

TEST CHARACTER AND BRANCH

REPRODUCTION

A. PURPOSE

TO TEST THE TEST CHARACTER AND BRANCH CIRCUITRY BY USING CHARACTERS 1,2,4,8,/, -, +, AND "BLANK" AS d - MODIFIERS.

B. LOADING PROCEDURES

1. PLACE TEST IN 1402 READ HOPPER AND DEPRESS LOAD KEY.
2. NO SELECTION DIGIT IS REQUIRED WHEN TEST IS RUN FROM TAPE.

C. PROGRAM CONTROL

1. SENSE SWITCHES

- D. ON TO REPEAT FOR SCOPING
OFF TO CONTINUE
- E. ON TO PRINT CORRECT RESULTS
OFF TO CONTINUE
- F. ON TO REPEAT USING SAME DETAIL CARD
OFF TO CONTINUE
- G. 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 PROCEDURE

THE INFORMATION TESTED IS ON DETAIL CARDS. THE d-CHARACTER IS IN COLUMN 2. THE ROUTINE USED IS SELECTED BY A NO-OP OR BRANCH OP IN COLUMN 72 WHICH IS MOVED INTO THE PROGRAM AT LOCATION 456.

AN EQUAL ROUTINE AT 500 TESTS ONE POSITION FOR AN EQUAL (CARD COLUMN 22).

AN UNEQUAL ROUTINE AT 467 TESTS THREE POSITIONS FOR AN UNEQUAL (CARD COLUMNS 24, 23, AND 22).

E. STOPS

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

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F. PRINTOUTS

1. CORRECT RESULTS

D MODIFIER	B FIELD CHARACTERS	RESULT SHOULD BE	RESULT IS
1	1	EQUAL	EQUAL B
2	2	EQUAL	EQUAL B
1	24	UNEQUAL	UNEQUAL N
1	8/-	UNEQUAL	UNEQUAL N

2. ERROR RESULTS

D MODIFIER	B FIELD CHARACTERS	RESULT SHOULD BE	RESULT IS
1	1	EQUAL	B ERROR
2	2	EQUAL	B ERROR
1	24	UNEQUAL	N ERROR
1	8/-	UNEQUAL	N ERROR

NOTE: IN THE CASE OF TEST FOR UNEQUAL CHARACTERS THE d. MODIFIER (1 IN EXAMPLE 3) WAS COMPARED WITH B FIELD CHARACTERS 4, 2, AND BLANK IN THAT ORDER; IN EXAMPLE 4 IT WAS COMPARED WITH -, /, AND 8. THE FIRST ERROR DETECTED CAUSED THE ERROR PRINT-OUT.

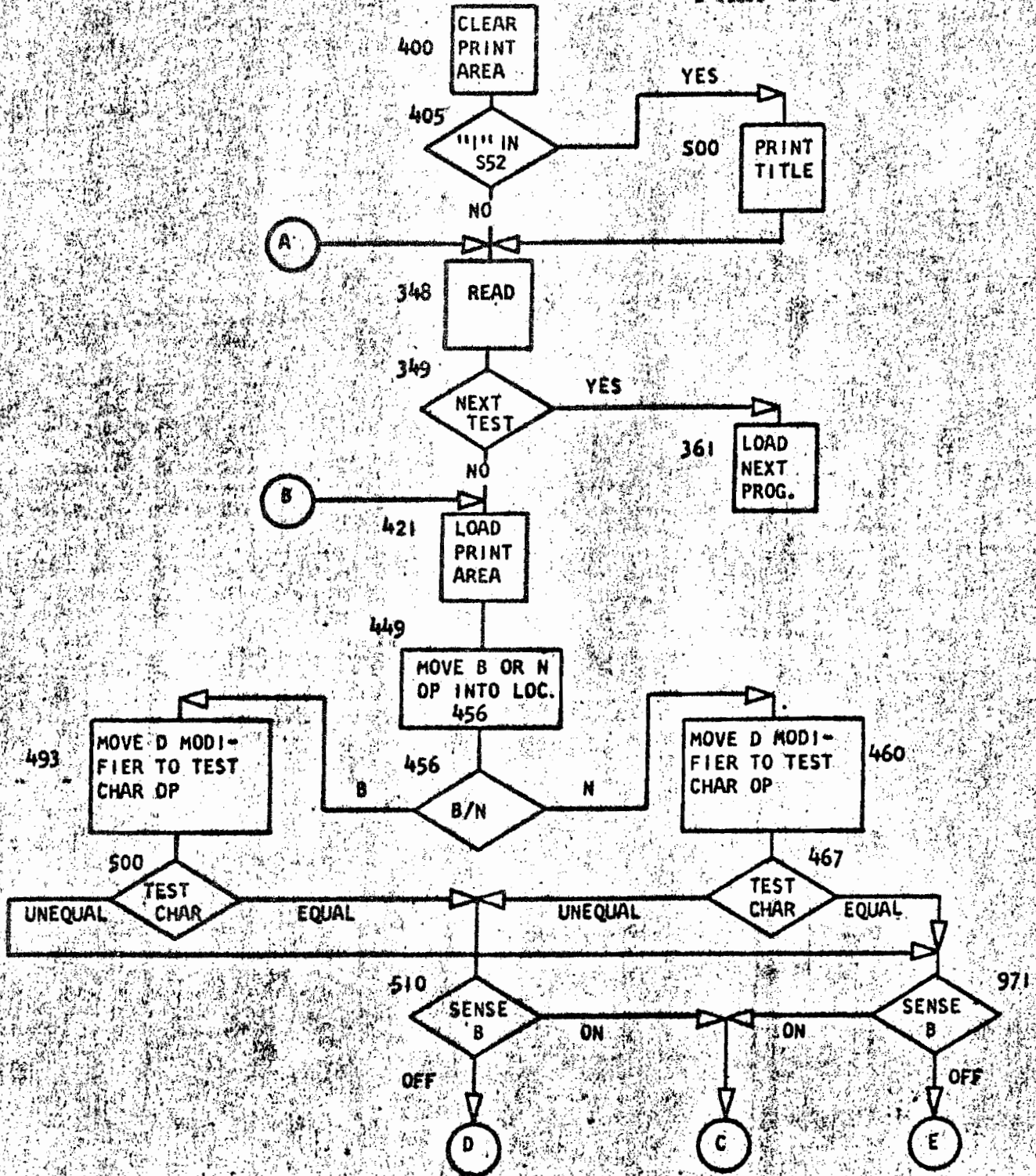
G. COMMENTS

THE BRANCH INSTRUCTION AT 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.

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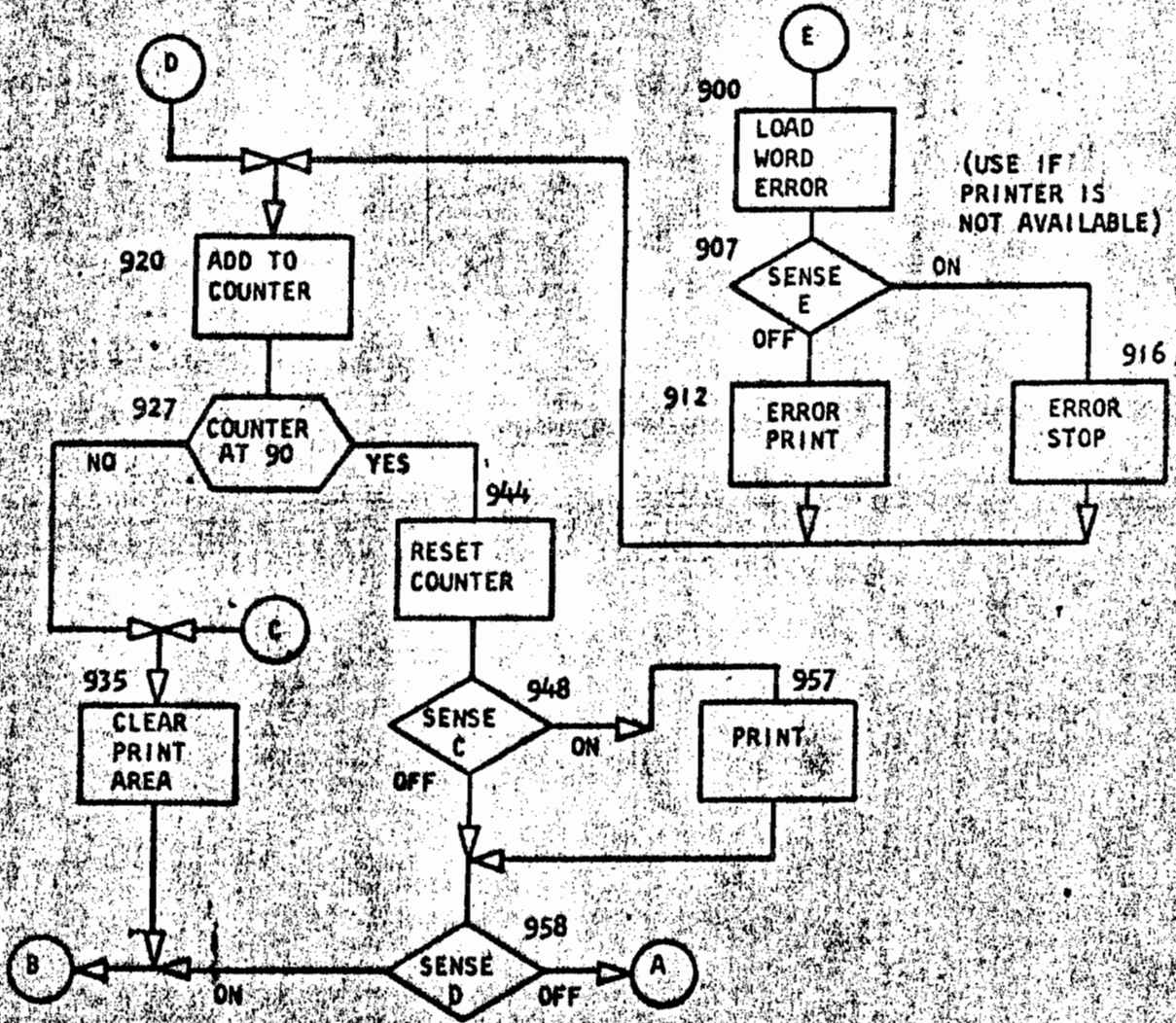
TEST CHARACTER AND BRANCH
 FLOW CHART

REPRODUCTION



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1401 DATA PROCESSING SYSTEM
DIAGNOSTIC FUNCTION TEST

PROGRAM LISTING FOR USE WITH FLOW CHART

TEST CHARACTER + BRANCH

REPRODUCTION

INSTRUCTION ADDRESS	OP	A	B	REMARKS
377	377	B	389	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	.	202 241	DEFINE FIELDS
449	449	M	072 456	MAKE OP CODE
456	456	.	493	*BRANCH OR NO-OP
460	460	M	202 474	SETUP TEST CHARACTER
467	467	B	971 224X	*BRANCH IF ERROR
475	475	B		..
476	476	B		..
477	477	B	935 B	LOOP ON SW B SS
482	482	L	247 267	LOAD REMARKS
489	489	B	920	GO TO CORRECT ROUTINE
493	493	M	202 507	SETUP TEST CHARACTER
500	500	B	477 222X	*BRANCH IF NO ERROR
508	508	B	971	GO TO SWITCH B
512	512	.		*AN ASTERISK MEANS INSTRUCTION CHANGES
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

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DIAGNOSTIC FUNCTION TEST

971 971 B 935 B
 976 976 B 900
 980 980
 1110 /10 E RRO R
 1115 /15
 1120 /20 D NO DIFIER
 1140 /40 B FI ELD CHARACTERS
 1160 /60 R ESU LT SHOULD BE
 1180 /80 R ESU LT IS

LOOP ON SW B
 GO TO ERROR ROUTINE
 WORDMARK
 CONSTANTS
 ..
 ..
 ..
 ..
 ..

SS

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DIAGNOSTIC FUNCTION TEST

PART NO. 451402
SHEET 7 of 8
BLOCK NO. 0050B

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	TEST CHARACTER + BRANCH	0050B00A
.008015,022029,033033N	1001	SET WORDMARK CARD	0050B 02
L067367,340344,348349,3573611001,008012,001100118361080A8421/340080			0050B 03
L069404,377385,389393,4004041001	B389	BS88N000M360392/332/	0050B 04
L069441,413417,421428,4354421001BS00S521/0808348,001078L080299L072272			0050B 05
L067476,449456,460467,4754761001,202241M072456 493M2024748971224X8B			0050B 06
L068512,482489,493500,5085121001B935BL247267B920M202507B477222XB971			0050B 07
L071938,907912,916920,9279351001L/142858916E2920.920A920970B9449699/332			0050B 08
L056962,940944,948953,9579581001/B421S970B957CB9582B421D			0050B 09
L049979,967971,976980,9809801001B348000PB935B8900			0050B 10
L065/39M/07/07, /10/15, /20/401001	ERROR	D MODIFIER	0050B 11
L072/79, /60/60, /80/80, /80/801001B	FIELD CHARACTERS	RESULT SHOULD BE	0050B 12
L070S17, S00S01, S05S12, S13S171001	RESULT IS	2,049L0772772/2772	0050B 13
L059S44, S25S29, S36S37, S41S451001M/40/60M/80L/892702/2702413			0050B 14
/333080N		CLEAR WORDMARK CARD	0050B 15
.019027,031,0380428031T98GB400L046352BW04BS88		TEST CHARACTER + BRANCH	0050B 16

DETAIL CARDS

6	G	EQUAL	80050B 17
1	M	EQUAL	80050B 18
2	1	EQUAL	80050B 19
4	2	EQUAL	80050B 20
8	4	EQUAL	80050B 21
/	8	EQUAL	80050B 22
/	/	EQUAL	80050B 23
/	-	EQUAL	80050B 24
1	124	UNEQUAL	N0050B 25
1	8/-	UNEQUAL	N0050B 26
2	24	UNEQUAL	N0050B 27
2	8/-	UNEQUAL	N0050B 28
4	14	UNEQUAL	N0050B 29
4	8/-	UNEQUAL	N0050B 30
8	12	UNEQUAL	N0050B 31
8	8/-	UNEQUAL	N0050B 32
/	12	UNEQUAL	N0050B 33
/	4/-	UNEQUAL	N0050B 34
/	12	UNEQUAL	N0050B 35
/	48-	UNEQUAL	N0050B 36
/	12	UNEQUAL	N0050B 37

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DIAGNOSTIC FUNCTION TEST

48/

UNEQUAL

N0050B 3

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