9T10A DIAGNOSTIC TAPE PROGRAM
PROGRAM TO WRITE DIAGNOSTICS ON TAPE

A. PURPOSE OF PROGRAM

1. TO PROVIDE A PROGRAM TO WRITE DIAGNOSTIC PROGRAM CARD DECKS ON TAPE.
2. THIS PROGRAM WILL ALSO MODIFY THE DIAGNOSTIC TAPE, ONCE IT HAS BEEN WRITTEN, FOR ADDITIONS OR CORRECTIONS.

B. METHOD OF PROGRAM

1. GENERATING THE ORIGNAL TAPE.

THIS PROGRAM READS IN PROGRAM DECKS AND WRITES EACH DECK ON TAPE AS A FILE.

THE PROGRAM DECKS SHOULD BE IN THE FOLLOWING ORDER WHEN WIRTING A TAPE.

A. THE FIRST PROGRAM WRITTEN IS AN ADJUSTED 9M06A PROGRAM DECK. THIS IS PLACED AS THE FIRST PROGRAM SINCE ADJUSTMENTS HAVE BEEN MADE SO PROGRAM MAY BE MANUALLY LOADED OR LOADED BY LOAD TAPE BUTTON.

B. THE SECOND PROGRAM IS 9S01A HIGH AND LOW.

C. THE THIRD PROGRAM IS 9T11A, WHICH IS THE SEARCH PROGRAM TO BE USED FOR READING IN OTHER PROGRAMS.

THE ABOVE SEQUENCE IS THE BASIC GROUP, WHICH INCLUDESS A PROGRAM TO TEST C.P.U. BEFORE RUNNING OTHER PROGRAMS AND A STORAGE PROGRAM TO TEST MEMORY.

D. THE REMAINING PROGRAMS ON TAPE ARE DIAGNOSTIC PROGRAMS. THEY MAY BE PLACED IN ANY ORDER. HOWEVER A SUGGESTED ORDER IS LISTED IN SECTION II A.

2. MODIFYING AN EXISTING TAPE.

WHEN MODIFYING EXISTING TAPE YOU WILL BE DOING TWO OPERATIUONS, EITHER CORRECTIONS OR MAKING ADDITIONS AT END OF TAPE.

3. IF PROGRAM IS USED TO GENERATE A NEW TAPE. SENSE SWITCH 5 WILL

BE UP.

IF PROGRAM IS USED TO MODIFY AN EXISTING DIAGNOSTIC TAPE, SWITCH 5 WILL BE DOWN, WHEN CORRECTIONS ARE MADE A NEW DIAGNOSTIC TAPE IS WRITTEN. WHEN ADDITIONSS ARE MADE, THEY ARE WRITTEN ON THE EXISTING DIAGNOSTIC TAPE.

AREA OF MACHINE REQUIRED

1. MF, CF, CR, DS

   A. TO GENERATE A NEW DIAGNOSTIC TAPE. PLACE NEW TAPE ON CHANNEL B TAPE 1.

   B. TO MODIFY AN EXISTING DIAGNOSTIC TAPE WITH CORRECTIONS. PUT EXISTING TAPE ON CHANNEL A TAPE 1. NEW TAPE TO BE WRITTEN MUST BE ON CHANNEL B TAPE 1.

   C. TO MODIFY A DIAGNOSTIC TAPE BY ADDING NEW DECKS TO REAR OF TAPE, PUT PRESENT TAPE ON CHB TAPE 1.

2. STORAGE LOCATIONS - 00030 - 00400.

D. PROGRAM CONTROL

1. DECK	000	9LD01A LOW END LOADER WITH CARD SELECT
	001-008	9T10A PROGRAM
	009	TRANSFER CARD TRA 00030

THE FOLLOWING CARDS IN THIS DECK ARE TO BE USED AS INSERTION CARDS WHEN WRITING A TAPE. THEIR FUNCTION IS TO CHANGE SENSE SWITCH 6 CONTROL IN A DIAGNOSTIC TO READ TAPE 1 CHA, INSTEAD OF READ CARD READER WHEN PASS COMPLETE.

9M01A	9S03A H+L	9T03A
9M02A	9S04A H+L	9T04A
9M03A	9S05A H+L	9P01A
9M04A	9D01A	9COMA
9M05A	9B01A	
*9M06A SEE NOTE	9B03A	
9S01A H+L	9T01A	
9S02A H+L	9T02A	

NOTE -- 9M06A HAS 24 WORDS PER CARD. CONSEQUENTLY WE CAN NOT USE A CONTROL CARD AS IN THE OTHER DIAGNOSTICS. INSTEAD A CORRECTED CARD WILL BE INCLUDED FOLLOWING THE CONTROL CARDS. THE CARD IS 9M06A 104. INSERT THIS IN THE DECK IN THE PLACE OF THE PERMANENT CARD 104

WHEN WRITING A TAPE.

FOR ANY NEW DIAGNOSTICS RELEASED IN THE FUTURE. THE INSTALLATION WILL HAVE TO MAKE THEIR OWN CONTROL CARDS.

9M06A 000 - SPECIAL LOADER FOR LOADING 24 WORDS PER CARD WHEN PROGRAM IS ON TAPE.

9LD01A - LOW END LOADER WITH RTBA 1 SELECT

9LD02A - HIGH END LOADER WITH RTBA 1 SELECT

9LREW - LOW END REWINDER USED WITH LOW END LOADER

9HREW - HIGH END REWINDER USED WITH HIGH END LOADER

NOTE -- ONLY ONE COPY OF 9LD01, 9LD02, 9LREW, 9HREW HAVE BEEN SUPPLIED. EACH INSTALLATION WILL HAVE TO REPRODUCE THE NUMBER OF DUPLICATES NEEDED FOR EACH DECK PUT ON TAPE.

E. SENSE SWITCH CONTROL

SWT 5 UP WHEN PROGRAM IS USED TO WRITE NEW TAPE.

SWT 5 DN WHEN PROGRAM IS USED TO MODIFY EXISTING TAPE.

ALL OTHER SWITCHES UP.

SENSE LINES -- PROGRAM USES SENSE LITES 1,2 AND 4 DURING PROGRAM EXECUTION.

F. NORMAL STOPS

1. WHEN WRITING A NEW TAPE WITH SWT 5 UP

00151 - NEW TAPE HAS BEEN WRITTEN TAPE 1 CHANNEL B REWINDS. TO USE AS DIAGNOSTIC TAPE, CHANGE TAPE TO CHA TAPE 1.

NOTE -- REMOVE FILE PROTECT RING TO PROTECT TAPE FROM BEING WRITTEN ON.

2. WHEN MODIFYING EXISTING TAPE WITH SWT 5 DN.

00160 - IF INSERTING CORRECTION FILES, ENTER INTO THE ADDRESS PORTION OF THE KEYS. THE TOTAL OCTAL NUMBER OF FILES ON EXISTING TAPE, PUSH START TO CONTINUE.

IF ADDITIONS ARE TO BE ADDED TO END OF TAPE BE SURE ALL KEYS ARE

UP. PUSH START TO CONTINUE.

00163 - WHEN MAKING CORRECTIONS ENTER KEYS RESPECTIVE KEY OR KEYS TO INDICATE THE FILE OR FILES TO BE REPLACED.

WHEN MAKING ADDITIONS TO TAPE, DEPRESS SIGN POSITION KEY AND ENTER INTO THE ADDRESSPOTION OF THEKEYS. THE TOTAL OCTAL NUMBER OF FILES ON PRESENT TAPE. PUSH START TO CONTINUE.

00264 - TAPE 1 CH B SHOULD HAVE REWINDED, FOR ALL CORRECTIONS HAVE BEEN MADE ONTO NEW TAPE.

REMOVE FILE PROTECT RING WHEN COMPLETED

00300 - WHEN ADDING A FILE TO REAR OF PRESENT TAPE, A STOP WILL OCCUR HERE. THE REASON FOR THIS IS THAT THE PROGRAM TRANSERS TO THE ROUTINES FOR WRITING CARDS ONTO TAPE. PUT SWT 5 UP. PUSH START TO CONTINUE.

G. ERROR STOPS

SWT 5 UP.

00066 - BLANK CARD IN MIDDLE OF DECK. RUN OUT CARDS. REMOVE BLANK AND RELOAD LAST 3 CARDS AND REMAINDER OF DECK FOLLOWING BLANK. PRESS START TO CONTINUE.

00101 - HAD 5 TAPE CHECKS IN WRITING. TAPE WOULD NOT WRITE IN 5 TRIES. SUGGEST P.M. BEFORE TRYING TO WRITE TAPE AGAIN.

00120 - TAPE CHECK WHILE READING - PRESS START TRY AGAIN.

00133 - CHECK SUM ERROR IN READING CARD TO TAPE. TAKE CARDS NOT READ INTO READER OUT OF HOPPER. RUN OUT CARDS. RELOAD LAST 4 CARDS THAT RAN OUT OF MACHINE FOLLOWING BY REMAINDER OF DECKS NOT READ IN.

SWT 5 DN.

00177 - NO EOF WHEN SKIPPING OVER FILES BEING CORRECTED. RELOAD DECK AND START OVER.

00215 - TAPE CHECK ON READING TAPE. PRESS START TO TRY AGAIN.

00225 - TAPE CHECK ON WRITING. PRESS START TO TRY AGAIN.

00236 - TAPE CHECK ON READING. PRESS START TO TRY AGAIN.

00250 - CHECK SUM ERROR IN COMPARING NEW COMPUTED CHECK SUM FROM NEW TAPE

TO ITS OLD CHECK SUM. PRESS START TRY AGAIN.

00272 - NO EOF INDICATED WHEN READING OVER FILES TO ADD FILE TO END OF TAPE. PRESS START-TRY AGAIN.

H. COMMENTS

FURTHER DESCRIPTION OF CARD SEQUENCE AND FUNCTIONS.

DIAGNOSTIC DECK WITH 9LD01A LOW END LOADER.

1. 9LD01 LOW END LOADER. - WITH RTBA 1 SELECT

2. DIAGNOSTIC PROGRAM CARDS - EACH INDIVIDUAL CARD WRITES AS A RECORD ON TAPE.

3. CONTROL CARD - TO CHANGE SENSE SWITCH 6 CONTROL IN DIAGNOSTIC FROM READ CARD SELECT TO READ TAPE BINARY CHA TAPE 1.

4. LOW END REWINDER - THIS WILL REWIND TAPE WHEN DIAGNOSTIC BEING SEARCHED FOR HAS BEEN LOCATED WHEN READING DIAGNOSTIC TAPE.

5. TRANSFER CARD - NORMAL TRANSFER CARD WHICH TRANSFERS TO BEGINING OF DIAGNOSTIC LOCATED.

6. TWO BLANK CARDS - TWO BLANK CARDS INDICATES END OF DIAGNOSTIC. THIS INITATES WRITING AN END OF FILE WHEN DEVELOPING A DIAGNOSTIC TAPE.

NOTE -- ONE BLANK CARD WILL NOT WRITE AN EOF, BUT WILL CAUSE AN ERROR CONDITION.

NO BLANK CARDS AT END OF A DIAGNOSTIC DECK IS DESCRIBED UNDER SEQUENTIAL DIAGNOSTIC WRITE UP.

DIAGNOSTIC DECK WITH 9LD02A HIGH END LOADER.

A HIGH END LOADER DECK IS BASICALLY THE SAME AS DESCRIBED IN THE COMMENTS ON LOW END LOADER DECK, EXCEPT FOR THE FOLLOWING.

1. 9LD02 HIGH END LOADER - WITH RTBA 1 SELECT

2. HIGH END REWINDER - THIS WILL REWIND DIAGNOSTIC TAPE WHEN FILE HAS BEEN LOCATED.

1. CARD DECK PREPARATIONS TO WRITE A NEW DIAGNOSTIC TAPE

WHEN WRITING A NEW TAPE.
READY NEW TAPE ON TAPE 1 CHANNEL 9.

1. SEPARATE CARDS 000-009 OF 9T10A DECK. THIS DECK IS THE WRITE PROGRAM WHICH PRECEDES ALL DECKS.

2. TAKE 9M06A DECK.

   A. PLACE CARD 9M06A 000 IN FRONT OF DECK. THIS IS A SPECIAL LOADER TO LOAD IN THE 9M06A MANUAL LOAD PROGRAM.

   B. INSERT AND REPLACE CARD 9M06A 104 TO CHANNEL SWT6 CONTROL.

   C. REMOVE TWO BLANK CARDS AT REAR OF DECK.

3. TAKE 9S01A H+L DECK.

   A. REPLACE CARD 9SW01AH 000 WITH 9LD02 - TAPE SELECT

   B. INSERT SWT 6 CONTROL CARD FOR 9S01H BEFORE TRANFER CARD.

   C. REPLACE 9S01AL 000 WITH 9LD01 - TAPE SELECT

   D. INSERT SWT 6 CONTROL CARD FOR 9S01L BEFORE TRANSFER CARD.

   E. REMOVE LAST TWO BLANK CARDS 9S01AL.

   F. PLACE THE DECK DIRECTLY BEHIND ADJUSTED 9M06 DECK.

4. PLACE 9T11A CARDS 000-009. DIRECTLY BEHIND ADJUSTED 9S01A DECK.

THIS WILL BE THE DIAGNOSTIC TAPE BASIC FILE. THE THREE PROGRAMS WILL BE BROUGHT IN BY DEPRESSING LOAD TAPE BUTTON. THE 9M06 AND 9S01 WILL BE PERFORMED AND THE FILE SEARCH PROGRAM 9T11 WILL STOP AT LOCATION 00036 TO ALLOW SELECTING THE NEXT DESIRED PROGRAM.

5. ALL OTHE RPROGRAMS WILL FOLLOW IN THIS TYPE OF SEQUENCE.

EXAMPLE OF A MF PROGRAM SEQUENCE.

9M01A

CARD 0 - 9LD01A LOW END LOADER WITH TAPE SELECT

CARD 1 -184 DIAGNOSTIC 9M01A
CARD 185 CONTROL CARD CHANGING SWT SELECT
CARD 186 LOW END REW
CARD 187 TRA 30
CARD 188-189 2 BLANK CARDS

EXAMPLE OF A STORAGE PROGRAM SEQUENCE.

9S02A HIGH AND LOW

CARD 0 - 9LD02 HIGH END LOADER WITH TAPE SELECT
CARD 1 -10 DIAGNOSTIC 9S02A H
CARD 11 CONTROL CARD SWT 6
CARD 12 TRANSFER CARD.

NOTE -- NO REWIND CARD IS INSERED HERE BECAUSE OF LOW END STORAGE TEST FOLLOWING HIGH END. ALSO NO BLANKS ARE HERE SO EOF IS NOT WRITTEN.

CARD 13 9LD01A LOW END LOADER WITH TAPE SELECT
CARD 14 -23 DIAGNOSTIC 9S02A L
CARD 24 CONTROL CARD SWT 6
CARD 25 LOW END REW
CARD 26 TRANSFER CARD
CARD 27 -28 2 BLANK CARDS

IA. DESCRIPTION OF 4 DIAGNOSTICS WHICH REQUIRE SPECIAL ATTENTION BEFORE WRITING ON TAPE.

1. 9M05A - FLOATING POINT TEST HAS TWO TRANSFER CARDS. THE FIRST TRANSFER CARD 184 SHOULD BE WRITTEN ON TAPE FOR IT IS THE NORMAL TRANSFER.

   THE SECOND TRANSFER CARD 185 IS FOR TRACING. MANUALLY TRANSFER INTO TRACING ROUTINE WHEN USING 9M05A FOR TRACING. REMOVE CARD 185 BEFORE WRITING ON TAPE.

2. 9S04A LOW + 9S05A LOW

   CARD 49 IN 9S04AL AND CARD 44 IN 9S05AL HAVE A MINUS TRA. IN 9 ROW LEFT WHICH IS OF NO USE. REPLACE WITH A BLANK SO THAT AN EOF MAY BE WRITTEN WHEN WRITING A DIAGNOSTIC TAPE.

3. 9COMA - DO NOT WRITE CARD 095 ON TAPE. THIS CARD BY-PASSES DRUM. TO BY-PASS DRUM WHEN USING THIS PROGRAM. STORE A TRANSFER 1145 AT LOCATION 1117 MANUALLY. REMOVE CARD 095 WHEN WRITING TAPE.

4. FOR PROGRAMS REQUIRING TEST CARDS, DO NOT WRITE TEST CARDS ON TAPE. TEST CARDS SHOULD BE LOADED IN CARD READER, WHEN DIAGNOSTIC HAS BEEN READ OFF TAPE AND READY FOR TESTING. ONE SUCH PROGRAM IS 9C01A.

IB. SEQUENTIAL DIAGNOSTIC FILE-

IF AN INSTALLATION DESIRES A SEQUENTIAL FILE ON TAPE WITH A GROUP OF DIAGNOSTICS TO BE EXECUTED IN SEQUENCE WITHOUT REWINDING AFTER EACH TEST, THIS CAN BE DONE IF THE REWIND CARD AND BLANKS ARE REMOVED, EXECPT FOR LAST DECK IN FILE. AN EXAMPLE OF SUCH A FILE USING 9M01, 9M02, 9S01 AND 9T01 IS-

1. LOADER
   9M01A
   CONTROL CARD
   TRA CARD
2. LOADER
   9M02A
   CONTROL CARD
   TRA CARD
3. LOADER
   9S01AH
   CONTROL CARD
   TRA CARD
   LOADER
   9S01AL
   CONTROL CARD
   TRA CARD
4. LOADER
   9T01A
   CONTROL CARD
   REWINDER REW TAPE
   TRA CARD
   2 BLANKS - EOF

II. MACHINE OPERATIONS TO WRITE A NEW DIAGNOSTIC TAPE.

TO WRITE A NEW DIAGNOSTIC TAPE FROM CARD READER. THE CONTROLS ARE AS FOLLOWS.

1. SENSE SWITCH 5 UP.

2. PUT TAPE TO BE WRITTEN ON CHANNEL B TAPE 1.
3. READY CARD READER WITH -

9T10A
9M06A
9S01A
9T11A AND
REMAINING DIAGNOSTIC DECKS.

4. WHEN LAST CARD IS IN CARD READER, PRESS CARD READER START TO RUN OUT CARDS. THIS WILL WRITE THE LAST EOF ON TAPE AND REWIND IT.

5. FINAL PROGRAM HALT AT 00151.

6. REMOVE FILE PROTECT RING AND MOUNT AS CHANNEL A TAPE 1 TO USE.

IIA. SUGGESTED INDEX FOR DIAGNOSTIC TAPE

FILE KEY	FILE	DIAGNOSTIC	DIAGNOSTIC DECK SET UP AND REMARKS
1	0	9M06A	SPECIAL LOADER, CONTROL, NO REW, TRA IN LOADER NO BLKS. NO PRINT ID.
BASIC TESTS		9S01AH	HIGH LOADER, CONTROL, NO REW, TRA, NO BLKS.
		9S01AL	LOW LOADER, CONTROL, NO REW, TRA, NO BLKS
		9T11A	LOW LOADER, NO REW, TRA, 2 BLANKS
2	1	9M01A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
3	2	9M02A	HIGH LOADER, CONTROL, HIGH REW, TRA, 2 BLKS
4	3	9M03A	HIGH LOADER, CONTROL, HIGH REW, TRA, 2 BLKS
5	4	9M04A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS NO PRINT ID.
6	5	9M05A	HIGH LOADER, CONTROL HIGH REW. 1 TRA NORMAL CARD, 2 BLANKS, NO PRINT ID.
7	6	9S02AH	HIGH LOADER, CONTROL, NO REW, TRA, NO BLKS
		9S02AL	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
10	7	9S03AH	HIGH LOADER, CONTROL, NO REW, TRA, NO BLKS
		9S03AL	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
11	8	9S04AH	HIGH LOADER, CONTROL, NO REW, TRA, NO BLKS
		9S04AL	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS REMOVE MINUS TRA CARD 49 REPLACE WITH BLANK
12	9	9S05AH	HIGH LOADER, CONTROL, NO REW, TRA, NO BLKS
		9S05AL	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS REMOVE MINUS TRA CARD 44 REPLACE WITH BLANK
13	10	9D01A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
14	11	9B01A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS

15	12	9B03A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
16	13	9T01A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
17	14	9T02A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS NO PRINT ID.
20	15	9T03A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
21	16	9T04A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
22	17	9P01A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
23	18	9COMA	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS DO NOT WRITE CARD 095 BY-PASS DRUM. STORE MANUALLY TRA 1145 AT LOC 1117 TO BY-PASS DRUM.
24	19	9C01A	LOW LOADER, CONTROL, LOW REW, TRA, 2 BLKS
25	20	9V01A	LOW LOAD, LOW REW, TRA 2BLKS NO PRINT ID.
26	21	9S01H	HIGH LOADER, CONTROL, TRA
SEQUENTIAL		9S01L	LOW LOADER, CONTROL, TRA
FILE		9M01A	LOW LOADER, CONTROL, TRA
		9M02A	HIGH LOADER, CONTROL, HIGH REW, TRA 2 BLANKS.

TOTAL PHYSICAL FILES -26 OCTAL

*FILE - INDICATES NUMBER OF PHYSICAL FILES ON TAPE. THIS NUMBER WILL BE USED WHEN MODIFYING TAPE

*FILE KEY - INDICATES KEY TO DEPRESS WHEN USING FILE SEARCH ROUTINE TO LOCATE FILE ON DIAGNOSTIC TAPE.

III. PREPARATIONS FOR MODIFYING THE TAPE EITHER BY CORRECTIONS OR ADDITIONS

TO MODIFY AN EXISTING DIAGNOSTIC TAPE, BY ADDING AN ADDITIONAL FILE AFTER THE LAST FILE ON TAPE, THE FOLLOWING INSTRUCTIONS MUST BE APPLIED.

NOTE -- THIS EXAMPLE WILL BE USED FOR SUGGESTED DIAGNOSTIC TAPE IN THIS WRITE UP.

1. READY CARD READ WITH 9T10A AND NEW DECK OR DECKS.

2. LOAD PRESENT DIAGNOSTIC TAPE ON CHANNEL B TAPE 1. PUT FILE PROTECT RING ON TAPE SO WRITING CAN TAKE PLACE.

3. LOAD CARDS WITH SENSE SWITCH 5 DN.

4. HALT AT LOCATION 160. BE SURE ALL KEYS ARE UP ON CONSOLE. PRESS START

5. HALT AT LOCATION 163. DEPRESS THE SIGN KEY AND TOTAL OCTAL NUMBER OF

PHYSICAL FILES ON TAPE IN ADDRESS PORTIONS OF THE KEYS. THIS EXAMPLE WILL BE 26 OCTAL.

6. TAPE SKIPS OVER 26 FILES. AFTER LAST FILE HAS BEEN READ OVER A HALT OCCURS AT LOCATION 00300. PUT SWT 5 UP AND PRESS START.

7. CARD READER IS SELECTED AND NEW DECKS ARE WRITTNEN ON TAPE. WHEN CARD READER HAS READ ALL CARDS PRESS CARD READER START TO RUN OUT CARDS AND WRITE LAST EOF ON TAPE.

8. TAPE REWINDS WHEN FINISHED AND HALT AT LOCATION 00151. TAKE FILE PROTECT RING OFF.

IIIA-TO ADD NEW CORRECTION DECKS BY REPLACING OLD FILE OR FILES ON PRESENT DIAGNOSTIC TAPE. THESE OPERATIONS WRITE A COMPLETE NEW TAPE.

EXAMPLE -- REPLACE PHYSICAL FILES 9M01A FILE 2, 9M04A FILE 5 AND 9S03A H+L FILE 10.

1. LOAD PRESENT DIAGNOSTIC TAPE ON CHANNEL A TAPE 1. LOAD NEW TAPE ON CHANNEL B TAPE 1.

2. READY CARD READER WITH
   9T10A
   9M01A
   9M04A
   9S03A

3. HALT AT LOCATION 160. ENTER KEYS IN ADDRESS TOTAL PHYSICAL NUMBER OF FILES ON PRESENT TAPE IN ADDRESS PORTION OF KEYS. THIS EXAMPLE 26 OCTAL IN ADDRESS. PRESS START.

4. HALT AT LOCATION 163. ENTER KEY OR KEYS PHYSICAL FILE BEING REPLACED.

EXAMPLE -- KEY 2 9M01, KEY 5 9M04, KEY 10 9S03 PRESS START.

5. THE PRESENT TAPE WILL WRITE ONTO NEW TAPE. WHEN CORRECTION FILE IS INDICATED THE CARD READER WILL SELECT. WHEN LAST DECK IS THROUGH CARD READER, PRESS CARD READER START TO RUN OUT CARDS AND WRITE LAST EOF.

6. A REWIND OCCURS ON BOTH TAPES WHEN COMPLETE. HALT AT LOCATION 264,

REMOVE FILE PROTECT RING FROM NEW TAPE.

IIIB. WHEN CORRECTIONS AND ADDITIONS ARE TO BE MADE AT THE SAME TIME, THE

PROGRAM WILL MAKE CORRECTIONS AND THEM WRITE THE NEW ADDITIONS.

PROCEDURE AS FOLLOWS.

1. PLACE EXISTING TAPE ON CHA TAPE 1.
   NEW TAPE ON CHB TAPE 1.

2. PLACE CORRECTIONS IN CARD READER. THEN FOLLOW INSTRUCTIONS AS
   IN SECTION III A.

3. AFTER CORRECTIONS ARE MADE TAPES REWIND AND PROGRAM STOPS AT 0264.

4. NOW PLACE NEW PROGRAMS THAT ARE THE ADDITIONS FOR TAPE, IN THE CARD
   READER. SWITCH 5 WILL STILL BE DOWN, TRANSFER MANUALLYTO 0030.
   PRESS START. THE REMAINING PROCEDURE IS OUTLINED IN SECTION III.

INDEX OF SECTIONS

PAGE 1.006 SECTION I - CARD DECK PREPARATIONS TO WRITE A NEW DIAGNOSTIC TAPE

PAGE 1.007 SECTION IA - DESCRIPTION OF 4 DIAGNOSTICS WHICH REQUIRE SPECIAL ATTENTION BEFORE WRITING A DIAGNOSTIC TAPE.

PAGE 1.008 SECTION IB - SEQUENTIAL DIAGNOSTIC FILE

PAGE 1.009 SECTION II - MACHINE OPERATIONS TO WRITE A NEW DIAGNOSTIC TAPE

PAGE 1.009 SECTION IIA - SUGGESTED INDEX FOR DIAGNOSTIC TAPE

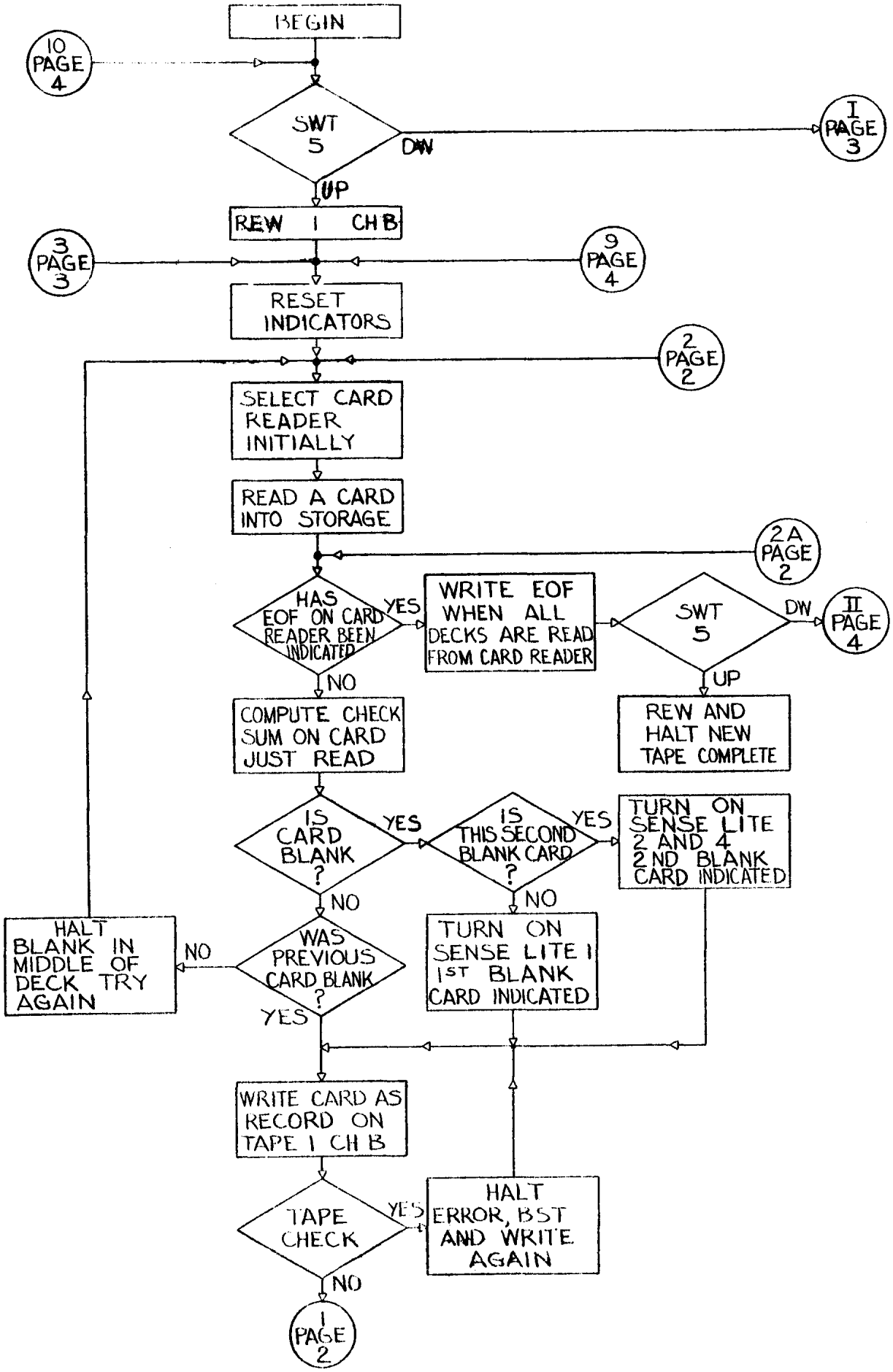
PAGE 1.010 SECTION III - PREPARATIONS FOR MODIFYING THE TAPE EITHER BY CORRECTIONS OR ADDITIONS

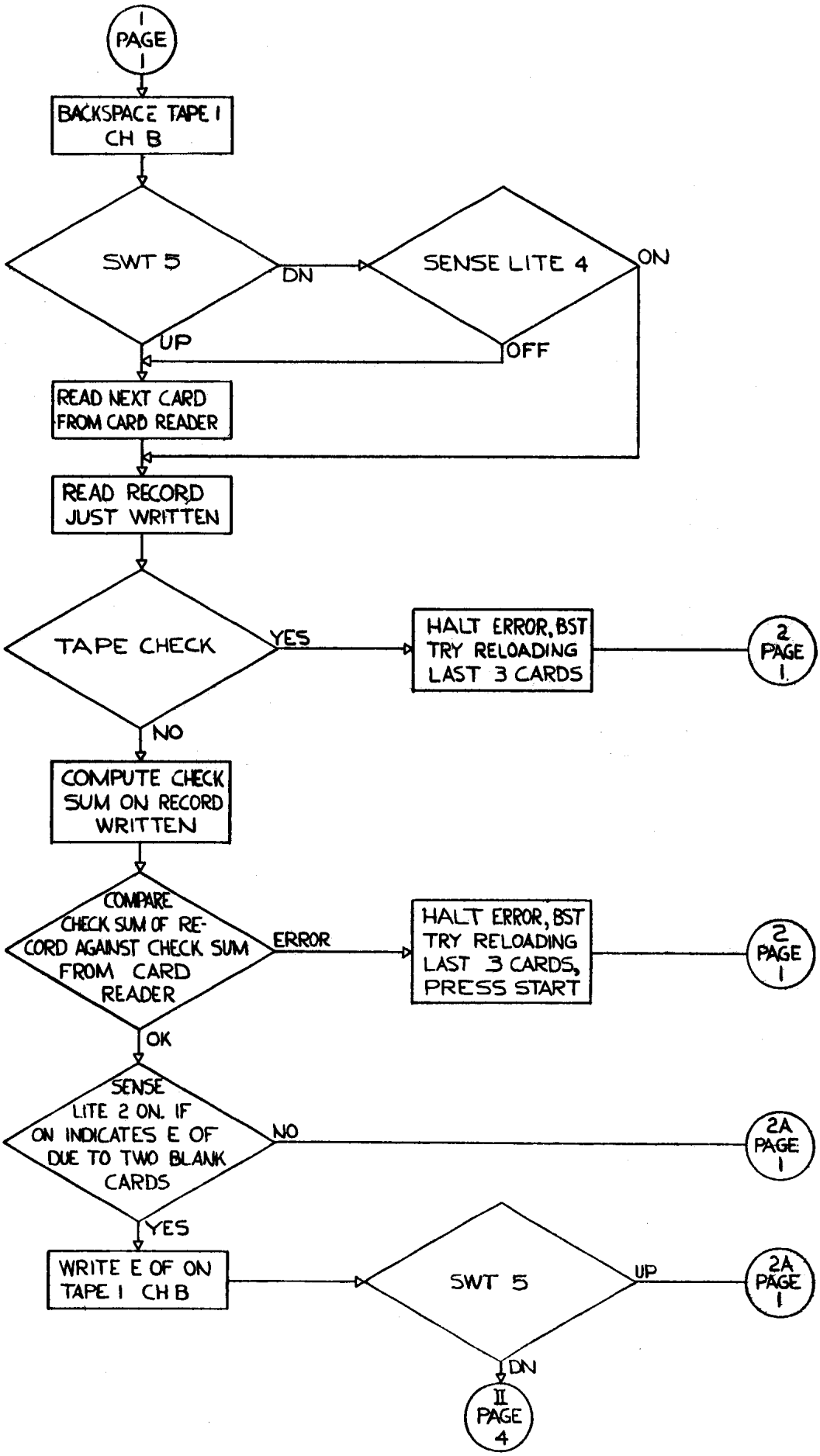
PAGE 1.011 SECTION IIIA - TO ADD NEW CORRECTION DECKS BY REPLACING OLD FILE OR FILES ON PRESENT DIAGNOSTIC TAPE

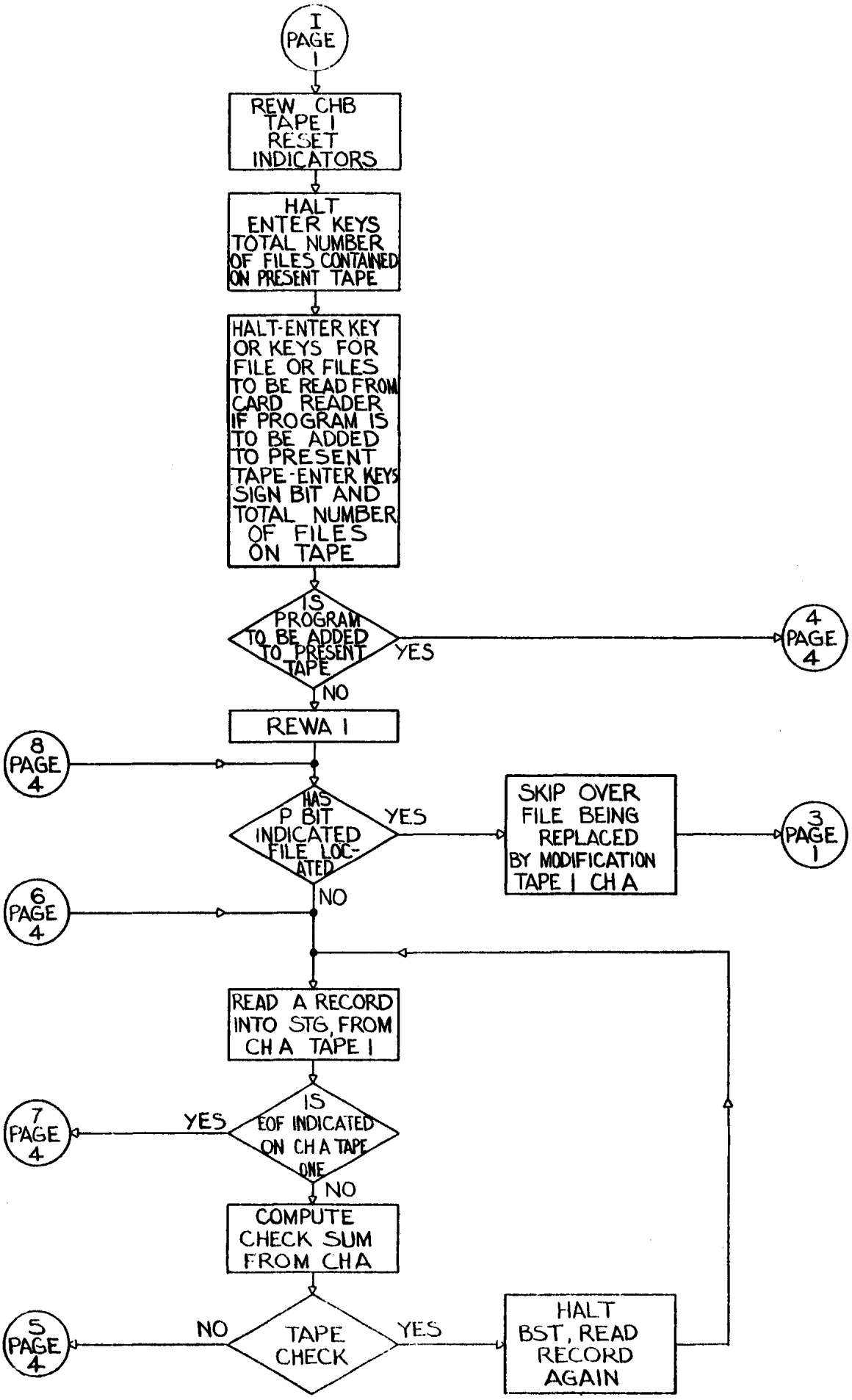
PAGE 1.011 SECTION IIIB - WHEN CORRECTIONS AND ADDITIONS ARE TO BE MADE AT THE SAME TIME

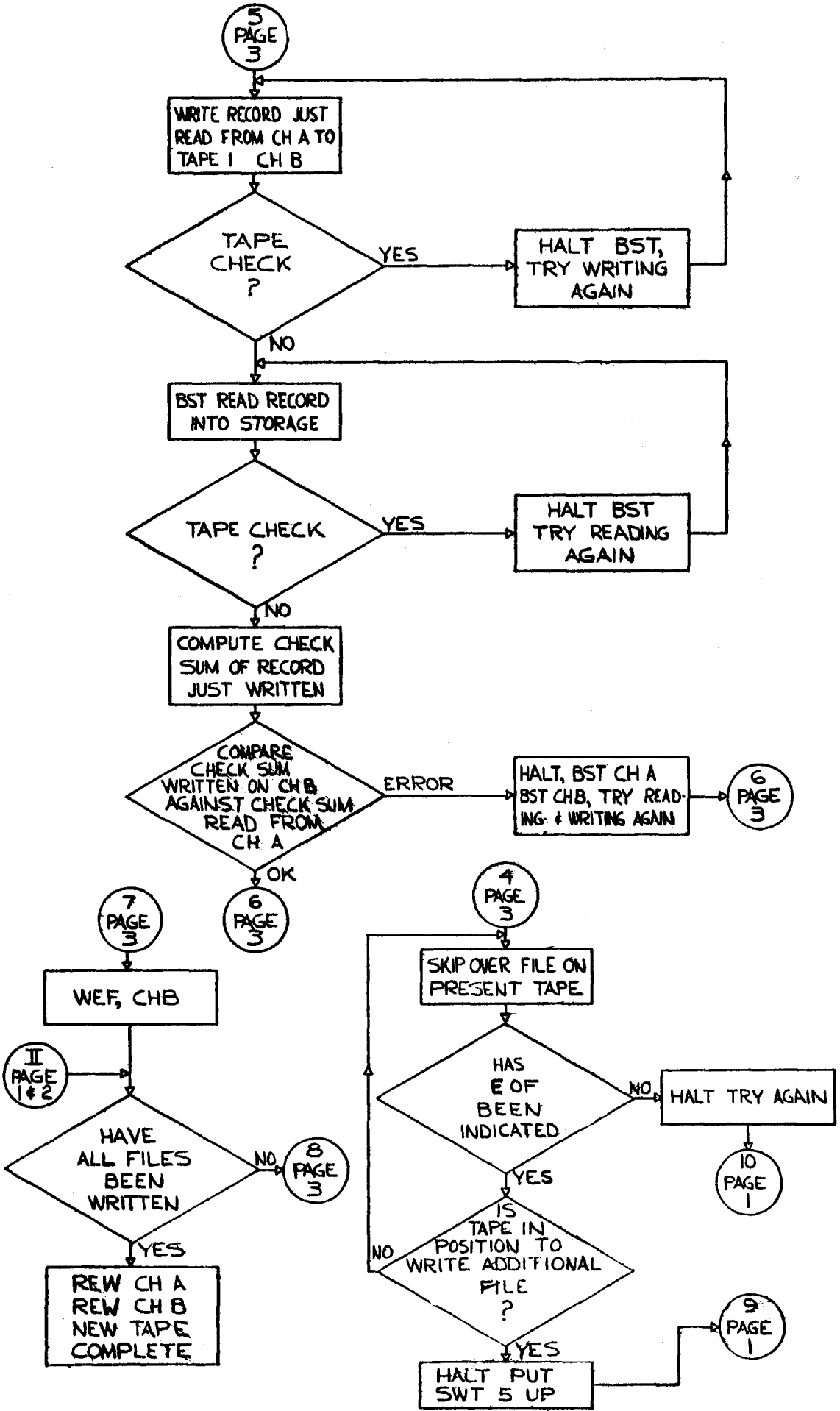
File Attachments: Source Cards Deck
File Attachments: Source Cards
File Attachments: Source Cards

709 DIAGNOSTIC TAPE UTILITY PROGRAM




I PAGE 1
BACKSPACE TAPE 1 CH B
SWT 5
DN
SENSE LITE 4
ON
UP
OFF
READ NEXT CARD FROM CARD READER
READ RECORD JUST WRITTEN
TAPE CHECK
YES
HALT ERROR, BST TRY RELOADING LAST 3 CARDS
2 PAGE 1
NO
COMPUTE CHECK SUM ON RECORD WRITTEN
COMPARE CHECK SUM OF RECORD AGAINST CHECK SUM FROM CARD READER
ERROR
HALT ERROR, BST TRY RELOADING LAST 3 CARDS, PRESS START
2 PAGE 1
OK
SENSE LITE 2 ON. IF ON INDICATES E OF DUE TO TWO BLANK CARDS
NO
2A PAGE 1
YES
WRITE E OF ON TAPE 1 CH B
SWT 5
UP
2A PAGE 1
DN
II PAGE 4


I PAGE 1
REW CHB TAPE 1 RESET INDICATORS
HALT ENTER KEYS TOTAL NUMBER OF FILES CONTAINED ON PRESENT TAPE
HALT-ENTER KEY OR KEYS FOR FILE OR FILES TO BE READ FROM CARD READER IF PROGRAM IS TO BE ADDED TO PRESENT TAPE-ENTER KEYS SIGN BIT AND TOTAL NUMBER OF FILES ON TAPE
IS PROGRAM TO BE ADDED TO PRESENT TAPE
YES
4 PAGE 4
NO
REWA 1
8 PAGE 4
HAS P BIT INDICATED FILE LOCATED
YES
SKIP OVER FILE BEING REPLACED BY MODIFICATION TAPE 1 CH A
3 PAGE 1
6 PAGE 4
NO
READ A RECORD INTO STG, FROM CH A TAPE 1
IS EOF INDICATED ON CH A TAPE ONE
YES
7 PAGE 4
NO
COMPUTE CHECK SUM FROM CH A
TAPE CHECK
NO
5 PAGE 4
YES
HALT BST, READ RECORD AGAIN


5 PAGE 3
WRITE RECORD JUST READ FROM CH A TO TAPE 1 CH B
TAPE CHECK ?
YES
HALT BST, TRY WRITING AGAIN
NO
BST READ RECORD INTO STORAGE
TAPE CHECK ?
YES
HALT BST TRY READING AGAIN
NO
COMPUTE CHECK SUM OF RECORD JUST WRITTEN
COMPARE CHECK SUM WRITTEN ON CH B AGAINST CHECK SUM READ FROM CH A
ERROR
HALT, BST CH A BST CH B, TRY READING & WRITING AGAIN
6 PAGE 3
OK
6 PAGE 3
7 PAGE 3
WEF, CHB
II PAGE 1&2
HAVE ALL FILES BEEN WRITTEN
NO
8 PAGE 3
YES
REW CH A REW CH B NEW TAPE COMPLETE
4 PAGE 3
SKIP OVER FILE ON PRESENT TAPE
HAS E OF BEEN INDICATED
NO
HALT TRY AGAIN
10 PAGE 1
YES
IS TAPE IN POSITION TO WRITE ADDITIONAL FILE ?
NO
YES
HALT PUT SWT 5 UP
9 PAGE 1

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*PROGRAM TO WRITE A NEW DIAGNOSTIC TAPE WITH SENSE SWITCH 5 UP
*
*PROGRAM TO WRITE MODIFIED AND ADDITIONAL DIAGNOSTICS WITH SENSE SWITCH
*
                 00030         ORG 24

00030  0760 00 0 00165         SWT 5
00031  0020 00 0 00033         TRA START      WRITE NEW TAPE FROM CARDS
00032  0020 00 0 00152         TRA TAPE       WRITE MODIFICATION FROM
                                              CARDS AND TAPE


*WRITE A NEW TAPE FROM CARDS
*RESET INDICATORS

00033  0772 00 0 02201  START  REWB 1         REW TAPE 1
00034  0030 00 0 00035         TEFA *+1       RESET EOF INDICATOR
00035 -0030 00 0 00036         TEFB *+1
00036  0022 00 0 00037         TRCA *+1       RESET REDUNDANCY INDICATOR
00037 -0022 00 0 00040         TRCB *+1
00040  0760 00 0 00140         SLF            TURN SENSE LITES OFF

*SELECT CARD READER INITIALLY AT THIS LOCATION

00041  0762 00 0 01321  STRTA  RCDA           READ CARD
00042  0540 00 0 00305         RCHA CWA
00043  0060 00 0 00043  STRTB  TCOA *
00044  0030 00 0 00143         TEFA EOF       TRANSFER ON EOF INDICATES
                                              EOF ON CARD READER


*COMPUTE CHECK SUM BEFORE WRITING ON TAPE

00045  0774 00 4 00030         AXT 24,4       FORM CHECK SUM
00046 -0754 00 0 00000         PXD
00047  0361 00 4 00337         ACL TSA+24,4
00050  2 00001 4 00047         TIX *-1,4,1
00051  0602 00 0 00367         SLW TSC        STORE CHECK SUM

00052 -0100 00 0 00062         TNZ AA         CARD NOT BLANK

*TWO BLANK CARDS INDICATES END OF DIAGNOSTIC BEING WRITTEN.

00053 -0760 00 0 00141         SLT 1          IS THIS 2ND BLANK CARD
00054  0020 00 0 00060         TRA *+4        NO-TURN ON LITE 1
00055  0760 00 0 00142         SLN 2          YES-2ND BLANK CARD
00056  0760 00 0 00144         SLN 4          TURN ON LITE 4
00057  0020 00 0 00067         TRA AB
00060  0760 00 0 00141         SLN 1          TURN ON LITE 1
00061  0020 00 0 00067         TRA AB         1ST BLANK CARD
00062 -0760 00 0 00141  AA     SLT 1          WAS PREVIOUS CARD BLANK
00063  0020 00 0 00067         TRA AB         NO - PROCEED.
00064  0764 00 0 02221        {BRBB 1         YES - BLANK CARD IN THE
00065  0420 00 0 00000        {HPR            MIDDLE OF THE DECK
                                              RUN OF CARDS. 4TH CARD
                                              BACK WILL BE BLANK. REMOVE
```

```
                                                BLANK AND RELOAD LAST 3
                                                CARDS AND THE REMAINDER OF
                                                THE DECK. PRESS START.
00066   000 00 0 00041         {TRA STRTA

*WRITE EACH CARD AS A RECORD ON CH B TAPE 1

00067  0774 00 4 00000  AB     AXT 0,4         CLEAR XRC
00070  0766 00 0 02221         WTBB 1          WRITE CARD IMAGE ON TAPE
00071 -0540 00 0 00305         RCHB CWA
00072  0061 00 0 00072         TCOB *
00073 -0022 00 0 00075         TRCB *+2        TRA ON TAPE CHECK
00074  0020 00 0 00102         TRA AC          OK
00075  0764 00 0 02221        {BRBB 1          BACKSPACE RECORD
00076  1 00001 4 00077        {TXI *+1,4,1     TRY AGAIN
00077 -3 00005 4 00101        {TXL *+2,4,5
00100  0420 00 0 00000        {HPR             TAPE WOULD NOT WRITE IN
00101  0020 00 0 00067        {TRA AB          5 TRIES - GET OFF MACHINE.

00102  0764 00 0 02221  AC     BRBB 1          BACKSPACE TAPE

00103  0760 00 0 00165         SWT 5           TEST SENSE SWITCH 5
00104  0020 00 0 00110         TRA RCDA        SELECT CARD READER
00105 -0760 00 0 00144         SLT 4           IS LITE 4 ON
00106  0020 00 0 00110         TRA RCDA        NO SELECT CARD READER
00107  0020 00 0 00112         TRA *+3         YES DO NOT SELECT
                                               CARD READER


*READ IN NEXT CARD WHILE CHECKING RECORD JUST WRITTEN

00110  0762 00 0 01321  RCDA   RCDA            READ NEXT CARD
00111  0540 00 0 00305         RCHA CWA

00112  0762 00 0 02221         RTBB 1          READ TAPE
00113 -0540 00 0 00306         RCHB CWB        FOR CHECKING
00114  0061 00 0 00114         TCOB *
00115 -0022 00 0 00117         TRCB *+2        TEST FOR TAPE CHECK
00116  0020 00 0 00122         TRA AD          OK
00117   000 00 0 00000         {HPR            TAPE CHECK ON READ.
                                               TO RESTART - RUN OUT CARDS
                                               AND RELOAD LAST 3 CARDS
                                               WITH REST OF DECK. THEN
                                               PRESS START TO TRY AGAIN.
00120  0764 00 0 02221        {BRBB 1
00121  0020 00 0 00041        {TRA STRTA

*COMPUTE CHECK SUM ON RECORD JUST WRITTEN

00122  0774 00 4 00030  AD     AXT 24,4        FORM CHECK SUM.
00123 -0754 00 0 00000         PXD             CLEAR ACC.
00124  0361 00 4 00367         ACL TSB+24,4
00125  2 00001 4 00124         TIX *-1,4,1
00126  0602 00 0 00370         SLW TSD         TAPE CHECK SUM

*COMPARE CHECK SUM OF RECORD JUST WRITTEN AGAINST CHECK SUM
```

```
*FROM CARD READER

00127  0500 00 0 00367         CLA TSC        CARD TO STG. CHECK SUM
00130  0402 00 0 00370         SUB TSD         COMPARE CHECK SUMS
00131  0100 00 0 00135         TZE AE         OK
00132  0420 00 0 00000        {HPR            CHECK SUM ERROR
                                              TO RESTART - RUN OUT CARDS
                                              AND RELOAD LAST 3 CARDS
                                              WITH REST OF DECK. THEN
                                              PRESS START TO TRY AGAIN
00133   000 00 0 00001         {BRBB 1
00134   000 00 0 00041         {TRA STRTA

00135 -0760 00 0 00142  AE     SLT 2          TEST FOR TAPE EOF DUE TO
                                              TWO BLANK CARDS.
00136  0020 00 0 00043         TRA STRTB      NO - CONTINUE

00137  0770 00 0 02221         WFBB 1         YES - WRITE END OF FILE AND
00140  0760 00 0 00165         SWT 5
00141  0020 00 0 00043         TRA STRTB      CONTINUE
00142  0020 00 0 00254         TRA COUNT      WRITE NEW TAPE FROM CARDS
                                              AND TAPE

00143  0770 00 0 02201  EOF    WEFB 1
00144  0760 00 0 00165         SWT 5
00145  0020 00 0 00147         TRA *+2        WRITE NEW TAPE FROM CARDS
00146  0020 00 0 00254         TRA COUNT      WRITE NEW TAPE FROM CARDS
                                              AND TAPE
00147  0772 00 0 02201         REWB 1
00150  0420 00 0 77777         HPR -1         CARD READER EOF
00151  0020 00 0 00150         TRA *-1        PROGRAM COMPLETED

************************************************************

*ROUTINE FOR MODIFICATION OF DIAGNOSTIC TAPE WITH SENSE SWITCH 5 ON

*RESET INDICATORS

00152  0772 00 0 02201  TAPE   REWB 1
00153  0030 00 0 00154         TEFA *+1       RESET EOF INDICATOR
00154 -0030 00 0 00155         TEFB *+1
00155  0022 00 0 00156         TRCA *+1       RESET REDUNDANCY INDICATOR
00156 -0022 00 0 00157         TRCB *+1

00157  0420 00 0 00000         HPR            PUT TOTAL NUMBER OF FILES
00160  0760 00 0 00004         ENK            IN ADDRESS
00161 -0600 00 0 00302         STQ CTR        TOTAL NUMBER OF FILES
                                              ON TAPE
00162  0420 00 0 00000         HPR            ENTER KEY OR KEYS FOR FILE
                                              OR FILES TO BE READ FROM
                                              CARD READER

                                              IF PROGRAM IS TO BE ADDED
                                              TO TAPE. SET SIGN BIT AND
                                              TOTAL NUMBER OF FILES ON
                                              TAPE IN ADDRESS OF KEYS
```

```
00163  0760 00 0 00004         ENK
00164  0131 00 0 00000         XCA
00165 -0120 00 0 00265         TMI C           ADD PROGRAM TO REAR OF
                                               TAPE
00166  0772 00 0 01201         REWA 1

00167  0767 00 0 00001  B1     ALS 1
00170  0602 00 0 00371         SLW T           SAVE KEY
00171 -0760 00 0 00001         PBT             CHECK FOR P BIT
00172  0020 00 0 00201         TRA B2          READ FROM TAPE CHA AND
                                               WRITE ON CHB
*
*   SKIP OVER FILE BEING REPLACED BY NEW MODIFICATION ON TAPE 1 CH A
*
00173  0762 00 0 01221         RTBA 1          DO NOT TRANSMITT
00174  0540 00 0 00303         RCHA CW1        TO STG.
00175  0060 00 0 00175         TCOA *
00176  0030 00 0 00200         TEFA *+2        TRANSFER ON EOF
00177  0000 00 0 00030         HTR START-3     NO EOF TRY AGAIN
                                               RELOAD CARDS
00200  0020 00 0 00034         TRA START+1     READ FROM CARD READER

*READ FROM CHA TAPE 1

00201  0762 00 0 01221  B2     RTBA 1          READ FROM CH A
00202  0540 00 0 00305         RCHA CWA
00203  0060 00 0 00203         TCOA *
00204  0030 00 0 00253         TEFA B9         EOF ON TAPE 1 CHA


*COMPUTE CHECK SUM FROM CH A

00205  0774 00 4 00030         AXT 24,4        COMPUTE CHECK SUM
00206 -0754 00 0 00000         PXD             CLEAR ACC
00207  0361 00 4 00337         ACL TSA+24,4
00210  2 00001 4 00207         TIX *-1,4,1
00211  0602 00 0 00367         SLW TSC         STORE CHECK SUM

00212  0022 00 0 00214         TRCA B3         TRA ON TAPE CHECK
00213  0020 00 0 00217         TRA B4          OK

00214  0420 00 0 00000  B3     HPR             ERROR REDUNDANCY CHECK
00215 -0764 00 0 01201         BSFA 1          BACKSPACE RECORD TRY AGAIN

00216  0020 00 0 00201         TRA B2

*WRITE RECORD ON TAPE 1 CH B

00217  0766 00 0 02221  B4     WTBB 1          WRITE RECORD JUST READ
00220 -0540 00 0 00305         RCHB CWA
00221  0061 00 0 00221         TCOB *

00222 -0022 00 0 00224         TRCB B5         ERROR ON WRITING
00223  0020 00 0 00227         TRA B6          OK

00224  0420 00 0 00000  B5     HPR             REDUNDANCY ERROR TRY AGAIN
```

```
00225  0764 00 0 02201         BSRB 1
00226  0020 00 0 00217         TRA B4

00227  0764 00 0 02201  B6     BSRB 1          BACKSPACE RECORD


*CHECK RECORD JUST WRITTEN

00230  0762 00 0 02221  B7     RTBB 1
00231   000 00 0 00306         RCHAB CWB
00232  0061 00 0 00232         TCOB *
00233 -0022 00 0 00235         TRCB *+2        TEST FOR TAPE CHECK
00234  0020 00 0 00237         TRA B8
00235  0420 00 0 00000         HPR             REDUNDANCY ERROR BST + TRY
                                               AGAIN
00236  0020 00 0 00227         TRA B6

* COMPUTE CHECK SUM ON RECORD JUST WRITTEN

00237  0774 00 4 00030  B8     AXT 24,4        COMPUTE CHECK SUM
00240 -0754 00 0 00000         PXD             CLEAR ACC.
00241  0361 00 4 00367         ACL TSB+24,4
00242  2 00001 4 00241         TIX *-1,4,1
00243  0602 00 0 00370         SLW TSD

* COMPARE CHECK SUM WRITTEN AGAINST SUM READ

00244  0500 00 0 00367         CLA TSC
00245  0402 00 0 00370         SUB TSD
00246  0100 00 0 00201         TZE B2          OK
00247  0420 00 0 00000         HPR             ERROR ON CHECK SUM
00250  0764 00 0 01201         BSRA 1          TRY READING AND WRITING
00251  0764 00 0 02201         BSRB 1          AGAIN
00252  0020 00 0 00201         TRA B2

00253  0770 00 0 02201  B9     WEFB 1          WRITE EOF OF FILE ON
                                               NEW TAPE

*REDUCE COUNTER CONTAINING NUMBER OF FILES ON TAPE

00254  0500 00 0 00302  COUNT  CLA CTR         NO OF FILES
00255  0402 00 0 00301         SUB PONE        L +1
00256  0601 00 0 00302         STO CTR
00257  0100 00 0 00262         TZE REW         LAST PROG. ON TAPE
00260 -0500 00 0 00371         CAL T
00261  0020 00 0 00167         TRA B1          READ NEXT FILE

00262  0772 00 0 01201  REW    REWA 1
00263  0772 00 0 02201         REWB 1
00264  0000 00 0 00030         HTR 24          FINISHED NEW TAPE COMPLETED

*ROUTINE TO ADD NEW PROGRAM ON END OF TAPE

00265  0621 00 0 00302  C      STA CTR
00266  0762 00 0 02221   C1    RTBB 1          DO NOT TRANSMITT TO STG.
00267 -0540 00 0 00303         RCHB CW1
```

```
00270  0061 00 0 00270         TCOB *
00271 -0030 00 0 00273         TEFB C2
00272  0000 00 0 00030         HTR 24          NO EOF TRY AGAIN
                                               RELOAD CARDS

00273  0500 00 0 00302  C2     CLA CTR
00274  0402 00 0 00301         SUB PONE
00275  0601 00 0 00302         STO CTR
00276  0100 00 0 00300         TZE *+2
00277  0020 00 0 00266         TRA C1
00300  0000 00 0 00034         HTR START+1     HALT TO PUT SWT 5 UP. THIS
                                               WILL ALLOW FULL USE OF
                                               CARD READER

00301 +000000000001     PONE   OCT 1
00302 +000000000000     CTR    OCT 0
00303 -0777 77 2 00000  CW1    IOCP 0,2,-1
00304  1 00000 0 00303         TCH *-1
00305  0000 30 0 00307  CWA    IOCD TSA,0,24
00306  0000 30 0 00337  CWB    IOCD TSB,0,24
                 00307  TSA    BSS 24
                 00337  TSB    BSS 24
                 00367  TSC    BSS 1
                 00370  TSD    BSS 1
                 00371  T      BSS 1

                 00000         END
```

EOF*

TAPE REWINDER FOR LOW END LOADER 9LD01

LOAD THIS PROGRAM IN FRONT OF THE
LAST TRANSFER CARD OF EACH
FILE OF CARDS TO GO ON SYSTEM
TAPE. THIS VERSION OF THE
REWINDER IS MATCHED
TO LOADER 9LD01 WITH TAPE SELECTION.
BE SURE THAT LOADER AND REWINDER
ARE MATCHED.

```
                00004         ORG 4

00004  0762 00 0 01221  A      RTBA 1         READ TRANSFER CARD
00005  0540 00 0 00025         RCHA B
00006  0060 00 0 00006         TCOA *
00007  0772 00 0 01201         REWA 1         REWIND TAPE 1
00010  0500 00 0 00026         CLA B+1
00011  0100 00 0 00027         TZE B+2        TRANSFER TO MAIN PROGRAM
00012  0000 00 0 00012         HTR *          BAD TRANSFER CARD

                00025  B      EQU 21


                00000         END
```

TAPE REWINDER FOR HIGH END LOADER 9LD02

LOAD THIS PROGRAM IN FRONT OF THE
LAST TRANSFER CARD OF EACH
FILE OF CARDS TO GO ON SYSTEM
TAPE. THIS VERSION OF THE
REWINDER IS MATCHED
TO LOADER 9LD02 WITH TAPE SELECTION.
BE SURE THAT LOADER AND REWINDER
ARE MATCHED.

```
                77753         ORG 32747

77753  0762 00 0 01221  A      RTBA 1         READ TRANSFER CARD
77754  0540 00 0 77774         RCHA B
77755  0060 00 0 77755         TCOA *
77756  0772 00 0 01201         REWA 1         REWIND TAPE 1
77757  0500 00 0 77775         CLA B+1
77760  0100 00 0 77776         TZE B+2        TRANSFER TO MAIN PROGRAM
77761  0000 00 0 77777         HTR -1         BAD TRANSFER CARD


                77774  B      EQU -4
                00000         END
```

EOF*