

REPRODUCTION

DIVIDE

A. PURPOSE

TO TEST THE DIVIDE CIRCUITRY BY DIVIDING ONE FACTOR BY ANOTHER AND COMPARING THE ANSWER, REMAINDER, AND OVERFLOW CONDITION WITH THE RESULT SHOULD BE FIELD. EACH PROBLEM IS TRIED 90 TIMES, AND PRINTS OUT EACH TIME AN ERROR OCCURS.

B. LOADING PROCEDURES

PLACE TEST IN 1402 READ HOPPER AND DEPRESS LOAD KEY.

WHEN RUNNING TEST FROM TAPE, ENTER A 1 IN 1258.

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 NEXT CARD**
- E ON FOR ERROR STOP
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

A DETAIL CARD IS READ AND LOADED INTO THE PRINT AREA FOR PRINTING PURPOSES. THE NUMBERS IN COLUMNS 71 AND 72 ARE USED TO MODIFY THE PROGRAM SO THAT A AND B FIELD OF FROM 1 TO 9 CHARACTERS CAN BE TESTED. THE DIVIDER IS SET UP BY A "ZERO AND ADD B FIELD" INSTRUCTION AND DIVIDED BY THE A FIELD. THE OVERFLOW INDICATOR IS TESTED AND IF AN OVERFLOW OCCURS A 2 IS MOVED INTO THE "RESULT IS" FIELD. THE "RESULT SHOULD BE" FIELD IS COMPARED TO THE "RESULT IS" FIELD. AN UNEQUAL COMPARISON CAUSES THE PROGRAM TO BRANCH TO AN ERROR ROUTINE.

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DIAGNOSTIC FUNCTION TEST

PART NO. 451440
 SHEET 2 OF 8
 BLOCK NO. 3210B

REPRODUCTION

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
0	I	Z+OI	Z+OI
7	10	0AOC	0AOC
460	8900	001I016+	001I016+
065D	1549Q	0002L00450	0002L00450
3210	1518E	0000D0234E	0000D0234E

2. ERROR

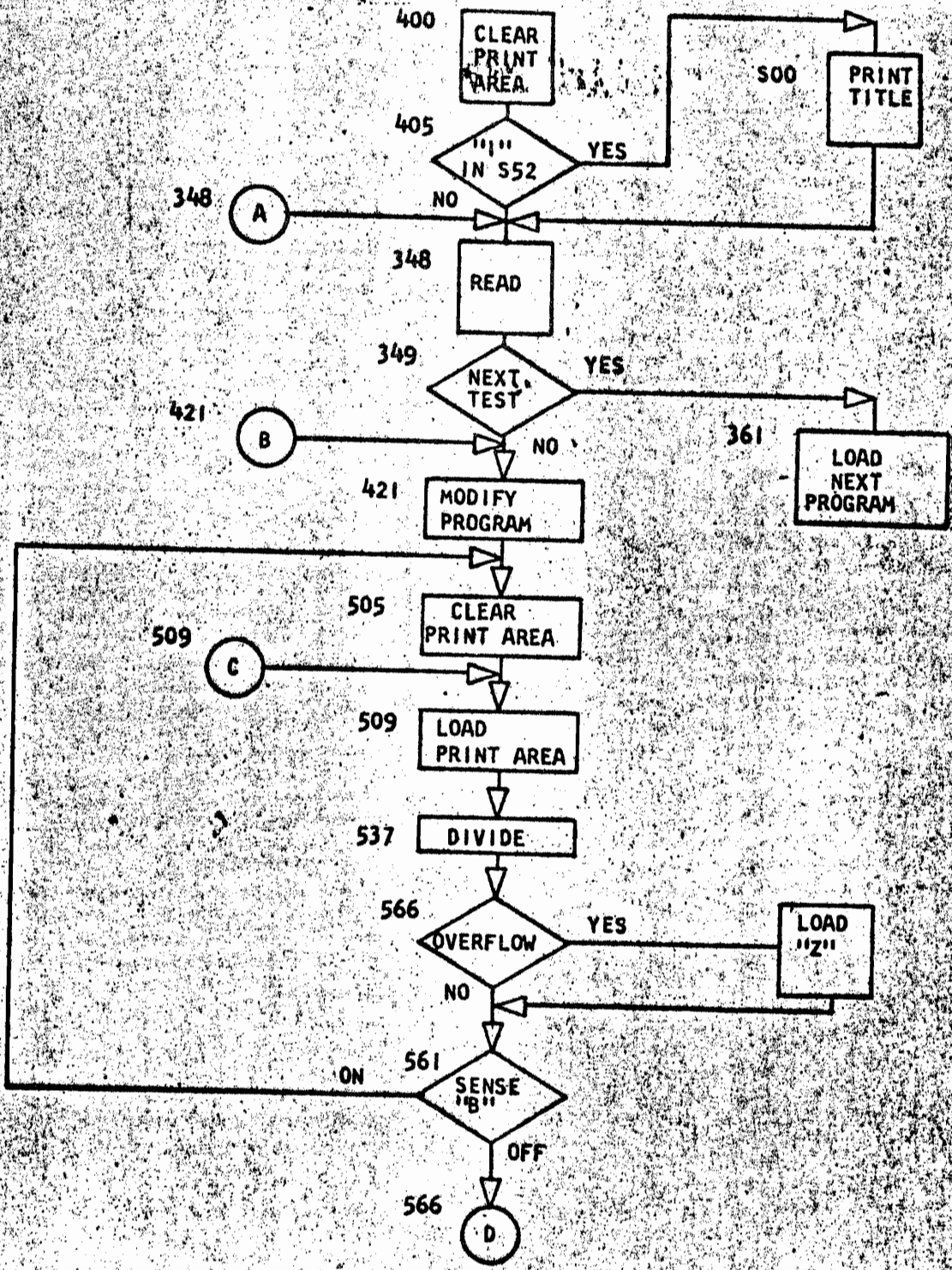
A FIELD	B FIELD	RESULT SHOULD BE	RESULT IS
0	I	Z+OI	+OI ERROR
7	10	0AOC	Z0AOC ERROR
460	8900	001I016+	001I016+ ERROR
065D	1549Q	0002L00450	0001L00450 ERROR
3210	1518E	0000D0234E	0000D02345 ERROR

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.

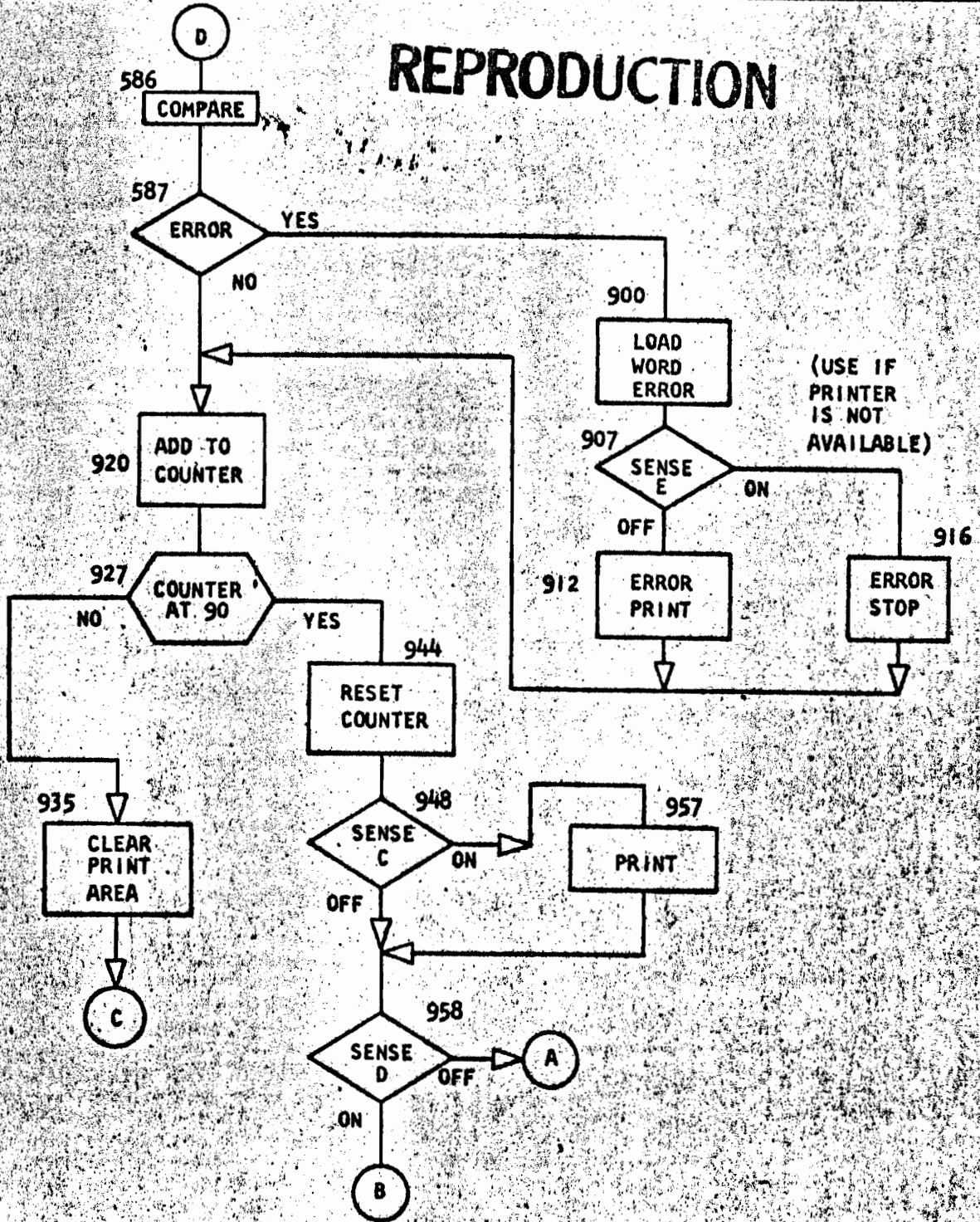
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PROGRAM LISTING FOR USE WITH FLOW CHART

DIVIDE

32108

INSTRUCTION ADDRESS	OP	A	B	REMARKS
377	377	B	389 5581	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	,	001 069	MODIFY PROGRAM
428	428	,	071 072	..
435	435	A	071 070	..
442	442	A	072 070	..
449	449	L	618 612	..
456	456	A	070 612	..
463	463	A	072 609	..
470	470	M	612 543	..
477	477	L	624 612	..
484	484	A	071 612	..
491	491	A	071 609	..
498	498	M	612 555	..
505	505	/	299	CLEAR PRINT AREA
509	509	L	068 268	LOAD PRINT AREA
516	516	,	078 221	..
523	523	,	241 261	..
530	530	L	080 299	..
537	537	+	220 261	..
544	544	B	544 Z	BRANCH ON OVERFLOW
549	549	%	200 262	*DIVIDE
556	556	B	596 Z	BRANCH ON OVERFLOW
561	561	B	505 B	B ON TO SCOPE
566	566	B	241 261	TEST FOR ERROR
573	573	,	240 260	..
580	580	C	279 259	..
587	587	B	900 /	BRANCH TO ERROR PRINT ROUTINE
592	592	B	920	BRANCH TO PRINT ROUTINE
596	596	L	625 260	LOAD Z ON OVERFLOW
603	603	B	561	BRANCH BACK TO PROGRAM
607	607	A	AAB BB	CONSTANTS
613	613	2	202 61	..
619	619	2	002 62	..
625	625	Z		..
900	900	L	/ 14 290	BEGIN ERROR PRINT ROUTINE

SS

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1901 DATA PROCESSING SYSTEM
DIAGNOSTIC FUNCTION TEST

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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	509		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	..	

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DIAGNOSTIC FUNCTION TEST
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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	DIVIDE	3210B	0A
,008015,022029,033033N	1001	SET WORDMARK CARD	3210B	02
L067367,340344,348349,3573611001,008012,001100118361080AB421/340080			3210B	03
L069404,377385,389393,4004041001		B389S581BS88N000M360392/332/	3210B	04
L069441,413417,421428,43544210018S00S521/0808348,001069,071072A071070			3210B	05
L067476,449456,463470,4774771001A072070L618612A070612A072609M612543			3210B	06
L071515,484491,498505,5095161001L624612A071612A071609M612555/299L068268			3210B	07
L072555,523530,537544,5495561001,078221,241261L080299P220261B544Z2002623210B			08	
		Z		
L072595,561566,573580,5875921001B596ZB5058241261,240260C2792598900/B9203210B			09	
L072635,603607,613619,6256251001L625260B561AAABBB220261200262Z			3210B	10
L072915876876,900907,9129161001		L/142908916E29203210B	11	
L064947,920927,935939,9409441001.920A920970B9449699/332/B5095970			3210B	12
L072987,953957,958963,9679671001B957CB9582B421DB348000P			3210B	13
		Z		
L064/390/08/08,/10/15,/20/401001 ERROR		A FIELD	3210B	14
L072/79,/60/80,/80/80,/80/801001B FIELD		RESULT SHOULD BE	3210B	15
L070S17,S00S01,S05S12,S13S171001RESULT IS		2,049L0772772/2772	3210B	16
L062S47,S25S29,S36S37,S41S4510010/40/600/80L/892702/2702413			3210B	17
/333080N		CLEAR WORDMARK CARD	3210B	18
,019027,031,038042B031T98GB400L0463528W04BS88		DIVIDE	3210B	19

DETAIL CARDS

0	I	ZPOI	113210B	20
		Z		
7	10	0AOC	123210B	21
460	8900	0011016P	343210B	22
		Z		
0650	1549Q	0002L00450	453210B	23
3210	1518E	0000D0234E	453210B	24
2468	0246	0000P 024F	453210B	25
		Z		
0000	13571	Z0000013571	453210B	26
2468	0000P	0000P0000P	453210B	27
		Z		
1	H	HOP	113210B	28
		Z		
2	G	COA	113210B	29
L	F	KOP	113210B	30
		Z		
M	N	AOJ	113210B	31
S	M	HOM	113210B	32

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6	P	POP	1132108 33
	Z	Z Z	
1	I	AOP	1132108 34
		Z	
0	1	ZPOA	1132108 35
		Z	
1	0	POP	1132108 36
		Z Z	
3210	03201	0000P03201	4532108 37
		Z	
2400	0470M	0000J0230M	4532108 38
	Z	Z	
9	8	POH	1132108 39
		Z	
99	88	OP08M	2232108 40
		Z	
9	80	OHOM	1232108 41
9	9	AOP	1132108 42
		Z	
9	99	1AOP	1232108 43
		Z	
9	909	10AOP	1332108 44
		Z	
1	9	IOP	1132108 45
		Z	
123456789	987654321	00000000H0000000001	9932108 46
6	6	AOP	1132108 47
		Z	
6	7	ADA	1132108 48

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