

BRANCH EQUAL

**REPRODUCTION**

**A. PURPOSE OF TEST**

TO TEST THE BRANCH EQUAL CIRCUITRY BY COMPARING AN A FIELD WITH A B FIELD FOR AN EQUAL OR UNEQUAL CONDITION. THE EQUAL OR UNEQUAL CONDITION IS THEN CHECKED FOR ACCURACY.

**B. LOADING PROCEDURES**

1. PLACE TEST IN 1402 READ HOPPER AND DEPRESS LOAD KEY.
2. WHEN RUNNING FROM TAPE, ENTER A 1 IN 1259.

**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 SAME DETAIL CARD  
OFF TO CONTINUE
- E** ON TO STOP ON ERROR  
OFF TO PRINT ERROR

**2. COUNTER**

A COUNTER (LOCATION 967-970) IS USED TO ALLOW THE PROGRAM TO REPEAT 90 TIMES FOR EACH DETAIL CARD. WHEN SENSE SWITCH C IS ON, ONLY ONE CORRECT PRINTOUT OCCURS PER DETAIL CARD. AN ERROR TEST IS MADE EACH TIME THE PROGRAM IS REPEATED. AN ERROR PRINTOUT OCCURS FOR EACH FAILURE.

**D. TEST PROCEDURES**

A FIELD (COLUMNS 2-3), B FIELD (COLUMNS 22-23), AND RESULT SHOULD BE FIELD (COLUMNS 41-60) ARE LOADED INTO THE PRINT AREA FOR PRINTING PURPOSES. THE A AND B FIELDS ARE THEN COMPARED.

IF THE CONDITION IS EQUAL, A TEST IS MADE TO CHECK FOR THE LETTER "e" IN COLUMN 41. IF E, THE EQUAL-COMPARE OPERATION WAS EXECUTED CORRECTLY; IF NOT E AN ERROR IS INDICATED AND THE PROGRAM BRANCHES TO THE ERROR PRINT ROUTINE, WHICH LOADS THE WORDS "EQUAL" AND "ERROR" INTO THE PRINT AREA.

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

REPRODUCTION

D. (CONTINUED)

IF THE CONDITION IS UNEQUAL, A TEST IS MADE TO CHECK FOR THE LETTER "U" IN COLUMN 41. IF U, THE UNEQUAL-COMPARE OPERATION WAS EXECUTED CORRECTLY; IF NOT U, AN ERROR IS INDICATED AND THE PROGRAM BRANCHES TO THE ERROR PRINT ROUTINE. TWO TESTS ARE THEN MADE TO DETERMINE WHETHER THE UNEQUAL CONDITION IS HIGH OR LOW. IF HIGH THE WORD "HIGH" IS LOADED IN THE RESULT IS FIELD OF THE PRINT AREA; IF LOW THE WORD "LOW" IS LOADED INSTEAD. IN EITHER CASE, THE WORD "ERROR" IS ALSO LOADED.

THE POSITION OF SENSE SWITCH E THEN DETERMINES WHETHER THE MACHINE STOPS TO PERMIT CONSOLE CHECKING OR PRINTS THE RESULTS.

E. STOPS

920 IN STORAGE ADDRESS REGISTER: ERROR WITH SENSE E ON.

F. PRINTOUTS

1. CORRECT

A FIELD	B FIELD	RESULT SHOULD BE	RESULT IS
(BLANK)	(BLANK)	EQUAL	EQUAL
I	(BLANK)	UNEQUAL	UNEQUAL
(BLANK)	I	UNEQUAL	UNEQUAL
RW	RW	EQUAL	EQUAL
RW	RR	UNEQUAL	UNEQUAL

2. ERROR

A FIELD	B FIELD	RESULT SHOULD BE	RESULT IS	RESULT IS
(BLANK)	(BLANK)	EQUAL	HIGH	ERROR
I	(BLANK)	UNEQUAL	EQUAL	ERROR
(BLANK)	I	UNEQUAL	EQUAL	ERROR
RW	RW	EQUAL	LOW	ERROR
RW	RR	UNEQUAL	EQUAL	ERROR

G. COMMENTS

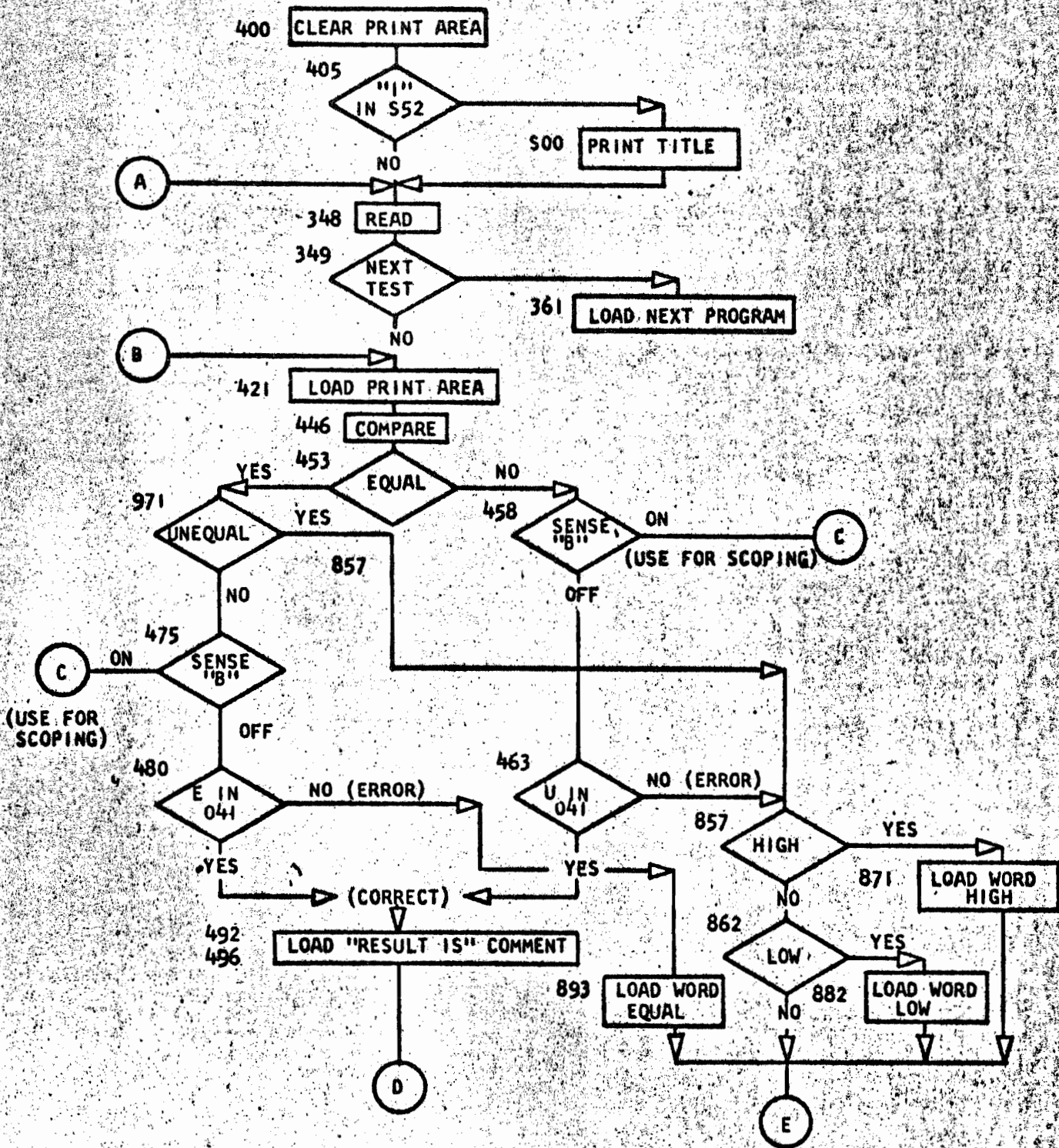
THE BRANCH INSTRUCTION AT LOCATION 927 CAN BE CHANGED MANUALLY TO CAUSE THE PROGRAM TO LOOP AS FEW AS 1 OR AS MANY AS 9,000 TIMES PER DETAIL CARD. THE PROGRAM CALLS FOR 90 LOOPS PER CARD.

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

REPRODUCTION

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FLOW CHART



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**REPRODUCTION**  
PROGRAM LISTING FOR USE WITH FLOW CHART

BRANCH EQUAL

3320B

INSTRUCTION

ADDRESS	OP	A	B	REMARKS
377	377	B	389 5591	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	,	222	''
446	446	C	203 223	COMPARE
453	453	B	971 S	BRANCH EQUAL GO CHECK UNEQUAL
458	458	B	935 B	B ON TO SCOPE SS
463	463	B	492 041U	NO ERROR IF U IN 041
471	471	B	857	ERROR SHOULD BE EQUAL
475	475	B	935 B	B ON TO SCOPE SS
480	480	B	492 041E	NO ERROR IF E IN 041
488	488	B	893	GO TO EQUAL ERROR ROUTINE
492	492	,	241	LOAD -RESULT IS- COMMENT
496	496	L	250 270	''
503	503	B	920	GO TO CORRECT ROUTINE
857	857	B	871 U	BRANCH HIGH
862	862	B	882 T	BRANCH LOW
867	867	B	900	UNEQUAL BUT NOT HIGH OR LOW
871	871	L	499 270	LOAD HIGH INTO PRINT AREA
878	878	B	900	CONTINUE ERROR ROUTINE
882	882	L	709 270	LOAD LOW INTO PRINT AREA
889	889	B	900	CONTINUE ERROR ROUTINE
893	893	L	489 270	LOAD EQUAL INTO PRINT AREA
900	900	L	714 285	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

DATE	2-2-61	6-29-63	17. 10. 63				
ENG. CHG. NO.	110378	116728	TA 1976				

1401 DATA PROCESSING SYSTEM  
DIAGNOSTIC FUNCTION TEST

PART NO. 451444  
SHEET 6 OF 7  
BLOCK NO. 33208

REPRODUCTION

953 953 B 958  
957 957 2  
958 958 B 421 D  
963 963 B 980  
967 967 0 00+  
971 971 B 857 /  
976 976 B 475  
980 980 / 299  
984 984 B 348  
1080 +80 E QUA L  
1090 +90 H IGH  
1100 /00 L OW  
1110 /10 E RRO R  
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

BRANCH TO SENSE D  
PRINT CORRECT RESULTS  
D ON TO REPEAT SS  
BRANCH TO PROG. CHAINING ROUTINE  
OPERATION COUNTER  
ERROR EQUAL AND UNEQUAL ON  
GO TO SW B  
CLEAR ANY GM WM FROM PRINT AREA  
GO TO PROG. CHAINING ROUTINE  
CONSTANTS FOR PRINTOUTS  
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DATE	2-2-61	6-29-63	17. 10. 63				
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## TABLE OF UNPRINTABLE CHARACTERS

LP-LEFT PARENTHESIS	02 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	BRANCH EQUAL	33208	0A
.008015,022029,033033N	1001	SET WORDMARK CARD	33208	02
L067367,340344,348349,3573611001,008012,001100118361080AB421/340080			33208	03
L069404,377385,389393,4004041001		B389S591BS88N000M360392/332/	33208	04
L069441,413417,421428,4354421001BS00S521/080B348,001078L080299L072272			33208	05
L070479,446453,458463,4714751001,222C203223B971SB9358B492041UB857B935B			33208	06
L072519,488492,496503,5035031001B492041E8893,241L250270B920			33208	07
L068892,862867,871878,8828891001B871UB882T8900L+99270B900L/09270B900			33208	08
L066926,900907,912916,9209271001L+89270L/142858916E2920.920A920970			33208	09
L062956,935939,940944,9489531001B9449699/332/B421S970B957CB95B			33208	10
L059983,958963,967971,97698010012B4210B980000PB857/B475/299			33208	11

L072+23,001001,001001,0010011001B348					33208	12
L072/19,+90/00,/10/15,/20/201001EQUAL	HIGH	LOW	ERROR		33208	13
L072/59,/40/60,/60/60,/60/601001A FIELD		B FIELD			33208	14
L072/99,/80S00,S00S00,S00S001001RESULT SHOULD BE		RESULT IS			33208	15
L057S24,S01S05,S12S13,S17S1810012,049L0772772/2772□/40/60					33208	16
L052S44,S29S36,S37S41,S45S451001□/80L/892702/2702415					33208	17
/333080N		CLEAR WORDMARK CARD			33208	18
.019027,031,038042B031T98GB400L046352BMO48S88		BRANCH EQUAL			33208	19

### DETAIL CARDS

BLANK	BLANK	EQUAL	33208	20
G GM	G GM	EQUAL	33208	21
M	M			
1	BLANK	UNEQUAL	33208	22
BLANK	1	UNEQUAL	33208	23
2	BLANK	UNEQUAL	33208	24
BLANK	2	UNEQUAL	33208	25
4	BLANK	UNEQUAL	33208	26
BLANK	4	UNEQUAL	33208	27
8	BLANK	UNEQUAL	33208	28
BLANK	8	UNEQUAL	33208	29
/	1	UNEQUAL	33208	30
1	/	UNEQUAL	33208	31
-	BLANK	UNEQUAL	33208	32
BLANK	-	UNEQUAL	33208	33
RW	RW	EQUAL	33208	34
RW	RR	UNEQUAL	33208	35
RR	RW	UNEQUAL	33208	36

DATE	2-2-61	6-29-63	17. 10. 63				
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