

DIAGNOSTIC FUNCTION TEST  
REPRODUCTION

CUSTOMER ENGINEERING TESTS  
FOR THE 1401 DATA PROCESSING SYSTEM

COPY TEST TAPE ROUTINE

A. PURPOSE OF ROUTINE

TO PROVIDE A PROGRAM THAT WILL DUPLICATE THE MASTER TEST TAPE REEL DESCRIBED IN BLOCK NO. 5300.

B. LOADING PROCEDURES

1. TO RUN ROUTINE FROM CARDS (1402)

IF IT IS DESIRED TO LOAD THIS ROUTINE FROM CARDS, PLACE THE INSTRUCTION CARDS IN BLOCK NO. 5320 IN THE HOPPER OF 1402 AND PRESS THE LOAD KEY ON THE CARD READER. IN THIS CASE, IT IS NOT NECESSARY TO MANUALLY ENTER A "1" IN S54. TAPE READING AND TAPE WRITING WILL PROCEED AS DESCRIBED.

2. TO RUN ROUTINE FROM MAGNETIC TAPE.

TO START THE OPERATION, PRESS THE TAPE LOAD KEY. THIS WILL LOAD THE FIRST TAPE RECORD "READ TEST TAPE ROUTINE" INTO LOCATIONS 001-T97 (0001-1397). THE FIRST INSTRUCTION IN THIS ROUTINE WILL BRANCH TO A STOP INSTRUCTION IN LOCATION T65 (1365). MANUALLY ENTER A "1" IN S54 AND PRESS THE START KEY.

THE SECOND TAPE RECORD "TITLE CARD - COPY TEST TAPE ROUTINE" WILL NEXT BE READ INTO LOCATIONS 001-080. BRANCHING AGAIN TO S88, THE THIRD TAPE RECORD "COPY TEST TAPE ROUTINE" WILL BE READ INTO LOCATIONS 001-549 (0001-1249), RETAINING THE "1" IN S54 AND THE READ TEST TAPE ROUTINE IN S82-T97. SINCE THE COPY TEST TAPE ROUTINE DOES NOT HAVE THE LETTER A IN 80, THE PROGRAM BRANCHES TO LOCATION 377, TESTS FOR THE "1" IN S54, AND BRANCHES FIRST TO LOCATION 400 AND THEN TO LOCATION 082. UP TO THIS POINT, NOTHING HAS BEEN WRITTEN ON THE BLANK REEL.

NOW, STORAGE POSITIONS 400 THROUGH 1999 ARE CLEARED, A RECORD IS READ, THEN WRITTEN, AND THE OPERATION IS REPEATED FOR THE NEXT RECORD.

C. PROGRAM CONTROL

IF, WHEN THE COPY OPERATION IS COMPLETED FOR THE FIRST TIME, SENSE SWITCH D IS IN THE ON POSITION, TAPE DRIVE #1 RE-WINDS AND ALL RECORDS ON IT ARE AGAIN COPIED ONTO THE BLANK REEL. THUS, THE MASTER REEL MAY BE COPIED ONTO THE BLANK REEL AS OFTEN AS TAPE DRIVE #2 WILL ALLOW.

D. TEST ROUTINE OPERATION

THE COPY TEST TAPE ROUTINE REWINDS TAPE DRIVES #2 AND #1, CLEARS STORAGE POSITIONS 400-299 (0400-1999), READS THE FIRST TAPE RECORD "READ TEST TAPE ROUTINE" INTO LOCATIONS 401-X97 (0401-1797), AND WRITES IT ON TAPE DRIVE #2. A BRANCH TO

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ENG. CHG. NO.	110373	110378A	115233	1459			

DIAGNOSTIC FUNCTION TEST

PART NO. 451460  
 SHEET 2 OF 5  
 BLOCK NO. 5320E

REPRODUCTION

D. (CONTINUED)

LOCATION 092 CONTINUES THE OPERATION FOR THE NEXT RECORD, AND SO ON, UNTIL THE END OF THE COPY OPERATION. ALL RECORDS READ FROM THE MASTER REEL AND WRITTEN ON THE BLANK REEL ARE TESTED FOR ERRORS IN TRANSMISSION AND RE-READ AND RE-WRITTEN IF NECESSARY.

WHEN THE TAPE MARK IS FINALLY SENSED ON TAPE DRIVE #1, A TAPE MARK IS WRITTEN ON THE BLANK REEL BY TAPE DRIVE #2, AND BOTH TAPE DRIVES #1 AND #2 ARE RE-WOUND. THE MACHINE THEN STOPS AT LOCATION 241, INDICATING THE END OF THE OPERATION.

E. STOPS

STORAGE ADDR REG

TYPE OF HALT

1369

READ ROUTINE--ENTER 1 IN 1254

241

END-TAPE COPIED

F. PRINTOUTS

NONE

G. COMMENTS

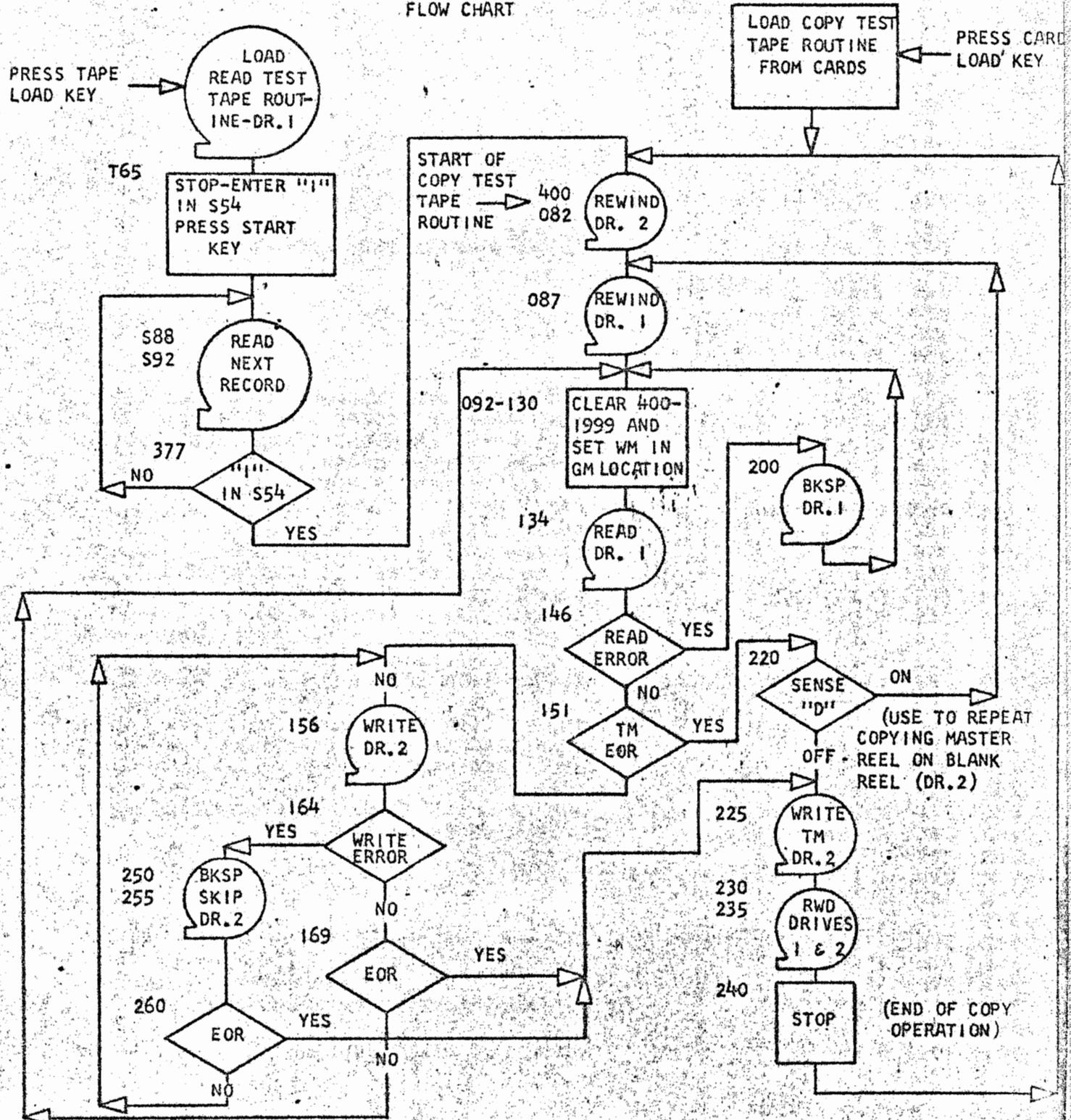
UNITS REQUIRED:

- 1401 PROCESSING UNIT WITH AT LEAST 2,000 STORAGE POSITIONS.
- 1402 CARD READER IF THIS ROUTINE IS TO BE LOADED FROM CARDS
- 7330 OR 729 TAPE DRIVE #1 LOADED WITH THE MASTER TAPE REEL.
- 7330 OR 729 TAPE DRIVE #2 LOADED WITH A BLANK REEL.

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COPY TEST TAPE ROUTINE  
 FLOW CHART



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1401 DATA PROCESSING SYSTEM  
DIAGNOSTIC FUNCTION TEST

PART NO. 451460  
SHEET 4 OF 5  
BLOCK NO. 5320E

REPRODUCTION

PROGRAM LISTING FOR USE WITH FLOW CHART

COPY TEST TAPE ROUTINE 5320E

INSTRUCTION ADDRESS	OP	A	B	REMARKS
082 082	U	2U2	R	REWIND WRITE DRIVE
087 087	U	2U1	R	REWIND READ DRIVE
092 092	L	303	106	CLEAR STORAGE FROM 400-1999
099 099	D	104	:	..
103 103	/	Z99		..
107 107	B	130	1044	..
115 115	.	104		..
119 119	A	306	106	..
126 126	B	099		..
130 130	.	281		SET WORD MARK IN GROUP MARK LOCATION
134 134	L	2U1	401R	READ FROM TEST TAPE
142 142	L	282		LOAD GM-WM IN HIGHEST READ ADDR. PLUS 1
146 146	B	200	L	BRANCH IF READ ERROR
151 151	B	220	K	BRANCH IF END OF READ TAPE
156 156	L	2U2	401W	WRITE ON BLANK TAPE
164 164	B	250	L	BRANCH IF WRITE ERROR
169 169	B	225	K	BRANCH IF END OF WRITE TAPE
174 174	B	092		GO CLEAR STORAGE FOR NEXT RECORD
200 200	U	2U1	B	BACKSPACE
205 205	B	092		CLEAR STORAGE AND RE-READ
220 220	B	087	D	D ON TO REPEAT COPYING TEST TAPE
225 225	U	2U2	M	WRITE TAPE MARK
230 230	U	2U2	R	REWIND BOTH DRIVES
235 235	U	2U1	R	..
240 240	.			END OF COPY PROGRAM
241 241	B	082		GO REWIND DRIVES AND RESTART
250 250	U	2U2	B	BACKSPACE WRITE DRIVE
255 255	U	2U2	E	SKIP
260 260	B	225	K	END OF WRITE TAPE. GO REWIND AND HALT.
265 265	B	156		BRANCH TO RE-WRITE
280 280				GROUP MARK IN 281
300 300	/	Z99		CONSTANTS
304 304	I	00		..
333 333	.	008	012	CHAINING ROUTINE
340 340	.	001		CHAINING ROUTINE
344 344	I	001		CHAINING ROUTINE
348 348				*AN ASTERISK MEANS INSTRUCTION CHANGES
377 377	B	400	S541	USE WHEN RUNNING PROGRAM FROM TAPE
385 385	B	S88		..
400 400	B	082		BRANCH TO START PROGRAM

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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-APCSTROPHE	0 6 8		

,008015,022029,033033N	1001	COPY TEST TAPE ROUTINE	5320E 0A
,008015,022029,033033N	1001	SET WORDMARK CARD	5320E 02
L058102,087092,099099,0990991001U3U2RU3U1RL303106#104			5320E 03
L071141,107115,119126,1301341001/29981301044,104A306106B099,281L3U1401R			5320E 04
L069178,146151,156164,1691741001L2828200LB220KL3U2401W8250LB225KB092			5320E 05
L072239,205220,225230,2352351001U3U1BB092		8087DU3U2MU3U2RU3U1R	5320E 06
L072279,241250,255260,2652651001.8082		U3U2BU3U2EB225KB156	5320E 07
L059306,300304,304304,3043041001 G		/Z99100	5320E 08
	M		
L067367,340344,348348,3483481001,008012,0011001			5320E 09
L059403,385400,404404,4044041001B400S541BS88		8082	5320E 10
/333080		CLEAR WORDMARK CARD	5320E 11
,019027,031N	B031T98G84008W04	COPY TEST TAPE ROUTINE	5320E 12
	M		

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