

DIAGNOSTIC FUNCTION TEST

REPRODUCTION

TRUE ADD

A. PURPOSE

TO TEST THE TRUE ADD CIRCUITRY.

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

- 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 PROCEDURE

INFORMATION FROM THE DETAIL CARD IS MOVED INTO THE PRINT AREA FOR PRINTING PURPOSES.

A WM IS SET IN 202 TO DEFINE A SHORT (9 POSITION) A FIELD.

TRUE ADD OCCURS WHEN THE NUMBER OF NEGATIVE SIGNS ASSOCIATED WITH THE A FIELD, THE B FIELD, AND THE OP CODE (SUBTRACT IS TO BE CONSIDERED AS MINUS) IS EVEN, THE ACTUAL SIGN OF THE B FIELD WILL BE THE SIGN OF THE RESULT.

IN COLUMN 13 OF THE DETAIL CARDS. AN "S" INDICATES THAT A SUBTRACT OP CODE IS USED BECAUSE OF UNLIKE SIGNS; NO "S" INDICATES THAT AN ADD OP CODE IS USED BECAUSE OF LIKE SIGNS. THIS COLUMN IS TESTED FOR THE PRESENCE OF "S".

THE A FIELD IS ADDED TWICE (OR SUBTRACTED TWICE) FROM THE B FIELD, AND THIS RESULT IS COMPARED TO THE RESULT SHOULD BE FIELD.

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E. STOPS

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

F. PRINTOUTS

I. CORRECT

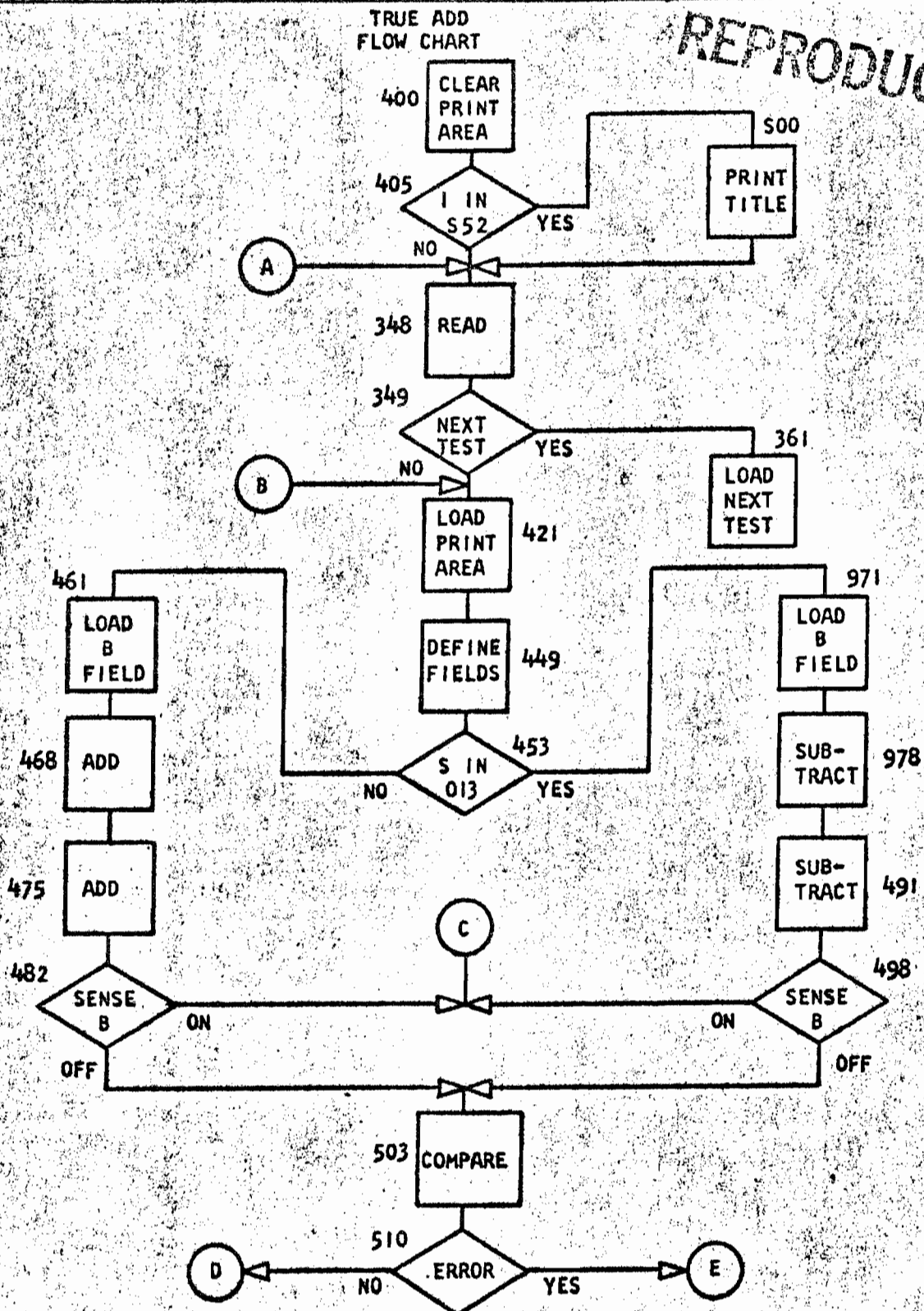
A FIELD	B FIELD	RESULT SHOULD BE	RESULT IS
E123456789 ADD OP 0000000000		0246913578	0246913578
E12345678I ADD OP 1111111101		1358024679	1358024679
E12345678Z ADD OP 222222112		2469135690	2469135690
E12345678I ADD OP 333333222T		358024580/	358024580/
E123456789 ADD OP 444443333D		469134691B	469134691B

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.

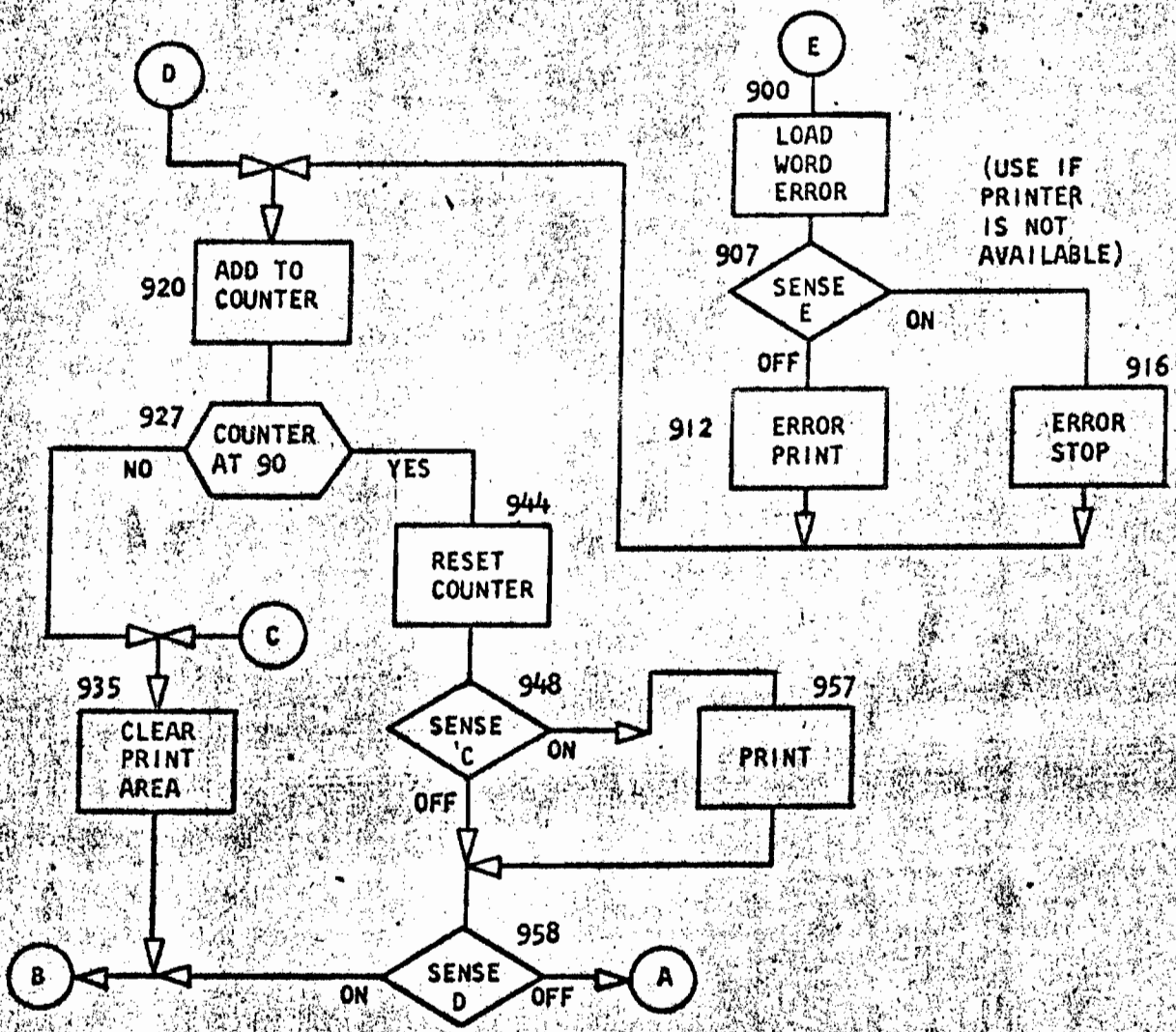
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1401 DATA PROCESSING SYSTEM
DIAGNOSTIC FUNCTION TEST

PROGRAM LISTING FOR USE WITH FLOW CHART

TRUE ADD

0300B 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	,	221 241	DEFINE B FIELD + COMPARE FIELD
449	449	,	202	DEFINE A FIELD
453	453	B	971 013S	GO TO SUBTRACT ROUTINE
461	461	L	230 270	LOAD B FIELD
468	468	A	210 270	ADD
475	475	A	210 270	ADD
482	482	B	935 B	LOOP ON SW B SS
487	487	B	503	GO TEST RESULT
491	491	S	210 270	SUBTRACT
498	498	B	935 B	LOOP ON SW B SS
503	503	C	270 250	COMPARE B FIELD TO CORRECT RESULT
510	510	B	900 /	BRANCH ERROR
515	515	B	920	GO TO CORRECT ROUTINE
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
971	971	L	230 270	LOAD B FIELD

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978	978	S 210 270	SUBTRACT
985	985	B 491	SUBTRACT
989	989		WORDMARK
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	..

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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-APOSTROPHE	0 6 8		

.008015,022029,033033N	1001	TRUE ADD	0300B00A
.008015,022029,033033M	1001	SET WORDMARK CARD	0300B 02
L067367,340344,348349,357361	1001,008012,0011001	18361080A8421/340080	0300B 03
L069404,377385,389393,400404	1001	B389 BS88N000M360392/332/	0300B 04
L069441,413417,421428,435442	1001B500S521/080B348,001078L	080299L072272	0300B 05
L072481,449453,461468,475482	1001,221241,202897	1013SL230270A210270A210270	0300B 06
L071520,487491,498503,510515	1001B935B8503S210270B	9358C270250B900/8920	0300B 07
L071938,907912,916920,927939	1001L/14285B916E2920,920A920	970B9449699/332	0300B 08
L056962,940944,948953,957958	1001/8421S970B957C89582B4210		0300B 09
L058988,967971,978985,989989	1001B348000PL230270S210270B491		0300B 10
Z			
L065/39□/07/07,/10/15,/20/40	1001 ERROR	A FIELD	0300B 11
L072/79,/60/80,/80/80,/80/80	1001B FIELD	RESULT SHOULD BE	0300B 12
L070S17,S00S01,S05S12,S13S17	1001RESULT IS	2,049L0772772/2772	0300B 13
L059S44,S25S29,S36S37,S41S45	1001□/40/60□/80L/892702/2702413		0300B 14
/333080N		CLEAR WORDMARK CARD	0300B 15
.019027,031,0380428031T98GB400L046352BW04BS88		TRUE ADD	0300B 16

DETAIL CARDS

E123456789	ADD OP	000000000	0246913578	0300B 17
E12345678I	ADD OP	111111101	1358024679	0300B 18
E12345678Z	ADD OP	222222112	2469135690	0300B 19
E123456781	ADD OP	33333322T	358024580/	0300B 20
E123456789	ADD OP	444443333D	469134691B	0300B 21
E12345678R	SUB OP	6665555556	6912469134	0300B 22
E123456789	SUB OP	877777777Q	9024691350	0300B 23
EAKTDNNGOI	SUB OP	8HQYHQYHOR	913580246P	0300B 24
E 2 4 6 8	ADD OP	1 3 5 7 9	0143862869	0300B 25
E999999999	ADD OP	9999999999	/9999999997	0300B 26
E888888888	SUB OP	988888888Q	/666666666M	0300B 27
E987654321	ADD OP	9876543210	/851851852	0300B 28
E12345678R	ADD OP	55544444N	580235802L	0300B 29
#2CGT#2CGT	ADD OP	000000000	0913469134	* 0300B 30
OTM OTM				
#2CGT#2CGT	SUB OP	691346913M	7826938260	* 0300B 31
OTM OTM				

* THESE CARDS CAUSE ARITHMETIC CHECK ON STERLING MACHINES

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