

BRANCH OVERFLOW

REPRODUCTION

A. PURPOSE

TO TEST THE BRANCH ON OVERFLOW CIRCUITRY.

NOTE: THE OVERFLOW LATCH CAN BE SET ONLY ON A TRUE ADD OPERATION. THE LATCH IS SET WHEN A NUMERIC CARRY OCCURS IN THE B CYCLE IN WHICH THE B FIELD WM IS SENSED. THE LATCH IS RESET BY THE BRANCH INSTRUCTION.

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

FIELDS A, B, AND RESULT SHOULD BE ARE LOADED INTO THE PRINT AREA FOR PRINTING PURPOSES. A TEST FOR OVERFLOW INSTRUCTION IS THEN EXECUTED TO INSURE THAT THE OVERFLOW INDICATOR IS OFF. FIELD A (COLUMN 1-2) AND FIELD B (COLUMNS 21-22) ARE NEXT ADDED TOGETHER IN THE RESULT IS STORAGE AREA (LOCATIONS 261-262).

IF AN OVERFLOW OCCURS AS A RESULT OF THIS ADDITION, THE PROGRAM BRANCHES TO A SET OF INSTRUCTIONS TO TEST FOR A BLANK IN COLUMN 6. IF BLANK THE CONDITION IS CORRECT AND PROGRAMMING PROCEEDS FOR THE NEXT RECORD. IF NOT BLANK AN ERROR IS INDICATED.

IF AN OVERFLOW DOES NOT OCCUR AS A RESULT OF ADDING FIELDS A AND B, A TEST IS MADE FOR THE LETTER "N" IN COLUMN 6. IF THE "N" IS PRESENT THE CONDITION IS CORRECT AND PROGRAMMING PROCEEDS FOR THE NEXT RECORD. IF NOT "N" AN ERROR IS INDICATED.

DATE	2-2-61	3-17-63	10.5.63				
ING. CHG. NO.	110378	116745	TA-1844				

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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
40 NO OVERFLOW	40	80	80
Z0 OVERFLOW	R0	80	80
40 NO OVERFLOW	U0	Y0	Y0
90 OVERFLOW	90	Y0	Y0

2. ERROR

A FIELD	B FIELD	RESULT SHOULD BE	RESULT IS
40 NO OVERFLOW	40	80	Y0 ERROR
Z0 OVERFLOW	R0	80	ID ERROR
40 NO OVERFLOW	U0	Y0	Q0 ERROR
90 OVERFLOW	90	Y0	80 ERROR

COLUMN 6
 PRINT POSITION 206

G. COMMENTS

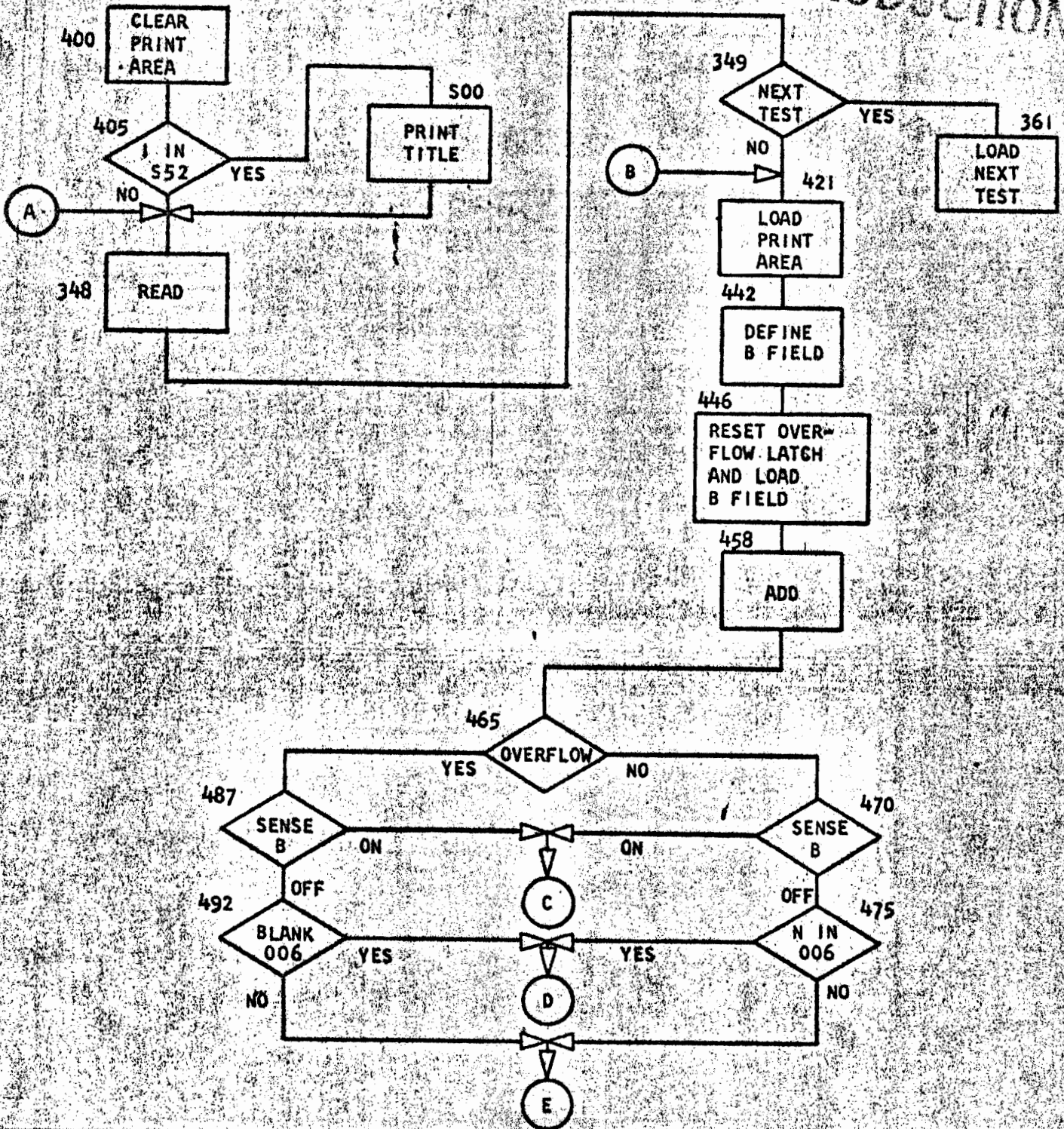
THE BRANCH INSTRUCTION AT LOCATION 927 CAN BE CHANGED MANUALLY TO CAUSE THE PROGRAM TO LOOP AS FEW AS 1 OR AS MANY AS 9,000 TIMES PER DETAIL CARD. THE PROGRAM CALLS FOR 90 LOOPS PER CARD.

DATE	2-2-61	3-17-63	10.5.63				
ENG. CHG. NO.	110378	116745	TA-1844				

REPRODUCTION

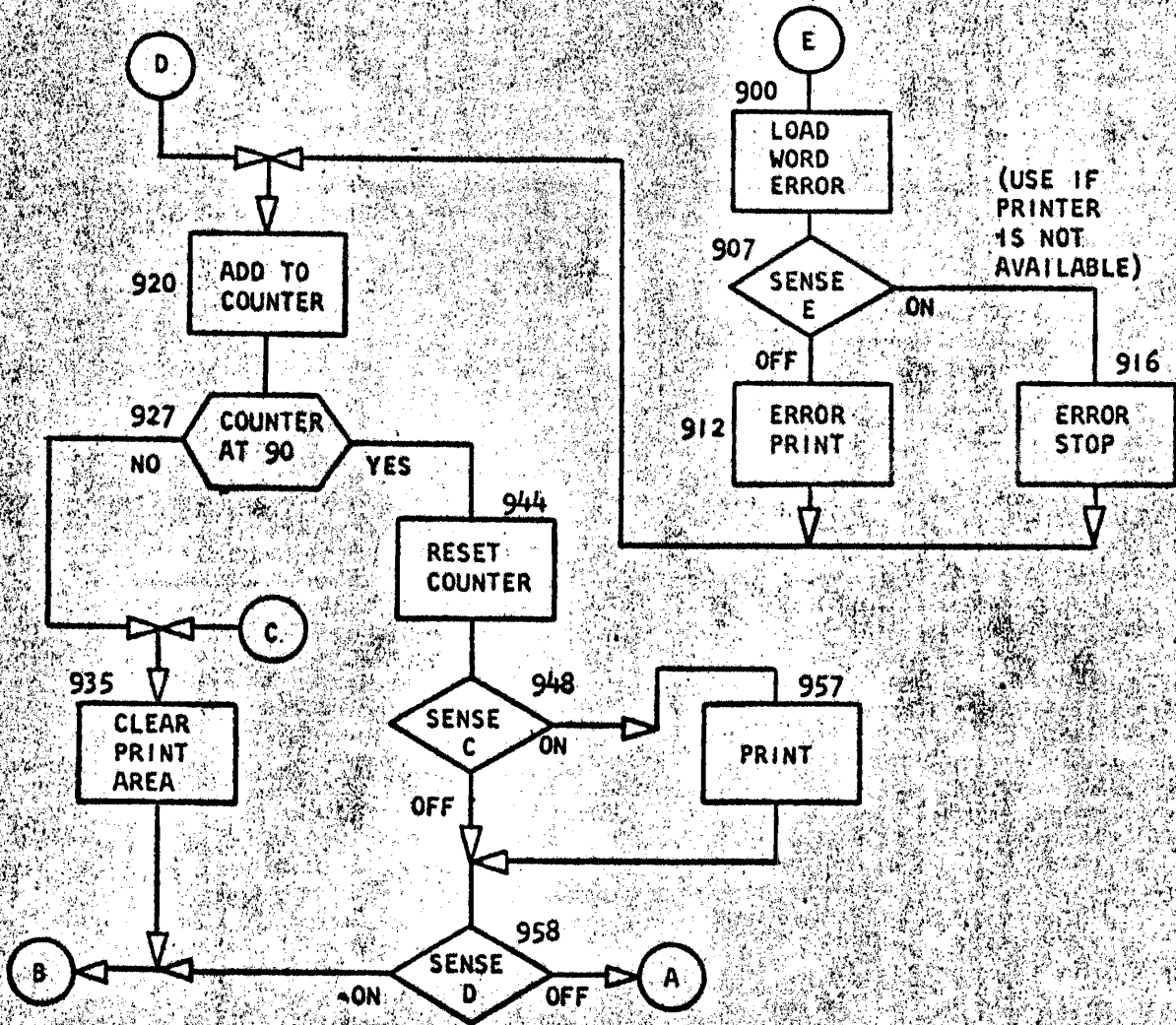
BRANCH OVERFLOW

FLOW CHART



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ENG. CHG. NO.	110378	116745	TA-1844					

REPRODUCTION



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ENG. CHG. NO.	110378	116745	TA-1844				

DIAGNOSTIC FUNCTION TEST

PART NO. 451416
 SHEET 5 OF 8
 BLOCK NO. 03608

REPRODUCTION

PROGRAM LISTING FOR USE WITH FLOW CHART

BRANCH OVERFLOW

03608

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	DEFINE B FIELD
446	446	B	451 Z	RESET OVERFLOW LATCH
451	451	L	222 262	LOAD B FIELD
458	458	A	202 262	ADD
465	465	B	487 Z	TEST OVERFLOW LATCH
470	470	B	935 B	LOOP ON SW B SS
475	475	B	920 006N	GO TO CORR ROUTINE IF N + NO OVERFLOW
483	483	B	900	GO TO ERROR ROUTINE
487	487	B	935 B	LOOP ON SW B SS
492	492	B	920 006	GO TO CORR ROUTINE IF BLANK + OVERFLOW
500	500	B	900	GO TO ERROR ROUTINE
504	504			WORDMARK
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			..

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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				
.008015,022029,033033N	1001	BRANCH OVERFLOW			0360800A
L067367,340344,348349,3573611001,008012,00110011B361080AB421/340080		SET WORDMARK CARD			03608 02
L069404,377385,389393,4004041001		B389 BS88N000M360392/332/			03608 03
L069441,413417,421428,4354421001B500S521/0808348,001078L080299L072272					03608 04
L065474,446451,458465,4704751001,221B451ZL222262A202262B48728935B					03608 05
L072514,483487,492500,5045041001B920006NB900B935BB920006 B900					03608 06
L071938,907912,916920,9279351001L/142858916E2920.920A92097089449699/332					03608 07
L056962,940944,948953,9579581001/B421S9708957CB9582B4210					03608 08
L040970,967971,971971,9719711001B348000P					03608 09
	Z				03608 10
L065/39M/07/07, /10/15, /20/401001	ERROR	A FIELD			03608 11
L072/79, /60/80, /80/80, /80/801001B	FIELD	RESULT SHOULD BE			03608 12
L070S17, S00S01, S05S12, S13S171001	RESULT IS	2,049L0772772/2772			03608 13
L059S44, S25S29, S36S37, S41S451001M/40/60M/80L/892702/2702413					03608 14
/333080N		CLEAR WORDMARK CARD			03608 15
.019027, 031, 0380428031T98G8400L0463528W04BS88		BRANCH OVERFLOW			03608 16

DETAIL CARDS

40	NO OVERFLOW	40	80		
1M	NO OVERFLOW	90	8P		03608 17
Z			Z		03608 18
Z0	OVERFLOW	RO	80		
U0	NO OVERFLOW	DO	80		03608 19
M0	NO OVERFLOW	M0	80		03608 20
40	NO OVERFLOW	U0	80		03608 21
90	OVERFLOW	90	Y0		03608 22
Z0	OVERFLOW	10	Y0		03608 23
RO	OVERFLOW	RO	Y0		03608 24
DO	NO OVERFLOW	M0	Y0		03608 25
40	NO OVERFLOW	M0	Q0		03608 26
Z0	OVERFLOW	90	Q0		03608 27
U0	NO OVERFLOW	U0	Q0		03608 28
RO	OVERFLOW	10	Q0		03608 29
DO	NO OVERFLOW	DO	Q0		03608 30
40	NO OVERFLOW	DO	HO		03608 31
RO	OVERFLOW	90	HO		03608 32
U0	NO OVERFLOW	M0	HO		03608 33
Z0	OVERFLOW	Z0	HO		03608 34
/9	NO OVERFLOW	1M	7J		03608 35
		Z			03608 36

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1401 DATA PROCESSING SYSTEM
DIAGNOSTIC FUNCTION TEST

PART NO. 451416
SHEET 8 of 8
BLOCK NO. 03608

/9 NO OVERFLOW RM
Z
/9 NO OVERFLOW ZM
Z

7J
7J

03608 37
03608 38

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