

9M21A

MAIN FRAME DIAGNOSTIC AND RELIABILITY PROGRAM  
FOR AN 8K STORAGE AND ABOVE

A. UNIT TESTED-709 CPU

1. PURPOSE OF TEST

THIS PROGRAM COMBINES 9M01 AND 9M02 WITH PORTIONS OF 9M03  
AND 9COM FOR A ONE 8K MEMORY LOAD MAIN FRAME TEST.

2. METHOD OF TEST

A. THE PROGRAM IS DIVIDED IN 3 PARTS.

B. THE FIRST PART PERFORMS A SECTION OF 9M03 WHICH TESTS THE INDEXING  
INSTRUCTIONS USED IN 9M21 AND HALTS ON ERROR.

C. THE SECOND PART PERFORMS THE TESTS OF 9M01, 9M02 AND A PART  
OF THE EXECUTE TESTS OF 9COM. THE SETTING OF SENSE SWITCH  
3 DETERMINES A PRINTOUT OR A HALT ON ERROR.

D. THE THIRD PART IS EXECUTED ONLY WITH SENSE SWITCH 5 DOWN  
AND PERFORMS TEST USING HALTS AND ADDER TESTS.

B. MACHINE UNITS AND STORAGE

1. UNITS REQUIRED

MF, CF, DSU, CR, PR

2. STORAGE LOCATIONS

00000           RESET START  
00001-00010 INDICATOR FALSE TRAP ROUTINE  
00030-00031 SENSE SWITCH 3 TEST FOR PRINTING PROGRAM IDENTIFICATION  
00032-00560 BASIC INDEXING TEST  
00561-06415 MAIN FRAME INSTRUCTIONS TESTS  
06415-06477 50 DECIMAL BLANK LOCATIONS  
06500-07712 9DEPR DIAGNOSTIC PRINT SUBROUTINE  
07713-16600 MAIN FRAME INSTRUCTION TESTS

C. PROGRAM CONTROL

1. DECK

000	9LD02 HIGH END LOADER
001-312	9M21
313-341	9DEPR DIAGNOSTIC PRINT SUBROUTINE
342	TRANSFER CARD TRA 00030
343	FAST MPY TEST CARD
344-345	2 BLANK CARDS

2. SENSE SWITCH CONTROL

SWITCH 1 UP	TEST SWITCH 4
SWITCH 1 DOWN	REPEAT SUBROUTINE
SWITCH 2 UP	INDICATE ERRORS
SWITCH 2 DOWN	BYPASS ERRORS
SWITCH 3 UP	PRINT ERROR IF SWITCH 2 IS UP
SWITCH 3 DOWN	HALT ON ERROR IF SWITCH 2 IS UP
SWITCH 4 UP	PROCEED TO NEXT ROUTINE
SWITCH 4 DOWN	LOOP IN ROUTINE 50 OCTAL TIMES
SWITCH 5 UP	BYPASS TEST LISTED UNDER SENSE SWITCH 5 DOWN CONTROL
SWITCH 5 DOWN	PERFORM THE BELOW LISTED TESTS
	1. SENSE SWITCH WITH SENSE LIGHT
	2. HALT WITH DVH AND VDH
	3. ENK
	4. CONSOLE DISPLAY BUTTONS WITH HTR AND HPR
	5. MPY WITH ZERO MULTIPLICAND
	6. LONG ADDER TESTS
SWITCH 6 UP	CALL IN THE NEXT DIAGNOSTIC
SWITCH 6 DOWN	REPEAT PROGRAM -NOTE- PROGRAM PRINTS OUT *100 PROGRAM PASSES COMPLETE 9M21* EVERY 100 PASSES IF SWITCH 3 IS UP.

D. NORMAL STOPS

\*NOTE\* WHEN ENCOUNTERING ANY OF THE BELOW LISTED NORMAL STOPS, PUSH START TO CONTINUE EXCEPT WHEN TESTING HTR WITH THE DISPLAY BUTTONS WHERE IT IS NECESSARY TO PUSH START TWICE TO CONTINUE.

15620	DVH TEST
15630	DVH TEST
15641	DVH TEST
15653	VDH TEST
15677	ENK TEST-ENTER ONES IN KEYS
15711	ENK TEST-ENTER ZEROS IN KEYS

15727 HTR TEST WITH DISPLAY INDICATOR BUTTON  
15740 HTR TEST WITH DISPLAY STORAGE BUTTON  
15752 HTR TEST WITH DISPLAY EFFECTIVE ADDRESS BUTTON  
15763 HTR TEST WITH DISPLAY INDICATOR BUTTON  
15774 HTR TEST WITH DISPLAY STORAGE BUTTON  
16006 HTR TEST WITH DISPLAY EFFECTIVE ADDRESS BUTTON  
16020 READY CARD READER WITH A TEST CARD FOR FAST MPY TEST

E. ERROR STOPS

\*NOTE\* WHEN ENCOUNTERING ANY OF THE BELOW LISTED ERROR STOPS, PUSH START TO CONTINUE THE PROGRAM.

THERE ARE 124 ERROR STOPS IN THE BASIC INDEXING TESTS FROM LOCATIONS 00032-00560. FOR ANY PROGRAM STOP WITHIN THE AREA OF 00032-00560, CONSULT THE LISTING FOR A COMMENT OF THE ERROR STOP LOCATION TO HELP INDICATE THE TROUBLE. PUSH START TO CONTINUE THE PROGRAM.

06517 ERROR IN PROGRAM WITH SWITCH 3 DOWN. INDEX  
OR REGISTER C CONTAINS THE 2-S COMPLEMENT OF THE ADDRESS  
06545 WHERE THE ERROR WAS DETECTED

15576 SENSE SWITCH 1 TEST TURNED OFF SENSE LIGHT 1  
15602 SENSE SWITCH 2 TEST TURNED OFF SENSE LIGHT 2  
15606 SENSE SWITCH 3 TEST TURNED OFF SENSE LIGHT 3  
15612 SENSE SWITCH 4 TEST TURNED OFF SENSE LIGHT 4  
15730 ERROR WITH HTR AND DISPLAY INDICATOR BUTTON  
15741 ERROR WITH HTR AND DISPLAY STORAGE BUTTON  
15753 ERROR WITH HTR AND DISPLAY EFFECTIVE ADDRESS BUTTON  
15764 ERROR WITH HTR AND DISPLAY INDICATOR BUTTON  
15776 ERROR WITH HTR AND DISPLAY STORAGE BUTTON  
16010 ERROR WITH HTR AND DISPLAY EFFECTIVE ADDRESS BUTTON  
16042 ERROR WITH FAST MPY AND SENSE SWITCH 3 IS DOWN

F. PRINTOUTS

1. PROGRAM IDENTIFICATION \*NOW PERFORMING DIAGNOSTIC 9M21\* IS PRINTED OUT BEFORE STARTING THE TEST OF SENSE SWITCH 3 IS UP.
2. PROGRAM PRINTS \*100 PROGRAM PASSES COMPLETE 9M21\* WITH EVERY 100 PROGRAM PASSES IF SENSE SWITCH 3 IS UP AND SENSE SWITCH 6 IS DOWN.
3. IF FAST MPY TAKES MORE THAN 2 CYCLES, THERE IS A PRINTOUT \*MULTIPLY WITH ZERO MULTIPLICAND EXECUTING IN MORE THAN 2 CYCLES\* TO INDICATE THE ERROR IF SENSE SWITCH 3 IS UP.
4. CONSULT THE WRITE-UP AND LISTING OF 9DEPR FOR DETAILED ACCOUNT OF THE DIAGNOSTIC PRINT SUBROUTINE.

G. COMMENTS

1. THERE IS A SHORT BASIC INDEXING TEST AT THE BEGINNING OF 9M21 TO TEST THE INDEXING INSTRUCTIONS USED THROUGHOUT THE DIAGNOSTIC. THESE INSTRUCTIONS ARE ONLY CHECKED ON THE FIRST PASS THROUGH 9M21.
2. WITH SENSE SWITCH 5 DEPRESSED, TESTS USING HALTS AND THE LONG ADDER TESTS ARE PERFORMED ON THE INITIAL PASS. ON SUCCEEDING PASSES, ONLY THE LONG ADDER TEST ARE PERFORMED.
3. INDICATOR INSTRUCTIONS WITH A PRIMARY OP OF 0,4 ARE TESTED FOR FALSE TRAPPING. LOCATIONS 00001-00010 CONTAIN A SUBROUTINE TO TRANSFER TO THE MAIN PROGRAM IN CASE OF A FALSE TRAP.
4. THE RESTORING OF THE ACCUMULATOR BY CERTAIN INDICATOR INSTRUCTIONS ARE CHECKED. THIS SUBROUTINE IS IN LOCATIONS 16321-16347. IF THERE IS AN ERROR, THE MQ WILL CONTAIN THE LOCATION OF THE INSTRUCTION BEING TESTED AND THE ACCUMULATOR WILL CONTAIN THE ERROR INFORMATION.
5. CARD 343 IS A FAST MPY TEST CARD. HOWEVER, ANY CARD WITH ANY INFORMATION IN POSITIONS 1-35 OF THE 9 LEFT ROW CAN BE USED. THE TEST CARD SHOULD ALWAYS BE PLACED AFTER THE TRANSFER CARD.
6. THERE ARE 50 BLANK DECIMAL LOCATIONS FROM 06416-06477 FOR ANY FUTURE ADDITIONS TO THE PROGRAM.
7. THE DIAGNOSTIC PRINT SUBROUTINE 9DEPR IS IN ITS NORMAL STANDARD LOCATIONS 06500-07712.
8. THE DECREMENT PORTION OF LOCATION 07570 CONTAINS THE 2-S COMPLEMENT OF THE LAST TEST ADDRESS PERFORMED CORRECTLY.

LOCATIONS OF TESTS

001.	INDEXING INSTRUCTIONS	BEGINS AT	00032
002.	TOV	BEGINS AT	00562
003.	TNO	BEGINS AT	00607
004.	TZE	BEGINS AT	00633
005.	TNZ	BEGINS AT	00656
006.	ALS	BEGINS AT	00673
007.	ARS	BEGINS AT	00734
008.	LBT	BEGINS AT	00774
009.	PBT	BEGINS AT	01011
010.	TPL	BEGINS AT	01030
011.	TMI	BEGINS AT	01045
012.	CLM	BEGINS AT	01062
013.	SSP	BEGINS AT	01116
014.	SSM	BEGINS AT	01134
015.	CHS	BEGINS AT	01152
016.	LLS	BEGINS AT	01170
017.	LRS	BEGINS AT	01265
018.	LGL	BEGINS AT	01354
019.	RQL	BEGINS AT	01444
020.	TQP	BEGINS AT	01524
021.	NOP	BEGINS AT	01541
022.	COM	BEGINS AT	01547
023.	ADD	BEGINS AT	01606
024.	ADM	BEGINS AT	01770
025.	SUB	BEGINS AT	02034
026.	SBM	BEGINS AT	02205
027.	CLA	BEGINS AT	02251
028.	CLS	BEGINS AT	02355
029.	CAL	BEGINS AT	02412
030.	ACL	BEGINS AT	02456
031.	STO	BEGINS AT	02532
032.	SLW	BEGINS AT	02542
033.	STP	BEGINS AT	02614
034.	STA	BEGINS AT	02726
035.	STD	BEGINS AT	02766
036.	CAS	BEGINS AT	03014
037.	LDQ	BEGINS AT	03121
038.	STQ	BEGINS AT	03144
039.	SLQ	BEGINS AT	03175
040.	TLQ	BEGINS AT	03234
041.	RND	BEGINS AT	03302
042.	MPY	BEGINS AT	03312
043.	MPR	BEGINS AT	03460
044.	DVP	BEGINS AT	03540
045.	DCT	BEGINS AT	03606
046.	DVH-NO HALTS	BEGINS AT	03655
047.	ANA	BEGINS AT	03734
048.	ANS	BEGINS AT	04023
049.	ORA	BEGINS AT	04115

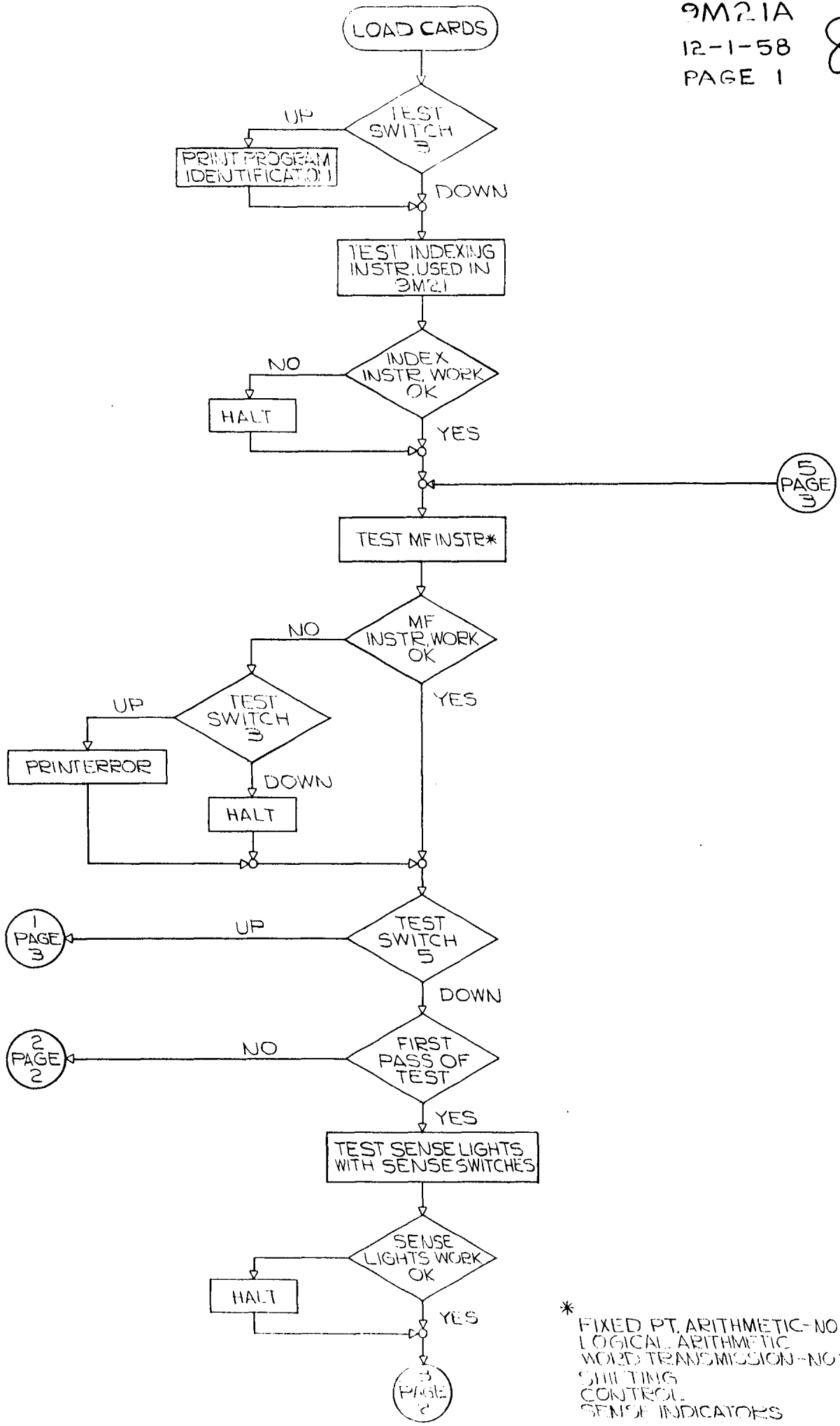
050.	ORS	BEGINS AT	04212
051.	TTR	BEGINS AT	04276
052.	ETM	BEGINS AT	04304
053.	LTM	BEGINS AT	04377
054.	SLT	BEGINS AT	04536
055.	SWT	BEGINS AT	04643
056.	STT	BEGINS AT	04710
057.	STZ	BEGINS AT	04750
058.	XCA	BEGINS AT	05000
059.	XCL	BEGINS AT	05071
060.	ERA	BEGINS AT	05166
061.	LGR	BEGINS AT	05250
062.	ZET	BEGINS AT	05326
063.	NZT	BEGINS AT	05421
064.	LAS	BEGINS AT	05506
065.	VLM	BEGINS AT	05566
066.	VDP	BEGINS AT	06007
067.	VDH-NO HALTS	BEGINS AT	06203
068.	CVR	BEGINS AT	06315-06415
		AND	07714-07725
069.	CAQ	BEGINS AT	07727
070.	CRQ	BEGINS AT	10120
071.	STL	BEGINS AT	10231
072.	STR	BEGINS AT	10253
073.	XEC	BEGINS AT	10402
074.	M06 ADDER TEST	BEGINS AT	10651
075.	M07 ADDER TEST	BEGINS AT	10664
076.	PAI	BEGINS AT	10702
		AND	11542
077.	PIA	BEGINS AT	10741
		AND	11667
078.	IIA	BEGINS AT	10765
		AND	11732
079.	IIS	BEGINS AT	11021
		AND	12043
080.	RIS	BEGINS AT	11064
081.	RIA	BEGINS AT	11113
082.	STI	BEGINS AT	11157
083.	OAI	BEGINS AT	11220
084.	OSI	BEGINS AT	11416
085.	LDI	BEGINS AT	11644
086.	TIF	BEGINS AT	12123
		AND	12565
087.	TIO	BEGINS AT	12360
		AND	12607
088.	OFT	BEGINS AT	12636
089.	ONT	BEGINS AT	13043
090.	SIR	BEGINS AT	13314
091.	SIL	BEGINS AT	13452
092.	RIR	BEGINS AT	13626
093.	RIL	BEGINS AT	13766

094.	IIR	BEGINS AT	14134
095.	IIL	BEGINS AT	14307
096.	RFT	BEGINS AT	14463
097.	LFT	BEGINS AT	14716
098.	RNT	BEGINS AT	15151
099.	LNT	BEGINS AT	15352

SENSE SWITCH 5 DOWN

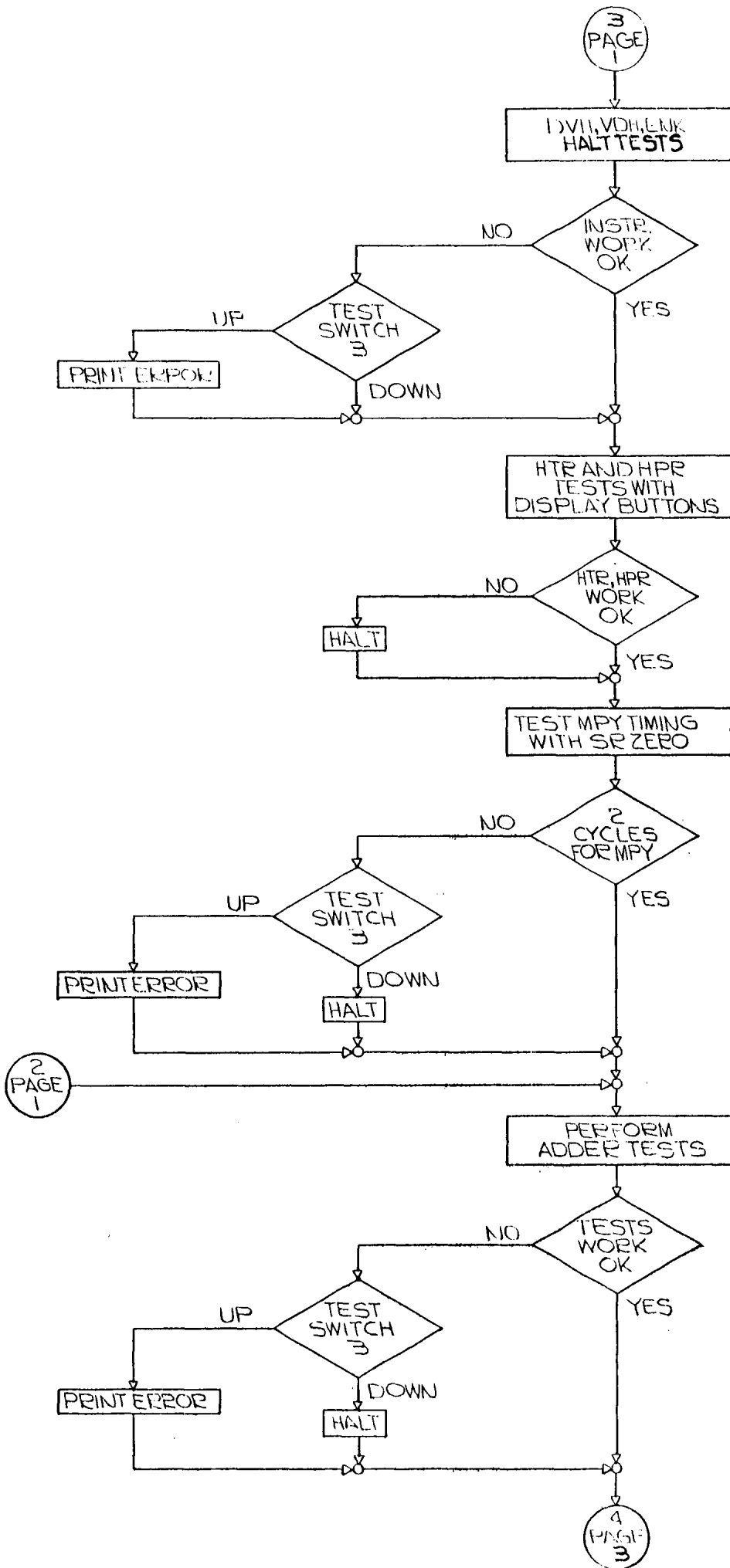
100.	SWT-SLT	BEGINS AT	15567
101.	DVH WITH HALT	BEGINS AT	15616
102.	VDH-WITH HALT	BEGINS AT	15646
103.	ENK	BEGINS AT	15677
104.	DISPLAY BUTTON WITH HTR	BEGINS AT	15722
105.	DISPLAY BUTTON WITH HPR	BEGINS AT	15757
106.	FAST MPY	BEGINS AT	16017
107.	LONG ADDER TEST	BEGINS AT	16046
108.	MPY TEST	BEGINS AT	16115
109.	MPY/DVP TEST	BEGINS AT	16141

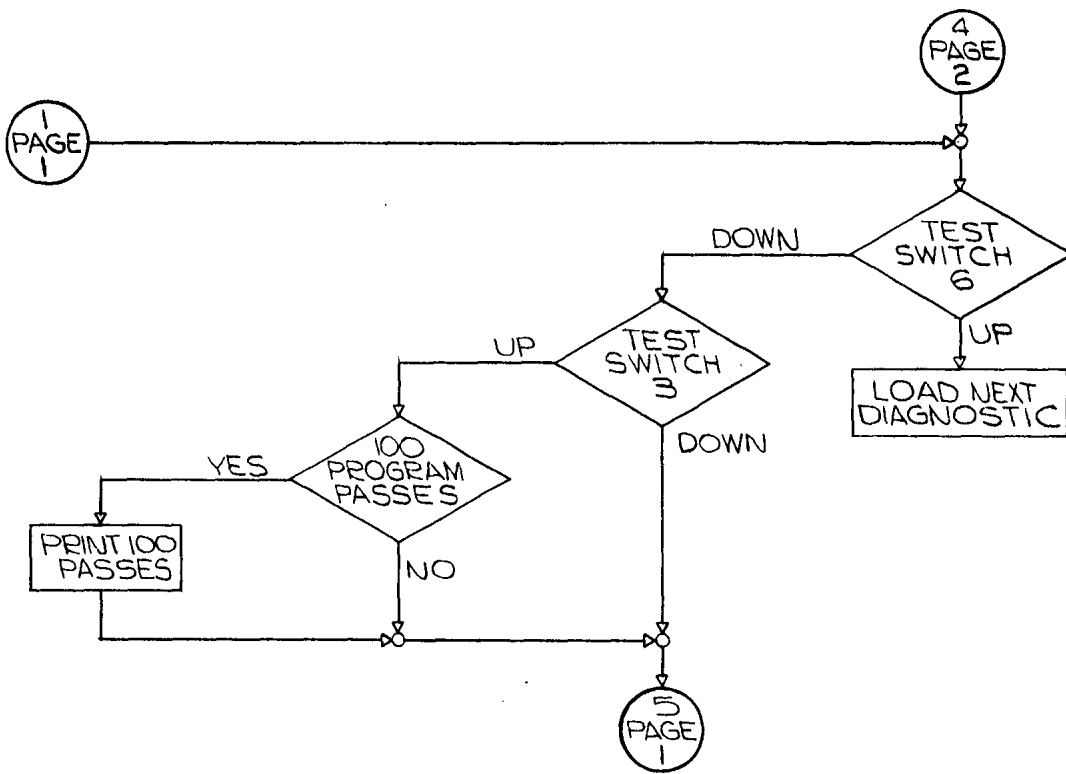
8



\* FIXED PT. ARITHMETIC-NO HALTS  
LOGICAL ARITHMETIC  
WORD TRANSMISSION-NO HALTS  
SHIFTING  
CONTROL  
SENSE INDICATORS







9M21A

\*709 MAIN FRAME TEST CHECKING FIXED-POINT AND LOGICAL ARITHMETIC  
\*OPERATIONS, WORD TRANSMISSION OPERATIONS, SHIFT OPERATIONS,  
\*CONTROL OPERATIONS, LOGICAL OPERATIONS, SENSE INDICATOR OPERATIONS  
\*DISPLAY BUTTONS AND TIMING FOR MPY WITH ZERO MULTIPLICAND.

00000           ORG 0

00000 0020 00 0 00562           TRA START-3   RESET-START

\*FALSE TRAP ROUTINE TO ADJUST DEPR AND RETURN TO PROGRAM

00001 -0760 00 0 00007           LTM           LEAVE TRAP MODE  
00002 0602 00 0 16600           SLW TEMP+2   SAVE ACCUMULATOR  
00003 0500 00 0 16541           CLA TR       PUT BIT IN DEPR TO  
00004 0601 00 0 07572           STO LOC+3    SHOW TRAP TRGR ON  
00005 0500 00 0 00000           CLA           L CONTENTS LOC 00000  
00006 0400 00 0 00000           ADD  
00007 0621 00 0 00010           STA \*+1  
00010 0020 00 0 00000           TRA           RETURN TO PROGRAM

00030           ORG 24

00030 0760 00 0 00163           SWT 3        TEST SENSE SWITCH 3  
00031 0020 00 0 16223           TRA ID       IDENTIFY PROGRAM

\*BASIC INDEXING TEST EXAMINING INDEXING INSTRUCTIONS USED IN 9M21

TRANSFER ON TXL. ADDR X CARRY AT ER6  
WITH XRA LOW OR EQUAL

00032 0774 00 1 00300   SWING AXT 3C,1   3000 TO XRA  
00033 -3 03000 1 00035   TXL \*+2,1,3M   SHOULD TRANFER, XRA  
  LOW. ADDER X CARRY AT  
  ER5. SYSTEMS 2.07.02

00034 0000 00 0 00035           HTR \*+1        FAILED TO TRANFER ON  
  LOW XRA{300. DEC {3000.

TRY TXL AGAIN TO SEE IF XRA STILL HAS  
300

00035 -3 00300 1 00037           TXL \*+2,1,3C   SHOULD TRANFER

00036 0000 00 0 00037           HTR \*+1        FAILED TO TRANSFER. XRA  
  SHOULD STILL HAVE 300.  
  XRA MAY HAVE CHANGED.  
  SYSTEMS 2.08.53.

TXL WITH XRA LOW

00037 0774 00 1 00200   LOW   AXT 2C,1   200 TO XRA

00040	-3	00300	1	00042	TXL	*+2,1,3C	SHOULD TRANSFER
00041	0000	00	0	00042	HTR	*+1	FAILED TO TRANSFER ON XRA LOW XRA{200, DEC{300
00042	0774	00	1	00200	AXT	2C,1	200 TO XRA
00043	-3	00201	1	00045	TXL	*+2,1,2C+1	SHOULD TRANSFER
00044	0000	00	0	00045	HTR	*+1	FAILED TO TRANSFER ON XRA ONE LESS THAN DEC. XRA{200, DEC{201
00045	0774	00	1	00001	AXT	1,1	1 TO XRA
00046	-3	77777	1	00050	TXL	*+2,1,32K	SHOULD TRANSFER
00047	0000	00	0	00050	HTR	*+1	FAILED TO TRANSFER ON XRA LOW XRA{1, DEC{77777
00050	0774	00	1	77776	AXT	32K-1,1	77776 TO XRA
00051	-3	77777	1	00053	TXL	*+2,1,32K	SHOULD TRANSFER
00052	0000	00	0	00053	HTR	*+1	FAILED TO TRANSFER ON XRA ONE LESS THEN DEC. XRA{7776, DEC{77777
00053	0774	00	1	00000	AXT	0,1	CLEAR XRA
00054	-3	00001	1	00056	TXL	*+2,1,1	SHOULD TRANSFER
00055	0000	00	0	00056	HTR	*+1	FAILED TO TRANSFER ON XRA ZERO XRA{0, DEC{1
00056	0774	00	1	00000	AXT	0,1	CLEAR XRA
00057	-3	40000	1	00061	TXL	*+2,1,40M	SHOULD TRANSFER
00060	0000	00	0	00061	HTR	*+1	FAILED TO TRANSFER ON XRA ZERO XRA{0, DEC{40000
00061	0774	00	1	00000	AXT	0,1	CLEAR XRA
00062	-3	00000	1	00064	TXL	*+2,1,0	SHOULD TRANSFER
00063	0000	00	0	00064	HTR	*+1	FAILED TO TRANSFER ON BOTH XRA AND DEC{0
00064	0774	00	1	02223	AXT	2M+2C+2D+3,1	02223 TO XRA
00065	-3	75555	1	00067	TXL	*+2,1,70M+5M+5C+5D+5	SHOULD TRANSFER
00066	0000	00	0	00067	HTR	*+1	FAILED TO TRANSFER WITH TWOS COMP. OF XRA EQAUL TO DEC. XRA{2223, DEC{75555 COMP. OF XRA{75555

TXL WITH ZERO TAG

00067	0774	00	1	77777	SWEET	AXT	32K,1	ALL 7-S TO XRA
00070	-3	00001	0	00072		TXL	*+2,0,1	SHOULD TRANSFER
00071	0000	00	0	00072		HTR	*+1	FAILED TO TRANSFER WITH ZERO TAG DEC{1
00072	-3	77777	0	00074		TXL	*+2,0,32K	SHOULD TRANSFER
00073	0000	00	0	00074		HTR	*+1	FAILED TO TRANSFER WITH ZERO TAG DEC {77777

TXL WITH ZERO TAG AND DECREMENT

00074	-3	00000	0	00076		TXL	*+2	
00075	0000	00	0	00076		HTR	*+1	FAILED TO TRANSFER
00076	-3	00000	0	00100		TXL	*+2	
00077	0000	00	0	00100		HTR	*+1	FAILED TO TRANSFER
00100	-3	00000	0	00102		TXL	*+2	
00101	0000	00	0	00102		HTR	*+1	FAILED TO TRANSFER
00102	-3	00000	0	00104		TXL	*+2	
00103	0000	00	0	00104		HTR	*+1	FAILED TO TRANSFER
00104	-3	00000	0	00106		TXL	*+2	
00105	0000	00	0	00106		HTR	*+1	FAILED TO TRANSFER
00106	-3	00000	0	00110		TXL	*+2	
00107	0000	00	0	00110		HTR	*+1	FAILED TO TRANSFER
00110	-3	00000	0	00112		TXL	*+2	
00111	0000	00	0	00112		HTR	*+1	FAILED TO TRANSFER
00112	-3	00000	0	00114		TXL	*+2	
00113	0000	00	0	00114		HTR	*+1	FAILED TO TRANSFER
00114	-3	00000	0	00116		TXL	*+2	
00115	0000	00	0	00116		HTR	*+1	FAILED TO TRANSFER

TRY TXH WITH XRA HIGH

00116	0774	00	1	00200	CHAR	AXT	2C,1	200 TO XRA
00117	3	00100	1	00121		TXH	*+2,1,C	SHOULD TRANSFER
00120	0000	00	0	00121		HTR	*+1	FAILED TO TRANSFER ON XRA HIGH XRA{200, DEC{100 NO ADDER X CARRY AT ER6 SHOULD CAUSE TRANSFER. SYSTEM 2.07.02
00121	0774	00	1	00001		AXT	1,1	1 TO XRA
00122	3	00000	1	00124		TXH	*+2,1,0	SHOULD TRANSFER
00123	0000	00	0	00124		HTR	*+1	FAILED TO TRANSFER ON XRA{1, DEC{0

00124	0774	00	1	05555	AXT	5M+5C+5D+5,1	05555	TO XRA
00125	3	02222	1	00127	TXH	*+2,1,2M+2C+2D+2		SHOULD TRANSFER
00126	0000	00	0	00127	HTR	*+1		FAILED TO TRANSFER XRA{05555, DEC{02222
00127	0774	00	1	74000	AXT	70M+4M,1	74000	TO XRA
00130	3	02000	1	00132	TXH	*+2,1,2M		SHOULD TRANSFER
00131	0000	00	0	00132	HTR	*+1		FAILED TO TRANSFER XRA{74000, DEC{2000
00132	0774	00	1	76000	AXT	70M+6M,1	76000	TO XRA
00133	3	01000	1	00135	TXH	*+2,1,M		SHOULD TRANSFER
00134	0000	00	0	00135	HTR	*+1		FAILED TO TRANSFER XRA{76000, DEC {1000
00135	0774	00	1	77000	AXT	70M+7M,1	77000	TO XRA
00136	3	00400	1	00140	TXH	*+2,1,4C		SHOULD TRANSFER
00137	0000	00	0	00140	HTR	*+1		FAILED TO TRANSFER XRA{77000, DEC{400
00140	0774	00	1	77400	AXT	70M+7M+4C,1	77400	TO XRA
00141	3	00200	1	00143	TXH	*+2,1,2C		SHOULD TRANFER
00142	0000	00	0	00143	HTR	*+1		FAILED TO TRANSFER XRA{77400, DEC{200
00143	0774	00	1	77600	AXT	70M+7M+6C,1	77600	TO XRA
00144	3	00100	1	00146	TXH	*+2,1,C		SHOULD TRANSFER
00145	0000	00	0	00146	HTR	*+1		FAILED TO TRANSFER XRA{77600, DEC{100
00146	0774	00	1	77700	AXT	70M+7M+7C,1	77700	TO XRA
00147	3	00040	1	00151	TXH	*+2,1,4D		SHOULD TRANSFER
00150	0000	00	0	00151	HTR	*+1		FAILED TO TRANSFER XRA{77700, DEC{40
00151	0774	00	1	77740	AXT	70M+7M+7C+4D,1	77740	TO XRA
00152	3	00020	1	00154	TXH	*+2,1,2D		SHOULD TRANSFER
00153	0000	00	0	00154	HTR	*+1		FAILED TO TRANSFER XRA{77740, DEC{20
00154	0774	00	1	77760	AXT	70M+7M+7C+6D,1	77760	TO XRA
00155	3	00010	1	00157	TXH	*+2,1,D		SHOUDL TRANSFER
00156	0000	00	0	00157	HTR	*+1		FAILED TO TRANSFER XRA{77760, DEC {10
00157	0774	00	1	77770	AXT	32K-7,1	77770	TO XRA

00160	3	00004	1	00162	TXH	*+2,1,4	SHOULD TRANSFER
00161	0000	00	0	00162	HTR	*+1	FAILED TO TRANSFER XRA{77770, DEC{4
00162	0774	00	1	77774	AXT	32K-3,1	77774 TO XRA
00163	3	00002	1	00165	TXH	*+2,1,2	SHOULD TRANSFER
00164	0000	00	0	00165	HTR	*+1	FAILED TO TRANSFER XRA{77774, DEC{2.

THE PROGRAM WILL NOW ASSUME THAT  
TXL WILL TRANSFER ON ZERO TAG AND  
XRA LOW, AND THAT TXH WILL TRANSFER  
ON XRA HIGH. WE WILL USE THESE  
FACTS TO SEE THAT TXL WILL NOT  
TRANSFER ON XRA HIGH AND THAT TXH  
WILL NOT TRANSFER ON XRA LOW. IF  
THERE HAS BEEN AN ERROR IN THE  
PRECEEDING TEST, THEY SHOULD BE  
INVESTIGATED BEFORE WE CONTINUE.

NO TRANSFER WITH TXL ON XRA HIGH.

00165	0774	00	1	00200	IOT	AXT	2C,1	200 TO XRA
00166	-3	00100	1	00170	TXL	*+2,1,C	SHOULD NOT TRANSFER	
00167	3	00100	1	00171	TXH	*+2,1,C	THIS SHOULD TRANSFER IF XRA STILL HAS 200.	
00170	0000	00	0	00171	HTR	*+1	TXL TRANSFERED ON XRA HIGH XRA{200, DEC{100	

THIS STOP COULD INDICATE THAT THE  
TXH AT LOC IOT+2 DID NOT TRANSFER  
SINCE WE ASSUME THAT TXH WOULD WORK  
WITH THIS COMBINATION OF NUMBER-SEE  
LOC CHAR+1-WE SAY ERROR WAS  
CAUSED BY TXL AT IOT+1

00171	0774	00	1	00001	AXT	1,1	1 TO XRA
00172	-3	00000	1	00174	TXL	*+2,1,0	SHOULD NOT TRANSFER
00173	3	00000	1	00175	TXH	*+2,1,0	SHOULD TRANSFER
00174	0000	00	0	00175	HTR	*+1	TXL TRANSFERED ON XRA HIGH XRA{1, DEC{0

00175	0774	00	1	55555	AXT	A5,1	ALL 5-S TO XRA
00176	-3	02222	1	00200	TXL	*+2,1,2M+2C+2D+2	SHOULD NOT TRANSFER
00177	3	02222	1	00201	TXH	*+2,1,2M+2C+2D+2	SHOULD TRANSFER
00200	0000	00	0	00201	HTR	*+1	TXL TRANSFERED ON

XRA HIGH  
XRA{55555, DEC{02222  
00201 0774 00 1 74000 AXT 70M+4M,1 74000 TO XRA  
00202 -3 02000 1 00204 TXL \*+2,1,2M SHOULD NOT TRANSFER  
00203 3 02000 1 00205 TXH \*+2,1,2M SHOULD TRANSFER  
00204 0000 00 0 00205 HTR \*+1 TXL TRANSFERED ON  
XRA HIGH  
XRA {74000, DEC{2000

00205 0774 00 1 76000 AXT 70M+6M,1 76000 TO XRA  
00206 -3 01000 1 00210 TXL \*+2,1,M SHOULD NOT TRANSFER  
00207 3 01000 1 00211 TXH \*+2,1,M SHOULD TRANSFER  
00210 0000 00 0 00211 HTR \*+1 TXL TRANSFERED ON  
XRA HIGH.  
XRA{76000, DEC{1000

00211 0774 00 1 77000 AXT 70M+7M,1 77000 TO XRA  
00212 -3 00400 1 00214 TXL \*+2,1,4C SHOULD NOT TRANSFER  
00213 3 00400 1 00215 TXH \*+2,1,4C SHOULD TRANSFER  
00214 0000 00 0 00215 HTR \*+1 TXL TRANSFERED ON  
XRA HIGH.  
XRA{77000, DEC{400

NO TRANSFER WITH TXH ON XRA EQUAL

00215 0774 00 1 00300 COMIN AXT 3C,1 300 TO XRA  
00216 3 00300 1 00220 TXH \*+2,1,3C ADDER X CARRY AT ER6  
SHOULD BLOCK TRANSFER  
00217 -3 00000 0 00221 TXL \*+2 SHOULD TRANSFER  
00220 0000 00 0 00221 HTR \*+1 TXH TRANSFERED ON  
XRA EQUAL  
XRA{300, DEC{300

IF TXL WITH ZERO TAG AND DECREMENT  
WORKED PREVIOUSLY, WE ASSUME  
IT WILL WORK HERE.

00221 0774 00 1 00000 AXT 0,1 CLEAR XRA  
00222 3 00000 1 00224 TXH \*+2,1,0 SHOULD NOT TRANSFER  
00223 -3 00000 0 00225 TXL \*+2 SHOULD TRANSFER  
00224 0000 00 0 00225 HTR \*+1 TXH TRANSFERED WITH  
XRA AND DEC BOTH ZERO.

00225 0774 00 1 77777 AXT 32K,1 77777 TO XRA  
00226 3 77777 1 00230 TXH \*+2,1,32K SHOULD NOT TRANSFER  
00227 -3 00000 0 00231 TXL \*+2 SHOULD TRANSFER  
00230 0000 00 0 00231 HTR \*+1 TXH TRANSFERED ON  
XRA EQUAL  
XRA{777777, DEC{77777

00231 0774 00 1 22222 AXT A2,1 22222 TO XRA  
00232 3 22222 1 00234 TXH \*+2,1,A2 SHOULD NOT TRANSFER  
00233 -3 00000 0 00235 TXL \*+2 SHOULD TRANSFER



00234 0000 00 0 00235 HTR \*+1 TXH TRANSFER ON  
XRA EQUAL  
XRA{22222, DEC{22222

00235 0774 00 1 55555 AXT A5,1 ALL 5-S TO XRA  
00236 3 55555 1 00240 TXH \*+2,1,A5 SHOULD NOT TRANSFER  
00237 -3 00000 0 00241 TXL \*+2 SHOULD TRANSFER  
00240 0000 00 0 00241 HTR \*+1 TXH TRANSFER ON  
XRA EQUAL  
XRA{55555, DEC{55555

NO TRANSFER ON TXH WITH XRA LOW

00241 0774 00 1 00000 FORTO AXT 0,1 CLEAR XRA  
00242 3 00001 1 00244 TXH \*+2,1,1 SHOULD NOT TRANSFER  
00243 -3 00000 0 00245 TXL \*+2 SHOULD TRANSFER  
00244 0000 00 0 00245 HTR \*+1 TXH TRANSFER ON  
XRA LOW  
XRA{0, DEC{1

00245 0774 00 1 77776 AXT 32K-1,1 77776 TO XRA  
00246 3 77777 1 00250 TXH \*+2,1,32K SHOULD NOT TRANSFER  
00247 -3 00000 0 00251 TXL \*+2 SHOULD TRANSFER  
00250 0000 00 0 00251 HTR \*+1 TXH TRANSFER ON  
XRA LOW  
XRA{77776, DEC{77777

00251 0774 00 1 02223 AXT 2M+2C+2D+3,1 02223 IN XRA  
00252 3 05555 1 00254 TXH \*+2,1,5M+5C+5D+5 SHOULD NOT TRANSFER  
00253 -3 00000 0 00255 TXL \*+2 SHOULD TRANSFER  
00254 0000 00 0 00255 HTR \*+1 TXH TRANSFER ON  
XRA LOW  
XRA{02223, DEC{05555

00255 0774 00 1 22222 AXT A2,1 22222 TO XRA  
00256 3 22223 1 00260 TXH \*+2,1,A2+1 SHOULD NOT TRANSFER  
00257 -3 00000 0 00261 TXL \*+2 SHOULD TRANSFER  
00260 0000 00 0 00261 HTR \*+1 TXH TRANSFER ON  
XRA LOW  
XRA{22222, DEC{22223

CHECK THAT TXL AND TXH DOES NOT  
CHANGE XRA.

00261 0774 00 1 00000 CARRY AXT 0,1 CLEAR XRA  
00262 3 00300 1 00265 TXH \*+3,1,3C SHOULD NOT TRANSFER  
00263 -3 00000 1 00266 TXL \*+3,1,0 SHOULD TRANSFER ONLY  
IF XRA IS STILL ZERO.  
00264 0000 00 0 00266 HTR \*+2 NO TXL TRANSFER, XRA  
SHOULD HAVE STILL BEEN  
ZERO AT CARRY+2

00265 0000 00 0 00266 HTR \*+1 TXH TRANSFER ON

XRA{0, DEC{300

00266	0774	00	1	22222	AXT	A2,1	22222 TO XRA	
00267	3	22222	1	00274	TXH	*+5,1,A2	SHOULD NOT TRANSFER	
00270	-3	00000	1	00273	TXL	*+3,1,0	SHOULD NOT TRANSFER	
00271	-3	22222	1	00275	TXL	*+4,1,A2	SHOULD TRANSFER, XRA SHOULD STILL HAVE 22222	
00272	0000	00	0	00275	HTR	*+3	FAILED TO TRANSFER FROM LOCATION CARRY+8.XRA SHOULD HAVE BEEN{22222	
00273	0000	00	0	00275	HTR	*+2	SHOULD NOT TRANSFER FROM CARRY+7 XRA SHOULD HAVE HAD 22222	
00274	0000	00	0	00275	HTR	*+1	TXH TRANSFER ON XRA EQUAL,LOC CARRY+6 XRA{22222, DEC{22222	
00275	0774	00	1	00300	AXT	3C,1	300 TO XRA.	
00276	3	00277	1	00300	TXH	*+2,1,3C-1	SHOULD TRANSFER	
00277	0000	00	0	00300	HTR	*+1	FAILED TO TRANSFER ON XRA HIGH XRA{300, DEC{277	
00300	-3	00300	1	00302	TXL	*+2,1,3C	SHOULD TRANSFER	
00301	0000	00	0	00302	HTR	*+1	FAILED TO TRANSFER, XRA SHOULD HAVE STILL BEEN 300.	
00302	-3	00277	1	00304	TXL	*+2,1,3C-1	SHOULD NOT TRANSFER	
00303	-3	00000	0	00305	TXL	*+2	OK,	
00304	0000	00	0	00305	HTR	*+1	SHOULD NOT TRANSFER FROM M-3 XRA{300, DEC{277	
00305	0774	00	1	00003	ME	AXT	3,1	3 TO XRA
00306	-3	00004	1	00310	TXL	*+2,1,4	SHOULD TRANSFER	
00307	0000	00	0	00310	HTR	*+1	FAILED TO TRANSFER ON TXL, XRA{3, DEC{4	
00310	3	00002	1	00312	TXH	*+2,1,2	SHOULD TRANSFER	
00311	0000	00	0	00312	HTR	*+1	FAILED TO TRANSFER ON TXH, DEC{2, XRA SHOULD STILL HAVE 3.	
00312	-3	00004	1	00314	TXL	*+2,1,4	SHOULD TRANSFER	
00313	0000	00	0	00314	HTR	*+1	FAILED TO TRANSFER ON TXL, DEC{4, XRA SHOULD STILL HAVE 3	
00314	0774	00	1	00300	AXT	3C,1	300 TO XRA	
00315	-3	00300	1	00317	TXL	*+2,1,3C	SHOULD TRANSFER	
00316	0000	00	0	00317	HTR	*+1	FAILED TO TRANSFER XRA{300, DEC{300	
00317	3	00277	1	00321	TXH	*+2,1,3C-1	SHOULD TRANSFER	

00320 0000 00 0 00321 HTR \*+1 FAILED TO TRANSFER  
DEC{2777, XRA SHOULD  
STILL BE 300

00321 -3 00276 1 00323 TXL \*+2,1,3C-2 SHOULD NOT TRANSFER  
00322 -3 00300 1 00324 TXL \*+2,1,3C SHOULD TRANSFER  
00323 0000 00 0 00324 HTR \*+1 TXL FAILED, XRA BEING  
CHANGED, XRA SHOULD  
STILL HAVE 300. XRA  
SHOULD NOT CYCLE THROUGH  
THE ADDERS.

00324 0774 00 1 77776 AXT 32K-1,1 77776 TO XRA  
00325 -3 75776 1 00327 TXL \*+2,1,32K-2M-1 SHOULD NOT TRANSFER  
00326 -3 00000 0 00330 TXL \*+2 OK

00327 0000 00 0 00330 HTR \*+1 TXL TRANSFER ON  
XRA HIGH  
XRA{77776, DEC {75776

00330 3 04000 1 00332 TXH \*+2,1,4M SHOULD TRANSFER  
00331 0000 00 0 00332 HTR \*+1 FAILED TO TRANSFER,  
XRA SHOULD BE HIGH  
XRA{77776, DEC{4000

00332 3 77775 1 00334 TXH \*+2,1,32K-2 SHOULD TRANSFER  
00333 0000 00 0 00334 HTR \*+1 FAILED TO TRANSFER  
XRA SHOULD STILL BE HIGH  
XRA{77776, DEC{77775

WE MAY NOW PROCEED TO TIX.  
IF THERE HAVE BEEN ANY ERRORS UP TO  
THIS POINT, THEY SHOULD BE  
INVESTIGATED BEFORE WE CONTINUE.

TIX WITH XRA LOW

00334 0774 00 1 00000 HADA AXT 0,1 CLEAR XRA  
00335 2 00001 1 00337 TIX \*+2,1,1 SHOULD NOT TRANSFER  
00336 -3 00000 0 00340 TXL \*+2 OK  
00337 0000 00 0 00340 HTR \*+1 TRANSFER ON TIX WITH  
XRA LOW  
XRA{0, DEC{1

00340 -3 00000 1 00342 TXL \*+2,1,0 XRA SHOULD STILL BE  
ZERO

00341 0000 00 0 00342 HTR \*+1 XRA NOT ZERO

00342 0774 00 1 77776 AXT 32K-1,1 77776 TO XRA  
00343 2 77777 1 00345 TIX \*+2,1,32K SHOULD NOT TRANSFER  
00344 -3 00000 0 00346 TXL \*+2 OK  
00345 0000 00 0 00346 HTR \*+1 TRANSFER ON TIX WITH  
XRA LOW

					XRA{77776, DEC{77777
00346	-3	77776	1	00350	TXL *+2,1,32K-1 SHOULD TRANSFER
00347	0000	00	0	00350	HTR *+1 XRA SHOULD HAVE BEEN EQUAL, DEC{77776
00350	3	77775	1	00352	TXH *+2,1,32K-2 SHOULD TRANSFER
00351	0000	00	0	00352	HTR *+1 XRA SHOULD BE 77776

TIX WITH XRA EQUAL

00352	0774	00	1	00001	LITIL AXT 1,1 1 TO XRA
00353	2	00001	1	00355	TIX *+2,1,1 SHOULD NOT TRANSFER
00354	-3	00000	0	00356	TXL *+2 OK
00355	0000	00	0	00356	HTR *+1 TIX TRANSFER WITH XRA EQUAL XRA{1, DEC{1
00356	-3	00001	1	00360	TXL *+2,1,1 SHOULD TRANSFER
00357	0000	00	0	00360	HTR *+1 XRA SHOULD HAVE BEEN EQUAL
00360	3	00000	1	00362	TXH *+2,1,0 SHOULD TRANSFER
00361	0000	00	0	00362	HTR *+1 XRA SHOULD BE 1
00362	0774	00	1	00000	AXT 0,1 CLEAR XRA
00363	2	00000	1	00365	TIX *+2,1,0 SHOULD NOT TRANSFER
00364	-3	00000	0	00366	TXL *+2 OK
00365	0000	00	0	00366	HTR *+1 TIX TRANSFER WITH XRA{DEC{ZERO
00366	-3	00000	1	00370	TXL *+2,1,0 XRA SHOULD BE ZERO
00367	0000	00	0	00370	HTR *+1 XRA NOT STILL ZERO
00370	0774	00	1	00002	AXT 2,1 2 TO XRA
00371	2	00002	1	00373	TIX *+2,1,2 SHOULD NOT TRANSFER
00372	-3	00000	0	00374	TXL *+2 OK
00373	0000	00	0	00374	HTR *+1 TIX TRANSFER ON XRA EQUAL XRA{2, DEC{2
00374	-3	00002	1	00376	TXL *+2,1,2 SHOULD TRANSFER
00375	0000	00	0	00376	HTR *+1 XRA SHOULD STILL HAVE BEEN 2
00376	3	00001	1	00400	TXH *+2,1,1 SHOULD TRANSFER
00377	0000	00	0	00400	HTR *+1 XRA SHOULD STILL HAVE BEEN 2
00400	0774	00	1	77777	AXT 32K,1 77777 TO XRA
00401	2	77777	1	00403	TIX *+2,1,32K SHOULD NOT TRANSFER
00402	-3	00000	0	00404	TXL *+2 OK
00403	0000	00	0	00404	HTR *+1 TIX TRANSFER ON XRA EQUAL XRA{77777, DEC{77777
00404	-3	77777	1	00406	TXL *+2,1,32K SHOULD TRANSFER
00405	0000	00	0	00406	HTR *+1 XRA SHOULD STILL HAVE BEEN 77777 DEC{77777

00406 3 77776 1 00410 TXH \*+2,1,32K-1 SHOULD TRANSFER  
00407 0000 00 0 00410 HTR \*+1 XRA SHOULD STILL  
HAVE BEEN 77777  
DEC{77776

TEST XRA CYCLE THROUGH THE ADDERS  
WITH AXC. XRA TO ADDERS AT I3,  
SYSTEMS 2.08.49.2. RETURN TO XRA  
TO XRA AT I6, SYSTEM 2.08.53.1

00410 -0774 00 1 77500 AXC 70M+7M+5C,1 00300 TO XRA  
00411 -3 00300 1 00413 TXL \*+2,1,3C SHOULD TRANSFER  
00412 0000 00 0 00413 HTR \*+1 XRA FAILED TO GET 300

00413 3 00277 1 00415 TXH \*+2,1,3C-1 SHOULD TRANSFER  
00414 0000 00 0 00415 HTR \*+1 XRA FAILED TO GET 300

00415 -0774 00 1 77777 AXC 32K,1 00001 TO XRA  
00416 -3 00001 1 00420 TXL \*+2,1,1 SHOULD TRANSFER  
00417 0000 00 0 00420 HTR \*+1 XRA FAILED TO GET A ONE  
00420 3 00000 1 00422 TXH \*+2,1,0 SHOULD TRANSFER  
00421 0000 00 0 00422 HTR \*+1 XRA FAILED TO GET A ONE

00422 -0774 00 1 00000 AXC 0,1 CLEAR XRA  
00423 -3 00000 1 00425 TXL \*+2,1,0 SHOULD TRANSFER  
00424 0000 00 0 00425 HTR \*+1 XRA NOT ZERO

TIX TRANSFER AND REDUCE XRA ON  
NO ADDER X CARRY. THE COMPLEMENT  
DIFFERENCE RETURNS TO XRA AT ER6,  
CYCLED THROUGH THE ADDERS AND RETURNS  
IN TRUE FORM AT ER11.  
SYSTEMS 2.08.53.1.

00425 0774 00 1 00002 WHOSE AXT 2,1 2 TO XRA  
00426 2 00001 1 00430 TIX \*+2,1,1 SHOULD TRANSFER  
00427 0000 00 0 00430 HTR \*+1 FAILED TO TRANSFER  
ON TIX.  
XRA{2, DEC{1

00430 -3 00001 1 00432 TXL \*+2,1,1 SHOULD TRANSFER  
00431 0000 00 0 00432 HTR \*+1 FAILED TO DECREMENT  
ON TIX. XRA SHOULD{1

00432 3 00000 1 00434 TXH \*+2,1,0 SHOULD TRANSFER  
00433 0000 00 0 00434 HTR \*+1 FAILED TO DECREMENT  
ON TIX, XRA SHOULD{1

00434 0774 00 1 77777 AXT 32K,1 77777 TO XRA  
00435 2 77776 1 00437 TIX \*+2,1,32K-1 SHOULD TRANSFER  
00436 0000 00 0 00437 HTR \*+1 FAILED TO TRANSFER

ON TIX  
 XRA{77777, DEC{77776

00437	-3	00001	1	00441		TXL	*+2,1,1	SHOULD TRANSFER
00440	0000	00	0	00441		HTR	*+1	FAILED TO DECREMENT ON TIX, XRA SHOULD{1
00441	3	00000	1	00443		TXH	*+2,1,0	SHOULD TRANSFER
00442	0000	00	0	00443		HTR	*+1	FAILED TO DECREMENT ON TIX, XRA SHOULD{1

COUNT-DOWN TEST WITH TIX

00443	0774	00	1	77777	WAS	AXT	32K,1	77777 TO XRA
00444	2	00001	1	00446		TIX	*+2,1,1	SHOULD TRANSFER
00445	0000	00	0	00453		HTR	*+6	FAILED TO TRANSFER ON TIX. XRA SHOULD ALWAYS BE HIGH
00446	3	00002	1	00444		TXH	*-2,1,2	CONTINUE COUNT-DOWN UNTIL XRA{2
00447	-3	00002	1	00451		TXL	*+2,1,2	XRA SHOULD NOW{2
00450	0000	00	0	00453		HTR	*+3	FAILED, XRA SHOULD COUNT DOWN TO 2 ON TIX.
00451	3	00001	1	00453		TXH	*+2,1,1	SHOULD TRANSFER
00452	0000	00	0	00453		HTR	*+1	FAILED, XRA SHOULD BE{2.

TEXT TXI FOR UNCONDITIONAL TRANSFER  
 AND INCREMENTING. XR CYCLES THROUGH  
 ADDERS AT ER3 TO OBTAIN COMPLEMENT.  
 ADDITION TAKE PLACE AT ER7. THE SUM  
 IS SAMPLED BACK TO XR AT ER11.  
 THE SYSTEMS INVOLVED ARE

XR TO ADD 3-17,	ER3D9 -	2.08.49
ADD 3-17 TO XR	ER5D1	
AND ER11D1		2.08.53
SR 1-35 TO ADD	ER7D5	2.08.48

00453	0774	00	1	00000	AS	AXT	0,1	CLEAR XRA
00454	1	00001	1	00456		TXI	*+2,1,1	SHOULD TRANSFER
00455	0000	00	0	00456		HTR	*+1	FAILED TO TRANSFER ON TXI
00456	-3	00001	1	00460		TXL	*+2,1,1	XRA SHOULD{1
00457	0000	00	0	00460		HTR	*+1	FAILED TO INCREMENT WITH TXI, XRA SHOULD{1
00460	3	00000	1	00462		TXH	*+2,1,0	SHOULD TRANSFER
00461	0000	00	0	00462		HTR	*+1	FAILED TO INCREMENT ON TXI.

XRA SHOULD{1

00462	0774	00	1	77776	AXT	32K-1,1	77776 TO XRA
00463	1	00001	1	00465	TXI	*+2,1,1	SHOULD TRANSFER
00464	0000	00	0	00465	HTR	*+1	FAILED TO TRANSFER ON TXI.
00465	3	77776	1	00467	TXH	*+2,1,32K-1	SHOULD TRANSFER
00466	0000	00	0	00467	HTR	*+1	FAILED TO INCREMENT ON TXI. XRA SHOULD{77777 DEC{77776
00467	0774	00	1	00001	AXT	1,1	1 TO XRA
00470	1	77776	1	00472	TXI	*+2,1,32K-1	SHOULD TRANSFER
00471	0000	00	0	00472	HTR	*+1	FAILED TO TRANSFER ON TXI
00472	3	77776	1	00474	TXH	*+2,1,32K-1	SHOULD TRANSFER
00473	0000	00	0	00474	HTR	*+1	FAILED TO INCREMENT ON TXI. XRA{77777, DEC{77776
00474	0774	00	1	77777	AXT	32K,1	777777 TO XRA
00475	1	77777	1	00477	TXI	*+2,1,32K	SHOULD TRANSFER
00476	0000	00	0	00477	HTR	*+1	FAILED TO TRANSFER ON TXI
00477	3	77775	1	00501	TXH	*+2,1,32K-2	SHOULD TRANSFER
00500	0000	00	0	00501	HTR	*+1	FAILED TO INCREMENT ON TXI, XRA SHOULD HAVE 77776, DEC{77775
00501	-3	77776	1	00503	TXL	*+2,1,32K-1	SHOULD TRANSFER
00502	0000	00	0	00503	HTR	*+1	FAILED TO INCREMENT ON TXI, XRA SHOULD HAVE 77776, DEC{77776.
00503	0774	00	1	00001	AXT	1,1	1 TO XRA
00504	1	77777	1	00506	TXI	*+2,1,32K	SHOULD TRANSFER
00505	0000	00	0	00506	HTR	*+1	FAILED TO TRANSFER ON TXI.
00506	-3	00000	1	00510	TXL	*+2,1,0	SHOULD TRANSFER
00507	0000	00	0	00510	HTR	*+1	FAILED TO INCREMENT ON TXL. XRA SHOULD HAVE ZERO.

COUNT-DOWN TEST WITH TXI, TIX

00510	0774	00	1	77777	SNOW	AXT	32K,1	77777 TO XRA
00511	2	00002	1	00514		TIX	*+3,1,2	COUNT DOWN 2
00512	-3	00002	1	00515		TXL	*+3,1,2	XRA SHOULD BE 2
00513	0000	00	0	00517		HTR	*+4	FAILED TO TRANSFER

ON TIX WITH XRA HIGH

00514 1 00001 1 00511 TXI \*-3,1,1 TRANSFER AND ADD 1  
UNTIL XRA{2  
00515 3 00001 1 00517 TXH \*+2,1,1 SHOULD TRANSFER  
00516 0000 00 0 00517 HTR \*+1 FAILED TO COUNT  
CORRECTLY, XRA SHOULD  
HAVE 2

TSX, THE INSTRUCTION COUNTER IS  
ROUTED THROUGH THE ADDRESS SWITCHES  
ON SYSTEMS 3.40, AND TO THE STORAGE  
BUSSES, SYSTEMS 2.08.28. THE ADDRESS  
IS CYCLED THROUGH THE ADDERS TO  
OBTAIN THE COMPLEMENT

00517 0074 00 1 00521 HERE TSX \*+2,1 2-S COMPLEMENT OF THIS  
LOCATION TO XRA  
00520 0000 00 0 00521 HTR \*+1 FAILED TO TRANSFER  
ON TSX  
00521 -3 77261 1 00523 TXL \*+2,1,32K-HERE+1 SHOULD TRANSFER  
00522 0000 00 0 00523 HTR \*+1 FAILED TO SET CORRECT  
ADDRESS IN XRA ON TSX  
00523 3 77260 1 00525 TXH \*+2,1,32K-HERE SHOULD TRANSFER  
00524 0000 00 0 00525 HTR \*+1 FAILED TO SET  
CORRECT ADDRESS WITH TSX  
00525 0074 00 1 00527 WE TSX \*+2,1  
00526 0000 00 0 00527 HTR \*+1 FAILED TO TRANSFER  
ON TSX  
00527 1 00525 1 00531 TXI \*+2,1,WE XRA SHOULD ADD  
TO ZERO  
00530 0000 00 0 00531 HTR \*+1 FAILED TO TRANSFER  
ON TXI  
00531 -3 00000 1 00533 TXL \*+2,1,0 SHOULD TRANSFER  
00532 0000 00 0 00533 HTR \*+1 FAILED TO GET  
CORRECT ADDRESS ON  
TSX, XRA SHOULD  
HAVE GONE TO ZERO  
AT WE+2.

\*CURSORY INDEX REGISTER SELECTION TEST FOR XRB AND XRC

00533 0774 00 2 77777 AXT 32K,2 77777 TO XRB  
00534 3 77776 2 00536 TXH \*+2,2,32K-1 SHOULD TRANSFER  
00535 0000 00 0 00536 HTR \*+1 DID NOT TRANSFER ON TXH  
XRB{77777, DEC{77776



00536	0774	00	2	00000		AXT 0,2	CLEAR XRB
00537	-3	00000	2	00541		TXL *+2,2,0	SHOULD TRANSFER
00540	0000	00	0	00541		HTR *+1	ID NOT TRANSFER ON TXL XRB{00000, DEC{00000
00541	0074	00	2	00542	DEX	TSX *+1,2	2-S COMPLEMENT OF THIS LOCATION TO XRA
00542	-3	77237	2	00544		TXL *+2,2,32K-DEX+1	SHOULD TRANSFER
00543	0000	00	0	00544		HTR *+1	DID NOT TRANSFER
00544	3	77236	2	00546		TXH *+2,2,32K-DEX	SHOULD TRANSFER
00545	0000	00	0	00546		HTR *+1	DID NOT TRANSFER
00546	0774	00	4	77777		AXT 32K,4	77777 TO DEC
00547	3	77776	4	00551		TXH *+2,4,32K-1	SHOULD TRANSFER
00550	0000	00	0	00551		HTR *+1	DID NOT TRANSFER ON TXH XRC{77777, DEC{77776
00551	0774	00	4	00000		AXT 0,4	CLEAR XRC
00552	-3	00000	4	00554		TXL *+2,4,0	SHOULD TRANSFER
00553	0000	00	0	00554		HTR *+1	DID NOT TRANSFER ON TXL XRB{00000, DEC{00000
00554	0074	00	4	00555	DEX1	TSX *+1,4	2-S COMPLEMENT OF THIS LOCATION TO XRC
00555	-3	77224	4	00557		TXL *+2,4,32K-DEX1+1	SHOULD TRANSFER
00556	0000	00	0	00557		HTR *+1	FAILED TO TRANSFER
00557	3	77223	4	00562		TXH *+3,4,32K-DEX1	SHOULD TRANSFER
00560	0000	00	0	00562		HTR *+2	FAILED TO TRANSFER
COMMENCE TEST							
00561	634665606060					BCD 1TOV	TEST OVERFLOW IN ACC
00562	0140	00	0	00563	A	TOV A+1	TURN OFF OVERFLOW TRGR
00563	0140	00	0	00565		TOV A+3	NO GOOD, DID NOT TURN OFF
00564	0020	00	0	00566		TRA A+4	OK
00565	0074	00	4	06504	START	TSX ERROR,4	NO GOOD
00566	0074	00	4	06511		TSX OK,4	OK
00567	0020	00	0	00562		TRA A	REPEAT
00570	634665606060					BCD 1TOV	TEST OVERFLOW ALS
00571	0500	00	0	16435	A7	CLA PTW	PLACE BIT IN ACC 1
00572	0767	00	0	00001		ALS 1	SHOULD OVERFLOW.
00573	0140	00	0	00575		TOV A7+4	OK, SHOULD OVFL
00574	0074	00	4	06504		TSX ERROR,4	NO GOOD
00575	0074	00	4	06511		TSX OK,4	OK
00576	0020	00	0	00571		TRA A7	REPEAT
00577	634665606060					BCD 1TOV	TEST OVFL WITH NO
00600	0500	00	0	16361	A8	CLA ZERO	OVERFLOW
00601	0140	00	0	00603		TOV A8+3	SHOULD NOT OVFL
00602	0020	00	0	00604		TRA A8+4	OK, DID NOT OVFL
00603	0074	00	4	06504		TSX ERROR,4	ERROR

00604	0074	00	4	06511		TSX OK, 4	
00605	0020	00	0	00600		TRA A8	REPEAT
00606	634546606060					BCD 1TNO	TEST TNO WITH NO ACC OVFL
00607	0500	00	0	16361	A9	CLA ZERO	CLEAR ACC
00610	-0140	00	0	00612		TNO A9+3	TEST FOR NO OVFL
00611	0074	00	4	06504		TSX ERROR, 4	NO GOOD
00612	0074	00	4	06511		TSX OK, 4	OK
00613	0020	00	0	00607		TRA A9	REPEAT
00614	634546606060					BCD 1TNO	TEST TNO WITH ACC OVFL
00615	0500	00	0	16435	A10	CLA PTW	PLACE BIT IN ACC 1
00616	0767	00	0	00001		ALS 1	SHIFT TO FORCE OVERFLOW
00617	-0140	00	0	00621		TNO A10+4	SHOULD NOT TRANSFER
00620	0020	00	0	00622		TRA A10+5	OK
00621	0074	00	4	06504		TSX ERROR, 4	
00622	0074	00	4	06511		TSX OK, 4	REPEAT
00623	0020	00	0	00615		TRA A10	
00624	634546606060					BCD 1TNO	DID TNO TURN LIGHT OFF
00625	0140	00	0	00627	A11	TOV A11+2	
00626	0020	00	0	00630		TRA A11+3	OK, DID TURN IT OFF
00627	0074	00	4	06504		TSX ERROR, 4	
00630	0074	00	4	06511		TSX OK, 4	OK
00631	0020	00	0	00625		TRA A11	REPEAT
00632	637125606060					BCD 1TZE	TEST TZE INST WITH ARS
00633	0771	00	0	00044	A12	ARS 36	CLEAR ACCUMULATOR
00634	0100	00	0	00636		TZE A12+3	TEST FOR ZERO
00635	0074	00	4	06504		TSX ERROR, 4	NO GOOD, DID NOT TRANSFER
00636	0074	00	4	06511		TSX OK, 4	OK
00637	0020	00	0	00633		TRA A12	REPEAT
00640	637125606060					BCD 1TZE	TEST TZE, WITH CLA
00641	0500	00	0	16361	A13	CLA ZERO	BRING IN ZERO
00642	0100	00	0	00644		TZE A13+3	TEST FOR ZERO
00643	0074	00	4	06504		TSX ERROR, 4	NO GOOD DID NOT TRANSFER
00644	0074	00	4	06511		TSX OK, 4	OK
00645	0020	00	0	00641		TRA A13	REPEAT
00646	637125606060					BCD 1TZE	TEST TZE, WITH CLA
00647	0500	00	0	00647	A14	CLA A14	BRING IN NON ZERO
00650	0100	00	0	00652		TZE A14+3	SHOULD NOT TRANSFER
00651	0020	00	0	00653		TRA A14+4	OK, DID NOT TRANSFER
00652	0074	00	4	06504		TSX ERROR, 4	NO GOOD
00653	0074	00	4	06511		TSX OK, 4	OK
00654	0020	00	0	00647		TRA A14	REPEAT
00655	634571606060					BCD 1TNZ	TEST TNZ, ACC NOT ZERO

00656	0500 00 0 00656	A15	CLA A15	BRING IN NON ZERO
00657	-0100 00 0 00661		TNZ A15+3	SHOULD TRANSFER
00660	0074 00 4 06504		TSX ERROR,4	NO GOOD, DID NOT TRANSFER
00661	0074 00 4 06511		TSX OK,4	OK
00662	0020 00 0 00656		TRA A15	REPEAT
00663	634571606060		BCD 1TNZ	TEST TNZ, ACC IS ZERO
00664	0500 00 0 16361	A16	CLA ZERO	CLEAR ACC
00665	-0100 00 0 00667		TNZ A16+3	SHOULD NOT TRANSFER
00666	0020 00 0 00670		TRA A16+4	OK DID NOT TRANSFER
00667	0074 00 4 06504		TSX ERROR,4	NO GOOD
00670	0074 00 4 06511		TSX OK,4	
00671	0020 00 0 00664		TRA A16	
00672	214362606060		BCD 1ALS	TEST ALS
00673	0500 00 0 16361	A21	CLA ZERO	TEST ALS BY MOVING ZERO
00674	0767 00 0 00010		ALS 8	EIGHT LEFT
00675	0100 00 0 00677		TZE A21+4	OK
00676	0074 00 4 06504		TSX ERROR,4	PICK UP ONES FROM LEFT
00677	0074 00 4 06511		TSX OK,4	
00700	0020 00 0 00673		TRA A21	
00701	214362606060		BCD 1ALS	TEST ALS, MOVE A ONE
00702	0500 00 0 16365	A22	CLA ONE	PLACE ONE IN ACC 35
00703	-0100 00 0 00706		TNZ A22+4	OK, ONE IS IN ACC
00704	0074 00 4 06503		TSX ERROR-1,4	ERROR IN STARTING
00705	0020 00 0 00702		TRA A22	
00706	0140 00 0 00707		TOV A22+5	TURN OFF OVFL
00707	0767 00 0 00001		ALS 1	
00710	-0100 00 0 00713		TNZ A22+9	OK, BIT IS STILL THERE
00711	0074 00 4 06503		TSX ERROR-1,4	LOST BIT IN ACC
00712	0020 00 0 00702		TRA A22	
00713	0140 00 0 00716		TOV A22+12	MOVE ON WHEN BIT GETS TO P
00714	0020 00 0 00707		TRA A22+5	LOOP ACROSS ACC
00715	0074 00 4 06504		TSX ERROR,4	NEVER ENTER, WASTE INST
00716	0074 00 4 06511		TSX OK,4	
00717	0020 00 0 00702		TRA A22	
00720	214362606060		BCD 1ALS	ALS TEST, TEST IN Q POS
00721	0500 00 0 16435	A23	CLA PTW	PLACE BIT IN 1
00722	0767 00 0 00002		ALS 2	MOVE IT TO Q
00723	-0100 00 0 00726		TNZ A23+5	
00724	0074 00 4 06503		TSX ERROR-1,4	LOST BIT IN Q
00725	0020 00 0 00721		TRA A23	
00726	0767 00 0 00001		ALS 1	MOVE BIT OUT OF ACC
00727	0100 00 0 00731		TZE A23+8	SHOULD BE ZERO NOW
00730	0074 00 4 06504		TSX ERROR,4	DID NOT MOVE BIT OUT OF Q
00731	0074 00 4 06511		TSX OK,4	
00732	0020 00 0 00721		TRA A23	
00733	215162606060		BCD 1ARS	ARS TEST

00734	0500	00	0	16365	A24	CLA ONE	PUT BIT IN 35 OF ACC
00735	0140	00	0	00736		TOV A24+2	TURN OFF OVFL
00736	-0100	00	0	00741		TNZ A24+5	OK, BIT IS IN ACC
00737	0074	00	4	06503		TSX ERROR-1,4	LOST BIT IN STARTING
00740	0020	00	0	00734		TRA A24	
00741	0767	00	0	00042		ALS 34	
00742	-0100	00	0	00745		TNZ A25	OK, BIT IS IN POS 1
00743	0074	00	4	06503		TSX ERROR-1,4	
00744	0020	00	0	00734		TRA A24	

00745	-0140	00	0	00750	A25	TNO A25+3	OVFL SHOULD BE OFF
00746	0074	00	4	06503		TSX ERROR-1,4	
00747	0020	00	0	00734		TRA A24	
00750	0767	00	0	00001		ALS 1	
00751	0771	00	0	00001		ARS 1	
00752	-0100	00	0	00755		TNZ A26	OK, BIT STILL THERE
00753	0074	00	4	06503		TSX ERROR-1,4	LOST BIT FROM P TO 1
00754	0020	00	0	00734		TRA A24	OR 1 TO P

00755	0771	00	0	00001	A26	ARS 1	INDICATIONS
00756	0140	00	0	00757		TOV A26+2	TURN OFF OVFL
00757	0767	00	0	00001		ALS 1	
00760	-0140	00	0	00763		TNO A26+6	OVFL SHOULD BE OFF
00761	0074	00	4	06503		TSX ERROR-1,4	
00762	0020	00	0	00734		TRA A24	
00763	0767	00	0	00002		ALS 2	GO OVER TO Q
00764	-0100	00	0	00767		TNZ A26+10	OK, BIT STILL THERE
00765	0074	00	4	06503		TSX ERROR-1,4	LOST BIT
00766	0020	00	0	00734		TRA A24	

00767	0140	00	0	00771		TOV A26+12	OVFL SHOULD BE ON
00770	0074	00	4	06504		TSX ERROR,4	
00771	0074	00	4	06511		TSX OK,4	
00772	0020	00	0	00734		TRA A24	

00773	432263606060					BCD 1LBT	TEST LBT
00774	0500	00	0	16365	A27	CLA ONE	PLACE ONE IN ACC 25
00775	0760	00	0	00001		LBT	
00776	0074	00	4	06504		TSX ERROR,4	DID NOT SENSE ONE BIT
00777	0074	00	4	06511		TSX OK,4	
01000	0020	00	0	00774		TRA A27	

01001	432263606060					BCD 1LBT	TEST LBT
01002	0500	00	0	16361	A28	CLA ZERO	PLACE ZERO IN ACC 35
01003	0760	00	0	00001		LBT	
01004	0020	00	0	01006		TRA A28+4	OK, DID NOT SENSE ONE
01005	0074	00	4	06504		TSX ERROR,4	ERROR SHOULD NOT SKIP
01006	0074	00	4	06511		TSX OK,4	
01007	0020	00	0	01002		TRA A28	

01010	472263606060		BCD 1PBT	PBT TEST
01011	0500 00 0 16361	A29	CLA ZERO	PLACE ZERO IN ACC
01012	0767 00 0 00022		ALS 18	MOVE ZERO INTO P
01013	-0760 00 0 00001		PBT	
01014	0020 00 0 01016		TRA A29+5	OK, SENSED ZERO
01015	0074 00 4 06504		TSX ERROR, 4	DID NOT SENSE ONE BIT
01016	0074 00 4 06511		TSX OK, 4	
01017	0020 00 0 01011		TRA A29	
01020	472263606060		BCD 1PBT	PBT TEST
01021	0500 00 0 16365	A30	CLA ONE	PLACE ONE ZERO IN ACC 35
01022	0767 00 0 00043		ALS 35	SHIFT ONE TO P POSITION
01023	-0760 00 0 00001		PBT	
01024	0074 00 4 06504		TSX ERROR, 4	DID NOT SKIP WITH ONE IN P
01025	0074 00 4 06511		TSX OK, 4	
01026	0020 00 0 01021		TRA A30	
01027	634743606060		BCD 1TPL	TPL TEST
01030	0500 00 0 16435	A31	CLA PTW	BRING IN PLUS NUMBER
01031	0120 00 0 01033		TPL A31+3	TRANSFER IF OK
01032	0074 00 4 06504		TSX ERROR, 4	ERROR DID NOT TRANSFER
01033	0074 00 4 06511		TSX OK, 4	
01034	0020 00 0 01030		TRA A31	
01035	634743606060		BCD 1TPL	TPL TEST
01036	0500 00 0 16434	A32	CLA MTW	BRING IN MINUS NUMBER
01037	0120 00 0 01041		TPL A32+3	SHOULD NOT TRANSFER
01040	0020 00 0 01042		TRA A32+4	OK, DID NOT TRANSFER
01041	0074 00 4 06504		TSX ERROR, 4	
01042	0074 00 4 06511		TSX OK, 4	
01043	0020 00 0 01036		TRA A32	
01044	634431606060		BCD 1TMI	TMI TEST
01045	0500 00 0 16434	A33	CLA MTW	BRING IN MINUS NUMBER
01046	-0120 00 0 01050		TMI A33+3	OK, SHOULD TRANSFER
01047	0074 00 4 06504		TSX ERROR, 4	DID NOT TRANSFER
01050	0074 00 4 06511		TSX OK, 4	
01051	0020 00 0 01045		TRA A33	
01052	634431606060		BCD 1TMI	TMI TEST
01053	0500 00 0 16435	A34	CLA PTW	BRING IN PLUS NUMBER
01054	-0120 00 0 01056		TMI A34+3	SHOULD NOT TRANSFER
01055	0020 00 0 01057		TRA A34+4	OK, DID NOT TRANSFER
01056	0074 00 4 06504		TSX ERROR, 4	
01057	0074 00 4 06511		TSX OK, 4	
01060	0020 00 0 01053		TRA A34	
01061	234344606060		BCD 1CLM	CLM TEST, TWO PARTS
01062	0500 00 0 16362	A35	CLA ONES	BRING IN -377777777777
01063	0760 00 0 00000		CLM	

01064	0100	00	0	01067		TZE A35+5	OK, NOW SEE IF SIGN IS SAME
01065	0074	00	4	06503		TSX ERROR-1,4	DID NOT CLEAR POS 1-35
01066	0020	00	0	01062		TRA A35	
01067	-0120	00	0	01071		TMI A35+7	OK, DID NOT CHANGE SIGN
01070	0074	00	4	06504		TSX ERROR,4	CHANGED SIGN
01071	0074	00	4	06511		TSX OK,4	PROCEED
01072	0020	00	0	01062		TRA A35	
01073	234344606060					BCD 1CLM	CLM TEST, TWO PARTS
01074	0500	00	0	16360	A36	CLA PONES	BRING IN +37777777777
01075	0760	00	0	00000		CLM	
01076	0100	00	0	01101		TZE A36+5	OK. NOW SEE IF SIGN IS SAME
01077	0074	00	4	06503		TSX ERROR-1,4	DID NOT CLEAR POS 1-35
01100	0020	00	0	01074		TRA A36	
01101	0120	00	0	01103		TPL A36+7	OK, SIGN UNCHANGED
01102	0074	00	4	06504		TSX ERROR,4	CHANGED SIGN
01103	0074	00	4	06511		TSX OK,4	
01104	0020	00	0	01074		TRA A36	
01105	234344606060					BCD 1CLM	CLM TEST, CHECK OF P ANDQ
01106	0500	00	0	16362	A37	CLA ONES	BRING IN ONES
01107	0767	00	0	00006		ALS 6	SHIFT INTO P AND Q
01110	0760	00	0	00000		CLM	
01111	0100	00	0	01113		TZE A37+5	OK, SHOULD CLEAR P AND Q
01112	0074	00	4	06504		TSX ERROR,4	DID NOT CLEAR P AND Q
01113	0074	00	4	06511		TSX OK,4	
01114	0020	00	0	01106		TRA A37	
01115	626247606060					BCD 1SSP	SSP TEST
01116	0500	00	0	16362	A38	CLA ONES	MAKE ACC SIGN MINUS
01117	0760	00	0	00003		SSP	NOW MAKE POSITIVE
01120	0120	00	0	01122		TPL A38+4	OK, SHOULD TRANSFER
01121	0074	00	4	06504		TSX ERROR,4	DID NOT CHANGE MINUS TO PLUS
01122	0074	00	4	06511		TSX OK,4	
01123	0020	00	0	01116		TRA A38	
01124	626247606060					BCD 1SSP	SSP TEST
01125	0500	00	0	16360	A39	CLA PONES	BRING IN PLUS NUMBER
01126	0760	00	0	00003		SSP	
01127	0120	00	0	01131		TPL A39+4	SHOULD TRANSFER
01130	0074	00	4	06504		TSX ERROR,4	DID NOT TRA, CHANGED SIGN
01131	0074	00	4	06511		TSX OK,4	
01132	0020	00	0	01125		TRA A39	
01133	626244606060					BCD 1SSM	SSM TEST
01134	0500	00	0	16360	A40	CLA PONES	BRING IN PLUS NUMBER
01135	-0760	00	0	00003		SSM	MAKE IT MINUS
01136	-0120	00	0	01140		TMI A40+4	SHOULD TRANSFER

01137	0074	00	4	06504		TSX ERROR, 4	DID NOT CHANGE PLUS TO MINUS
01140	0074	00	4	06511		TSX OK, 4	
01141	0020	00	0	01134		TRA A40	
01142	626244606060					BCD 1SSM	SSM TEST
01143	0500	00	0	16362	A41	CLA ONES	BRING IN NEGATIVE NUMBER
01144	-0760	00	0	00003		SSM	SHOULD NOT CHANGE
01145	-0120	00	0	01147		TMI A41+4	SHOULD TRANSFER
01146	0074	00	4	06504		TSX ERROR, 4	INADVERTENTLY CHANGED SIGN
01147	0074	00	4	06511		TSX OK, 4	
01150	0020	00	0	01143		TRA A41	
01151	233062606060					BCD 1CHS	CHS TEST
01152	0500	00	0	16360	A42	CLA PONES	BRING IN PLUS NUMBER
01153	0760	00	0	00002		CHS	MAKE IT MINUS
01154	-0120	00	0	01156		TMI A42+4	SHOULD TRANSFER
01155	0074	00	4	06504		TSX ERROR, 4	DID NOT CHANGE SIGNS
01156	0074	00	4	06511		TSX OK, 4	
01157	0020	00	0	01152		TRA A42	
01160	233062606060					BCD 1CHS	CHS TEST
01161	0500	00	0	16362	A43	CLA ONES	BRING IN NEGATIVE NUMBER
01162	0760	00	0	00002		CHS	MAKE IT POSITIVE
01163	0120	00	0	01165		TPL A43+4	SHOULD TRANFER
01164	0074	00	4	06504		TSX ERROR, 4	DID NOT CHANGE MINUS TO PLUS
01165	0074	00	4	06511		TSX OK, 4	
01166	0020	00	0	01161		TRA A43	
01167	434362606060					BCD 1LLS	LLS TEST
01170	0140	00	0	01171	A44	TOV A44+1	TURN OFF OVFL
01171	0560	00	0	16361		LDQ ZERO	BRING ZERO INTO ACC + MQ
01172	0500	00	0	16361		CLA ZERO	SEE IF PICKED UP BITS
01173	0763	00	0	00022		LLS 18	BY SHIFT
01174	0100	00	0	01177		TZE A45	SHOULD TRANFER
01175	0074	00	4	06503		TSX ERROR-1, 4	PICKED UP BIT
01176	0020	00	0	01170		TRA A44	
01177	-0600	00	0	16576	A45	STQ TEMP	CHECK FOR MQ PICK UP
01200	0500	00	0	16576		CLA TEMP	OF BITS BY LLS
01201	0100	00	0	01203		TZE A45+4	OK, NO PICK UP
01202	0074	00	4	06504		TSX ERROR, 4	PICKED UP A ONE
01203	0074	00	4	06511		TSX OK, 4	
01204	0020	00	0	01170		TRA A44	REPEAT TO A44
01205	434362606060					BCD 1LLS	LLS TEST
01206	0500	00	0	16361	A46	CLA ZERO	CLEAR ACCUMULATOR
01207	0560	00	0	16365		LDQ ONE	MOVE BIT FROM MQ 35 TO MQ 1
01210	0763	00	0	00043		LLS 35	BIT FROM MQ 35 TO ACC 35

01211	0760	00	0	00001		LBT	TEST ACC POSITION 35
01212	0020	00	0	01214		TRA *+2	ERROR
01213	0020	00	0	01216		TRA A47	OK, PROCEED
01214	0074	00	4	06503		TSX ERROR-1,4	
01215	0020	00	0	01206		TRA A46	
01216	-0600	00	0	16576	A47	STQ TEMP	IS THE BIT STILL IN MQ
01217	0500	00	0	16576		CLA TEMP	
01220	0100	00	0	01222		TZE *+2	OK-NO BIT IN MQ
01221	0074	00	4	06504		TSX ERROR,4	LOST THE BIT IN THE MQ
01222	0074	00	4	06511		TSX OK,4	
01223	0020	00	0	01206		TRA A46	GO BACK UP TO A 46
01224	434362606060					BCD 1LLS	LLS TEST, CHECK FOR SIGNS
01225	0500	00	0	16434	A48	CLA MTW	MAKE ACC NEGATIVE
01226	0560	00	0	16435		LDQ PTW	MAKE MQ POSITIVE
01227	0763	00	0	00000		LLS	
01230	0120	00	0	01232		TPL A48+5	OK, SHOULD TRANSFER
01231	0074	00	4	06504		TSX ERROR,4	DID NOT CHANGE ACC SIGN
01232	0074	00	4	06511		TSX OK,4	
01233	0020	00	0	01225		TRA A48	
01234	434362606060					BCD 1LLS	LLS TEST, CHECK FOR SIGNS
01235	0500	00	0	16435	A49	CLA PTW	MAKE ACC POSITIVE
01236	0560	00	0	16434		LDQ MTW	MAKE MQ NEGATIVE
01237	0763	00	0	00000		LLS	
01240	-0120	00	0	01242		TMI A49+5	OK, SHOULD TRANSFER
01241	0074	00	4	06504		TSX ERROR,4	DID NOT CHANGE ACC SIGN
01242	0074	00	4	06511		TSX OK,4	
01243	0020	00	0	01235		TRA A49	
01244	434362606060					BCD 1LLS	LLS TEST, CHECK FOR SIGNS
01245	0500	00	0	16435	A50	CLA PTW	MAKE ACC POSITIVE
01246	0560	00	0	16435		LDQ PTW	MAKE MQ POSITIVE
01247	0763	00	0	00000		LLS	
01250	0120	00	0	01252		TPL A50+5	SHOULD TRANSFER
01251	0074	00	4	06504		TSX ERROR,4	CHANGED SIGNS INADVERTENTLY
01252	0074	00	4	06511		TSX OK,4	
01253	0020	00	0	01245		TRA A50	
01254	434362606060					BCD 1LLS	LLS TEST, CHECK FOR SIGNS
01255	0500	00	0	16434	A51	CLA MTW	MAKE ACC NEGATIVE
01256	0560	00	0	16434		LDQ MTW	MAKE MQ NEGATIVE
01257	0763	00	0	00000		LLS	
01260	-0120	00	0	01262		TMI A51+5	SHOULD TRANSFER
01261	0074	00	4	06504		TSX ERROR,4	SIGNS CHANGED INADVERTENTLY
01262	0074	00	4	06511		TSX OK,4	
01263	0020	00	0	01255		TRA A51	
01264	435162606060					BCD 1LRS	LRS TEST



01265	0500	00	0	16365	A52	CLA ONE	PLACE 1 IN ACC 35
01266	0560	00	0	16361		LDQ ZERO	CLEAR MQ
01267	0765	00	0	00043		LRS 35	SHIFT A ONE TO MQ
01270	-0600	00	0	16576		STQ TEMP	STORE MQ IN TEMP STORAGE
01271	0500	00	0	16576		CLA TEMP	BRING CONTENTS OF MQ TO ACC
01272	-0100	00	0	01274		TNZ A52+7	OK, SHOULD STILL HAVE ONE
01273	0074	00	4	06504		TSX ERROR, 4	LOST ONE BIT IN SHIFT
01274	0074	00	4	06511		TSX OK, 4	
01275	0020	00	0	01265		TRA A52	

01276	435162606060					BCD 1LRS	LRS TEST
01277	0560	00	0	16361	A53	LDQ ZERO	CLEAR MQ
01300	0500	00	0	16435		CLA PTW	PLATE BIT IN ACC 1
01301	0765	00	0	00044		LRS 36	MOVE A ONE TO MQ
01302	0100	00	0	01304		TZE A53+5	OK, ACC SHOULD BE CLEAR
01303	0074	00	4	06504		TSX ERROR, 4	DID NOT CLEAR ACC
01304	0074	00	4	06511		TSX OK, 4	
01305	0020	00	0	01277		TRA A53	

01306	435162606060					BCD 1LRS	LRS TEST
01307	0500	00	0	16434	A54	CLA MTW	PLACE BIT IN ACC POS 1
01310	0765	00	0	00042		LRS 34	MOVE IT TO ACC POS 35
01311	0760	00	0	00001		LBT	IS IT THERE
01312	0074	00	4	06504		TSX ERROR, 4	NO
01313	0074	00	4	06511		TSX OK, 4	YES
01314	0020	00	0	01307		TRA A54	

01315	435162606060					BCD 1LRS	LRS TEST, CHECK SIGNS
01316	0500	00	0	16435	A55	CLA PTW	MAKE ACC POSITIVE
01317	0560	00	0	16434		LDQ MTW	MAKE MQ NEGATIVE
01320	0765	00	0	00000		LRS	CHANGE SIGN OF MQ
01321	-0600	00	0	16576		STQ TEMP	STORE IT
01322	0500	00	0	16576		CLA TEMP	BRING IT TO ACC
01323	0120	00	0	01325		TPL A55+7	SHOULD BE PLUS
01324	0074	00	4	06504		TSX ERROR, 4	DID NOT CHANGE SIGNS
01325	0074	00	4	06511		TSX OK, 4	
01326	0020	00	0	01316		TRA A55	

01327	435162606060					BCD 1LRS	LRS TEST, CHECK SIGNS
01330	0500	00	0	16434	A56	CLA MTW	MAKE ACC NEGATIVE
01331	0560	00	0	16435		LDQ PTW	MAKE MQ POSITIVE
01332	0765	00	0	00000		LRS	CHANGE MQ SIGN
01333	-0600	00	0	16576		STQ TEMP	SAVE IT
01334	0500	00	0	16576		CLA TEMP	TEST IT
01335	-0120	00	0	01337		TMI A56+7	OK
01336	0074	00	4	06504		TSX ERROR, 4	DID NOT CHANGE MQ SIGN
01337	0074	00	4	06511		TSX OK, 4	
01340	0020	00	0	01330		TRA A56	

01341	435162606060					BCD 1LRS	LRS TEST, CHECK SIGNS
01342	0500	00	0	16435	A57	CLA PTW	MAKE ACC POSITIVE

01343	0560	00	0	16435		LDQ PTW	MAKE MQ POSITIVE
01344	0765	00	0	00000		LRS	MQ SIGN SHOULD STAY POSITIVE
01345	-0600	00	0	16576		STQ TEMP	SAVE IT
01346	0500	00	0	16576		CLA TEMP	BRING TO ACC
01347	0120	00	0	01351		TPL A57+7	OK, SHOULD BE PLUS
01350	0074	00	4	06504		TSX ERROR, 4	CHANGE SIGN INADVERTENTLY
01351	0074	00	4	06511		TSX OK, 4	
01352	0020	00	0	01342		TRA A57	
01353	432743606060					BCD 1LGL	LGL TEST
01354	0140	00	0	01355	A58	TOV A58+1	TURN OFF OVERFLOW
01355	0500	00	0	16361		CLA ZERO	PLACE ZERO IN ACC
01356	0560	00	0	16361		LDQ ZERO	PLACE ZERO IN MQ
01357	-0763	00	0	00010		LGL 8	
01360	-0600	00	0	16576		STQ TEMP	SAVE MQ
01361	0500	00	0	16576		CLA TEMP	BRING IT INTO ACC
01362	0100	00	0	01364		TZE A58+8	OK, SHOULD BE ZERO
01363	0074	00	4	06504		TSX ERROR, 4	PICKED UP BITS
01364	0074	00	4	06511		TSX OK, 4	
01365	0020	00	0	01354		TRA A58	
01366	432743606060					BCD 1LGL	LGL TEST, SHIFT ACROSS
01367	0500	00	0	16361	A59	CLA ZERO	PLACE ZERO IN ACC
01370	0560	00	0	16365		LDQ ONE	PLACE ONE IN MQ 35
01371	-0763	00	0	00001		LGL 1	SHIFT ONE
01372	-0600	00	0	16576		STQ TEMP	SAVE MQ
01373	0500	00	0	16576		CLA TEMP	TEST FOR BIT
01374	-0100	00	0	01371		TNZ A59+2	OK, SWEEP ACROSS MQ
01375	-0120	00	0	01377		TMI A59+8	FINISH ACC SHOULD BE MINUS
01376	0074	00	4	06504		TSX ERROR, 4	FAILED TO SHIFT, LOST A BIT
01377	0074	00	4	06511		TSX OK, 4	
01400	0020	00	0	01367		TRA A59	
01401	432743606060					BCD 1LGL	LGL TEST, SEEK P POSITION
01402	0140	00	0	01403	A60	TOV A60+1	TURN OFF OVERFLOW
01403	0560	00	0	16366		LDQ MZE	
01404	-0763	00	0	00044		LGL 36	MOVE BIT FROM MQ S TO ACC P
01405	-0760	00	0	00001		PBT	IS THERE A BIT IN ACC P
01406	0020	00	0	01410		TRA A60+6	ERROR
01407	0020	00	0	01412		TRA A60+8	OK, PROCEED
01410	0074	00	4	06503		TSX ERROR-1, 4	NO BIT IN P
01411	0020	00	0	01402		TRA A60	
01412	0140	00	0	01415		TOV A61	OK, PROCEED
01413	0074	00	4	06503		TSX ERROR-1, 4	
01414	0020	00	0	01402		TRA A60	
01415	-0763	00	0	00002	A61	LGL 2	MOVE BIT OUT OF Q
01416	0100	00	0	01420		TZE A61+3	OK, SHOULD BE ZERO
01417	0074	00	4	06504		TSX ERROR, 4	DID NOT MOVE PAST Q
01420	0074	00	4	06511		TSX OK, 4	

01421	0020 00 0 01402		TRA A60	
01422	432743606060		BCD 1LGL	LGL TEST
01423	0560 00 0 16371	A61A	LDQ PTHR	PLACE BIT IN MQ 2 POS
01424	-0763 00 0 00003		LGL 3	MOVE BIT TO ACC 35
01425	0760 00 0 00001		LBT	CHECK ACC
01426	0020 00 0 01430		TRA A61A+5	DID NOT SHIFT TO ACC 35
01427	0020 00 0 01432		TRA A61A+7	OK, CHECK MQ
01430	0074 00 4 06503		TSX ERROR-1,4	
01431	0020 00 0 01423		TRA A61A	
01432	-0600 00 0 16576		STQ TEMP	PLACE MQ IN TEMP STOR
01433	0500 00 0 16576		CLA TEMP	BRING IT TO ACC
01434	0100 00 0 01437		TZE A61A+12	SHOULD BE ZERO
01435	0074 00 4 06503		TSX ERROR-1,4	
01436	0020 00 0 01423		TRA A61A	
01437	0120 00 0 01441		TPL A61A+14	OK, MQ IS PLUS, PROCEED
01440	0074 00 4 06504		TSX ERROR,4	
01441	0074 00 4 06511		TSX OK,4	
01442	0020 00 0 01423		TRA A61A	
01443	515043606060		BCD 1RQL	RQL TEST
01444	0560 00 0 16366	A62	LDQ MZE	PLACE BIT IN MQC SIGN POS
01445	-0773 00 0 00001		RQL 1	
01446	-0600 00 0 16576		STQ TEMP	SAVE MQ
01447	0500 00 0 16576		CLA TEMP	BRING MQ TO ACC
01450	0760 00 0 00001		LBT	TEST FOR ROTATE
01451	0074 00 4 06504		TSX ERROR,4	DID NOT ROTATE
01452	0074 00 4 06511		TSX OK,4	OK, BIT WENT FROM MQ S TO MQ 35
01453	0020 00 0 01444		TRA A62	
01454	515043606060		BCD 1RQL	RQL TEST
01455	0140 00 0 01456	A62A	TOV A62A+1	TURN OFF OVFL
01456	0500 00 0 16361		CLA ZERO	LOAD ACC WITH ZERO
01457	0560 00 0 16361		LDQ ZERO	LOAD MQ WITH ZERO
01460	-0773 00 0 00020		RQL 16	
01461	-0600 00 0 16576		STQ TEMP	MOVE MQ TO ACC
01462	0500 00 0 16576		CLA TEMP	
01463	0100 00 0 01465		TZE A62A+8	OK, SHOULD BE ZERO
01464	0074 00 4 06504		TSX ERROR,4	PICKED UP BITS
01465	0074 00 4 06511		TSX OK,4	
01466	0020 00 0 01455		TRA A62A	
01467	515043606060		BCD 1RQL	RQL TEST
01470	0560 00 0 16366	A63	LDQ MZE	START WITH BIT IN MQ S
01471	-0773 00 0 00001		RQL 1	SHIFT UNTIL IT GET BACK
01472	-0600 00 0 16576		STQ TEMP	AROUND
01473	0500 00 0 16576		CLA TEMP	
01474	-0100 00 0 01471		TNZ A63+1	LOOP 35 TIMES
01475	-0120 00 0 01477		TMI A63+7	YES, IT GOT BACK TO S POS

01476	0074	00	4	06504		TSX ERROR, 4	
01477	0074	00	4	06511		TSX OK, 4	
01500	0020	00	0	01470		TRA A63	
01501	515043606060					BCD 1RQL	RQL MODULO TEST
01502	0560	00	0	16365	A63A	LDQ ONE	PLACE ONE IN MQ 35
01503	-0773	00	0	00400		RQL 256	SHOULD NOT SHIFT
01504	-0600	00	0	16576		STQ TEMP	LOAD MQ INTO ACC
01505	0500	00	0	16576		CLA TEMP	
01506	0760	00	0	00001		LBT	HAVE WE SHIFTED
01507	0074	00	4	06504		TSX ERROR, 4	YES, ERROR
01510	0074	00	4	06511		TSX OK, 4	NO
01511	0020	00	0	01502		TRA A63A	
01512	515043606060					BCD 1RQL	RQL MODULO TEST
01513	0560	00	0	16365	A63B	LDQ ONE	PLACE ONE IN MQ 35
01514	-0773	00	0	00444		RQL 292	SHOULD MAKE ONE ROTATION
01515	-0600	00	0	16576		STQ TEMP	LOAD MQ INTO ACC
01516	0500	00	0	16576		CLA TEMP	
01517	0760	00	0	00001		LBT	WAS MODULO INTERPRETED OK
01520	0074	00	4	06504		TSX ERROR, 4	NO
01521	0074	00	4	06511		TSX OK, 4	YES, MODULO PROCESS WORKS
01522	0020	00	0	01513		TRA A63B	
01523	635047606060					BCD 1TQP	TQP TEST
01524	0560	00	0	16435	A64	LDQ PTW	PLACE PLUS NUMBER IN MQ
01525	0162	00	0	01527		TQP A64+3	SHOULD TRANSFER
01526	0074	00	4	06504		TSX ERROR, 4	
01527	0074	00	4	06511		TSX OK, 4	
01530	0020	00	0	01524		TRA A64	
01531	635047606060					BCD 1TQP	TQP TEST
01532	0560	00	0	16434	A65	LDQ MTW	PLACE NEGATIVE NO IN MQ
01533	0162	00	0	01535		TQP A65+3	SHOULD NOT TRANSFER
01534	0020	00	0	01536		TRA A65+4	OK
01535	0074	00	4	06504		TSX ERROR, 4	
01536	0074	00	4	06511		TSX OK, 4	
01537	0020	00	0	01532		TRA A65	
01540	454647606060					BCD 1NOP	NOP TEST
01541	0761	00	0	01543	A66	NOP A66+2	
01542	0020	00	0	01544		TRA A66+3	OK
01543	0074	00	4	06504		TSX ERROR, 4	
01544	0074	00	4	06511		TSX OK, 4	
01545	0020	00	0	01541		TRA A66	
01546	234644606060					BCD 1COM	COM TEST
01547	0500	00	0	16362	A67	CLA ONES	PLACE ONES IN ACC
01550	0760	00	0	00006		COM	SHOULD NOW BE ZERO
01551	0767	00	0	00002		ALS 2	

01552	0100 00 0 01554		TZE A67+5	OK, IT IS ZERO
01553	0074 00 4 06504		TSX ERROR,4	
01554	0074 00 4 06511		TSX OK,4	
01555	0020 00 0 01547		TRA A67	
01556	234644606060		BCD 1COM	COM TEST
01557	0500 00 0 16362	A68	CLA ONES	PLACE ONES IN ACC
01560	0560 00 0 16362		LDQ ONES	PLACE ONES IN MQ
01561	0763 00 0 00010		LLS 8	SHIFT BITS TO P AND Q
01562	0760 00 0 00006		COM	MAKE IT ALL ZEROS
01563	0100 00 0 01565		TZE A68+6	OK, ALL ZEROS
01564	0074 00 4 06504		TSX ERROR,4	
01565	0074 00 4 06511		TSX OK,4	
01566	0020 00 0 01557		TRA A68	
01567	234644606060		BCD 1COM	COM TEST, CHECK SIGN
01570	0500 00 0 16360	A69	CLA PONES	BRING IN PLUS NUMBER
01571	0760 00 0 00006		COM	MAKE COM
01572	0120 00 0 01574		TPL A69+4	OK, SIGN DID NOT CHANGE
01573	0074 00 4 06504		TSX ERROR,4	
01574	0074 00 4 06511		TSX OK,4	
01575	0020 00 0 01570		TRA A69	
01576	234644606060		BCD 1COM	COM TEST, CHECK SIGN
01577	0500 00 0 16362	A70	CLA ONES	BRING IN NEG NUMBER
01600	0760 00 0 00006		COM	COM
01601	-0120 00 0 01603		TMI A70+4	OK, SIGN DID NOT CHANGE
01602	0074 00 4 06504		TSX ERROR,4	
01603	0074 00 4 06511		TSX OK,4	
01604	0020 00 0 01577		TRA A70	
01605	212424606060		BCD 1ADD	ADD TEST, SIGNS POSITIVE
01606	0500 00 0 16365	A71	CLA ONE	HAVE BOTH SIGNS POSITIVE
01607	0400 00 0 16365		ADD ONE	ADD
01610	0760 00 0 00001		LBT	SHOULD HAVE ZERO IN ACC 35
01611	0020 00 0 01614		TRA A72	OK
01612	0074 00 4 06503		TSX ERROR-1,4	
01613	0020 00 0 01606		TRA A71	
01614	0771 00 0 00001	A72	ARS 1	SHIFT ONE TO CHECK ANSWER
01615	0760 00 0 00001		LBT	
01616	0020 00 0 01620		TRA A72+4	DID NOT ADD CORRECTLY
01617	0020 00 0 01622		TRA A72+6	CHECK SIGN
01620	0074 00 4 06503		TSX ERROR-1,4	BIT ERROR
01621	0020 00 0 01606		TRA A71	
01622	0120 00 0 01624		TPL A72+8	OK, SIGN IS PLUS
01623	0074 00 4 06504		TSX ERROR,4	
01624	0074 00 4 06511		TSX OK,4	
01625	0020 00 0 01606		TRA A71	

01626	212424606060		BCD 1ADD	ADD TEST, SIGNS NEGATIVE
01627	0500 00 0 16440	A73	CLA MONE	BRING IN MINUS ONE
01630	0400 00 0 16440		ADD MONE	ADD MINUS ONE
01631	0760 00 0 00001		LBT	TEST ANSWER
01632	0020 00 0 01635		TRA A74	OK, ACC 35 IS A ZERO
01633	0074 00 4 06503		TSX ERROR-1,4	
01634	0020 00 0 01627		TRA A73	
01635	0771 00 0 00001	A74	ARS 1	SHOULD GET A ONE
01636	0760 00 0 00001		LBT	TEST
01637	0020 00 0 01641		TRA A74+4	DID NOT SENSE A ONE
01640	0020 00 0 01643		TRA A74+6	CHECK SIGN
01641	0074 00 4 06503		TSX ERROR-1,4	
01642	0020 00 0 01627		TRA A73	
01643	-0120 00 0 01645		TMI A74+8	OK, SIGN IS MINUS
01644	0074 00 4 06504		TSX ERROR,4	
01645	0074 00 4 06511		TSX OK,4	
01646	0020 00 0 01627		TRA A73	REPEAT SECTION
01647	212424606060		BCD 1ADD	ADD TEST, ACC PLUS, MEMORY NEGATIVE
01650	0500 00 0 16431	A75	CLA THREE	MAKE ACC PLUS THREE
01651	0400 00 0 16441		ADD M2	ADD MEM MINUS TWO
01652	0760 00 0 00001		LBT	SHOULD GET A ONE
01653	0020 00 0 01655		TRA A75+5	
01654	0020 00 0 01657		TRA A76	OK
01655	0074 00 4 06503		TSX ERROR-1,4	
01656	0020 00 0 01650		TRA A75	
01657	0771 00 0 00001	A76	ARS 1	SEE THAT HAVE NO CARRY
01660	0760 00 0 00001		LBT	TEST FOR ZERO
01661	0020 00 0 01664		TRA A76+5	CHECK SIGN
01662	0074 00 4 06503		TSX ERROR-1,4	
01663	0020 00 0 01650		TRA A75	
01664	0120 00 0 01666		TPL A76+7	OK, SIGN SHOULD BE PLUS
01665	0074 00 4 06504		TSX ERROR,4	
01666	0074 00 4 06511		TSX OK,4	
01667	0020 00 0 01650		TRA A75	REPEAT SECTION
01670	212424606060		BCD 1ADD	ADD TEST, ACC MINUS MEMORY PLUS
01671	0500 00 0 16456	A77	CLA M3	MAKE ACC MINUS THREE
01672	0400 00 0 16430		ADD TWO	ADD PLUS TWO
01673	0760 00 0 00001		LBT	TEST FOR ONE
01674	0020 00 0 01676		TRA A77+5	
01675	0020 00 0 01700		TRA A78	OK
01676	0074 00 4 06503		TSX ERROR-1,4	
01677	0020 00 0 01671		TRA A77	

01700	0771	00	0	00001	A78	ARS 1	SEE THAT HAVE NO CARRY
01701	0760	00	0	00001		LBT	SHOULD BE ZERO
01702	0020	00	0	01705		TRA A78+5	CHECK SIGN
01703	0074	00	4	06503		TSX ERROR-1,4	BIT ERROR
01704	0020	00	0	01671		TRA A77	
01705	-0120	00	0	01707		TMI A78+7	OK, SIGN IS MINUS
01706	0074	00	4	06504		TSX ERROR,4	DID NOT GET SIGN OR ZERO
01707	0074	00	4	06511		TSX OK,4	
01710	0020	00	0	01671		TRA A77	
01711	212424606060					BCD 1ADD	ADD TEST
01712	0500	00	0	16430	A79	CLA TWO	MAKE ACC PLUS TWO
01713	0400	00	0	16456		ADD M3	ADD MINUS THREE
01714	0760	00	0	00001		LBT	TEST FOR ONE
01715	0020	00	0	01717		TRA A79+5	
01716	0020	00	0	01721		TRA A80	OK
01717	0074	00	4	06503		TSX ERROR-1,4	
01720	0020	00	0	01712		TRA A79	
01721	0771	00	0	00001	A80	ARS 1	CHECK FOR ZERO FIRST
01722	0760	00	0	00001		LBT	TEST FOR ZERO
01723	0020	00	0	01726		TRA A80+5	CHECK SIGN
01724	0074	00	4	06503		TSX ERROR-1,4	BIT ERROR
01725	0020	00	0	01712		TRA A79	
01726	-0120	00	0	01730		TMI A80+7	OK, SIGN IS MINUS
01727	0074	00	4	06504		TSX ERROR,4	
01730	0074	00	4	06511		TSX OK,4	
01731	0020	00	0	01712		TRA A79	REPEAT SECTION
01732	212424606060					BCD 1ADD	ADD TEST
01733	0500	00	0	16441	A81	CLA M2	MAKE ACC MINUS TWO
01734	0400	00	0	16431		ADD THREE	ADD PLUS THREE
01735	0760	00	0	00001		LBT	TEST FOR ONE
01736	0020	00	0	01740		TRA A81+5	
01737	0020	00	0	01742		TRA A82	OK, GOT A ONE
01740	0074	00	4	06503		TSX ERROR-1,4	
01741	0020	00	0	01733		TRA A81	
01742	0771	00	0	00001	A82	ARS 1	CHECK NEXT POSITION
01743	0760	00	0	00001		LBT	FOR A ZERO
01744	0020	00	0	01747		TRA A82+5	CHECK SIGN
01745	0074	00	4	06503		TSX ERROR-1,4	
01746	0020	00	0	01733		TRA A81	
01747	0120	00	0	01751		TPL A82+7	OK, PROCEED
01750	0074	00	4	06504		TSX ERROR,4	
01751	0074	00	4	06511		TSX OK,4	
01752	0020	00	0	01733		TRA A81	

01753	212424606060		BCD 1ADD	ADD TEST, WITH RIPPLE
01754	0500 00 0 16360	A82A	CLA PONES	BRING IN PLUS ONES
01755	0400 00 0 16365		ADD ONE	ADD ONE TO RIPPLE
01756	-0760 00 0 00001		PBT	P SHOULD HAVE BIT
01757	0020 00 0 01761		TRA A82A+5	NO P BIT
01760	0020 00 0 01763		TRA A82A+7	OK, CHECK OVFL
01761	0074 00 4 06503		TSX ERROR-1,4	
01762	0020 00 0 01754		TRA A82A	OK, PROCEED
01763	0140 00 0 01765		TOV A82A+9	
01764	0074 00 4 06504		TSX ERROR,4	
01765	0074 00 4 06511		TSX OK,4	
01766	0020 00 0 01754		TRA A82A	
01767	212444606060		BCD 1ADM	ADM TEST
01770	0500 00 0 16440	A83	CLA MONE	ACC NEGATIVE ONE
01771	0401 00 0 16430		ADM TWO	STORAGE PLUS TWO
01772	0760 00 0 00001		LBT	TEST FOR ONE
01773	0020 00 0 01775		TRA A83+5	NO
01774	0020 00 0 01777		TRA A83+7	CHECK SIGN.
01775	0074 00 4 06503		TSX ERROR-1,4	
01776	0020 00 0 01770		TRA A83	
01777	0120 00 0 02001		TPL A83+9	OK, SIGN IS PLUS
02000	0074 00 4 06504		TSX ERROR,4	
02001	0074 00 4 06511		TSX OK,4	
02002	0020 00 0 01770		TRA A83	
02003	212444606060		BCD 1ADM	ADM TEST
02004	0500 00 0 16440	A84	CLA MONE	ACC IS MINUS ONE
02005	0401 00 0 16441		ADM M2	STORAGE MINUS TWO
02006	0760 00 0 00001		LBT	TEST FOR ONE
02007	0020 00 0 02011		TRA A84+5	NO
02010	0020 00 0 02013		TRA A84+7	OK, CHECK SIGN
02011	0074 00 4 06503		TSX ERROR-1,4	
02012	0020 00 0 02004		TRA A84	
02013	0120 00 0 02015		TPL A84+9	OK, PROCEED
02014	0074 00 4 06504		TSX ERROR,4	
02015	0074 00 4 06511		TSX OK,4	
02016	0020 00 0 02004		TRA A84	
02017	212444606060		BCD 1ADM	ADM TEST, WITH RIPPLE
02020	0500 00 0 16360	A84A	CLA PONES	BRING IN PLUS ONES
02021	0401 00 0 16440		ADM MONE	ADM OF MINUS ONE
02022	-0760 00 0 00001		PBT	SHOULD GET BIT IN P
02023	0020 00 0 02025		TRA A84A+5	NO P BIT
02024	0020 00 0 02027		TRA A84A+7	OK, CHECK OVFL
02025	0074 00 4 06503		TSX ERROR-1,4	
02026	0020 00 0 02020		TRA A84A	
02027	0140 00 0 02031		TOV A84A+9	OK, PROCEED



02030	0074	00	4	06504		TSX ERROR,4	
02031	0074	00	4	06511		TSX OK,4	
02032	0020	00	0	02020		TRA A84A	
02033	626422606060					BCD 1SUB	SUB TEST
02034	0500	00	0	16365	A85	CLA ONE	MAKE ACC PLUS ONE
02035	0402	00	0	16440		SUB MONE	SUB MINUS ONE
02036	0760	00	0	00001		LBT	TEST FOR ZERO
02037	0020	00	0	02042		TRA A85+6	CHECK SIGN
02040	0074	00	4	06503		TSX ERROR-1,4	
02041	0020	00	0	02034		TRA A85	
02042	0120	00	0	02045		TPL A86	OK, PROCEED
02043	0074	00	4	06503		TSX ERROR-1,4	
02044	0020	00	0	02034		TRA A85	
02045	0771	00	0	00001	A86	ARS 1	IN ACC POS 34
02046	0760	00	0	00001		LBT	
02047	0074	00	4	06504		TSX ERROR,4	NO ONE BIT
02050	0074	00	4	06511		TSX OK,4	OK, GOT A ONE BIT
02051	0020	00	0	02034		TRA A85	REPEAT SECTION
02052	626422606060					BCD 1SUB	SUB TEST
02053	0500	00	0	16440	A87	CLA MONE	MAKE ACC MINUS ONE
02054	0402	00	0	16365		SUB ONE	SUB PLUS ONE
02055	0760	00	0	00001		LBT	TEST FOR ZERO
02056	0020	00	0	02061		TRA A87+6	OK, CHECK SIGN
02057	0074	00	4	06503		TSX ERROR-1,4	
02060	0020	00	0	02053		TRA A87	
02061	-0120	00	0	02064		TMI A88	OK, PROCEED
02062	0074	00	4	06503		TSX ERROR-1,4	
02063	0020	00	0	02053		TRA A87	
02064	0771	00	0	00001	A88	ARS 1	CHECK FOR ONE IN POS 34
02065	0760	00	0	00001		LBT	SHOULD GET A ONE
02066	0074	00	4	06504		TSX ERROR,4	NO, DID NOT GET IT
02067	0074	00	4	06511		TSX OK,4	OK, PROCEED
02070	0020	00	0	02053		TRA A87	
02071	626422606060					BCD 1SUB	SUB TEST, END CARRY
02072	0500	00	0	16431	A89	CLA THREE	ACC PLUS THREE
02073	0402	00	0	16430		SUB TWO	SUB PLUS TWO
02074	0760	00	0	00001		LBT	SHOULD HAVE PLUS ONE
02075	0020	00	0	02077		TRA A89+5	DID NOT GET ONE
02076	0020	00	0	02101		TRA A89+7	OK, CHECK SIGN
02077	0074	00	4	06503		TSX ERROR-1,4	
02100	0020	00	0	02072		TRA A89	
02101	0120	00	0	02103		TPL A89+9	OK PROCEED
02102	0074	00	4	06504		TSX ERROR,4	

02103	0074	00	4	06511		TSX	OK, 4	
02104	0020	00	0	02072		TRA	A89	
02105	626422606060					BCD 1SUB	SUB TEST, NO END CARRY	
02106	0500	00	0	16430	A90	CLA TWO	ACC PLUS TWO	
02107	0402	00	0	16431		SUB THREE	SUB PLUS THREE	
02110	0760	00	0	00001		LBT	TEST FOR ONE	
02111	0020	00	0	02113		TRA A90+5	NO GOT ERROR	
02112	0020	00	0	02115		TRA A90+7	OK, PROCEED	
02113	0074	00	4	06503		TSX ERROR-1, 4		
02114	0020	00	0	02106		TRA A90		
02115	-0120	00	0	02120		TMI A91	OK, PROCEED	
02116	0074	00	4	06503		TSX ERROR-1, 4		
02117	0020	00	0	02106		TRA A90		
02120	0771	00	0	00001	A91	ARS 1	CHECK ACC POS 34	
02121	0760	00	0	00001		LBT	SHOULD BE ZERO	
02122	0020	00	0	02124		TRA A91+4	OK IT IS ZERO	
02123	0074	00	4	06504		TSX ERROR, 4		
02124	0074	00	4	06511		TSX OK, 4		
02125	0020	00	0	02106		TRA A90	REPEAT SECTION	
02126	626422606060					BCD 1SUB	SUB TEST, NO END CARRY	
02127	0500	00	0	16441	A92	CLA M2	ACC MINUS TWO	
02130	0402	00	0	16456		SUB M3	SUB MINUS THREE	
02131	0760	00	0	00001		LBT	TEST FOR ONE	
02132	0020	00	0	02134		TRA A92+5	NO, GOT A ZERO	
02133	0020	00	0	02136		TRA A92+7	OK, CHECK SIGN	
02134	0074	00	4	06503		TSX ERROR-1, 4		
02135	0020	00	0	02127		TRA A92		
02136	0120	00	0	02141		TPL A93	OK, PROCEED	
02137	0074	00	4	06503		TSX ERROR-1, 4		
02140	0020	00	0	02127		TRA A92		
02141	0771	00	0	00001	A93	ARS 1	CHECK POSITION 34 OF ACC	
02142	0760	00	0	00001		LBT	SHOULD BE ZERO	
02143	0020	00	0	02145		TRA A93+4	OK	
02144	0074	00	4	06504		TSX ERROR, 4	NO GOOD	
02145	0074	00	4	06511		TSX OK, 4		
02146	0020	00	0	02127		TRA A92		
02147	626422606060					BCD 1SUB	SUB TEST, END CARRY	
02150	0500	00	0	16456	A94	CLA M3	ACC MINUS THREE	
02151	0402	00	0	16441		SUB M2	SUB MINUS TWO	
02152	0760	00	0	00001		LBT	TEST FOR ONE	
02153	0020	00	0	02155		TRA A94+5	NO GOOD, GO A ZERO	
02154	0020	00	0	02157		TRA A94+7	OK, CHECK SIGN	
02155	0074	00	4	06503		TSX ERROR-1, 4		
02156	0020	00	0	02150		TRA A94		

02157	-0120	00	0	02162		TMI A95	OK, PROCEED
02160	0074	00	4	06503		TSX ERROR-1,4	
02161	0020	00	0	02150		TRA A94	
02162	0771	00	0	00001	A95	ARS 1	CHECK POSITION 34 OF ACC
02163	0760	00	0	00001		LBT	SHOULD BE ZERO
02164	0020	00	0	02166		TRA A95+4	OK IT IS ZERO
02165	0074	00	4	06504		TSX ERROR,4	NO GOOD, GOT A ONE
02166	0074	00	4	06511		TSX OK,4	
02167	0020	00	0	02150		TRA A94	
02170	626422606060					BCD 1SUB	SUB TEST, WITH RIPPLE
02171	0500	00	0	16362	A95A	CLA ONES	BRING IN MINUS ONES
02172	0402	00	0	16365		SUB ONE	SUB PLUS ONE
02173	-0760	00	0	00001		PBT	SHOULD GET BIT IN P
02174	0020	00	0	02176		TRA A95A+5	NO BIT IN P
02175	0020	00	0	02200		TRA A95A+7	OK, CHECK OVFL
02176	0074	00	4	06503		TSX ERROR-1,4	
02177	0020	00	0	02171		TRA A95A	
02200	0140	00	0	02202		TOV A95A+9	OK, PROCEED
02201	0074	00	4	06504		TSX ERROR,4	
02202	0074	00	4	06511		TSX OK,4	
02203	0020	00	0	02171		TRA A95A	
02204	622244606060					BCD 1SBM	SBM TEST
02205	0500	00	0	16365	A96	CLA ONE	ACC PLUS ONE
02206	-0400	00	0	16441		SBM M2	SBM MINUS TWO
02207	0760	00	0	00001		LBT	TEST FOR ONE
02210	0020	00	0	02212		TRA A96+5	NO GOOD, GOT ZERO
02211	0020	00	0	02214		TRA A96+7	OK, CHECK SIGN
02212	0074	00	4	06503		TSX ERROR-1,4	
02213	0020	00	0	02205		TRA A96	
02214	-0120	00	0	02216		TMI A96+9	OK, PROCEED
02215	0074	00	4	06504		TSX ERROR,4	
02216	0074	00	4	06511		TSX OK,4	
02217	0020	00	0	02205		TRA A96	
02220	622244606060					BCD 1SBM	SBM TEST
02221	0500	00	0	16365	A97	CLA ONE	ACC PLUS ONE
02222	-0400	00	0	16430		SBM TWO	SBM PLUS TWO
02223	0760	00	0	00001		LBT	TEST FOR ONE
02224	0020	00	0	02226		TRA A97+5	GOT ZERO
02225	0020	00	0	02230		TRA A97+7	OK, CHECK SIGN
02226	0074	00	4	06503		TSX ERROR-1,4	
02227	0020	00	0	02221		TRA A97	
02230	-0120	00	0	02232		TMI A97+9	OK, PROCEED
02231	0074	00	4	06504		TSX ERROR,4	
02232	0074	00	4	06511		TSX OK,4	

02233	0020 00 0 02221		TRA A97	
02234	622244606060		BCD 1SBM	SBM TEST, WITH RIPPLE
02235	0500 00 0 16362	A97A	CLA ONES	BRING IN MINUS ONES
02236	-0400 00 0 16365		SBM ONE	SBM OF PLUS ONE
02237	-0760 00 0 00001		PBT	SHOULD BE BIT IN P
02240	0020 00 0 02242		TRA A97A+5	NO BIT IN P
02241	0020 00 0 02244		TRA A97A+7	OK, CHECK OVFL
02242	0074 00 4 06503		TSX ERROR-1,4	
02243	0020 00 0 02235		TRA A97A	
02244	0140 00 0 02246		TOV A97A+9	OK, PROCEED
02245	0074 00 4 06504		TSX ERROR,4	
02246	0074 00 4 06511		TSX OK,4	
02247	0020 00 0 02235		TRA A97A	
02250	234321606060		BCD 1CLA	CLA TEST
02251	0500 00 0 16440	A98	CLA MONE	MAKE ACC MINUS
02252	-0120 00 0 02254		TMI A98+3	CHECK SIGN LOADING
02253	0074 00 4 06504		TSX ERROR,4	NO, DID NOT BRING IN MINUS
02254	0074 00 4 06511		TSX OK,4	OK, PROCEED
02255	0020 00 0 02251		TRA A98	
02256	234321606060		BCD 1CLA	CLA TEST
02257	0500 00 0 16365	A99	CLA ONE	MAKE ACC PLUS
02260	0120 00 0 02262		TPL A99+3	CHECK SIGN, SHOULD BE PLUS
02261	0074 00 4 06504		TSX ERROR,4	NO GOOD
02262	0074 00 4 06511		TSX OK,4	
02263	0020 00 0 02257		TRA A99	
02264	234321606060		BCD 1CLA	CLA TEST
02265	0500 00 0 16361	A100	CLA ZERO	SEE IF ACC IS CLEAR
02266	0100 00 0 02270		TZE A100+3	OK, SHOULD BE ZERO
02267	0074 00 4 06504		TSX ERROR,4	NO GOOD
02270	0074 00 4 06511		TSX OK,4	
02271	0020 00 0 02265		TRA A100	
02272	234321606060		BCD 1CLA	CLA TEST
02273	0500 00 0 16435	B	CLA PTW	BIT IN ACC 1
02274	0767 00 0 00001		ALS 1	SHIFT TO P POSITION
02275	-0760 00 0 00001		PBT	TEST P FOR A ONE
02276	0020 00 0 02300		TRA B+5	NO, GOT A ZERO
02277	0020 00 0 02302		TRA B+7	OK, CHECK OVFL
02300	0074 00 4 06503		TSX ERROR-1,4	
02301	0020 00 0 02273		TRA B	
02302	0140 00 0 02304		TOV B+9	OK, PROCEED
02303	0074 00 4 06504		TSX ERROR,4	
02304	0074 00 4 06511		TSX OK,4	
02305	0020 00 0 02273		TRA B	

02306	234321606060		BCD 1CLA	CLA TEST
02307	0500 00 0 16365	B1	CLA ONE	SEE IF Q AND P POS ARE CLEAR
02310	-0760 00 0 00001		PBT	P POS SHOULD BE ZERO
02311	0020 00 0 02314		TRA B1+5	OK, NOW TEST Q POS
02312	0074 00 4 06503		TSX ERROR-1,4	
02313	0020 00 0 02307		TRA B1	
02314	0771 00 0 00001		ARS 1	SHIFT FOR Q
02315	-0760 00 0 00001		PBT	Q POS SHOULD BE ZERO
02316	0020 00 0 02321		TRA B1+10	OK, CHECK OVFL
02317	0074 00 4 06503		TSX ERROR-1,4	
02320	0020 00 0 02307		TRA B1	
02321	-0140 00 0 02323		TNO B1+12	OK, OVFL SHOULD BE OFF
02322	0074 00 4 06504		TSX ERROR,4	
02323	0074 00 4 06511		TSX OK,4	
02324	0020 00 0 02307		TRA B1	
02325	234321606060		BCD 1CLA	CLA TEST
02326	0500 00 0 16365	B2	CLA ONE	SEE THAT ONE IS IN ACC 35 IS ONE THERE
02327	0760 00 0 00001		LBT	
02330	0074 00 4 06504		TSX ERROR,4	NO
02331	0074 00 4 06511		TSX OK,4	YES, ONE IS THERE
02332	0020 00 0 02326		TRA B2	
02333	234321606060		BCD 1CLA	CLA TEST, WITH RIPPLE
02334	0500 00 0 16360	B3	CLA PONES	BRING IN PLUS ONES
02335	0400 00 0 16365		ADD ONE	ADD ONE
02336	0760 00 0 00001		LBT	CHECK ACC 35 FOR ZERO
02337	0020 00 0 02342		TRA B3+6	OK, IS ZERO
02340	0074 00 4 06503		TSX ERROR-1,4	
02341	0020 00 0 02334		TRA B3	
02342	-0760 00 0 00001		PBT	TEST P POS FOR ONE
02343	0020 00 0 02345		TRA B3+9	ERROR
02344	0020 00 0 02347		TRA B3+11	OK, CHECK ACC RESULT
02345	0074 00 4 06503		TSX ERROR-1,4	
02346	0020 00 0 02334		TRA B3	
02347	0767 00 0 00002		ALS 2	OK, CHECK FOR ZERO IN OTHER POS BY MOVING BIT PAST Q
02350	0100 00 0 02352		TZE B3+14	
02351	0074 00 4 06504		TSX ERROR,4	NO GOOD, PICKED UP A BIT
02352	0074 00 4 06511		TSX OK,4	OK
02353	0020 00 0 02334		TRA B3	
02354	234362606060		BCD 1CLS	CLS TEST
02355	0502 00 0 16440	B4	CLS MONE	BRING IN MINUS ONE
02356	0120 00 0 02360		TPL B4+3	SHOULD BECOME PLUS
02357	0074 00 4 06504		TSX ERROR,4	DID NOT CHANGE SIGN
02360	0074 00 4 06511		TSX OK,4	
02361	0020 00 0 02355		TRA B4	

02362	234362606060		BCD 1CLS	CLS TEST
02363	0502 00 0 16365	B5	CLS ONE	BRING IN ONE
02364	-0120 00 0 02366		TMI B5+3	SHOULD BE MINUS
02365	0074 00 4 06504		TSX ERROR,4	DID NOT CHANGE SIGN
02366	0074 00 4 06511		TSX OK,4	
02367	0020 00 0 02363		TRA B5	
02370	234362606060		BCD 1CLS	CLS TEST
02371	0502 00 0 16365	B6	CLS ONE	BRING IN ONE IN ACC 35
02372	0760 00 0 00001		LBT	CHECK, IS ONE IN ACC 35
02373	0020 00 0 02375		TRA B6+4	NO GOOD, DID NOT GET ONE
02374	0020 00 0 02377		TRA B6+6	PROCEED
02375	0074 00 4 06503		TSX ERROR-1,4	
02376	0020 00 0 02371		TRA B6	
02377	-0760 00 0 00001		PBT	SEE IF P IS CLEAR
02400	0020 00 0 02403		TRA B6+10	OK, PROCEED
02401	0074 00 4 06503		TSX ERROR-1,4	
02402	0020 00 0 02371		TRA B6	
02403	0771 00 0 00001		ARS 1	SHIFT TO CHECK Q
02404	-0760 00 0 00001		PBT	SHOULD BE ZERO
02405	0020 00 0 02407		TRA B6+14	OK, IT IS ZERO, PROCEED
02406	0074 00 4 06504		TSX ERROR,4	NO GOOD
02407	0074 00 4 06511		TSX OK,4	OK, THERE WAS A ZERO THERE
02410	0020 00 0 02371		TRA B6	
02411	232143606060		BCD 1CAL	CAL TEST
02412	-0500 00 0 16440	B7	CAL MONE	CHECK THAT P HAS ONE
02413	-0760 00 0 00001		PBT	SHOULD HAVE ONE
02414	0020 00 0 02416		TRA B7+4	
02415	0020 00 0 02420		TRA B8	OK, PROCEED
02416	0074 00 4 06503		TSX ERROR-1,4	
02417	0020 00 0 02412		TRA B7	
02420	0120 00 0 02423	B8	TPL B8+3	CHECK THAT SIGN DID NOT CHANGE
02421	0074 00 4 06503		TSX ERROR-1,4	
02422	0020 00 0 02412		TRA B7	
02423	0771 00 0 00001		ARS 1	
02424	-0760 00 0 00001		PBT	CHECK Q POS
02425	0020 00 0 02427		TRA B8+7	SHOULD BE ZERO
02426	0074 00 4 06504		TSX ERROR,4	OK, PROCEED
02427	0074 00 4 06511		TSX OK,4	NO GOOD
02430	0020 00 0 02412		TRA B7	
02431	232143606060		BCD 1CAL	CAL TEST
02432	-0500 00 0 16365	B9	CAL ONE	BRING IN PLUS ONE
02433	-0760 00 0 00001		PBT	P SHOULD BE ZERO

02434	0020	00	0	02437		TRA B9+5	OK, PROCEED
02435	0074	00	4	06503		TSX ERROR-1,4	
02436	0020	00	0	02432		TRA B9	
02437	0760	00	0	00001		LBT	TEST ACC 35 FOR ONE
02440	0020	00	0	02442		TRA B9+8	DID NOT BRING IN A ONE
02441	0020	00	0	02444		TRA B10	OK, PROCEED
02442	0074	00	4	06503		TSX ERROR-1,4	
02443	0020	00	0	02432		TRA B9	
02444	0120	00	0	02447	B10	TPL B10+3	SIGN SHOULD BE PLUS
02445	0074	00	4	06503		TSX ERROR-1,4	ERROR, CHANGE OF SIGN
02446	0020	00	0	02432		TRA B9	
02447	0771	00	0	00001		ARS 1	CHECK Q POS FOR ZERO
02450	-0760	00	0	00001		PBT	
02451	0020	00	0	02453		TRA B10+7	OK, PROCEED
02452	0074	00	4	06504		TSX ERROR,4	NO GOOD
02453	0074	00	4	06511		TSX OK,4	OK, PROCEED
02454	0020	00	0	02432		TRA B9	
02455	212343606060					BCD 1ACL	ACL TEST
02456	0500	00	0	16361	B11	CLA ZERO	CHECK P POSITION AND SIGN
02457	0361	00	0	16365		ACL ONE	POSITION
02460	-0760	00	0	00001		PBT	SHOULD BE A ZERO IN A
02461	0020	00	0	02464		TRA B11+6	CHECK SIGN
02462	0074	00	4	06503		TSX ERROR-1,4	
02463	0020	00	0	02456		TRA B11	
02464	0120	00	0	02466		TPL B11+8	OK, PROCEED
02465	0074	00	4	06504		TSX ERROR,4	
02466	0074	00	4	06511		TSX OK,4	
02467	0020	00	0	02456		TRA B11	
02470	212343606060					BCD 1ACL	ACL TEST
02471	0500	00	0	16361	B12	CLA ZERO	BRING IN MINUS NUMBER
02472	0361	00	0	16440		ACL MONE	SHOULD GET ONE IN P POS
02473	-0760	00	0	00001		PBT	
02474	0020	00	0	02476		TRA B12+5	NO GOOD, GOT ZERO
02475	0020	00	0	02500		TRA B12+7	CHECK SIGN
02476	0074	00	4	06503		TSX ERROR-1,4	
02477	0020	00	0	02471		TRA B12	
02500	0120	00	0	02503		TPL B12+10	OK, PROCEED
02501	0074	00	4	06503		TSX ERROR-1,4	ERROR, CHANGE OF SIGN
02502	0020	00	0	02471		TRA B12	
02503	0760	00	0	00001		LBT	CHECK FOR ONE IN ACL 35
02504	0074	00	4	06504		TSX ERROR,4	GOT A FALSE CARRY
02505	0074	00	4	06511		TSX OK,4	
02506	0020	00	0	02471		TRA B12	

02507	212343606060		BCD 1ACL	ACL TEST
02510	-0500 00 0 16440	B13	CAL MONE	ACC BIT IN POS P AND POS 35
02511	0361 00 0 16440		ACL MONE	ACL MINUS ONE
02512	-0760 00 0 00001		PBT	SHOULD GET ZERO IN P
02513	0020 00 0 02516		TRA B13+6	OK, PROCEED
02514	0074 00 4 06503		TSX ERROR-1,4	
02515	0020 00 0 02510		TRA B13	
02516	0760 00 0 00001		LBT	TEST FOR END CARRY
02517	0020 00 0 02521		TRA B13+9	NO GOOD, GOT A ZERO
02520	0020 00 0 02523		TRA B13+11	OK, PROCEED
02521	0074 00 4 06503		TSX ERROR-1,4	
02522	0020 00 0 02510		TRA B13	
02523	0771 00 0 00001		ARS 1	OK, NOW SEE IF Q BIT
02524	-0760 00 0 00001		PBT	HAS A ONE
02525	0020 00 0 02527		TRA B13+15	Q SHOULD BE CLEARED
02526	0074 00 4 06504		TSX ERROR,4	ERROR, GOT A ONE IN POS Q
02527	0074 00 4 06511		TSX OK,4	
02530	0020 00 0 02510		TRA B13	
02531	626346606060		BCD 1STO	STO TEST
02532	0500 00 0 16362	B14	CLA ONES	BRING IN ALL ONES
02533	0601 00 0 16576		STO TEMP	PLACE IN TEMP STORAGE
02534	0402 00 0 16576		SUB TEMP	SUB SAME QUANTITY
02535	0100 00 0 02537		TZE B14+5	SHOULD BE ZERO
02536	0074 00 4 06504		TSX ERROR,4	ERROR DID NOT STO RIGHT
02537	0074 00 4 06511		TSX OK,4	
02540	0020 00 0 02532		TRA B14	
02541	624366606060		BCD 1SLW	SLW TEST
02542	-0500 00 0 16440	B15	CAL MONE	PUT BIT IN POS P AND POS 35
02543	0120 00 0 02546		TPL B15+4	OK, SIGN SHOULD BE PLUS
02544	0074 00 4 06503		TSX ERROR-1,4	
02545	0020 00 0 02542		TRA B15	
02546	0602 00 0 16576		SLW TEMP	SLW IN TEMP STORAGE
02547	0500 00 0 16576		CLA TEMP	BRING WORD BACK
02550	0402 00 0 16440		SUB MONE	SUB ORIGINAL
02551	0100 00 0 02553		TZE B15+9	OK, SHOULD GET ZERO
02552	0074 00 4 06504		TSX ERROR,4	
02553	0074 00 4 06511		TSX OK,4	
02554	0020 00 0 02542		TRA B15	
02555	624366606060		BCD 1SLW	SLW TEST
02556	0500 00 0 16440	B16	CLA MONE	PUT BIT IN P, SIGN MINUS
02557	0602 00 0 16576		SLW TEMP	SLW IN TEMP STORAGE
02560	0500 00 0 16576		CLA TEMP	BRING IT TO ACC
02561	0120 00 0 02563		TPL B16+5	SIGN SHOULD NOW BE PLUS
02562	0074 00 4 06504		TSX ERROR,4	
02563	0074 00 4 06511		TSX OK,4	
02564	0020 00 0 02556		TRA B16	



02565	624366606060		BCD 1SLW	
02566	-0500 00 0 16362	B16Z	CAL ONES	ONES TO P,1-35
02567	0120 00 0 02572		TPL *+3	OK, SIGN PLUS
02570	0074 00 4 06503		TSX ERROR-1,4	ERROR, SIGN MINUS
02571	0020 00 0 02566		TRA B16Z	
02572	0602 00 0 16576		SLW TEMP	SAVE ACC
02573	-0500 00 0 16576		CAL TEMP	L SAVED ACC
02574	0120 00 0 02577		TPL *+3	OK-SIGN PLUS
02575	0074 00 4 06503		TSX ERROR-1,4	ERROR-SIGN MINUS
02576	0020 00 0 02566		TRA B16Z	
CHECK CONTENTS OF ACCUMULATOR				
02577	0760 00 0 00001		LBT	CHECK POSITION 35
02600	0020 00 0 02602		TRA *+2	ERROR-NO BIT IN 35
02601	0020 00 0 02604		TRA *+3	OK
02602	0074 00 4 06503		TSX ERROR-1,4	
02603	0020 00 0 02566		TRA B16Z	
02604	0771 00 0 00001		ARS 1	CLEAR P
02605	0760 00 0 00002		CHS	MAKE SIGN MINUS
02606	0402 00 0 16362		SUB ONES	L - ONES
02607	0100 00 0 02611		TZE *+2	ACC OK
02610	0074 00 4 06504		TSX ERROR,4	ERROR
02611	0074 00 4 06511		TSX OK,4	
02612	0020 00 0 02566		TRA B16Z	
02613	626347606060		BCD 1STP	STP TEST
02614	0500 00 0 16361	B17	CLA ZERO	INITIALIZE TEMP STORAGE
02615	0601 00 0 16576		STO TEMP	
02616	0500 00 0 16462		CLA KK33	L-252525525252
02617	0630 00 0 16576		STP TEMP	STP IN TEMP STORAGE
02620	0500 00 0 16576		CLA TEMP	BRING BACK, SIGN IS PLUS
02621	0120 00 0 02624		TPL B17+8	SHOULD BE PLUS
02622	0074 00 4 06503		TSX ERROR-1,4	
02623	0020 00 0 02614		TRA B17	
02624	0767 00 0 00001		ALS 1	CHECK ACC POS 1
02625	-0760 00 0 00001		PBT	SHOULD BE ONE
02626	0020 00 0 02630		TRA B17+12	ERROR IN ONE POS
02627	0020 00 0 02632		TRA B17+14	OK, PROCEED
02630	0074 00 4 06503		TSX ERROR-1,4	
02631	0020 00 0 02614		TRA B17	
02632	0140 00 0 02635		TOV B17+17	OVFL SHOULD BE ON
02633	0074 00 4 06503		TSX ERROR-1,4	
02634	0020 00 0 02614		TRA B17	
02635	0767 00 0 00001		ALS 1	CHECK ACC POS 2
02636	-0760 00 0 00001		PBT	SHOULD BE ZERO
02637	0020 00 0 02642		TRA *+3	
02640	0074 00 4 06503		TSX ERROR-1,4	
02641	0020 00 0 02614		TRA B17	

02642	0767	00	0	00001	ALS 1	CLEAR Q
02643	0100	00	0	02645	TZE *+2	TEMP OK
02644	0074	00	4	06504	TSX ERROR,4	
02645	0074	00	4	06511	TSX OK,4	
02646	0020	00	0	02614	TRA B17	
02647	626347606060				BCD 1STP	STP TEST
02650	0500	00	0	16361	B18 CLA ZERO	INITIALIZE TEMP STORAGE
02651	0601	00	0	16576	STO TEMP	
02652	0500	00	0	16361	CLA ZERO	BRING IN PLUS ZERO
02653	0630	00	0	16576	STP TEMP	STORE P, 1, 2, ZEROS
02654	0500	00	0	16576	CLA TEMP	BRING BACK TO ACC
02655	0120	00	0	02660	TPL B18+8	OK, SHOULD BE PLUS
02656	0074	00	4	06503	TSX ERROR-1,4	
02657	0020	00	0	02650	TRA B18	
02660	0767	00	0	00001	ALS 1	CHECK ONE POSITION
02661	-0760	00	0	00001	PBT	SHOULD BE ZERO
02662	0020	00	0	02665	TRA B18+13	OK, CHECK OVFL
02663	0074	00	4	06503	TSX ERROR-1,4	
02664	0020	00	0	02650	TRA B18	
02665	-0140	00	0	02670	TNO B18+16	OK, OVFL SHOULD BE OFF
02666	0074	00	4	06503	TSX ERROR-1,4	
02667	0020	00	0	02650	TRA B18	
02670	0767	00	0	00001	ALS 1	CHECK TWO POSITION
02671	-0760	00	0	00001	PBT	SHOULD BE ZERO
02672	0020	00	0	02675	TRA B18+21	OK, CHECK OVFL
02673	0074	00	4	06503	TSX ERROR-1,4	
02674	0020	00	0	02650	TRA B18	
02675	-0140	00	0	02677	TNO B18+23	OK, OVFL SHOULD BE OFF
02676	0074	00	4	06504	TSX ERROR,4	NO GOOD
02677	0074	00	4	06511	TSX OK,4	
02700	0020	00	0	02650	TRA B18	
02701	626347606060				BCD 1STP	STP TEST
02702	0500	00	0	16361	B19 CLA ZERO	INITIALIZE TEMP STORAGE
02703	0601	00	0	16576	STO TEMP	
02704	-0500	00	0	16362	CAL ONES	BRING IN ONES, CHECK POS
02705	0767	00	0	00001	ALS 1	P AND POS Q
02706	0630	00	0	16576	STP TEMP	STO IN TEMP STORAGE
02707	0771	00	0	00001	ARS 1	DID CLEAR Q POSITION
02710	-0760	00	0	00001	PBT	
02711	0020	00	0	02713	TRA B19+9	NO GOOD, GOT ZERO
02712	0020	00	0	02715	TRA B19+11	CHECK SIGN
02713	0074	00	4	06503	TSX ERROR-1,4	
02714	0020	00	0	02702	TRA B19	
02715	0120	00	0	02720	TPL B19+14	
02716	0074	00	4	06503	TSX ERROR-1,4	
02717	0020	00	0	02702	TRA B19	

02720	0500	00	0	16576		CLA TEMP	BRING BACK CONTENTS OF TEMP
02721	-0120	00	0	02723		TMI B19+17	OK, GOT P POS IN STORAGE
02722	0074	00	4	06504		TSX ERROR, 4	
02723	0074	00	4	06511		TSX OK, 4	
02724	0020	00	0	02702		TRA B19	
02725	626321606060					BCD 1STA	STA TEST
02726	0500	00	0	16470	B20	CLA RTN	SET UP ERROR TRA B20+7
02727	0601	00	0	16576		STO TEMP	IN STORAGE IF STA FAILS
02730	0500	00	0	16471		CLA RTN+1	SET UP ERROR TRA B20+5
02731	0621	00	0	16576		STA TEMP	PLACE IT IN STORAGE
02732	0020	00	0	16576		TRA TEMP	GO THERE AND MAKE TRANSFER
02733	0402	00	0	16471		SUB RTN+1	SEE IF ACC REMAINS SAME
02734	0100	00	0	02736		TZE B20+8	OK, CHECKS OUT
02735	0074	00	4	06504		TSX ERROR, 4	
02736	0074	00	4	06511		TSX OK, 4	
02737	0020	00	0	02726		TRA B20	
02740	626321606060					BCD 1STA	STA TEST
02741	0500	00	0	16361	B21	CLA ZERO	INITIALIZE TEMP STORAGE
02742	0601	00	0	16576		STO TEMP	WITH ZERO
02743	0500	00	0	16362		CLA ONES	ALL ONES
02744	0621	00	0	16576		STA TEMP	PLACE ONES IN TEMP STORE
02745	0500	00	0	16576		CLA TEMP	BRING IT TO ACC
02746	0402	00	0	16433		SUB 8CF	SUB 8CF
02747	0100	00	0	02751		TZE B21+8	OK
02750	0074	00	4	06504		TSX ERROR, 4	
02751	0074	00	4	06511		TSX OK, 4	
02752	0020	00	0	02741		TRA B21	
02753	626321606060					BCD 1STA	STA TEST
02754	0500	00	0	16433	B22	CLA 8CF	INITIALIZE TEMP STORAGE
02755	0601	00	0	16576		STO TEMP	WITH ONES IN POS 21-35
02756	0500	00	0	16361		CLA ZERO	BRING ZERO INTO ACC
02757	0621	00	0	16576		STA TEMP	STA IN TEMP STORAGE
02760	0500	00	0	16576		CLA TEMP	BRING IT BACK
02761	0100	00	0	02763		TZE B22+7	OK, REPLACE ONES WITH ZEROS
02762	0074	00	4	06504		TSX ERROR, 4	
02763	0074	00	4	06511		TSX OK, 4	
02764	0020	00	0	02754		TRA B22	
02765	626324606060					BCD 1STD	STD TEST
02766	0500	00	0	16463	B23	CLA KK34	L+252525000000
02767	0601	00	0	16576		STO TEMP	SAVE ACC
02770	0500	00	0	16461		CLA KK32	L+000000252525
02771	0622	00	0	16576		STD TEMP	SAVE DECREMENT
02772	0500	00	0	16576		CLA TEMP	L SAVED LOCATION
02773	0402	00	0	16435		SUB PTW	L+2000000000
02774	0100	00	0	02776		TZE B23+8	OK, SHOULD GET ZERO
02775	0074	00	4	06504		TSX ERROR, 4	

02776	0074	00	4	06511		TSX OK, 4	
02777	0020	00	0	02766		TRA B23	
03000	626324606060					BCD 1STD	STD TEST
03001	0500	00	0	16433	B24	CLA 8CF	INITIALIZE TEMP STORAGE
03002	0767	00	0	00022		ALS 18	ALL ONES IN DECREMENT
03003	0601	00	0	16576		STO TEMP	FIELD
03004	0500	00	0	16361		CLA ZERO	BRING IN ZERO
03005	0622	00	0	16576		STD TEMP	STD WITH ZEROS.
03006	0500	00	0	16576		CLA TEMP	BRING BACK TEST FOR ZEROS
03007	0100	00	0	03011		TZE B24+8	OK
03010	0074	00	4	06504		TSX ERROR, 4	
03011	0074	00	4	06511		TSX OK, 4	
03012	0020	00	0	03001		TRA B24	
03013	232162606060					BCD 1CAS	CAS TEST
03014	0500	00	0	16431	B25	CLA THREE	MAKE ACC GREATER THEN
03015	0340	00	0	16430		CAS TWO	STORAGE, SIGNS PLUS
03016	0020	00	0	03021		TRA B25+5	OK, PROCEED
03017	0020	00	0	03020		TRA B25+4	SHOULD NOT BE EQUAL
03020	0074	00	4	06504		TSX ERROR, 4	SHOULD NOT BE LESS
03021	0074	00	4	06511		TSX OK, 4	
03022	0020	00	0	03014		TRA B25	
03023	232162606060					BCD 1CAS	CAS TEST
03024	0500	00	0	16430	B26	CLA TWO	MAKE ACC GREATER THEN
03025	0340	00	0	16456		CAS M3	STORAGE, SIGNS UNLIKE
03026	0020	00	0	03031		TRA B26+5	SHOULD NOT BE EQUAL
03027	0020	00	0	03030		TRA B26+4	SHOULD NOT BE LESS
03030	0074	00	4	06504		TSX ERROR, 4	
03031	0074	00	4	06511		TSX OK, 4	
03032	0020	00	0	03024		TRA B26	
03033	232162606060					BCD 1CAS	CAS TEST
03034	0500	00	0	16441	B27	CLA M2	MAKE ACC GREATER THEN
03035	0340	00	0	16456		CAS M3	STORAGE, SIGNS MINUS
03036	0020	00	0	03041		TRA B27+5	OK, PROCEED
03037	0020	00	0	03040		TRA B27+4	SHOULD NOT BE EQUAL
03040	0074	00	4	06504		TSX ERROR, 4	SHOULD NOT BE LESS
03041	0074	00	4	06511		TSX OK, 4	
03042	0020	00	0	03034		TRA B27	
03043	232162606060					BCD 1CAS	CAS TEST
03044	0500	00	0	16430	B28	CLA TWO	MAKE ACC LESS THAN
03045	0340	00	0	16431		CAS THREE	STORAGE, SIGNS PLUS
03046	0020	00	0	03047		TRA B28+3	SHOULD NOT BE GREATER
03047	0074	00	4	06504		TSX ERROR, 4	SHOULD NOT BE EQUAL
03050	0074	00	4	06511		TSX OK, 4	OK, PROCEED
03051	0020	00	0	03044		TRA B28	

03052	232162606060		BCD 1CAS	CAS TEST
03053	0500 00 0 16456	B29	CLA M3	MAKE ACC LES THAN
03054	0340 00 0 16430		CAS TWO	STORAGE, SIGNS PLUS
03055	0020 00 0 03056		TRA B29+3	SHOULD NOT BE GREATER
03056	0074 00 4 06504		TSX ERROR, 4	SHOULD NOT BE EQUAL
03057	0074 00 4 06511		TSX OK, 4	OK, PROCEED
03060	0020 00 0 03053		TRA B29	
03061	232162606060		BCD 1CAS	CAS TEST
03062	0500 00 0 16456	B30	CLA M3	MAKE ACC LES THAN
03063	0340 00 0 16441		CAS M2	STORAGE, SIGNS UNLIKE
03064	0020 00 0 03065		TRA B30+3	SHOULD NOT BE GREATER
03065	0074 00 4 06504		TSX ERROR, 4	SHOULD NOT BE EQUAL
03066	0074 00 4 06511		TSX OK, 4	OK, PROCEED
03067	0020 00 0 03062		TRA B30	
03070	232162606060		BCD 1CAS	CAS TEST
03071	0500 00 0 16430	B31	CLA TWO	MAKE ACC EQUALS STORAGE,
03072	0340 00 0 16430		CAS TWO	SIGNS PLUS
03073	0020 00 0 03075		TRA B31+4	SHOULD NOT BE GREATER
03074	0020 00 0 03076		TRA B31+5	OK, PROCEED
03075	0074 00 4 06504		TSX ERROR, 4	SHOULD NOT BE LESS
03076	0074 00 4 06511		TSX OK, 4	
03077	0020 00 0 03071		TRA B31	
03100	232162606060		BCD 1CAS	CAS TEST PLUS ZERO AND
				MINUS ZERO
03101	0500 00 0 16361	B32	CLA ZERO	MAKE ACC GREATER THAN
03102	0340 00 0 16366		CAS MZE	STORAGE
03103	0020 00 0 03106		TRA B32+5	OK, PROCEED
03104	0020 00 0 03105		TRA B32+4	SHOULD NOT BE EQUAL
03105	0074 00 4 06504		TSX ERROR, 4	SHOULD NOT BE LESS
03106	0074 00 4 06511		TSX OK, 4	
03107	0020 00 0 03101		TRA B32	
03110	232162606060		BCD 1CAS	CAS TEST-COMPARE ALL
				ONES WITH ALL ONES
03111	0500 00 0 16362	B32A	CLA ONES	L ONES
03112	0340 00 0 16362		CAS ONES	
03113	0020 00 0 03115		TRA B32A+4	ERROR
03114	0020 00 0 03116		TRA B32A+5	OK-PROCEED
03115	0074 00 4 06504		TSX ERROR, 4	ERROR IN CAS WITH ONES
03116	0074 00 4 06511		TSX OK, 4	
03117	0020 00 0 03111		TRA B32A	
03120	432450606060		BCD 1LDQ	LDQ TEST
03121	0500 00 0 16361	B33	CLA ZERO	CLEAR ACC AND MQ TO START
03122	0771 00 0 00044		ARS 36	
03123	0560 00 0 16362		LDQ ONES	BRING IN ALL ONES TO MQ
03124	0763 00 0 00000		LLS	SHIFT SIGNS

03125	-0120	00	0	03130	TMI B33+7	OK, SIGN IS MINUS
03126	0074	00	4	06503	TSX ERROR-1,4	
03127	0020	00	0	03121	TRA B33	
03130	0763	00	0	00043	LLS 35	SHIFT ONES TO ACC
03131	0140	00	0	03132	TOV B33+9	TURN OFF OVFL
03132	0400	00	0	16440	ADD MONE	ADD MINUS ONE TO RIPPLE
03133	0140	00	0	03136	TOV B33+13	SHOULD OVFL
03134	0074	00	4	06503	TSX ERROR-1,4	
03135	0020	00	0	03121	TRA B33	
03136	0767	00	0	00002	ALS 2	REMOVE P AND Q POSITION
03137	0100	00	0	03141	TZE B33+16	OK, SHOULD GET ZERO NOW
03140	0074	00	4	06504	TSX ERROR,4	
03141	0074	00	4	06511	TSX OK,4	
03142	0020	00	0	03121	TRA B33	
03143	626350606060				BCD 1STQ	STQ TEST
03144	0560	00	0	16362	B34 LDQ ONES	BRING ALL ONES TO MQ
03145	-0600	00	0	16576	STQ TEMP	PLACE IN TEMP STORAGE
03146	0500	00	0	16576	CLA TEMP	BRING IN ACC
03147	-0120	00	0	03152	TMI B34+6	OK, SIGN IS MINUS
03150	0074	00	4	06503	TSX ERROR-1,4	
03151	0020	00	0	03144	TRA B34	
03152	0140	00	0	03153	TOV B34+7	TURN OFF OVFL
03153	0400	00	0	16440	ADD MONE	ADD MINUS ONE TO RIPPLE
03154	0140	00	0	03157	TOV B34+11	SHOULD OVFL
03155	0074	00	4	06503	TSX ERROR-1,4	
03156	0020	00	0	03144	TRA B34	
03157	0767	00	0	00002	ALS 2	REMOVE P AND Q POSITION
03160	0100	00	0	03162	TZE B34+14	SHOULD GET ZERO
03161	0074	00	4	06504	TSX ERROR,4	
03162	0074	00	4	06511	TSX OK,4	
03163	0020	00	0	03144	TRA B34	
03164	626350606060				BCD 1STQ	
03165	0560	00	0	16361	B35 LDQ ZERO	BRING IN ALL ZEROS TO MQ
03166	-0600	00	0	16576	STQ TEMP	PLACE IN TEMP STORAGE
03167	0500	00	0	16576	CLA TEMP	BRING IN ACC
03170	0100	00	0	03172	TZE B35+5	OK, SHOULD BE ZERO
03171	0074	00	4	06504	TSX ERROR,4	
03172	0074	00	4	06511	TSX OK,4	
03173	0020	00	0	03165	TRA B35	
03174	624350606060				BCD 1SLQ	SLQ TEST
03175	0500	00	0	16361	B36 CLA ZERO	MAKE ACC AND TEMP STORAGE
03176	0601	00	0	16576	STO TEMP	ALL ZEROS
03177	0560	00	0	16362	LDQ ONES	MAKE MQ ALL ONES
03200	-0620	00	0	16576	SLQ TEMP	PLACE S, 1-17 IN TEMP STORAGE
03201	0500	00	0	16576	CLA TEMP	BRING BACK TO ACC
03202	-0120	00	0	03205	TMI B36+8	SHOULD BE MINUS

03203	0074	00	4	06503		TSX ERROR-1,4	
03204	0020	00	0	03175		TRA B36	
03205	0140	00	0	03206		TOV B36+9	TURN OFF OVFL
03206	0767	00	0	00001		ALS 1	SHIFT TO P POS UNTIL ONLY
03207	0140	00	0	03206		TOV B36+9	BIT LEFT IN Q
03210	-0100	00	0	03213		TNZ B36+14	OK, SHOULD NOT GET ZERO
03211	0074	00	4	06503		TSX ERROR-1,4	
03212	0020	00	0	03175		TRA B36	
03213	0767	00	0	00002		ALS 2	OK, SHOULD BE ZERO
03214	-0140	00	0	03216		TNO B36+17	OK, SHOULD NOT GET EXTRA BITS
03215	0074	00	4	06504		TSX ERROR,4	
03216	0074	00	4	06511		TSX OK,4	
03217	0020	00	0	03175		TRA B36	
03220	624350606060					BCD 1SLQ	SLQ TEST
03221	0560	00	0	16361	B37	LDQ ZERO	BRING ZEROS TO MQ
03222	0500	00	0	16362		CLA ONES	PLACE ONES IN TEMP STORAGE
03223	0601	00	0	16576		STO TEMP	
03224	-0620	00	0	16576		SLQ TEMP	PLACE ZEROS IN S, 1-17
03225	0500	00	0	16576		CLA TEMP	OF ACC
03226	0771	00	0	00022		ARS 18	SHIFT ONES OUT
03227	0100	00	0	03231		TZE B37+8	OK, RESET SHOULD BE ZEROS
03230	0074	00	4	06504		TSX ERROR,4	
03231	0074	00	4	06511		TSX OK,4	
03232	0020	00	0	03221		TRA B37	
03233	634350606060					BCD 1TLQ	TLQ TEST
03234	0500	00	0	16430	B38	CLA TWO	MQ LESS THAN ACC
03235	0560	00	0	16456		LDQ M3	MQ MINUS 3 ACC PLUS 2
03236	0040	00	0	03240		TLQ B38+4	OK, SHOULD TRANSFER
03237	0074	00	4	06504		TSX ERROR,4	
03240	0074	00	4	06511		TSX OK,4	
03241	0020	00	0	03234		TRA B38	
03242	634350606060					BCD 1TLQ	TLQ TEST
03243	0500	00	0	16456	B39	CLA M3	MQ GREATER THEN ACC
03244	0560	00	0	16441		LDQ M2	MQ MINUS 2 ACC MINUS 3
03245	0040	00	0	03247		TLQ B39+4	SHOULD NOT TRANSFER
03246	0020	00	0	03250		TRA B39+5	OK, PROCEED
03247	0074	00	4	06504		TSX ERROR,4	
03250	0074	00	4	06511		TSX OK,4	
03251	0020	00	0	03243		TRA B39	
03252	634350606060					BCD 1TLQ	TLQ TEST
03253	0500	00	0	16430	B40	CLA TWO	MQ EQUALS ACC
03254	0560	00	0	16430		LDQ TWO	BOTH PLUS TWO
03255	0040	00	0	03257		TLQ B40+4	SHOULD NOT TRANSFER
03256	0020	00	0	03260		TRA B40+5	OK, PROCEED

03257	0074	00	4	06504		TSX ERROR,4	
03260	0074	00	4	06511		TSX OK,4	
03261	0020	00	0	03253		TRA B40	
03262	634350606060					BCD 1TLQ	TLQ TEST
03263	0500	00	0	16361	B41	CLA ZERO	MQ LESS THEN ACC
03264	0560	00	0	16366		LDQ MZE	MQ MINUS 0 ACC PLUS 0
03265	0040	00	0	03267		TLQ B41+4	OK, SHOULD TRANSFER
03266	0074	00	4	06504		TSX ERROR,4	
03267	0074	00	4	06511		TSX OK,4	
03270	0020	00	0	03263		TRA B41	
03271	634350606060					BCD 1TLQ	TLQ TEST
03272	0500	00	0	16366	B42	CLA MZE	MQ GREATER THEN ACC
03273	0560	00	0	16361		LDQ ZERO	MQ PLUS 0 ACC MINUS 0
03274	0040	00	0	03276		TLQ B42+4	SHOULD NOT TRANSFER
03275	0020	00	0	03277		TRA B42+5	OK, PROCEED
03276	0074	00	4	06504		TSX ERROR,4	
03277	0074	00	4	06511		TSX OK,4	
03300	0020	00	0	03272		TRA B42	
03301	514524606060					BCD 1RND	RND TEST
03302	0500	00	0	16361	B43	CLA ZERO	CLEAR ACC
03303	0560	00	0	16435		LDQ PTW	PLACE BIT IN MQ 1 POS
03304	0760	00	0	00010		RND	ROUND SHOULD GO TO ACC
03305	0760	00	0	00001		LBT	POS 35, IS IT THERE
03306	0074	00	4	06504		TSX ERROR,4	NO, ERROR
03307	0074	00	4	06511		TSX OK,4	YES, OK
03310	0020	00	0	03302		TRA B43	
03311	444770606060					BCD 1MPY	MPY TEST
03312	0500	00	0	16360	B44	CLA PONES	PLACE ALL ONES IN ACC
03313	0767	00	0	00002		ALS 2	PLACE ONES IN P AND Q
03314	0560	00	0	16361		LDQ ZERO	MULTPLY ZERO BY ZERO
03315	0200	00	0	16361		MPY ZERO	CHECK ACC AND MQ FOR ZERO
03316	0100	00	0	03321		TZE B44+7	OK, SHOULD BE ZERO
03317	0074	00	4	06503		TSX ERROR-1,4	
03320	0020	00	0	03312		TRA B44	
03321	-0600	00	0	16576		STQ TEMP	SAVE MQ
03322	0500	00	0	16576		CLA TEMP	BRING TO ACC TO CHECK
03323	0100	00	0	03325		TZE B44+11	OK, SHOULD BE ZERO
03324	0074	00	4	06504		TSX ERROR,4	
03325	0074	00	4	06511		TSX OK,4	
03326	0020	00	0	03312		TRA B44	
03327	444770606060					BCD 1MPY	MPY TEST
03330	0560	00	0	16365	B45	LDQ ONE	MULTIPLY ONE BY ONE
03331	0200	00	0	16365		MPY ONE	SHOULD GET ZERO IN ACC
03332	0100	00	0	03335		TZE B45+5	OK, PROCEED
03333	0074	00	4	06503		TSX ERROR-1,4	



03334	0020	00	0	03330		TRA	B45	
03335	-0600	00	0	16576		STQ	TEMP	SAVE MQ AND CHECK
03336	0500	00	0	16576		CLA	TEMP	FOR ONE IN ACC 34
03337	-0100	00	0	03342		TNZ	B45+10	OK, PROCEED
03340	0074	00	4	06503		TSX	ERROR-1,4	
03341	0020	00	0	03330		TRA	B45	
03342	0771	00	0	00002		ARS	2	SHIFT OVER
03343	0100	00	0	03345		TZE	B45+13	OK, CHECKS OUT
03344	0074	00	4	06504		TSX	ERROR,4	
03345	0074	00	4	06511		TSX	OK,4	
03346	0020	00	0	03330		TRA	B45	
03347	444770606060					BCD	1MPY	MPY TEST
03350	0560	00	0	16360	B46	LDQ	PONES	MULTIPLY ALL ONES
03351	0200	00	0	16365		MPY	ONE	BY ONE
03352	0100	00	0	03355		TZE	B46+5	OK, ACC SHOULD BE ZERO
03353	0074	00	4	06503		TSX	ERROR-1,4	
03354	0020	00	0	03350		TRA	B46	
03355	-0600	00	0	16576		STQ	TEMP	SAVE MQ
03356	0500	00	0	16576		CLA	TEMP	BRING IT TO ACC
03357	0140	00	0	03357		TOV	B46+7	TURN OFF OVFL
03360	0400	00	0	16365		ADD	ONE	ADD ONE TO TURN ON OVFL
03361	0140	00	0	03363		TOV	B46+11	OK, PROCEED
03362	0074	00	4	06504		TSX	ERROR,4	
03363	0074	00	4	06511		TSX	OK,4	
03364	0020	00	0	03350		TRA	B46	
03365	444770606060					BCD	1MPY	MPY TEST
03366	0560	00	0	16360	B47	LDQ	PONES	MULTIPLY ALL ONES
03367	0200	00	0	16360		MPY	PONES	BY ALL ONES
03370	0400	00	0	16365		ADD	ONE	ADD ONE, 2-35 HAVE ONES
03371	0140	00	0	03372		TOV	B47+4	SET OVFL
03372	0400	00	0	16365		ADD	ONE	RIPPLE CARRY FOR ACC
03373	0140	00	0	03376		TOV	B47+8	OK, DID RIPPLE
03374	0074	00	4	06503		TSX	ERROR-1,4	
03375	0020	00	0	03366		TRA	B47	
03376	-0600	00	0	16576		STQ	TEMP	SAVE MQ
03377	0500	00	0	16576		CLA	TEMP	BRING IT TO ACC
03400	0402	00	0	16365		SUB	ONE	SUB ONE
03401	0100	00	0	03403		TZE	B47+13	SHOULD TRANSFER
03402	0074	00	4	06504		TSX	ERROR,4	
03403	0074	00	4	06511		TSX	OK,4	
03404	0020	00	0	03366		TRA	B47	
03405	444770606060					BCD	1MPY	MPY TEST
03406	0560	00	0	16361	B48	LDQ	ZERO	MULTIPLY PLUS NUMBER BY
03407	0200	00	0	16361		MPY	ZERO	PLUS, PRODUCT IS PLUS
03410	0120	00	0	03413		TPL	B48+5	OK, ACC IS PLUS
03411	0074	00	4	06503		TSX	ERROR-1,4	

03412	0020	00	0	03406		TRA	B48	
03413	0162	00	0	03415		TQP	B48+7	OK, MQ IS PLUS
03414	0074	00	4	06504		TSX	ERROR, 4	
03415	0074	00	4	06511		TSX	OK, 4	
03416	0020	00	0	03406		TRA	B48	
03417	444770606060					BCD	1MPY	MPY TEST
03420	0560	00	0	16366	B49	LDQ	MZE	MULTIPLY MINUS NUMBER BY
03421	0200	00	0	16366		MPY	MZE	MINUS NUMBER, CHECK SING
03422	0120	00	0	03425		TPL	B49+5	OK, ACC IS PLUS
03423	0074	00	4	06503		TSX	ERROR-1, 4	
03424	0020	00	0	03420		TRA	B49	
03425	0162	00	0	03427		TQP	B49+7	OK, MQ IS PLUS
03426	0074	00	4	06504		TSX	ERROR, 4	
03427	0074	00	4	06511		TSX	OK, 4	
03430	0020	00	0	03420		TRA	B49	
03431	444770606060					BCD	1MPY	MPY TEST
03432	0560	00	0	16366	B50	LDQ	MZE	MULTIPLY MQ MINUS BY
03433	0200	00	0	16361		MPY	ZERO	A PLUS, CHECK SIGN
03434	-0120	00	0	03437		TMI	B50+5	ACC SHOULD BE MINUS
03435	0074	00	4	06503		TSX	ERROR-1, 4	
03436	0020	00	0	03432		TRA	B50	
03437	0162	00	0	03441		TQP	B50+7	MQ SHOULD BE MINUS
03440	0020	00	0	03442		TRA	B50+8	OK, PROCEED
03441	0074	00	4	06504		TSX	ERROR, 4	
03442	0074	00	4	06511		TSX	OK, 4	
03443	0020	00	0	03432		TRA	B50	
03444	444770606060					BCD	1MPY	MPY TEST
03445	0560	00	0	16361	B51	LDQ	ZERO	MULTIPLY MQ PLUS BY
03446	0200	00	0	16366		MPY	MZE	MINUS
03447	-0120	00	0	03452		TMI	B51+5	ACC IS MINUS
03450	0074	00	4	06503		TSX	ERROR-1, 4	
03451	0020	00	0	03445		TRA	B51	
03452	0162	00	0	03454		TQP	B51+7	
03453	0020	00	0	03455		TRA	B51+8	MQ IS MINUS
03454	0074	00	4	06504		TSX	ERROR, 4	
03455	0074	00	4	06511		TSX	OK, 4	
03456	0020	00	0	03445		TRA	B51	
03457	444751606060					BCD	1MPR	MPR TEST
03460	0560	00	0	16435	B52	LDQ	PTW	MULTIPLY +200---BY ONE
03461	-0200	00	0	16365		MPR	ONE	SHOULD ROUND TO ACC
03462	-0100	00	0	03465		TNZ	B52+5	OK, DID ROUND
03463	0074	00	4	06503		TSX	ERROR-1, 4	
03464	0020	00	0	03460		TRA	B52	

03465	0771	00	0	00001		ARS 1	OK, NOW MOVE BIT OUT
03466	0100	00	0	03470		TZE B52+8	OK, PROCEED
03467	0074	00	4	06504		TSX ERROR, 4	
03470	0074	00	4	06511		TSX OK, 4	
03471	0020	00	0	03460		TRA B52	
03472	444751606060					BCD 1MPR	MPR TEST
03473	0560	00	0	16435	B53	LDQ PTW	MULTIPLY PLUS TWO BY
03474	-0200	00	0	16361		MPR ZERO	ZERO SHOULD NOT ROUND
03475	0100	00	0	03500		TZE B53+5	OK, IN ACC CHECK SIGN
03476	0074	00	4	06503		TSX ERROR-1, 4	
03477	0020	00	0	03473		TRA B53	
03500	0120	00	0	03503		TPL B53+8	OK, PROCEED
03501	0074	00	4	06503		TSX ERROR-1, 4	
03502	0020	00	0	03473		TRA B53	
03503	0162	00	0	03505		TQP B53+10	OK, PROCEED
03504	0074	00	4	06504		TSX ERROR, 4	
03505	0074	00	4	06511		TSX OK, 4	
03506	0020	00	0	03473		TRA B53	
03507	444751606060					BCD 1MPR	MPR TEST
03510	0560	00	0	16434	B54	LDQ MTW	MULTIPLY MINUS TWO BY
03511	-0200	00	0	16361		MPR ZERO	ZERO, CHECK SIGNS
03512	0120	00	0	03514		TPL B54+4	ERROR
03513	0020	00	0	03516		TRA B54+6	OK, PROCEED
03514	0074	00	4	06503		TSX ERROR-1, 4	
03515	0020	00	0	03510		TRA B54	
03516	0162	00	0	03520		TQP B54+8	ERROR, SHOULD BE MINUS
03517	0020	00	0	03521		TRA B54+9	OK, PROCEED
03520	0074	00	4	06504		TSX ERROR, 4	
03521	0074	00	4	06511		TSX OK, 4	
03522	0020	00	0	03510		TRA B54	
03523	444751606060					BCD 1MPR	MPR TEST
03524	0140	00	0	03525	B54A	TOV B54A+1	TURN OFF OVFL
03525	0560	00	0	16360		LDQ PONES	ALL ONES IN MQ
03526	-0200	00	0	16435		MPR PTW	ACC 1-35 ALL ONES
03527	0402	00	0	16435		SUB PTW	MQ 1, A ONE, FORCE ROUND
03530	0100	00	0	03533		TZE B54A+7	SHOULD BE ZERO
03531	0074	00	4	06503		TSX ERROR-1, 4	
03532	0020	00	0	03524		TRA B54A	
03533	-0140	00	0	03535		TNO B54A+9	SHOULD NOT BE OVFL
03534	0074	00	4	06504		TSX ERROR, 4	
03535	0074	00	4	06511		TSX OK, 4	
03536	0020	00	0	03524		TRA B54A	
03537	246547606060					BCD 1DVP	DVP TEST
03540	0560	00	0	16430	B55	LDQ TWO	DIVIDEND PLUS TWO

03541	0500	00	0	16361		CLA ZERO	DIVIDE BY ONE SHOULD
03542	0221	00	0	16365		DVP ONE	GET A PLUS TWO IN MQ
03543	0120	00	0	03546		TPL B55+6	OK, PROCEED
03544	0074	00	4	06503		TSX ERROR-1,4	WRONG SIGN
03545	0020	00	0	03540		TRA B55	
03546	0100	00	0	03551		TZE B55+9	REMAINDER SHOULD BE ZERO
03547	0074	00	4	06503		TSX ERROR-1,4	
03550	0020	00	0	03540		TRA B55	
03551	-0600	00	0	16576		STQ TEMP	SAVE CONTENTS OF MQ
03552	0500	00	0	16576		CLA TEMP	BRING TO ACC
03553	0402	00	0	16430		SUB TWO	SUB TWO TO GET ZERO
03554	0100	00	0	03556		TZE B55+14	OK PROCEED
03555	0074	00	4	06504		TSX ERROR,4	SHOULD NOT BE 2 IN ACC
03556	0074	00	4	06511		TSX OK,4	
03557	0020	00	0	03540		TRA B55	
03560	246547606060					BCD 1DVP	DVP TEST
03561	0500	00	0	16361	B56	CLA ZERO	CLEAR ACC
03562	0560	00	0	16362		LDQ ONES	DIVIDE ALL ONES IN MQ
03563	0221	00	0	16434		DVP MTW	BY -200...
03564	0120	00	0	03567		TPL B56+6	OK, SHOULD BE PLUS
03565	0074	00	4	06503		TSX ERROR-1,4	
03566	0020	00	0	03561		TRA B56	
03567	0601	00	0	16576		STO TEMP	SAVE ACC AND MQ
03570	-0600	00	0	16577		STQ TEMP+1	
03571	0162	00	0	03573		TQP B56+10	ERROR
03572	0020	00	0	03575		TRA B56+12	MQ SHOULD BE MINUS
03573	0074	00	4	06503		TSX ERROR-1,4	
03574	0020	00	0	03561		TRA B56	
03575	0500	00	0	16577		CLA TEMP+1	ZEROS TO ACC
03576	0402	00	0	16576		SUB TEMP	SUB ONES FROM ACC
03577	0140	00	0	03600		TOV B56+15	TURN OFF OVFL
03600	0767	00	0	00001		ALS 1	SHOULD GET OVFL
03601	0140	00	0	03603		TOV B56+18	OK, GET OVFL
03602	0074	00	4	06504		TSX ERROR,4	ERROR
03603	0074	00	4	06511		TSX OK,4	
03604	0020	00	0	03561		TRA B56	
03605	242363606060					BCD 1DCT	DCT TEST
03606	0760	00	0	00012	B57	DCT	INITIALIZE THE
03607	0020	00	0	03610		TRA B57+2	DCT INDICATOR
03610	0760	00	0	00012		DCT	TEST INDICATOR OFF
03611	0020	00	0	03613		TRA B57+5	INDICATOR NOT OFF
03612	0020	00	0	03615		TRA B57+7	
03613	0074	00	4	06503		TSX ERROR-1,4	
03614	0020	00	0	03606		TRA B57	
03615	0500	00	0	16361		CLA ZERO	PLACE ZERO IN ACC
03616	0560	00	0	16435		LDQ PTW	MAKE MQ +200... DIVIDE
03617	0221	00	0	16435		DVP PTW	BY +200...

03620	0760	00	0	00012		DCT	TEST INDICATOR OFF
03621	0074	00	4	06504		TSX ERROR,4	IF ON, DID NOT SHOW
03622	0074	00	4	06511		TSX OK,4	
03623	0020	00	0	03606		TRA B57	OK, PROCEED
03624	242363606060					BCD 1DCT	DCT TEST
03625	0500	00	0	16435	B58	CLA PTW	DIVIDE +200... BY -100...
03626	0221	00	0	16437		DVP MON	CHECK INDICATOR SHOULD BE ON
03627	0760	00	0	00012		DCT	TEST INDICATOR ON
03630	0020	00	0	03632		TRA B58+5	OK, PROCEED
03631	0074	00	4	06504		TSX ERROR,4	ENTERS HERE ON ERROR
03632	0074	00	4	06511		TSX OK,4	
03633	0020	00	0	03625		TRA B58	
03634	246547606060					BCD 1DVP	DIVIDE A ONE IN EACH
03635	0500	00	0	16365	B58A	CLA ONE	POSITION BY ZERO
03636	0601	00	0	16576		STO TEMP	
03637	0221	00	0	16361		DVP ZERO	
03640	0402	00	0	16576		SUB TEMP	CHECK THAT ACC DID NOT
03641	0100	00	0	03644		TZE B58A+7	CHANGE
03642	0074	00	4	06503		TSX ERROR-1,4	
03643	0020	00	0	03635		TRA B58A	CHECK DIVIDE CHECK LIGHT
03644	0760	00	0	00012		DCT	SHOULD BE ON
03645	0020	00	0	03650		TRA B58A+11	OK, PROCEED
03646	0074	00	4	06503		TSX ERROR-1,4	NO DIVIDE CHECK
03647	0020	00	0	03635		TRA B58A	
03650	0767	00	0	00001		ALS 1	MOVE ACROSS ACC
03651	-0100	00	0	03636		TNZ B58A+1	BY ONE
03652	0074	00	4	06511		TSX OK,4	
03653	0020	00	0	03635		TRA B58A	
03654	246530606060					BCD 1DVH	DVH TEST, NO HALT
03655	0560	00	0	16435	B62	LDQ PTW	MAKE MQ POSITIVE
03656	0500	00	0	16361		CLA ZERO	MAKE ACC ZERO
03657	0220	00	0	16435		DVH PTW	DIVIDE
03660	0120	00	0	03663		TPL B62+6	OK, PROCEED
03661	0074	00	4	06503		TSX ERROR-1,4	
03662	0020	00	0	03655		TRA B62	
03663	0140	00	0	03664		TOV B62+7	TURN OFF OVFL
03664	0100	00	0	03667		TZE B62+10	
03665	0074	00	4	06503		TSX ERROR-1,4	
03666	0020	00	0	03655		TRA B62	
03667	-0600	00	0	16576		STQ TEMP	SAVE MQ, ADD IT TO ACC
03670	0500	00	0	16576		CLA TEMP	
03671	-0100	00	0	03674		TNZ B62+15	OK, PROCEED
03672	0074	00	4	06503		TSX ERROR-1,4	
03673	0020	00	0	03655		TRA B62	

03674	0760	00	0	00001		LBT	CHECK POS 35 FOR ONE
03675	0020	00	0	03677		TRA B62+18	ERROR, GOT A ZERO
03676	0020	00	0	03701		TRA B62+20	OK, PROCEED
03677	0074	00	4	06503		TSX ERROR-1,4	
03700	0020	00	0	03655		TRA B62	
03701	0771	00	0	00001		ARS 1	OK, SHIFT IT OUT
03702	0100	00	0	03704		TZE B62+23	OK, ALL SHOULD BE ZERO
03703	0074	00	4	06504		TSX ERROR,4	
03704	0074	00	4	06511		TSX OK,4	
03705	0020	00	0	03655		TRA B62	
03706	246530606060					BCD 1DVH	DVH TEST, NO HALT
03707	0500	00	0	16361	B63	CLA ZERO	MAKE ACC ZERO
03710	0560	00	0	16362		LDQ ONES	MAKE MQ ALL ONES
03711	0220	00	0	16434		DVH MTW	DIVIDE BY -200...
03712	0120	00	0	03715		TPL B63+6	OK, PROCEED
03713	0074	00	4	06503		TSX ERROR-1,4	
03714	0020	00	0	03707		TRA B63	
03715	0601	00	0	16576		STO TEMP	SAVE AC AND MQ
03716	-0600	00	0	16577		STQ TEMP+1	
03717	0162	00	0	03721		TQP B63+10	ERROR IN MQ SIGN
03720	0020	00	0	03723		TRA B63+12	OK, IS MINUS, PROCEED
03721	0074	00	4	06503		TSX ERROR-1,4	
03722	0020	00	0	03707		TRA B63	
03723	0500	00	0	16577		CLA TEMP+1	SUB ACC FROM MQ
03724	0402	00	0	16576		SUB TEMP	
03725	0140	00	0	03726		TOV B63+15	TURN OFF OVFL
03726	0763	00	0	00001		LLS 1	SHIFT ONE BIT
03727	0140	00	0	03731		TOV B63+18	OK, SHOULD BE ON
03730	0074	00	4	06504		TSX ERROR,4	
03731	0074	00	4	06511		TSX OK,4	
03732	0020	00	0	03707		TRA B63	
03733	214521606060					BCD 1ANA	ANA TEST
03734	-0500	00	0	16366	B64	CAL MZE	MAKE ACC MINUS ZERO
03735	-0320	00	0	16362		ANA ONES	/AND/ TO ALL POSITIONS ZERO EXCEPT POS P
03736	-0760	00	0	00001		PBT	P SHOULD HAVE BIT
03737	0020	00	0	03741		TRA B64+5	ERROR, NO BIT IN POS P
03740	0020	00	0	03743		TRA B64+7	OK, PROCEED
03741	0074	00	4	06503		TSX ERROR-1,4	
03742	0020	00	0	03734		TRA B64	
03743	0771	00	0	00001		ARS 1	OK, NOW POS Q SHOULD BE ZERO
03744	-0760	00	0	00001		PBT	SHIFT AND TEST
03745	0020	00	0	03750		TRA B64+12	OK, PROCEED
03746	0074	00	4	06503		TSX ERROR-1,4	
03747	0020	00	0	03734		TRA B64	
03750	0120	00	0	03752		TPL B64+14	OK, SHOULD BE PLUS

03751	0074	00	4	06504		TSX ERROR,4	
03752	0074	00	4	06511		TSX OK,4	
03753	0020	00	0	03734		TRA B64	
03754	214521606060					BCD 1ANA	ANA TEST
03755	-0500	00	0	16362	B65	CAL ONES	PLACE ALL ONES IN ACC
03756	-0320	00	0	16362		ANA ONES	/AND/ TO ALL ONES
03757	0400	00	0	16365		ADD ONE	ADD ONE, CAUSE RIPPLE
03760	0767	00	0	00001		ALS 1	MOVE OUT Q
03761	0100	00	0	03763		TZE B65+6	OK, PROCEED
03762	0074	00	4	06504		TSX ERROR,4	
03763	0074	00	4	06511		TSX OK,4	
03764	0020	00	0	03755		TRA B65	
03765	214521606060					BCD 1ANA	ANA TEST
03766	-0500	00	0	16361	B66	CAL ZERO	PLACE ZEROS IN ACC
03767	-0320	00	0	16362		ANA ONES	/AND/ TO ALL ZEROS
03770	0100	00	0	03772		TZE B66+4	OK, NO PICK UP
03771	0074	00	4	06504		TSX ERROR,4	
03772	0074	00	4	06511		TSX OK,4	
03773	0020	00	0	03766		TRA B66	
03774	214521606060					BCD 1ANA	ANA TEST
03775	-0500	00	0	16457	B67	CAL KK30	L-252525252525
03776	-0320	00	0	16460		ANA KK31	L-125252252525
03777	0402	00	0	16461		SUB KK32	L+000000252525
04000	-0760	00	0	00001		PBT	TEST P FOR BIT
04001	0020	00	0	04003		TRA B67+6	ERROR
04002	0020	00	0	04005		TRA B67+8	OK, PROCEED AND MOVE IT OUT
04003	0074	00	4	06503		TSX ERROR-1,4	
04004	0020	00	0	03775		TRA B67	
04005	0767	00	0	00002		ALS 2	ALL RIGHT MOVE IT OUT
04006	0100	00	0	04010		TZE B67+11	OK, PROCEED
04007	0074	00	4	06504		TSX ERROR,4	
04010	0074	00	4	06511		TSX OK,4	
04011	0020	00	0	03775		TRA B67	
04012	214521606060					BCD 1ANA	ANA TEST
04013	0500	00	0	16457	B68	CLA KK30	L-252525252525
04014	-0320	00	0	16462		ANA KK33	L-252525525252
04015	0402	00	0	16463		SUB KK34	L+252525000000
04016	0100	00	0	04020		TZE B68+5	OK, SHOULD BE ZERO
04017	0074	00	4	06504		TSX ERROR,4	
04020	0074	00	4	06511		TSX OK,4	
04021	0020	00	0	04013		TRA B68	
04022	214562606060					BCD 1ANS	ANS TEST
04023	0500	00	0	16361	B69	CLA ZERO	INITIALIZE TEMP STORAGE
04024	0601	00	0	16576		STO TEMP	WITH ZERO

04025	-0500	00	0	16362	CAL ONES	PLACE ALL ONES IN ACC
04026	0320	00	0	16576	ANS TEMP	/AND/ TO ZERO STORAGE
04027	0500	00	0	16576	CLA TEMP	BRING RESULT TO ACC
04030	0100	00	0	04033	TZE B69+8	SHOULD BE ZERO, CHECK SIGN
04031	0074	00	4	06503	TSX ERROR-1,4	
04032	0020	00	0	04023	TRA B69	

04033	0120	00	0	04035	TPL B69+10	OK, PROCEED
04034	0074	00	4	06504	TSX ERROR,4	
04035	0074	00	4	06511	TSX OK,4	
04036	0020	00	0	04023	TRA B69	

04037	214562606060				BCD 1ANS	ANS TEST
04040	0500	00	0	16362	B70 CLA ONES	INITIALIZE TEMP STORAGE
04041	0601	00	0	16576	STO TEMP	WITH ALL ONES
04042	-0500	00	0	16361	CAL ZERO	MAKE ACC ZERO
04043	0320	00	0	16576	ANS TEMP	/AND/ TO ONES IN STORAGE
04044	0500	00	0	16576	CLA TEMP	BRING RESULT TO ACC
04045	0100	00	0	04047	TZE *+2	OK, ALL SHOULD BE ZERO
04046	0074	00	4	06504	TSX ERROR,4	
04047	0074	00	4	06511	TSX OK,4	
04050	0020	00	0	04040	TRA B70	

04051	214562606060				BCD 1ANS	
04052	0500	00	0	16362	B70Z CLA ONES	L ONES IN S,1-35
04053	0601	00	0	16576	STO TEMP	
04054	0500	00	0	16434	CLA MTW	L -2000000000
04055	0767	00	0	00002	ALS 2	BIT ONLY IN S AND Q
04056	0320	00	0	16576	ANS TEMP	CLEAR TEMP STG LOCATION

CHECK Q BIT NOT LOST BY ANS

04057	0771	00	0	00001	ARS 1	MOVE BIT TO P
04060	-0760	00	0	00001	PBT	CHECK FOR BIT
04061	0020	00	0	04063	TRA *+2	ERROR-LOST Q BIT
04062	0020	00	0	04065	TRA *+3	OK
04063	0074	00	4	06503	TSX ERROR-1,4	
04064	0020	00	0	04052	TRA B70Z	

CHECK SIGN NOT LOST BY ANS

04065	-0120	00	0	04070	TMI *+3	OK-SIGN REMAINED MINUS
04066	0074	00	4	06503	TSX ERROR-1,4	
04067	0020	00	0	04052	TRA B70Z	

CHECK TEMP

04070	-0500	00	0	16576	CAL TEMP	
04071	0100	00	0	04073	TZE *+2	OK-TEMP STG LOC PLUS ZERO
04072	0074	00	4	06504	TSX ERROR,4	
04073	0074	00	4	06511	TSX OK,4	
04074	0020	00	0	04052	TRA B70Z	

04075	214562606060				BCD 1ANS	ANS TEST WITH SIGNS UNLIKE
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04076	0500	00	0	16457	B71	CLA KK30	INITIALIZE STORAGE WITH
04077	0601	00	0	16576		STO TEMP	-252525252525
04100	-0500	00	0	16464		CAL KK35	MAKE ACC +1252522522525
04101	0320	00	0	16576		ANS TEMP	/AND/, THEN CHECK ACC
04102	0402	00	0	16464		SUB KK35	SUB ORIGINAL CONTENTS
04103	0100	00	0	04106		TZE B71+8	OK, PROCEED CHECK STORAGE
04104	0074	00	4	06503		TSX ERROR-1,4	
04105	0020	00	0	04076		TRA B71	
04106	0500	00	0	16576		CLA TEMP	CHECK STORAGE SHOULD
04107	0402	00	0	16461		SUB KK32	BE L+000000252525
04110	0100	00	0	04112		TZE B71+12	OK, IT WAS, PROCEED
04111	0074	00	4	06504		TSX ERROR,4	
04112	0074	00	4	06511		TSX OK,4	
04113	0020	00	0	04076		TRA B71	

04114	465121606060					BCD 10RA	ORA TEST
04115	0500	00	0	16361	B72	CLA ZERO	MAKE ACC ZERO
04116	-0501	00	0	16362		ORA ONES	/OR/ WITH ONES
04117	-0760	00	0	00001		PBT	CHECK P FOR ONE
04120	0020	00	0	04122		TRA B72+5	ERROR IN P
04121	0020	00	0	04124		TRA B72+7	CHECK OTHER POSITIONS
04122	0074	00	4	06503		TSX ERROR-1,4	
04123	0020	00	0	04115		TRA B72	

04124	0400	00	0	16365		ADD ONE	CHECK OTHER POSITIONS
04125	0767	00	0	00002		ALS 2	CLEAR P AND Q
04126	0100	00	0	04130		TZE B72+11	OK, SHOULD BE ZERO
04127	0074	00	4	06504		TSX ERROR,4	
04130	0074	00	4	06511		TSX OK,4	
04131	0020	00	0	04115		TRA B72	

04132	465121606060					BCD 10RA	
04133	0500	00	0	16362	B72X	CLA ONES	L -377777777777
04134	-0501	00	0	16361		ORA ZERO	SHOULD NOT CHANGE ACC
04135	-0120	00	0	04140		TMI B72X1	SHOULD TRANSFER
04136	0074	00	4	06503		TSX ERROR-1,4	ERROR
04137	0020	00	0	04133		TRA B72X	

04140	0400	00	0	16360	B72X1	ADD PONES	CHECK ACC P,1-35
04141	0100	00	0	04143		TZE *+2	OK
04142	0074	00	4	06504		TSX ERROR,4	ERROR
04143	0074	00	4	06511		TSX OK,4	
04144	0020	00	0	04133		TRA B72X	

04145	465121606060					BCD 10RA	ORA TEST
04146	-0500	00	0	16362	B73	CAL ONES	MAKE ACC POS P-35 ONES
04147	-0501	00	0	16361		ORA ZERO	/OR/ WITH ZEROS
04150	-0760	00	0	00001		PBT	CHECK P FOR ONE
04151	0020	00	0	04153		TRA B73+5	ERROR IN P
04152	0020	00	0	04155		TRA B73+7	PROCEED
04153	0074	00	4	06503		TSX ERROR-1,4	
04154	0020	00	0	04146		TRA B73	

04155	0400	00	0	16365		ADD ONE	OK, TEST POS 1-35
04156	0767	00	0	00002		ALS 2	MOVE OUT P AND Q
04157	0100	00	0	04161		TZE B73+11	OK, SHOULD BE ZERO
04160	0074	00	4	06504		TSX ERROR, 4	
04161	0074	00	4	06511		TSX OK, 4	
04162	0020	00	0	04146		TRA B73	
04163	465121606060					BCD 10RA	ORA TEST, SIGNS UNLIKE
04164	0500	00	0	16465	B74	CLA KK36	MAKE ACC +252525252525
04165	-0501	00	0	16462		ORA KK33	/OR/ -252525525252
04166	0402	00	0	16466		SUB KK37	SUB 252525777777
04167	-0760	00	0	00001		PBT	CHECK P FOR ONE
04170	0020	00	0	04172		TRA B74+6	ERROR IN P
04171	0020	00	0	04174		TRA B74+8	OK, PROCEED
04172	0074	00	4	06503		TSX ERROR-1, 4	
04173	0020	00	0	04164		TRA B74	
04174	0767	00	0	00002		ALS 2	MOVE OUT P AND Q
04175	0100	00	0	04177		TZE B74+11	OK, PROCEED
04176	0074	00	4	06504		TSX ERROR, 4	
04177	0074	00	4	06511		TSX OK, 4	
04200	0020	00	0	04164		TRA B74	
04201	465121606060					BCD 10RA	ORA TEST, SIGNS PLUS
04202	0500	00	0	16465	B75	CLA KK36	MAKE ACC 252525252525
04203	-0501	00	0	16464		ORA KK35	/OR/ +125252252525
04204	0402	00	0	16467		SUB KK38	SUB 377777252525
04205	0100	00	0	04207		TZE B75+5	OK, PROCEED
04206	0074	00	4	06504		TSX ERROR, 4	
04207	0074	00	4	06511		TSX OK, 4	
04210	0020	00	0	04202		TRA B75	
04211	465162606060					BCD 10RS	ORS TEST
04212	0500	00	0	16362	B76	CLA ONES	INITIALIZE TEMP STORAGE
04213	0601	00	0	16576		STO TEMP	WITH ONES
04214	0500	00	0	16361		CLA ZERO	MAKE ACC ZERO
04215	-0602	00	0	16576		ORS TEMP	/OR/ TO ONES
04216	0100	00	0	04221		TZE B76+7	ACC SHOULD BE ZERO
04217	0074	00	4	06503		TSX ERROR-1, 4	ERROR IN ACC
04220	0020	00	0	04212		TRA B76	
04221	0500	00	0	16576		CLA TEMP	BRING BACK STORAGE
04222	0400	00	0	16440		ADD MONE	ADD MINUS ONE TO RIPPLE
04223	-0760	00	0	00001		PBT	P SHOULD HAVE BIT
04224	0074	00	4	06504		TSX ERROR, 4	ERROR, NO BIT IN POS P
04225	0074	00	4	06511		TSX OK, 4	OK, PROCEED
04226	0020	00	0	04212		TRA B76	
04227	465162606060					BCD 10RS	ORS TEST
04230	0500	00	0	16361	B77	CLA ZERO	INITIALIZE TEMP STORAGE
04231	0601	00	0	16576		STO TEMP	WITH ZEROS

04232	-0500	00	0	16362		CAL ONES	CAL ALL ONES P-35
04233	-0602	00	0	16576		ORS TEMP	/OR/ TO ZEROS
04234	0400	00	0	16365		ADD ONE	CHECK ACC, ADD ONE, SHOULD
04235	-0760	00	0	00001		PBT	NOT GET A BIT IN P
04236	0020	00	0	04241		TRA B77+9	OK, NOW CHECK STORAGE
04237	0074	00	4	06503		TSX ERROR-1,4	ERROR, BIT IN P
04240	0020	00	0	04230		TRA B77	
04241	0500	00	0	16576		CLA TEMP	OK, NOW CHECK STORAGE
04242	0400	00	0	16440		ADD MONE	ADD MINUS ONE TO RIPPLE
04243	0140	00	0	04245		TOV B77+13	OK, SHOULD OVERFLOW
04244	0074	00	4	06504		TSX ERROR,4	NO, NOT ZERO
04245	0074	00	4	06511		TSX OK,4	YES, PROCEED
04246	0020	00	0	04230		TRA B77	
04247	465162606060					BCD 1ORS	ORA TEST, SIGNS UNLIKE
04250	0500	00	0	16465	B78	CLA KK36	INITIALIZE TEMP STORAGE
04251	0601	00	0	16576		STO TEMP	WITH 252525252525
04252	0500	00	0	16462		CLA KK33	MAKE ACC-252525525252
04253	-0602	00	0	16576		ORS TEMP	/OR/ TO TEMP STORAGE
04254	0500	00	0	16576		CLA TEMP	BRING TEMP TO ACC
04255	0402	00	0	16466		SUB KK37	SUB 252525777777
04256	0100	00	0	04260		TZE B78+8	OK, PROCEED
04257	0074	00	4	06504		TSX ERROR,4	
04260	0074	00	4	06511		TSX OK,4	
04261	0020	00	0	04250		TRA B78	
04262	465162606060					BCD 1ORS	ORS TEST
04263	0500	00	0	16465	B79	CLA KK36	INITIALIZE TEMP STORAGE
04264	0601	00	0	16576		STO TEMP	WITH +25252525252
04265	-0500	00	0	16460		CAL KK31	MAKE P-35, -12525222525
04266	-0602	00	0	16576		ORS TEMP	/OR/ TO TEMP STORAGE
04267	0500	00	0	16576		CLA TEMP	BRING IT TO ACC
04270	0400	00	0	16467		ADD KK38	ADD 3777777252525
04271	0100	00	0	04273		TZE B79+8	OK, SHOULD BE ZERO
04272	0074	00	4	06504		TSX ERROR,4	
04273	0074	00	4	06511		TSX OK,4	
04274	0020	00	0	04263		TRA B79	
04275	636351606060					BCD 1TTR	TTR TEST , NOT IN TRAP MODE
04276	0140	00	0	04277	B80	TOV B80+1	TURN OFF OVFL
04277	0021	00	0	04301		TTR B80+3	SHOULD TRAP TRANSFER
04300	0074	00	4	06504		TSX ERROR,4	DID NOT TRANSFER
04301	0074	00	4	06511		TSX OK,4	
04302	0020	00	0	04276		TRA B80	
04303	256344406060					BCD 1ETM-	ETM- TEST TO SEE IF GET
04304	0760	00	0	00007	B81	ETM	IN TRAP MODE
04305	0500	00	0	16477		CLA KK85	MAKE ADR AT ONE A TTR
04306	0601	00	0	00001		STO 1	TO B82
04307	0500	00	0	16361		CLA ZERO	CONDITION WILL BE MET
04310	0100	00	0	04311		TZE B81+5	AND SHOULD GO TO ONE

04311	-0760	00	0	00007		LTM	
04312	0074	00	4	06504		TSX ERROR,4	
04313	0074	00	4	06511		TSX OK,4	PROCEED TO B82
04314	0020	00	0	04304		TRA B81	
04315	256344406060					BCD 1ETM-	TTR TEST, IN TRAP MODE
04316	0760	00	0	00007	B82	ETM	
04317	0021	00	0	04325		TTR B83	SHOULD TTR TO B83
04320	-0760	00	0	00007		LTM	
04321	0074	00	4	06504		TSX ERROR,4	DID NOT TRAP TRANSFER
04322	0074	00	4	06511		TSX OK,4	
04323	0020	00	0	04316		TRA B82	
04324	256344406060					BCD 1ETM-	YES TRA IN TRAP MODE
04325	0760	00	0	00007	B83	ETM	
04326	0500	00	0	16472		CLA KK80	TTR TO B83+9, IS RETURN
04327	0601	00	0	00001		STO 1	ADDRESS AFTER TRAP.
04330	0500	00	0	16473		CLA KK81	HTR B84 IS IN ZERO, IF
04331	0601	00	0	00000		STO 0	INSTRUCTION COUNTER FAILS
04332	0020	00	0	04333		TRA B83+6	SHOULD NOT TRANSFER
04333	-0760	00	0	00007		LTM	
04334	0074	00	4	06503		TSX ERROR-1,4	TRAP FAILS, TRANSFERS
04335	0020	00	0	04325		TRA B83	
04336	-0760	00	0	00007		LTM	SHOULD TRAP AND RETURN HERE
04337	0500	00	0	00000		CLA 0	CHECK ADDRESS AT ZERO
04340	0402	00	0	16474		SUB KK82	SUB THE ADDRESS OF TRAP
04341	0100	00	0	04343		TZE B83+14	OK, SHOULD BE EQUAL
04342	0074	00	4	06504		TSX ERROR,4	
04343	0074	00	4	06511		TSX OK,4	
04344	0020	00	0	04325		TRA B83	
04345	256344406060					BCD 1ETM-	TEST CONDITIONAL TRANSFERS, CONDITIONS NOT MET. ADDRESS OF ERROR IS IN 00000 OR TRAP ON PRINTOUT
04346	0760	00	0	00007	B84	ETM	
04347	0500	00	0	16475		CLA KK83	LOC 1 SET TO TTR B84A
04350	0601	00	0	00001		STO 1	SHOULD BE NO TRANSFERS
04351	0560	00	0	16433		LDQ 8CF	MAKE MQ LARGER THAN ACC
04352	0760	00	0	00000		CLM	SET ACC TO ZERO AND SET
04353	0601	00	0	00000		STO 0	LOC 0 TO ZERO
04354	-0100	00	0	04407		TNZ B84C	
04355	-0120	00	0	04407		TMI B84C	
04356	0140	00	0	04407		TOV B84C	
04357	0040	00	0	04407		TLQ B84C	
04360	0534	00	1	16361		LXA ZERO,1	LOAD INDEX A WITH ZERO
04361	3	00000	1	04407		TXH B84C,1	
04362	2	00010	1	04407		TIX B84C,1,8	
04363	0500	00	0	16362		CLA ONES	LOAD ACC WITH ONES
04364	0100	00	0	04407		TZE B84C	
04365	0120	00	0	04407		TPL B84C	
04366	0767	00	0	00014		ALS 12	FORCE OVFL

04367	-0140	00	0	04407	TNO	B84C	
04370	0534	00	1	16433	LXA	8CF,1	LOAD INDEX A WITH 77777
04371	-2	00001	1	04407	TNX	B84C,1,1	
04372	-3	00001	1	04407	TXL	B84C,1,1	
04373	0560	00	0	16366	LDQ	MZE	LOAD MQ WITH MINUS ZERO
04374	0162	00	0	04407	TQP	B84C	
04375	0162	00	0	04407	TQP	B84C	RETEST TO SEE IF TEST IS COMPLETE. IF TRAP OCCURS, COMES BACK HERE
04376	-0760	00	0	00007	B84A	LTM	LEAVES TRAP MODE
04377	0500	00	0	00000		CLA 0	CHECK ADDRESS AT ZERO
04400	0402	00	0	16504		SUB KK86	IS TEST COMPLETE
04401	0100	00	0	04403		TZE B84A+5	YES PROCEED
04402	0074	00	4	06504		TSX ERROR,4	NO, ERROR ABOVE, CHECK ZERO ADDRESS
04403	0074	00	4	06511		TSX OK,4	
04404	0020	00	0	04346		TRA B84	
04405	256344406060					BCD 1ETM-	
04406	0020	00	0	04414	B84B	TRA B85	
04407	-0760	00	0	00007	B84C	LTM	IF TRANSFER IS WRONG,
04410	0074	00	4	06504		TSX ERROR,4	COMES HERE
04411	0074	00	4	06511		TSX OK,4	
04412	0020	00	0	04346		TRA B84	
TEST CONDITIONAL TRANSFERS WITH CONDITIONALS SATISFIED							
04413	256344406060					BCD 1ETM-	THIS IS SET UP FOR
04414	0760	00	0	00007	B85	ETM	TRAP RETURN
04415	0500	00	0	16500		CLA KK85A	INITIALIZE TEMP STORAGE WITH LOC OF FIRST COND TRANSFER
04416	0601	00	0	16576		STO TEMP	
04417	0500	00	0	16476		CLA KK84	TTR B85+6
04420	0601	00	0	00001		STO 1	
04421	0021	00	0	04433		TTR B85+15	OK, START TESTS
04422	0500	00	0	00000		CLA 0	RETURN FROM LOC 1
04423	0340	00	0	16576		CAS TEMP	COMPARE ACC AND TEMP
04424	0021	00	0	04452		TTR B85B	IF TEMP LESS THEN ZERO
04425	0021	00	0	04427		TTR B85+11	IF TEMP EQUAL TO ZERO
04426	0021	00	0	04452		TTR B85B	IF TEMP GRATER THEN ZERO
04427	0400	00	0	16430		ADD TWO	NOW ADVANCE TWO POSITIONS
04430	0621	00	0	04432		STA B85+14	SO AS TO CONTINUE TO THE NEXT SUBTEST
04431	0621	00	0	16576		STA TEMP	RESET ADDRESS OF TEMP
04432	0021	00	0	00000		TTR 0	GO TO RESPECTIVE SECTION
04433	0767	00	0	00062		ALS 50	CLEAR ACC
04434	0100	00	0	04446		TZE B85A	TZE TEST
04435	0021	00	0	04446		TTR B85A	
04436	0120	00	0	04446		TPL B85A	TPL TEST

04437	0021	00	0	04446	TTR	B85A	
04440	0140	00	0	04446	TOV	B85A	TOV TEST
04441	0021	00	0	04446	TTR	B85A	
04442	-0140	00	0	04446	TNO	B85A	
04443	0021	00	0	04446	TTR	B85A	TNO TEST
04444	-0760	00	0	00007	LTM		TEST IS FINISED NOW
04445	0020	00	0	04455	TRA	B86	GO TO NEXT SECTION
04446	-0760	00	0	00007	B85A	LTM	COMES HERE ON EROR
04447	0074	00	4	06503	TSX	ERROR-1,4	ERROR, DID NOT TRAP
04450	0020	00	0	04414	TRA	B85	
04451	0020	00	0	04455	TRA	B86	CONTINUE TEST
							COMES HERE IF ADDRESS AT ZERO IS INCORRECT
04452	-0760	00	0	00007	B85B	LTM	
04453	0074	00	4	06503	TSX	ERROR-1,4	NOT JUMPING PROPERLY
04454	0020	00	0	04414	TRA	B85	
04455	0760	00	0	00007	B86	ETM	
04456	0500	00	0	16501	CLA	KK85B	
04457	0601	00	0	16576	STO	TEMP	INITIALIZE TEMP STORAGE WITH LOC OF FIRST COND TRANSFER
04460	0500	00	0	16362	CLA	ONES	BRING IN ALL ONES
04461	-0120	00	0	04467	TMI	B86A	TMI TEST
04462	0021	00	0	04467	TTR	B86A	
04463	-0100	00	0	04467	TNZ	B86A	TNZ TEST
04464	0021	00	0	04467	TTR	B86A	
04465	-0760	00	0	00007	LTM		TEST IS FINISHED NOW
04466	0020	00	0	04472	TRA	B87	GO TO NEXT SECTION
04467	-0760	00	0	00007	B86A	LTM	COMES HERE ON ERROR
04470	0074	00	4	06503	TSX	ERROR-1,4	ERROR, DID NOT TRAP
04471	0020	00	0	04414	TRA	B85	
04472	0760	00	0	00007	B87	ETM	TEST TQP, CONDITION
04473	0500	00	0	16502	CLA	KK85C	SATISFIED
04474	0601	00	0	16576	STO	TEMP	INITIALIZE TEMP STORAGE WITH LOC OF FIRST COND TRANSFER
04475	0560	00	0	16365	LDQ	ONE	LOAD MQ POS 35 WITH ONE
04476	0162	00	0	04502	TQP	B87A	TEST TQP
04477	0021	00	0	04502	TTR	B87A	
04500	-0760	00	0	00007	LTM		TEST IS FINISHED NOW
04501	0020	00	0	04505	TRA	B88	GO TO NEXT SECTION
04502	-0760	00	0	00007	B87A	LTM	COMES HERE ON ERROR
04503	0074	00	4	06503	TSX	ERROR-1,4	ERROR, DID NOT TRAP
04504	0020	00	0	04414	TRA	B85	

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                                CHECK ADDRESS AT ZERO
                                FOR LOCATION OF LAST INST
04505 0760 00 0 00007 B88 ETM          PREFORMED CORRECTLY
04506 0500 00 0 16503   CLA KK85D   INITIALIZE TEMP STORAGE
04507 0601 00 0 16576   STO TEMP    WITH LOC OF FIRST COND
                                TRANSFER

04510 1 00011 1 04526   TXI B88A,1,9 TXI TEST
04511 0021 00 0 04526   TTR B88A
04512 3 00000 1 04526   TXH B88A,1   TXH TEST
04513 0021 00 0 04526   TTR B88A
04514 -3 00000 0 04526   TXL B88A     TXL TEST
04515 0021 00 0 04526   TTR B88A
04516 2 00001 1 04526   TIX B88A,1,1 TIX TEST
04517 0021 00 0 04526   TTR B88A
04520 -2 77777 1 04526   TNX B88A,1,-1 TNX TEST
04521 0021 00 0 04526   TTR B88A
04522 0074 00 1 04526   TSX B88A,1   TSX TEST
04523 0021 00 0 04526   TTR B88A
04524 -0760 00 0 00007   LTM          TEST IS FINISHED
04525 0020 00 0 04530   TRA B88A+2   GO TO NEXT SECTIONS

04526 -0760 00 0 00007 B88A LTM          COMES HERE ON ERROR
04527 0074 00 4 06504   TSX ERROR,4  ERROR, DID NOT TRAP
04530 0074 00 4 06511   TSX OK,4
04531 0020 00 0 04414   TRA B85

04532 0761 00 0 00000   NOP

04533 0074 00 4 16351   TSX STORE,4
04534 0020 00 0 04536   TRA *+2

04535 624363606060     BCD 1SLT     PSE TEST
04536 0760 00 0 00140 B89 SLF          TURN OFF ALL SENSE LIGHTS
04537 -0760 00 0 00141   SLT 1        TEST LIGHT ONE
04540 0020 00 0 04543   TRA B90      OK, OFF
04541 0074 00 4 06503   TSX ERROR-1,4 ERROR, LIGHT WAS ON
04542 0020 00 0 04536   TRA B89

04543 -0760 00 0 00142 B90 SLT 2        TEST LIGHT TWO
04544 0020 00 0 04547   TRA B91      OK, PROCEED
04545 0074 00 4 06503   TSX ERROR-1,4 ERROR, LIGHT WAS ON
04546 0020 00 0 04536   TRA B89

04547 -0760 00 0 00143 B91 SLT 3        TEST LIGHT THREE
04550 0020 00 0 04553   TRA B92      OK, PROCEED
04551 0074 00 4 06503   TSX ERROR-1,4 ERROR, LIGHT WAS ON
04552 0020 00 0 04536   TRA B89

04553 -0760 00 0 00144 B92 SLT 4        TEST LIGHT FOUR
04554 0020 00 0 04556   TRA B92+3    OK, PROCEED
04555 0074 00 4 06504   TSX ERROR,4  ERROR, LIGHT WAS ON
04556 0074 00 4 06511   TSX OK,4
04557 0020 00 0 04536   TRA B89

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04560	624363600160		BCD 1SLT 1	PSE TEST
04561	0760 00 0 00141	B93	SLN 1	TURN ON LIGHT ONE
04562	-0760 00 0 00141		SLT 1	TEST LIGHT ONE
04563	0074 00 4 06504		TSX ERROR,4	ERROR, IT WAS NOT ON
04564	0074 00 4 06511		TSX OK,4	OK, PROCEED
04565	0020 00 0 04561		TRA B93	
04566	624363600260		BCD 1SLT 2	PZE TEST
04567	0760 00 0 00142	B94	SLN 2	TURN ON LIGHT TWO
04570	-0760 00 0 00142		SLT 2	TEST LIGHT TWO
04571	0074 00 4 06504		TSX ERROR,4	ERROR, IT WAS NOT ON
04572	0074 00 4 06511		TSX OK,4	OK, PROCEED
04573	0020 00 0 04567		TRA B94	
04574	624363600360		BCD 1SLT 3	PZE TEST
04575	0760 00 0 00143	B95	SLN 3	TURN ON LIGHT THREE
04576	-0760 00 0 00143		SLT 3	TEST LIGHT THREE
04577	0074 00 4 06504		TSX ERROR,4	ERROR, IT WAS NOT ON
04600	0074 00 4 06511		TSX OK,4	OK, PROCEED
04601	0020 00 0 04575		TRA B95	
04602	624363600460		BCD 1SLT 4	PZE TEST
04603	0760 00 0 00144	B96	SLN 4	TURN ON LIGHT FOUR
04604	-0760 00 0 00144		SLT 4	TEST LIGHT FOUR
04605	0074 00 4 06504		TSX ERROR,4	ERROR, IT WAS NOT ON
04606	0074 00 4 06511		TSX OK,4	OK, PROCEED
04607	0020 00 0 04603		TRA B96	
04610	624363606060		BCD 1SLT	MSE TEST, TEST ALL LIGHTS ARE OUT
04611	-0760 00 0 00141	B93A	SLT 1	TEST LIGHT ONE
04612	0020 00 0 04615		TRA B93A+4	SHOULD BE OFF
04613	0074 00 4 06503		TSX ERROR-1,4	
04614	0020 00 0 04611		TRA B93A	
04615	-0760 00 0 00142		SLT 2	TEST LIGHT TWO
04616	0020 00 0 04621		TRA B93A+8	SHOULD BE OFF
04617	0074 00 4 06503		TSX ERROR-1,4	
04620	0020 00 0 04611		TRA B93A	
04621	-0760 00 0 00143		SLT 3	TEST LIGHT THREE
04622	0020 00 0 04625		TRA B93A+12	SHOULD BE OFF
04623	0074 00 4 06503		TSX ERROR-1,4	
04624	0020 00 0 04611		TRA B93A	
04625	-0760 00 0 00144		SLT 4	TEST LIGHT FOUR
04626	0020 00 0 04630		TRA B93A+15	SHOULD BE OFF
04627	0074 00 4 06504		TSX ERROR,4	
04630	0074 00 4 06511		TSX OK,4	
04631	0020 00 0 04611		TRA B93A	
04632	454647606060		BCD 1NOP	NOP TEST TO SEE IF NOP IS
04633	0760 00 0 00140	B96A	SLF	INTERPRETED AS PSE 97



04634	0761	00	0	00141		NOP	97		
04635	-0760	00	0	00141		SLT	1	TEST LIGHT ONE	
04636	0020	00	0	04640		TRA	B96A+5		
04637	0074	00	4	06504		TSX	ERROR,4		
04640	0074	00	4	06511		TSX	OK,4		
04641	0020	00	0	04633		TRA	B96A		
04642	626663606060					BCD	1SWT	SENSE SWITCH TEST	
04643	0500	00	0	16505	B98	CLA	KK87	PLACE TRA B98A+1 IN B98A	
04644	0601	00	0	04674		STO	B98A	FOR FIRST TIME THROUGH, CHANGES ON SECOND TIME THROUGH, EACH SWITCH IS REPRESENTED IN MQ AND ACC BY GROUP OF SIX BITS	
04645	0500	00	0	16361		CLA	ZERO	CLEAR ACC	
04646	0760	00	0	00161		SWT	1	SW 1	
04647	0020	00	0	04651		TRA	B98+6	DOWN L -370000000000	
04650	0500	00	0	16370		CLA	SW1	UP	
04651	0760	00	0	00162		SWT	2	SW 2	
04652	0020	00	0	04654		TRA	B98+9	DOWN L+007700000000	
04653	-0501	00	0	16507		ORA	SW2	UP	
04654	0760	00	0	00163		SWT	3	SW 3	
04655	0020	00	0	04657		TRA	B98+12	DOWN L +000077000000	
04656	-0501	00	0	16510		ORA	SW3	UP	
04657	0760	00	0	00164		SWT	4	SW 4	
04660	0020	00	0	04662		TRA	B98+15	DOWN L +000000770000	
04661	-0501	00	0	16511		ORA	SW4	UP	
04662	0760	00	0	00165		SWT	5	SW 5	
04663	0020	00	0	04665		TRA	B98+18	DOWN L +000000007700	
04664	-0501	00	0	16512		ORA	SW5	UP	
04665	0760	00	0	00166		SWT	6	SW 6	
04666	0020	00	0	04670		TRA	B98+21	UP	
04667	-0501	00	0	16513		ORA	SW6	DOWN L +000000000077	
04670	0761	00	0	00166		NOP	118	TEST, SEE IF NOP INTERPRETED AS PSE. IF SW6 UP, NOT CONCLUSIVE	
04671	0020	00	0	04674		TRA	B98A	SENSE SWITCH TEST	
04672	0074	00	4	06503		TSX	ERROR-1,4		
04673	0020	00	0	04643		TRA	B98		
04674	0020	00	0	04675	B98A	TRA	B98A+1		
04675	0601	00	0	16576		STO	TEMP		
04676	0560	00	0	16576		LDQ	TEMP		
04677	0500	00	0	16506		CLA	KK88	RESET SWITCH TO COMPARE	
04700	0601	00	0	04674		STO	B98A	TO SEE IF AGREE SECOND TIME	
04701	0020	00	0	04645		TRA	B98+2	REPEAT B98 ONCE	
04702	0402	00	0	16576	B98B	SUB	TEMP	SUBT FIRST RESULT FROM 2ND	
04703	0100	00	0	04705		TZE	B98B+3	OK, PROCEED	
04704	0074	00	4	06504		TSX	ERROR,4	ERROR IS SHOWN BY COMPARING	
04705	0074	00	4	06511		TSX	OK,4	ACC RESULTS WITH MQ. IF	
04706	0020	00	0	04643		TRA	B98	SWITCH WAS UP, ITS RESPECTIVE PART OF ACC	

SHOULD BE OFF. IF SWITCH  
 WAS DOWN, THIS PART  
 SHOULD BE ON

04707	626363606060		BCD 1STT	TEST-STORE TAG
04710	0760 00 0 00000	A1	CLM	
04711	0602 00 0 16576		SLW TEMP	SAVE ACC
04712	0500 00 0 16362		CLA ONES	L ALL ONES
04713	0625 00 0 16576		STT TEMP	PUT ONES IN TAG
04714	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
04715	0340 00 0 16362		CAS ONES	
04716	0020 00 0 04720		TRA A1+8	ERROR
04717	0020 00 0 04722		TRA A2Z	OK-ACC UNCHANGED
04720	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
04721	0020 00 0 04710		TRA A1	REPEAT SECTION
04722	0500 00 0 16576	A2Z	CLA TEMP	TEST TAG FOR ONES
04723	0560 00 0 16363		LDQ K2	L +700000 MQ, ACC SHOULD BE THE SAME
04724	0340 00 0 16363		CAS K2	
04725	0020 00 0 04727		TRA *+2	ERROR
04726	0020 00 0 04730		TRA *+2	OK
04727	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
04730	0074 00 4 06511		TSX OK,4	CONTINUE TEST
04731	0020 00 0 04710		TRA A1	REPEAT TEST
04732	626363606060		BCD 1STT	
04733	0500 00 0 16362	A2A	CLA ONES	L ALL ONES
04734	0601 00 0 16576		STO TEMP	SAVE ACC
04735	0760 00 0 00000		CLM	
04736	0625 00 0 16576		STT TEMP	PUT ZEROS IN TAG
04737	0500 00 0 16576		CLA TEMP	TEST TAG FOR ZEROS
04740	0560 00 0 16364		LDQ K3	L -377777077777 MQ, ACC SHOULD BE THE SAME
04741	0340 00 0 16364		CAS K3	
04742	0020 00 0 04744		TRA A2A+9	ERROR
04743	0020 00 0 04745		TRA A2A+10	OK
04744	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
04745	0074 00 4 06511		TSX OK,4	CONTINUE TEST
04746	0020 00 0 04733		TRA A2A	REPEAT TEST
04747	626371606060		BCD 1STZ	TEST STORE ZERO AND SEE IF ACC AND MQ CHANGE
04750	0500 00 0 16362	A3	CLA ONES	L ALL ONES
04751	0601 00 0 16576		STO TEMP	SAVE ACC
04752	0560 00 0 04752		LDQ A3+2	
04753	0600 00 0 16576		STZ TEMP	BLANK TEMP
04754	-0600 00 0 16577		STQ TEMP+1	SAVE MQ
04755	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
04756	0340 00 0 16362		CAS ONES	
04757	0020 00 0 04761		TRA A3+9	ERROR
04760	0020 00 0 04763		TRA A3A	OK-ACC UNCHANGED
04761	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE

04762	0020	00	0	04750		TRA A3	REPEAT SECTION
04763	0500	00	0	16577	A3A	CLA TEMP+1	L SAVED MQ
04764	0560	00	0	04752		LDQ A3+2	MQ, ACC SHOULD BE SAME
04765	0340	00	0	04752		CAS A3+2	
04766	0020	00	0	04770		TRA *+2	ERROR
04767	0020	00	0	04772		TRA A4	OK MQ UNCHANGED
04770	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
04771	0020	00	0	04750		TRA A3	REPEAT SECTION
04772	0500	00	0	16576	A4	CLA TEMP	CHECK TEMP
04773	0100	00	0	04775		TZE A4+3	OK
04774	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
04775	0074	00	4	06511		TSX OK,4	CONTINUE TEST
04776	0020	00	0	04750		TRA A3	REPEAT TEST
04777	672321606060					BCD 1XCA	TEST-EXCHANGE ACC AND MQ
05000	0500	00	0	16365	A5Z	CLA ONE	L +1
05001	0560	00	0	16366		LDQ MZE	L -0 TO MQ
05002	0131	00	0	00000		XCA 0	
05003	-0120	00	0	05006		TMI A5A	ACC SIGN OK
05004	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05005	0020	00	0	05000		TRA A5Z	REPEAT SECTION
05006	0100	00	0	05011	A5A	TZE A5A1	OK OK
05007	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05010	0020	00	0	05000		TRA A5Z	REPEAT SECTION
05011	0763	00	0	00043	A5A1	LLS 35	BRING MQ TO ACC
05012	0560	00	0	16365		LDQ ONE	L +1 TO MQ
05013	0340	00	0	16365		CAS ONE	
05014	0020	00	0	05016		TRA A5A1+5	ERROR
05015	0020	00	0	05017		TRA A5A1+6	MQ OK
05016	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05017	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05020	0020	00	0	05000		TRA A5Z	REPEAT TEST
05021	672321606060					BCD 1XCA	XCA TEST
05022	0500	00	0	16364	A6	CLA K3	L -377777077777
05023	0560	00	0	16363		LDQ K2	L +000000700000
05024	0131	00	0	00000		XCA	CHECK ALL POSITIONS
05025	-0600	00	0	16576		STQ TEMP	SAVE MQ
05026	0560	00	0	16363		LDQ K2	L +7000000 MQ,ACC SHOULD BE THE SAME
05027	0340	00	0	16363		CAS K2	
05030	0020	00	0	05032		TRA A6+8	ERROR
05031	0020	00	0	05034		TRA A6A	ACC OK
05032	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05033	0020	00	0	05022		TRA A6	REPEAT SECTION
05034	0500	00	0	16576	A6A	CLA TEMP	CHECK SAVED MQ
05035	0560	00	0	16364		LDQ K3	L -377777077777 MQ,ACC SHOULD BE THE SAME
05036	0340	00	0	16364		CAS K3	

05037	0020	00	0	05041		TRA A6A+5	ERROR
05040	0020	00	0	05042		TRA A6A+6	MQ OK
05041	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
05042	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05043	0020	00	0	05022		TRA A6	REPEAT TEST
05044	672321606060					BCD 1XCA	
05045	0500	00	0	16362	A7X	CLA ONES	L ALL ONES
05046	0767	00	0	00003		ALS 3	ACC NOW -11377777777770
05047	0560	00	0	16364		LDQ K3	L -377777077777
05050	0131	00	0	00000		XCA	CHECK XCA FOR CLEARING P,Q
05051	-0600	00	0	16576		STQ TEMP	SAVE MQ
05052	0560	00	0	16364		LDQ K3	L -377777077777 MQ, ACC SHOULD BE THE SAME
05053	0340	00	0	16364		CAS K3	
05054	0020	00	0	05056		TRA *+2	ERROR
05055	0020	00	0	05060		TRA A7A	ACC OK
05056	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
05057	0020	00	0	05045		TRA A7X	
05060	0500	00	0	16576	A7A	CLA TEMP	CHECK SAVED MQ
05061	0560	00	0	16367		LDQ K6	L -377777777770 MQ, ACC SHOULD BE THE SAME
05062	0340	00	0	16367		CAS K6	
05063	0020	00	0	05065		TRA A7A+5	ERROR
05064	0020	00	0	05066		TRA A7A+6	MQ OK
05065	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
05066	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05067	0020	00	0	05045		TRA A7X	
05070	672343606060					BCD 1XCL	TEST-EXCHANGE LOGICAL ACCUMULATOR AND MQ
05071	0500	00	0	16365	A10X	CLA ONE	L +1
05072	0560	00	0	16366		LDQ MZE	L -0 TO MQ
05073	-0130	00	0	00000		XCL 0	
05074	-0760	00	0	00001		PBT	
05075	0020	00	0	05077		TRA *+2	ERROR
05076	0020	00	0	05101		TRA A10A	OK-ACC HAS P BIT
05077	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
05100	0020	00	0	05071		TRA A10X	
05101	0771	00	0	00002	A10A	ARS 2	ACC NOW +10000000000
05102	-0600	00	0	16576		STQ TEMP	SAVE MQ
05103	0560	00	0	16371		LDQ PTHR	L +10000000000 TO MQ
05104	0340	00	0	16371		CAS PTHR	
05105	0020	00	0	05107		TRA A10A+6	ERROR
05106	0020	00	0	05111		TRA A10A1	ACC OK
05107	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
05110	0020	00	0	05071		TRA A10X	
05111	0500	00	0	16576	A10A1	CLA TEMP	CHECK SAVED MQ
05112	0560	00	0	16365		LDQ ONE	L +1 TO MQ
05113	0340	00	0	16365		CAS ONE	

05114	0020	00	0	05116		TRA A10A1+5	ERROR
05115	0020	00	0	05117		TRA A10A1+6	MQ OK
05116	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05117	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05120	0020	00	0	05071		TRA A10X	
05121	672343606060					BCD 1XCL	
05122	-0500	00	0	16362	A12X	CAL ONES	L ONES
05123	0560	00	0	16361		LDQ ZERO	L +0
05124	-0130	00	0	00000		XCL 0	
05125	0100	00	0	05130		TZE A12A	ACC OK
05126	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05127	0020	00	0	05122		TRA A12X	
05130	0763	00	0	00043	A12A	LLS 35	BRING MQ TO ACC
05131	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
05132	0340	00	0	16362		CAS ONES	
05133	0020	00	0	05135		TRA A12A+5	ERROR
05134	0020	00	0	05136		TRA A12A+6	MQ OK
05135	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05136	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05137	0020	00	0	05122		TRA A12X	
05140	672343606060					BCD 1XCL	
05141	0500	00	0	16373	A13X	CLA K10	L -300000000000
05142	0767	00	0	00002		ALS 2	CLEAR ALL BUT S,Q,P
05143	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
05144	-0130	00	0	00000		XCL 0	TEST FOR CLEARING S,Q
05145	0771	00	0	00001		ARS 1	CLEAR P
05146	-0600	00	0	16576		STQ TEMP	SAVE MQ
05147	0560	00	0	16360		LDQ PONES	L + ALL ONES
05150	0340	00	0	16360		CAS PONES	
05151	0020	00	0	05153		TRA *+2	ERROR
05152	0020	00	0	05155		TRA A13A	ACC OK
05153	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05154	0020	00	0	05141		TRA A13X	
05155	0500	00	0	16576	A13A	CLA TEMP	CHECK SAVED MQ
05156	-0120	00	0	05161		TMI A13A1	MQ SIGN OK
05157	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05160	0020	00	0	05141		TRA A13X	
05161	0100	00	0	05163	A13A1	TZE A13A1+2	MQ OK
05162	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05163	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05164	0020	00	0	05141		TRA A13X	
05165	255121606060					BCD 1ERA	TEST-EXCLUSIVE OR TO ACC
05166	-0500	00	0	16362	A14X	CAL ONES	L ALL ONES
05167	0602	00	0	16576		SLW TEMP	SAVE ACC
05170	0322	00	0	16576		ERA TEMP	CHECK FOR CLEARING ACC
05171	0100	00	0	05174		TZE A14A	ACC OK
05172	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE

05173	0020	00	0	05166		TRA A14X	REPEAT SECTION
05174	0500	00	0	16576	A14A	CLA TEMP	CHECK STG UNCHANGED
05175	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
05176	0340	00	0	16362		CAS ONES	
05177	0020	00	0	05201		TRA A14A+5	ERROR
05200	0020	00	0	05202		TRA A14A+6	OK-STORAGE UNCHANGED
05201	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
05202	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05203	0020	00	0	05166		TRA A14X	
05204	255121606060					BCD 1ERA	
05205	-0500	00	0	16362	A15X	CAL ONES	L ALL ONES
05206	0322	00	0	16361		ERA ZERO	NO CHANGE TO ACC
05207	0602	00	0	16576		SLW TEMP	SAVE ACC
05210	0500	00	0	16576		CLA TEMP	CHECK ACC
05211	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
05212	0340	00	0	16362		CAS ONES	
05213	0020	00	0	05215		TRA *+2	ERROR
05214	0020	00	0	05216		TRA *+2	OK
05215	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
05216	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05217	0020	00	0	05205		TRA A15X	
05220	255121606060					BCD 1ERA	
05221	0500	00	0	16361	A16X	CLA ZERO	L +0
05222	0322	00	0	16362		ERA ONES	FILL P,1-35 WITH BITS
05223	0602	00	0	16576		SLW TEMP	SAVE ACC
05224	0500	00	0	16576		CLA TEMP	CHECK ACC
05225	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
05226	0340	00	0	16362		CAS ONES	
05227	0020	00	0	05231		TRA *+2	ERROR
05230	0020	00	0	05232		TRA *+2	OK
05231	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
05232	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05233	0020	00	0	05221		TRA A16X	
05234	255121606060					BCD 1ERA	
05235	0500	00	0	16373	A17	CLA K10	L -300000000000
05236	0767	00	0	00003		ALS 3	SET UP Q BIT
05237	0322	00	0	16361		ERA ZERO	CHECK S,Q CLEARED
05240	0120	00	0	05243		TPL A17A	ACC SIGN CLEARED
05241	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
05242	0020	00	0	05235		TRA A17	
05243	0100	00	0	05245	A17A	TZE A17A+2	ACC OK-Q CLEARED
05244	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
05245	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05246	0020	00	0	05235		TRA A17	REPEAT TEST
05247	432751606060					BCD 1LGR	TEST-LOGICAL RT SHIFT

05250	0500	00	0	16365	A20	CLA ONE	L +1
05251	0560	00	0	16361		LDQ ZERO	L +0 TO MQ
05252	-0765	00	0	00001		LGR 1	
05253	0100	00	0	05256		TZE A20A	ACC OK
05254	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05255	0020	00	0	05250		TRA A20	REPEAT SECTION
05256	0763	00	0	00043	A20A	LLS 35	BRING MQ TO ACC
05257	-0120	00	0	05262		TMI A20A1	MQ SIGN OK
05260	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05261	0020	00	0	05250		TRA A20	REPEAT SECTION
05262	0100	00	0	05264	A20A1	TZE A20A1+2	MQ OK
05263	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05264	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05265	0020	00	0	05250		TRA A20	REPEAT TEST
05266	432751606060					BCD 1LGR	
05267	0560	00	0	16366	A21X	LDQ MZE	L -0 TO MQ
05270	0760	00	0	00000		CLM	
05271	-0765	00	0	00043		LGR 35	CHANGE MQ TO +1
05272	0763	00	0	00043		LLS 35	BRING MQ TO ACC
05273	0560	00	0	16365		LDQ ONE	L +1 TO MQ
05274	0340	00	0	16365		CAS ONE	
05275	0020	00	0	05277		TRA *+2	ERROR
05276	0020	00	0	05300		TRA *+2	OK
05277	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05300	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05301	0020	00	0	05267		TRA A21X	
05302	432751606060					BCD 1LGR	
05303	0500	00	0	16360	A22X	CLA PONES	L PLUS ONES
05304	0767	00	0	00003		ALS 3	LOAD P, Q
05305	-0765	00	0	00044		LGR 36	NOW -377777777770 IN MQ
05306	-0600	00	0	16576		STQ TEMP	SAVE MQ
05307	0560	00	0	16365		LDQ ONE	L +1 TO MQ
05310	0340	00	0	16365		CAS ONE	
05311	0020	00	0	05313		TRA *+2	ERROR
05312	0020	00	0	05315		TRA A22A	ACC OK
05313	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05314	0020	00	0	05303		TRA A22X	
05315	0500	00	0	16576	A22A	CLA TEMP	L SAVED MQ
05316	0560	00	0	16367		LDQ K6	L -37777777770 MQ, ACC SHOULD BE THE SAME
05317	0340	00	0	16367		CAS K6	
05320	0020	00	0	05322		TRA A22A+5	ERROR
05321	0020	00	0	05323		TRA A22A+6	MQ OK
05322	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05323	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05324	0020	00	0	05303		TRA A22X	
05325	712563606060					BCD 1ZET	TEST-STORAGE ZERO TEST
05326	0500	00	0	16362	A23X	CLA ONES	L ALL ONES

05327	0520	00	0	16361		ZET ZERO	STG 1-35 ZERO
05330	0020	00	0	05332		TRA *+2	ERROR
05331	0020	00	0	05334		TRA A23A	OK
05332	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05333	0020	00	0	05326		TRA A23X	
05334	0560	00	0	16362	A23A	LDQ ONES	L ALL ONES TO MQ
05335	0340	00	0	16362		CAS ONES	
05336	0020	00	0	05340		TRA A23A+4	ERROR
05337	0020	00	0	05341		TRA A23A+5	OK-ACC UNCHANGED
05340	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05341	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05342	0020	00	0	05326		TRA A23X	
05343	712563606060					BCD 1ZET	
05344	0520	00	0	16366	A24X	ZET MZE	STG 1-35 ZERO
05345	0020	00	0	05347		TRA *+2	ERROR
05346	0020	00	0	05350		TRA *+2	OK
05347	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05350	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05351	0020	00	0	05344		TRA A24X	
05352	712563606060					BCD 1ZET	
05353	0500	00	0	16365	A24A	CLA ONE	L +1
05354	0601	00	0	16576		STO TEMP	SAVE ACC
05355	0520	00	0	16576		ZET TEMP	STG 1-35 NOT ZERO
05356	0020	00	0	05361		TRA A24A1	OK
05357	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05360	0020	00	0	05353		TRA A24A	REPEAT SECTION
05361	0500	00	0	16576	A24A1	CLA TEMP	CHECK STG UNCHANGED
05362	0560	00	0	16365		LDQ ONE	L + 1
05363	0340	00	0	16365		CAS ONE	
05364	0020	00	0	05366		TRA A24A1+5	ERROR
05365	0020	00	0	05367		TRA A24A1+6	OK-STORAGE UNCHANGED
05366	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05367	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05370	0020	00	0	05353		TRA A24A	REPEAT TEST
05371	712563606060					BCD 1ZET	TEST-STORAGE TEST
05372	0760	00	0	00000	24A	CLM	POSITIONS S, 1-35 CLEAR ACC
05373	0500	00	0	16365		CLA ONE	L +1
05374	0601	00	0	16576		STO TEMP	SAVE ACC
05375	0520	00	0	16576		ZET TEMP	STG 1-35 NOT ZERO
05376	0020	00	0	05401		TRA 24B	OK
05377	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05400	0020	00	0	05372		TRA 24A	REPEAT SECTION
05401	0767	00	0	00001	24B	ALS 1	MOVE BIT
05402	-0760	00	0	00001		PBT	P BIT YET
05403	0020	00	0	05374		TRA 24A+2	NO
05404	0602	00	0	16576		SLW TEMP	STG 1-35 ZERO





05462	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05463	0020	00	0	05454		TRA 26A	REPEAT SECTION
05464	0767	00	0	00001	26B	ALS 1	MOVE BIT
05465	-0760	00	0	00001		PBT	P BIT YET
05466	0020	00	0	05456		TRA 26A+2	NO
05467	0602	00	0	16576		SLW TEMP	SAVE ACC
05470	-0520	00	0	16576		NZT TEMP	STG 1-35 ZERO
05471	0020	00	0	05473		TRA *+2	OK
05472	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05473	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05474	0020	00	0	05454		TRA 26A	REPEAT TEST
05475	457163606060					BCD 1NZT	
05476	0760	00	0	00000	26C	CLM	
05477	0602	00	0	16576		SLW TEMP	SAVE ACC
05500	-0520	00	0	16576		NZT TEMP	STG 1-35 ZERO
05501	0020	00	0	05503		TRA 26C+5	OK
05502	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05503	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05504	0020	00	0	05476		TRA 26C	REPEAT TEST
05505	432162606060					BCD 1LAS	TEST-LOGICAL COMPARE ACC WITH STORAGE
05506	0500	00	0	16362	A27X	CLA ONES	L ALL ONES
05507	0601	00	0	16576		STO TEMP	SAVE ACC
05510	-0500	00	0	16366		CAL MZE	L BIT IN P
05511	0767	00	0	00001		ALS 1	SHIFT TO Q
05512	-0340	00	0	16576		LAS TEMP	TEST ACC GREATER THEN STG
05513	0020	00	0	05517		TRA *+4	OK
05514	0020	00	0	05515		TRA *+1	ERROR
05515	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05516	0020	00	0	05506		TRA A27X	
05517	0560	00	0	16361	A27A	LDQ ZERO	L +0 TO MQ
05520	0771	00	0	00002		ARS 2	SHIFT TO POS 1
05521	0400	00	0	16434		ADD MTW	L -2000000000
05522	0100	00	0	05525		TZE A27A1	OK ACC UNCHANGED
05523	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05524	0020	00	0	05506		TRA A27X	
05525	0500	00	0	16576	A27A1	CLA TEMP	CHECK STG UNCHANGED
05526	0560	00	0	16362		LDQ ONES	L ONES TO MQ
05527	0340	00	0	16362		CAS ONES	
05530	0020	00	0	05532		TRA A27A1+5	ERROR
05531	0020	00	0	05533		TRA A27A1+6	OK STORAGE UNCHANGED
05532	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05533	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05534	0020	00	0	05506		TRA A27X	
05535	432162606060					BCD 1LAS	
05536	0500	00	0	16364	A28X	CLA K3	L -377777077777
05537	-0340	00	0	16363		LAS K2	L +700000-TEST STORAGE LESS

					THAN ACCUMULATOR	
05540	0020	00	0	05543	TRA *+3	OK
05541	0020	00	0	05542	TRA *+1	ERROR
05542	0074	00	4	06504	TSX ERROR, 4	TO ERROR ROUTINE
05543	0074	00	4	06511	TSX OK, 4	CONTINUE TEST
05544	0020	00	0	05536	TRA A28X	
05545	432162606060				BCD 1LAS	
05546	0500	00	0	16434	A29X CLA MTW	L -2000000000
05547	0767	00	0	00001	ALS 1	SHIFT TO POS P
05550	-0340	00	0	16434	LAS MTW	TEST STG GREATER THAN ACC
05551	0020	00	0	05552	TRA *+1	ERROR
05552	0074	00	4	06504	TSX ERROR, 4	TO ERROR ROUTINE
05553	0074	00	4	06511	TSX OK, 4	CONTINUE TEST
05554	0020	00	0	05546	TRA A29X	
05555	432162606060				BCD 1LAS	
05556	-0500	00	0	16366	A30X CAL MZE	L P BIT
05557	-0340	00	0	16366	LAS MZE	TEST STG AND ACC EQUAL
05560	0020	00	0	05562	TRA *+2	ERROR
05561	0020	00	0	05563	TRA *+2	OK
05562	0074	00	4	06504	TSX ERROR, 4	TO ERROR ROUTINE
05563	0074	00	4	06511	TSX OK, 4	CONTINUE TEST
05564	0020	00	0	05556	TRA A30X	
05565	654344606060				BCD 1VLM	TEST-VAR LENGTH MULTIPLY
05566	0560	00	0	16362	A31X LDQ ONES	L ALL ONES TO MQ
05567	0204	43	0	16365	VLM ONE, 0, 35	SET 43 IN SHIFT COUNTER
05570	-0120	00	0	05573	TMI A31A	ACC SIGN OK
05571	0074	00	4	06503	TSX ERROR-1, 4	TO ERROR ROUTINE
05572	0020	00	0	05566	TRA A31X	
05573	0100	00	0	05576	A31A TZE A31A1	ACC OK
05574	0074	00	4	06503	TSX ERROR-1, 4	TO ERROR ROUTINE
05575	0020	00	0	05566	TRA A31X	
05576	0763	00	0	00043	A31A1 LLS 35	BRING MQ TO ACC
05577	0560	00	0	16362	LDQ ONES	L ALL ONES TO MQ
05600	0340	00	0	16362	CAS ONES	
05601	0020	00	0	05603	TRA A31A1+5	ERROR
05602	0020	00	0	05604	TRA A31A1+6	MQ OK
05603	0074	00	4	06504	TSX ERROR, 4	TO ERROR ROUTINE
05604	0074	00	4	06511	TSX OK, 4	CONTINUE TEST
05605	0020	00	0	05566	TRA A31X	
05606	654344606060				BCD 1VLM	
05607	0560	00	0	16362	A32X LDQ ONES	L ALL ONES TO MQ
05610	0204	01	0	16363	VLM K2, 0, 1	SET 1 IN SHIFT COUNTER
05611	0767	00	0	00001	ALS 1	
05612	0760	00	0	00002	CHS	ACC NOW +000000700000
05613	0560	00	0	16363	LDQ K2	L +700000 MQ, ACC SHOULD BE THE SAME

05614	0340	00	0	16363		CAS K2	
05615	0020	00	0	05617		TRA *+2	ERROR
05616	0020	00	0	05620		TRA *+2	OK
05617	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05620	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05621	0020	00	0	05607		TRA A32X	
05622	654344606060					BCD 1VLM	
05623	0560	00	0	16362	A33X	LDQ ONES	L ALL ONES TO MQ
05624	0500	00	0	16362		CLA ONES	L ALL ONES
05625	0204	17	0	16363		VLM K2,0,15	SET 17 IN SHIFT COUNTER
05626	0760	00	0	00002		CHS	ACC NOW +000000677771
05627	-0600	00	0	16576		STQ TEMP	SAVE MQ
05630	0560	00	0	16374		LDQ K11	L +677771 MQ, ACC SHOULD BE THE SAME
05631	0340	00	0	16374		CAS K11	
05632	0020	00	0	05634		TRA *+2	ERROR
05633	0020	00	0	05636		TRA A33A	ACC OK
05634	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05635	0020	00	0	05623		TRA A33X	
05636	0500	00	0	16576	A33A	CLA TEMP	CHECK SAVED ACC
05637	0760	00	0	00002		CHS	ACC NOW +000003777777
05640	0560	00	0	16375		LDQ K12	L +37777777 MQ, ACC SHOULD BE THE SAME
05641	0340	00	0	16375		CAS K12	
05642	0020	00	0	05644		TRA A33A+6	ERROR
05643	0020	00	0	05645		TRA A33A+7	MQ OK
05644	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05645	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05646	0020	00	0	05623		TRA A33X	
05647	654344606060					BCD 1VLM	TEST-VLM WITH INDEXING
05650	0774	00	1	00043	A34X	AXT 35,1	L 43 IN XRA
05651	0560	00	0	16367		LDQ K6	L -377777777770
05652	0204	04	1	16427		VLM K3+35,1,4	SET 4 IN SHIFT COUNTER
05653	0763	00	0	00001		LLS 1	
05654	0760	00	0	00002		CHS	ACC NOW -377777077777
05655	-0600	00	0	16576		STQ TEMP	SAVE MQ
05656	0560	00	0	16364		LDQ K3	L -377777077777 ACC, MQ SHOULD BE THE SAME
05657	0340	00	0	16364		CAS K3	
05660	0020	00	0	05662		TRA *+2	ERROR
05661	0020	00	0	05664		TRA A34AA	ACC OK
05662	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05663	0020	00	0	05650		TRA A34X	
05664	0500	00	0	16576	A34AA	CLA TEMP	CHECK SAVED MQ
05665	0560	00	0	16376		LDQ K13	L +037777777776 MQ, ACC SHOULD BE THE SAME
05666	0340	00	0	16376		CAS K13	
05667	0020	00	0	05671		TRA A34AA+5	ERROR
05670	0020	00	0	05672		TRA A34AA+6	MQ OK
05671	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE

05672	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05673	0020	00	0	05650		TRA A34X	
05674	654344606060					BCD 1VLM	TEST-VARIABLE LENGTH MULTIPLY ZERO WORD COUNT
05675	0500	00	0	16426	A34A	CLA K24	
05676	0560	00	0	16426		LDQ K24	L+1111111111
05677	0204	00	0	16362		VLM ONES, 0, 0	SHIFT COUNTER ZERO
05700	-0600	00	0	16576		STQ TEMP	SAVE MQ
05701	0560	00	0	16426		LDQ K24	L+1111111111
05702	0340	00	0	16426		CAS K24	CHECK ACC UNCHANGED
05703	0020	00	0	05705		TRA A34A+8	ERROR
05704	0020	00	0	05707		TRA A34B	OK-ACC UNCHANGED
05705	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
05706	0020	00	0	05675		TRA A34A	REPEAT SECTION
05707	0500	00	0	16576	A34B	CLA TEMP	CHECK SAVED MQ
05710	0340	00	0	16426		CAS K24	CHECK MQ UNCHANGED
05711	0020	00	0	05713		TRA A34B+4	ERROR
05712	0020	00	0	05714		TRA A34B+5	OK MQ UNCHANGED
05713	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
05714	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05715	0020	00	0	05675		TRA A34A	REPEAT TEST
05716	654344606060					BCD 1VLM	TEST VARIABLE LENGTH MULTIPLY ZERO MULTIPLICAND, ZERO COUNT COUNT TAKES PRECEDENT
05717	0500	00	0	16362	A34C	CLA ONES	L ALL ONES
05720	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
05721	0204	00	0	16361		VLM ZERO, 0, 0	SHIFT COUNTER ZERO
05722	-0600	00	0	16576		STQ TEMP	SAVE MQ
05723	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
05724	0340	00	0	16362		CAS ONES	
05725	0020	00	0	05727		TRA A34C+8	ERROR
05726	0020	00	0	05731		TRA A34D	OK-ACC UNCHANGED
05727	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
05730	0020	00	0	05717		TRA A34C	REPEAT SECTION
05731	0500	00	0	16576	A34D	CLA TEMP	CHECK SAVE MQ
05732	0340	00	0	16362		CAS ONES	
05733	0020	00	0	05735		TRA A34D+4	ERROR
05734	0020	00	0	05736		TRA A34D+5	OK MQ UNCHANGED
05735	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
05736	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
05737	0020	00	0	05717		TRA A34C	REPEAT TEST
05740	654344606060					BCD 1VLM	TEST-VARIABLE LENGHT MULTIPLY WITH ZERO MULTIPLCAND
05741	0500	00	0	16362	A34E	CLA ONES	L ALL ONES
05742	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
05743	0204	05	0	16361		VLM ZERO, 0, 5	

05744	-0120	00	0	05747		TMI A34E1	ACC SIGN OK
05745	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05746	0020	00	0	05741		TRA A34E	REPEAT SECTION
05747	0100	00	0	05752	A34E1	TZE A34F	ACC OK
05750	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05751	0020	00	0	05741		TRA A34E	REPEAT SECTION
05752	-0600	00	0	16576	A34F	STQ TEMP	SAVE MQ
05753	0500	00	0	16576		CLA TEMP	CHECK SAVED MQ
05754	-0120	00	0	05757		TMI A34F1	MQ SIGN OK
05755	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05756	0020	00	0	05741		TRA A34E	REPEAT SECTION
05757	0100	00	0	05761	A34F1	TZE A34F1+2	MQ OK
05760	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
05761	0074	00	4	06511		TSX OK,4	CONTINUE TEST
05762	0020	00	0	05741		TRA A34E	REPEAT TEST
05763	654344606060					BCD 1VLM	TEST-VARIABLE LENGHT MULTIPLY-ZERO MULTIPLICAND
05764	0500	00	0	16362	A34G	CLA ONES	L ONES
05765	0560	00	0	16362		LDQ ONES	L ONES TO MQ
05766	0204	05	0	16366		VLM MZE,0,5	
05767	0120	00	0	05772		TPL A34G1	ACC SIGN OK
05770	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05771	0020	00	0	05764		TRA A34G	REPEAT SECTION
05772	0100	00	0	05775	A34G1	TZE A34H	ACC OK
05773	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
05774	0020	00	0	05764		TRA A34G	REPEAT SECTION
05775	-0600	00	0	16576	A34H	STQ TEMP	SAVE MQ
05776	0500	00	0	16576		CLA TEMP	CHECK SAVED MQ
05777	0120	00	0	06002		TPL A34H1	MQ SIGN OK
06000	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
06001	0020	00	0	05764		TRA A34G	REPEAT SECTION
06002	0100	00	0	06004	A34H1	TZE A34H1+2	MQ OK
06003	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
06004	0074	00	4	06511		TSX OK,4	CONTINUE TEST
06005	0020	00	0	05764		TRA A34G	REPEAT TEST
06006	652447606060					BCD 1VDP	TEST-VAR LENGTH DIVIDE OR PROCEED
06007	0560	00	0	16362	A35X	LDQ ONES	L ALL ONES TO MQ
06010	0500	00	0	16366		CLA MZE	L -0
06011	0225	43	0	16365		VDP ONE,0,35	SET 43 IN SHIFT COUNTER
06012	-0120	00	0	06015		TMI A35A	
06013	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
06014	0020	00	0	06007		TRA A35X	REPEAT SECTION
06015	0100	00	0	06020	A35A	TZE A35A1	REMAINDER OK
06016	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE

06017	0020	00	0	06007		TRA	A35X		
06020	0763	00	0	00043	A35A1	LLS	35	CHECK QUOTIENT	
06021	0560	00	0	16362		LDQ	ONES	L ALL ONES TO MQ	
06022	0340	00	0	16362		CAS	ONES		
06023	0020	00	0	06025		TRA	A35A1+5	ERROR	
06024	0020	00	0	06026		TRA	A35A1+6	QUOTIENT OK	
06025	0074	00	4	06504		TSX	ERROR,4	TO ERROR ROUTINE	
06026	0074	00	4	06511		TSX	OK,4		
06027	0020	00	0	06007		TRA	A35X		
06030	652447606060					BCD	1VDP	CHECK MQ SIGN CHANGE	
06031	0560	00	0	16372	A36X	LDQ	K8	L +17777777777 IN MQ	
06032	0500	00	0	16377		CLA	K14	L -340000	
06033	0225	01	0	16363		VDP	K2,0,1	SET 1 IN SHIFT COUNTER	
06034	-0120	00	0	06037		TMI	A36A	REMAINDER SIGN OK	
06035	0074	00	4	06503		TSX	ERROR-1,4	TO ERROR ROUTINE	
06036	0020	00	0	06031		TRA	A36X		
06037	0100	00	0	06042	A36A	TZE	A36A1	REMAINDER OK	
06040	0074	00	4	06503		TSX	ERROR-1,4	TO ERROR ROUTINE	
06041	0020	00	0	06031		TRA	A36X		
06042	0763	00	0	00043	A36A1	LLS	35	CHECK QUOTIENT	
06043	0560	00	0	16362		LDQ	ONES	L ALL ONES TO MQ	
06044	0340	00	0	16362		CAS	ONES		
06045	0020	00	0	06047		TRA	A36A1+5	ERROR	
06046	0020	00	0	06050		TRA	A36A1+6	QUOTIENT OK	
06047	0074	00	4	06504		TSX	ERROR,4	TO ERROR ROUTINE	
06050	0074	00	4	06511		TSX	OK,4	CONTINUE TEST	
06051	0020	00	0	06031		TRA	A36X		
06052	652447606060					BCD	1VDP		
06053	0560	00	0	16375	A37X	LDQ	K12	L +377777777 IN MQ	
06054	0500	00	0	16374		CLA	K11	L+677771	
06055	0225	17	0	16363		VDP	K2,0,15	SET 17 IN SHIFT COUNTER	
06056	0120	00	0	06061		TPL	A37A	REMAINDER SIGN OK	
06057	0074	00	4	06503		TSX	ERROR-1,4	TO ERROR ROUTINE	
06060	0020	00	0	06053		TRA	A37X		
06061	0100	00	0	06064	A37A	TZE	A37A1	REMAINDER OK	
06062	0074	00	4	06503		TSX	ERROR-1,4	TO ERROR ROUTINE	
06063	0020	00	0	06053		TRA	A37X		
06064	0763	00	0	00043	A37A1	LLS	35	CHECK QUOTIENT	
06065	0560	00	0	16360		LDQ	PONES	L ALL ONES TO MQ	
06066	0340	00	0	16360		CAS	PONES		
06067	0020	00	0	06071		TRA	*+2	ERROR	
06070	0020	00	0	06072		TRA	*+2	QUOTIENT OK	
06071	0074	00	4	06504		TSX	ERROR,4	TO ERROR ROUTINE	
06072	0074	00	4	06511		TSX	OK,4	CONTINUE TEST	
06073	0020	00	0	06053		TRA	A37X		

06074	652447606060		BCD 1VDP	TEST-VDP WITH INDEXING
06075	0774 00 1 00043	A40X	AXT 35,1	L 43 IN XRA
06076	0502 00 0 16364		CLS K3	L -377777077777
06077	0560 00 0 16376		LDQ K13	L +377777777776
06100	0765 00 0 00001		LRS 1	
06101	0225 04 1 16427		VDP K3+35,1,4	SET 4 IN SHIFT COUNTER
06102	0120 00 0 06105		TPL A40A	REMAINDER SIGN OK
06103	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
06104	0020 00 0 06075		TRA A40X	
06105	0100 00 0 06110	A40A	TZE A40A1	REMAINDER OK
06106	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
06107	0020 00 0 06075		TRA A40X	
06110	0763 00 0 00043	A40A1	LLS 35	CHECK QUOTIENT
06111	0560 00 0 16367		LDQ K6	L -377777777770 MQ, ACC SHOULD BE THE SAME
06112	0340 00 0 16367		CAS K6	
06113	0020 00 0 06115		TRA A40A1+5	ERROR
06114	0020 00 0 06116		TRA A40A1+6	QOUTIENT OK
06115	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
06116	0074 00 4 06511		TSX OK,4	CONTINUE TEST
06117	0020 00 0 06075		TRA A40X	
06120	652447606060		BCD 1VDP	
06121	0760 00 0 00012	A41X	DCT	TURN OFF DIV-CHECK LIGHT
06122	0761 00 0 00000		NOP	
06123	0560 00 0 16442		LDQ K36	L +377777777776
06124	0500 00 0 16363		CLA K2	L +700000
06125	0225 22 0 16363		VDP K2,0,18	L +700000
06126	0760 00 0 00012		DCT	CHECK SETTING TRG
06127	0020 00 0 06132		TRA A41AA	OK DIV-CHECK LITE WAS ON DIVISION NOT POSSIBLE
06130	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
06131	0020 00 0 06121		TRA A41X	
06132	-0600 00 0 16576	A41AA	STQ TEMP	SAVE MQ
06133	0560 00 0 16363		LDQ K2	L +700000 MQ, ACC SHOULD BE THE SAME
06134	0340 00 0 16363		CAS K2	CHECK ACC UNCHANGED
06135	0020 00 0 06137		TRA A41AA+5	ERROR
06136	0020 00 0 06141		TRA A41AB	OK-ACC UNCHANGED
06137	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
06140	0020 00 0 06121		TRA A41X	
06141	0500 00 0 16576	A41AB	CLA TEMP	CHECK SAVED MQ
06142	0560 00 0 16442		LDQ K36	L +377777777776 MQ, ACC SHOULD BE THE SAME
06143	0340 00 0 16442		CAS K36	CHECK MQ UNCHANGED
06144	0020 00 0 06146		TRA A41AB+5	ERROR
06145	0020 00 0 06147		TRA A41AB+6	OK-MQ UNCHANGED
06146	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
06147	0074 00 4 06511		TSX OK,4	CONTINUE TEST
06150	0020 00 0 06121		TRA A41X	



06151	652447606060		BCD 1VDP	TEST-VARIABLE DIVIDE OR PROCEED WITH ZERO WORD COUNT
06152	0500 00 0 16374	A41A	CLA K11	L +677771
06153	0760 00 0 00012		DCT	TURN OFF DIV-CHECK LITE
06154	0761 00 0 00000		NOP	
06155	0560 00 0 16374		LDQ K11	L+677771
06156	0225 00 0 16363		VDP K2,0,0	
06157	-0600 00 0 16576		STQ TEMP	SAVE MQ
06160	0560 00 0 16374		LDQ K11	L +677771
06161	0340 00 0 16374		CAS K11	CHECK ACC UNCHANGED
06162	0020 00 0 06164		TRA A41A+10	ERROR
06163	0020 00 0 06166		TRA A41B	OK-ACC UNCHANGED
06164	0074 00 4 06503		TSX ERROR-1,4	
06165	0020 00 0 06152		TRA A41A	REPEAT SECTION
06166	0500 00 0 16576	A41B	CLA TEMP	CHECK SAVED MQ
06167	0340 00 0 16374		CAS K11	CHECK MQ UNCHANGED
06170	0020 00 0 06172		TRA A41B+4	ERROR
06171	0020 00 0 06174		TRA A41C	OK-MQ UNCHANGED
06172	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
06173	0020 00 0 06152		TRA A41A	REPEAT SECTCION
06174	0760 00 0 00012	A41C	DCT	
06175	0020 00 0 06177		TRA A41C+3	NG DIV-CHECK LITE WAS ON
06176	0020 00 0 06200		TRA A41C+4	OK-DIV-CHECK LITE OFF
06177	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
06200	0074 00 4 06511		TSX OK,4	CONTINUE TEST
06201	0020 00 0 06152		TRA A41A	REPEAT TEST
06202	652430606060		BCD 1VDH	TEST-VAR LENGTH DIVIDE OR HALT
06203	0560 00 0 16362	A42X	LDQ ONES	L ALL ONES TO MQ
06204	0500 00 0 16366		CLA MZE	L -0
06205	0224 43 0 16365		VDH ONE,0,35	SET 43 IN SHIFT COUNTER
06206	-0120 00 0 06211		TMI A42A	REMAINDER SIGN OK
06207	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
06210	0020 00 0 06203		TRA A42X	
06211	0100 00 0 06214	A42A	TZE A42A1	REMAINDER OK
06212	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
06213	0020 00 0 06203		TRA A42X	
06214	0763 00 0 00043	A42A1	LLS 35	CHECK QUOTIENT
06215	0560 00 0 16362		LDQ ONES	
06216	0340 00 0 16362		CAS ONES	
06217	0020 00 0 06221		TRA A42A1+5	ERROR
06220	0020 00 0 06222		TRA A42A1+6	QUOTIENT OK
06221	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
06222	0074 00 4 06511		TSX OK,4	CONTINUE TEST
06223	0020 00 0 06203		TRA A42X	
06224	652430606060		BCD 1VDH	

06225	0560	00	0	16372	A43X	LDQ K8	L +1777777777777777	TO MQ	
06226	0500	00	0	16377		CLA K14	L -370000		
06227	0224	01	0	16363		VDH K2,0,1	SET 1 IN SHIFT COUNTER		
06230	-0120	00	0	06233		TMI A43A			
06231	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE		
06232	0020	00	0	06225		TRA A43X			
06233	0100	00	0	06236	A43A	TZE A43A1	REMAINDER OK		
06234	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE		
06235	0020	00	0	06225		TRA A43X			
06236	0763	00	0	00043	A43A1	LLS 35	CHECK QUOTIENT		
06237	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ		
06240	0340	00	0	16362		CAS ONES			
06241	0020	00	0	06243		TRA A43A1+5	ERROR		
06242	0020	00	0	06244		TRA A43A1+6	QUOTIENT OK		
06243	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE		
06244	0074	00	4	06511		TSX OK,4	CONTINUE TEST		
06245	0020	00	0	06225		TRA A43X			
06246	652430606060					BCD 1VDH			
06247	0560	00	0	16375	A44X	LDQ K12	L +37777777		
06250	0500	00	0	16374		CLA K11	L +677771		
06251	0224	17	0	16363		VDH K2,0,15	SET 17 IN SHIFT COUNTER		
06252	0120	00	0	06255		TPL A44A	REMAINDER SIGN OK		
06253	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE		
06254	0020	00	0	06247		TRA A44X			
06255	0100	00	0	06260	A44A	TZE A44A1	REMAINDER OK		
06256	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE		
06257	0020	00	0	06247		TRA A44X			
06260	0763	00	0	00043	A44A1	LLS 35	CHECK QUOTIENT		
06261	0560	00	0	16360		LDQ PONES	L ALL ONES TO MQ		
06262	0340	00	0	16360		CAS PONES			
06263	0020	00	0	06265		TRA *+2	ERROR		
06264	0020	00	0	06266		TRA *+2	QUOTIENT OK		
06265	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE		
06266	0074	00	4	06511		TSX OK,4	CONTINUE TEST		
06267	0020	00	0	06247		TRA A44X			
06270	652430606060					BCD 1VDH	TEST-VDH WITH INDEXING		
06271	0774	00	1	00043	A45X	AXT 35,1	L +43 IN XRA		
06272	0502	00	0	16364		CLS K3	L -3777770777777		
06273	0560	00	0	16376		LDQ K13	L +90377777777776		
06274	0765	00	0	00001		LRS 1			
06275	0224	04	1	16427		VDH K3+35,1,4	SET 4 IN SHIFT COUNTER		
06276	0120	00	0	06301		TPL A45A	REMAINDER SIGN OK		
06277	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE		
06300	0020	00	0	06271		TRA A45X			
06301	0100	00	0	06304	A45A	TZE A45A1	REMAINDER OK		
06302	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE		
06303	0020	00	0	06271		TRA A45X			

06304	0763	00	0	00043	A45A1	LLS 35	CHECK QUOTIENT
06305	0560	00	0	16367		LDQ K6	L -377777777770 MQ, ACC SHOULD BE THE SAME
06306	0340	00	0	16367		CAS K6	
06307	0020	00	0	06311		TRA A45A1+5	ERROR
06310	0020	00	0	06312		TRA A45A1+6	QUOTIENT OK
06311	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
06312	0074	00	4	06511		TSX OK,4	
06313	0020	00	0	06271		TRA A45X	
06314	236551606060					BCD 1CVR	TEST-CONVERT BY REPLACEMENT FROM ACC
06315	0774	00	1	00000	A47X	AXT 0,1	CLEAR XRA
06316	0500	00	0	16363		CLA K2	L +700000
06317	0114	00	1	16400		CVR K15,1	CHECK NO COUNT-NO ACTION
06320	0560	00	0	16363		LDQ K2	L +70000 MQ, ACC SHOULD BE THE SAME
06321	0340	00	0	16363		CAS K2	
06322	0020	00	0	06324		TRA *+2	ERROR
06323	0020	00	0	06326		TRA A47A	OK
06324	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
06325	0020	00	0	06315		TRA A47X	
06326	0500	00	1	35000	A47A	CLA K15+K15,1	CHECK ADR PUT IN XRA
06327	0560	00	0	16400		LDQ K15	L +374000003400 MQ, ACC SHOULD BE THE SAME
06330	0340	00	0	16400		CAS K15	
06331	0020	00	0	06333		TRA A47A+5	ERROR
06332	0020	00	0	06334		TRA A47A+6	OK
06333	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
06334	0074	00	4	06511		TSX OK,4	
06335	0020	00	0	06315		TRA A47X	
06336	236551606060					BCD 1CVR	
06337	0774	00	1	00000	A50X	AXT 0,1	CLEAR XRA
06340	-0500	00	0	16363		CAL K2	L +700000
06341	0114	01	0	16362		CVR ONES,0,1	CHECK ONE 6 BIT CONVERSION NO ADDITION TO ADDRESS
06342	0602	00	0	16576		SLW TEMP	SAVE ACC BEFORE SHIFT
06343	0771	00	0	00001		ARS 1	ACC NOW +374000003400
06344	-0760	00	0	00001		PBT	
06345	0020	00	0	06350		TRA A50A	OK Q WAS ZERO
06346	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
06347	0020	00	0	06337		TRA A50X	
06350	0500	00	1	16576	A50A	CLA TEMP,1	L SAVED ACC
06351	0560	00	0	16401		LDQ K15+1	L -370000007000 MQ, ACC SHOULD BE THE SAME
06352	0340	00	0	16401		CAS K15+1	
06353	0020	00	0	06355		TRA A50A+5	ERROR
06354	0020	00	0	06356		TRA A50A+6	OK
06355	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
06356	0074	00	4	06511		TSX OK,4	CONTINUE TEST

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06357 0020 00 0 06337          TRA A50X

06360 236551606060          BCD 1CVR
06361 0774 00 1 00000      A51X  AXT 0,1          CLEAR XRA
06362 -0500 00 0 16365          CAL ONE          L +1
06363 0114 01 0 16361          CVR ZERO,0,1    CHECK ONE 6 BIT CONVERSION
                                ADDITION TO ADDRESS
06364 0602 00 0 16576          SLW TEMP        SAVE ACC
06365 0771 00 0 00001          ARS 1          ACC NOW +374000000000
06366 -0760 00 0 00001          PBT
06367 0020 00 0 06372          TRA A51A        OK Q W S Z R0
06370 0074 00 4 06503          TSX ERROR-1,4  TO ERROR ROUTINE
06371 0020 00 0 06361          TRA A51X

06372 0500 00 1 16576      A51A  CLA TEMP,1    L SAVED ACC
06373 0560 00 0 16370          LDQ SW1        L -370000000000 IN MQ
06374 0340 00 0 16370          CAS SW1
06375 0020 00 0 06377          TRA A51A+5    ERROR
06376 0020 00 0 06400          TRA A51A+6    OK
06377 0074 00 4 06504          TSX ERROR,4   TO ERROR ROUTINE
06400 0074 00 4 06511          TSX OK,4     CONTINUE TEST
06401 0020 00 0 06361          TRA A51X

06402 236551606060          BCD 1CVR
06403 -0500 00 0 16403      A52X  CAL K16        L +010203040506
06404 0114 06 1 16403          CVR K16,1,6   FULL WORD CONVERSION WITH
                                6TH CONVERT SR ADR IN XRA

                                CHECK ACC AND CORRECT VALUE IN XRA

06405 0560 00 1 35021          LDQ K16B+K16,1 L +212223242526
06406 0340 00 0 16416          CAS K16B
06407 0020 00 0 06411          TRA *+2       ERROR
06410 0020 00 0 06412          TRA *+2       OK
06411 0074 00 4 06504          TSX ERROR,4   TO ERROR ROUTINE
06412 0074 00 4 06511          TSX OK,4
06413 0020 00 0 06403          TRA A52X

06414 0761 00 0 00000          NOP
06415 0020 00 0 07714          TRA A53X
  
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\*SAVE 50 DECIMAL LOCATIONS FOR ANY ADDITIONAL INSTRUCTIONS  
 \*OR ROUTINES INSERTED PRIOR TO THE ERROR PRINT SUBROUTINE

\*DIAGNOSTIC ERROR PRINT SUBROUTINE IN LOCATIONS 06500-07712  
 \*9M21 CONTINUES COMMENCING AT LOCATION 07713

06416 BSS 701

07713 236551606060 BCD 1CVR

07714	-0500	00	0	16420	A53X	CAL K17+1	L -374777770304
07715	0767	00	0	00001		ALS 1	PUT BIT IN Q MAKE ACC +11371777760610
07716	0114	02	0	16407		CVR K17-8,0,2	
07717	0560	00	0	16436		LDQ K32	L -374777177776 SHOULD BE THE SAME
07720	-0340	00	0	16436		LAS K32	
07721	0020	00	0	07723		TRA *+2	ERROR
07722	0020	00	0	07724		TRA *+2	OK
07723	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
07724	0074	00	4	06511		TSX OK,4	CONTINUE TEST
07725	0020	00	0	07714		TRA A53X	
07726	232150606060					BCD 1CAQ	TEST-CONVERT BY ADDITION FROM THE MQ
07727	0560	00	0	16403	A54X	LDQ K16	L +010203040506
07730	0500	00	0	16366		CLA MZE	L -0
07731	-0114	00	0	16403		CAQ K16	NO COUNT-NO ACTION
07732	-0120	00	0	07735		TMI A54A	ACC SIGN OK
07733	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
07734	0020	00	0	07727		TRA A54X	
07735	0100	00	0	07740	A54A	TZE A54A1	ACC OK
07736	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
07737	0020	00	0	07727		TRA A54X	
07740	0763	00	0	00043	A54A1	LLS 35	MQ TO ACC AND CHECK
07741	0560	00	0	16403		LDQ K16	L +010203040506 MQ, ACC SHOULD BE THE SAME
07742	0340	00	0	16403		CAS K16	
07743	0020	00	0	07745		TRA A54A1+5	ERROR
07744	0020	00	0	07746		TRA A54A1+6	MQ OK
07745	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
07746	0074	00	4	06511		TSX OK,4	CONTINUE TEST
07747	0020	00	0	07727		TRA A54X	
07750	232150606060					BCD 1CAQ	
07751	0774	00	1	00000	A55X	AXT 0,1	CLEAR XRA
07752	0560	00	0	16403		LDQ K16	L +010203040506
07753	0500	00	0	16361		CLA ZERO	L + 0
07754	-0114	01	0	16402		CAQ K16-1,0,1	PERFORM 1 ADDITION
07755	-0600	00	0	16576		STQ TEMP	SAVE MQ
07756	0560	00	0	16403		LDQ K16	L +010203040506 MQ, ACC SHOULD BE THE SAME
07757	0340	00	0	16403		CAS K16	
07760	0020	00	0	07762		TRA *+2	ERROR
07761	0020	00	0	07764		TRA A55A	OK
07762	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
07763	0020	00	0	07751		TRA A55X	
07764	0500	00	1	16576	A55A	CLA TEMP,1	CHECK SAVED MQ
07765	0560	00	0	16402		LDQ K16-1	L+020304050601
07766	0340	00	0	16402		CAS K16-1	
07767	0020	00	0	07771		TRA A55A+5	ERROR

07770	0020	00	0	07772		TRA A55A+6	OK
07771	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
07772	0074	00	4	06511		TSX OK,4	CONTINUE TEST
07773	0020	00	0	07751		TRA A55X	
07774	232150606060					BCD 1CAQ	
07775	0140	00	0	07776	A56X	TOV *+1	TURN OFF ACC OVFL0 LIGHT
07776	0560	00	0	16403		LDQ K16	L +010203040506
07777	0500	00	0	16361		CLA ZERO	L +0
10000	-0114	06	1	16403		CAQ K16,1,6	FULL WORD CONVERSION WITH 6TH CONVERT SR ADR IN XRA
10001	0602	00	0	16576		SLW TEMP	SAVE ACC
10002	0771	00	0	00001		ARS 1	MOVE Q BIT TO P
10003	-0760	00	0	00001		PBT	
10004	0020	00	0	10006		TRA *+2	ERROR
10005	0020	00	0	10010		TRA A56A	OK
10006	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10007	0020	00	0	07775		TRA A56X	
CHECK ACC AND CORRECT VALUE IN XRA							
10010	-0600	00	0	16577	A56A	STQ TEMP+1	SAVE MQ
10011	0500	00	1	35201		CLA TEMP+K16,1	CHECK SAVED MQ
10012	0560	00	0	16412		LDQ K16+7	MQ, ACC SHOULD BE SAME
10013	0340	00	0	16412		CAS K16+7	
10014	0020	00	0	10016		TRA A56A+6	ERROR
10015	0020	00	0	10020		TRA A56A1	OK
10016	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10017	0020	00	0	07775		TRA A56X	
10020	0500	00	0	16577	A56A1	CLA TEMP+1	CHECK SAVED MQ
10021	0560	00	0	16403		LDQ K16	L +010203040506 MQ, ACC
10022	0340	00	0	16403		CAS K16	
10023	0020	00	0	10025		TRA A56A1+5	ERROR
10024	0020	00	0	10026		TRA A56A1+6	OK
10025	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
10026	0074	00	4	06511		TSX OK,4	CONTINUE TEST
10027	0020	00	0	07775		TRA A56X	
10030	232150606060					BCD 1CAQ	
10031	0500	00	0	16377	A57X	CLA K14	L -340000
10032	0560	00	0	16403		LDQ K16	L +010203040506
10033	-0114	02	0	16416		CAQ K17-1,0,2	TEST SWITCHING TABLES
10034	0602	00	0	16576		SLW TEMP	SAVE ACC
10035	0771	00	0	00001		ARS 1	
10036	-0760	00	0	00001		PBT	
10037	0020	00	0	10042		TRA A57A	OK Q WAS ZERO
10040	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10041	0020	00	0	10031		TRA A57X	
10042	0500	00	0	16576	A57A	CLA TEMP	CHECK SAVED ACC
10043	0560	00	0	16413		LDQ K16+8	MQ, ACC SHOULD BE SAME
10044	0340	00	0	16413		CAS K16+8	
10045	0020	00	0	10047		TRA A57A+5	ERROR

10046	0020	00	0	10050		TRA A57A+6	OK
10047	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
10050	0074	00	4	06511		TSX OK,4	CONTINUE TEST
10051	0020	00	0	10031		TRA A57X	
10052	232150606060					BCD 1CAQ	TEST CAQ FRO CORRECT INDEX
10053	0774	00	1	77777	A60X	AXT 32K,1	L 77777 IN XRA
10054	0500	00	0	16361		CLA ZERO	L +0
10055	0560	00	0	16403		LDQ K16	L +010203040506
10056	-0114	01	6	16403		CAQ K16,6,1	PERFORM ONE ADD
10057	0560	00	0	16404		LDQ K16+1	MQ, ACC SHOULD BE SAME
10060	0340	00	0	16404		CAS K16+1	
10061	0020	00	0	10063		TRA *+2	ERROR
10062	0020	00	0	10065		TRA A60A	OK
10063	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10064	0020	00	0	10053		TRA A60X	
10065	0500	00	1	16375	A60A	CLA K13-1,1	CHECK XRA UNCHANGED
10066	0560	00	0	16376		LDQ K13	L +037777777776 MQ, ACC SHOULD BE THE SAME
10067	0340	00	0	16376		CAS K13	
10070	0020	00	0	10072		TRA A60A+5	ERROR
10071	0020	00	0	10073		TRA A60A+6	OK
10072	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
10073	0074	00	4	06511		TSX OK,4	CONTINUE TEST
10074	0020	00	0	10053		TRA A60X	
10075	232150606060					BCD 1CAQ	
10076	0500	00	0	16361	A61X	CLA ZERO	L +0
10077	0560	00	0	16404		LDQ K16+1	L +2100000 ADDRESS K16
10100	-0114	01	1	16357		CAQ K15-17,1,1	PERFORM 1 ADD, SAVE ADR
10101	0560	00	0	16400		LDQ K15	L +374000003400 MQ, ACC SHOULD BE SAME
10102	0340	00	0	16400		CAS K15	
10103	0020	00	0	10105		TRA *+2	ERROR
10104	0020	00	0	10107		TRA A61AX	
10105	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10106	0020	00	0	10076		TRA A61X	
10107	0500	00	1	22021	A61AX	CLA K20+1792,1	CHECK XRA SET TO 3400
10110	0560	00	0	16421		LDQ K20	L +265577177776 MQ, ACC SHOULD BE THE SAME
10111	0340	00	0	16421		CAS K20	
10112	0020	00	0	10114		TRA *+2	ERROR
10113	0020	00	0	10115		TRA *+2	
10114	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
10115	0074	00	4	06511		TSX OK,4	
10116	0020	00	0	10076		TRA A61X	
10117	235150606060					BCD 1CRQ	TEST-CONVERT BY REPLACEMENT FROM THE MQ
10120	0774	00	1	77777	A62X	AXT 32K,1	L 77777 IN XRA
10121	0500	00	0	16362		CLA ONES	L ALL ONES
10122	0560	00	0	16403		LDQ K16	L+010203040506

10123	-0154	00	0	16403		CRQ K16	CHECK NO ACTION WITH NO COUNT
10124	-0600	00	0	16576		STQ TEMP	SAVE MQ
10125	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
10126	0340	00	0	16362		CAS ONES	
10127	0020	00	0	10131		TRA *+2	ERROR
10130	0020	00	0	10133		TRA A62AX	OK-ACC UNCHANGED
10131	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10132	0020	00	0	10120		TRA A62X	
10133	0500	00	0	16576	A62AX	CLA TEMP	CHECK SAVED MQ
10134	0560	00	0	16403		LDQ K16	L +010203040506 MQ, ACC SHOULD BE THE SAME
10135	0340	00	0	16403		CAS K16	CHECK SAVED MQ UNCHANGED
10136	0020	00	0	10140		TRA *+2	ERROR
10137	0020	00	0	10142		TRA A62B	OK-MQ UNCHANGED
10140	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10141	0020	00	0	10120		TRA A62X	
10142	0500	00	1	16416	A62B	CLA K17-1,1	CHECK XRA UNCHANGED
10143	0560	00	0	16417		LDQ K17	MQ, ACC SHOULD BE SAME
10144	0340	00	0	16417		CAS K17	
10145	0020	00	0	10147		TRA A62B+5	ERROR
10146	0020	00	0	10150		TRA A62B+6	OK
10147	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
10150	0074	00	4	06511		TSX OK,4	CONTINUE TEST
10151	0020	00	0	10120		TRA A62X	
10152	235150606060					BCD 1CRQ	
10153	0500	00	0	16361	A63X	CLA ZERO	L +0
10154	0560	00	0	16403		LDQ K16	L +010203040506
10155	-0154	01	1	16403		CRQ K16,1,1	CHECK 6 BIT CONVERSION ALSO CHECK SAVING ADR
10156	0100	00	0	10161		TZE A63AX	OK-ACC UNCHANGED
10157	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10160	0020	00	0	10153		TRA A63X	
10161	0763	00	0	00043	A63AX	LLS 35	MQ TO ACC
10162	0560	00	0	16415		LDQ K16A	L +020304050621 MQ, ACC SHOULD BE THE SAME
10163	0340	00	0	16415		CAS K16A	
10164	0020	00	0	10166		TRA *+2	ERROR
10165	0020	00	0	10170		TRA A63BX	OK
10166	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
10167	0020	00	0	10153		TRA A63X	
10170	0500	00	1	35003	A63BX	CLA K15+K16,1	CHECK ADR SET IN XRA
10171	0560	00	0	16400		LDQ K15	L +374000003400 MQ, ACC SHOULD BE THE SAME
10172	0340	00	0	16400		CAS K15	
10173	0020	00	0	10175		TRA *+2	ERROR
10174	0020	00	0	10176		TRA *+2	OK
10175	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
10176	0074	00	4	06511		TSX OK,4	CONTINUE TEST
10177	0020	00	0	10153		TRA A63X	



10200	235150606060		BCD 1CRQ	
10201	0774 00 1 00000	A64X	AXT 0,1	CLEAR XRA
10202	0560 00 0 16403		LDQ K16	L +010203040506
10203	-0154 06 0 16403		CRQ K16,0,6	CHECK FULL WORD CONVERSION
10204	0760 00 0 00000		CLM	CLEAR ACC
10205	0763 00 0 00043		LLS 35	BRING MQ TO ACC
10206	0560 00 1 16416		LDQ K16B,1	L +212223242526 MQ, ACC SHOULD BE THE SAME
10207	0340 00 1 16416		CAS K16B,1	
10210	0020 00 0 10212		TRA *+2	ERROR
10211	0020 00 0 10213		TRA *+2	OK
10212	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
10213	0074 00 4 06511		TSX OK,4	CONTINUE TEST
10214	0020 00 0 10201		TRA A64X	
10215	235150606060		BCD 1CRQ	
10216	0774 00 1 00000	A64Y	AXT 0,1	CLEAR XRA
10217	0560 00 0 16370		LDQ SW1	L -370000000000
10220	-0154 01 0 16304		CRQ K15-60,0,1	
10221	0760 00 0 00000		CLM	CLEAR ACCUMULATOR
10222	0763 00 0 00043		LLS 35	MQ TO ACCUMULATOR
10223	0402 00 0 16365		SUB ONE	L +1
10224	0100 00 0 10226		TZE *+2	OK
10225	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
10226	0074 00 4 06511		TSX OK,4	
10227	0020 00 0 10216		TRA A64Y	
10230	626343606060		BCD 1STL	TEST-STORE INST CTR
10231	0500 00 0 16362	A65X	CLA ONES	L ALL ONES
10232	0601 00 0 16576		STO TEMP	SAVE ACC
10233	-0625 00 0 16576		STL TEMP	
10234	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
10235	0340 00 0 16362		CAS ONES	
10236	0020 00 0 10240		TRA *+2	ERROR
10237	0020 00 0 10242		TRA A65A	OK
10240	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
10241	0020 00 0 10231		TRA A65X	
10242	0500 00 0 16576	A65A	CLA TEMP	CHECK TEMP
10243	0560 00 0 16424		LDQ K23	L TXL A65X+3,7,32767
10244	0340 00 0 16424		CAS K23	
10245	0020 00 0 10247		TRA A65A+5	ERROR
10246	0020 00 0 10250		TRA A65A+6	OK
10247	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
10250	0074 00 4 06511		TSX OK,4	CONTINUE TEST
10251	0020 00 0 10231		TRA A65X	
10252	626351406060		BCD 1STR-	TEST-STORE LOC AND TRAP
10253	0500 00 0 16362	65A	CLA ONES	L ALL ONES
10254	0601 00 0 00000		STO 0	

10255	0500	00	0	16445	CLA K37B	L TRA 65A1
10256	0601	00	0	00001	STO 1	
10257	0500	00	0	16446	CLA K37C	L TRA 65A2
10260	0601	00	0	00002	STO 2	
10261	0500	00	0	16447	CLA K37D	L TRA 65A3
10262	0601	00	0	00003	STO 3	
10263	0500	00	0	16450	CLA K37E	L TRA 65A4
10264	0601	00	0	00012	STO 10	
10265	0500	00	0	16452	CLA K37E1	L TRA 65A4A
10266	0601	00	0	00013	STO 11	
10267	0500	00	0	16453	CLA K37E2	L TRA 65A4B
10270	0601	00	0	00014	STO 12	
10271	0500	00	0	16454	CLA K37E3	L TRA 65A4C
10272	0601	00	0	00015	STO 13	
10273	0774	00	3	07777	AXT 4K,3	L 777 IN XRA AND XRB
10274	-1	00001	3	10322	STR 65A4D,3,1	SHOULD TRAP TO LOC 00002 WITH LOC. OF NEXT INSTR IN ADR PORTION OF 0000
CHECK STR INSTR EXECUTED CORRECTLY						
10275	0074	00	4	06503	65A1X	TSX ERROR-1,4 ERROR-DID NOT TRAP
10276	0020	00	0	10253	TRA 65A	
IF ERROR,GO TO NEXT INSTR TO CONTINUE						
10277	0020	00	0	10324	TRA 65A5	
10300	0074	00	4	06503	65A1	TSX ERROR-1,4 ERROR-TRA FROM LOC 00001
10301	0020	00	0	10253	TRA 65A	
IF ERROR,GO TO NEXT INSTR TO CONTINUE						
10302	0020	00	0	10324	65A2	TRA 65A5 OK-TRA FROM LOC 00002
10303	0074	00	4	06503	65A3	TSX ERROR-1,4 ERROR-TRA FROM LOC 00003
10304	0020	00	0	10253	TRA 65A	
IF ERROR,GO TO NEXT INSTR TO CONTINUE						
10305	0020	00	0	10324	TRA 65A5	
10306	0074	00	4	06503	65A4	TSX ERROR-1,4 ERROR-TRA FROM LOC 00010
10307	0020	00	0	10253	TRA 65A	
IF ERROR,GO TO NEXT INSTR TO CONTINUE						

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10310 0020 00 0 10324      TRA 65A5

10311 0074 00 4 06503 65A4A TSX ERROR-1,4 ERROR-TRA FROM LOC 00011
10312 0020 00 0 10253      TRA 65A

                                IF ERROR,GO TO NEXT INSTR TO CONTINUE

10313 0020 00 0 10324      TRA 65A5

10314 0074 00 4 06503 65A4B TSX ERROR-1,4 ERROR-TRA FROM LOC 00012
10315 0020 00 0 10253      TRA 65A

                                IF ERROR,GO TO NEXT INSTR TO CONTINUE

10316 0020 00 0 10324      TRA 65A5

10317 0074 00 4 06503 65A4C TSX ERROR-1,4 ERROR-TRA FROM LOC 00013
10320 0020 00 0 10253      TRA 65A

                                IF ERROR,GO TO NEXT INSTR TO CONTINUE

10321 0020 00 0 10324      TRA 65A5

10322 0074 00 4 06503 65A4D TSX ERROR-1,4 ERROR-TRANSFERRED
10323 0020 00 0 10253      TRA 65A          AS IF TXI INSTR

                                CHECK CONTENTS OF LOCATION 00000

10324 0500 00 0 00000 65A5  CLA 0          L LOCATION 00000
10325 0560 00 0 16451      LDQ K37G          L TXL 65A+18,7,32767
10326 0340 00 0 16451      CAS K37G
10327 0020 00 0 10331      TRA 65A5+5      ERROR
10330 0020 00 0 10333      TRA 65A6        OK
10331 0074 00 4 06503      TSX ERROR-1,4  ERROR-WRONG QTY LOC 00000
10332 0020 00 0 10253      TRA 65A        REPEAT SECTION

                                CHECK STR INSTRUCTION UNCHANGED

10333 0500 00 0 10274 65A6  CLA 65A+17      L STR INSTRUCTION
10334 0560 00 0 16514      LDQ FOUR-1      L STR 65A4D,3,1
10335 0340 00 0 16514      CAS FOUR-1
10336 0020 00 0 10340      TRA *+2        ERROR
10337 0020 00 0 10342      TRA 65A7       OK
10340 0074 00 4 06503      TSX ERROR-1,4  ERROR-STR INSTR CHANGED
10341 0020 00 0 10253      TRA 65A        REPEAT SECTION

                                CHECK STR+1 INSTRUCTION UNCHANGED

10342 0500 00 0 10275 65A7  CLA 65A+18      L STR + 1 INSTRUCTION
10343 0560 00 0 16455      LDQ K37E4      L TSX ERROR-1,4
10344 0340 00 0 16455      CAS K37E4
10345 0020 00 0 10347      TRA 65A7+5     ERROR
10346 0020 00 0 10351      TRA 65A8
10347 0074 00 4 06503      TSX ERROR-1,4  ERROR-STR+1 INSTR CHANGED
10350 0020 00 0 10253      TRA 65A
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TEST XRA AND XRB UNCHANGED BY STR

10351 3 07777 1 10353 65A8 TXH \*+2,1,4095 SHOULD NOT TRANSFER  
10352 3 07776 1 10357 TXH \*+5,1,4094 SHOULD TRANSFER  
10353 0500 00 0 16361 CLA ZERO CLEAR ACCUMULATOR  
10354 0560 00 0 16432 LDQ 1CF L +7777 IN MQ  
10355 0074 00 4 06503 TSX ERROR-1,4 ERROR-XRA CHANGED  
MQ AND XRA SHOULD EQUAL  
10356 0020 00 0 10253 TRA 65A  
10357 3 07777 2 10361 TXH \*+2,2,4095 SHOULD NOT TRANSFER  
10360 3 07776 2 10364 TXH \*+4,2,4094 SHOULD TRANSFER  
10361 0500 00 0 16361 CLA ZERO CLEAR ACCUMULATOR  
10362 0560 00 0 16432 LDQ 1CF L +7777 IN MQ  
10363 0074 00 4 06504 TSX ERROR,4 ERROR-XRB CHANGED  
MQ AND XRB SHOULD EQUAL  
10364 0074 00 4 06511 TSX OK,4  
10365 0020 00 0 10253 TRA 65A

10366 0761 00 0 00000 NOP

\*RESTORE LOC 00001, 00002, 00010 OF FALSE TRAP ROUTINE

10367 0500 00 0 04452 CLA B85B L LTM  
10370 0601 00 0 00001 STO 1  
10371 0500 00 0 16550 CLA TR+7 L SLW TEMP+2  
10372 0601 00 0 00002 STO 2  
10373 0500 00 0 16551 CLA TR+8 L CLA TR  
10374 0601 00 0 00003 STO 3  
10375 0500 00 0 16552 CLA TR+9 L TRA  
10376 0601 00 0 00010 STO 8  
10377 0074 00 4 16351 TSX STORE,4 TO RESTORE RESET-START  
10400 0020 00 0 10402 TRA \*+2

EXECUTE INSTRUCTION TEST

10401 256725606060 BCD 1EXE TEST EXECUTE CAUSES 709  
TO TAKE NEXT INSTR FROM  
EXECUTE ADR,PERFORM THAT  
INSTR AND RETURN TO EXE-  
CUTE INSTRUCTION PLUS 1  
10402 0500 00 0 16361 EX CLA ZERO L+0  
10403 0522 00 0 10405 XEC \*+2  
10404 0020 00 0 10410 TRA \*+4  
10405 0500 00 0 16366 CLA MZE L -0  
10406 0074 00 4 06503 TSX ERROR-1,4 FAILED TO RETURN TO  
EXECUTE INSTR PLUS 1  
10407 0020 00 0 10402 TRA EX

TEST FOR MINUS SIGN IN ACC

10410	-0120	00	0	10412		TMI	*+2	OK-ACC SIGN MINUS
10411	0074	00	4	06504		TSX	ERROR, 4	ERROR-ACC SIGN PLUS
10412	0074	00	4	06511		TSX	OK, 4	
10413	0020	00	0	10402		TRA	EX	
10414	256725606060					BCD	1EXE	TEST EXECUTE TO A TRA DOES NOT RETURN TO EXECUTE PLUS 1
10415	0522	00	0	10421	EXA	XEC	*+4	
10416	0074	00	4	06503		TSX	ERROR-1, 4	ERROR-SHOULD GO TO TRA INSTR AND PROCEED
10417	0020	00	0	10415		TRA	EXA	
10420	0020	00	0	10425		TRA	EXB	GO TO NEXT TEST IF ERROR
10421	0020	00	0	10422		TRA	*+1	CAME FROM EXECUTE
10422	0074	00	4	06511		TSX	OK, 4	OK AND CONTINUED
10423	0020	00	0	10415		TRA	EXA	
10424	256725606060					BCD	1EXE	TEST EXECUTE WITH TXI
10425	0774	00	1	00006	EXB	AXT	6, 1	L 6 IN XRA
10426	0522	00	0	10432		XEC	*+4	
10427	0074	00	4	06503		TSX	ERROR-1, 4	ERROR-SHOULD GO TO TXI INSTRUCTION AND PROCEED
10430	0020	00	0	10425		TRA	EXB	
10431	0020	00	0	10443		TRA	EXC	GO TO NEXT TEST IF ERROR
10432	1	00001	1	10433		TXI	*+1, 1, 1	MAKE XRA 7
10433	3	00007	1	10435		TXH	*+2, 1, 7	SHOULD NOT TRANSFER
10434	3	00006	1	10440		TXH	*+4, 1, 6	SHOULD TRANSFER
10435	0500	00	0	16361		CLA	ZERO	CLEAR ACCUMULATOR
10436	0560	00	0	16516		LDQ	SEVEN	MQ, XRA SHOULD EQUAL
10437	0074	00	4	06504		TSX	ERROR, 4	
10440	0074	00	4	06511		TSX	OK, 4	
10441	0020	00	0	10425		TRA	EXB	
10442	256725606060					BCD	1EXE	TEST EXECUTE WITH TXL WITH XR LOW
10443	0774	00	1	00000	EXC	AXT	0, 1	CLEAR XRA
10444	0522	00	0	10450		XEC	*+4	
10445	0074	00	4	06503		TSX	ERROR-1, 4	ERROR-SHOULD GO TO TXL INSTRUCTION AND PROCEED
10446	0020	00	0	10443		TRA	EXC	
10447	0020	00	0	10453		TRA	EXD	
10450	-3	00001	1	10453		TXL	*+3, 1, 1	SHOULD TRANSFER
10451	0074	00	4	06503		TSX	ERROR-1, 4	ERROR-DID NOT TRANSFER
10452	0020	00	0	10443		TRA	EXC	
10453	0522	00	0	10457	EXD	XEC	*+4	
10454	0074	00	4	06503		TSX	ERROR-1, 4	ERROR-SHOULD GO TO TXL INSTRUCTION AND PROCEED
10455	0020	00	0	10453		TRA	EXD	

10456	0020 00 0	10464	TRA EXF	GO TO NEXT TEST IF ERROR
10457	-3 00000	1 10461	TXL *+2,1,0	SHOULD TRANSFER
10460	0074 00 4	06504	TSX ERROR,4	ERROR-DID NOT TRANSFER
10461	0074 00 4	06511	TSX OK,4	
10462	0020 00 0	10443	TRA EXC	
10463	256725606060		BCD 1EXE	TEST EXECUTE WITH TXL WITH XR HIGH
10464	0500 00 0	16361	EXF CLA ZERO	CLEAR ACCUMULATOR
10465	0774 00 1	00001	AXT 1,1	L 1 IN XRA
10466	0522 00 0	10471	XEC *+3	
10467	0500 00 0	16366	CLA MZE	L -0
10470	0020 00 0	10474	TRA *+4	
10471	-3 00000	1 10472	TXL *+1,1,0	SHOULD NOT TRANSFER,GO BACK TO EXECUTE PLUS 1
10472	0074 00 4	06503	TSX ERROR-1,4	FAILED TO RETURN TO
10473	0020 00 0	10464	TRA EXF	EXECUTE INSTR PLUS 1
10474	-0120 00 0	10476	TMI *+2	SHOULD TRANSFER
10475	0074 00 4	06504	TSX ERROR,4	ERROR-ACC PLUS
10476	0074 00 4	06511	TSX OK,4	
10477	0020 00 0	10464	TRA EXF	
10500	256725606060		BCD 1EXE	TEST EXECUTE WITH TXH WITH XR HIGH
10501	0774 00 1	00001	EXG AXT 1,1	L 1 IN XRA
10502	0522 00 0	10506	XEC *+4	
10503	0074 00 4	06503	TSX ERROR-1,4	ERROR-SHOULD GO TO TXH
10504	0020 00 0	10501	TRA EXG	INSTRUCTION AND PROCEED
10505	0020 00 0	10513	TRA EXH	GO TO NEXT TEST IF ERROR
10506	3 00000	1 10510	TXH *+2,1,0	SHOULD TRANSFER
10507	0074 00 4	06504	TSX ERROR,4	
10510	0074 00 4	06511	TSX OK,4	
10511	0020 00 0	10501	TRA EXG	
10512	256725606060		BCD 1EXE	TEST EXECUTE WITH TXH WITH XR LOW
10513	0774 00 1	00000	EXH AXT 0,1	CLEAR XRA
10514	0500 00 0	16361	CLA ZERO	CLEAR ACCUMULATOR
10515	0522 00 0	10520	XEC *+3	
10516	0500 00 0	16366	CLA MZE	L -0
10517	0020 00 0	10523	TRA *+4	
10520	3 00000	1 10521	TXH *+1,1,0	SHOULD NOT TRANSFER,GO BACK TO EXECUTE PLUS 1
10521	0074 00 4	06503	TSX ERROR-1,4	FAILED TO RETURN TO

10522	0020 00 0	10513		TRA EXH	EXECUTE INSTR PLUS 1
10523	-0120 00 0	10525		TMI *+2	SHOULD TRANSFER
10524	0074 00 4	06504		TSX ERROR,4	ERROR-ACC PLUS
10525	0074 00 4	06511		TSX OK,4	
10526	0020 00 0	10513		TRA EXH	
10527	256725606060			BCD 1EXE	TEST EXECUTE WITH TIX
10530	0774 00 1	00001	EXI	AXT 1,1	L 1 IN XRA
10531	0522 00 0	10535		XEC *+4	
10532	0074 00 4	06503		TSX ERROR-1,4	ERROR-SHOULD GO TO TIX
10533	0020 00 0	10530		TRA EXI	INSTRUCTION AND PROCEED
10534	0020 00 0	10540		TRA EXJ	GO TO NEXT TEST IF ERROR
10535	2 00000 1	10540		TIX *+3,1,0	SHOULD TRANSFER
10536	0074 00 4	06503		TSX ERROR-1,4	ERROR-DID NOT TRANSFER
10537	0020 00 0	10530		TRA EXI	
10540	0500 00 0	16361	EXJ	CLA ZERO	CLEAR ACCUMULATOR
10541	0522 00 0	10544		XEC *+3	
10542	0500 00 0	16366		CLA MZE	L -0
10543	0020 00 0	10547		TRA *+4	
10544	2 00001 1	10545		TIX *+1,1,1	SHOULD NOT TRANSFER
10545	0074 00 4	06503		TSX ERROR-1,4	FAILED TO RETURN TO
10546	0020 00 0	10530		TRA EXI	EXECUTE INSTR PLUS 1
10547	-0120 00 0	10551		TMI *+2	SHOULD TRANSFER
10550	0074 00 4	06504		TSX ERROR,4	ERROR-ACC PLUS
10551	0074 00 4	06511		TSX OK,4	
10552	0020 00 0	10530		TRA EXI	
10553	256725606060			BCD 1EXE	TEST EXECUTE WITH TSX
10554	-0774 00 2	10555	EXK	AXC *+1,2	2-S COMPLEMENT OF EXECUTE INSTRUCTION TO XRB
10555	0522 00 0	10562		XEC *+5	
10556	0074 00 4	06503		TSX ERROR-1,4	ERROR-RETURNED TO
10557	0020 00 0	10554		TRA EXK	EXECUTE INSTR PLUS 1
10560	0020 00 0	10574		TRA EXL	GO TO NEXT TEST IF ERROR
10561	0020 00 0	10571		TRA *+8	RETURN FROM SUBROUTINE
10562	0074 00 1	16350		TSX SUB,1	OUT TO SUBROUTINE
10563	0761 00 0	00000		NOP	
10564	0761 00 0	00000		NOP	
10565	0761 00 0	00000		NOP	
10566	0500 00 0	16361		CLA ZERO	CLEAR ACCUMULATOR
10567	0560 00 0	16361		LDQ ZERO	CLEAR MQ

\*IF AN ERROR, XRB CONTAINS THE CORRECT 2-S COMPLEMENT LOCATION  
 \*OF THE EXECUTE INSTRUCTION THAT SHOULD BE IN XRA

10570	0074	00	4	06504		TSX ERROR, 4	ERROR-FAILED TO RETURN EXECUTE PLUS 4
10571	0074	00	4	06511		TSX OK, 4	
10572	0020	00	0	10554		TRA EXK	
10573	256725606060					BCD 1EXE	TEST EXECUTE WITH CAS
10574	0500	00	0	16416	EXL	CLA K16B	L +212223242526
10575	0560	00	0	16416		LDQ K16B	L +212223242526
10576	0522	00	0	10602		XEC *+4	
10577	0020	00	0	10610		TRA *+9	ERROR IN COMPARISON
10600	0020	00	0	10611		TRA *+9	OK
10601	0020	00	0	10610		TRA *+7	ERROR IN COMPARISON
10602	0340	00	0	16416		CAS K16B	
10603	0020	00	0	10605		TRA *+2	ERROR-DID NOT RETURN
10604	0020	00	0	10605		TRA *+1	TO EXECUTE INSTR PLUS 1,
10605	0074	00	4	06503		TSX ERROR-1, 4	2, 3 AFTER CAS INSTR
10606	0020	00	0	10574		TRA EXL	
10607	0020	00	0	10614		TRA *+5	GO TO NEXT TEST IF ERROR
10610	0074	00	4	06504		TSX ERROR, 4	
10611	0074	00	4	06511		TSX OK, 4	
10612	0020	00	0	10574		TRA EXL	
10613	256725606060					BCD 1EXE	TEST EXECUTE INDEXABLE
10614	0774	00	1	00004	EX1	AXT 4, 1	L 4 IN XRA
10615	0500	00	0	16366		CLA MZE	L -0
10616	0522	00	1	10624		XEC *+6, 1	
10617	0020	00	0	10627		TRA *+8	
10620	0500	00	0	16361		CLA ZERO	L +0
10621	0074	00	4	06503		TSX ERROR-1, 4	FAILED TO RETURN TO EXECUTE PLUS 1
10622	0020	00	0	10614		TRA EX1	
10623	0020	00	0	10634		TRA EX3	GO TO NEXT TEST IF ERROR
10624	0074	00	4	06503		TSX ERROR-1, 4	FAILED TO MODIFY ADR
10625	0020	00	0	10614		TRA EX1	
10626	0020	00	0	10634		TRA EX3	GO TO NEXT TEST IF ERROR
TEST ACCUMULATOR SIGN							
10627	0120	00	0	10631		TPL *+2	OK-ACC SIGN PLUS
10630	0074	00	4	06504		TSX ERROR, 4	
10631	0074	00	4	06511		TSX OK, 4	
10632	0020	00	0	10614		TRA EX1	
10633	256725606060					BCD 1EXE	TEST SUCCESSIVE EXECUTES
10634	0500	00	0	16365	EX3	CLA ONE	L +1
10635	0522	00	0	10636		XEC *+1	
10636	0522	00	0	10637		XEC *+1	
10637	0522	00	0	10640		XEC *+1	



10640	0522	00	0	10641		XEC	*+1		
10641	0522	00	0	10642		XEC	*+1		
10642	0400	00	0	16365		ADD	ONE	L +1	
10643	0402	00	0	16516		SUB	SEVEN	L +7	
10644	0100	00	0	10646		TZE	*+2	OK	
10645	0074	00	4	06504		TSX	ERROR, 4		
10646	0074	00	4	06511		TSX	OK, 4		
10647	0020	00	0	10634		TRA	EX3		
10650	212424606060					BCD	1ADD	ADDER TEST	
10651	0500	00	0	16361	M06	CLA	ZERO	CLEAR ACCUMULATOR	
10652	0760	00	0	00006		COM			
10653	0400	00	0	16365		ADD	ONE	L +1 RIPPLE CARRY	
10654	0100	00	0	10657		TZE	M06+6		
10655	0074	00	4	06503		TSX	ERROR-1, 4	ON ERROR THE RIGHT MOST	
10656	0020	00	0	10651		TRA	M06	ONE OR LEFT MOST ZERO	
								IS ADDER THAT FAILED	
10657	0140	00	0	10661		TOV	M06+8	OVFL SHOULD BE ON	
10660	0074	00	4	06504		TSX	ERROR, 4	TO ERROR ROUTINE	
10661	0074	00	4	06511		TSX	OK, 4		
10662	0020	00	0	10651		TRA	M06		
10663	212424606060					BCD	1ADD	ADDER TEST	
10664	-0500	00	0	16362	M07	CAL	ONES	ONES INTO P, 1-35	
10665	0361	00	0	16362		ACL	ONES	ONES INTO P, 1-35	
10666	0602	00	0	16576		SLW	TEMP		
10667	0500	00	0	16576		CLA	TEMP		
10670	0402	00	0	16362		SUB	ONES	ONES	
10671	0100	00	0	10673		TZE	M07+7		
10672	0074	00	4	06504		TSX	ERROR, 4	THE RIGHTMOST ONE OR THE	
10673	0074	00	4	06511		TSX	OK, 4	LEFT MOST ZERO WILL	
10674	0020	00	0	10664		TRA	M07	INDICATE WHICH ADDER	
								FAILED. SIGN POSITION	
								CORRESPONDS TO P ADDER	
								POSITION	
10675	0761	00	0	00000		NOP			
INDICATOR TESTS									
10676	0500	00	0	16542		CLA	TR+1	L HTR THREE	
10677	0621	00	0	00006		STA	6	ADJUST LOC 00006	
10700	0020	00	0	10702		TRA	*+2		
10701	472131606060					BCD	1PAI	TEST-PLACE ACC IN IND	
								AND PLACE IND IN ACC	
10702	-0500	00	0	16362	DZ	CAL	ONES	L ALL ONES	
10703	0074	00	2	16317		TSX	ENTM, 2	TEST PRI OP 0, 4 NO TRAP	
10704	0044	00	0	00000		PAI		ALL INDICATORS ON	

\*CHECK CONTENTS OF LOCATION 00000

10705	-0760	00	0	00007	LTM		FXIT TRAP MODE
10706	0602	00	0	16600	SLW	TEMP+2	SAVE ACCUMULATOR
10707	0500	00	0	00000	CLA		L CONTENTS LOC 00000
10710	0560	00	0	16160	LDQ	END+1	L TRA START-3
10711	0340	00	0	16160	CAS	END+1	
10712	0020	00	0	10714	TRA	*+2	ERROR
10713	0020	00	0	10717	TRA	*+4	OK
10714	0074	00	4	06503	TSX	ERROR-1,4	
10715	0020	00	0	10702	TRA	DZ	
10716	0074	00	4	16351	TSX	STORE,4	TO RESTORE RESET START
10717	-0500	00	0	16600	CAL	TEMP+2	RESTORE ACCUMULATOR
10720	0500	00	0	16361	CLA	ZERO	CLEAR ACCUMULATOR
10721	-0046	00	0	00000	PIA		BITS IN P, 1 THRU 35 IN ACC
10722	-0760	00	0	00001	PBT		
10723	0020	00	0	10725	TRA	*+2	ERROR
10724	0020	00	0	10727	TRA	DA	OK SHOULD HAVE P BIT
10725	0074	00	4	06503	TSX	ERROR-1,4	TO ERROR ROUTINE
10726	0020	00	0	10702	TRA	DZ	REPEAT SECTION
10727	0771	00	0	00001	DA	ARS 1	CLEAR P
10730	0760	00	0	00002	CHS		ACC NOW MINUS ALL ONES
10731	0560	00	0	16362	LDQ	ONES	L ALL ONES TO MQ
10732	0340	00	0	16362	CAS	ONES	
10733	0020	00	0	10735	TRA	DA+6	ERROR
10734	0020	00	0	10736	TRA	DA+7	OK ALL IND ON
10735	0074	00	4	06504	TSX	ERROR,4	TO ERROR ROUTINE
10736	0074	00	4	06511	TSX	OK,4	CONTINUE TEST
10737	0020	00	0	10702	TRA	DZ	REPEAT TEST
10740	473121606060				BCD	1PIA	
10741	0500	00	0	16361	D1	CLA	ZERO L +0
10742	0044	00	0	00000	PAI		ALL INDICATORS OFF
10743	0074	00	2	16317	TSX	ENTM,2	TEST PRI OP 04 NO TRAP
10744	-0046	00	0	00000	PIA		
*CHECK CONTENTS OF LOCATION 00000							
10745	-0760	00	0	00007	LTM		EXIT TRAP MODE
10746	0602	00	0	16600	SLW	TEMP+2	SAVE ACCUMULATOR
10747	0500	00	0	00000	CLA		L CONTENTS LOC 00000
10750	0560	00	0	16160	LDQ	END+1	L TRA START-3
10751	0340	00	0	16160	CAS	END+1	
10752	0020	00	0	10754	TRA	*+2	ERROR
10753	0020	00	0	10757	TRA	*+4	OK
10754	0074	00	4	06503	TSX	ERROR-1,4	
10755	0020	00	0	10741	TRA	D1	
10756	0074	00	4	16351	TSX	STORE,4	TO RESTORE RESET START
10757	-0500	00	0	16600	CAL	TEMP+2	RESTORE ACCUMULATOR
10760	0100	00	0	10762	TZE	*+2	OK-IND OFF
10761	0074	00	4	06504	TSX	ERROR,4	TO ERROR ROUTINE

10762	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
10763	0020	00	0	10741		TRA D1	REPEAT TEST
10764	313121606060					BCD 1IIA	TEST-INVERT IND FROM ACC
10765	-0500	00	0	16362	D2	CAL ONES	L ALL ONES
10766	0774	00	1	00050		AXT 40,1	L +50 IN XRA
10767	0044	00	0	00000		PAI	ALL INDICATORS ON
10770	0074	00	2	16317		TSX ENTM, 2	TEST PRI OP 0, 4 NO TRAP
10771	0041	00	0	00000		IIA	ALTERNATE INDICATORS
*CHECK CONTENTS OF LOCATION 00000							
10772	-0760	00	0	00007		LTM	EXIT TRAP MODE
10773	0602	00	0	16600		SLW TEMP+2	SAVE ACCUMULATOR
10774	0500	00	0	00000		CLA	L CONTENTS LOC 00000
10775	0560	00	0	16160		LDQ END+1	L TRA START-3
10776	0340	00	0	16160		CAS END+1	
10777	0020	00	0	11001		TRA *+2	ERROR
11000	0020	00	0	11004		TRA *+4	OK
11001	0074	00	4	06503		TSX ERROR-1, 4	
11002	0020	00	0	10765		TRA D2	
11003	0074	00	4	16351		TSX STORE, 4	TO RESTORE RESET START
11004	-0500	00	0	16600		CAL TEMP+2	RESTORE ACCUMULATOR
11005	2	00001	1	10770		TIX D2+3, 1, 1	
11006	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11007	0771	00	0	00001		ARS 1	CLEAR P
11010	0760	00	0	00002		CHS	ACC NOW MINUS ALL ONES
11011	0560	00	0	16362		LDQ ONES	L ALL ONE TO MQ
11012	0340	00	0	16362		CAS ONES	
11013	0020	00	0	11015		TRA *+2	ERROR
11014	0020	00	0	11016		TRA *+2	OK
11015	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
11016	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
11017	0020	00	0	10765		TRA D2	REPEAT SECTION
11020	313162606060					BCD 1IIS	
11021	-0500	00	0	16362	D2A	CAL ONES	L ALL ONES
11022	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
11023	0774	00	1	00050		AXT 40,1	L +50 IN XRA
11024	0044	00	0	00000		PAI	ALL IN ON
11025	0440	00	0	16576		IIS TEMP	
11026	2	00001	1	11025		TIX D2A+4, 1, 1	ALTERNATE IND
11027	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11030	0771	00	0	00001		ARS 1	CLEAR P
11031	0760	00	0	00002		CHS	ACC NOW MINUS ALL ONES
11032	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11033	0340	00	0	16362		CAS ONES	
11034	0020	00	0	11036		TRA D2A+13	ERROR
11035	0020	00	0	11037		TRA D2A+14	OK-ALL IND ON
11036	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
11037	0074	00	4	06511		TSX OK, 4	CONTINUE TEST

11040	0020 00 0 11021		TRA D2A	REPEAT TEST
11041	313162606060		BCD 1IIS	
11042	-0500 00 0 16362	D2B	CAL ONES	L ALL ONES
11043	0602 00 0 16576		SLW TEMP	SAVE ACCUMMULATOR
11044	0774 00 1 00050		AXT 40,1	L +50 IN XRA
11045	0044 00 0 00000		PAI	IND ON
11046	0041 00 0 00000		IIA	IND OFF
11047	0440 00 0 16576		IIS TEMP	IND ON
11050	2 00001 1 11046		TIX D2B+4,1,1	ALTERNATE IND
11051	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
11052	0771 00 0 00001		ARS 1	CLEAR P
11053	0760 00 0 00002		CHS	ACC NOW MINUS ALL ONES
11054	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
11055	0340 00 0 16362		CAS ONES	
11056	0020 00 0 11060		TRA D2B+14	ERROR
11057	0020 00 0 11061		TRA D2B+15	OK-IND ON
11060	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
11061	0074 00 4 06511		TSX OK,4	CONTINUE TEST
11062	0020 00 0 11042		TRA D2B	REPEAT TEST
11063	513162606060		BCD 1RIS	TEST-RESET IND FROM STG
11064	-0500 00 0 16362	E	CAL ONES	L ALL ONES
11065	0044 00 0 00000		PAI	SET INDICATORS ON
11066	0445 00 0 16362		RIS ONES	RESET ALL IND OFF
11067	-0046 00 0 00000		PIA	SET INDICATORS INTO ACC
11070	0100 00 0 11072		TZE E+6	OK-IND OFF
11071	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
11072	0074 00 4 06511		TSX OK,4	CONTINUE TEST
11073	0020 00 0 11064		TRA E	REPEAT TEST
11074	513162606060		BCD 1RIS	
11075	-0500 00 0 16362	E1	CAL ONES	L ALL ONES
11076	0044 00 0 00000		PAI	TURN ALL INDICATOR ON
11077	0445 00 0 16361		RIS ZERO	IND NOT RESET
11100	-0046 00 0 00000		PIA	SET TGRS INTO ACC
11101	0771 00 0 00001		ARS 1	CLEAR P
11102	0760 00 0 00002		CHS	ACC NOW MINUS ALL ONES
11103	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
11104	0340 00 0 16362		CAS ONES	
11105	0020 00 0 11107		TRA E1+10	ERROR
11106	0020 00 0 11110		TRA E1+11	OK-IND ON
11107	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
11110	0074 00 4 06511		TSX OK,4	CONTINUE TEST
11111	0020 00 0 11075		TRA E1	REPEAT TEST
11112	513121606060		BCD 1RIA	TEST-RESET IND FROM ACC
11113	-0500 00 0 16362	E2	CAL ONES	L ALL ONES
11114	0044 00 0 00000		PAI	SET INDICATOR ALL ON
11115	0074 00 2 16317		TSX ENTM,2	TEST PRI OP 0,4 NO TRAP
11116	-0042 00 0 00000		RIA	RESET ALL INDICATORS OFF

\*CHECK CONTENTS OF LOCATION 00000

11117	-0760	00	0	00007		LTM	EXIT TRAP MODE
11120	0602	00	0	16600		SLW TEMP+2	SAVE ACCUMULATOR
11121	0500	00	0	00000		CLA	L CONTENTS LOC 00000
11122	0560	00	0	16160		LDQ END+1	L TRA START-3
11123	0340	00	0	16160		CAS END+1	
11124	0020	00	0	11126		TRA *+2	ERROR
11125	0020	00	0	11131		TRA *+4	OK
11126	0074	00	4	06503		TSX ERROR-1,4	
11127	0020	00	0	11113		TRA E2	
11130	0074	00	4	16351		TSX STORE,4	TO RESTORE RESET START
11131	-0500	00	0	16600		CAL TEMP+2	RESTORE ACCUMULATOR
11132	-0046	00	0	00000		PIA	CHECK INDICATORS OFF
11133	0100	00	0	11135		TZE *+2	OK-IND OFF
11134	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11135	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11136	0020	00	0	11113		TRA E2	REPEAT TEST
11137	513121606060					BCD 1RIA	
11140	-0500	00	0	16362	E3	CAL ONES	L ALL ONES
11141	0044	00	0	00000		PAI	TURN ON ALL INDICATORS
11142	0500	00	0	16361		CLA ZERO	L +0
11143	-0042	00	0	00000		RIA	SHOULD NOT RESET
11144	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11145	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
11146	0500	00	0	16576		CLA TEMP	L SAVED ACCUMULATOR
11147	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11150	0340	00	0	16362		CAS ONES	
11151	0020	00	0	11153		TRA *+2	ERROR
11152	0020	00	0	11154		TRA *+2	OK-IND ON
11153	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11154	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11155	0020	00	0	11140		TRA E3	REPEAT TEST
11156	626331606060					BCD 1STI	TEST-STORE INDICATORS
11157	0500	00	0	16361	E3A	CLA ZERO	L +0
11160	0044	00	0	00000		PAI	TURN ALL INDICATORS OFF
11161	0604	00	0	16576		STI TEMP	STORE INDICATORS
11162	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
11163	0100	00	0	11165		TZE E3A+6	OK-IND OFF
11164	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11165	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11166	0020	00	0	11157		TRA E3A	REPEAT TEST
11167	626331606060					BCD 1STI	
11170	-0500	00	0	16362	E3B	CAL ONES	L ALL ONES
11171	0044	00	0	00000		PAI	TURN ALL INDICATORS ON
11172	0604	00	0	16576		STI TEMP	STORE INDICATORS
11173	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
11174	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ

11175	0340	00	0	16362		CAS	ONES		
11176	0020	00	0	11200		TRA	E3B+8	ERROR	
11177	0020	00	0	11201		TRA	E3B+9	OK-IND ON	
11200	0074	00	4	06504		TSX	ERROR,4	TO ERROR ROUTINE	
11201	0074	00	4	06511		TSX	OK,4	CONTINUE TEST	
11202	0020	00	0	11170		TRA	E3B	REPEAT TEST	
11203	626331606060					BCD	1STI		
11204	0500	00	0	16427	E3C	CLA	K25	L +154321654321	
11205	0044	00	0	00000		PAI			
11206	0604	00	0	16576		STI	TEMP	STORE INDICATORS	
11207	0500	00	0	16576		CLA	TEMP	CHECK INDICATORS	
11210	0560	00	0	16427		LDQ	K25	L +154321654321	
11211	0340	00	0	16427		CAS	K25		
11212	0020	00	0	11214		TRA	E3C+8	ERROR	
11213	0020	00	0	11215		TRA	E3C+9	OK-CORRECT IND ON	
11214	0074	00	4	06504		TSX	ERROR,4	TO ERROR ROUTINE	
11215	0074	00	4	06511		TSX	OK,4	CONTINUE TEST	
11216	0020	00	0	11204		TRA	E3C	REPEAT TEST	
11217	462131606060					BCD	10AI	TEST-OR ACC TO INDICATORS	
11220	-0500	00	0	16362	E4	CAL	ONES	L ALL ONES	
11221	0074	00	2	16317		TSX	ENTM,2	TEST PRI OP 0,4 NO TRAP	
11222	0043	00	0	00000		OAI		TURN ALL INDICATORS ON	
*CHECK CONTENTS OF LOCATION 00000									
11223	-0760	00	0	00007		LTM		EXIT TRAP MODE	
11224	0602	00	0	16600		SLW	TEMP+2	SAVE ACCUMULATOR	
11225	0500	00	0	00000		CLA		L CONTENTS LOC 00000	
11226	0560	00	0	16160		LDQ	END+1	L TRA START-3	
11227	0340	00	0	16160		CAS	END+1		
11230	0020	00	0	11232		TRA	*+2	ERROR	
11231	0020	00	0	11235		TRA	*+4	OK	
11232	0074	00	4	06503		TSX	ERROR-1,4		
11233	0020	00	0	11220		TRA	E4		
11234	0074	00	4	16351		TSX	STORE,4	TO RESTORE RESET START	
11235	-0500	00	0	16600		CAL	TEMP+2	RESTORE ACCUMULATOR	
11236	0604	00	0	16576		STI	TEMP	STORE INDICATORS	
11237	0602	00	0	16577		SLW	TEMP+1	SAVE ACCUMULATOR	
11240	0500	00	0	16576		CLA	TEMP	CHECK INDICATORS	
11241	0560	00	0	16362		LDQ	ONES	L ALL ONES TO MQ	
11242	0340	00	0	16362		CAS	ONES		
11243	0020	00	0	11245		TRA	*+2	ERROR	
11244	0020	00	0	11247		TRA	E4A	OK ALL IND ON	
11245	0074	00	4	06503		TSX	ERROR-1,4	TO ERROR ROUTINE	
11246	0020	00	0	11220		TRA	E4	REPEAT SECTION	
11247	0500	00	0	16577	E4A	CLA	TEMP+1	CHECK SAVED ACCUMULATOR	
11250	0340	00	0	16362		CAS	ONES		
11251	0020	00	0	11253		TRA	E4A+4	ERROR	
11252	0020	00	0	11254		TRA	E4A+5	OK ACC UNCHANGED	

11253	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11254	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11255	0020	00	0	11220		TRA E4	REPEAT TEST
11256	462131606060					BCD 10AI	
11257	-0500	00	0	16362	E5	CAL ONES	L ALL ONES
11260	0043	00	0	00000		OAI	TURN ALL INDICATORS ON
11261	0500	00	0	16361		CLA ZERO	L +0
11262	0043	00	0	00000		OAI	ALL INDICATORS STILL ON
11263	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11264	0771	00	0	00001		ARS 1	CLEAR P
11265	0760	00	0	00002		CHS	ACC NOW MINUS ALL ONES
11266	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11267	0340	00	0	16362		CAS ONES	
11270	0020	00	0	11272		TRA E5+11	ERROR
11271	0020	00	0	11273		TRA E5+12	OK-IND ON
11272	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11273	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11274	0020	00	0	11257		TRA E5	
11275	462131606060					BCD 10AI	
11276	-0500	00	0	16362	E6	CAL ONES	L ALL ONES
11277	0044	00	0	00000		PAI	ALL IND ON
11300	-0042	00	0	00000		RIA	TURN ALL INDICATORS OFF
11301	0500	00	0	16426		CLA K24	L +111111111111
11302	0043	00	0	00000		OAI	TURN 12 INDICATORS ON
11303	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
11304	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11305	0560	00	0	16426		LDQ K24	L +111111111111
11306	0340	00	0	16426		CAS K24	
11307	0020	00	0	11311		TRA E6+11	ERROR
11310	0020	00	0	11313		TRA E6A	OK-CORRECT 12 IND ON
11311	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
11312	0020	00	0	11276		TRA E6	REPEAT SECTION
11313	0767	00	0	00001	E6A	ALS 1	ACC NOW +222222222222
11314	0043	00	0	00000		OAI	IND 333333333333
11315	0601	00	0	16577		STO TEMP+1	SAVE ACCUMULATOR
11316	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11317	0560	00	0	16520		LDQ K28	L +333333333333
11320	0340	00	0	16520		CAS K28	
11321	0020	00	0	11323		TRA E6A+8	ERROR
11322	0020	00	0	11325		TRA E6B	OK-CORRECT 24 IND ON
11323	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
11324	0020	00	0	11276		TRA E6	REPEAT SECTION
11325	0500	00	0	16426	E6B	CLA K24	L +111111111111
11326	0767	00	0	00002		ALS 2	ACC +P044444444444
11327	0043	00	0	00000		OAI	IND 777777777777
11330	0602	00	0	16600		SLW TEMP+2	SAVE ACCUMULATOR
11331	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11332	0771	00	0	00001		ARS 1	CLEAR P
11333	0760	00	0	00002		CHS	ACC NOW MINUS ALL ONES
11334	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ

11335	0340	00	0	16362		CAS	ONES		
11336	0020	00	0	11340		TRA	E6B+11	ERROR	
11337	0020	00	0	11342		TRA	E6C	OK-ALL IND ON	
11340	0074	00	4	06503		TSX	ERROR-1,4	TO ERROR ROUTINE	
11341	0020	00	0	11276		TRA	E6	REPEAT SECTION	
CHECK ACCS UNCHANGES									
11342	0500	00	0	16576	E6C	CLA	TEMP	L +111111111111	
11343	0400	00	0	16577		ADD	TEMP+1	L +222222222222	
11344	0402	00	0	16600		SUB	TEMP+2	L -044444444444	
11345	0760	00	0	00002		CHS		ACC NOW -377777777777	
11346	0340	00	0	16362		CAS	ONES		
11347	0020	00	0	11351		TRA	E6C+7	ERROR	
11350	0020	00	0	11352		TRA	E6C+8	OK-ACCS UNCHANGED	
11351	0074	00	4	06504		TSX	ERROR,4	TO ERROR ROUTINE	
11352	0074	00	4	06511		TSX	OK,4	CONTINUE TEST	
11353	0020	00	0	11276		TRA	E6	REPEAT TEST	
11354	462131606060					BCD	10AI	RIPPLE TEST	
11355	0441	00	0	16361	E6D	LDI	ZERO	ALL INDICATORS OFF	
11356	0774	00	1	00044		AXT	36,1	L +44 IN XRA	
11357	0500	00	0	16365		CLA	ONE	L +1	
11360	0602	00	0	16576		SLW	TEMP	SAVE ACCUMULATOR	
11361	0043	00	0	00000		OAI		TURN TESTED IND ON	
11362	0604	00	0	16577		STI	TEMP+1	STORE INDICATORS	
11363	0500	00	0	16577		CLA	TEMP+1	CHECK INDICATORS	
11364	0340	00	0	16576		CAS	TEMP		
11365	0020	00	0	11367		TRA	*+2	ERROR	
11366	0020	00	0	11372		TRA	*+4	OK	
11367	0560	00	0	16576		LDQ	TEMP	L POSITION TESTING	
11370	0074	00	4	06503		TSX	ERROR-1,4	ERROR	
11371	0020	00	0	11355		TRA	E6D	REPEAT SECTION	
11372	-0500	00	0	16576		CAL	TEMP	L LAST POSITION TESTED	
11373	0041	00	0	00000		IIA		TURN TESTED IND OFF	
11374	0767	00	0	00001		ALS	1	RIPPLE 1 POSITION	
11375	2 00001	1	1	11360		TIX	E6D+3,1,1	REPEAT FOR EVERY IND POS	
*	CHECK NO EFFECT WITH Q BIT								
11376	0043	00	0	00000		OAI			
11377	-0046	00	0	00000		PIA		IND TO ACC AND CHECK	
11400	0100	00	0	11402		TZE	*+2	OK-NO EFFECT WITH Q BIT	
11401	0074	00	4	06504		TSX	ERROR,4	ERROR	
11402	0074	00	4	06511		TSX	OK,4	CONTINUE TEST	
11403	0020	00	0	11355		TRA	E6D	REPEAT TEST	
11404	462131606060					BCD	10AI	TEST-OAI WITH SIGN BIT	
11405	0441	00	0	16361	E6D1	LDI	ZERO	ALL INDICATORS OFF	
11406	0500	00	0	16366		CLA	MZE	L -0	
11407	0043	00	0	00000		OAI			
11410	-0046	00	0	00000		PIA		IND TO ACC AND CHECK	
11411	0100	00	0	11413		TZE	*+2	OK	



11412	0074	00	4	06504		TSX ERROR,4	ERROR
11413	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11414	0020	00	0	11405		TRA E6D1	REPEAT TEST
11415	466231606060					BCD 10SI	TEST OR STORAGE TO IND
11416	0442	00	0	16362	E7	OSI ONES	ALL INDICATORS ON
11417	0604	00	0	16576		STI TEMP	STORE INDICATORS
11420	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
11421	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11422	0340	00	0	16362		CAS ONES	
11423	0020	00	0	11425		TRA E7+7	ERROR
11424	0020	00	0	11426		TRA E7+8	OK-ALL IND ON
11425	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11426	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11427	0020	00	0	11416		TRA E7	TEST
11430	466231606060					BCD 10SI	
11431	-0500	00	0	16362	E8	CAL ONES	L ALL ONES
11432	0043	00	0	00000		OAI	TURN ALL INDICATORS ON
11433	0442	00	0	16361		OSI ZERO	ALL INDICATORS STILL ON
11434	0604	00	0	16576		STI TEMP	STORE INDICATORS
11435	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
11436	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11437	0340	00	0	16362		CAS ONES	
11440	0020	00	0	11442		TRA E8+9	ERROR
11441	0020	00	0	11443		TRA E8+10	OK-ALL IND ON
11442	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11443	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11444	0020	00	0	11431		TRA E8	REPEAT TEST
11445	466231606060					BCD 10SI	
11446	-0500	00	0	16362	E9	CAL ONES	L ALL ONES
11447	0044	00	0	00000		PAI	ALL IND ON
11450	-0042	00	0	00000		RIA	TURN ALL INDICATORS OFF
11451	0442	00	0	16426		OSI K24	IND 111111111111
11452	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11453	0560	00	0	16426		LDQ K24	L +111111111111
11454	0340	00	0	16426		CAS K24	
11455	0020	00	0	11457		TRA E9+9	ERROR
11456	0020	00	0	11461		TRA E9A	OK-CORRECT 12 IND ON
11457	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
11460	0020	00	0	11446		TRA E9	REPEAT SECTION
11461	0442	00	0	16517	E9A	OSI K27	IND 333333333333
11462	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11463	0560	00	0	16520		LDQ K28	L +333333333333
11464	0340	00	0	16520		CAS K28	
11465	0020	00	0	11467		TRA E9A+6	ERROR
11466	0020	00	0	11471		TRA E9B	OK-CORRECT 24 IND ON
11467	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
11470	0020	00	0	11446		TRA E9	REPEAT SECTION
11471	0442	00	0	16521	E9B	OSI K29	ALL IND ON

11472	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11473	0771	00	0	00001		ARS 1	CLEAR P
11474	0760	00	0	00002		CHS	ACC NOW MINUS ALL ONES
11475	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11476	0340	00	0	16362		CAS ONES	
11477	0020	00	0	11501		TRA E9B+8	ERROR
11500	0020	00	0	11503		TRA E9C	OK-ALL IND ON
11501	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
11502	0020	00	0	11446		TRA E9	REPEAT SECTION
CHECK STORAGES UNCHANGED							
11503	0500	00	0	16426	E9C	CLA K24	L +111111111111
11504	0400	00	0	16517		ADD K27	L +222222222222
11505	0402	00	0	16521		SUB K29	L -044444444444
11506	0760	00	0	00002		CHS	ACC NOW MINUS ALL ONES
11507	0340	00	0	16362		CAS ONES	
11510	0020	00	0	11512		TRA E9C+7	ERROR
11511	0020	00	0	11513		TRA E9C+8	OK-STORAGES UNCHANGED
11512	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11513	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11514	0020	00	0	11446		TRA E9	REPEAT TEST
11515	466231606060					BCD 10SI	RIPPLE TEST
11516	0441	00	0	16361	E9D	LDI ZERO	ALL INDICATORS OFF
11517	0774	00	1	00044		AXT 36,1	L +44 IN XRA
11520	0500	00	0	16365		CLA ONE	L +1
11521	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
11522	0442	00	0	16576		OSI TEMP	TURN TESTED IND ON
11523	0604	00	0	16577		STI TEMP+1	STORE INDICATORS
11524	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
11525	0340	00	0	16576		CAS TEMP	
11526	0020	00	0	11530		TRA *+2	ERROR
11527	0020	00	0	11533		TRA *+4	OK
11530	0560	00	0	16576		LDQ TEMP	L POSITION TESTING
11531	0074	00	4	06503		TSX ERROR-1,4	ERROR
11532	0020	00	0	11516		TRA E9D	REPEAT SECTION
11533	-0500	00	0	16576		CAL TEMP	L LAST POSITION TESTED
11534	0041	00	0	00000		IIA	TURN TESTED IND OFF
11535	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
11536	2 00001	1	1	11521		TIX E9D+3,1,1	REPEAT FOR EVERY IND POS
11537	0074	00	4	06511		TSX OK,4	
11540	0020	00	0	11516		TRA E9D	
11541	472131606060					BCD 1PAI	TEST PLACE ACC IN IND
11542	-0500	00	0	16362	E10	CAL ONES	L ALL ONES
11543	0044	00	0	00000		PAI	TURN ALL INDICATORS ON
11544	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
11545	0500	00	0	16576		CLA TEMP	CHECK ACCUMULATOR
11546	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11547	0340	00	0	16362		CAS ONES	
11550	0020	00	0	11552		TRA E10+8	ERROR
11551	0020	00	0	11554		TRA E10A	OK-ACC UNCHANGED

11552	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
11553	0020	00	0	11542		TRA E10	REPEAT SECTION
11554	0604	00	0	16577	E10A	STI TEMP+1	STORE INDICATORS
11555	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
11556	0340	00	0	16362		CAS ONES	
11557	0020	00	0	11561		TRA E10A+5	ERROR
11560	0020	00	0	11562		TRA E10A+6	OK-ALL IND ON
11561	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11562	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11563	0020	00	0	11542		TRA E10	REPEAT TEST
11564	472131606060					BCD 1PAI	
11565	0500	00	0	16361	E11	CLA ZERO	L +0
11566	0044	00	0	00000		PAI	ALL INDICATORS OFF
11567	0100	00	0	11572		TZE E11A	OK-ACC UNCHANGED
11570	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
11571	0020	00	0	11565		TRA E11	REPEAT SECTION
11572	0604	00	0	16576	E11A	STI TEMP	STORE INDICATORS
11573	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
11574	0100	00	0	11576		TZE E11A+4	OK-IND OFF
11575	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11576	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11577	0020	00	0	11565		TRA E11	REPEAT TEST
11600	472131606060					BCD 1PAI	RIPPLE TEST
11601	0774	00	1	00044	E11B	AXT 36,1	L +44 IN XRA
11602	0500	00	0	16365		CLA ONE	L +1
11603	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
11604	0044	00	0	00000		PAI	
11605	0604	00	0	16577		STI TEMP+1	STORE INDICATORS
11606	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
11607	0340	00	0	16576		CAS TEMP	
11610	0020	00	0	11612		TRA *+2	ERROR
11611	0020	00	0	11615		TRA *+4	OK
11612	0560	00	0	16576		LDQ TEMP	L POSITION TESTING
11613	0074	00	4	06503		TSX ERROR-1,4	ERROR
11614	0020	00	0	11601		TRA E11B	REPEAT SECTION
11615	-0500	00	0	16576		CAL TEMP	L LAST POSITION TESTED
11616	0041	00	0	00000		IIA	TURN OFF IND TESTED
11617	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
11620	2 00001	1	1	11603		TIX E11B+2,1,1	REPEAT FOR EACH IND POS
* CHECK NO EFFECT WITH Q BIT							
11621	0044	00	0	00000		PAI	
11622	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11623	0100	00	0	11625		TZE *+2	OK-NO EFFECT WITH Q BIT
11624	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11625	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11626	0020	00	0	11601		TRA E11B	REPEAT TEST

11627	472131606060		BCD 1PAI	TEST-PAI WITH SIGN BIT
11630	0500 00 0 16362	E11B1	CLA ONES	L ALL ONES
11631	0044 00 0 00000		PAI	IND 37777777777
11632	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
11633	0760 00 0 00002		CHS	ACC NOW MINUS ALL ONES
11634	0340 00 0 16362		CAS ONES	
11635	0020 00 0 11637		TRA *+2	ERROR
11636	0020 00 0 11641		TRA *+3	OK
11637	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
11640	0074 00 4 06504		TSX ERROR,4	ERROR
11641	0074 00 4 06511		TSX OK,4	CONTINUE TEST
11642	0020 00 0 11630		TRA E11B1	REPEAT TEST
11643	432431606060		BCD 1LDI	TEST-LOAD INDICATORS
11644	0441 00 0 16362	E12	LDI ONES	ALL INDICATORS ON
11645	0604 00 0 16576		STI TEMP	STORE INDICATORS
11646	0500 00 0 16576		CLA TEMP	CHECK INDICATORS
11647	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
11650	0340 00 0 16362		CAS ONES	
11651	0020 00 0 11653		TRA E12+7	ERROR
11652	0020 00 0 11654		TRA E12+8	OK-ALL IND ON
11653	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
11654	0074 00 4 06511		TSX OK,4	CONTINUE TEST
11655	0020 00 0 11644		TRA E12	REPEAT TEST
11656	432431606060		BCD 1LDI	
11657	0441 00 0 16361	E13	LDI ZERO	ALL INDICATORS OFF
11660	0604 00 0 16576		STI TEMP	STORE INDICATORS
11661	0500 00 0 16576		CLA TEMP	CHECK INDICATORS
11662	0100 00 0 11664		TZE E13+5	OK IND OFF
11663	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
11664	0074 00 4 06511		TSX OK,4	CONTINUE TEST
11665	0020 00 0 11657		TRA E13	REPEAT TEST
11666	473121606060		BCD 1PIA	TEST-PLACE IND IN ACC
11667	0500 00 0 16361	E14	CLA ZERO	L +0
11670	0044 00 0 00000		PAI	TURN ALL INDICATORS OFF
11671	0100 00 0 11674		TZE E14A	OK ACC UNCHANGED
11672	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
11673	0020 00 0 11667		TRA E14	REPEAT SECTION
11674	-0046 00 0 00000	E14A	PIA	IND TO ACC AND CHECK
11675	0100 00 0 11677		TZE E14A+3	OK IND OFF
11676	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
11677	0074 00 4 06511		TSX OK,4	CONTINUE TEST
11700	0020 00 0 11667		TRA E14	REPEAT TEST
11701	473121606060		BCD 1PIA	
11702	0441 00 0 16362	E15	LDI ONES	ALL INDICATORS ON
11703	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
11704	0771 00 0 00001		ARS 1	CLEAR P
11705	0760 00 0 00002		CHS	ACC NOW -37777777777

11706	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11707	0340	00	0	16362		CAS ONES	
11710	0020	00	0	11712		TRA E15+8	ERROR
11711	0020	00	0	11713		TRA E15+9	OK-ALL IND ON
11712	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11713	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11714	0020	00	0	11702		TRA E15	REPEAT TEST
11715	473121606060					BCD 1PIA	
11716	0500	00	0	16364	E16	CLA K3	L-377777077777
11717	0044	00	0	00000		PAI	IND 377777077777
11720	-0046	00	0	00000		PIA	ACC +377777077777
11721	0760	00	0	00002		CHS	ACC NOW -377777077777
11722	0560	00	0	16364		LDQ K3	L -377777077777
11723	0340	00	0	16364		CAS K3	
11724	0020	00	0	11726		TRA E16+8	ERROR
11725	0020	00	0	11727		TRA E16+9	OK
11726	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11727	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11730	0020	00	0	11716		TRA E16	REPEAT TEST
11731	313121606060					BCD 1IIA	TEST-INVERT INDICATORS
11732	-0500	00	0	16362	E20	CAL ONES	L ALL ONES
11733	0044	00	0	00000		PAI	ALL INDICATORS ON
11734	0041	00	0	00000		IIA	ALL INDICATORS OFF
11735	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
11736	0100	00	0	11740		TZE E20+6	OK ALL IND OFF
11737	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11740	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11741	0020	00	0	11732		TRA E20	REPEAT TEST
11742	313121606060					BCD 1IIA	
11743	0441	00	0	16361	E21	LDI ZERO	ALL INDICATORS OFF
11744	-0500	00	0	16362		CAL ONES	L ALL ONES
11745	0041	00	0	00000		IIA	ALL INDICATORS ON
11746	0604	00	0	16576		STI TEMP	STORE INDICATORS
11747	0602	00	0	16577		SLW TEMP+1	SAVE ACCUMULATOR
11750	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
11751	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
11752	0340	00	0	16362		CAS ONES	
11753	0020	00	0	11755		TRA E21+10	ERROR
11754	0020	00	0	11757		TRA E21A	OK-ALL IND ON
11755	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
11756	0020	00	0	11743		TRA E21	REPEAT SECTION
11757	0500	00	0	16577	E21A	CLA TEMP+1	CHECK SAVED ACCUMULATOR
11760	0340	00	0	16362		CAS ONES	
11761	0020	00	0	11763		TRA E21A+4	ERROR
11762	0020	00	0	11764		TRA E21A+5	OK-ACC UNCHANGED
11763	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
11764	0074	00	4	06511		TSX OK,4	CONTINUE TEST
11765	0020	00	0	11743		TRA E21	REPEAT TEST

11766	313121606060		BCD 11IA	
11767	-0500 00 0 16362	E22	CAL ONES	L ALL ONES
11770	0441 00 0 16361		LDI ZERO	ALL INDICATORS OFF
11771	0041 00 0 00000		IIA	ALL INDICATORS ON
11772	0041 00 0 00000		IIA	ALL INDICATORS OFF
11773	0041 00 0 00000		IIA	ALL INDICATORS ON
11774	0041 00 0 00000		IIA	ALL INDICATORS OFF
11775	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
11776	0100 00 0 12000		TZE E22+9	OK ALL IND OFF
11777	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
12000	0074 00 4 06511		TSX OK,4	CONTINUE TEST
12001	0020 00 0 11767		TRA E22	REPEAT TEST
12002	313121606060		BCD 11IA	RIPPLE TEST
12003	0774 00 1 00044	E22A	AXT 36,1	L +44 IN XRA
12004	0500 00 0 16365		CLA ONE	L +1
12005	0602 00 0 16576		SLW TEMP	SAVE ACCUMULATOR
12006	0441 00 0 16576		LDI TEMP	TURN ON IND TESTING
12007	0041 00 0 16576		IIA TEMP	TURN OFF IND TESTING
12010	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
12011	0100 00 0 12014		TZE *+3	OK
12012	0074 00 4 06503		TSX ERROR-1,4	ERROR
12013	0020 00 0 12003		TRA E22A	REPEAT SECTION
12014	-0500 00 0 16576		CAL TEMP	L LAST TESTED POSITION
12015	0767 00 0 00001		ALS 1	RIPPLE 1 POSITION
12016	2 00001 1 12005		TIX E22A+2,1,1	CHECK EACH IND POS
*	CHECK NO EFFECT WITH Q BIT			
12017	0041 00 0 00000		IIA	
12020	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
12021	0100 00 0 12023		TZE *+2	OK
12022	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
12023	0074 00 4 06511		TSX OK,4	CONTINUE TEST
12024	0020 00 0 12003		TRA E22A	REPEAT TEST
12025	313121606060		BCD 11IA	TEST-IIA WITH SIGN BIT
12026	0441 00 0 16362	E22A1	LDI ONES	ALL INDICATORS ON
12027	0500 00 0 16362		CLA ONES	L ALL ONES
12030	0041 00 0 00000		IIA	
12031	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
12032	0771 00 0 00002		ARS 2	ACC NOW +100000000000
12033	0340 00 0 16371		CAS PTHR	
12034	0020 00 0 12036		TRA *+2	ERROR
12035	0020 00 0 12040		TRA *+3	OK
12036	0560 00 0 16371		LDQ PTHR	L +100000000000
12037	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
12040	0074 00 4 06511		TSX OK,4	CONTINUE TEST
12041	0020 00 0 12026		TRA E22A1	REPEAT TEST

12042	313162606060		BCD 1IIS	TEST-INVERT INDICATORS FROM STORAGE
12043	0441 00 0 16362	E23	LDI ONES	ALL INDICATORS ON
12044	0440 00 0 16362		IIS ONES	ALL INDICATORS OFF
12045	-0046 00 0 00000		PIA	IND TO ACC ANCHE CHECK
12046	0100 00 0 12050		TZE E23+5	OK ALL IND OFF
12047	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
12050	0074 00 4 06511		TSX OK,4	CONTINUE TEST
12051	0020 00 0 12043		TRA E23	REPEAT TEST
12052	313162606060		BCD 1IIS	
12053	0441 00 0 16361	E24	LDI ZERO	ALL INDICATORS OFF
12054	0440 00 0 16362		IIS ONES	ALL INDICATORS ON
12055	0604 00 0 16576		STI TEMP	STORE INDICATORS
12056	0500 00 0 16576		CLA TEMP	CHECK INDICATORS
12057	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
12060	0340 00 0 16362		CAS ONES	
12061	0020 00 0 12063		TRA E24+8	ERROR
12062	0020 00 0 12064		TRA E24+9	OK-ALL IND ON
12063	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
12064	0074 00 4 06511		TSX OK,4	CONTINUE TEST
12065	0020 00 0 12053		TRA E24	REPEAT TEST
12066	313162606060		BCD 1IIS	
12067	0441 00 0 16362	E25	LDI ONES	ALL INDICATORS ON
12070	0440 00 0 16362		IIS ONES	INDICATORS OFF
12071	0440 00 0 16362		IIS ONES	INDICATORS ON
12072	0440 00 0 16362		IIS ONES	INDICATORS OFF
12073	0440 00 0 16362		IIS ONES	INDICATORS ON
12074	0440 00 0 16362		IIS ONES	INDICATORS OFF
12075	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
12076	0100 00 0 12100		TZE E25+9	OK-ALL IND OFF
12077	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
12100	0074 00 4 06511		TSX OK,4	CONTINUE TEST
12101	0020 00 0 12067		TRA E25	REPEAT TEST
12102	313162606060		BCD 1IIS	RIPPLE TEST
12103	0441 00 0 16361	E25A	LDI ZERO	ALL INDICATORS OFF
12104	0774 00 1 00044		AXT 36,1	L +44 IN XRA
12105	0500 00 0 16365		CLA ONE	L +1
12106	0602 00 0 16576		SLW TEMP	SAVE ACCUMULATOR
12107	0440 00 0 16576		IIS TEMP	TESTED INDICATOR ON
12110	0440 00 0 16576		IIS TEMP	TESTED INDICATOR OFF
12111	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
12112	0100 00 0 12115		TZE *+3	
12113	0074 00 4 06503		TSX ERROR-1,4	
12114	0020 00 0 12103		TRA E25A	REPEAT SECTION
12115	-0500 00 0 16576		CAL TEMP	L LAST POSITION TESTED
12116	0767 00 0 00001		ALS 1	RIPPLE 1 POSITION
12117	2 00001 1 12106		TIX E25A+3,1,1	CHECK EACH IND POS
12120	0074 00 4 06511		TSX OK,4	
12121	0020 00 0 12103		TRA E25A	

12122	633126606060		BCD 1TIF	TEST-TRANSFER WHEN IND OFF
12123	0441 00 0 16362	E26	LDI ONES	ALL INDICATORS ON
12124	-0500 00 0 16362		CAL ONES	L ALL ONES
12125	0046 00 0 12127		TIF E26+4	NG ALL IND SHOULD BE ON
12126	0020 00 0 12131		TRA E26A	OK
12127	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
12130	0020 00 0 12123		TRA E26	REPEAT SECTION
12131	0771 00 0 00001	E26A	ARS 1	CHECK ACC-CLEAR P
12132	0760 00 0 00002		CHS	ACC NOW MINUS ALL ONES
12133	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
12134	0340 00 0 16362		CAS ONES	
12135	0020 00 0 12137		TRA E26A+6	ERROR
12136	0020 00 0 12141		TRA E26A1	OK-ACC UNCHANGED
12137	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
12140	0020 00 0 12123		TRA E26	REPEAT SECTION
12141	0604 00 0 16576	E26A1	STI TEMP	STORE INDICATORS
12142	0500 00 0 16576		CLA TEMP	CHECK INDICATORS
12143	0340 00 0 16362		CAS ONES	
12144	0020 00 0 12146		TRA E26A1+5	ERROR
12145	0020 00 0 12147		TRA E26A1+6	OK-IND UNCHANGED
12146	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
12147	0074 00 4 06511		TSX OK,4	CONTINUE TEST
12150	0020 00 0 12123		TRA E26	REPEAT TEST
12151	633126606060		BCD 1TIF	
12152	0441 00 0 16362	E27	LDI ONES	ALL INDICATORS ON
12153	0500 00 0 16361		CLA ZERO	L +0
12154	0046 00 0 12157		TIF E27A	IND UNEXAMINED-TRANSFER
12155	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
12156	0020 00 0 12152		TRA E27	REPEAT SECTION
12157	0100 00 0 12162	E27A	TZE E27A1	OK-ACC UNCHANGED
12160	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
12161	0020 00 0 12152		TRA E27	REPEAT SECTION
12162	0604 00 0 16576	E27A1	STI TEMP	STORE INDICATORS
12163	0500 00 0 16576		CLA TEMP	CHECK INDICATORS
12164	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
12165	0340 00 0 16362		CAS ONES	
12166	0020 00 0 12170		TRA E27A1+6	ERROR
12167	0020 00 0 12171		TRA E27A1+7	OK-IND UNCHANGED
12170	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
12171	0074 00 4 06511		TSX OK,4	CONTINUE TEST
12172	0020 00 0 12152		TRA E27	REPEAT TEST
12173	633126606060		BCD 1TIF	
12174	0441 00 0 16361	E28	LDI ZERO	ALL INDICATORS OFF
12175	-0500 00 0 16362		CAL ONES	L ALL ONES
12176	0046 00 0 12201		TIF E28A	IND OFF-TRANSFER
12177	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE



12200	0020	00	0	12174		TRA E28	REPEAT SECTION
12201	0602	00	0	16576	E28A	SLW TEMP	SAVE ACCUMULATOR
12202	0500	00	0	16576		CLA TEMP	CHECK ACCUMULATOR
12203	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
12204	0340	00	0	16362		CAS ONES	
12205	0020	00	0	12207		TRA E28A+6	ERROR
12206	0020	00	0	12211		TRA E28A1	OK-ACC UNCHANGED
12207	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12210	0020	00	0	12174		TRA E28	REPEAT SECTION
12211	-0046	00	0	00000	E28A1	PIA	IND TO ACC AND CHECK
12212	0100	00	0	12214		TZE E28A1+3	OK-IND UNCHANGED
12213	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
12214	0074	00	4	06511		TSX OK,4	CONTINUE TEST
12215	0020	00	0	12174		TRA E28	REPEAT TEST
12216	633126606060					BCD 1TIF	
12217	0441	00	0	16361	E29	LDI ZERO	ALL INDICATORS OFF
12220	0500	00	0	16361		CLA ZERO	L +0
12221	0046	00	0	12224		TIF E29A	IND UNEXAMINED -TRANSFER
12222	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12223	0020	00	0	12217		TRA E29	REPEAT SECTION
12224	0100	00	0	12227	E29A	TZE E29A1	OK ACC UNCHANGED
12225	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12226	0020	00	0	12217		TRA E29	REPEAT SECTION
12227	-0046	00	0	00000	E29A1	PIA	IND TO ACC AND CHECK
12230	0100	00	0	12232		TZE E29A1+3	OK IND UNCHANGED
12231	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
12232	0074	00	4	06511		TSX OK,4	CONTINUE TEST
12233	0020	00	0	12217		TRA E29	REPEAT TEST
12234	633126606060					BCD 1TIF	
12235	0441	00	0	16426	E30	LDI K24	L +111111111111
12236	-0500	00	0	16521		CAL K29	L -044444444444
12237	0046	00	0	12242		TIF E30A	OK EXAMINED IND OFF
12240	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12241	0020	00	0	12235		TRA E30	REPEAT SECTION
12242	0602	00	0	16576	E30A	SLW TEMP	SAVE ACCUMULATOR
12243	0500	00	0	16520		CLA K28	L+333333333333
12244	0046	00	0	12246		TIF E30A+4	NG IND NOT ALL OFF
12245	0020	00	0	12250		TRA E30A1	OK
12246	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12247	0020	00	0	12235		TRA E30	REPEAT SECTION
12250	0601	00	0	16577	E30A1	STO TEMP+1	SAVE ACCUMULATOR
12251	0500	00	0	16517		CLA K27	L+222222222222
12252	0046	00	0	12255		TIF E30A2	OK EXAMINED IND OFF
12253	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12254	0020	00	0	12235		TRA E30	REPEAT SECTION

12255	0601	00	0	16600	E30A2	STO TEMP+2	SAVE ACCUMULATOR
12256	0500	00	0	16426		CLA K24	L+111111111111
12257	0046	00	0	12261		TIF E30A2+4	NG EXAMINED IND ON
12260	0020	00	0	12263		TRA E30A3	OK
12261	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12262	0020	00	0	12235		TRA E30	REPEAT SECTION
12263	-0046	00	0	00000	E30A3	PIA	IND TO ACC AND CHECK
12264	0560	00	0	16426		LDQ K24	L +111111111111
12265	0340	00	0	16426		CAS K24	
12266	0020	00	0	12270		TRA E30A3+5	ERROR
12267	0020	00	0	12272		TRA E30A4	OK-IND UNCHANGED
12270	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12271	0020	00	0	12235		TRA E30	REPEAT SECTION
CHECK ACCS UNCHANGED							
12272	0400	00	0	16600	E30A4	ADD TEMP+2	L +222222222222
12273	0402	00	0	16577		SUB TEMP+1	L +333333333333
12274	0400	00	0	16577		ADD TEMP+1	
12275	0402	00	0	16576		SUB TEMP	L -044444444444
12276	0760	00	0	00002		CHS	ACC NOW MINUS ALL ONES
12277	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
12300	0340	00	0	16362		CAS ONES	
12301	0020	00	0	12303		TRA E30A4+9	ERROR
12302	0020	00	0	12304		TRA E30A4+10	OK-ACCS UNCHANGED
12303	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
12304	0074	00	4	06511		TSX OK,4	CONTINUE TEST
12305	0020	00	0	12235		TRA E30	REPEAT TEST
12306	633126606060					BCD 1TIF	TEST-TRANSFER WHEN INDICATORS OFF-RIPPLE TEST
12307	0441	00	0	16362	E30B	LDI ONES	ALL INDICATORS ON
12310	0140	00	0	12311		TOV E30B+2	TURN OFF OVERFLOW LITE
12311	-0500	00	0	16362		CAL ONES	L ALL ONES
12312	0041	00	0	00000		IIA	EXAMINED IND OFF
12313	0046	00	0	12316		TIF E30C	EXAMINED IND OFF-TRANSFER
12314	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12315	0020	00	0	12307		TRA E30B	REPEAT SECTION
12316	0041	00	0	00000	E30C	IIA	PUT INDICATOR ON AGAIN
12317	0767	00	0	00001		ALS 1	RIPPLE ONE POSITION
12320	-0760	00	0	00001		PBT	
12321	0140	00	0	12323		TOV E30C+5	EVERY POSITION IS TESTED
12322	0020	00	0	12312		TRA E30B+3	REPEAT FOR EACH POSITION
12323	0767	00	0	00001		ALS 1	
12324	0100	00	0	12327		TZE E30D	OK ACC CLEAR
12325	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12326	0020	00	0	12307		TRA E30B	REPEAT SECTION
12327	0604	00	0	16576	E30D	STI TEMP	STORE INDICATORS
12330	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
12331	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
12332	0340	00	0	16362		CAS ONES	

12333	0020	00	0	12335	TRA E30D+6	ERROR
12334	0020	00	0	12336	TRA E30D+7	OK-IND UNCHANGED
12335	0074	00	4	06504	TSX ERROR,4	TO ERROR ROUTINE
12336	0074	00	4	06511	TSX OK,4	CONTINUE TEST
12337	0020	00	0	12307	TRA E30B	REPEAT TEST
12340	633126606060				BCD 1TIF	TEST-TRANSFER WHEN INDICATORS OFF, RIPPLE TEST
12341	0441	00	0	16361	E30D1 LDI ZERO	ALL INDICATORS OFF
12342	0140	00	0	12343	TOV E30D1+2	TURN OFF OVERFLOW LITE
12343	0500	00	0	16365	CLA ONE	L +1
12344	0044	00	0	00000	PAI	ACC TO IND
12345	0046	00	0	12347	TIF E30D1+6	ERROR-EXAMINED IND ON
12346	0020	00	0	12351	TRA E30E	OK
12347	0074	00	4	06503	TSX ERROR-1,4	TO ERROR ROUTINE
12350	0020	00	0	12341	TRA E30D1	REPEAT SECTION
12351	0767	00	0	00001	E30E ALS 1	RIPPLE ONE POSITION
12352	-0760	00	0	00001	PBT	
12353	0140	00	0	12355	TOV *+2	ALL POSITION TESTED
12354	0020	00	0	12344	TRA E30D1+3	REPEAT FOR EACH POSITION
12355	0074	00	4	06511	TSX OK,4	
12356	0020	00	0	12341	TRA E30D1	
12357	633146606060				BCD 1TIO	TEST-TRANSFER WHEN IND ON
12360	0441	00	0	16362	E31 LDI ONES	ALL INDICATORS ON
12361	0140	00	0	12362	TOV E31+2	TURN OFF OVERFLOW LITE
12362	0500	00	0	16365	CLA ONE	L +1
12363	0774	00	1	00044	AXT 36,1	L +44 IN XRA
12364	0042	00	0	12367	TIO E31A	OK EXAMINED IND ON
12365	0074	00	4	06503	TSX ERROR-1,4	TO ERROR ROUTINE
12366	0020	00	0	12360	TRA E31	REPEAT SECTION
12367	0767	00	0	00001	E31A ALS 1	RIPPLE ONE POSITION
12370	-0760	00	0	00001	PBT	
12371	0140	00	0	12373	TOV E31A1	36 POSITIONS TESTED
12372	2 00001	1	1	12364	TIX E31+4,1,1	REPEAT FOR EACH POSITION
12373	0604	00	0	16576	E31A1 STI TEMP	STORE INDICATORS
12374	0500	00	0	16576	CLA TEMP	CHECK INDICATORS
12375	0560	00	0	16362	LDQ ONES	L ALL ONES TO MQ
12376	0340	00	0	16362	CAS ONES	
12377	0020	00	0	12401	TRA E31A1+6	ERROR
12400	0020	00	0	12402	TRA E31A1+7	OK-IND UNCHANGED
12401	0074	00	4	06504	TSX ERROR,4	TO ERROR ROUTINE
12402	0074	00	4	06511	TSX OK,4	CONTINUE TEST
12403	0020	00	0	12360	TRA E31	REPEAT TEST
12404	633146606060				BCD 1TIO	
12405	0441	00	0	16362	E32 LDI ONES	ALL INDICATORS ON
12406	0500	00	0	16361	CLA ZERO	L +0
12407	0042	00	0	12412	TIO E32A	IND UNEXAMINED TRANSFER
12410	0074	00	4	06503	TSX ERROR-1,4	TO ERROR ROUTINE

12411	0020	00	0	12405		TRA E32	REPEAT SECTION
12412	0100	00	0	12415	E32A	TZE E32A1	OK-ACC UNCHANGED
12413	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12414	0020	00	0	12405		TRA E32	REPEAT SECTION
12415	0604	00	0	16576	E32A1	STI TEMP	STORE INDICATORS
12416	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
12417	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
12420	0340	00	0	16362		CAS ONES	
12421	0020	00	0	12423		TRA E32A1+6	ERROR
12422	0020	00	0	12424		TRA E32A1+7	OK-IND UNCHANGED
12423	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
12424	0074	00	4	06511		TSX OK,4	CONTINUE TEST
12425	0020	00	0	12405		TRA E32	REPEAT TEST
12426	633146606060					BCD 1TIO	
12427	0441	00	0	16361	E33	LDI ZERO	ALL INDICATORS OFF
12430	-0500	00	0	16362		CAL ONES	L ALL ONES
12431	0042	00	0	12433		TIO E33+4	NG ALL IND SHOULD BE OFF
12432	0020	00	0	12435		TRA E33A	OK
12433	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12434	0020	00	0	12427		TRA E33	REPEAT SECTION
12435	0602	00	0	16576	E33A	SLW TEMP	SAVE ACCUMULATOR
12436	0500	00	0	16576		CLA TEMP	CHECK ACCUMULATOR
12437	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
12440	0340	00	0	16362		CAS ONES	
12441	0020	00	0	12443		TRA E33A+6	ERROR
12442	0020	00	0	12445		TRA E33A1	OK-ACC UNCHANGED
12443	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12444	0020	00	0	12427		TRA E33	REPEAT SECTION
12445	-0046	00	0	00000	E33A1	PIA	IND TO ACC AND CHECK
12446	0100	00	0	12450		TZE E33A1+3	OK-IND UNCHANGED
12447	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
12450	0074	00	4	06511		TSX OK,4	CONTINUE TEST
12451	0020	00	0	12427		TRA E33	REPEAT TEST
12452	633146606060					BCD 1TIO	
12453	0441	00	0	16361	E34	LDI ZERO	ALL INDICATORS OFF
12454	0500	00	0	16361		CLA ZERO	L +0
12455	0042	00	0	12460		TIO E34A	IND UNEXAMINED-TRANSFER
12456	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12457	0020	00	0	12453		TRA E34	REPEAT SECTION
12460	0100	00	0	12463	E34A	TZE E34A1	OK-ACC UNCHANGED
12461	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12462	0020	00	0	12453		TRA E34	REPEAT SECTION
12463	-0046	00	0	00000	E34A1	PIA	IND TO ACC AND CHECK
12464	0100	00	0	12466		TZE E34A1+3	OK-IND UNCHANGED
12465	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
12466	0074	00	4	06511		TSX OK,4	CONTINUE TEST

12467	0020	00	0	12453	TRA E34	REPEAT TEST
12470	633146606060				BCD 1TIO	
12471	0441	00	0	16426	E34B LDI K24	L +111111111111
12472	-0500	00	0	16521	CAL K29	L-044444444444
12473	0042	00	0	12475	TIO E34B+4	NG EXAMINED IND OFF
12474	0020	00	0	12477	TRA E34B1	OK
12475	0074	00	4	06503	TSX ERROR-1,4	TO ERROR ROUTINE
12476	0020	00	0	12471	TRA E34B	REPEAT SECTION
12477	0602	00	0	16576	E34B1 SLW TEMP	SAVE ACCUMULATOR
12500	0500	00	0	16517	CLA K27	L+222222222222
12501	0042	00	0	12503	TIO E34B1+4	NG EXAMINED IND OFF
12502	0020	00	0	12505	TRA E34B2	OK
12503	0074	00	4	06503	TSX ERROR-1,4	TO ERROR ROUTINE
12504	0020	00	0	12471	TRA E34B	REPEAT SECTION
12505	0601	00	0	16577	E34B2 STO TEMP+1	SAVE ACCUMULATOR
12506	0500	00	0	16426	CLA K24	L+111111111111
12507	0042	00	0	12512	TIO E34B3	OK-EXAMINED IND ON
12510	0074	00	4	06503	TSX ERROR-1,4	TO ERROR ROUTINE
12511	0020	00	0	12471	TRA E34B	REPEAT SECTION
					CHECK ACCS	UNCHANGED
12512	0400	00	0	16577	E34B3 ADD TEMP+1	L +222222222222
12513	0402	00	0	16576	SUB TEMP	L -044444444444
12514	0760	00	0	00002	CHS	ACC NOW -377777777777
12515	0560	00	0	16362	LDQ ONES	L ALL ONES TO MQ
12516	0340	00	0	16362	CAS ONES	
12517	0020	00	0	12521	TRA E34B3+7	ERROR
12520	0020	00	0	12523	TRA E34B4	OK ACCS UNCHANGED
12521	0074	00	4	06503	TSX ERROR-1,4	TO ERROR ROUTINE
12522	0020	00	0	12471	TRA E34B	REPEAT SECTION
12523	-0046	00	0	00000	E34B4 PIA	IND TO ACC AND CHECK
12524	0560	00	0	16426	LDQ K24	L +111111111111
12525	0340	00	0	16426	CAS K24	
12526	0020	00	0	12530	TRA E34B4+5	ERROR
12527	0020	00	0	12531	TRA E34B4+6	OK-IND UNCHANGED
12530	0074	00	4	06504	TSX ERROR,4	TO ERROR ROUTINE
12531	0074	00	4	06511	TSX OK,4	CONTINUE TEST
12532	0020	00	0	12471	TRA E34B	REPEAT TEST
12533	633146606060				BCD 1TIO	RIPPLE TEST
12534	0441	00	0	16361	E34C LDI ZERO	ALL INDICATORS OFF
12535	0774	00	1	00044	AXT 36,1	L +44 IN XRA
12536	0500	00	0	16365	CLA ONE	L +1
12537	0044	00	0	00000	PAI	ACC TO IND
12540	0042	00	0	12543	TIO *+3	EXMINED IND ON-TRANSFER
12541	0074	00	4	06503	TSX ERROR-1,4	ERROR
12542	0020	00	0	12534	TRA E34C	REPEAT SECTION
12543	0767	00	0	00001	ALS 1	RIPPLE 1 POSITION

12544 2 00001 1 12537 TIX E34C+3,1,1 CHECK EACH INDICATOR POS  
 12545 0074 00 4 06511 TSX OK,4  
 12546 0020 00 0 12534 TRA E34C

12547 633146606060 BCD 1TIO RIPPLE TEST  
 12550 0441 00 0 16362 E34D LDI ONES ALL INDICATORS ON  
 12551 0774 00 1 00044 AXT 36,1 L +44 IN XRA  
 12552 0500 00 0 16365 CLA ONE L +1  
 12553 0041 00 0 00000 IIA EXMINED IND OFF  
 12554 0042 00 0 12556 TIO \*+2 ERROR  
 12555 0020 00 0 12560 TRA \*+3 OK  
 12556 0074 00 4 06503 TSX ERROR-1,4 ERROR  
 12557 0020 00 0 12550 TRA E34D REPEAT SECTION

12560 0767 00 0 00001 ALS 1 RIPPLE 1 POSITION  
 12561 2 00000 0 12553 TIX E34D+3 CHECK EACH IND POSITION  
 12562 0074 00 4 06511 TSX OK,4  
 12563 0020 00 0 12550 TRA E34D

\*TEST TIF AND TIO TRAPS IN TRAP MODE

12564 633126606060 BCD 1TIF TEST TIF IN TRAP MODE  
 12565 0500 00 0 16544 MODE CLA TR+3 L TRA MODE1  
 12566 0601 00 0 00002 STO 2 STORE IN LOC 00002  
 12567 0441 00 0 16426 LDI K24 L +111111111111  
 12570 -0500 00 0 16521 CAL K29 L -044444444444  
 12571 0074 00 2 16317 TSX ENTM,2 ENTER TRAP MODE  
 12572 0046 00 0 12573 TIF \*+1 SHOULD TRAP AND  
 GO TO LOC 00001  
 12573 -0760 00 0 00007 LTM LEAVE TRAP MODE  
 12574 0074 00 4 06503 TSX ERROR-1,4 ERROR-DID NOT TRAP  
 12575 0020 00 0 12565 TRA MODE AND GO TO LOC 00001

\*CHECK CONTENTS OF LOCATION 00000

12576 0500 00 0 00000 MODE1 CLA L CONTENTS LOC 00000  
 12577 0560 00 0 16545 LDQ TR+4 L TRA MODE+5  
 12600 0340 00 0 16545 CAS TR+4  
 12601 0020 00 0 12603 TRA \*+2 ERROR  
 12602 0020 00 0 12604 TRA \*+2 OK  
 12603 0074 00 4 06504 TSX ERROR,4  
 12604 0074 00 4 06511 TSX OK,4  
 12605 0020 00 0 12565 TRA MODE

12606 633146606060 BCD 1TIO TEST TIO IN TRAP MODE  
 12607 0500 00 0 16546 MODE2 CLA TR+5 L TRA MODE 3  
 12610 0601 00 0 00002 STO 2 STORE IN MOC 00002  
 12611 0441 00 0 16521 LDI K29 L -044444444444  
 12612 -0500 00 0 16521 CAL K29  
 12613 0074 00 2 16317 TSX ENTM,2 ENTER TRAP MODE  
 12614 0042 00 0 12615 TIO \*+1 SHOULD TRAP AND  
 GO TO LOC 00001  
 12615 -0760 00 0 00007 LTM LEAVE TRAP MODE

12616	0074	00	4	06503		TSX ERROR-1,4	ERROR-DID NOT TRAP
12617	0020	00	0	12607		TRA MODE2	
*CHECK CONTENTS LOCATION 00000							
12620	0500	00	0	00000	MODE3	CLA 0	L CONTENTS LOC 00000
12621	0560	00	0	16547		LDQ TR+6	L TRA MODE2+5
12622	0340	00	0	16547		CAS TR+6	
12623	0020	00	0	12625		TRA *+2	ERROR
12624	0020	00	0	12626		TRA *+2	OK
12625	0074	00	4	06504		TSX ERROR,4	
12626	0074	00	4	06511		TSX OK,4	
12627	0020	00	0	12607		TRA MODE2	
12630	0761	00	0	00000		NOP	
12631	0500	00	0	16550		CLA TR+7	L SLW TEMP+2
12632	0601	00	0	00002		STO 2	STORE IN LOC 00002
12633	0074	00	4	16351		TSX STORE,4	TO RESTORE RESET START
12634	0020	00	0	12636		TRA *+2	
12635	462663606060					BCD 10FT	TEST-OFF TEST FOR IND
12636	0500	00	0	16362	E35	CLA ONES	L ALL ONES
12637	0601	00	0	16576		STO TEMP	
12640	0441	00	0	16362		LDI ONES	ALL INDICATORS ON
12641	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
12642	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35
12643	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
12644	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
12645	0444	00	0	16576		OFT TEMP	
12646	0020	00	0	12651		TRA *+3	OK-EXAMINED IND NOT ZERO
12647	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12650	0020	00	0	12636		TRA E35	REPEAT SECTION
12651	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
12652	0604	00	0	16577	E35A	STI TEMP+1	STORE INDICATORS
12653	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
12654	0560	00	0	16362		LDQ ONES	L ALL ONES IN MQ
12655	0340	00	0	16362		CAS ONES	
12656	0020	00	0	12660		TRA E35A+6	ERROR
12657	0020	00	0	12662		TRA E35A1	OK-IND UNCHANGED
12660	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12661	0020	00	0	12636		TRA E35	REPEAT SECTION
12662	0500	00	0	16576	E35A1	CLA TEMP	CHECK STORAGE UNCHANGED
12663	0340	00	0	16362		CAS ONES	
12664	0020	00	0	12666		TRA E35A1+4	ERROR
12665	0020	00	0	12667		TRA E35A1+5	OK-STORAGE UNCHANGED
12666	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
12667	0074	00	4	06511		TSX OK,4	CONTINUE TEST
12670	0020	00	0	12636		TRA E35	REPEAT TEST
12671	462663606060					BCD 10FT	
12672	0500	00	0	16361	E36	CLA ZERO	L +0

12673	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
12674	0441	00	0	16362		LDI ONES	ALL INDICATORS ON
12675	0500	00	0	16362		CLA ONES	L ALL ONES
12676	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
12677	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35
12700	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
12701	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTRUCTION
12702	0444	00	0	16576		OFT TEMP	IND NOT EXMINED-SKIP
12703	0020	00	0	12705		TRA *+2	ERROR
12704	0020	00	0	12707		TRA *+3	OK
12705	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12706	0020	00	0	12672		TRA E36	REPEAT SECTION
12707	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
12710	0500	00	0	16576	E36A	CLA TEMP	CHECK STORAGE
12711	0100	00	0	12714		TZE E36A1	OK-STORAGE UNCHANGED
12712	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12713	0020	00	0	12672		TRA E36	REPEAT SECTION
12714	0604	00	0	16577	E36A1	STI TEMP+1	STORE INDICATORS
12715	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
12716	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
12717	0340	00	0	16362		CAS ONES	
12720	0020	00	0	12722		TRA E36A1+6	ERROR
12721	0020	00	0	12723		TRA E36A1+7	OK-IND UNCHANGED
12722	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
12723	0074	00	4	06511		TSX OK,4	CONTINUE TEST
12724	0020	00	0	12672		TRA E36	REPEAT TEST
12725	462663606060					BCD 1OFT	
12726	0500	00	0	16361	E37	CLA ZERO	L +0
12727	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
12730	0441	00	0	16361		LDI ZERO	ALL INDICATORS OFF
12731	0500	00	0	16362		CLA ONES	L ALL ONES
12732	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
12733	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35
12734	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
12735	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
12736	0444	00	0	16576		OFT TEMP	IND NOT EXAMINED SKIP
12737	0020	00	0	12741		TRA *+2	ERROR
12740	0020	00	0	12743		TRA *+3	OK
12741	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12742	0020	00	0	12726		TRA E37	REPEAT SECTION
12743	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
12744	-0046	00	0	00000	E37A	PIA	IND TO ACC AND CHECK
12745	0100	00	0	12750		TZE E37A1	OK-IND UNCHANGED
12746	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
12747	0020	00	0	12726		TRA E37	REPEAT SECTION
12750	0500	00	0	16576	E37A1	CLA TEMP	CHECK STORAGE
12751	0100	00	0	12753		TZE E37A1+3	OK
12752	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE



12753	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
12754	0020	00	0	12726		TRA E37	REPEAT TEST
12755	462663606060					BCD 10FT	
12756	0500	00	0	16362	E38	CLA ONES	L ALL ONES
12757	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
12760	0441	00	0	16361		LDI ZERO	ALL INDICATORS OFF
12761	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S, 1
12762	-0763	00	0	00002		LGL 2	BITS IN S, Q, P, 1-35
12763	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
12764	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
12765	0444	00	0	16576		OFT TEMP	IND OFF-SKIP
12766	0020	00	0	12770		TRA *+2	ERROR
12767	0020	00	0	12772		TRA *+3	OK
12770	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
12771	0020	00	0	12756		TRA E38	REPEAT SECTION
12772	0074	00	2	16322		TSX ACC, 2	TO CHECK ACCUMULATOR
12773	-0046	00	0	00000	E38A	PIA	IND TO ACC AND CHECK
12774	0100	00	0	12777		TZE E38A1	OK ALL IND OFF
12775	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
12776	0020	00	0	12756		TRA E38	REPEAT SECTION
12777	0500	00	0	16576	E38A1	CLA TEMP	CHECK STORAGE
13000	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
13001	0340	00	0	16362		CAS ONES	
13002	0020	00	0	13004		TRA E38A1+5	ERROR
13003	0020	00	0	13005		TRA E38A1+6	OK-STORAGE UNCHANGED
13004	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
13005	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
13006	0020	00	0	12756		TRA E38	REPEAT TEST
13007	462663606060					BCD 10FT	
13010	0774	00	1	00044	E39	AXT 36, 1	L +44 IN XRA
13011	0500	00	0	16365		CLA ONE	L +1
13012	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
13013	0044	00	0	00000		PAI	ACC TO IND.
13014	0444	00	0	16576		OFT TEMP	
13015	0020	00	0	13020		TRA E39A	OK EXAMINED IND ON
13016	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
13017	0020	00	0	13010		TRA E39	REPEAT SECTION
13020	0767	00	0	00001	E39A	ALS 1	RIPPLE 1 POSITION
13021	2 00001	1	1	13012		TIX E39+2, 1, 1	REPEAT FOR EACH POSITION
13022	0604	00	0	16577		STI TEMP+1	STORE INDICATORS
13023	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
13024	-0120	00	0	13027		TMI E39A1	OK-IND HAS ZERO POS BIT
13025	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE
13026	0020	00	0	13010		TRA E39	REPEAT SECTION
13027	0100	00	0	13032	E39A1	TZE E39A2	OK IND 1 THRU 35 ARE ZERO
13030	0074	00	4	06503		TSX ERROR-1, 4	TO ERROR ROUTINE

13031	0020	00	0	13010		TRA E39	REPEAT SECTION
13032	0500	00	0	16576	E39A2	CLA TEMP	CHECK STORAGE
13033	-0120	00	0	13036		TMI E39A3	STORAGE SIGN OK
13034	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13035	0020	00	0	13010		TRA E39	REPEAT SECTION
13036	0100	00	0	13040	E39A3	TZE E39A3+2	STORAGE CONTENTS OK
13037	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13040	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13041	0020	00	0	13010		TRA E39	REPEAT TEST
13042	464563606060					BCD 1ONT	TEST-ON TEST FOR IND
13043	-0500	00	0	16362	E41	CAL ONES	L ALL ONES
13044	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
13045	0441	00	0	16362		LDI ONES	ALL INDICATORS ON
13046	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
13047	0763	00	0	00001		LLS 1	SHIFT FOR BITS IN Q,P,1-35
13050	-0760	00	0	00003		SSM	MAKE ACC SIGN MINUS
13051	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
13052	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
13053	0446	00	0	16576		ONT TEMP	ALL IND ON-SKIP
13054	0020	00	0	13056		TRA *+2	ERROR
13055	0020	00	0	13060		TRA *+3	OK
13056	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13057	0020	00	0	13043		TRA E41	REPEAT SECTION
13060	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
13061	0604	00	0	16577	E41A	STI TEMP+1	STORE INDICATORS
13062	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
13063	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
13064	0340	00	0	16362		CAS ONES	
13065	0020	00	0	13067		TRA E41A+6	ERROR
13066	0020	00	0	13071		TRA E41A1	OK IND UNCHANGED
13067	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13070	0020	00	0	13043		TRA E41	REPEAT SECTION
13071	0500	00	0	16576	E41A1	CLA TEMP	CHECK STORAGE
13072	0340	00	0	16362		CAS ONES	
13073	0020	00	0	13075		TRA E41A1+4	ERROR
13074	0020	00	0	13076		TRA E41A1+5	OK-STORAGE UNCHANGED
13075	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13076	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13077	0020	00	0	13043		TRA E41	REPEAT TEST
13100	464563606060					BCD 1ONT	
13101	0441	00	0	16361	E42	LDI ZERO	ALL INDICATORS OFF
13102	0500	00	0	16362		CLA ONES	L ALL ONES
13103	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
13104	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
13105	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35
13106	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
13107	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR

13110	0446	00	0	16576		ONT TEMP	
13111	0020	00	0	13114		TRA *+3	OK-EXAMINED IND OFF
13112	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13113	0020	00	0	13101		TRA E42	REPEAT SECTION
13114	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
13115	-0046	00	0	00000	E42A	PIA	IND TO ACC AND CHECK
13116	0100	00	0	13121		TZE E42A1	OK-IND UNCHANGED
13117	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13120	0020	00	0	13101		TRA E42	REPEAT SECTION
13121	0500	00	0	16576	E42A1	CLA TEMP	CHECK STORAGE
13122	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
13123	0340	00	0	16362		CAS ONES	
13124	0020	00	0	13126		TRA E42A1+5	ERROR
13125	0020	00	0	13127		TRA E42A1+6	OK-STORAGE UNCHANGED
13126	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13127	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13130	0020	00	0	13101		TRA E42	REPEAT TEST
13131	464563606060					BCD 1ONT	
13132	0441	00	0	16362	E43	LDI ONES	ALL INDICATORS ON
13133	0500	00	0	16361		CLA ZERO	L +0
13134	0601	00	0	16576		STO TEMP	
13135	0500	00	0	16362		CLA ONES	L ALL ONES
13136	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
13137	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35
13140	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
13141	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
13142	0446	00	0	16576		ONT TEMP	IND NOT EXAMINED-SKIP
13143	0020	00	0	13145		TRA *+2	ERROR
13144	0020	00	0	13147		TRA *+3	OK
13145	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13146	0020	00	0	13132		TRA E43	REPEAT SECTION
13147	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
13150	0500	00	0	16576	E43A	CLA TEMP	CHECK STORAGE
13151	0100	00	0	13154		TZE E43A1	OK-STORAGE UNCHANGE
13152	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13153	0020	00	0	13132		TRA E43	REPEAT SECTION
13154	0604	00	0	16577	E43A1	STI TEMP+1	STORE INDICATORS
13155	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
13156	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
13157	0340	00	0	16362		CAS ONES	
13160	0020	00	0	13162		TRA E43A1+6	ERROR
13161	0020	00	0	13163		TRA E43A1+7	OK IND UNCHANGED
13162	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13163	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13164	0020	00	0	13132		TRA E43	REPEAT TEST
13165	464563606060					BCD 1ONT	

13166	0441	00	0	16361	E44	LDI ZERO	ALL INDICATORS OFF
13167	0500	00	0	16361		CLA ZERO	L +0
13170	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
13171	0500	00	0	16362		CLA ONES	L ALL ONES
13172	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
13173	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35
13174	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
13175	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
13176	0446	00	0	16576		ONT TEMP	IND NOT EXAMINED-SKIP
13177	0020	00	0	13201		TRA *+2	ERROR
13200	0020	00	0	13203		TRA *+3	OK
13201	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13202	0020	00	0	13166		TRA E44	REPEAT SECTION
13203	0074	00	2	16322		TSX ACC,2	TO CHECK ACC
13204	-0046	00	0	00000	E44A	PIA	IND TO ACC AND CHECK
13205	0100	00	0	13210		TZE E44A1	OK-IND UNCHANGED
13206	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13207	0020	00	0	13166		TRA E44	REPEAT SECTION
13210	0500	00	0	16576	E44A1	CLA TEMP	CHECK STORAGE
13211	0100	00	0	13213		TZE E44A1+3	OK-STORAGE UNCHANGED
13212	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13213	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13214	0020	00	0	13166		TRA E44	REPEAT TEST
13215	464563606060					BCD 1ONT	
13216	0441	00	0	16426	E45	LDI K24	L +111111111111
13217	0446	00	0	16521		ONT K29	L -044444444444
13220	0020	00	0	13223		TRA E45A	OK-EXAMINED IND OFF
13221	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13222	0020	00	0	13216		TRA E45	REPEAT SECTION
13223	0446	00	0	16517	E45A	ONT K27	L +222222222222
13224	0020	00	0	13227		TRA E45A1	OK-EXAMINED IND OFF
13225	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13226	0020	00	0	13216		TRA E45	REPEAT SECTION
13227	0446	00	0	16426	E45A1	ONT K24	L +111111111111
13230	0020	00	0	13232		TRA E45A1+3	ERROR
13231	0020	00	0	13234		TRA E45A2	OK-EXAMINED IND ON
13232	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13233	0020	00	0	13216		TRA E45	REPEAT SECTION
13234	0604	00	0	16576	E45A2	STI TEMP	STORE INDICATORS
13235	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
13236	0560	00	0	16426		LDQ K24	L +111111111111
13237	0340	00	0	16426		CAS K24	
13240	0020	00	0	13242		TRA E45A2+6	ERROR
13241	0020	00	0	13244		TRA E45A3	OK-IND UNCHANGED
13242	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13243	0020	00	0	13216		TRA E45	REPEAT SECTION

CHECK STORAGES UNCHANGED

13244	0500	00	0	16426	E45A3	CLA K24	L +111111111111
13245	0400	00	0	16517		ADD K27	L +222222222222
13246	0402	00	0	16521		SUB K29	L -044444444444
13247	0760	00	0	00002		CHS	ACC NOW MINUS ALL ONES
13250	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
13251	0340	00	0	16362		CAS ONES	
13252	0020	00	0	13254		TRA E45A3+8	ERROR
13253	0020	00	0	13255		TRA E45A3+9	OK-STORAGES UNCHANGED
13254	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13255	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13256	0020	00	0	13216		TRA E45	REPEAT TEST
13257	464563606060					BCD 1ONT	
13260	0774	00	1	00044	E40	AXT 36,1	L ++44 IN XRA
13261	0500	00	0	16365		CLA ONE	L +1
13262	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
13263	0044	00	0	00000		PAI	ACC TO IND
13264	0446	00	0	16576		ONT TEMP	EXAMINED IND ON-SKIP
13265	0020	00	0	13267		TRA E40+7	ERROR
13266	0020	00	0	13271		TRA E40A	OK
13267	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13270	0020	00	0	13260		TRA E40	REPEAT SECTION
13271	0767	00	0	00001	E40A	ALS 1	RIPPLE 1 POSITION
13272	2 00001	1		13262		TIX E40+2,1,1	REPEAT FOR EACH POSITION
13273	0604	00	0	16577		STI TEMP+1	STORE INDICATORS
13274	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
13275	-0120	00	0	13300		TMI E40A1	OK-IND HAS ZERO POS BIT
13276	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13277	0020	00	0	13260		TRA E40	REPEAT SECTION
13300	0100	00	0	13303	E40A1	TZE E40A2	OK IND 1 THRU 35 ARE ZERO
13301	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13302	0020	00	0	13260		TRA E40	REPEAT SECTION
13303	0500	00	0	16576	E40A2	CLA TEMP	CHECK STORAGE
13304	-0120	00	0	13307		TMI E40A3	STORAGE SIGN OK
13305	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13306	0020	00	0	13260		TRA E40	REPEAT SECTION
13307	0100	00	0	13311	E40A3	TZE E40A3+2	STORAGE CONTENTS OK
13310	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13311	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13312	0020	00	0	13260		TRA E40	REPEAT TEST
13313	623151606060					BCD 1SIR	TEST-SET IND RIGHT HALF
13314	0441	00	0	16361	F	LDI ZERO	ALL INDICATORS OFF
13315	0500	00	0	16362		CLA ONES	L ALL ONES
13316	0560	00	0	16434		LDQ MTW	BITS IN MQ POSITIONS S,1
13317	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35
13320	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
13321	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR

13322	0055	00	777777		SIR 32767,7	TURN IND 18 THRU 35 ON
13323	0074	00	2 16322		TSX ACC,2	TO CHECK ACCUMULATOR
13324	-0046	00	0 00000		PIA	IND TO ACC AND CHECK
13325	0560	00	0 16522		LDQ K31	L +777777
13326	0340	00	0 16522		CAS K31	
13327	0020	00	0 13331		TRA *+2	ERROR
13330	0020	00	0 13332		TRA *+2	OK IND 18-35 ON
13331	0074	00	4 06504		TSX ERROR,4	TO ERROR ROUTINE
13332	0074	00	4 06511		TSX OK,4	CONTINUE TEST
13333	0020	00	0 13314		TRA F	REPEAT TEST
13334	623151606060				BCD 1SIR	
13335	0441	00	0 16361	F1	LDI ZERO	ALL INDICATORS OFF
13336	0500	00	0 16362		CLA ONES	L ALL ONES
13337	0560	00	0 16434		LDQ MTW	BITS TO MQ POSITIONS S,1
13340	-0763	00	0 00002		LGL 2	BITS IN S,Q,P,1-35
13341	0600	00	0 16600		STZ TEMP+2	CLEAR LOCATION
13342	-0625	00	0 16600		STL TEMP+2	LOC OF TEST INSTR
13343	0055	00	000000		SIR 0	
13344	0074	00	2 16322		TSX ACC,2	TO CHECK ACCUMULATOR
13345	-0046	00	0 00000		PIA	IND TO ACC AND CHECK
13346	0100	00	0 13350		TZE *+2	OK-ALL IND OFF
13347	0074	00	4 06504		TSX ERROR,4	TO ERROR ROUTINE
13350	0074	00	4 06511		TSX OK,4	CONTINUE TEST
13351	0020	00	0 13335		TRA F1	REPEAT TEST
13352	623151606060				BCD 1SIR	
13353	0441	00	0 16361	F2	LDI ZERO	ALL INDICATORS OFF
13354	0074	00	2 16317		TSX ENTM,2	TEST PRI 0,4 NO TRAP
13355	0055	00	111111		SIR 4681,1	TURN 6 RT HALF IND ON
*CHECK CONTENTS OF LOCATION 00000						
13356	-0760	00	0 00007		LTM	EXIT TRAP MODE
13357	0602	00	0 16600		SLW TEMP+2	SAVE ACCUMULATOR
13360	0500	00	0 00000		CLA	L CONTENTS LOC 00000
13361	0560	00	0 16160		LDQ END+1	L TRA START-3
13362	0340	00	0 16160		CAS END+1	
13363	0020	00	0 13365		TRA *+2	ERROR
13364	0020	00	0 13370		TRA *+4	OK
13365	0074	00	4 06503		TSX ERROR-1,4	
13366	0020	00	0 13353		TRA F2	
13367	0074	00	4 16351		TSX STORE,4	TO RESTORE RESET START
13370	-0500	00	0 16600		CAL TEMP+2	RESTORE ACCUMULATOR
13371	-0046	00	0 00000		PIA	IND TO ACC AND CHECK
13372	0560	00	0 16523		LDQ K33	L +111111
13373	0340	00	0 16523		CAS K33	
13374	0020	00	0 13376		TRA *+2	ERROR

13375	0020	00	0	13400		TRA F2A	OK 6 RT HALF IND ON
13376	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13377	0020	00	0	13353		TRA F2	REPEAT SECTION
13400	0055	00	222222		F2A	SIR 9362,2	NOW 12 RT HALF IND ON
13401	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
13402	0560	00	0	16524		LDQ K34	L +333333
13403	0340	00	0	16524		CAS K34	
13404	0020	00	0	13406		TRA F2A+6	ERROR
13405	0020	00	0	13410		TRA F2A1	OK 12 IND ON
13406	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13407	0020	00	0	13353		TRA F2	REPEAT SECTION
13410	0055	00	444444		F2A1	SIR 18724,4	NOW IND 18 THRU 35 ON
13411	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
13412	0560	00	0	16522		LDQ K31	L +777777
13413	0340	00	0	16522		CAS K31	
13414	0020	00	0	13416		TRA F2A1+6	ERROR
13415	0020	00	0	13417		TRA F2A1+7	OK IND 18-35 ON
13416	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13417	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13420	0020	00	0	13353		TRA F2	REPEAT TEST
13421	623151606060					BCD 1SIR	RIPPLE TEST
13422	0774	00	1	00022	F2B	AXT 18,1	L +22 IN XRA
13423	0500	00	0	16527		CLA K38	L SIR INSTRUCTION
13424	-0501	00	0	16365		ORA ONE	WITH BIT IN
13425	0601	00	0	13431		STO *+4	POSITION 35
13426	0500	00	0	16365		CLA ONE	L +1
13427	0441	00	0	16361		LDI ZERO	ALL IND OFF
13430	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
13431	0055	00	000001			SIR 1	
13432	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
13433	0340	00	0	16576		CAS TEMP	
13434	0020	00	0	13436		TRA *+2	ERROR
13435	0020	00	0	13441		TRA *+4	OK
13436	0560	00	0	16576		LDQ TEMP	L POSITION TESTING
13437	0074	00	4	06503		TSX ERROR-1,4	ERROR
13440	0020	00	0	13422		TRA F2B	REPEAT SECTION
13441	0500	00	0	16576		CLA TEMP	L LAST POSITION TESTED
13442	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
13443	-0501	00	0	16527		ORA K38	ADJUST SIR
13444	0601	00	0	13431		STO F2B+7	INSTRUCTION
13445	-0320	00	0	16522		ANA K31	L +777777-ADJUST ACC
13446	2	00001	1	13427		TIX F2B+5,1,1	CHECK EACH RT HALF POS
13447	0074	00	4	06511		TSX OK,4	
13450	0020	00	0	13422		TRA F2B	
13451	623143606060					BCD 1SIL	TEST-SET IND LEFT HALF
13452	0441	00	0	16361	F3	LDI ZERO	ALL INDICATORS OFF
13453	0500	00	0	16362		CLA ONES	L ALL ONES
13454	0560	00	0	16434		LDQ MTW	BITS IN MQ POSITIONS S,1
13455	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35

13456	0600	00	0	16600		STZ TEMP+2	CLEA LOCATION
13457	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
13460	-0055	00		777777		SIL 32767,7	TURN IND 0 THRU 170N
13461	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
13462	0604	00	0	16576		STI TEMP	STORE INDICATORS
13463	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
13464	0402	00	0	16522		SUB K31	L +777777
13465	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
13466	0340	00	0	16362		CAS ONES	
13467	0020	00	0	13471		TRA *+2	ERROR
13470	0020	00	0	13472		TRA *+2	OK
13471	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13472	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13473	0020	00	0	13452		TRA F3	REPEAT TEST
13474	623143606060					BCD 1SIL	
13475	0441	00	0	16361	F4	LDI ZERO	ALL INDICATORS OFF
13476	0500	00	0	16362		CLA ONES	L ALL ONES
13477	0560	00	0	16434		LDQ MTW	BITS IN MQ POSITIONS S,1
13500	-0763	00	0	00002		LGL 2	BITS IN S,Q,P,1-35
13501	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
13502	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
13503	-0055	00		000000		SIL 0	
13504	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
13505	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
13506	0100	00	0	13510		TZE *+2	OK
13507	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13510	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13511	0020	00	0	13475		TRA F4	REPEAT TEST
13512	623143606060					BCD 1SIL	
13513	0441	00	0	16361	F5	LDI ZERO	ALL INDICATORS OFF
13514	0074	00	2	16317		TSX ENTM,2	TEST PRI OP 0,4 NO TRAP
13515	-0055	00		111111		SIL 4681,1	TURN 6 LEFT HALF IND ON
*CHECK CONTENTS OF LOCATION 000000							
13516	-0760	00	0	00007		LTM	EXIT TRAP MODE
13517	0602	00	0	16600		SLW TEMP+2	SAVE ACCUMULATOR
13520	0500	00	0	00000		CLA	L CONTENTS LOC 00000
13521	0560	00	0	16160		LDQ END+1	L TRA START-3
13522	0340	00	0	16160		CAS END+1	
13523	0020	00	0	13525		TRA *+2	ERROR
13524	0020	00	0	13530		TRA *+4	OK
13525	0074	00	4	06503		TSX ERROR-1,4	
13526	0020	00	0	13513		TRA F5	
13527	0074	00	4	16351		TSX STORE,4	TO RESTORE RESET START
13530	-0500	00	0	16600		CAL TEMP+2	RESTORE ACCUMULATOR



13531	0604	00	0	16576		STI TEMP	STORE INDICATORS
13532	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
13533	0400	00	0	16523		ADD K33	L +111111
13534	0560	00	0	16426		LDQ K24	L +111111111111
13535	0340	00	0	16426		CAS K24	
13536	0020	00	0	13540		TRA *+2	ERROR
13537	0020	00	0	13542		TRA F5A	OK 6 IND ON
13540	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13541	0020	00	0	13513		TRA F5	REPEAT SECTION
13542	-0055	00		222222	F5A	SIL 9362,2	NOW 12 LEFT HALF IND ON
13543	0604	00	0	16577		STI TEMP+1	STORE INDICATORS
13544	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
13545	0400	00	0	16524		ADD K34	L +333333
13546	0560	00	0	16520		LDQ K28	L +333333333333
13547	0340	00	0	16520		CAS K28	
13550	0020	00	0	13552		TRA F5A+8	ERROR
13551	0020	00	0	13554		TRA F5A1	OK 12 IND ON
13552	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
13553	0020	00	0	13513		TRA F5	REPEAT SECTION
13554	-0055	00		444444	F5A1	SIL 18724,4	NOW IND 0 THRU 17 ON
13555	0604	00	0	16600		STI TEMP+2	STORE INDICATORS
13556	0500	00	0	16600		CLA TEMP+2	CHECK INDICATORS
13557	0402	00	0	16522		SUB K31	L +777777
13560	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
13561	0340	00	0	16362		CAS ONES	
13562	0020	00	0	13564		TRA F5A1+8	ERROR
13563	0020	00	0	13565		TRA F5A1+9	OK IND 0 THRU 17 ON
13564	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
13565	0074	00	4	06511		TSX OK,4	CONTINUE TEST
13566	0020	00	0	13513		TRA F5	REPEAT TEST
13567	623143606060					BCD 1SIL	RIPPLE TEST
13570	0441	00	0	16361	F5B	LDI ZERO	ALL INDICATORS OFF
13571	0500	00	0	16365		CLA ONE	L +1
13572	0601	00	0	16577		STO TEMP+1	SAVE ACCUMULATOR
13573	0500	00	0	16530		CLA K38+1	L SIL INSTRUCTION
13574	-0501	00	0	16365		ORA ONE	WITH BIT IN
13575	0601	00	0	13602		STO *+5	POSITION 35
13576	0774	00	1	00022		AXT 18,1	L +22 IN XRA
13577	0500	00	0	16525		CLA K35	L +400000
13600	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
13601	0602	00	0	16576		SLW TEMP	SAVE ACCUMULATOR
13602	-0055	00		000001		SIL 1	
13603	0604	00	0	16600		STI TEMP+2	
13604	0500	00	0	16600		CLA TEMP+2	
13605	0340	00	0	16576		CAS TEMP	
13606	0020	00	0	13610		TRA *+2	ERROR
13607	0020	00	0	13613		TRA *+4	OK
13610	0560	00	0	16576		LDQ TEMP	L POSITION TESTING
13611	0074	00	4	06503		TSX ERROR-1,4	ERROR
13612	0020	00	0	13570		TRA F5B	REPEAT SECTION
13613	0500	00	0	16577		CLA TEMP+1	ADJUST

13614	0767	00	0	00001	ALS	1	F
13615	0601	00	0	16577	STO	TEMP+1	FIELD
13616	-0501	00	0	16530	ORA	K38+1	ADJUST SIL
13617	0602	00	0	13602	SLW	F5B+10	INSTRUCTION
13620	-0500	00	0	16576	CAL	TEMP	RESTORE SAVED ACC
13621	0041	00	0	00000	IIA		TURN TESTED IND OFF
13622	2	00001	1	13600	TIX	F5B+8,1,1	CHECK EACH LEFT HALF POS
13623	0074	00	4	06511	TSX	OK,4	
13624	0020	00	0	13570	TRA	F5B	
13625	513151606060				BCD	1RIR	TEST-RESET IND RIGHT HALF
13626	0441	00	0	16362	LDI	ONES	ALL INDICATORS ON
13627	0500	00	0	16362	CLA	ONES	L ALL ONES
13630	0560	00	0	16434	LDQ	MTW	BITS IN MQ POSITIONS S,1
13631	-0763	00	0	00002	LGL	2	BITS IN S,Q,P,1-35
13632	0600	00	0	16600	STZ	TEMP+2	CLEAR LOCATION
13633	-0625	00	0	16600	STL	TEMP+2	LOC OF TEST INSTR
13634	0057	00	0	000000	RIR	0	RT HALF IND UNCHANGED
13635	0074	00	2	16322	TSX	ACC,2	TO CHECK ACCUMULATOR
13636	0604	00	0	16576	STI	TEMP	STORE INDICATORS
13637	0500	00	0	16576	CLA	TEMP	CHECK INDICATORS
13640	0560	00	0	16362	LDQ	ONES	L ALL ONES TO MQ
13641	0340	00	0	16362	CAS	ONES	
13642	0020	00	0	13644	TRA	*+2	ERROR
13643	0020	00	0	13645	TRA	*+2	OK-ALL IND ON
13644	0074	00	4	06504	TSX	ERROR,4	TO ERROR ROUTINE
13645	0074	00	4	06511	TSX	OK,4	CONTINUE TEST
13646	0020	00	0	13626	TRA	F6	REPEAT TEST
13647	513151606060				BCD	1RIR	
13650	0441	00	0	16362	LDI	ONES	ALL INDICATORS ON
13651	0500	00	0	16362	CLA	ONES	L ALL ONES
13652	0560	00	0	16434	LDQ	MTW	BITS TO MQ POSITIONS S,1
13653	-0763	00	0	00002	LGL	2	BITS IN S,Q,P,1-35
13654	0600	00	0	16600	STZ	TEMP+2	CLEAR LOCATION
13655	-0625	00	0	16600	STL	TEMP+2	LOC OF TEST INSTR
13656	0057	00	7	777777	RIR	32767,7	TURN IND 18 THRU 35 OFF
13657	0074	00	2	16322	TSX	ACC,2	TO CHECK ACCUMULATOR
13660	0604	00	0	16576	STI	TEMP	STORE INDICATORS
13661	0500	00	0	16576	CLA	TEMP	CHECK INDICATORS
13662	0402	00	0	16522	SUB	K31	L +777777
13663	0560	00	0	16362	LDQ	ONES	L ALL ONES TO MQ
13664	0340	00	0	16362	CAS	ONES	
13665	0020	00	0	13667	TRA	*+2	ERROR
13666	0020	00	0	13670	TRA	*+2	OK
13667	0074	00	4	06504	TSX	ERROR,4	TO ERROR ROUTINE
13670	0074	00	4	06511	TSX	OK,4	CONTINUE TEST
13671	0020	00	0	13650	TRA	F7	REPEAT TEST

13672	513151606060		BCD 1RIR	
13673	0441 00 0 16361	F8	LDI ZERO	ALL IND OFF
13674	0055 00 777777		SIR 32767,7	IND 18 THRU 35 ON
13675	0074 00 2 16317		TSX ENTM,2	TEST PRI OP 0,4 NO TRAP
13676	0057 00 444444		RIR 18724,4	TURN 6 RT HALF IND OFF

\*CHECK CONTENTS OF LOCATION 00000

13677	-0760 00 0 00007		LTM	EXIT TRAP MODE
13700	0602 00 0 16600		SLW TEMP+2	SAVE ACCUMULATOR
13701	0500 00 0 00000		CLA	L CONTENTS LOC 00000
13702	0560 00 0 16160		LDQ END+1	L TRA START-3
13703	0340 00 0 16160		CAS END+1	
13704	0020 00 0 13706		TRA *+2	ERROR
13705	0020 00 0 13711		TRA *+4	OK
13706	0074 00 4 06503		TSX ERROR-1,4	
13707	0020 00 0 13673		TRA F8	
13710	0074 00 4 16351		TSX STORE,4	TO RESTORE RESET START
13711	-0500 00 0 16600		CAL TEMP+2	RESTORE ACCUMULATOR
13712	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
13713	0560 00 0 16524		LDQ K34	L +333333
13714	0340 00 0 16524		CAS K34	
13715	0020 00 0 13717		TRA *+2	ERROR
13716	0020 00 0 13721		TRA F8A	OK-6 IND TURNED OFF
13717	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
13720	0020 00 0 13673		TRA F8	REPEAT SECTION
13721	0057 00 222222	F8A	RIR 9362,2	NOW 12 RT HALF IND OFF
13722	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
13723	0560 00 0 16523		LDQ K33	L +111111
13724	0340 00 0 16523		CAS K33	
13725	0020 00 0 13727		TRA F8A+6	ERROR
13726	0020 00 0 13731		TRA F8A1	OK 12 RT HALF IND OFF
13727	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
13730	0020 00 0 13673		TRA F8	REPEAT SECTION
13731	0057 00 111111	F8A1	RIR 4681,1	NOW ALL IND OFF
13732	-0046 00 0 00000		PIA	IND TO ACC AND CHECK
13733	0100 00 0 13735		TZE F8A1+4	OK ALL IND OFF
13734	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
13735	0074 00 4 06511		TSX OK,4	CONTINUE TEST
13736	0020 00 0 13673		TRA F8	REPEAT TEST
13737	513151606060		BCD 1RIR	RIPPLE TEST
13740	0500 00 0 16531	F8B	CLA K38+2	L RIR INSTRUCTION
13741	-0501 00 0 16365		ORA ONE	WITH BIT IN
13742	0601 00 0 13747		STO *+5	POSITION 35
13743	0500 00 0 16365		CLA ONE	L +1
13744	0601 00 0 16576		STO TEMP	SAVE ACCUMULATOR
13745	0774 00 1 00022		AXT 18,1	L +22 IN XRA
13746	0044 00 0 00000		PAI	ACC TO IND
13747	0057 00 000001		RIR 1	
13750	-0046 00 0 00000		PIA	IND TO ACC AND CHECK

13751	0100	00	0	13754	TZE	*+3	OK
13752	0074	00	4	06503	TSX	ERROR-1,4	ERROR
13753	0020	00	0	13740	TRA	F8B	REPEAT SECTION
13754	0500	00	0	16576	CLA	TEMP	L LAST POSITION TESTED
13755	0767	00	0	00001	ALS	1	RIPPLE 1 POSITION
13756	0601	00	0	16576	STO	TEMP	SAVE ACCUMULATOR
13757	-0501	00	0	16531	ORA	K38+2	ADJUST RIR
13760	0601	00	0	13747	STO	F8B+7	INSTRUCTION
13761	-0320	00	0	16522	ANA	K31	L +777777-ADJUST ACC
13762	2	00001	1	13746	TIX	F8B+6,1,1	CHECK EACH RT HALF POS
13763	0074	00	4	06511	TSX	OK,4	
13764	0020	00	0	13740	TRA	F8B	
13765	513143606060				BCD	1RIL	TEST-RESET IND LEFT HALF
13766	0441	00	0	16362	LDI	ONES	ALL INDICATORS ON
13767	0500	00	0	16362	CLA	ONES	L ALL ONES
13770	0560	00	0	16434	LDQ	MTW	BITS TO MQ POSITIONS S,1
13771	-0763	00	0	00002	LGL	2	BITS TO ACC S,Q,P,1-35
13772	0600	00	0	16600	STZ	TEMP+2	CLEAR LOCATION
13773	-0625	00	0	16600	STL	TEMP+2	LOC OF TEST INSTR
13774	-0057	00	0	000000	RIL	0	IND UNCHANGED
13775	0074	00	2	16322	TSX	ACC,2	TO CHECK ACCUMULATOR
13776	0604	00	0	16576	STI	TEMP	STORE INDICATORS
13777	0500	00	0	16576	CLA	TEMP	CHECK INDICATORS
14000	0560	00	0	16362	LDQ	ONES	L ALL ONES TO MQ
14001	0340	00	0	16362	CAS	ONES	
14002	0020	00	0	14004	TRA	*+2	ERROR
14003	0020	00	0	14005	TRA	*+2	OK
14004	0074	00	4	06504	TSX	ERROR,4	TO ERROR ROUTINE
14005	0074	00	4	06511	TSX	OK,4	CONTINUE TEST
14006	0020	00	0	13766	TRA	F9	REPEAT TEST
14007	513143606060				BCD	1RIL	
14010	0441	00	0	16362	LDI	ONES	ALL INDICATORS ON
14011	0500	00	0	16362	CLA	ONES	L ALL ONES
14012	0560	00	0	16434	LDQ	MTW	BITS TO MQ POSITIONS S,1
14013	-0763	00	0	00002	LGL	2	BITS TO ACC S,Q,P,1-35
14014	0600	00	0	16600	STZ	TEMP+2	CLEAR LOCATION
14015	-0625	00	0	16600	STL	TEMP+2	LOC OF TEST INSTR
14016	-0057	00	0	777777	RIL	32767,7	TURN IND 0 THRU 17 OFF
14017	0074	00	2	16322	TSX	ACC,2	TO CHECK ACCUMULATOR
14020	0604	00	0	16576	STI	TEMP	STORE INDICATORS
14021	0500	00	0	16576	CLA	TEMP	CHECK INDICATORS
14022	0560	00	0	16522	LDQ	K31	L +777777
14023	0340	00	0	16522	CAS	K31	
14024	0020	00	0	14026	TRA	*+2	ERROR
14025	0020	00	0	14027	TRA	*+2	OK
14026	0074	00	4	06504	TSX	ERROR,4	TO ERROR ROUTINE
14027	0074	00	4	06511	TSX	OK,4	CONTINUE TEST

14030	0020	00	0	14010		TRA F10	REPEAT TEST
14031	513143606060					BCD 1RIL	
14032	0441	00	0	16361	F11	LDI ZERO	ALL INDICATORS OFF
14033	-0055	00		777777		SIL 32767,7	IND 0-17 ON
14034	0074	00	2	16317		TSX ENTM,2	TEST PRI OP 0,4 NO TRAP
14035	-0057	00		444444		RIL 18724,4	TURN 6 LEFT HALF IND OFF
*CHECK CONTENTS OF LOCATION 00000							
14036	-0760	00	0	00007		LTM	EXIT TRAP MODE
14037	0602	00	0	16600		SLW TEMP+2	SAVE ACCUMULATOR
14040	0500	00	0	00000		CLA	L CONTENTS LOC 00000
14041	0560	00	0	16160		LDQ END+1	L TRA START-3
14042	0340	00	0	16160		CAS END+1	
14043	0020	00	0	14045		TRA *+2	ERROR
14044	0020	00	0	14050		TRA *+4	OK
14045	0074	00	4	06503		TSX ERROR-1,4	
14046	0020	00	0	14032		TRA F11	
14047	0074	00	4	16351		TSX STORE,4	TO RESTORE RESET START
14050	-0500	00	0	16600		CAL TEMP+2	RESTORE ACCUMULATOR
14051	0604	00	0	16576		STI TEMP	STORE INDICATORS
14052	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
14053	0400	00	0	16524		ADD K34	L +333333
14054	0560	00	0	16520		LDQ K28	L +333333333333
14055	0340	00	0	16520		CAS K28	
14056	0020	00	0	14060		TRA *+2	ERROR
14057	0020	00	0	14062		TRA F11A	OK-6 IND TURNED OFF
14060	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14061	0020	00	0	14032		TRA F11	REPEAT SECTION
14062	-0057	00		222222	F11A	RIL 9362,2	NOW 12 LEFT HALF IND OFF
14063	0604	00	0	16577		STI TEMP+1	STORE INDICATORS
14064	0500	00	0	16577		CLA TEMP+1	CHECK INDICATORS
14065	0400	00	0	16523		ADD K33	L +111111
14066	0560	00	0	16426		LDQ K24	L +111111111111
14067	0340	00	0	16426		CAS K24	
14070	0020	00	0	14072		TRA F11A+8	ERROR
14071	0020	00	0	14074		TRA F11A1	OK-NOW 12 IND TURNED OFF
14072	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14073	0020	00	0	14032		TRA F11	REPEAT SECTION
14074	-0057	00		111111	F11A1	RIL 4681,1	NOW ALL IND OFF
14075	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
14076	0100	00	0	14100		TZE F11A1+4	OK-IND 0-17 TURNED OFF
14077	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14100	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14101	0020	00	0	14032		TRA F11	REPEAT TEST
14102	513143606060					BCD 1RIL	RIPPLE TEST
14103	0500	00	0	16532	F11B	CLA K38+3	L RIL INSTRUCTION
14104	-0501	00	0	16365		ORA ONE	WITH BIT IN

14105	0601	00	0	14115		STO *+8	POSITION 35
14106	0500	00	0	16365		CLA ONE	L +1
14107	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
14110	0774	00	1	00022		AXT 18,1	L +22 IN XRA
14111	0500	00	0	16525		CLA K35	L +400000
14112	0767	00	0	00001		ALS 1	RIPPLE 1 POS
14113	0602	00	0	16577		SLW TEMP+1	SAVE ACCUMULATOR
14114	0044	00	0	00000		PAI	ACC TO IND
14115	-0057	00	0	000001		RIL 1	
14116	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
14117	0100	00	0	14122		TZE *+3	OK
14120	0074	00	4	06503		TSX ERROR-1,4	ERROR
14121	0020	00	0	14103		TRA F11B	REPEAT SECTION
14122	0500	00	0	16576		CLA TEMP	ADJUST
14123	0767	00	0	00001		ALS 1	F
14124	0601	00	0	16576		STO TEMP	FIELD
14125	-0501	00	0	16532		ORA K38+3	ADJUST RIL
14126	0602	00	0	14115		SLW F11B+10	INSTRUCTION
14127	-0500	00	0	16577		CAL TEMP+1	RESTORE SAVED ACCUMULATOR
14130	2	00001	1	14112		TIX F11B+7,1,1	CHECK EACH LEFT HALF POS
14131	0074	00	4	06511		TSX OK,4	
14132	0020	00	0	14103		TRA F11B	
14133	313151606060					BCD 1IIR	TEST INVERT INDICATORS OF RIGHT HALF
14134	0441	00	0	16362	F12	LDI ONES	ALL INDICATORS ON
14135	0500	00	0	16362		CLA ONES	L ALL ONES
14136	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
14137	-0763	00	0	00002		LGL 2	BITS TO ACC S,Q,P,1-35
14140	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
14141	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
14142	0051	00	0	777777		IIR 32767,7	IND 18 THRU 35 OFF
14143	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
14144	0604	00	0	16576		STI TEMP	STORE INDICATORS
14145	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
14146	0402	00	0	16522		SUB K31	L +777777
14147	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
14150	0340	00	0	16362		CAS ONES	
14151	0020	00	0	14153		TRA *+2	ERROR
14152	0020	00	0	14154		TRA *+2	OK
14153	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14154	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14155	0020	00	0	14134		TRA F12	REPEAT TEST
14156	313151606060					BCD 1IIR	
14157	0441	00	0	16362	F13	LDI ONES	ALL INDICATORS ON
14160	0500	00	0	16362		CLA ONES	L ALL ONES
14161	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
14162	-0763	00	0	00002		LGL 2	BITS TO ACC S,Q,P,1-35
14163	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
14164	-0625	00	0	16600		STL TEMP+2	LOCATION OF TEST INSTR

14165	0051	00	000000		IIR 0	IND UNCHANGED
14166	0074	00	2 16322		TSX ACC,2	TO CHECK ACCUMULATOR
14167	0604	00	0 16576		STI TEMP	STORE INDICATORS
14170	0500	00	0 16576		CLA TEMP	CHECK INDICATORS
14171	0560	00	0 16362		LDQ ONES	L ALL ONES TO MQ
14172	0340	00	0 16362		CAS ONES	
14173	0020	00	0 14175		TRA *+2	ERROR
14174	0020	00	0 14176		TRA *+2	OK
14175	0074	00	4 06504		TSX ERROR,4	TO ERROR ROUTINE
14176	0074	00	4 06511		TSX OK,4	CONTINUE TEST
14177	0020	00	0 14157		TRA F13	REPEAT TEST
14200	313151606060				BCD 1IIR	
14201	0441	00	0 16361	F14	LDI ZERO	ALL INDICATORS OFF
14202	0055	00	777777		SIR 32767,7	IND 18-35 ON
14203	0074	00	2 16317		TSX ENTM,2	TEST PRI OP 0,4 NO TRAP
14204	0051	00	444444		IIR 18724,4	6 RT HALF IND OFF
*CHECK CONTENTS OF LOCATION 00000						
14205	-0760	00	0 00007		LTM	EXIT TRAP MODE
14206	0602	00	0 16600		SLW TEMP+2	SAVE ACCUMULATOR
14207	0500	00	0 00000		CLA	L CONTENTS LOC 00000
14210	0560	00	0 16160		LDQ END+1	L TRA START-3
14211	0340	00	0 16160		CAS END+1	
14212	0020	00	0 14214		TRA *+2	ERROR
14213	0020	00	0 14217		TRA *+4	OK
14214	0074	00	4 06503		TSX ERROR-1,4	
14215	0020	00	0 14201		TRA F14	
14216	0074	00	4 16351		TSX STORE,4	TO RESTORE RESET START
14217	-0500	00	0 16600		CAL TEMP+2	RESTORE ACCUMULATOR
14220	-0046	00	0 00000		PIA	IND TO ACC AND CHECK
14221	0560	00	0 16524		LDQ K34	L +333333
14222	0340	00	0 16524		CAS K34	
14223	0020	00	0 14225		TRA *+2	ERROR
14224	0020	00	0 14227		TRA F14A	OK-6 IND TURNED OFF
14225	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
14226	0020	00	0 14201		TRA F14	REPEAT SECTION
14227	0051	00	222222	F14A	IIR 9362,2	NOW 12 RT HALF IND OFF
14230	-0046	00	0 00000		PIA	IND TO ACC AND CHECK
14231	0560	00	0 16523		LDQ K33	L +111111
14232	0340	00	0 16523		CAS K33	
14233	0020	00	0 14235		TRA F14A+6	ERROR
14234	0020	00	0 14237		TRA F14A1	OK-12 IND NOW TURNED OFF
14235	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
14236	0020	00	0 14201		TRA F14	
14237	0051	00	111111	F14A1	IIR 4681,1	NOW ALL IND OFF
14240	-0046	00	0 00000		PIA	IND TO ACC AND CHECK
14241	0100	00	0 14244		TZE F14A2	OK-IND 18-35 TURNED OFF

14242	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14243	0020	00	0	14201		TRA F14	REPEAT SECTION
14244	0051	00	444444		F14A2	IIR 18724,4	6 RIGHT HALF IND ON
14245	0051	00	222222			IIR 9362,2	12 RIGHT HALF IND ON
14246	0051	00	111111			IIR 4681,1	IND 18-35 ON
14247	0051	00	777777			IIR 32767,7	IND 18-35 OFF
14250	0051	00	777777			IIR 32767,7	IND 18-35 ON
14251	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
14252	0560	00	0	16522		LDQ K31	L +777777
14253	0340	00	0	16522		CAS K31	
14254	0020	00	0	14256		TRA F14A2+10	ERROR
14255	0020	00	0	14257		TRA F14A2+11	OK IND 18-35 ON
14256	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14257	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14260	0020	00	0	14201		TRA F14	REPEAT TEST
14261	313151606060					BCD 1IIR	RIPPLE TEST
14262	0500	00	0	16533	F14B	CLA K38+4	L IIR INSTRUCTION
14263	-0501	00	0	16365		ORA ONE	WITH BIT IN
14264	0601	00	0	14271		STO *+5	POSITION 35
14265	0774	00	1	00022		AXT 18,1	L +22 IN XRA
14266	0500	00	0	16365		CLA ONE	L +1
14267	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
14270	0441	00	0	16576		LDI TEMP	TURN ON IND TESTING
14271	0051	00	000001			IIR 1	TURN OFF IND TESTING
14272	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
14273	0100	00	0	14276		TZE *+3	OK
14274	0074	00	4	06503		TSX ERROR-1,4	ERROR
14275	0020	00	0	14262		TRA F14B	REPEAT SECTION
14276	0500	00	0	16576		CLA TEMP	L LAST TESTED POSITION
14277	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
14300	-0501	00	0	16533		ORA K38+4	ADJUST IIR
14301	0601	00	0	14271		STO F14B+7	INSTRUCTION
14302	-0320	00	0	16522		ANA K31	L +777777-ADJUST ACC
14303	2	00001	1	14267		TIX F14B+5,1,1	CHECK EACH RT HALF POS
14304	0074	00	4	06511		TSX OK,4	
14305	0020	00	0	14262		TRA F14B	
14306	313143606060					BCD 1IIL	TEST-INVERT INDICATORS OF LEFT HALF
14307	0441	00	0	16362	F15	LDI ONES	ALL INDICATORS ON
14310	0500	00	0	16362		CLA ONES	L ALL ONES
14311	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
14312	-0763	00	0	00002		LGL 2	BITS TO ACC S,Q,P,1-35
14313	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
14314	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
14315	-0051	00	777777			IIL 32767,7	IND 0 THRU 17 OFF
14316	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
14317	0604	00	0	16576		STI TEMP	STORE INDICATORS
14320	0500	00	0	16576		CLA TEMP	CHECK INDICATORS



14321	0560	00	0	16522		LDQ K31	L +777777
14322	0340	00	0	16522		CAS K31	
14323	0020	00	0	14325		TRA *+2	ERROR
14324	0020	00	0	14326		TRA *+2	OK IND 0-17 OFF
14325	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14326	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14327	0020	00	0	14307		TRA F15	REPEAT TEST
14330	313143606060					BCD 1IIL	
14331	0441	00	0	16362	F16	LDI ONES	ALL INDICATORS ON
14332	0500	00	0	16362		CLA ONES	L ALL ONES
14333	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
14334	-0763	00	0	00002		LGL 2	BITS TO ACC S,Q,P,1-35
14335	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
14336	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
14337	-0051	00		000000		IIL 0	IND UNCHANGED
14340	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
14341	0604	00	0	16576		STI TEMP	STORE INDICATORS
14342	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
14343	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
14344	0340	00	0	16362		CAS ONES	
14345	0020	00	0	14347		TRA *+2	ERROR
14346	0020	00	0	14350		TRA *+2	OK IND 0-17 OFF
14347	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14350	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14351	0020	00	0	14331		TRA F16	REPEAT TEST
14352	313143606060					BCD 1IIL	
14353	0441	00	0	16361	F17	LDI ZERO	ALL INDICATORS OFF
14354	-0055	00		777777		SIL 32767,7	IND 0-17 ON
14355	0074	00	2	16317		TSX ENTM,2	TEST PRI OP 0,4 NO TRAP
14356	-0051	00		444444		IIL 18724,4	6 LEFT HALF IND OFF
*CHECK CONTENTS OF LOCATION 00000							
14357	-0760	00	0	00007		LTM	EXIT TRAP MODE
14360	0602	00	0	16600		SLW TEMP+2	SAVE ACCUMULATOR
14361	0500	00	0	00000		CLA	L CONTENTS LOC 00000
14362	0560	00	0	16160		LDQ END+1	L TRA START-3
14363	0340	00	0	16160		CAS END+1	
14364	0020	00	0	14366		TRA *+2	ERROR
14365	0020	00	0	14371		TRA *+4	OK
14366	0074	00	4	06503		TSX ERROR-1,4	
14367	0020	00	0	14353		TRA F17	
14370	0074	00	4	16351		TSX STORE,4	TO RESTORE RESET START
14371	-0500	00	0	16600		CAL TEMP+2	RESTORE ACCUMULATOR
14372	-0046	00	0	00000		PIA	IND TO ACC AND CHECK
14373	0400	00	0	16524		ADD K34	L +333333
14374	0560	00	0	16520		LDQ K28	L +333333333333
14375	0340	00	0	16520		CAS K28	

14376	0020	00	0	14400	TRA	*+2	ERROR
14377	0020	00	0	14402	TRA	F17A	OK-6 IND TURNED OFF
14400	0074	00	4	06503	TSX	ERROR-1,4	TO ERROR ROUTINE
14401	0020	00	0	14353	TRA	F17	REPEAT SECTION
14402	-0051	00	222222	F17A	IIL	9362,2	NOW 12 LEFT HALF IND OFF
14403	-0046	00	0	00000	PIA		IND TO ACC AND CHECK
14404	0400	00	0	16523	ADD	K33	L +111111
14405	0560	00	0	16426	LDQ	K24	L +111111111111
14406	0340	00	0	16426	CAS	K24	
14407	0020	00	0	14411	TRA	F17A+7	ERROR
14410	0020	00	0	14413	TRA	F17A1	OK-12 IND NOW TURNED OFF
14411	0074	00	4	06503	TSX	ERROR-1,4	TO ERROR ROUTINE
14412	0020	00	0	14353	TRA	F17	REPEAT SECTION
14413	-0051	00	111111	F17A1	IIL	4681,1	NOW ALL IND OFF
14414	-0046	00	0	00000	PIA		IND TO ACC AND CHECK
14415	0100	00	0	14420	TZE	F17A2	OK ALL IND OFF
14416	0074	00	4	06503	TSX	ERROR-1,4	TO ERROR ROUTINE
14417	0020	00	0	14353	TRA	F17	REPEAT SECTION
14420	-0051	00	444444	F17A2	IIL	18724,4	6 LEFT IND ON
14421	-0051	00	222222	IIL	9362,2		12 LEFT IND ON
14422	-0051	00	111111	IIL	4681,1		IND 0-17 ON
14423	-0051	00	777777	IIL	32767,7		IND 0-17 OFF
14424	-0046	00	0	00000	PIA		IND TO ACC AND CHECK
14425	0100	00	0	14427	TZE	F17A2+7	OK ALL IND OFF
14426	0074	00	4	06504	TSX	ERROR,4	TO ERROR ROUTINE
14427	0074	00	4	06511	TSX	OK,4	CONTINUE TEST
14430	0020	00	0	14353	TRA	F17	REPEAT TEST
14431	313143606060				BCD	1IIL	
14432	0500	00	0	16534	F17B	CLA K38+5	L IIL INSTRUCTION
14433	-0501	00	0	16365	ORA	ONE	WITH BIT IN
14434	0601	00	0	14444	STO	*+8	POSITION 35
14435	0500	00	0	16365	CLA	ONE	L +1
14436	0601	00	0	16576	STO	TEMP	SAVE ACCUMULATOR
14437	0774	00	1	00022	AXT	18,1	L +22 IN XRA
14440	0500	00	0	16525	CLA	K35	L +400000
14441	0767	00	0	00001	ALS	1	RIPPLE 1 POSITION
14442	0602	00	0	16577	SLW	TEMP+1	SAVE ACCUMULATOR
14443	0044	00	0	00000	PAI		ACC TO IND
14444	-0051	00	000001		IIL	1	
14445	-0046	00	0	00000	PIA		IND TO ACC AND CHECK
14446	0100	00	0	14451	TZE	*+3	OK
14447	0074	00	4	06503	TSX	ERROR-1,4	ERROR
14450	0020	00	0	14432	TRA	F17B	REPEAT SECTION
14451	0500	00	0	16576	CLA	TEMP	ADJUST
14452	0767	00	0	00001	ALS	1	F
14453	0601	00	0	16576	STO	TEMP	FIELD
14454	-0501	00	0	16534	ORA	K38+5	ADJUST IIL
14455	0602	00	0	14444	SLW	F17B+10	INSTRUCTION
14456	-0500	00	0	16577	CAL	TEMP+1	L SAVED ACCUMULATOR
14457	2	00001	1	14441	TIX	F17B+7,1,1	CHECK EACH IND POS

14460	0074	00	4	06511		TSX OK, 4	
14461	0020	00	0	14432		TRA F17B	
14462	512663606060					BCD 1RFT	TEST-RIGHT HALF IND OFF SET
14463	0441	00	0	16362	F18	LDI ONES	ALL INDICATORS ON
14464	0500	00	0	16362		CLA ONES	L ALL ONES
14465	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
14466	-0763	00	0	00002		LGL 2	BITS TO ACC S,Q,P,1-35
14467	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
14470	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
14471	0054	00		777777		RFT 32767,7	L +777777
14472	0020	00	0	14475		TRA *+3	OK-RT HALF IND ON
14473	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14474	0020	00	0	14463		TRA F18	REPEAT SECTION
14475	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
14476	0604	00	0	16576	F18A	STI TEMP	STORE INDICATORS
14477	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
14500	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
14501	0340	00	0	16362		CAS ONES	
14502	0020	00	0	14504		TRA F18A+6	ERROR
14503	0020	00	0	14505		TRA F18A+7	OK IND UNCHANGED
14504	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14505	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14506	0020	00	0	14463		TRA F18	REPEAT TEST
14507	512663606060					BCD 1RFT	
14510	0441	00	0	16362	F19	LDI ONES	ALL INDICATORS ON
14511	0500	00	0	16362		CLA ONES	L ALL ONES
14512	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
14513	-0763	00	0	00002		LGL 2	BITS TO ACC S,Q,P,1-35
14514	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
14515	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
14516	0054	00		000000		RFT 0	IND NOT EXAMINED-SKIP
14517	0020	00	0	14521		TRA *+2	ERROR
14520	0020	00	0	14523		TRA *+3	OK
14521	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14522	0020	00	0	14510		TRA F19	REPEAT SECTION
14523	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
14524	0604	00	0	16576	F19A	STI TEMP	STORE INDICATORS
14525	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
14526	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
14527	0340	00	0	16362		CAS ONES	
14530	0020	00	0	14532		TRA F19A+6	ERROR
14531	0020	00	0	14533		TRA F19A+7	OK IND UNCHANGED
14532	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14533	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14534	0020	00	0	14510		TRA F19	REPEAT TEST
14535	0761	00	0	00000		NOP	

14536	0500	00	0	16543		CLA TR+2	L HTR FOUR
14537	0621	00	0	00006		STA 6	ADJUST LOC 00006
14540	0020	00	0	14542		TRA *+2	
14541	512663606060					BCD 1RFT	
14542	0441	00	0	16361	F20	LDI ZERO	ALL INDICATORS OFF
14543	0074	00	2	16317		TSX ENTM,2	TEST PRI OP 0,4 NO TRAP
14544	0054	00		000000		RFT 0	IND NOT EXAMINED SKIP
14545	0021	00	0	14562		TTR *+13	ERROR-SHOULD SKIP
*CHECK CONTENTS OF LOCATION 00000							
14546	-0760	00	0	00007		LTM	EXIT TRAP MODE
14547	0602	00	0	16600		SLW TEMP+2	SAVE ACCUMULATOR
14550	0500	00	0	00000		CLA	L CONTENTS LOC 00000
14551	0560	00	0	16160		LDQ END+1	L TRA START-3
14552	0340	00	0	16160		CAS END+1	
14553	0020	00	0	14555		TRA *+2	ERROR
14554	0020	00	0	14560		TRA *+4	OK
14555	0074	00	4	06503		TSX ERROR-1,4	
14556	0020	00	0	14542		TRA F20	
14557	0074	00	4	16351		TSX STORE,4	TO RESTORE RESET START
14560	-0500	00	0	16600		CAL TEMP+2	RESTORE ACCUMULATOR
14561	0020	00	0	14565		TRA F20AA	OK
14562	-0760	00	0	00007		LTM	
14563	0074	00	4	06503		TSX ERROR-1,4	ERROR-DID NOT SKIP
14564	0020	00	0	14542		TRA F20	REPEAT SECTION
14565	-0046	00	0	00000	F20AA	PIA	IND TO ACC AND CHECK
14566	0100	00	0	14570		TZE F20AA+3	OK ALL IND OFF
14567	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14570	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14571	0020	00	0	14542		TRA F20	REPEAT TEST
14572	512663606060					BCD 1RFT	RFT RIPPLE TEST
14573	0774	00	1	00022	F20A	AXT 18,1	L +22 IN XRA
14574	0500	00	0	16535		CLA K38+6	L RFT INSTRUCTION
14575	-0501	00	0	16365		ORA ONE	WITH BIT IN
14576	0601	00	0	14601		STO F20A+6	POSITION 35
14577	0500	00	0	16365		CLA ONE	L +1
14600	0044	00	0	00000		PAI	LOAD INDICATORS WITH THE ONE BIT BEING TESTED
14601	0054	00		000001		RFT 1	
14602	0020	00	0	14605		TRA F20B	OK EXAMINED IND ON
14603	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14604	0020	00	0	14573		TRA F20A	REPEAT SECTION
14605	0767	00	0	00001	F20B	ALS 1	RIPPLE 1 POSITION
14606	-0501	00	0	16535		ORA K38+6	ADJUST RFT
14607	0601	00	0	14601		STO F20A+6	INSTRUCTION
14610	-0320	00	0	16522		ANA K31	L +777777-ADJUST ACC
14611	2	00001	1	14600		TIX F20A+5,1,1	REPEAT FOR ALL RT HALF

14612	0074	00	4	06511		TSX OK,4	
14613	0020	00	0	14573		TRA F20A	
14614	512663606060					BCD 1RFT	RFT RIPPLE TEST
14615	0441	00	0	16362	F20B1	LDI ONES	ALL INDICATORS ON
14616	0500	00	0	16535		CLA K38+6	L RFT INSTRUCTION
14617	-0501	00	0	16365		ORA ONE	WITH BIT IN
14620	0601	00	0	14624		STO F20B1+7	POSITION 35
14621	0774	00	1	00022		AXT 18,1	L +22 IN XRA
14622	0500	00	0	16365		CLA ONE	L +1
14623	0041	00	0	00000		IIA	TURN INDICATOR OFF THAT IS BEING CHECKED
14624	0054	00	0	000001		RFT 1	
14625	0020	00	0	14627		TRA F20B1+10	ERROR
14626	0020	00	0	14631		TRA F20C	OK EXAMINED IND OFF
14627	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14630	0020	00	0	14615		TRA F20B1	REPEAT SECTION
14631	0041	00	0	00000	F20C	IIA	RESET INDICATOR THAT WAS JUST TESTED
14632	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
14633	-0501	00	0	16535		ORA K38+6	ADJUST RFT
14634	0601	00	0	14624		STO F20B1+7	INSTRUCTION
14635	-0320	00	0	16522		ANA K31	L +777777-ADJUST ACC
14636	2	00001	1	14623		TIX F20B1+6,1,1	REPEAT FOR RT HALF
14637	0074	00	4	06511		TSX OK,4	
14640	0020	00	0	14615		TRA F20B1	
14641	512663606060					BCD 1RFT	
14642	0441	00	0	16426	F21	LDI K24	L +111111111111
14643	0051	00	1	111111		IIR 4681,1	TURN RT HALF IND OFF
14644	0054	00	4	444444		RFT 18724,4	EXAMINED IND OFF-SKIP
14645	0020	00	0	14647		TRA F21+5	ERROR
14646	0020	00	0	14651		TRA F21A	OK
14647	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14650	0020	00	0	14642		TRA F21	REPEAT SECTION
14651	0054	00	2	222222	F21A	RFT 9362,2	EXAMINED IND OFF-SKIP
14652	0020	00	0	14654		TRA F21A+3	ERROR
14653	0020	00	0	14656		TRA F21A1	OK
14654	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
14655	0020	00	0	14642		TRA F21	REPEAT SECTION
14656	0054	00	1	111111	F21A1	RFT 4681,1	EXAMINED IND OFF-SKIP
14657	0020	00	0	14661		TRA F21A1+3	ERROR
14660	0020	00	0	14662		TRA F21A1+4	OK
14661	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
14662	0074	00	4	06511		TSX OK,4	CONTINUE TEST
14663	0020	00	0	14642		TRA F21	REPEAT TEST
14664	512663606060					BCD 1RFT	
14665	0441	00	0	16361	F22	LDI ZERO	ALL INDICATORS OFF
14666	0055	00	1	111111		SIR 4681,1	TURN 6 IND ON

14667	0054	00	444444		RFT 18724,4	EXAMINED IND OFF-SKIP
14670	0020	00	0 14672		TRA F22+5	ERROR
14671	0020	00	0 14674		TRA F22A	OK
14672	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
14673	0020	00	0 14665		TRA F22	REPEAT SECTION
14674	0054	00	222222	F22A	RFT 9362,2	EXAMINED IND OFF-SKIP
14675	0020	00	0 14677		TRA F22A+3	ERROR
14676	0020	00	0 14701		TRA F22A1	OK
14677	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
14700	0020	00	0 14665		TRA F22	REPEAT SECTION
14701	0054	00	333333	F22A1	RFT 14043,3	EXAMINED IND NOT OFF
14702	0020	00	0 14705		TRA F22A2	OK
14703	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
14704	0020	00	0 14665		TRA F22	REPEAT SECTION
14705	-0046	00	0 00000	F22A2	PIA	IND TO ACC AND CHECK
14706	0560	00	0 16523		LDQ K33	L +111111
14707	0340	00	0 16523		CAS K33	
14710	0020	00	0 14712		TRA F22A2+5	ERROR
14711	0020	00	0 14713		TRA F22A2+6	OK IND UNCHANGED
14712	0074	00	4 06504		TSX ERROR,4	TO ERROR ROUTINE
14713	0074	00	4 06511		TSX OK,4	CONTINUE TEST
14714	0020	00	0 14665		TRA F22	REPEAT TEST
14715	432663606060				BCD 1LFT	TEST-LEFT HALF INDICATOR OFF TEST
14716	0441	00	0 16362	F23	LDI ONES	ALL INDICATORS ON
14717	0500	00	0 16362		CLA ONES	L ALL ONES
14720	0560	00	0 16434		LDQ MTW	BITS TO MQ POSITIONS S,1
14721	-0763	00	0 00002		LGL 2	BITA TO ACC S,Q,P,1-35
14722	0600	00	0 16600		STZ TEMP+2	CLEAR LOCATION
14723	-0625	00	0 16600		STL TEMP+2	LOC OF TEST INSTR
14724	-0054	00	777777		LFT 32767,7	EXMINED IND ON
14725	0020	00	0 14730		TRA *+3	OK
14726	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
14727	0020	00	0 14716		TRA F23	REPEAT SECTION
14730	0074	00	2 16322		TSX ACC,2	TO CHECK ACCUMULATOR
14731	0604	00	0 16576	F23A	STI TEMP	STORE INDICATORS
14732	0500	00	0 16576		CLA TEMP	CHECK INDICATORS
14733	0560	00	0 16362		LDQ ONES	L ALL ONES TO MQ
14734	0340	00	0 16362		CAS ONES	
14735	0020	00	0 14737		TRA F23A+6	ERROR
14736	0020	00	0 14740		TRA F23A+7	OK IND UNCHANGED
14737	0074	00	4 06504		TSX ERROR,4	TO ERROR ROUTINE
14740	0074	00	4 06511		TSX OK,4	CONTINUE TEST
14741	0020	00	0 14716		TRA F23	REPEAT TEST
14742	432663606060				BCD 1LFT	
14743	0441	00	0 16362	F24	LDI ONES	ALL INDICATORS ON
14744	0500	00	0 16362		CLA ONES	L ALL ONES

14745	0560	00	0	16434		LDQ	MTW		BITS TO MQ POSITIONS S,1
14746	-0763	00	0	00002		LGL	2		BITS TO ACC S,Q,P,1-35
14747	0600	00	0	16600		STZ	TEMP+2		CLEAR LOCATION
14750	-0625	00	0	16600		STL	TEMP+2		LOC OF TEST INSTR
14751	-0054	00		000000		LFT	0		IND NOT EXAMINED-SKIP
14752	0020	00	0	14754		TRA	*+2		ERROR
14753	0020	00	0	14756		TRA	*+3		OK
14754	0074	00	4	06503		TSX	ERROR-1,4		TO ERROR ROUTINE
14755	0020	00	0	14743		TRA	F24		REPEAT SECTION
14756	0074	00	2	16322		TSX	ACC,2		TO CHECK ACCUMULATOR
14757	0604	00	0	16576	F24A	STI	TEMP		STORE INDICATORS
14760	0500	00	0	16576		CLA	TEMP		CHECK INDICATORS
14761	0560	00	0	16362		LDQ	ONES		L ALL ONES TO MQ
14762	0340	00	0	16362		CAS	ONES		
14763	0020	00	0	14765		TRA	F24A+6		ERROR
14764	0020	00	0	14766		TRA	F24A+7		OK IND UNCHANGED
14765	0074	00	4	06504		TSX	ERROR,4		TO ERROR ROUTINE
14766	0074	00	4	06511		TSX	OK,4		CONTINUE TEST
14767	0020	00	0	14743		TRA	F24		REPEAT TEST
14770	432663606060					BCD	1LFT		
14771	0441	00	0	16426	F25	LDI	K24		L +111111111111
14772	-0051	00		111111		IIL	4681,1		TURN OFF LEFT HALF IND
14773	0074	00	2	16317		TSX	ENTM,2		TEST PRI OP 0,4 NOT TRAP
14774	-0054	00		444444		LFT	18724,4		EXAMINED IND OFF-SKIP
14775	0021	00	0	15012		TTR	*+13		ERROR-SHOULD SKIP
*CHECK CONTENTS OF LOCATION 00000									
14776	-0760	00	0	00007		LTM			EXIT TRAP MODE
14777	0602	00	0	16600		SLW	TEMP+2		SAVE ACCUMULATOR
15000	0500	00	0	00000		CLA			L CONTENTS LOC 00000
15001	0560	00	0	16160		LDQ	END+1		L TRA START-3
15002	0340	00	0	16160		CAS	END+1		
15003	0020	00	0	15005		TRA	*+2		ERROR
15004	0020	00	0	15010		TRA	*+4		OK
15005	0074	00	4	06503		TSX	ERROR-1,4		
15006	0020	00	0	14771		TRA	F25		
15007	0074	00	4	16351		TSX	STORE,4		TO RESTORE RESET START
15010	-0500	00	0	16600		CAL	TEMP+2		RESTORE ACCUMULATOR
15011	0020	00	0	15015		TRA	F25A		OK
15012	-0760	00	0	00007		LTM			EXIT TRAP MODE
15013	0074	00	4	06503		TSX	ERROR-1,4		ERROR-DID NOT SKIP
15014	0020	00	0	14771		TRA	F25		REPEAT SECTION
15015	-0054	00		222222	F25A	LFT	9362,2		EXAMINED IND OFF-SKIP
15016	0020	00	0	15020		TRA	F25A+3		ERROR
15017	0020	00	0	15022		TRA	F25A1		OK
15020	0074	00	4	06503		TSX	ERROR-1,4		TO ERROR ROUTINE
15021	0020	00	0	14771		TRA	F25		REPEAT SECTION

15022	-0054	00	111111	F25A1	LFT 4681,1	EXAMINED IND OFF-SKIP
15023	0020	00	0 15025		TRA F25A1+3	ERROR
15024	0020	00	0 15026		TRA F25A1+4	OK
15025	0074	00	4 06504		TSX ERROR,4	TO ERROR ROUTINE
15026	0074	00	4 06511		TSX OK,4	CONTINUE TEST
15027	0020	00	0 14771		TRA F25	REPEAT TEST
15030	432663606060				BCD 1LFT	
15031	0441	00	0 16361	F26	LDI ZERO	ALL INDICATORS OFF
15032	-0055	00	111111		SIL 4681,1	TURN ON 6 LEFT HALF IND
15033	-0054	00	444444		LFT 18724,4	EXAMINED IND OFF-SKIP
15034	0020	00	0 15036		TRA F26+5	ERROR
15035	0020	00	0 15040		TRA F26A	OK
15036	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15037	0020	00	0 15031		TRA F26	REPEAT SECTION
15040	-0054	00	222222	F26A	LFT 9362,2	EXAMINED IND OFF-SKIP
15041	0020	00	0 15043		TRA F26A+3	ERROR
15042	0020	00	0 15045		TRA F26A1	OK
15043	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15044	0020	00	0 15031		TRA F26	REPEAT SECTION
15045	-0054	00	333333	F26A1	LFT 14043,3	EXAMINED IND ON
15046	0020	00	0 15051		TRA F26A2	OK
15047	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15050	0020	00	0 15031		TRA F26	REPEAT SECTION
15051	0604	00	0 16576	F26A2	STI TEMP	STORE INDICATORS
15052	0500	00	0 16576		CLA TEMP	CHECK INDICATORS
15053	0400	00	0 16523		ADD K33	L +111111
15054	0560	00	0 16426		LDQ K24	L +111111111111
15055	0340	00	0 16426		CAS K24	
15056	0020	00	0 15060		TRA F26A2+7	ERROR
15057	0020	00	0 15061		TRA F26A2+8	OK IND UNCHANGED
15060	0074	00	4 06504		TSX ERROR,4	TO ERROR ROUTINE
15061	0074	00	4 06511		TSX OK,4	CONTINUE TEST
15062	0020	00	0 15031		TRA F26	REPEAT TEST
15063	432663606060				BCD 1LFT	RIPPLE TEST
15064	0500	00	0 16536	F26B	CLA K38+7	L LFT INSTRUCTION
15065	-0501	00	0 16365		ORA ONE	WITH BIT IN
15066	0601	00	0 15077		STO *+9	POSITION 35
15067	0500	00	0 16365		CLA ONE	L +1
15070	0601	00	0 16576		STO TEMP	SAVE ACCUMULATOR
15071	0441	00	0 16362		LDI ONES	ALL INDICATORS ON
15072	0774	00	1 00022		AXT 18,1	L +22 IN XRA
15073	0500	00	0 16525		CLA K35	L +400000
15074	0767	00	0 00001		ALS 1	RIPPLE 1 POSITION
15075	0602	00	0 16577		SLW TEMP+1	SAVE ACCUMULATOR
15076	0041	00	0 00000		IIA	TURN TESTED IND OFF
15077	-0054	00	000001		LFT 1	
15100	0020	00	0 15102		TRA *+2	ERROR
15101	0020	00	0 15104		TRA *+3	OK
15102	0074	00	4 06503		TSX ERROR-1,4	ERROR



15103	0020	00	0	15064		TRA F26B	REPEAT SECTION
15104	0041	00	0	00000		IIA	RESET TESTED IND
15105	0500	00	0	16576		CLA TEMP	L SAVED ACCUMULATOR
15106	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
15107	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
15110	-0501	00	0	16536		ORA K38+7	ADJUST LFT
15111	0602	00	0	15077		SLW F26B+11	INSTRUCTION
15112	-0500	00	0	16577		CAL TEMP+1	L SAVED ACCUMULATOR
15113	2	00001	1	15074		TIX F26B+8,1,1	CHECK EACH IND POSITION
15114	0074	00	4	06511		TSX OK,4	
15115	0020	00	0	15064		TRA F26B	
15116	432663606060					BCD 1LFT	RIPPLE TEST
15117	0500	00	0	16536	F26C	CLA K38+7	L LFT INSTRUCTION
15120	-0501	00	0	16365		ORA ONE	WITH BIT IN
15121	0601	00	0	15132		STO *+9	POSITION 35
15122	0500	00	0	16365		CLA ONE	L +1
15123	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
15124	0441	00	0	16361		LDI ZERO	ALL INDICATORS OFF
15125	0774	00	1	00022		AXT 18,1	L +22 IN XRA
15126	0500	00	0	16525		CLA K35	L +400000
15127	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
15130	0602	00	0	16577		SLW TEMP+1	SAVE ACCUMULATOR
15131	0041	00	0	00000		IIA	TURN TESTED IND ON
15132	-0054	00	0	000001		LFT 1	
15133	0020	00	0	15136		TRA *+3	OK
15134	0074	00	4	06503		TSX ERROR-1,4	ERROR
15135	0020	00	0	15117		TRA F26C	
15136	0041	00	0	00000		IIA	TURN TEST IND OFF
15137	0500	00	0	16576		CLA TEMP	L SAVED ACCUMULATOR
15140	0767	00	0	00001		ALS 1	RIPPLE 1 POSITION
15141	0601	00	0	16576		STO TEMP	SAVE ACCUMULATOR
15142	-0501	00	0	16536		ORA K38+7	ADJUST LFT
15143	0602	00	0	15132		SLW F26C+11	INSTRUCTION
15144	-0500	00	0	16577		CAL TEMP+1	L SAVED ACCUMULATOR
15145	2	00001	1	15127		TIX F26C+8,1,1	CHECK EACH IND POS
15146	0074	00	4	06511		TSX OK,4	
15147	0020	00	0	15117		TRA F26C	
15150	514563606060					BCD 1RNT	TEST-RIGHT HALF IND ON TEST
15151	0441	00	0	16362	F28	LDI ONES	ALL INDICATORS ON
15152	0500	00	0	16362		CLA ONES	L ALL ONES
15153	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
15154	-0763	00	0	00002		LGL 2	BITS TO ACC S,Q,P,1-35
15155	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
15156	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
15157	0056	00	7	777777		RNT 32767,7	EXAMINED IND ON SKIP
15160	0020	00	0	15162		TRA *+2	ERROR
15161	0020	00	0	15164		TRA *+3	OK
15162	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
15163	0020	00	0	15151		TRA F28	REPEAT SECTION
15164	0074	00	2	16322		TSX ACC,2	TO TEST ACCUMULATOR

15165	0604	00	0	16576	F28A	STI TEMP	STORE INDICATORS
15166	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
15167	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
15170	0340	00	0	16362		CAS ONES	
15171	0020	00	0	15173		TRA F28A+6	ERROR
15172	0020	00	0	15174		TRA F28A+7	OK IND UNCHANGED
15173	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
15174	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
15175	0020	00	0	15151		TRA F28	REPEAT TEST
15176	514563606060					BCD 1RNT	
15177	0441	00	0	16361	F29	LDI ZERO	ALL INDICATORS OFF
15200	0500	00	0	16362		CLA ONES	L ALL ONES
15201	0560	00	0	16434		LDQ MTW	BITS TO MQ POSITIONS S,1
15202	-0763	00	0	00002		LGL 2	BITS TO ACC S,Q,P,1-35
15203	0600	00	0	16600		STZ TEMP+2	CLEAR LOCATION
15204	-0625	00	0	16600		STL TEMP+2	LOC OF TEST INSTR
15205	0056	00		777777		RNT 32767,7	EXAMINED IND OFF
15206	0020	00	0	15211		TRA *+3	OK
15207	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
15210	0020	00	0	15177		TRA F29	REPEAT SECTION
15211	0074	00	2	16322		TSX ACC,2	TO CHECK ACCUMULATOR
15212	-0046	00	0	00000	F29A	PIA	IND TO ACC AND CHECK
15213	0100	00	0	15215		TZE F29A+3	OK IND UNCHANGED
15214	0074	00	4	06504		TSX ERROR, 4	TO ERROR ROUTINE
15215	0074	00	4	06511		TSX OK, 4	CONTINUE TEST
15216	0020	00	0	15177		TRA F29	REPEAT TEST
15217	514563606060					BCD 1RNT	
15220	0441	00	0	16362	F30	LDI ONES	ALL INDICATORS ON
15221	0074	00	2	16317		TSX ENTM,2	TEST PRI 0,4 NO TRAP
15222	0056	00		000000		RNT 0	IND NOT EXAMINED-SKIP
15223	0021	00	0	15240		TTR *+13	ERROR-SHOULD SKIP
*CHECK CONTENTS OF LOCATION 00000							
15224	-0760	00	0	00007		LTM	EXIT TRAP MODE
15225	0602	00	0	16600		SLW TEMP+2	SAVE ACCUMULATOR
15226	0500	00	0	00000		CLA	L CONTENTS LOC 00000
15227	0560	00	0	16160		LDQ END+1	L TRA START-3
15230	0340	00	0	16160		CAS END+1	
15231	0020	00	0	15233		TRA *+2	ERROR
15232	0020	00	0	15236		TRA *+4	OK
15233	0074	00	4	06503		TSX ERROR-1,4	
15234	0020	00	0	15220		TRA F30	
15235	0074	00	4	16351		TSX STORE,4	TO RESTORE RESET START
15236	-0500	00	0	16600		CAL TEMP+2	RESTORE ACCUMULATOR
15237	0020	00	0	15243		TRA F30A	OK
15240	-0760	00	0	00007		LTM	EXIT TRAP MODE

15241	0074	00	4	06503		TSX ERROR-1,4	ERROR-DID NOT SKIP
15242	0020	00	0	15220		TRA F30	REPEAT SECTION
15243	0604	00	0	16576	F30A	STI TEMP	STORE INDICATORS
15244	0500	00	0	16576		CLA TEMP	CHECK INDICATORS
15245	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
15246	0340	00	0	16362		CAS ONES	
15247	0020	00	0	15251		TRA F30A+6	ERROR
15250	0020	00	0	15252		TRA F30A+7	OK IND UNCHANGED
15251	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
15252	0074	00	4	06511		TSX OK,4	CONTINUE TEST
15253	0020	00	0	15220		TRA F30	REPEAT TEST
15254	514563606060					BCD 1RNT	
15255	0441	00	0	16361	F31	LDI ZERO	ALL INDICATORS OFF
15256	0056	00		000000		RNT 0	IND NOT EXAMINED-SKIP
15257	0020	00	0	15261		TRA F31+4	ERROR
15260	0020	00	0	15263		TRA F31A	OK
15261	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
15262	0020	00	0	15255		TRA F31	
15263	-0046	00	0	00000	F31A	PIA	IND TO ACC AND CHECK
15264	0100	00	0	15266		TZE F31A+3	OK IND UNCHANGED
15265	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
15266	0074	00	4	06511		TSX OK,4	CONTINUE TEST
15267	0020	00	0	15255		TRA F31	REPEAT TEST
15270	514563606060					BCD 1RNT	
15271	0441	00	0	16426	F32	LDI K24	L +111111111111
15272	0056	00		444444		RNT 18724,4	EXAMINED IND OFF
15273	0020	00	0	15276		TRA F32A	OK
15274	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
15275	0020	00	0	15271		TRA F32	REPEAT SECTION
15276	0056	00		222222	F32A	RNT 9362,2	EXAMINED IND OFF
15277	0020	00	0	15302		TRA F32A1	OK
15300	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
15301	0020	00	0	15271		TRA F32	REPEAT SECTION
15302	0056	00		111111	F32A1	RNT 4681,1	EXAMINED IND ON-SKIP
15303	0020	00	0	15305		TRA F32A1+3	ERROR
15304	0020	00	0	15307		TRA F32A2	OK
15305	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
15306	0020	00	0	15271		TRA F32	REPEAT SECTION
15307	-0046	00	0	00000	F32A2	PIA	IND TO ACC AND CHECK
15310	0560	00	0	16426		LDQ K24	L +111111111111
15311	0340	00	0	16426		CAS K24	
15312	0020	00	0	15314		TRA F32A2+5	ERROR
15313	0020	00	0	15315		TRA F32A2+6	OK IND UNCHANGED
15314	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
15315	0074	00	4	06511		TSX OK,4	CONTINUE TEST
15316	0020	00	0	15271		TRA F32	REPEAT TEST

15317	514563606060		BCD 1RNT	
15320	0774 00 1 00022	F27	AXT 18,1	L +22 IN XRA
15321	0500 00 0 16537		CLA K38+8	L RNT INSTRUCTION
15322	-0501 00 0 16365		ORA ONE	WITH BIT IN
15323	0601 00 0 15326		STO F27+6	POSITION 35
15324	0500 00 0 16365		CLA ONE	L +1
15325	0044 00 0 00000		PAI	ACC TO IND
15326	0056 00 000001		RNT 1	EXAMINED IND ON-SKIP
15327	0020 00 0 15331		TRA F27+9	ERROR
15330	0020 00 0 15333		TRA F27A	OK
15331	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15332	0020 00 0 15320		TRA F27	REPEAT SECTION
15333	0767 00 0 00001	F27A	ALS 1	RIPPLE 1 POSITION
15334	-0501 00 0 16537		ORA K38+8	ADJUST RNT
15335	0601 00 0 15326		STO F27+6	INSTRUCTION
15336	-0320 00 0 16522		ANA K31	L +777777-ADJUST ACC
15337	2 00001 1 15325		TIX F27+5,1,1	REPEAT EACH RT HALF POS
15340	0560 00 0 16525	F27A1	LDQ K35	L +400000
15341	0604 00 0 16576		STI TEMP	STORE INDICATORS
15342	0500 00 0 16576		CLA TEMP	CHECK INDICATORS
15343	0340 00 0 16525		CAS K35	POS TESTED
15344	0020 00 0 15346		TRA F27A1+6	ERROR
15345	0020 00 0 15347		TRA F27A1+7	OK
15346	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
15347	0074 00 4 06511		TSX OK,4	CONTINUE TEST
15350	0020 00 0 15320		TRA F27	REPEAT TEST
15351	434563606060		BCD 1LNT	TEST-LEFT HALF IND ON TEST
15352	0441 00 0 16362	F34	LDI ONES	ALL INDICATORS ON
15353	0500 00 0 16362		CLA ONES	L ALL ONES
15354	0560 00 0 16434		LDQ MTW	BITS TO MQ POSITIONS S,1
15355	-0763 00 0 00002		LGL 2	BITS TO ACC S,Q,P,1-35
15356	0600 00 0 16600		STZ TEMP+2	CLEAR LOCATION
15357	-0625 00 0 16600		STL TEMP+2	LOC OF TEST INSTR
15360	-0056 00 777777		LNT 32767,7	EXAMINED IND ON SKIP
15361	0020 00 0 15363		TRA *+2	ERROR
15362	0020 00 0 15365		TRA *+3	OK
15363	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15364	0020 00 0 15352		TRA F34	REPEAT SECTION
15365	0074 00 2 16322		TSX ACC,2	TO CHECK ACCUMULATOR
15366	0604 00 0 16576	F34A	STI TEMP	STORE INDICATORS
15367	0500 00 0 16576		CLA TEMP	CHECK INDICATORS
15370	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
15371	0340 00 0 16362		CAS ONES	
15372	0020 00 0 15374		TRA F34A+6	ERROR
15373	0020 00 0 15375		TRA F34A+7	OK IND UNCHANGED
15374	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
15375	0074 00 4 06511		TSX OK,4	CONTINUE TEST
15376	0020 00 0 15352		TRA F34	REPEAT TEST

15377	434563606060		BCD 1LNT	
15400	0441 00 0 16361	F35	LDI ZERO	ALL INDICATORS OFF
15401	0500 00 0 16362		CLA ONES	L ALL ONES
15402	0560 00 0 16434		LDQ MTW	BITS TO MQ POSITIONS S,1
15403	-0763 00 0 00002		LGL 2	BITS TO ACC S,Q,P,1-35
15404	0600 00 0 16600		STZ TEMP+2	CLEAR LOCATION
15405	-0625 00 0 16600		STL TEMP+2	LOC OF TEST INSTR
15406	-0056 00 777777		LNT 32767,7	EXAMINED IND OFF
15407	0020 00 0 15412		TRA *+3	OK
15410	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15411	0020 00 0 15400		TRA F35	REPEAT SECTION
15412	0074 00 2 16322		TSX ACC,2	TO CHECK ACCUMULATOR
15413	-0046 00 0 00000	F35A	PIA	IND TO ACC AND CHECK
15414	0100 00 0 15416		TZE F35A+3	OK IND UNCHANGED
15415	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
15416	0074 00 4 06511		TSX OK,4	CONTINUE TEST
15417	0020 00 0 15400		TRA F35	REPEAT TEST
15420	434563606060		BCD 1LNT	
15421	0441 00 0 16362	F36	LDI ONES	ALL INDICATORS ON
15422	0074 00 2 16317		TSX ENTM,2	TEST PRI OP 0,4 NO TRAP
15423	-0056 00 000000		LNT 0	IND UNEXAMINED SKIP
15424	0021 00 0 15441		TTR *+13	ERROR-SHOULD SKIP
*CHECK CONTENTS OF LOCATION 00000				
15425	-0760 00 0 00007		LTM	EXIT TRAP MODE
15426	0602 00 0 16600		SLW TEMP+2	SAVE ACCUMULATOR
15427	0500 00 0 00000		CLA	L CONTENTS LOC 00000
15430	0560 00 0 16160		LDQ END+1	L TRA START-3
15431	0340 00 0 16160		CAS END+1	
15432	0020 00 0 15434		TRA *+2	ERROR
15433	0020 00 0 15437		TRA *+4	OK
15434	0074 00 4 06503		TSX ERROR-1,4	
15435	0020 00 0 15421		TRA F36	
15436	0074 00 4 16351		TSX STORE,4	TO RESTORE RESET START
15437	-0500 00 0 16600		CAL TEMP+2	RESTORE ACCUMULATOR
15440	0020 00 0 15444		TRA F36A	OK
15441	-0760 00 0 00007		LTM	EXIT TRAP MODE
15442	0074 00 4 06503		TSX ERROR-1,4	ERROR-DID NOT SKIP
15443	0020 00 0 15421		TRA F36	REPEAT SECTION
15444	0604 00 0 16576	F36A	STI TEMP	STORE INDICATORS
15445	0500 00 0 16576		CLA TEMP	CHECK INDICATORS
15446	0560 00 0 16362		LDQ ONES	L ALL ONES TO MQ
15447	0340 00 0 16362		CAS ONES	
15450	0020 00 0 15452		TRA F36A+6	ERROR
15451	0020 00 0 15453		TRA F36A+7	OK IND UNCHANGED
15452	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
15453	0074 00 4 06511		TSX OK,4	CONTINUE TEST

15454	0020 00 0 15421		TRA F36	REPEAT TEST
15455	434563606060		BCD 1LNT	
15456	0441 00 0 16361	F37	LDI ZERO	ALL INDICATORS OFF
15457	-0056 00 000000		LNT 0	IND NOT EXAMINED-SKIP
15460	0020 00 0 15462		TRA F37+4	ERROR
15461	0020 00 0 15464		TRA F37A	OK
15462	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15463	0020 00 0 15456		TRA F37	REPEAT SECTION
15464	-0046 00 0 00000	F37A	PIA	IND TO ACC AND CHECK
15465	0100 00 0 15467		TZE F37A+3	OK IND UNCHANGED
15466	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
15467	0074 00 4 06511		TSX OK,4	CONTINUE TEST
15470	0020 00 0 15456		TRA F37	REPEAT TEST
15471	434563606060		BCD 1LNT	
15472	0441 00 0 16426	F38	LDI K24	L +111111111111
15473	-0056 00 444444		LNT 18724,4	EXAMINED IND OFF
15474	0020 00 0 15477		TRA F38A	OK
15475	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15476	0020 00 0 15472		TRA F38	REPEAT SECTION
15477	-0056 00 222222	F38A	LNT 9362,2	EXAMINED IND OFF
15500	0020 00 0 15503		TRA F38A1	OK
15501	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15502	0020 00 0 15472		TRA F38	REPEAT SECTION
15503	-0056 00 111111	F38A1	LNT 4681,1	EXAMINED IND ON SKIP
15504	0020 00 0 15506		TRA F38A1+3	ERROR
15505	0020 00 0 15510		TRA F38A2	OK
15506	0074 00 4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15507	0020 00 0 15472		TRA F38	REPEAT SECTION
15510	-0046 00 0 00000	F38A2	PIA	IND TO ACC AND CHECK
15511	0560 00 0 16426		LDQ K24	L +111111111111
15512	0340 00 0 16426		CAS K24	
15513	0020 00 0 15515		TRA F38A2+5	ERROR
15514	0020 00 0 15516		TRA F38A2+6	OK IND UNCHANGED
15515	0074 00 4 06504		TSX ERROR,4	TO ERROR ROUTINE
15516	0074 00 4 06511		TSX OK,4	CONTINUE TEST
15517	0020 00 0 15472		TRA F38	REPEAT TEST
15520	434563606060		BCD 1LNT	
15521	0500 00 0 16365	F33	CLA ONE	L +1
15522	0601 00 0 16577		STO TEMP+1	SAVE ACCUMULATOR
15523	0500 00 0 16540		CLA K38+9	L LNT INSTRUCTION
15524	-0501 00 0 16365		ORA ONE	WITH BIT IN
15525	0601 00 0 15532		STO F33+9	POSITION 35
15526	0774 00 1 00022		AXT 18,1	L 22 IN XRA
15527	0500 00 0 16525		CLA K35	L +400000
15530	0767 00 0 00001		ALS 1	RIPPLE 1 POSITION
15531	0044 00 0 00000		PAI	ACC TO IND

15532	-0056	00	000001		LNT 1	
15533	0020	00	0 15535		TRA F33+12	ERROR
15534	0020	00	0 15537		TRA F33A	OK
15535	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15536	0020	00	0 15521		TRA F33	REPEAT SECTION
15537	0602	00	0 16576	F33A	SLW TEMP	SAVE ACCUMULATOR
15540	0500	00	0 16577		CLA TEMP+1	ADJUST
15541	0767	00	0 00001		ALS 1	F
15542	0601	00	0 16577		STO TEMP+1	FIELD
15543	-0501	00	0 16540		ORA K38+9	ADJUST LNT
15544	0602	00	0 15532		SLW F33+9	INSTRUCTION
15545	-0500	00	0 16576		CAL TEMP	RESTORE SAVED ACC
15546	2 00001	1	15530		TIX F33+7,1,1	REPEAT EACH LEFT HALF POS
15547	0604	00	0 16600		STI TEMP+2	STORE INDICATORS
15550	0500	00	0 16600		CLA TEMP+2	CHECK INDICATORS
15551	-0120	00	0 15554		TMI F33A1	OK
15552	0074	00	4 06503		TSX ERROR-1,4	TO ERROR ROUTINE
15553	0020	00	0 15521		TRA F33	REPEAT SECTION
15554	0100	00	0 15556	F33A1	TZE F33A1+2	OK
15555	0074	00	4 06504		TSX ERROR,4	TO ERROR ROUTINE
15556	0074	00	4 06511		TSX OK,4	CONTINUE TEST
15557	0020	00	0 15521		TRA F33	REPEAT TEST
15560	0761	00	0 00000		NOP	
15561	0760	00	0 00165	AAA	SWT 5	TEST SENSE SWITCH 5
15562	0020	00	0 16157		TRA END	BYPASS ALL HALT TESTS AND ADDER TESTS
15563	0500	00	0 16066		CLA PLUS+3	INSERT BYPASS HALTS
15564	0601	00	0 15563		STO AAA+2	ON THE NEXT PASS
15565	0020	00	0 15567		TRA SLSW	
HALT TESTS						
15566	624340626660				BCD 1SL-SW	CHECK SENSE SWITCHES INSTR WITH SENSE LIGHTS
15567	0760	00	0 00140	SLSW	SLF	ALL SENSE LIGHTS OFF
15570	0774	00	1 00004		AXT 4,1	L 4 IN XRA
15571	0760	00	1 00145		SLN 5,1	TURN ON FOUR
15572	2 00001	1	15571		TIX *-1,1,1	SENSE LIGHTS
15573	0760	00	0 00161		SWT 1	TEST SWITCH 1
15574	0761	00	0 00000		NOP	
15575	-0760	00	0 00141		SLT 1	IS SENSE LIGHT 1 ON
15576	0000	00	0 15577		HTR *+1	NO-ERROR
15577	0760	00	0 00162		SWT 2	TEST SWITCH 2
15600	0761	00	0 00000		NOP	
15601	-0760	00	0 00142		SLT 2	IS SENSE LIGHT 2 ON
15602	0000	00	0 15603		HTR *+1	NO-ERROR
15603	0760	00	0 00163		SWT 3	TEST SWITCH 3





15661	0340	00	0	16363		CAS K2	CHECK ACC UNCHANGED
15662	0020	00	0	15664		TRA A46A+5	ERROR
15663	0020	00	0	15666		TRA A46A1	OK-ACC UNCHANGED
15664	0074	00	4	06503		TSX ERROR-1,4	TO ERROR ROUTINE
15665	0020	00	0	15646		TRA A46X	
15666	0500	00	0	16576	A46A1	CLA TEMP	CHECK SAVED MQ
15667	0560	00	0	16442		LDQ K36	L +3777777776 MQ, ACC SHOULD BE THE SAME
15670	0340	00	0	16442		CAS K36	CHECK MQ UNCHANGED
15671	0020	00	0	15673		TRA A46A1+5	ERROR
15672	0020	00	0	15674		TRA A46A1+6	OK-MQ UNCHANGED
15673	0074	00	4	06504		TSX ERROR,4	TO ERROR ROUTINE
15674	0074	00	4	06511		TSX OK,4	CONTINUE TEST
15675	0020	00	0	15646		TRA A46X	

15676	254542606060					BCD 1ENK	TEST-ENTER KEYS
15677	0000	00	0	15700	KY	HTR *+1	STOP-PUT ONES IN KEYS
15700	0760	00	0	00004		ENK	ONES IN MQ FROM KEYS
15701	0760	00	0	00000		CLM	CLEAR ACC
15702	0763	00	0	00043		LLS 35	MOVE MQ TO ACC
15703	0560	00	0	16362		LDQ ONES	L ALL ONES TO MQ
15704	0340	00	0	16362		CAS ONES	
15705	0020	00	0	15707		TRA *+2	ERROR
15706	0020	00	0	15711		TRA *+3	OK
15707	0074	00	4	06503		TSX ERROR-1,4	ERROR
15710	0020	00	0	15677		TRA KY	REPEAT SECTION

15711	0000	00	0	15712		HTR KY1	STOP-PUT ZEROS IN KEYS
15712	0760	00	0	00004	KY1	ENK	ZEROS IN MQ FROM KEYS
15713	0760	00	0	00000		CLM	CLEAR ACC
15714	0763	00	0	00043		LLS 35	MOVE MQ TO ACC
15715	0100	00	0	15717		TZE *+2	OK
15716	0074	00	4	06504		TSX ERROR,4	ERROR
15717	0074	00	4	06511		TSX OK,4	
15720	0020	00	0	15677		TRA KY	

\*TEST CONSOLE DISPLAY BUTTONS WITH HTR AND HPR

15721	226463634645					BCD 1BUTTON	DISPLAY IND BUTTON WITH HTR
15722	0500	00	0	16553	BUT	CLA DIS	L TRA BUT+6
15723	0601	00	0	77777		STO 32K	PUT IN LAST STORAGE LOC
15724	0500	00	0	16554		CLA DIS+1	L HTR BUT+7
15725	0601	00	0	00000		STO 0	PUT IN LOC 00000
15726	0441	00	0	16433		LDI 8CF	INDICATORS 21-35 ON
15727	0000	00	0	00000		HTR	

\*PUT MACHINE IN MANUAL-HIT DISPLAY IND BUTTON-PUT MACHINE IN AUTOMATIC  
 \*HIT START TWICE AND PROGRAM SHOULD CONTINUE.  
 \*IF PROGRAM TRANSFERRED TO INDICATOR ADR DIPLSAYED IN SR,  
 \*YOU WILL GET AN ERROR STOP AT THE NEXT HPR

15730	0000	00	0	15734		HTR *+4	ERROR STOP
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15731 0074 00 4 06511 TSX OK,4  
15732 0020 00 0 15722 TRA BUT

15733 226463634645 BCD 1BUTTON DISPLAY STG BUTTON WITH HTR  
15734 0500 00 0 16555 BUT1 CLA DIS+2 L TRA BUT1+5  
15735 0601 00 0 77777 STO 32K PUT IN LAST STORAGE LOC  
15736 0500 00 0 16556 CLA DIS+3 L TRA BUT1+6  
15737 0601 00 0 00000 STO 0 PUT IN LOC 00000  
15740 0000 00 0 00000 HTR

\*PUT MACHINE IN MANUAL-PUT ADDRESS16433IN KEYS AND HIT  
\*DISPLAY STG BUTTON-NOW PUT MACHINE IN AUTOMATIC  
\*HIT START TWICE AND PROGRAM SHOULD CONTINUE.  
\*IF PROGRAQM TRANSFERRED TO ADDRESS DISPLAYED IN SR,  
\*YOU WILL GET AN ERROR STOP AT THE FOLLOWING HTR

15741 0000 00 0 15745 HTR \*+4 ERROR STOP  
15742 0074 00 4 06511 TSX OK,4  
15743 0020 00 0 15734 TRA BUT1

15744 226463634645 BCD 1BUTTON DISPLAY EFFECTIVE ARD  
BUTTON WITH HTR  
15745 0500 00 0 16561 BUT4 CLA DIS+6 L TRA BUT4+6  
15746 0601 00 0 77777 STO 32K PUT IN LAST STORAGE LOC  
15747 0500 00 0 16562 CLA DIS+7 L TRA BUT4+7  
15750 0601 00 0 00000 STO 0 PUT IN LOCATION 000000  
15751 0774 00 1 77777 AXT 32K,1 L 77777 IN XRA  
15752 0000 00 1 77777 HTR 32K,1

\*PUT MACHINE IN MANUL-HIT DISPLAY EFFECTIVE ADR BUTTON-  
\*PUT MACHINE IN AUTOMATIC-HIT START TWICE AND PROGRAM SHOULD CONTINUE  
\*IF PROGRAM TRANSFERRED TO ADDRESS 77777,  
\*YOU WILL GET AN ERROR STOP AT THE FOLLOWING HTR

15753 0000 00 0 15757 HTR \*+4 ERROR STOP  
15754 0074 00 4 06511 TSX OK,4  
15755 0020 00 0 15745 TRA BUT4

15756 226463634645 BCD 1BUTTON DISPLAY IND BUTTON WITH HPR  
15757 0500 00 0 16557 BUT2 CLA DIS+4 L TRA BUT2+5  
15760 0601 00 0 77777 STO 32K PUT IN LAST STORAGE LOC  
15761 0441 00 0 16433 LDI 8CF INDICATORS 21-35 ON  
15762 0420 00 0 00000 HPR

\*PUT MACHINE IN MANUAL, HIT DISPLAY IND BUTTON-PUT MACHINE IN AUTOMATIC  
\*AND HIT START BUTTON-SHOULD CONTINUE PROGRAM  
\*IF PROGRAM TRANSFERRED TO INDICATOR ADR DISPLAYED IN SR.  
\*YOU WILL GET AN ERROR STOP AT NEXT HPR

15763 0020 00 0 15766 TRA \*+3 HPR WORKED OK  
15764 0420 00 0 00000 HPR ERROR STOP  
15765 0020 00 0 15771 TRA \*+4  
15766 0074 00 4 06511 TSX OK,4

15767 0020 00 0 15757           TRA BUT2

15770 226463634645           BCD 1BUTTON    DISPLAY STG BUTTON WITH HPR  
 15771 0500 00 0 16560    BUT3  CLA DIS+5    L TRA BUT3+4  
 15772 0601 00 0 77777           STO 32K        PUT IN LAST STORAGE LOC  
 15773 0420 00 0 00000           HPR

\*PUT MACHINE IN MANUAL-PUT ADDRESS16433IN KEYS AND HIT  
 \*DISPLAY STG BUTTON-NOW PUTMACHINE IN AUTOMATIC  
 \*AND HIT START BUTTON-SHOULD CONTINUE PROGRAM  
 \*IF PROGRAM TRANSFERRED TO ADDRESS DISPLAYED IN SR,  
 \*YOU WILL GET AN ERROR STOP AT THE NEXT HPR

15774 0020 00 0 15777           TRA \*+3        HPR WORKED OK  
 15775 0420 00 0 00000           HPR            ERROR STOP  
 15776 0020 00 0 16002           TRA \*+4  
 15777 0074 00 4 06511           TSX OK,4  
 16000 0020 00 0 15771           TRA BUT3

16001 226463634645           BCD 1BUTTON    DISPLAY EFFECTIVE ADR  
   BUTTON WITH HPR  
 16002 0500 00 0 16563    BUT5  CLA DIS+8    L TRA BUT5+5  
 16003 0601 00 0 00000           STO  
 16004 0774 00 1 77777           AXT 32K,1     L 77777 IN XRA  
 16005 0420 00 1 77777           HPR 32K,1

\*PUT MACHINE IN MANUAL-HIT DISPLAY EFFECTIVE ADR BUTTON  
 \*PUT MACHINE IN AUTOMATIC-HIT START AND PROGRAM SHOULD CONTINUE  
 \*IF PROGRAM TRANSFERRED TO MODIFIED ADDRESS,  
 \*YOU WILL GET AN ERROR STOP AT THE FOLLOWING HPR

16006 0020 00 0 16011           TRA \*+3        HPR WORKED OK  
 16007 0420 00 0 00000           HPR            ERROR STOP  
 16010 0020 00 0 16014           TRA \*+4  
 16011 0074 00 4 06511           TSX OK,4  
 16012 0020 00 0 16002           TRA BUT5

16013 0761 00 0 00000           NOP  
 16014 0074 00 4 16351           TSX STORE,4    TO RESTORE RESET START  
 16015 0020 00 0 16017           TRA \*+2

16016 444770606060           BCD 1MPY       TEST ZERO MULTIPLICAND  
   EXECUTED IN AN I,E CYCLE  
 16017 0420 00 0 00000    TI    HPR        MPY TEST CARD IN CARD  
   READER AND READY READER  
 16020 0600 00 0 16576           STZ TEMP       CLEAR LOCATION  
 16021 0774 00 1 01143           AXT 611,1     L 1143 IN XRA  
 16022 0762 00 0 01321           RCDA          SELECT CARD READER  
 16023 0540 00 0 16573           RCHA CW+7

\*LOOP IN THE NEXT 2 INSTRUCTIONS UNTIL 9L ROW IS READ INTO STORAGE

16024 -0520 00 0 16576           NZT TEMP       HAS 9L ROW BEEN READ

16025	0020	00	0	16024	TRA *-1	NO
16026	0560	00	0	16362	LDQ ONES	YES, -377777777777 TO MQ
16027	0200	00	0	16361	MPY ZERO	MULTIPLICAND ALL ZEROS
16030	2 00001	1	16026	TIX *-2,1,1	LOOP 611 DECIMAL TIMES	
16031	0640	00	0	16577	SCHA TEMP+1	STORE BUFFER REGISTERS

\*IF MPY WITH ZERO MULTIPLICAND IS OPERATING CORRECTLY IN 2 CYCLES,  
 \*THE ADDRESS RESISTER IN THE BUFFER SHOULD HAVE BEEN INCREASED TO  
 \*INDICATE 8 DECIMAL WORDS READ WITHIN THE TIME ALLOTTED. COMPUTING  
 \*FOR CARD READER AND SAFTY FACTOR TIMINGS, THE PROGRAM WILL  
 \*USE THE CONTENTS OF THE ADDRESS REGISTER AS IF 10 DECIMAL WORDS  
 \*WERE READ FOR A COMPARISON. IF THE ADDRESS REGISTER  
 \*INDICATES 10 OR LESS DECIMAL WORDS READ, MPY WITH ZERO  
 \*MULTIPLICAN IS EXECUTING IN 2 CYCLES. IF MPY IS EXECUTING  
 \*IN 20 CYCLES IN ERROR, THE ADDRESS REGISTER WILL HAVE BEEN  
 \*STEPPED TO INDICAET 24 DECIMAL WORDS READ.

16032	0500	00	0	16577	CLA TEMP+1	L CONTENTS BUFFER REGISTERS
16033	0560	00	0	16526	LDQ K35+1	
16034	0340	00	0	16526	CAS K35+1	
16035	0020	00	0	16040	TRA *+3	ERROR-ADDRESS REGISTER STEPPED TOO HIGH
16036	0020	00	0	16043	TRA *+5	OK
16037	0020	00	0	16043	TRA *+4	OK
16040	0760	00	0	00163	SWT 3	ERROR-IS PRINTER ON LINE
16041	0020	00	0	16354	TRA TI1	YES, PRINT ERROR INDICATION
16042	0000	00	0	16046	HTR ADD	NO-MQ POS. 21-35 CONTAIN HIGHEST ADDRESS BUFFER AR SHOULD HAVE BEEN STEPPED COMPARE WITH ACC POS 21-35
16043	0074	00	4	06511	TSX OK,4	
16044	0020	00	0	16017	TRA TI	

ADDER TEST

16045	212424606060				BCD 1ADD	
16046	0774	00	2	07777	ADD AXT 4K,2	L 7777
16047	0500	00	2	07777	CLA 4095,2	BRING IN LOC STORAGE
16050	0760	00	0	00006	COM	
16051	0400	00	2	07777	ADD 4095,2	MAKE ALL ONES
16052	0140	00	0	16053	TOV ADD+5	TURN OFF OVFL
16053	0120	00	0	16063	TPL PLUS	
16054	-0120	00	0	16057	TMI MINUS	
16055	0074	00	4	06503	TSX ERROR-1,4	SIGN ERROR
16056	0020	00	0	16046	TRA ADD	
16057	0402	00	0	16365	MINUS SUB ONE	FORCE RIPPLE
16060	0100	00	0	16067	TZE OVFL	
16061	0074	00	4	06503	TSX ERROR-1,4	
16062	0020	00	0	16046	TRA ADD	
16063	0400	00	0	16365	PLUS ADD ONE	FORCE RIPPLE
16064	0100	00	0	16067	TZE OVFL	
16065	0074	00	4	06503	TSX ERROR-1,4	FAILURE IN TZE INSTRUCTION
16066	0020	00	0	16046	TRA ADD	

16067	-0140	00	0	16076	OVFL	TNO SS	TEST OVFL SHOULD BE ON
16070	0140	00	0	16101		TOV SS1	SHOULD BE OFF NOW
16071	0500	00	2	07777		CLA 4095,2	BRING IN LOC
16072	0340	00	2	07777		CAS 4095,2	COMPARE TO STORAGE
16073	0020	00	0	16104		TRA TT	MEMORY LESS
16074	0020	00	0	16112		TRA LOOP	OK
16075	0020	00	0	16107		TRA TT1	MEMORY HIGH
16076	0074	00	4	06503	SS	TSX ERROR-1,4	OVFL SHOULD BE ON
16077	0020	00	0	16046		TRA ADD	
16100	0020	00	0	16071		TRA OVFL+2	
16101	0074	00	4	06503	SS1	TSX ERROR-1,4	TNO DID NOT TURN OFF OVFL
16102	0020	00	0	16046		TRA ADD	
16103	0020	00	0	16071		TRA OVFL+2	
16104	0074	00	4	06503	TT	TSX ERROR-1,4	MEMORY LESS
16105	0020	00	0	16046		TRA ADD	
16106	0020	00	0	16071		TRA OVFL+2	
16107	0074	00	4	06503	TT1	TSX ERROR-1,4	MEMORY HIGH
16110	0020	00	0	16046		TRA ADD	
16111	0020	00	0	16071		TRA OVFL+2	
16112	2	00001	2	16047	LOOP	TIX ADD+1,2,1	
16113	0020	00	0	16115		TRA MPY	
16114	444770606060						MPY TEST
16115	0774	00	2	07777	MPY	BCD 1MPY	
16116	0774	00	1	00043		AXT 4K,2	L 7777
16117	0560	00	0	16365		AXT 35,1	L 35
16120	-0773	00	1	00043		LDQ ONE	
16121	-0600	00	0	16576		RQL 35,1	
16122	0200	00	2	07777		STQ TEMP	SAVE BIT
16123	0765	00	1	00043		MPY 4095,2	MPY BY LOC
16124	0100	00	0	16127		LRS 35,1	
16125	0074	00	4	06503		TZE MPY+10	
16126	0020	00	0	16115		TSX ERROR-1,4	HIGH ORDER PRODUCT ERROR
16127	-0600	00	0	16577		TRA MPY	
16130	0500	00	0	16577		STQ TEMP+1	
16131	0402	00	2	07777		CLA TEMP+1	
16132	0100	00	0	16135		SUB 4095,2	SUB LOC
16133	0074	00	4	06503		TZE MPY+16	
16134	0020	00	0	16115		TSX ERROR-1,4	LOW ORDER PRODUCT ERROR
16135	2	00001	1	16117		TRA MPY	
16136	2	00001	2	16116		TIX MPY+2,1,1	
16137	0020	00	0	16141		TIX MPY+1,2,1	
						TRA DVP	

MPY AND DVP ALL ONES

16140	246547606060		BCD 1DVP	
16141	0774 00 1 07777	DVP	AXT 4K,1	L 7777
16142	0560 00 1 07777		LDQ 4095,1	LDQ WITH LOC
16143	0200 00 0 16365		MPY ONE	
16144	0221 00 0 16365		DVP ONE	
16145	0100 00 0 16150		TZE DVP+7	
16146	0074 00 4 06503		TSX ERROR-1,4	HIGH ORDER ERROR
16147	0020 00 0 16141		TRA DVP	

16150	-0600 00 0 16576		STQ TEMP	
16151	0500 00 1 07777		CLA 4095,1	BRING IN LOC TO ACC
16152	0402 00 0 16576		SUB TEMP	
16153	0100 00 0 16156		TZE DVP+13	
16154	0074 00 4 06503		TSX ERROR-1,4	LOW ORDER ERROR
16155	0020 00 0 16141		TRA DVP	

16156	2 00001 1 16142		TIX DVP+1,1,1	LOOP
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16157	0074 00 4 16161	END	TSX PR100,4	
16160	0020 00 0 00562		TRA START-3	START ADDRESS

THIS ROUTINE IS USED TO PRINT  
 UPON COMPLETION OF 100 PROGRAM  
 PASSES.IT ALSO SERVES AS A SENSE  
 SWITCH 6 TEST

16161	0760 00 0 00166	PR100	SWT 6	TEST SENSE SWITCH 6
16162	0020 00 0 16217		TRA CRSL	

16163	0760 00 0 00163		SWT 3	TEST SENSE SWITCH 3
16164	0020 00 0 16166		TRA BAR	BEGIN CT FOR 100 PASSES
16165	0020 00 4 00001		TRA 1,4	RETURN TO START ADDRESS

16166	0500 00 0 16212	BAR	CLA TOP	COUNT OF 100 DECIMAL
16167	0402 00 0 16216		SUB HAT	L +1
16170	0601 00 0 16212		STO TOP	STORE IN COUNT
16171	-0100 00 4 00001		TNZ 1,4	REPEAT TEST TILL ZERO
16172	0500 00 0 16213		CLA TOP+1	RESET
16173	0601 00 0 16212		STO TOP	COUNTER

16174	0774 00 1 00013		AXT 11,1	L 13 IN XRA
16175	0766 00 0 01361		WPRA	
16176	0760 00 0 01363		SPRA 3	SPACE PRINTER
16177	0540 00 0 16566		RCHA CW+2	
16200	0544 00 0 16572		LCHA CW+6	
16201	0544 00 0 16567	BOY	LCHA CW+3	
16202	0544 00 0 16572		LCHA CW+6	
16203	0500 00 0 16567		CLA CW+3	
16204	0402 00 0 16215		SUB CLUB	L +2
16205	0621 00 0 16567		STA CW+3	
16206	2 00001 1 16201		TIX BOY,1,1	
16207	0500 00 0 16570		CLA CW+4	RESTORE CONTROL WORD
16210	0601 00 0 16567		STO CW+3	
16211	0020 00 4 00001		TRA 1,4	EXIT TO START ADDRESS

16212	+000000000144	TOP	OCT 144	
16213	+000000000144		OCT 144	
16214	+000000000000		OCT 0	
16215	+000000000002	CLUB	OCT 2	
16216	+000000000001	HAT	OCT 1	
16217	0762 00 0 01321	CRSL	RCDA	LOAD
16220	0540 00 0 16571		RCHA CW+5	THE
16221	0544 00 0 00000		LCHA 0	NEXT
16222	0020 00 0 00001		TRA 1	PROGRAM
16223	0774 00 1 00013	ID	AXT 11,1	L 13 IN XRA
16224	0766 00 0 01361		WPRA	SELECT PRINTER
16225	0760 00 0 01363		SPRA 3	SPACE PRINTER
16226	0540 00 0 16564		RCHA CW	
16227	0544 00 0 16572		LCHA CW+6	
16230	0544 00 0 16565		LCHA CW+1	
16231	0544 00 0 16572		LCHA CW+6	
16232	0500 00 0 16565		CLA CW+1	
16233	0402 00 0 16215		SUB CLUB	L +2
16234	0621 00 0 16565		STA CW+1	
16235	2 00001 1 16230		TIX *-5,1,1	
16236	0020 00 0 00032		TRA SWING	

PRINT IMAGES

16237	+001120402200	PI	OCT 1120402200	9 L
16240	+000440000010		OCT 440000010	9 R
16241	+000000000000		OCT 0	8 L
16242	+000000000000		OCT 0	8 R
16243	+004004100000		OCT 4004100000	7 L
16244	+001102001000		OCT 1102001000	7 R
16245	+060600020000		OCT 60600020000	6 L
16246	+000200004000		OCT 200004000	6 R
16247	+102010040000		OCT 102010040000	5 L
16250	+000000100240		OCT 100240	5 R
16251	+000041000100		OCT 41000100	4 L
16252	+000010002004		OCT 10002004	4 R
16253	+000000005000		OCT 5000	3 L
16254	+000000010500		OCT 10500	3 R
16255	+000000010040		OCT 10040	2 L
16256	+000000640002		OCT 640002	2 R
16257	+000000200020		OCT 200020	1 L
16260	+020021000001		OCT 20021000001	1 R
16261	+020000014000		OCT 20000014000	0 L
16262	+014000640100		OCT 14000640100	0 R
16263	+145350060100		OCT 145350060100	11L
16264	+001652007404		OCT 1652007404	11R
16265	+002425703000		OCT 2425703000	12L
16266	+000121110240		OCT 121110240	12R

\*ERROR PRINT IMAGE FOR MPY TIMING TEST

16267	+000404240220	PI1	OCT 404240220	9 L
16270	+002102000000		OCT 2102000000	9 R

16271	+000041000000	OCT 41000000	8 L
16272	+000000100400	OCT 100400	8 R
16273	+000200000100	OCT 200000100	7 L
16274	+100400000000	OCT 100400000000	7 R
16275	+000010020000	OCT 10020000	6 L
16276	+000004000000	OCT 4000000	6 R
16277	+000000100002	OCT 100002	5 L
16300	+241041020040	OCT 241041020040	5 R
16301	+014000006001	OCT 14000006001	4 L
16302	+010010000000	OCT 10010000000	4 R
16303	+003102001450	OCT 3102001450	3 L
16304	+024000201300	OCT 24000201300	3 R
16305	+000000000000	OCT 0	2 L
16306	+000000004020	OCT 4020	2 R
16307	+000000000004	OCT 4	1 L
16310	+000000040000	OCT 40000	1 R
16311	+005052202400	OCT 5052202400	0 L
16312	+114000200420	OCT 114000200420	0 R
16313	+012300065142	OCT 12300065142	11L
16314	+001056020100	OCT 1056020100	11R
16315	+000405100235	OCT 405100235	12L
16316	+262501141240	OCT 262501141240	12R

ENTER TRAP MODE SUBROUTINE

16317	0760 00 0 00007	ENTM ETM	ENTER TRAP MODE
16320	0021 00 2 00001	TTR 1,2	RETURN TO TEST

\*CHECK ACCUMULATOR UNCHANGED BY EXECUTING INDICATOR INSTRUCTIONS

16321	212323646060	BCD 1ACCU	
16322	-0120 00 0 16326	ACC TMI *+4	OK-SIGN UNCHANGED
16323	0560 00 0 16600	LDQ TEMP+2	LOC OF INSTR TESTING
16324	0074 00 4 06503	TSX ERROR-1,4	
16325	0020 00 0 16322	TRA ACC	
16326	0760 00 0 00001	LBT	TEST POSITION 35
16327	0020 00 0 16331	TRA *+2	ERROR-LOST POSITION 35
16330	0020 00 0 16334	TRA ACC1	OK
16331	0560 00 0 16600	LDQ TEMP+2	LOC OF INSTR TESTING
16332	0074 00 4 06503	TSX ERROR-1,4	
16333	0020 00 0 16322	TRA ACC	
16334	0771 00 0 00001	ACC1 ARS 1	SHIFT BIT OUT OF Q
16335	0602 00 0 16577	SLW TEMP+1	SAVE ACCUMULATOR
16336	0500 00 0 16577	CLA TEMP+1	L SAVED ACCUMULATOR
16337	0560 00 0 16362	LDQ ONES	L ALL ONES TO MQ
16340	0340 00 0 16362	CAS ONES	
16341	0020 00 0 16343	TRA *+2	ERROR-LOST A POS Q,P,1-34
16342	0020 00 0 16346	TRA ACC2	OK-
16343	0560 00 0 16600	LDQ TEMP+2	LOC OF INSTR TESTING
16344	0074 00 4 06503	TSX ERROR-1,4	

\*NO BIT IN ACC SIGN POS,Q WAS LOST-NO BIT IN ACC 1 POS,P WAS LOST

\*NO BIT IN ACC 2 POS,1 WAS LOST-NO BIT IN ACC 3 POS, 2 WAS LOST ETC.



16345 0020 00 0 16322           TRA ACC  
 16346 0140 00 0 16347   ACC2 TOV \*+1           TURN OFF OVFL0 LUGHT  
 16347 0020 00 2 00001           TRA 1,2

EXECUTE-TSX SUBROUTINE

16350 0020 00 1 00004   SUB   TRA 4,1  
 16351 0500 00 0 16160   STORE CLA END+1  
 16352 0601 00 0 00000           STO 0  
 16353 0020 00 4 00001           TRA 1,4

PRINT FAST MPY ERROR INDICATION

16354 0766 00 0 01361   TI1   WPRA           SELECT PRINTER  
 16355 0760 00 0 01363           SPRA 3           SPACE PRINTER  
 16356 0540 00 0 16575           RCHA CW+9  
 16357 0020 00 0 16046           TRA ADD

CONSTANTS

16360 +3777777777777   PONES OCT 377777777777  
 16361 +0000000000000   ZERO  OCT 0  
 16362 -3777777777777   ONES  OCT 777777777777  
 16363 +0000007000000   K2    OCT +000000700000  
 16364 -3777770777777   K3    OCT -377777077777  
 16365 +0000000000001   ONE   OCT 1  
 16366 -0 00000 0 00000   MZE   MZE  
 16367 -3777777777770   K6    OCT -377777777770  
 16370 -3700000000000   SW1   OCT -370000000000  
 16371 +1000000000000   PTHR  OCT 100000000000  
 16372 +1777777777777   K8    OCT +177777777777  
 16373 -3000000000000   K10   OCT -300000000000  
 16374 +0000006777771   K11   OCT +000000677771  
 16375 +0000037777777   K12   OCT +000003777777  
 16376 +0377777777776   K13   OCT 377777777776  
 16377 -0000003400000   K14   OCT -000000340000  
 16400 +3740000034000   K15   OCT 374000003400  
 16401 -3700000007000           OCT -370000000700  
 16402 +020304050601           OCT 020304050601  
 16403 +010203040506   K16   OCT +010203040506  
 16404 2 10000 0 16403           TIX   K16,0,4096  
 16405 2 20000 0 16403           TIX   K16,0,8192  
 16406 2 30000 0 16403           TIX   K16,0,12288  
 16407 2 40000 0 16403           TIX   K16,0,16384  
 16410 2 50000 0 16403           TIX   K16,0,20480  
 16411 2 60000 0 16403           TIX   K16,0,24576  
 16412 -2 50000 1 27022          TNX   6\*K16,1,20480  
 16413 -1 00000 3 66743          STR   K37+65A1+16384,3  
 16414 2 10000 0 16414           TIX   K16+9,0,4096  
 16415 +020304050621   K16A  OCT 20304050621  
 16416 +212223242526   K16B  OCT 212223242526  
 16417 -0760 00 0 16443   K17   MSE K37,0,3072  
 16420 -374777770304           OCT -374777770304  
 16421 +265577177776   K20   OCT +265577177776

16422	+352000004262	K21	OCT	352000004262	
16423	-370000162714	K22	OCT	770000162714	
16424	-3 77777 7 10234	K23	TXL	A65X+3,7,32767	
16425	-3 24000 0 53411		TXL	3*K16,0,10240	
16426	+1111111111111	K24	OCT	1111111111111	
16427	+154321654321	K25	OCT	154321654321	
16430	+0000000000002	TWO	OCT	2	
16431	+0000000000003	THREE	OCT	3	
16432	+000000007777	1CF	OCT	7777	
16433	+000000077777	8CF	OCT	77777	
16434	-2 00000 0 00000	MTW	MTW		
16435	2 00000 0 00000	PTW	PTW		
16436	-374777177776	K32	OCT	774777177776	
16437	-1 00000 0 00000	MON	MON		
16440	-0000000000001	MONE	OCT	-0000000000001	
16441	-0000000000002	M2	OCT	-0000000000002	
16442	+377777777776	K36	OCT	377777777776	
16443	+3740000000000	K37	OCT	3740000000000	
16444	+000044000043	K37A	OCT	44000043	
16445	0020 00 0 10300	K37B	TRA	65A1	
16446	0020 00 0 10302	K37C	TRA	65A2	
16447	0020 00 0 10303	K37D	TRA	65A3	
16450	0020 00 0 10306	K37E	TRA	65A4	
16451	-3 77777 7 10275	K37G	TXL	65A+18,7,32767	
16452	0020 00 0 10311	K37E1	TRA	65A4A	
16453	0020 00 0 10314	K37E2	TRA	65A4B	
16454	0020 00 0 10317	K37E3	TRA	65A4C	
16455	0074 00 4 06503	K37E4	TSX	ERROR-1,4	
16456	-0000000000003	M3	OCT	-0000000000003	
16457	-252525252525	KK30	OCT	-252525252525	
16460	-125252252525	KK31	OCT	-125252252525	
16461	+000000252525	KK32	OCT	+000000252525	
16462	-252525525252	KK33	OCT	-252525525252	
16463	+252525000000	KK34	OCT	252525000000	
16464	+125252252525	KK35	OCT	+125252252525	
16465	+252525252525	KK36	OCT	+252525252525	
16466	+252525777777	KK37	OCT	252525777777	
16467	+377777252525	KK38	OCT	+377777252525	
16470	0020 00 0 02735	RTN	TRA	B20+7	
16471	0020 00 0 02733		TRA	B20+5	
16472	0021 00 0 04336	KK80	TTR	B83+9	SEE SECTION
16473	0000 00 0 04346	KK81	HTR	B84	B83 FOR USE
16474	0000 00 0 04332	KK82	HTR	B83+5	OF THESE ,KK 80,81,82
16475	0021 00 0 04376	KK83	TTR	B84A	
16476	0021 00 0 04422	KK84	TTR	B85+6	
16477	0021 00 0 04316	KK85	TTR	B82	
16500	0000 00 0 04434	KK85A	HTR	B85A-10	
16501	0000 00 0 04461	KK85B	HTR	B86+4	
16502	0000 00 0 04476	KK85C	HTR	B87+4	
16503	0000 00 0 04510	KK85D	HTR	B88+3	
16504	0000 00 0 04375	KK86	HTR	B84A-1	
16505	0020 00 0 04675	KK87	TRA	B98A+1	
16506	0020 00 0 04702	KK88	TRA	B98B	
16507	+0077000000000	SW2	OCT	+0077000000000	
16510	+0000770000000	SW3	OCT	+0000770000000	
16511	+0000007700000	SW4	OCT	+0000007700000	

16512	+000000007700	SW5	OCT	+000000007700
16513	+000000000077	SW6	OCT	+000000000077
16514	-1 00001 3 10322		STR	65A4D,3,1
16515	+000000000004	FOUR	OCT	4
16516	+000000000007	SEVEN	OCT	7
16517	+222222222222	K27	OCT	222222222222
16520	+333333333333	K28	OCT	333333333333
16521	-044444444444	K29	OCT	-044444444444
16522	+000000777777	K31	OCT	777777
16523	+000000111111	K33	OCT	111111
16524	+000000333333	K34	OCT	333333
16525	+000000400000	K35	OCT	400000
16526	0165 75 2 16611		IOCDN	TEMP+11,0,CW+9
16527	0055 00 000000	K38	SIR	0
16530	-0055 00 000000		SIL	0
16531	0057 00 000000		RIR	0
16532	-0057 00 000000		RIL	0
16533	0051 00 000000		IIR	0
16534	-0051 00 000000		IIL	0
16535	0054 00 000000		RFT	0
16536	-0054 00 000000		LFT	0
16537	0056 00 000000		RNT	0
16540	-0056 00 000000		LNT	0
16541	+000000000040	TR	OCT	40
16542	0000 00 0 16431		HTR	THREE
16543	0000 00 0 16515		HTR	FOUR
16544	0020 00 0 12576		TRA	MODE1
16545	0020 00 0 12572		TRA	MODE+5
16546	0020 00 0 12620		TRA	MODE3
16547	0020 00 0 12614		TRA	MODE2+5
16550	0602 00 0 16600		SLW	TEMP+2
16551	0500 00 0 16541		CLA	TR
16552	0020 00 0 00000		TRA	

16553	0020 00 0 15730	DIS	TRA	BUT+6
16554	0020 00 0 15731		TRA	BUT+7
16555	0020 00 0 15741		TRA	BUT1+5
16556	0020 00 0 15742		TRA	BUT1+6
16557	0020 00 0 15764		TRA	BUT2+5
16560	0020 00 0 15775		TRA	BUT3+4
16561	0020 00 0 15753		TRA	BUT4+6
16562	0020 00 0 15754		TRA	BUT4+7
16563	0020 00 0 16007		TRA	BUT5+5

CONTROL WORDS

16564	-1 00001 0 16237	CW	IOCT	PI,0,1
16565	-1 00001 0 16241		IOCT	PI+2,0,1
16566	-1 00001 0 16240		IOCT	PI+1,0,1
16567	-1 00001 0 16242		IOCT	PI+3,0,1
16570	-1 00001 0 16242		IOCT	PI+3,0,1
16571	-1 00003 0 00000		IOCT	0,0,3
16572	-1 00001 0 16214		IOCT	TOP+2,0,1
16573	-0000 01 0 16576		IOCP	TEMP,0,1
16574	0000 27 2 16601		IOCDN	TEMP+3,0,23
16575	0000 30 0 16267		IOCD	PI1,0,24

TEMPORARY STORAGE

16576 +0000000000000 TEMP OCT 0  
16577 +0000000000000 OCT 0  
16600 +0000000000000 OCT 0

00010	D	EQU 8	10	OCTAL
00020	2D	EQU 2*8	20	OCTAL
00030	3D	EQU 3*8	30	OCTAL
00040	4D	EQU 4*8	40	OCTAL
00050	5D	EQU 5*8	50	OCTAL
00060	6D	EQU 6*8	60	OCTAL
00070	7D	EQU 7*8	70	OCTAL
00100	C	EQU 64	100	OCTAL
00200	2C	EQU 2*64	200	OCTAL
00300	3C	EQU 3*64	300	OCTAL
00400	4C	EQU 4*64	400	OCTAL
00500	5C	EQU 5*64	500	OCTAL
00600	6C	EQU 6*64	600	OCTAL
00700	7C	EQU 7*64	700	OCTAL
01000	M	EQU 512	1000	OCTAL
02000	2M	EQU 2*512	2000	OCTAL
03000	3M	EQU 3*512	3000	OCTAL
04000	4M	EQU 4*512	4000	OCTAL
05000	5M	EQU 5*512	5000	OCTAL
06000	6M	EQU 6*512	6000	OCTAL
07000	7M	EQU 7*512	7000	OCTAL
10000	10M	EQU 4096	10,000	OCTAL
20000	20M	EQU 2*10M	20,000	OCTAL
30000	30M	EQU 3*10M	30,000	OCTAL
40000	40M	EQU 4*10M	40,000	OCTAL
50000	50M	EQU 5*10M	50,000	OCTAL
60000	60M	EQU 6*10M	60,000	OCTAL
70000	70M	EQU 7*10M	70,000	OCTAL
07777	4K	EQU 4095	7777	OCTAL
77777	32K	EQU 32767	77,777	OCTAL
22222	A2	EQU 20M+2M+2C+2D+2	22222	OCTAL
55555	A5	EQU 50M+5M+5C+5D+5	55555	OCTAL
06504	ERROR	EQU 3396		
06511	OK	EQU 3401		
07567	LOC	EQU 3959		
00000		END		

EOF\*