

REPRODUCTION

BACKSPACE SKIP

A. PURPOSE OF TEST

TO TEST THE BACKSPACE AND SKIP (ERASE FORWARD) CIRCUITRY BY TRANSFERRING TWO FIXED-LENGTH RECORDS FROM STORAGE TO TAPE AND BACKSPACING, SKIPPING, AND RE-WRITING THE SECOND RECORD TEN TIMES; THEN COMPARING BOTH TAPE RECORDS WITH THE TWO RECORDS IN STORAGE. ERRORS IN TAPE WRITE, TAPE READ, OR COMPARING ARE IDENTIFIED.

B. LOADING PROCEDURE

1. WHEN RUNNING TEST FROM CARDS:

- A. SET WORKING TAPE DRIVE TO 4
- B. PLACE TEST IN 1402 READ HOPPER AND DEPRESS LOAD KEY.

2. WHEN RUNNING TEST FROM TAPE:

- A. SET WORKING TAPE DRIVE TO 4
- B. ENTER A 1 IN 1268

C. PROGRAM CONTROL

1. SENSE SWITCHES

- B ON TO REPEAT FOR SCOPING  
OFF TO CONTINUE
- C ON TO PRINT CORRECT RESULTS  
OFF TO CONTINUE
- D ON TO REPEAT READ PORTION OF PROGRAM  
OFF TO CONTINUE
- E ON TO STOP ON ERROR  
OFF TO PRINT ERROR
- G ON TO REPEAT ENTIRE TEST  
OFF TO CONTINUE

D. TEST PROCEDURE

TWO FIXED LENGTH RECORDS ARE TRANSFERRED FROM STORAGE TO TAPE. RECORD 1 IS I I I I I I I I I I; RECORD 2 IS RWRWRWRWRW. RECORD 2 IS BACKSPACED, SKIPPED, AND RE-WRITTEN TEN TIMES UNDER CONTROL OF A RE-WRITE COUNTER IN LOCATIONS 1054-1056, RESULTING IN APPROXIMATELY 80 INCHES OF BLANK TAPE BETWEEN RECORD 1 AND RECORD 2. THE TAPE DRIVE IS BACKSPACED TWICE AND READS BOTH TAPE RECORDS BACK INTO STORAGE AND COMPARES THEM WITH THE TWO FIXED-LENGTH RECORDS LOADED IN STORAGE BY THE PROGRAM.

DATE	2-2-61	2-15-61	6-29-63	17. 10. 63				
ENG. CHG. NO.	110378	110378A	117628	TA 1976				

# REPRODUCTION

D. (CONTINUED)

THE ENTIRE PROGRAM IS REPEATED TEN TIMES UNDER CONTROL OF A PASS COUNTER IN LOCATIONS 1052-1053.

ERRORS IN TAPE WRITE, TAPE READ, AND COMPARE ARE INDICATED ON THE PRINTOUT RESULTS BY PASS NUMBER, OPERATION (WRITE OR READ), AND TYPE OF ERRORS (TAPE OR COMPARE) WHEN SENSE SWITCH E IS SET TO THE OFF POSITION. WHEN THE SWITCH IS SET TO THE ON POSITION, TYPES OF ERRORS ARE SIGNALLED BY ERROR STOPS.

E. STOPS - SENSE E ON

STORAGE ADDRESS REGISTER	TYPE OF ERRORS	ERROR IDENT.	LOCATION
647	TAPE WRITE RECORD 1 (IIIIIIIIII)	"T"	229
	TAPE WRITE RECORD 2 (RWRWRWRW)	"T"	263
969	TAPE READ RECORD 1	"T"	229
	COMPARE RECORD 1	"C"	238
	TAPE READ RECORD 2	"T"	263
	COMPARE RECORD 2	"C"	272

F. PRINTOUTS

1. CORRECT

PASS	OPER.	RECORD ONE	TYPE OF ERRORS	RECORD TWO	TYPE OF ERRORS
01	WRITE	IIIIIIIIII		RWRWRWRW	
01	READ	IIIIIIIIII		RWRWRWRW	

2. ERROR

PASS	OPER.	RECORD ONE	TYPE OF ERRORS	RECORD TWO	TYPE OF ERRORS	ERROR
01	WRITE	IIIIIIIIII	TAPE*	RWRWRWRW	TAPE*	ERROR
01	READ	IIIIIIIIII	TAPE* COMPARE#	RWRWRWRW	TAPE* COMPARE#	ERROR

(WORD MARKS)

NOTE: \*THE WORD "TAPE" IS PRINTED WHENEVER AN ERROR OCCURRED IN WRITING OR READING RECORD 1 OR RECORD 2.

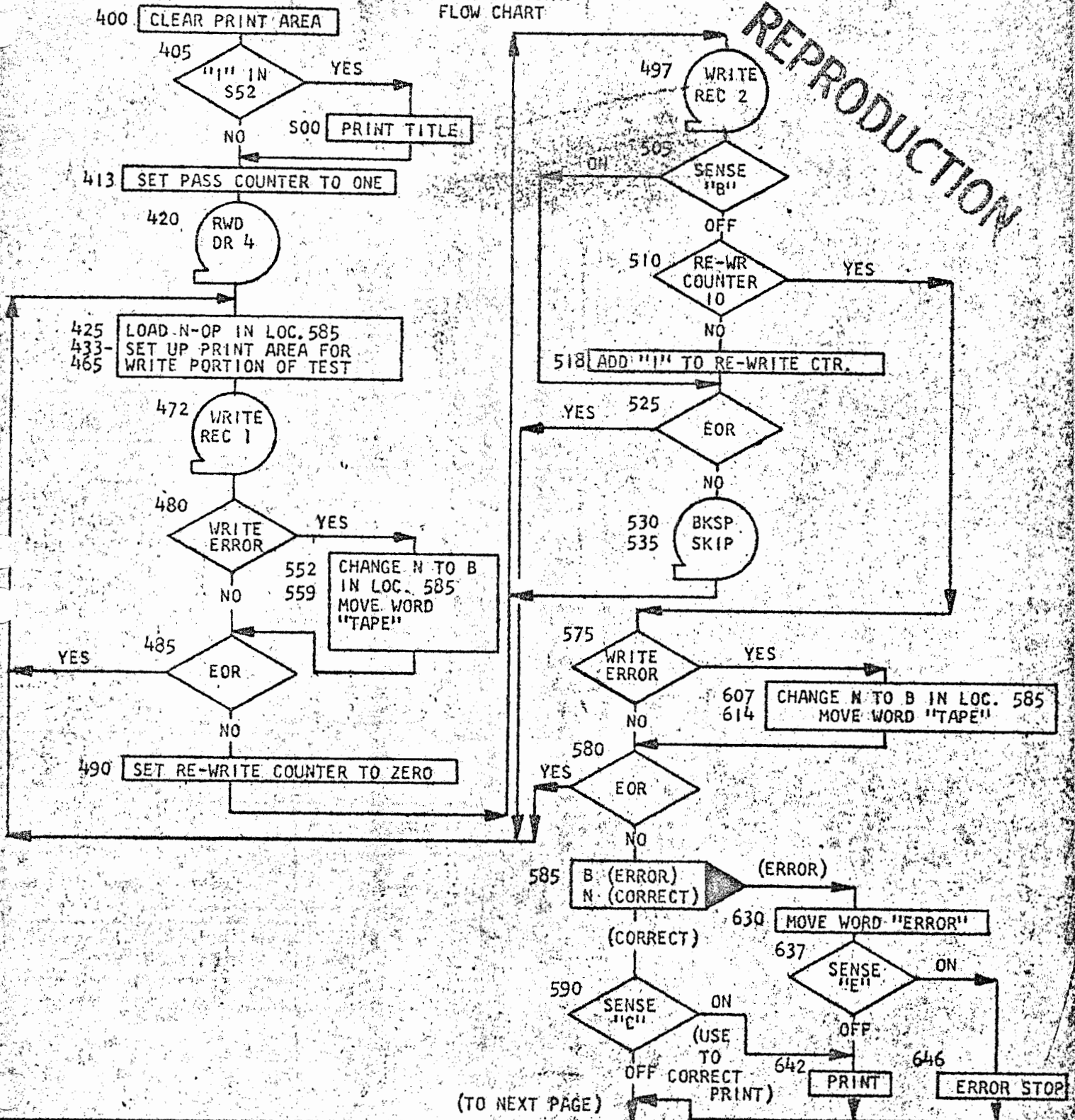
#THE WORD "COMPARE" IS PRINTED WHENEVER RECORD 1 OR RECORD 2 AS WRITTEN ON TAPE DID NOT COMPARE WITH RECORD 1 OR RECORD 2 AS STORED BY THE PROGRAM.

DATE	2-2-61	2-15-61	6-29-63	17. 10. 63			
ENG. CHG. NO.	110378	110378A	117628	TA 1976			

# DIAGNOSTIC FUNCTION TEST

## BACKSPACE SKIP FLOW CHART

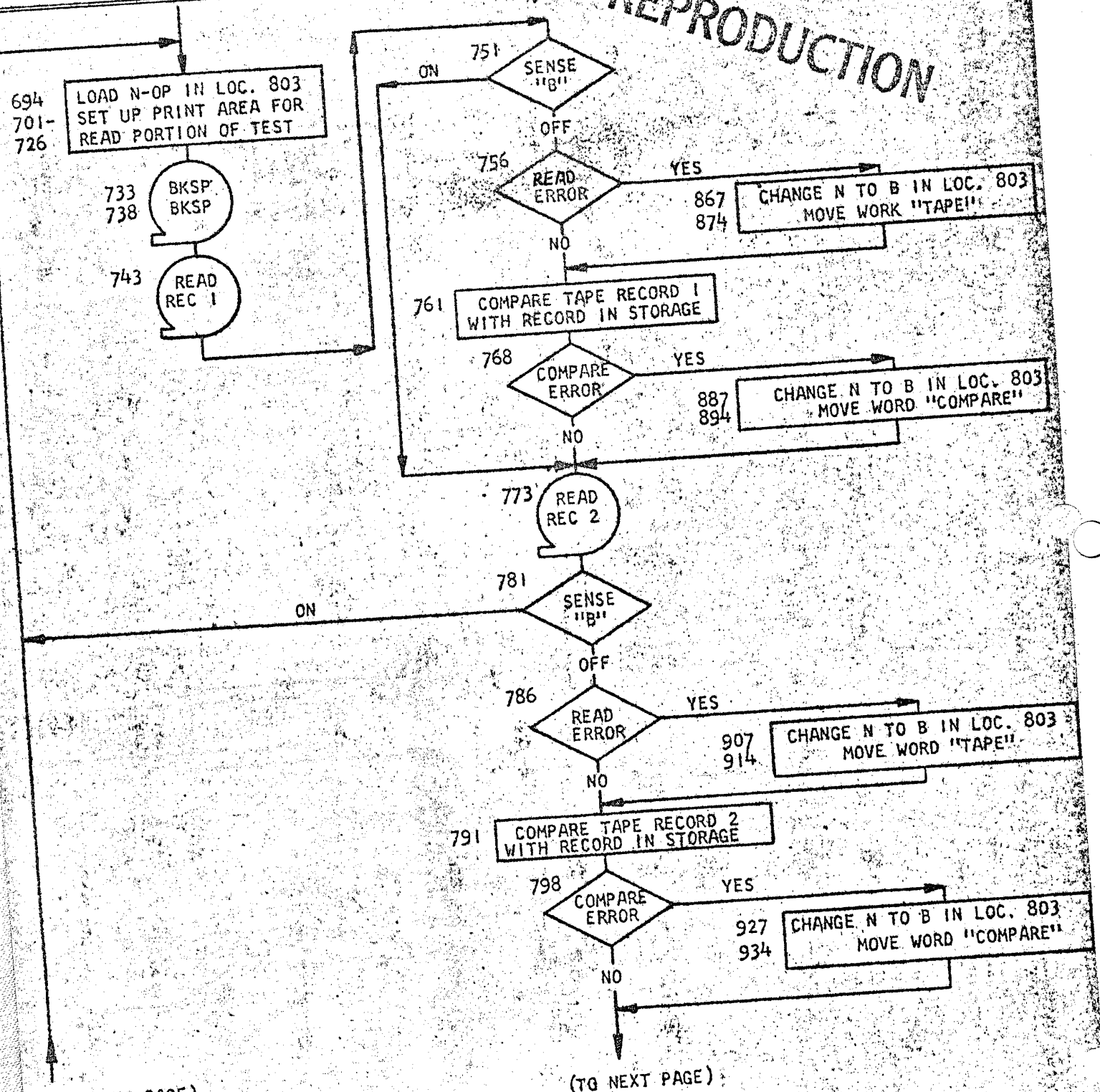
REPRODUCTION



(TO NEXT PAGE)

DATE	2-2-61	2-15-61	6-29-63	17. 10. 63			
ENG. CHG. NO.	110378	110378-A	117628	TA 1976			

REPRODUCTION

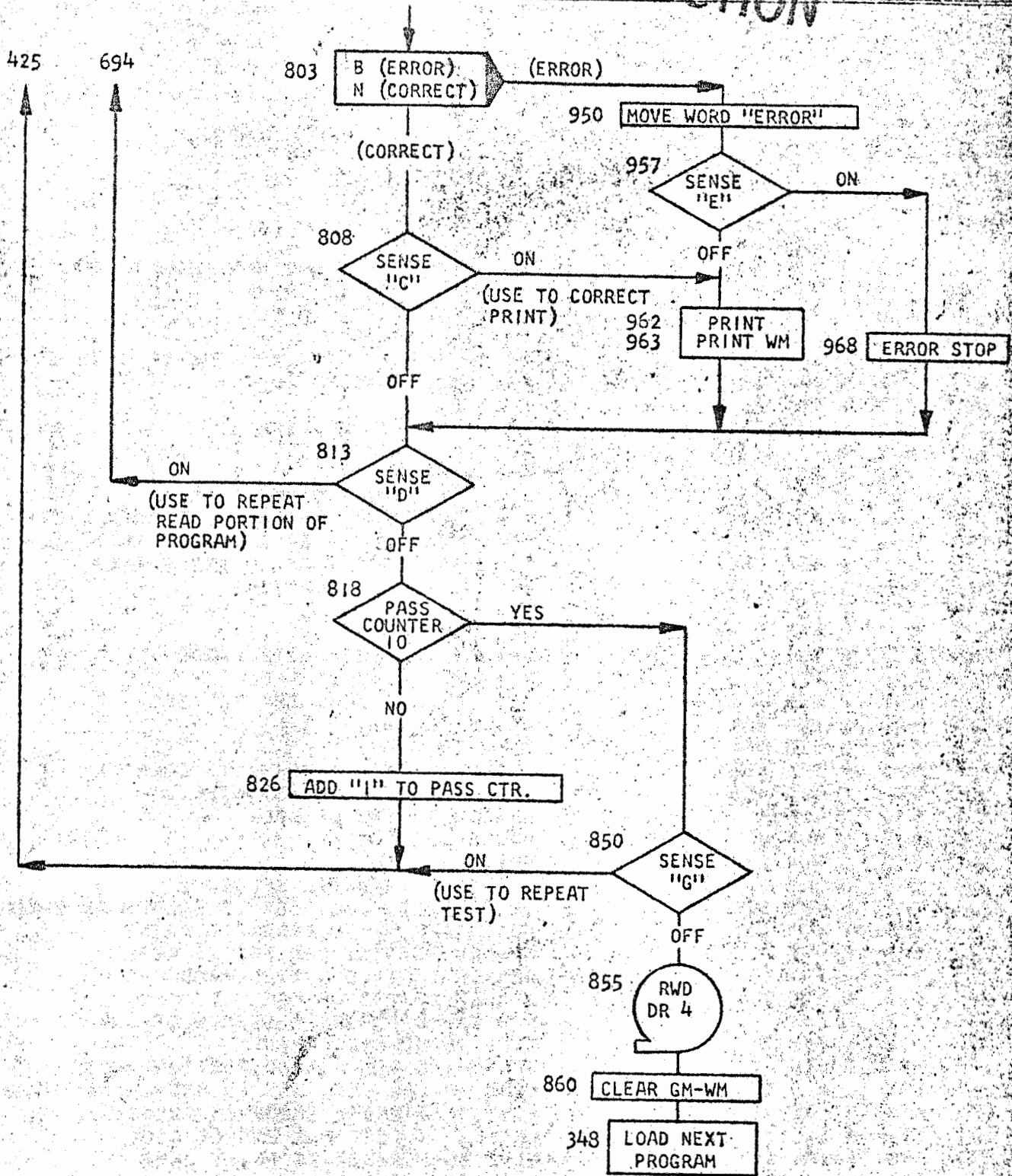


(FROM NEXT PAGE)

(TO NEXT PAGE)

DATE	2-2-61	2-17-61	7-1-63	17. 10. 63			
ENG. CHG. NO.	110378	110378-A	117628	TA 1976			

REPRODUCTION



DATE	2-2-61	2-15-61	7-1-63	17. 10. 63			
ENG. CHG. NO.	110378	110378-A	117628	TA 1976			

1401 DATA PROCESSING SYSTEM  
DIAGNOSTIC FUNCTION TEST

PART NO. 451453  
SHEET 6 OF 9  
BLOCK NO. 5030C

REPRODUCTION

PROGRAM LISTING FOR USE WITH FLOW CHART

BACKSPACE SKIP

5030C

INSTRUCTION ADDRESS	OP	A	B	REMARKS
377	377	B	400	S681. USE WHEN TESTS ARE RUN FROM TAPE
385	385	B	S88	
400	400	/	332	START TEST
404	404	/		
405	405	B	S00	S521. BR TO TITLE PRINT ROUTINE IF 1 IN S52
413	413	M	#34	#53 SET PASS COUNTER TO ONE
420	420	U	%U4	R REWIND
425	425	L	432	585 LOAD -N- IN LOCATION 585
432	432	N		NOP
433	433	/	299	CLEAR PRINT AREA
437	437	M	#53	203 MOVE PASS NO. IN PRINT AREA
444	444	M	#64	211 MOVE WORD -WRITE- IN PRINT AREA
451	451	L	#30	226 LOAD RECORD 1 + GM IN PRINT AREA
458	458	L	#50	260 LOAD RECORD 2 + GM IN PRINT AREA
465	465	,	226	260 SET WM IN GM LOCATIONS
472	472	U	%U4	B TEST FOR BACKSPACE AT LP
477	477	L	%U4	216W WRITE RECORD 1
485	485	B	552	L BRANCH IF TAPE WRITE ERROR
490	490	B	420	K BRANCH IF END OF REEL
495	495	M	#33	#56 SET RE-WRITE COUNTER TO ZERO
502	502	L	%U4	250W WRITE RECORD 2
510	510	B	530	B B ON TO SCOPE SS
515	515	B	575	#551 BRANCH IF 10 IN RE-WRITE COUNTER
523	523	A	#20	#56 ADD 1 TO RE-WRITE COUNTER
530	530	B	420	K BRANCH IF END OF REEL
535	535	U	%U4	B BACKSPACE
540	540	U	%U4	E SKIP
545	545	B	502	BRANCH TO REWRITE RECORD 2
552	552	L	405	585 LOAD -B- IN LOC. 585 TO BRANCH ON ERROR
559	559	M	#72	232 MOVE TAPE WRITE ERROR TO PRINT
566	566	B	490	BRANCH TO TEST FOR END OF REEL
575	575	B	607	L BRANCH IF TAPE WRITE ERROR
580	580	B	420	K BRANCH IF END OF REEL
585	585	N	630	*NOP IF NO ERRORS - BRANCH IF ANY ERRORS
590	590	B	642	C C ON TO CORRECT PRINT SS
595	595	B	694	BRANCH TO BEGIN READ PORTION OF TEST
607	607	L	405	585 LOAD -B- IN LOC. 585 TO BRANCH ON ERROR
614	614	M	#72	266 MOVE TAPE WRITE ERROR TO PRINT
621	621	B	580	BRANCH TO TEST FOR END OF REEL
630	630	M	#84	285 MOVE WORD ERROR TO PRINT AREA
637	637	B	646	E E ON TO ERROR STOP SS
642	642	2	694	PRINT
646	646	.		ERROR STOP

DATE	2-2-61	2-15-61	6-29-63	17. 10. 63			
ENG. CHG. NO.	110378	110378A	117628	TA 1976			

1401 DATA PROCESSING SYSTEM  
DIAGNOSTIC FUNCTION TEST

REPRODUCTION

647 647 B 694  
694 694 L 432 803  
701 701 / 299  
705 705 M #53 203  
712 712 M #68 210  
719 719 L S50 226  
726 726 L S50 260  
733 733 U %U4 B  
738 738 U %U4 B  
743 743 L %U4 216R  
751 751 B 773 B  
756 756 B 867 L  
761 761 C 225 #29  
768 768 B 887 /  
773 773 L %U4 250R  
781 781 B 694 B  
786 786 B 907 L  
791 791 C 259 #49  
798 798 B 927 /  
803 803 N 950  
808 808 B 962 C  
813 813 B 694 D  
818 818 B 850 #521  
826 826 A #20 #53  
833 833 B 425  
850 850 B 425 G  
855 855 U %U4 R  
860 860 / 348 299  
867 867 L 405 803  
874 874 M #72 232  
881 881 B 761  
887 887 L 405 803  
894 894 M #79 244  
901 901 B 773  
907 907 L 405 803  
914 914 M #72 266  
921 921 B 791  
927 927 L 405 803  
934 934 M #79 278  
941 941 B 803  
950 950 M #84 285  
957 957 B 968 E  
962 962 2  
963 963 2 813 □  
968 968 .  
969 969 B 813  
1020 #20 1 111 111111  
1031 #31 0 001  
1040 #40 R WRW RWRWRW  
1052 #52 X X  
1054 #54 X XX  
1060 #60 W RIT E

BRANCH TO BEGIN READ PORTION OF TEST  
LOAD -N- IN LOCATION 803  
CLEAR PRINT AREA  
MOVE PASS NO. IN PRINT AREA  
MOVE WORD -READ- IN PRINT AREA  
LOAD GM-WM FOR RECORD 1  
LOAD GM-WM FOR RECORD 2  
BACKSPACE  
BACKSPACE  
READ RECORD 1 FROM TAPE  
B ON TO SCOPE SS  
BRANCH IF TAPE READ ERROR  
COMPARE TAPE REC 1 WITH REC IN STORAGE  
BRANCH IF ERROR  
READ RECORD 2 FROM TAPE  
B ON TO SCOPE SS  
BRANCH IF TAPE READ ERROR  
COMPARE TAPE REC 2 WITH REC IN STORAGE  
BRANCH IF ERROR  
\*NOP IF NO ERRORS - BRANCH IF ANY ERRORS  
C ON TO CORRECT PRINT SS  
D REPEATS READ PORTION OF PROGRAM SS  
BRANCH IF 10 IN PASS COUNTER  
ADD 1 TO PASS COUNTER  
BRANCH TO REPEAT PROG. IF NOT 10TH PASS  
G ON TO REPEAT TEST SS  
REWIND  
CLEAR GM-WM + BRANCH TO LOAD NEXT PROG.  
LOAD -B- IN LOC. 803 TO BRANCH ON ERROR  
MOVE TAPE READ ERROR COMMENT TO PRINT  
BRANCH TO TEST FOR COMPARE ERROR  
LOAD -B- IN LOC. 803 TO BRANCH ON ERROR  
MOVE COMPARE ERROR COMMENT TO PRINT  
BRANCH TO READ RECORD 2  
LOAD -B- IN LOC 803 TO BRANCH ON ERROR  
MOVE TAPE READ ERROR COMMENT TO PRINT  
BRANCH TO TEST FOR COMPARE ERROR  
LOAD -B- IN LOC 803 TO BRANCH ON ERROR  
MOVE COMPARE ERROR COMMENT TO PRINT  
BRANCH TO NOP OR BRANCH  
MOVE WORD ERROR TO PRINT AREA  
E ON TO ERROR STOP SS  
PRINT  
PRINT WORD MARKS  
ERROR STOP  
BRANCH TO SENSE D  
RECORD ONE GM IN #30  
CONSTANT TO INCREMENT PASS + RE-WR. CTRS  
RECORD TWO GM IN #50  
COUNTER FOR COUNTING NO. OF PASSES  
COUNTER FOR COUNTING NO. OF RE-WRITES  
CONSTANTS FOR PRINTOUTS

DATE	2-2-61	2-15-61	6-29-63	17. 10. 63			
NO. CHG. NO.	110378	110378A	117628	TA 1976			

1401 DATA PROCESSING SYSTEM  
DIAGNOSTIC FUNCTION TEST

PART NO. 451453  
SHEET 8 OF 9  
BLOCK NO. 5030C

REPRODUCTION

1065	#65	R EAD	..
1069	#69	T APE	..
1073	#73	C OMP ARE	..
1080	#80	E RRO R	..
1120	/20	P ASS OPER. RECOR	CONSTANTS FOR HEADINGS
1140	/40	D ON E TYPE OF ERR	..
1160	/60	O RS RECORD TWO	..
1180	/80	T YPE OF ERRORS	..
1250	S50		GM-WM IN S50

DATE	2-2-61	2-15-61	6-29-63	17. 10. 63			
ENG. CHG. NO.	110378	110378A	117628	TA 1976			



# REPRODUCTION

TABLE OF UNPRINTABLE CHARACTERS

LP-LEFT PARENTHESIS	12 5 8	SE-SEMICOLON	11 6 8	DE-DELTA	11 7 8
WS-WORD SEPARATOR	0 5 8	LT-LESS THAN	12 6 8	PZ-PLUS ZERO	12 0
TS-TAPE SEGMENT MARK	0 7 8	GT-GREATER THAN	6 8	TM-TAPE MARK	7 8
GM-GROUP MARK	12 7 8	MZ-MINUS ZERO	11 0	CO-COLON	5 8
RP-RIGHT PARENTHESIS	11 5 8	AP-APOSTROPHE	0 6 8		

,008015,022029,033033N	1001	BACKSPACE SKIP	5030C 0A
,008015,022029,033033N	1001	SET WORDMARK CARD	5030C 02
L067367,340344,348349,3573611001,008012,001100118361080A8348/340080			5030C 03
L069404,377385,400404,4054051001	B400S681BS88 /332/		5030C 04
L071443,413420,425432,4334371001BS00S521M+34+53U%U4RL432585N/299M+53203			5030C 05
L065476,451458,465472,4774771001M+64211L+30226L+50260,226260U%U4B			5030C 06
L070514,485490,495502,5105151001L%U4216WB552L8420KM+33+56L%U4250WB530B			5030C 07
L069551,523530,535540,5455521001B575+551A+20+56B420KU%U4BU%U4EB502			5030C 08
L070589,559566,575580,5855901001L405585M+72232B490	8607L8420KN630		5030C 09
L072629,595607,614621,6306301001B642CB694	L405585M+722668580		5030C 10
L072669,637642,646647,6476471001M+84285B646E2694.8694			5030C 11
L067704□670670,694701,7057051001	L432803/299		5030C 12
L070742,712719,726733,7387431001M+53203M+68210LS50226LS50260U%U4BU%U4B			5030C 13
L070780,751756,761768,7737811001L%U4216RB773B8867LC225+298887/L%U4250R			5030C 14
L069817,786791,798803,8088131001B69488907LC259+498927/N950 B962CB694D			5030C 15
L069854,826833,850855,8558551001B850+521A+20+53B425	B425G		5030C 16
L071893,860867,874881,8878941001U%U4R/348299L405803M+72232B761	L405803		5030C 17
L072933,901907,914921,9279341001M+79244B773	L405803M+722668791	L405803	5030C 18
L067968,941950,957962,9639681001M+792788803	M+84285B968E22813□.		5030C 19
L072+08,001001,001001,0010011001B813			5030C 20
L072+48□+09+09,+20+31,+40+401001	1111111111G0001	RWRWRWR	5030C 21
	M		
L052+68□+49+49,+52+54,+60+651001WG XXXXX	WRITEREAD		5030C 22
	M		
L072/08,+73+80,+80+80,+80+801001TAPECOMPAREERROR			5030C 23
L072/48□/09/09,/20/40,/40/401001	PASS OPER. RECORD ONE		5030C 24
L072/88□/49/49,/60/80,/80/801001TYPE OF ERRORS	RECORD TWO	TYPE	5030C 25
L056S12□/89/89,S00S01,S05S121001IF ERRORS	2,049L0772772		5030C 26
L060S40,S17S18,S25S29,S36S371001/2772□/40/60□/80L/992802/280			5030C 27
L042S50,S45S50,S50S50,S50S5010012413	G		5030C 28
	M		
/333080N	CLEAR WORDMARK CARD		5030C 29
,019027,031,038042B031T98GB400L046352BW04BS88	BACKSPACE SKIP		5030C 30
	M		

DATE	2-2-61	2-15-61	6-29-63	17. 10. 63			
ENG. CHG. NO.	110378	110378A	117628	TA 1976			