STAT AVL At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE—On-line SELECT and FORCE lamps extinguished. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE LED and the LOCK lamp extinguished.
15	Type in: SW:CU!	The system switches control units and responds with output message: REPT SW CU a b
16	Repeat Step 11 through Step 14 to verify the duplicate PS.	
17	Type in: A AU:RC!	Output message: If the audit passes, one or more of the following output messages is given: AR AU RC ATP modswd modswd modswd modswd AR AU RCBIT ATP This message reenables the RC bit error printouts. If the audit fails, one or more of the following messages is given: AR AU RC modswd badcit cdtcit cdtcdt plantc AR AU RC CIT citadd citwd AR AU RC CDT cdtadd cdtwd1 cdtwd2 AR AU RCBIT aaaaaaaa AR AU RCBIT ERR

B. Method B—RECOVERY FROM BACKDATE (STORE TO TAPE)

7.03 This procedure leaves the office translation data in the same state as the backdate action and updates the tape cartridges to agree with the backdated data. Existing procedures should be followed to copy the current tapes to create two duplicate tapes for backup before proceeding. Because the SYSTEM INITIALIZATION—BACKDT OFFICE DATA lamp is lighted until the conclusion of the procedure, a bootstrap initialization will make it necessary to restart the procedure from the beginning.

STEP	ACTION	VERIFICATION
1	At maintenance TTY— Type in: REPT:TAPE STAT! (Check both tapes in service)	At TTY— Output message: REPT TAPE 000000 (DC) (DC) = don't care what information follows.
2	Type in: DGN:TAPE 0!	Output message: DGN TAPE 0 ATP (This message may appear as DGN TAPE ATP.)
	Caution: Do not proceed unless an ATP response is given.	
3	Type in: DGN:TAPE 1!	Output message: DGN TAPE 1 ATP (This message may appear as DGN TAPE ATP.)
	Caution: Do not proceed unless an ATP response is given.	
4	Type in: INIT:TAPE!	Output message: INIT TAPE COMPL
5	Type in: A AU:RC!	Output message: If the audit passes, one or more of the following output messages is given: AR AU RC ATP modswd modswd modswd modswd AR AU RCBIT ATP If the audit fails, one or more of the following output messages is given: AR AU RC modswd badcit cdtcit cdtcdt plantc AR AU RC CIT citadd citwd AR AU RC CDT cdtadd cdtwd1 cdtwd2 AR AU RCBIT aaaaaaaa AR AU RCBIT ERR
6	At the system status panel— Depress LOCK key.	Output message: REPT CU STAT UAV At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE—On-line SELECT and FORCE lamps lighted. At SYSTEM STATUS AND CONTROL—

STEP	ACTION	VERIFICATION
		Off-line CU UNAVAILABLE LED and the LOCK lamp lighted.
7	Type in: M CW:VER!	The system verifies the contents of the off-line PS and if no errors are found, the system responds with the output message: MR CW VER ATP ***Note:*** If the above message is received, go to Step 14. If any PS words fail verification, the system responds with output message: MR CW VERERR aaaaaaa nnnnnnnn ffffffff MR CW VER ERR ***Note 1:*** If ffffffff = 77777777, the off-line data could not be read reliably (for example, bad access or bad parity). ***Note 2:*** Data bit 23 must always be zero.
8a	If verification fails, proceed as follows until verification test passes. Manually request CU diagnostics to diagnose the off-line main store hardware. Replace any bad memory planes and repeat Step 7.	
9	At the system status panel— Depress LOCK key.	Output message: REPT CU STAT AVL At SYSTEM EMERGENCY MANUAL CONTROL— FORCE CU ACTIVE—On-line SELECT and FORCE lamps extinguished. At SYSTEM STATUS AND CONTROL— Off-line CU UNAVAILABLE and the LOCK lamp extinguished.
10	Type in: SW:CU!	The system switches control units and responds with output message: REPT SW CU a b
11	Repeat Step 6 through Step 9 to verify the duplicate PS.	
12b	If a transient clear (or higher) MRF occurs during or after Step 13, continue with Step 13.	
13	Type in: OP:TRNSLN;TAPE 0!	Output message: OP TRNSLN COMPL

STEP	ACTION	VERIFICATION
	Caution 1: If the tape operation fails (does not respond with OP TRNSLN COMPL), repeat the input message on the same tape. However, do not proceed beyond this step until an OP TRNSLN COMPL response is received for this tape.	
	Caution 2: If the second attempt fails to give the OP TRNSLN COMPL response, locate and correct the problem and reenter the input message.	
14	Type in: OP:TRNSLN;TAPE 1!	Output message: OP TRNSLN COMPL At SYSTEM EMERGENCY MANUAL CONTROL— SYSTEM INITIALIZATION—BACKDT OFFICE DATA lamp extinguished.

8. GLOSSARY

8.01 The following is a glossary of terms used in this section.

ATP—All Tests Passed
ATI—Automatic Test Inhibited
BACKDT—Backdate
CS—Call Store, that part of MAS that is ***unwrite*** protected
CU—Control Unit
MAGER—Recent Change Update Program
MAS—Main Store
MISC—Miscellaneous
MTCE—Maintenance Frame
PS—Program Store, that part of MAS that is write protected
RC—Recent Change
SSP—System Status Panel
TTY—Teletypewriter
TRNSLN—Translation