PROCEDURES FOR CHANGING PROGRAM STORE WORDS (2B-EF-2) NO. 2B ELECTRONIC SWITCHING SYSTEM

CONTENTS PAGE

1. GENERAL

1.01 This section describes the overwrite procedures used for inserting program or translation patches to correct errors affecting service in a No. 2B Electronic Switching System (ESS). This section also gives information and suggested procedures for administering No. 2B Emergency Broadcast Warning Transmissions (BWTs).

1.02 Whenever this section is reissued, the reason(s) for reissue will be listed in this paragraph.

1.03 Each program problem which is identified by BTL is assigned a Trouble Report (TR) number, a Temporary Change (TC) number, and an Overwrite (OW) number. The formal correction of these program problems is by software Change Notices (CN). This type of change is also called a generic program update or restart. Each software CN has an associated Engineering Change Notice (ECN) which lists the TRs and identifies the troubles corrected in the CN. AT&T also issues a Program Notice which is essentially the same as the ECN.

1.04 Program corrections for certain troubles which are service affecting and require immediate correction are distributed as No. 2B ESS Emergency Broadcast Warning Transmissions. Broadcast Warnings are distributed and administered by a new Western Electric service, Software Change Administration and Notification System (SCANS). Each warning is numbered serially. The warnings usually contain generic program overwrites which will normally be included in the next scheduled update or restart. In addition, for broadcast warnings containing overwrites, a "point" CN number is assigned to facilitate insertion of the change by the Western Electric installer in an office prior to turnover.

1.05 When BTL closes a program issue to new TRs, there will be an interval of several months before the CN is installed in individual offices. During this time there could be some recently distributed overwrites which are not included in the new program. These overwrites may apply to either the currently installed issue, the new issue, or both issues of the program. The Broadcast Warning will indicate the issue to which the change applies.

1.06 All overwrites which apply to an issue of generic program currently installed in the office should be inserted. Therefore, the insertion of overwrites in offices which have been turned over is the responsibility of the telephone company. Applicable overwrites should be installed in sequence and it is recommended that the overwrites be installed as they are received.

1.07 In addition to Broadcast Warnings, there are special overwrites with associated TR, TC, and OW numbers that do not get general distribution. This could be due to a coordinated change in hardware and software, special circumstances for a particular office, or the office being the soak office for an overwrite prior to its distribution. These special overwrites are generated by BTL or WE-PECC and distributed by WE-PECC to those individual offices. In the case of a coordinated hardware-software change, the overwrite will be included with the installation information for the hardware change. Such changes will be distributed by the hardware CN.

1.08 The method of administering the overwrites and recording their insertion is given in Part 2. The method for actually checking the overwrites by inserting the change messages and verifying the inserted message is given in Parts 3 and 4.

1.09 Refer to the input message manual (IM-2H200) and the output message manual (OM-2H200) for detailed information pertaining to any input or output message referred to in this section.

1.10 Refer to Section 232-304-301, Updating Program Store Translation Information, for detailed procedures on updating program store translation information in the No. 2B ESS.

2. ADMINISTRATION OF OVERWRITES

2.01 The administration of overwrites due to Broadcast Warnings or special purpose BTL overwrites requires an understanding of the overwrite. Also, the overwrites status and location must be clearly documented so that all changes to the generic program are immediately evident. In addition, when software CNs are inserted into the system, all previously installed overwrites must be reverified as to their inclusion in the previous CN. If not included, these overwrites must be inserted. Refer to paragraph 2.05(3).

2.02 The overwrite number for translation patches (overwrites) must be taken from a list (block) of numbers reserved for translations. For the No. 2B-EF-2 generic, the reserved numbers (block) range from 1 through 999. The use and administration of these numbers must be controlled by the local TELCO.

PROCEDURES FOR ADMINISTERING NEW OVERWRITES

2.03 All Broadcast Warnings should be inserted if they affect the issue of program currently installed in the office. Each Broadcast Warning is to be entered on the Broadcast Log (Fig. 1). All associated information (TR, TC, and OW numbers) and trouble nature are to be entered also. If the Broadcast Warning is reissued to supersede all or part of a previous broadcast, the total overwrite will either be withdrawn or corrected by the reissued warning. When the overwrite is implemented, the teletypewriter hard copy of the following input messages: IN:OW, IN:OWDATA, OP:OW, VER:OW:OLD and output message: VER OW COMPL are to be labeled with the BWT and/or point CN number and kept with the log. The date inserted and the corrected program issues are also entered on the log.

2.04 The telephone company should maintain a copy of the Broadcast Log at the Technical Assistance Center (TAC), Electronic System Assistance Center (ESAC), or Switching Control Center (SCC). If a TAC or ESAC has ***not*** been established, a central staff or group should maintain the current log for each office. The TAC or ESAC should require a positive feedback of the status of each overwrite in all offices involved. A suggested method would be to reproduce the Broadcast Log sheets to inform the TAC or ESAC whenever changes are made on the log. This will enable

OFFICE GENERIC ISSUE

BROADCAST WARNING NUMBER	CN NUMBER	PR NUMBER	PR NAME	NATURE OF TROUBLE	DATE INSERTED	TR NUMBER	TC NUMBER	OW NUMBER	TO BE CORRECTED IN ISSUE	DATE WITH-DRAWN

Fig. 1—Broadcast Log

the TAC or ESAC to have a complete and accurate status file of all overwrites in each office.

PROCEDURES FOR ADMINISTERING EXISTING OVERWRITES WHEN A SOFTWARE CN IS APPLIED

2.05 Three sets of documents are required in order to properly insert the overwrites when applying a software CN.

(1) The ***Broadcast Log*** of all overwrites in the machine.

(2) The ***ECN*** associated with the new program. The ECN will list the TRs included in the new program, and can be obtained from the Western Electric Company.

(3) The ***Broadcast Warnings*** associated with a new program issue. BTL and WE-PECC will provide new address and data, via the Broadcast Warning routine, for all overwrites which are not included in the new program issue.

2.06 Check each TR listed in the Broadcast Log, for which the overwrite was implemented, against the list of TRs in the ECN. Any TRs not found in the ECN have not been included in the new program. For these TRs, contact WE-PECC for resolution of the problems before proceeding.

> ***Note:*** The procedure described in paragraph 2.06 should be completed before the scheduled installation of the new program issue.

2.07 Install the new program issue. If all previously overwritten tapes have ***not*** been replaced by the new program issue, contact WE-PECC for resolution of any problems.

2.08 Update the Broadcast Log and send the report form to appropriate telephone company personnel, TAC, ESAC, or Staff.

PRETURNOVER AND PROGRAM RETROFIT OFFICES

2.09 The preturnover period and program retrofit period pose special problems to the telephone companies. The Western Electric Company installer is responsible for turning over a working system with a standard generic program installed. However, there may be some overwrites which should be installed by the Western Electric Company installer. To accomplish this, the WE-PECC, as discussed in paragraph 1.04, will assign a "point" CN number to each broadcast overwrite using the CN number assigned to the previous issue of the affected generic program. The "point" CN will be applicable to installing offices, retrofits and generic restarts only. Overwrites installed by the WECo installer should be entered in the Broadcast Log in the normal manner.

SPECIAL SITUATIONS

2.10 In some rare cases, the WECo installer may have obtained an overwrite for which TR, TC, and OW numbers have been assigned but which is not distributed via the Broadcast Warning routine. In the event the overwrite is needed for one particular office but was not considered to have application elsewhere, the overwrite may become part of a future generic program or a coordinated hardware and software change. In this case, the WECo installer should notify the telephone company of the existence of the overwrite. The telephone company should record all overwrites on the Broadcast Log prior to turnover.

SUMMARY

2.11 The use of the Broadcast Log should result in an orderly administration of all Broadcast Warnings and software overwrites. Extreme care must be taken by the central office personnel and TAC or ESAC to administer, insert, and verify all overwrites in the system.

2.12 Strict adherence to this procedure should eliminate system troubles resulting from overwrite insertion. An important fact to recognize is that mistakes in the overwrite procedure may lead to total system failure.

2.13 All insertions of overwrites into program store should be done in the low traffic period of the day. This time of the day is recommended because the action requires duplicated equipment to be removed from service.

3. CAPABILITIES AND RESTRICTIONS

3.01 The overwrite procedure may be used to change the contents of any MAS location in the No. 2B ESS program without restriction. Normally, however, changes made by the overwrite procedure apply to the generic program.

Note: The overwrite procedure should only be used to change MAS translation information in an emergency situation. Refer to Section 232-304-301, Updating Program Store Translation Information.

3.02 An unlimited number of locations can be changed using the overwrite procedure by a repeated sequence of TTY input requests. Any changes performed by the complete overwrite procedure immediately become active. An overwrite word for translations will not be allowed if a recent change currently exists for that location. Therefore, a recent change update must be performed first if the overwrite procedures are used to overwrite data in an area of program store that is recent changeable (translation area).

3.03 ***The overwrite procedure is intended for use only by experienced maintenance personnel as a method of last resort to change permanent memory. The maintenance personnel should carefully follow any special instructions given on the Emergency Broadcast Warnings or special purpose BTL overwrites while executing this procedure.***

Note: The overwrite procedure should not be attempted by office personnel except in response to Emergency BWTs, special purpose BTL overwrites, or through direct consultation with the No. 2 ESS Diagnostic Center.

VERIFICATION OF BROADCAST WARNINGS

3.04 The No. 2B ESS Broadcast Warning overwrite must be proofread to verify error free transmission from WE-PECC to the telephone company. The integrity of transmission is made by using the "8 check" procedure. This check procedure is accomplished by creating a check word which when added vertically to the address and data words provides a sum of 8 in each column. In addition the ***decimal sum*** of all octal numbers in the ***address***, and ***data*** fields is accumulated and shown with the check data. An example follows:

MNEMONIC	ADDRESS		OLD DATA		NEW DATA
IN:OWDATA:0, 0,	106010	+	00000000	+	16303027
CHECK	782878		88888888		72585861 = **30**
	888888		**88888888**		**88888888**

Note: Numbers and symbols shown in bold type do not appear on the broadcast warning but are provided to illustrate manual arithmetic verification.

All recipients of No. 2B ESS Broadcast Warnings should perform this check procedure before insertion to assure no errors have been introduced into the overwrite during transmittal to the telephone company.

3.05 Any change affecting the MAS memory is vulnerable to error, and any error in either address or data can affect service. The address of the data being changed can readily be verified since the address and the old data must be inputted while entering the new data.

Caution: The maintenance personnel should exercise more than the normal amount of caution in verifying the input results of any program patch by the overwrite procedures.

3.06 Any mismatches between the old data corresponding to an address in the broadcast warning and the data at that address in the processor will be detected by the verify overwrite routine. A mismatch generates a VER OW ERR error message. The mismatch causing the error should be resolved before continuing with the procedure.

3.07 In order to cross-reference overwrites with the program listing, all addresses in the program listings that have data changed due to the overwrite should be marked and cross-referenced to the Broadcast Log. The important step is to mark the program listing where an overwrite has modified that program. This action will warn the user of the program listing that an overwrite has been inserted.

3.08 A different procedure should be used by offices using microfiche. It is suggested that a 3 inch by 5 inch white card be marked with the changed information and attached to the back of the appropriate fiche card with a paper clip. The 3 inch by 5 inch card should be cross-referenced to the Broadcast Warning affecting the program listing.

3.09 Verification of the input message via the TTY printout after updating may be made from either the local central office or the centralized maintenance center, such as a TAC, ESAC, or SCC. If a TAC or ESAC is used, it must verify the accuracy of the overwrite in each office it serves. This will require the TAC or ESAC to monitor the local office during the overwrite message insertion, during all verifications of the message insertion and after updating. Reference should be made to IM-2H200 and OM-2H200 for all input and output message explanations.

3.10 In order to initiate the overwrite procedure, the system must be able to run in a ***normal update mode,*** and the following equipment must be in service: both TDCs (TDC0 & TDC1) CU 0, CU 1, and the maintenance teletypewriter. All input and output messages are handled via the maintenance teletypewriter, exclusively. The maintenance personnel should refer to Section 232-304-301, Updating Program Store Translation Information, for the updating procedures prior to performing the overwrite procedures.

3.11 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.

3.12 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.

4. PROCEDURES

4.01 The maintenance personnel should perform the overwrite procedures as soon as the program patch is received. A flowchart of the inspection of overwrites is given in Fig. 2.

4.02 The following step-by-step procedures should be used for updating the No. 2B ESS main stores with new generic and/or translation information. These procedures require the system to be in the normal update mode initially.

> ***Note:*** The generic overwrite procedure requires a craftsperson in the central office where two or more coordinated overwrites must be installed together. The translation overwrite procedure always requires a craftsperson in the central office.

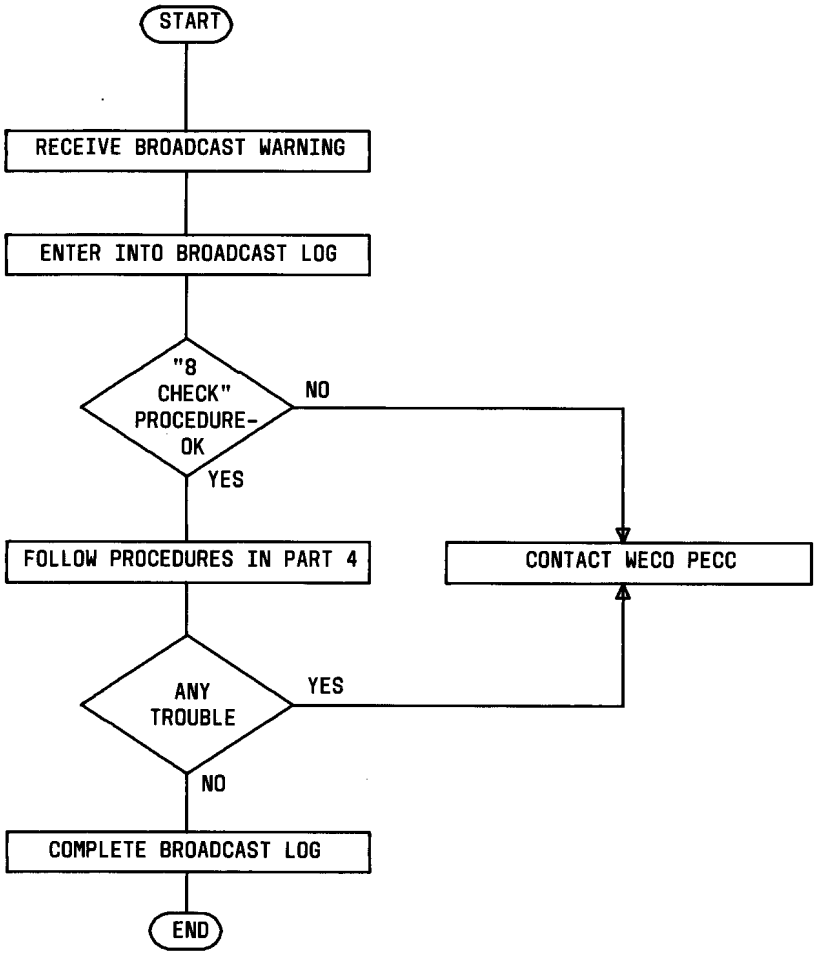

Fig. 2—Flow Chart of Procedure for Inserting No. 2B ESS Broadcast Warnings

GENERIC OVERWRITE PROCEDURE

STEP	ACTION	VERIFICATION
1	If the tape copy procedures in Section 232-309-305 ***have not been performed*** within the previous week to generate duplicate tape cartridges, make duplicate tape cartridges at this time. (See paragraphs 3.11 and 3.12.)	
2	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.
	Caution: Do not proceed unless the specified system response is given.	

STEP	ACTION	VERIFICATION
3	Type in: DGN:TAPE 0! 5 MIN. ***Caution: Do not proceed unless an ATP system response is given.***	Output message: INIT TAPE COMPL DGN TAPE 0 ATP
4	Type in: DGN:TAPE 1! 5 MIN. ***Caution: Do not proceed unless an ATP system response is given.***	Output message: INIT TAPE COMPL DGN TAPE 1 ATP
5	Type in: INIT:TAPE! 2 MIN.	Output message: INIT TAPE COMPL
6	Type in: ALW:OW!	Output message: ALW OW COMPL
7	Type in: 2B-EF-2 IN:GENID:xxxxxxxx! xxxxxxxx = 2B-EF-2 for generic 2B-EF-2.	Output message: OK
8	Type in: 28.00 IN:ISSID:zzzzzzzz! zzzzzzzz = current generic issue.	Output message: OK
9	Type in: IN:OW nnnnn;TTY! ***Note:*** nnnnn = number from the BWT.	Output message: IN OW COMPL
10	Type in: IN:OWDATA:ck,seg,adr,old,new! ***Note 1:*** Repeat for each changed word. ***Note 2:*** The check number field (ck) provides a check over the remaining data fields. If invalid data has been entered, the message will be rejected and an IN OWDATA ERR output message generated.	Output message: OK
11	Type in: VER:OW:OLD! ***Caution Do not proceed unless the specified system response is given. If a mismatch is detected, resolve the mismatch and repeat Step 11.***	Output message: VER OW COMPL
12	Type in: OP:OW;TTY!	Output message: IN OW nnnnn

STEP	ACTION	VERIFICATION
		IN OWDATA seg adr old new . . . OP OW COMPL
13	Visually inspect the contents of the overwrite buffer via the TTY output messages from Step 12. If any errors were made in the old or new data fields on input, repeat Step 10 for each incorrect entry. This will result in an IN OWDATA WARN message to be generated. For errors made in the address field, restart at Step 9 and reinput all IN:OWDATA input messages again.	
14	At maintenance TTY— Type in: OP:OW;TAPE! 1 MIN. GOES ON BOTH TAPES	At TTY— Output message: OP OW COMPL
~~15~~	~~Repeat Steps 9 through 14 for additional overwrites.~~	
16	At the system status panel (SSP)— Depress LOCK key.	At TTY— Output message: REPT CU STAT UAV At FORCE CU ACTIVE section of the SSP— The on-line SELECT and FORCE lamps lighted. At SYSTEM STATUS AND CONTROL section— The off-line CU UNAVAILABLE LED, the MANUAL FORCED LED, and the LOCK lamp lighted.
17	At maintenance TTY— Type in: IN:OW nnnnn;TAPE! — LOADS FROM TAPE TO MEMORY ***Note:*** nnnnn = overwrite number from Step 9.	At TTY— Output message: IN OW COMPL
18	Type in: LOD:OW:NEW! ***Note:*** This input message inhibits main store audits. If any action causes the main store audit to restart before Step 22, the procedure must be restarted at Step 17 for all overwrites. ***Caution: Do not proceed unless the specified system response is given. If an error is found, repeat Step 18.***	Output message: LOD OW COMPL VER OW COMPL

STEP	ACTION	VERIFICATION
	If the error is still found, manually request CU diagnostics and MAS audits for hardware memory faults. Restart at Step 17 (for all overwrites) after the off-line CU is restored.	
19	Repeat Steps 17 and 18 for additional overwrites.	
20	At maintenance TTY— Type in OP:HASH:GENERIC! 5 MIN. ***Caution: Resolve all hashsum differences before proceeding. If an error exist, remove the overwrite in accordance with Remove Overwrite Procedure. If more than one overwrite was added, determine the module containing the error and remove each overwrite one at a time, last one first from that module. After each overwrite is removed, recheck the hashsums using the preceding message to determine which overwrite is in error. After the error has been found, input the overwrites that were removed using Steps 17 and 18.***	At TTY— Output message: OP HASH adr hashsum . . . OP HASH COMPL adr = Absolute address of the requested hashsum. hashsum = Hashsum value (decimal).
21	At maintenance TTY— Type in: OP:HASHNR:SEG! 3 MIN. ***Caution: Resolve all hashsum differences before proceeding. If an error exist, remove the overwrite in accordance with Remove Overwrite Procedure. If more than one overwrite was added, determine the segment containing the error and remove each overwrite one at a time, last one first. After each overwrite is removed, recheck the hashsums using the preceding message to determine which overwrite is in error. After the error has been found, input the overwrites that were removed using Steps 17 and 18.***	At TTY— Output message: OP HASHNR ident hashsum . . . OP HASHNR COMPL ident = Segment number. hashsum = Hashsum value (decimal).
22	At the SSP— Depress LOCK key.	At TTY— Output message: REPT CU STAT AVL At FORCE CU ACTIVE section of the SSP— The on-line SELECT and FORCE lamps

STEP	ACTION	VERIFICATION
		extinguished. At SYSTEM STATUS AND CONTROL section— The off-line CU UNAVAILABLE LED, the MANUAL FORCED LED, and the LOCK lamp extinguished.
23	At maintenance TTY— Type in: SW:CU!	At TTY— Output message: REPT SW CU a b
24	Allow the system to operate on the changed MAS for 15 to 30 minutes before proceeding to Step 25. ***Note:*** Since the system is not locked during this "soak" period, care must be taken to ensure that an automatic CU switch does not take place unnoticed. If it is necessary to stop the overwrite procedure at this point, switch to the original CU (if not done automatically) and type in: STOP:OW! and UPD:OMAS!	
25	At maintenance TTY— Type in: IN:OW nnnnn;TAPE! ***Note:*** nnnnn = overwrite number from Step 9. ***Caution: If the system attempts to bootstrap between the first and last activate (ACT:OW!) operations for coordinated overwrites, manually remove both tape cartridges and replace with the most recent backup cartridges. After recovery, deactivate all overwrites activated during this procedure on the original cartridges and reload by following the Office Update Procedures Using ODA, Section 232-324-302.***	At TTY— Output message: IN OW COMPL
26	Type in: ACT:OW!	Output message: ACT OW COMPL
~~27~~	~~Repeat Steps 25 and 26 for additional overwrites.~~	
28	Type in: UPD:HASH:GENERIC! 5 MIN.	Output message: UPD HASH COMPL

STEP	ACTION	VERIFICATION
29	At maintenance TTY— Type in: STOP:OW! 2 MIN. (This message updates the off-line main store and reenables the main store audit.)	At TTY— Output message: UPD OMAS COMPL ALW OW STOPPED

TRANSLATION OVERWRITE PROCEDURE

1	If the tape copy procedures in Section 232-309-305 ***have not been performed*** within the previous week to generate duplicate tape cartridges, make duplicate tape cartridges at this time. (See paragraphs 3.11 and 3.12.)	
2	At maintenance TTY—(3 MIN.) Type in: A AU:RC! ***Caution: Do not proceed unless the specified ATP system response is given.***	At TTY— Output message: AR AU RC ATP modswd modswd modswd modswd AR AU RCBIT END If the audit fails, one or more of the following output messages is printed: AR AU RC cdtadr AR AU RC CIT citadd citwd AR AU RC CDT cdtadd cdtwd1 cdtwd2 AR AU RCBIT aaaaaaaa AR AU RCBIT ERR
3	At the system status panel (SSP)— Depress LOCK key.	At TTY— Output message: REPT CU STAT UAV At FORCE CU ACTIVE section of the SSP— The on-line SELECT and FORCE lamps lighted. At SYSTEM STATUS AND CONTROL section— The off-line CU UNAVAILABLE LED, the MANUAL FORCED LED and the LOCK lamp lighted.
4	At maintenance TTY— (8 MIN.) Type in: M CW:VER! ***Caution: Do not proceed unless the specified ATP system response is given.***	At TTY— Output message: MR CW VER ATP If any MAS word fails verification, the system responds with the output message: MR CW VERERR aaaaaaa nnnnnnnn ffffffff MR CW VER ERR ***Note:*** If ffffffff = 77777777, the off-line data could not be read reliably (for example; bad access or bad parity).
5	At the SSP— Depress LOCK key.	At TTY— Output message: REPT CU STAT AVL

STEP	ACTION	VERIFICATION
		At FORCE CU ACTIVE section of the SSP— The on-line SELECT and FORCE lamps extinguished. At SYSTEM STATUS AND CONTROL section— The off-line CU UNAVAILABLE LED, the MANUAL FORCED LED and LOCK lamp extinguished.
6	At maintenance TTY— Type in: SW:CU!	At TTY— Output message: REPT SW CU a b
7	Repeat Steps 3 through 5 for the duplicate main store, then proceed with Step 8.	
8	At maintenance TTY— Type in: REPT:TAPE STAT! (Check both tapes in service) ***Caution: Do not proceed unless the specified system response is given.***	At TTY— Output message: REPT TAPE 000000 (DC) (DC) = don't care what information follows.
9	Type in: DGN:TAPE 0! (6 MIN) ***Caution: Do not proceed unless an ATP system response is given.***	Output message: INIT TAPE COMPL DGN TAPE 0 ATP
10	Type in: DGN:TAPE 1! ***Caution: Do not proceed unless an ATP system response is given.***	Output message: INIT TAPE COMPL DGN TAPE 1 ATP
11	Type in: INIT:TAPE!	Output message: INIT TAPE COMPL
12	Type in: ALW:OW!	Output message: ALW OW COMPL
13	Type in: IN:GENID:xxxxxxxx! xxxxxxxx = 2B-EF-2 for generic 2B-EF-2.	Output message: OK
14	Type in: IN:ISSID:zzzzzzzz! zzzzzzzz = current generic issue.	Output message: OK
15	Type in: IN:OW nnnnn;TTY!	Output message: IN OW COMPL

STEP	ACTION	VERIFICATION
	Note: nnnnn = the next available translation overwrite number as described in paragraph 2.02.	
16	Type in: IN:OWDATA:-,0,adr,old,new!	Output message: OK
	Note: Repeat for each changed word.	
17	Type in: VER:OW:OLD!	Output message: VER OW COMPL
	Note: Do not proceed unless the specified system response is given. If a mismatch is detected on bit 22 (RC bit) of a translation word terminate this procedure by the STOP:OW input message, perform a recent change update and restart the entire procedure. Otherwise resolve mismatches and repeat Step 17.	
18	Type in: OP:OW;TTY!	Output messages: IN OW nnnnn IN OWDATA seg adr old new . . . OP OW COMPL
19	Visually inspect the contents of the overwrite buffer via the TTY output messages from Step 18. If any errors were made in the old or new data fields on input, repeat Step 18 for each incorrect entry. This will result in an IN OWDATA WARN message to be generated. For errors in the address field, restart at Step 15 and reinput all IN:OWDATA input message again.	
	DO STEP 20A REGARDLESS	
20a	If the current overwrite is one of a set of coordinated overwrites— Type in: OP:OW;TAPE!	Output message: OP OW COMPL
	Note: Coordinated overwrites would only occur when an individual overwrite exceeds the size of the overwrite buffer.	
21a	Repeat Steps 15 through 20a for the additional coordinated overwrites.	
22	At the SSP— Depress LOCK key.	At TTY— Output message: REPT CU STAT UAV

STEP	ACTION	VERIFICATION
		At FORCE CU ACTIVE section of the SSP— The on-line SELECT and FORCE lamps lighted. At SYSTEM STATUS AND CONTROL section— The off-line CU UNAVAILABLE LED, the MANUAL FORCED LED, and the LOCK lamp lighted.
23a	If the current overwrite is one of a set of coordinated overwrites— At maintenance TTY— Type in: IN:OW nnnnn;TAPE! ***Note:*** nnnnn = overwrite number from Step 15.	At TTY— Output message: IN OW COMPL
24	Type in: LOD:OW:NEW! ***Note:*** This input message inhibits main store audits. If any action causes the main store audit to restart before Step 26, the procedure must be restarted at Step 23a for all coordinated overwrites. ***Caution: Do not proceed unless the specified system response is given. If an error is found, repeat Step 24. If the error is still found, manually request CU diagnostics and MAS audits for hardware memory faults. Restart at Step 23a (for all coordinated overwrites) after the off-line CU is restored.***	Output message: LOD OW COMPL VER OW COMPL
25a	Repeat Steps 23a and 24 for additional coordinated overwrites.	
26	At the SSP— Depress LOCK key.	At TTY— Output message: REPT CU STAT AVL At FORCE CU ACTIVE section of the SSP— The on-line SELECT and FORCE lamps extinguished. At SYSTEM STATUS AND CONTROL section— The off-line CU UNAVAILABLE LED, the MANUAL FORCED LED, and the LOCK lamp extinguished.

STEP	ACTION	VERIFICATION
27	At maintenance TTY— Type in: SW:CU!	At TTY— Output message: REPT SW CU a b
28	Allow the system to operate on the changed MAS for 15 to 30 minutes before proceeding to Step 29. ***Note:*** Since the system is not locked during this "soak" period, care must be taken to ensure that an automatic CU switch does not take place unnoticed. If it is necessary to stop the overwrite procedure at this point, switch to the original CU (if not done automatically) and type in: STOP:OW! and UPD:OMAS!	
29	At maintenance TTY— Type in: STOP:OW! (This input message updates the off-line main store and reenables the main store audit.) ***Caution: If a system bootstrap is initiated anytime between the successful completion of Step 30 and the end of the procedure, physically remove tape 1 from transport, and allow the system to recover on tape 0. After recovery, continue by restoring tape 1 unconditionally and repeating Step 31.***	At TTY— Output message: UPD OMAS COMPL ALW OW STOPPED
30	Type in: OP:TRNSLN;TAPE 0! (15 MIN.)	Output message: OP TRNSLN COMPL
31	Type in: OP:TRNSLN;TAPE 1!	Output message: OP TRNSLN COMPL

Don't ever activate a translation OW, for Fasc.

TO ACTIVATE A GOOD O.W. THAT IS ALREADY IN O.K. & WORKING:
ALW:OW!
IN:OW XYYYX;TAPE!
ACT:OW!
STOP:OW!

OVERWRITE REMOVAL PROCEDURE

Note 1: This Overwrite Removal Procedure should only be performed if an error is found in Step 20 of the Generic Overwrite Procedure.

Note 2: If it is discovered that hashsums do not agree after application of an overwrite and examination of the BWT does not find the error, the PECC should be called for assistance in determining the error. Once the error has been found, the following procedure should be followed.

STEP	ACTION	VERIFICATION
1	Bring the bad overwrite into the buffer from the overwrite file on the tape by typing: IN:OW nnnnn;TAPE!	At TTY— Output message: IN OW COMPL
2	Verify that the new data is currently in the off-line by typing: VER:OW:NEW!	Output message: VER OW COMPL ***Note:*** If this response does not occur, do not proceed until the reason for the verified error is determined.
3	Remove the overwrite from the off-line store by typing: LOD:OW:OLD!	Output message: LOD OW COMPL VER OW COMPL
4	Verify the old data by typing: VER:OW:OLD!*	Output message: VER OW COMPL
5	Remove the incorrect copy of the overwrite from the overwrite file on tape by typing: RMV:OW! ***Note:*** At this point, if an incorrect address was specified in the overwrite, it must be completely re-inputted from the TTY beginning at Step 9 of the Generic Overwrite Procedure. If not, continue with Step 6 below.	Output message! RMV OW COMPL
6	Input correct data by typing: IN:OWDATA:ck,seg,adr,old,new! ***Note 1:*** Repeat for each changed word. ***Note 2:*** Each of these messages can expect a system response of IN OW DATA ERR if the address specified is already part of the overwrite.	

STEP	ACTION	VERIFICATION
7	Check the overwrite for corrections, requesting a printout by typing: OP:OW:TTY!	Output message: IN OW nnnnn IN OWDATA seg adr old new . . . OP OW COMPL
8	Finally, the correct overwrite should be outputted to the overwrite file on the tape by typing: OP:OW:TAPE! ***Note:*** From this point, the Generic Overwrite Procedure should be followed beginning at Step 16.	Output message: OP OW COMPL