

MODIFY ADDRESS **REPRODUCTION**

A. PURPOSE

TO TEST THE MODIFY ADDRESS CIRCUITRY (AVAILABLE ONLY ON MACHINES EQUIPPED WITH A 1406) AS FOLLOWS:

1. BY ADDING TWO 3-CHARACTER FIELDS AND COMPARING THE RESULT WITH THE RESULT SHOULD BE FIELD.
2. BY ADDING ONE 3-CHARACTER FIELD TO ITSELF AND COMPARING THE RESULT WITH THE RESULT SHOULD BE FIELD.
3. BY ADDING TWO 3-CHARACTER FIELDS WITH THE B FIELD IN SUCCESSIVELY DECREASING ADDRESSES BETWEEN 199 AND 99 AND COMPARING THE RESULT WITH THE RESULT SHOULD BE FIELD.

B. LOADING PROCEDURES

PLACE TEST IN 1402 READ HOPPER AND DEPRESS LOAD KEY. WHEN RUNNING TEST FROM TAPE, ENTER A 1 IN 1264.

C. PROGRAM CONTROL

1. SENSE SWITCHES

- B ON FOR SCOPING LOOP
OFF TO CONTINUE
- C ON TO PRINT CORRECT RESULTS
OFF TO CONTINUE
- D ON TO REPEAT DETAIL CARD
OFF TO READ NEW DETAIL CARD
- E ON TO STOP ON ERROR
OFF TO PRINT ERROR

D. TEST PROCEDURE

1. 7 CHARACTER INSTRUCTION TEST

A FIELD (COLUMNS 1-4), B FIELD (COLUMNS 21-24), AND RESULT SHOULD BE FIELD (COLUMNS 41-44) ARE LOADED INTO THE PRINT AREA. IF A 4 IS IN LOCATION 072, THE PROGRAM BRANCHES TO THE 4 CHARACTER INSTRUCTION TEST PORTION OF THE PROGRAM (SEE DESCRIPTION BELOW). THE B FIELD IS THEN LOADED INTO LOCATIONS 261-264 TO BE USED AS AN ACCUMULATOR. IF AN A IS IN LOCATION 072, THE PROGRAM BRANCHES TO THE CHANGING ADDRESS PORTION OF PROGRAM (SEE DESCRIPTION BELOW). THE A FIELD IS THEN ADDED TO THE B FIELD IN THE ACCUMULATOR BY A MODIFY ADDRESS INSTRUCTION. THE RESULT IN THE ACCUMULATOR IS THEN COMPARED WITH THE RESULT SHOULD BE FIELD.

DATE	3-13-61	6-29-63	17.10.63				
CHG. NO.	110378B	117628	TA 1976				

BM**DIAGNOSTIC FUNCTION TEST**
 PART NO. 451479
 SHEET 2 OF 9
 BLOCK NO. 3700B
REPRODUCTION

IF THE COMPARISON IS UNEQUAL THE PROGRAM BRANCHES TO THE ERROR PRINT ROUTINE (STARTS IN 900). OTHERWISE IT BRANCHES TO 920.

2. 4 CHARACTER INSTRUCTION TEST (STARTS IN 540)

THE A FIELD IS LOADED INTO LOCATIONS 261-264 TO BE USED AS AN ACCUMULATOR. THE A FIELD IN THE ACCUMULATOR IS THEN ADDED TO ITSELF BY A MODIFY ADDRESS INSTRUCTION. A BRANCH TO THE FIRST PORTION OF THE PROGRAM IS MADE FOR THE COMPARISON AND PRINT OUT (521).

3. CHANGING ADDRESS (STARTS IN 605)

THE B FIELD IS MOVED TO LOCATION 199 MODIFIED AND COMPARED AS IN THE FIRST PORTION OF THE PROGRAM. THE ADDRESS COUNTER IS THEN DECREASED BY ONE AND THE NEW ADDRESS IS MOVED INTO THE PROPER INSTRUCTIONS TO CAUSE THE PROGRAM TO LOOP UNTIL THE ADDRESS BECOMES 099. THIS PORTION OF THE PROGRAM HAS ITS OWN PRINT ROUTINE (STARTS IN 701).

E. STOPS

- 502 - REMOVED WORD MARK IN A FIELD
- 514 - REMOVED WORD MARK IN ACCUMULATOR
- 582, 594 - REMOVED WORD MARK IN ACCUMULATOR ON 4 CHARACTER INSTRUCTION.
- 743, 920 - ERROR STOP WITH E ON.

CONTINUE PROGRAM BY PUSHING START BUTTON.

F. PRINT OUTS

1. WITHOUT ERRORS (C ON)

<u>A FIELD</u>	<u>B FIELD</u>	<u>RESULT SHOULD BE</u>	<u>RESULT IS</u>
876	123	999	999
9HWP		9GTU	9GTU 4
87F	0A23	0191	0191 A

2. WITH ERRORS

<u>A FIELD</u>	<u>B FIELD</u>	<u>RESULT SHOULD BE</u>	<u>RESULT IS</u>
876	123	999	989 ERROR
9HWP		9GTU	9GTV 4 ERROR

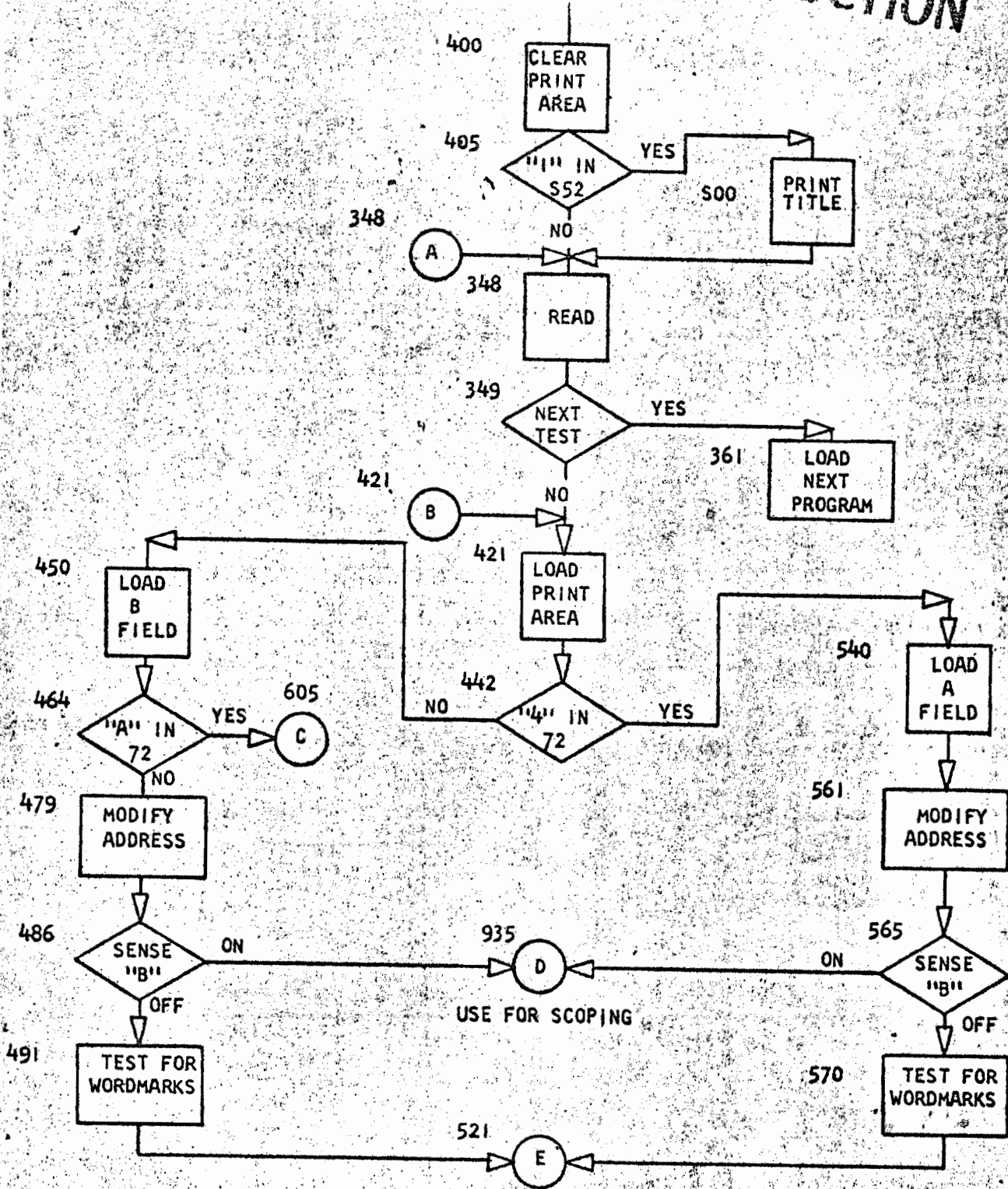
WITH THE COUNTER IN THE PRINT ROUTINE SET AT 90, A SOLID ERROR WILL BE PRINTED OUT 91 TIMES.

87F	0A23	0191	0181 A ERROR IN ADDR 156
-----	------	------	--------------------------

DATE	3-13-61	6-29-63	17.10.63				
ENG. CHG. NO.	110378B	117628	TA 1976				

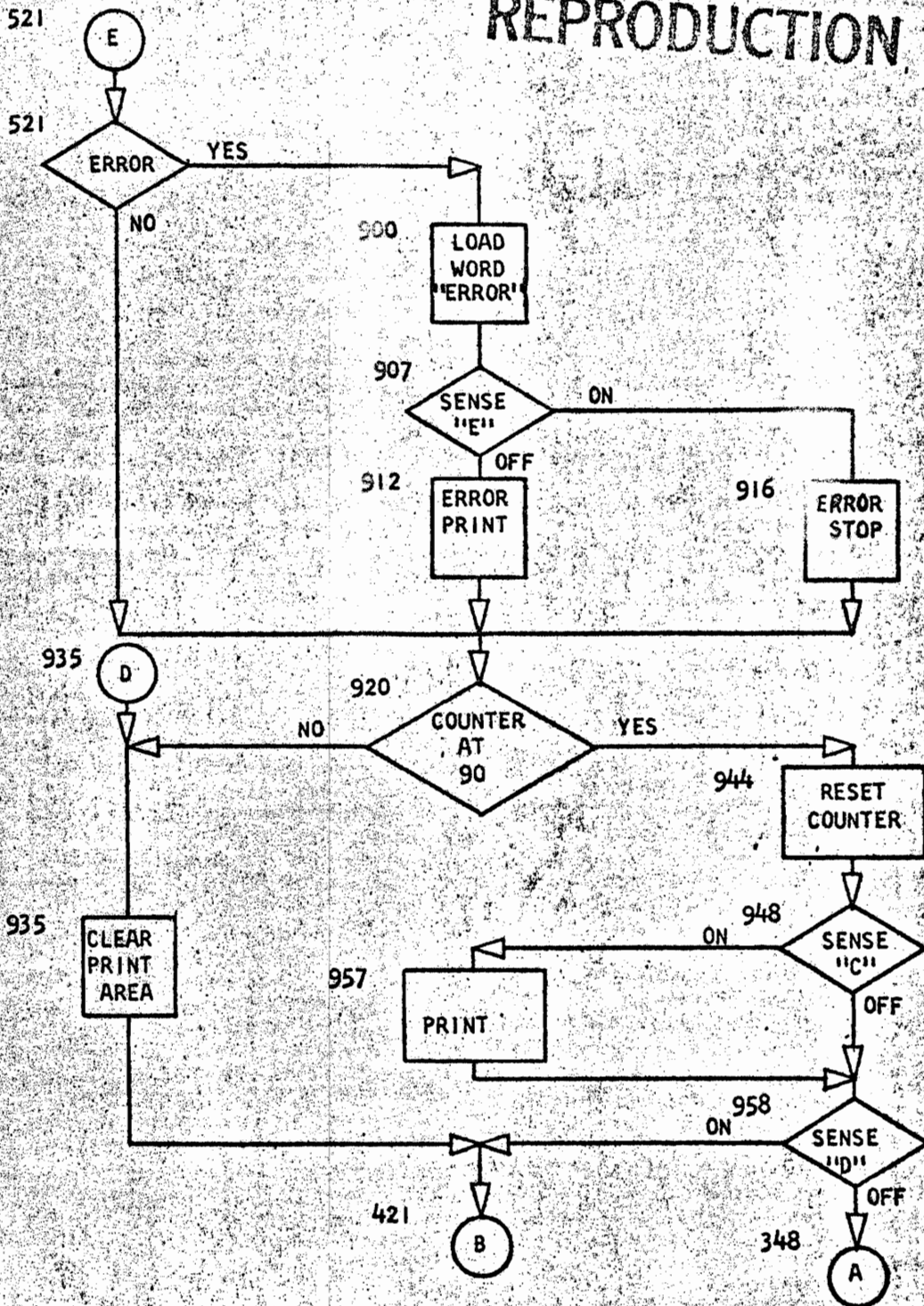
REPRODUCTION

MODIFY ADDRESS FLOW CHART

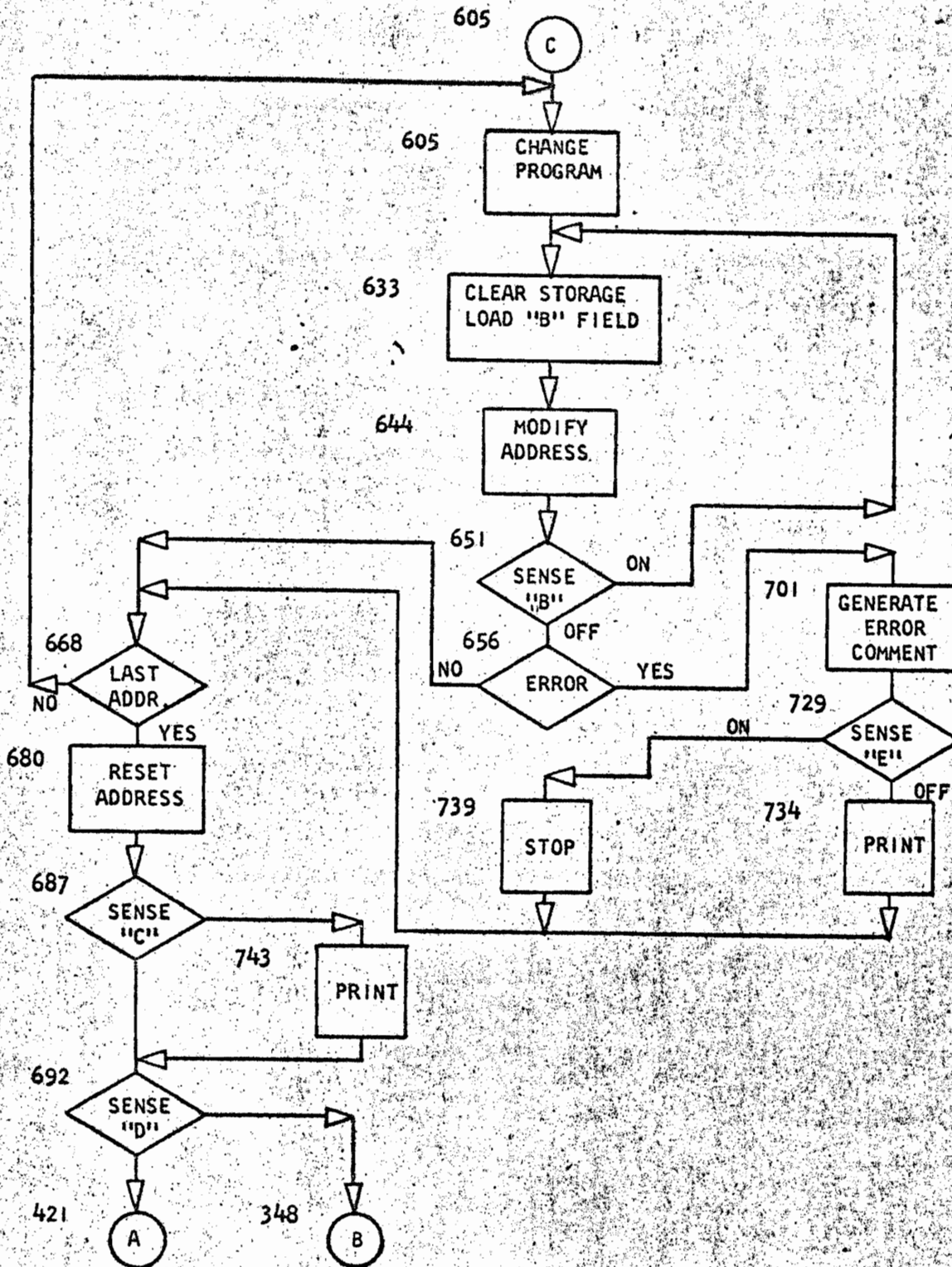


DATE	3-13-61	6-29-63	17. 10. 63				
CHG. NO.	110378B	117628	TA 1976				

REPRODUCTION



DATE	3-13-61	6-29-63	17. 10. 63				
ENG. CHG. NO.	110378B	117628	TA 1976				



DATE	3-13-61	6-29-63	17. 10. 63				
NO. CHG. NO.	110378B	117628	TA 1976				

REPRODUCTION

PROGRAM LISTING FOR USE WITH FLOW CHART

MODIFY ADDRESS 3700B

INSTRUCTION ADDRESS	OP	A	B	REMARKS
377	377	B	389 5641	USE WHEN TESTS ARE RUN FROM TAPE
385	385	B	588	..
389	389	N	000	..
393	393	M	360 392	..
400	400	/	332	START TEST
404	404	/		..
405	405	B	500 5521	BR TO TITLE PRINT ROUTINE IF 1 IN 552
413	413	/	080	CLEAR READ AREA
417	417	B	348	BRANCH TO PROGRAM CHAINING ROUTINE
421	421	,	001 078	LOAD PRINT AREA
428	428	L	080 299	..
435	435	L	072 272	..
442	442	B	540 0724	BRANCH IF 4 IN 72
450	450	,	216 236	LOAD B FIELD
457	457	L	227 267	..
464	464	B	605 072A	BRANCH IF A IN 72
472	472	,	203 264	INSERT WORD MARKS
479	479	#	204 264	MODIFY B ADDRESS
486	486	B	935 B	B ON TO SCOPE SS
491	491	V	502 2031	TEST FOR WORD MARKS
498	498	.	491	..
502	502	V	514 2641	..
510	510	.	502	..
514	514	□	203 264	REMOVE WORD MARKS
521	521	C	250 270	TEST FOR ERROR
528	528	B	900 /	BRANCH TO ERROR PRINT ROUTINE
533	533	B	920	BRANCH TO PRINT ROUTINE
540	540	,	236 236	LOAD A FIELD
547	547	L	207 267	..
554	554	,	263 264	INSERT WORD MARKS
561	561	#	264	MODIFY A ADDRESS
565	565	B	935 B	B ON TO SCOPE SS
570	570	V	582 2631	TEST FOR WORD MARKS
578	578	.	570	..
582	582	V	594 2641	..
590	590	.	582	..
594	594	□	263 264	REMOVE WORD MARKS
601	601	B	521	BRANCH TO TEST
605	605	A	772 775	DECREASE ADDRESS BY 1
612	612	M	775 643	CHANGE ADDR OF LOAD
619	619	M	775 650	CHANGE ADDR OF MODIFY
626	626	M	775 659	CHANGE ADDR OF COMPARE
633	633	/	199	CLEAR STORAGE

DATE	3-13-61	6-29-63	17.10.63				
ENG. CHG. NO.	110378B	117628	JA.1976				

REPRODUCTION

637	637	L 224	199	*LOAD B FIELD	
644	644	# 204	199	*MODIFY	
651	651	B 633	B	B ON TO SCOPE	SS
656	656	C 199	244	*COMPARE	
663	663	B 701	/	BRANCH TO ERROR PRINT ROUTINE	
668	668	C 775	778	COMPARE ADDRESS	
675	675	B 605	/	BRANCH TO REPEAT IF UNEQ.	
680	680	M 781	775	RESET ADDRESS	
687	687	B 743	C	C ON FOR CORRECT PRINT	SS
692	692	B 421	D	D ON TO REPEAT	SS
697	697	B 348		BRANCH TO PROG. CHAINING ROUTINE	
701	701	M 775	815	BEGIN ERROR PRINT ROUTINE	
708	708	M 775	718	CHANGE ADDR OF LOAD	
715	715	M 199	264	*MOVE ADDR TO COMENT	
722	722	M 815	294	MOVE COMMENT TO PRINT AREA	
729	729	B 739	E	E ON FOR ERROR STOP	SS
762	762	N		*AN ASTERISK MEANS INSTRUCTION CHANGES	
734	734	2		ERROR PRINT	
735	735	B 668		BRANCH TO CONTINUE	
739	739	. 668		ERROR STOP	
743	743	M 099	264	BEGIN CORRECT PRINT ROUTINE	
750	750	M 798	294	CLEAR ERROR	
757	757	2		CORRECT PRINT	
758	758	B 692		BRANCH TO SENSE D	
770	770	I 99		CONSTANT	
773	773	2 00		ADDR LOCATION	
776	776	0 99		CONSTANT	
779	779	2 00		CONSTANT	
782	782			CONSTANT	
799	799	E RRO	R IN ADDR XXX	CONSTANT	
900	900	L /14	285	BEGIN ERROR PRINT ROUTINE	
907	907	B 916	E	E ON TO ERROR STOP	SS
912	912	2 920		ERROR PRINT	
916	916	. 920		ERROR STOP	
920	920	A 920	970	ADD ONE TO OPERATION COUNTER	
927	927	B 944	9699	BRANCH AFTER 90 OPERATIONS	C FOR TA
935	935	/ 332		CLEAR PRINT AREA	
939	939	/		**	
940	940	B 421		BRANCH TO REPEAT	
944	944	S 970		RESET OPERATION COUNTER	
948	948	B 957	C	C ON FOR CORRECT PRINT	SS
953	953	B 958		BRANCH TO SENSE D	
957	957	2		PRINT CORRECT RESULTS	
958	958	B 421	D	D ON TO REPEAT	SS
963	963	B 348		BRANCH TO PROG. CHAINING ROUTINE	
967	967	0 00+		OPERATION COUNTER	
1110	/10	E RRO	R	CONSTANTS	
1115	/15			**	
1120	/20	A FI	ELD	**	
1140	/40	B FI	ELD	**	
1160	/60	R ESU	LT SHOULD BE	**	
1180	/80	R ESU	LT IS	**	

DATE	3-13-61	6-29-63	17. 10. 63				
ENG. CHG. NO.	110378B	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	MODIFY ADDRESS	3700B 0A
,008015,022029,033033N	1001	SET WORDMARK CARD-	3700B 02
L067367,340344,348349,3573611001,008012,00110011B361080AB421/340080			3700B 03
L069404,377385,389393,4004041001		B389S641BS88N000M360392/332/	3700B 04
L069441,413417,421428,4354421001BS00S521/080B348,001078L080299L072272			3700B 05
L069478,450457,464472,4794791001B5400724,216236L227267B605072A,203264			3700B 06
L067513,486491,498502,5105141001#204264B935BV502203.491V5142641.502			3700B 07
L072553,521528,533540,5475541001#203264C250270B900/B920		,236236L2072673700B	08
L072593,561565,570578,5825901001,263264#264B935BV5822631.570V5942641.5823700B			09
L071632,601605,612619,6266331001#263264B521A772775M775643M775650M775659			3700B 10
L067667,637644,651656,6636681001/199L224U99#204199B633BC1992448701/			3700B 11
L072707,675680,687692,6977011001C775778B605/M781775B743CB421DB348M7758153700B			12
L067742,715722,729734,7357391001M775718M199264M8152948739E2B668.668			3700B 13
L065775,750757,758762,7707731001M099264M7982942B692N		I99200	3700B 14
L072815,779782,799799,7997991001099200		ERROR IN ADD. XXX	3700B 15
L071938,907912,916920,9279351001L/142858916E2920.920A920970B9449699/332			3700B 16
L056962,940944,948953,9579581001/B421S970B957CB9582B421D			3700B 17
L040970,967971,971971,9719711001B348000P			3700B 18
	Z		
L065/39#07/07,/10/15,/20/401001	ERROR	A FIELD	3700B 19
L072/79,/60/80,/80/80,/80/801001B	FIELD	RESULT SHOULD BE	3700B 20
L070S17,S00S01,S05S12,S13S171001	RESULT IS	2,049L0772772/2772-	3700B 21
L059S44,S25S29,S36S37,S41S451001#40/60#80L/892702/2702413			3700B 22
/333080N		CLEAR WORDMARK CARD	3700B 23
,019027,031,0380428031T98GB400L046352BW04BS88		MODIFY ADDRESS	3700B 24

DETAIL CARDS

876	123	999	3700B 25
876	/1U	Z9#	3700B 26
X8W	/2T	ROR	3700B 27
Y70	S2T	P9I	3700B 28
		Z	
Q7W	J23	99R	3700B 29
Y7F	12L	Z9Z	3700B 30
87F	0A23	019I	3700B 31
87F	9A23	919I	3700B 32
876	ABC	111	3700B 33
QPO	123	R9R	3700B 34
HPF	9AKD	9PMP	3700B 35
		ZZZ	
QXO	9JTL	9#Z	3700B 36
QPP	9S/T	90Z0	3700B 37

DATE	3-13-61	6-29-63	17. 10. 63				
ING. CHG. NO.	1103788	117628	TA 1976				

DIAGNOSTIC FUNCTION TEST

PART NO. 451479
 SHEET 9 OF 9
 BLOCK NO. 37008

REPRODUCTION

PPP	9JKL	99M*	37008 38
YXW	9/BM	Z	
		9PPP	37008 39
QXX	9AK3	ZZZ	
		9MMM	37008 40
HXC	/ST	ZZZ	
876	9ABD	***	37008 41
		90P0	37008 42
QPP	9J2L	Z	
U21		9*0*	37008 43
9HWP		Q42	437008 44
9RPM		9GTU	437008 45
9HTF		9ZMY	437008 46
9KEF		9FXB	437008 47
9YRN		9SAB	437008 48
9PWV		9GRO	437008 49
917Q		9VTP	437008 50
RGE		Z	
		915W	437008 51
		ZEP	437008 52
87F	0A23	Z	
HPF	9AKD	0I9I	A37008 53
		9PMP	A37008 54
		ZZZ	

DATE	3-13-61	6-29-63	17. 10. 63				
ENG. CHG. NO.	110378B	117628	TA 1976				