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27000 ORG 11776

27000	-0774	00 4	27001	SECT2	AXC	++1,4	SET UP
27001	0634	00 4	00101		SXA	SVXR4,4	SEQUENCE CHECKER
27002	0020	00 0	27004		TRA	CAS	

CHECK CAS WITH ACC GREATER THAN STORAGE

27003 232162606060

BCD 1CAS

27004	0500	00 0	37362	CAS	CLA	PZE	ACC +0
27005	0560	00 0	37363		LDQ	MZE	COMPARED STORAGE VALUE
27006	0340	00 0	37363		CAS	MZE	STG -0
27007	0020	00 0	27012		TRA	++3	OK
27010	0761	00 0	00000		NOP		ERROR
27011	0074	00 4	00105		TSX	ERROR,4	SKIPS
27012	0074	00 4	00106		TSX	OK,4	
27013	0020	00 0	27004		TRA	CAS	

27014 232162606060

BCD 1CAS

27015	0500	00 0	37364	CAS1	CLA	ONE	ACC +1
27016	0560	00 0	37362		LDQ	PZE	COMPARED STORAGE VALUE
27017	0340	00 0	37362		CAS	PZE	STG +0
27020	0020	00 0	27023		TRA	++3	OK
27021	0761	00 0	00000		NOP		ERROR
27022	0074	00 4	00105		TSX	ERROR,4	SKIPS
27023	0074	00 4	00106		TSX	OK,4	
27024	0020	00 0	27015		TRA	CAS1	

27025 232162606060

BCD 1CAS

27026	0500	00 0	37363	CAS2	CLA	MZE	ACC -0
27027	0560	00 0	37365		LDQ	MONE	COMPARED STORAGE VALUE
27030	0340	00 0	37365		CAS	MONE	STG -1
27031	0020	00 0	27034		TRA	++3	OK
27032	0761	00 0	00000		NOP		ERROR
27033	0074	00 4	00105		TSX	ERROR,4	SKIPS
27034	0074	00 4	00106		TSX	OK,4	
27035	0020	00 0	27026		TRA	CAS2	

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CHECK CAS WITH ACC GREATER THAN STORAGE

27036	232162606060		BCD 1CAS	
27037	0500 00 0 37401	CAS3	CAL ONES	BITS TO ACC P THRU 35
27040	0560 00 0 37401		LDQ ONES	COMPARED STORAGE VALUE
27041	0340 00 0 37401		CAS ONES	STG -377777777777
27042	0020 00 0 27045		TRA **3	OK
27043	0761 00 0 00000		NOP	ERROR
27044	0074 00 4 00105		TSX ERROR,4	SKIPS
27045	0074 00 4 00106		TSX OK,4	
27046	0020 00 0 27037		TRA CAS3	
27047	232162606060		BCD 1CAS	
27050	0500 00 0 37362	CAS4	CLA PZE	BITS TO ACC
27051	0760 00 0 00006		COM	Q THRU 35
27052	0560 00 0 37362		LDQ PZE	COMPARED STORAGE VALUE
27053	0340 00 0 37362		CAS PZE	STG +0
27054	0020 00 0 27057		TRA **3	OK
27055	0761 00 0 00000		NOP	ERROR
27056	0074 00 4 00105		TSX ERROR,4	SKIPS
27057	0074 00 4 00106		TSX OK,4	
27060	0020 00 0 27050		TRA CAS4	

STQ TEMP
TRA **2

SAVE MQ
PROCEED

BCD ICAS

CAS5Y CAS TEMP STG SAME AS MQ
TRA **4 OK
NOP ERROR
TSX ERROR-1,4 SKIPS
TRA CAS5Y

SUB ONE
LGR 1
TNZ *-10
TSX OK,4
TRA CAS5A

REMOVE ACC 35 BIT
SET UP NEXT COMPARE
UNTIL ACC EQUAL ZERO

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CHECK CAS WITH ACC EQUAL TO STORAGE

27122 232162606060

BCD 1CAS

27123	0500 00 0 37362	CAS6	CLA PZE	ACC +0
27124	0560 00 0 37362		LDQ PZE	COMPARED STORAGE VALUE
27125	0340 00 0 37362		CAS PZE	STG +0
27126	0020 00 0 27130		TRA **2	ERROR
27127	0020 00 0 27131		TRA **2	OK
27130	0074 00 4 00105		TSX ERROR,4	ERROR
27131	0074 00 4 00106		TSX OK,4	
27132	0020 00 0 27123		TRA CAS6	

27133 232162606060

BCD 1CAS

27134	0500 00 0 37363	CAS7	CLA MZE	ACC -0
27135	0560 00 0 37363		LDQ MZE	COMPARED STORAGE VALUE
27136	0340 00 0 37363		CAS MZE	STG -0
27137	0020 00 0 27141		TRA **2	ERROR
27140	0020 00 0 27142		TRA **2	OK
27141	0074 00 4 00105		TSX ERROR,4	ERROR
27142	0074 00 4 00106		TSX OK,4	
27143	0020 00 0 27134		TRA CAS7	

27144 232162606060

BCD 1CAS

27145	0500 00 0 37364	CAS8	CLA ONE	ACC +1
27146	0560 00 0 37364		LDQ ONE	COMPARED STORAGE VALUE
27147	0340 00 0 37364		CAS ONE	STG +1
27150	0020 00 0 27152		TRA **2	ERROR
27151	0020 00 0 27153		TRA **2	OK
27152	0074 00 4 00105		TSX ERROR,4	ERROR
27153	0074 00 4 00106		TSX OK,4	
27154	0020 00 0 27145		TRA CAS8	

27155 232162606060

BCD 1CAS

27156	0500 00 0 37401	CAS9	CLA ONES	ACC -377777777777
27157	0560 00 0 37401		LDQ ONES	COMPARED STORAGE VALUE
27160	0340 00 0 37401		CAS ONES	STG -377777777777
27161	0020 00 0 27163		TRA **2	ERROR
27162	0020 00 0 27164		TRA **2	OK
27163	0074 00 4 00105		TSX ERROR,4	ERROR
27164	0074 00 4 00106		TSX OK,4	
27165	0020 00 0 27156		TRA CAS9	

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CAS RIPPLE TEST WITH ACC EQUAL TO STORAGE

27166	232162606060	BCD 1CAS	
27167	-0500 00 0 37363	CAS10 CAL MZE	SET UP ACC
27170	0560 00 0 37363	LDQ MZE	AND MQ FOR
27171	0020 00 0 27202	TRA **9	EQUAL TEST
27172	-0600 00 0 40015	STQ TEMP	SAVE MQ
27173	0020 00 0 27175	TRA **2	PROCEED
27174	232162606060	BCD 1CAS	
27175	0340 00 0 40015	CAS0A CAS TEMP	STG SAME AS MQ
27176	0020 00 0 27200	TRA **2	ERROR
27177	0020 00 0 27202	TRA **3	OK
27200	0074 00 4 00104	TSX ERROR-1,4	ERROR
27201	0020 00 0 27175	TRA CAS0A	
27202	-0765 00 0 00001	LGR 1	SET UP NEXT COMPARE
27203	-0100 00 0 27172	TNZ *-9	UNTIL ACC EQUAL ZERO
27204	0074 00 4 00106	TSX OK,4	
27205	0020 00 0 27167	TRA CAS10	
27206	232162606060	BCD 1CAS	
27207	-0500 00 0 37401	CASX CAL ONES	MAKE ACC AND
27210	0560 00 0 37401	LDQ ONES	MQ EQUAL
27211	0020 00 0 27222	TRA **9	BEFORE CAS TEST
27212	-0600 00 0 40015	STQ TEMP	SAVE MQ
27213	0020 00 0 27215	TRA **2	PROCEED
27214	232162606060	BCD 1CAS	
27215	0340 00 0 40015	CASX0 CAS TEMP	STG SAME AS MQ
27216	0020 00 0 27220	TRA **2	ERROR
27217	0020 00 0 27222	TRA **3	OK
27220	0074 00 4 00104	TSX ERROR-1,4	ERROR
27221	0020 00 0 27215	TRA CASX0	
27222	0402 00 0 37364	SUB ONE	REMOVE ACC 35 BIT
27223	-0765 00 0 00001	LGR 1	SET UP NEXT COMPARE
27224	-0100 00 0 27212	TNZ *-10	UNTIL ACC EQUAL ZERO
27225	0074 00 4 00106	TSX OK,4	
27226	0020 00 0 27207	TRA CASX	

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CHECK CAS WITH ACC LESS THAN STORAGE

27227	232162606060	BCD 1CAS	
27230	0500 00 0 37363	CAS11 CLA MZE	ACC -0
27231	0560 00 0 37362	LDQ PZE	COMPARED STORAGE VALUE
27232	0340 00 0 37362	CAS PZE	STG +0
27233	0761 00 0 00000	NOP	ERROR
27234	0074 00 4 00105	TSX ERROR,4	SKIPS
27235	0074 00 4 00106	TSX OK,4	
27236	0020 00 0 27230	TRA CAS11	
27237	232162606060	BCD 1CAS	
27240	0500 00 0 37362	CAS12 CLA PZE	ACC +0
27241	0560 00 0 37364	LDQ ONE	COMPARED STORAGE VALUE
27242	0340 00 0 37364	CAS ONE	STG +1
27243	0761 00 0 00000	NOP	ERROR
27244	0074 00 4 00105	TSX ERROR,4	SKIPS
27245	0074 00 4 00106	TSX OK,4	
27246	0020 00 0 27240	TRA CAS12	
27247	232162606060	BCD 1CAS	
27250	0500 00 0 37365	CAS13 CLA MONE	ACC -1
27251	0560 00 0 37363	LDQ MZE	COMPARED STORAGE VALUE
27252	0340 00 0 37363	CAS MZE	STG -0
27253	0761 00 0 00000	NOP	ERROR
27254	0074 00 4 00105	TSX ERROR,4	SKIPS
27255	0074 00 4 00106	TSX OK,4	
27256	0020 00 0 27250	TRA CAS13	
27257	232162606060	BCD 1CAS	
27260	0500 00 0 37363	CAS14 CLA MZE	BITS TO ACC
27261	0760 00 0 00006	COM	S, Q THRU 35
27262	0340 00 0 37401	CAS ONES	STG -377777777777
27263	0761 00 0 00000	NOP	ERROR
27264	0074 00 4 00105	TSX ERROR,4	SKIPS
27265	0074 00 4 00106	TSX OK,4	
27266	0020 00 0 27260	TRA CAS14	

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CAS RIPPLE TEST WITH ACC LESS THAN STORAGE

27267	232162606060	BCD ICAS		
27270	0774 00 1 00004	CAS15	AXT 4,1	4 IN XRA
27271	-0500 00 0 37363		CAL MZE	MAKE THE ACC
27272	0771 00 0 00001		ARS 1	LESS THAN
27273	0560 00 0 37363		LDQ MZE	THE MQ
27274	0020 00 0 27306		TRA **10	BEFORE CAS TEST
27275	-0600 00 0 40015		STQ TEMP	SAVE MQ
27276	0020 00 0 27300		TRA **2	PROCEED
27277	232162606060	BCD ICAS		
27300	0340 00 0 40015	CAS1X	CAS TEMP	STG SAME AS MQ
27301	0761 00 0 00000		NOP	ERROR
27302	0020 00 0 27304		TRA **2	SKIPS
27303	0020 00 1 27312		TRA **7,1	OK
27304	0074 00 4 00104		TSX ERROR-1,4	HERE ON ERROR
27305	0020 00 0 27300		TRA CAS1X	
27306	-0765 00 0 00001		LGR 1	SET UP NEXT COMPARE
27307	0162 00 0 27275		TQP *-10	UNTIL ACC EQUAL ZERO
27310	0074 00 4 00106		TSX OK,4	
27311	0020 00 0 27270		TRA CAS15	
27312	232162606060	BCD ICAS		
27313	0500 00 0 37363	CASY	CLA MZE	MAKE THE
27314	0760 00 0 00006		COM	ACC LESS
27315	0560 00 0 37401		LDQ ONES	THAN STG
27316	-0600 00 0 40015		STQ TEMP	SAVE MQ
27317	0020 00 0 27321		TRA **2	PROCEED
27320	232162606060	BCD ICAS		
27321	0340 00 0 40015	CASY1	CAS TEMP	STG SAME AS MQ
27322	0761 00 0 00000		NOP	ERROR
27323	0020 00 0 27325		TRA **2	SKIPS
27324	0020 00 0 27327		TRA **3	OK
27325	0074 00 4 00104		TSX ERROR-1,4	HERE ON ERROR
27326	0020 00 0 27321		TRA CASY1	
27327	0400 00 0 37364		ADD ONE	REMOVE ACC 35 BIT
27330	0765 00 0 00001		LRS 1	SET UP NEXT COMPARE
27331	-0100 00 0 27316		TNZ *-11	UNTIL ACC EQUAL ZERO
27332	0074 00 4 00106		TSX OK,4	
27333	0020 00 0 27313		TRA CASY	

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CHECK LAS WITH ACC GREATER THAN STORAGE

27334 432162606060

BCD 1LAS

27335	-0500	00 0	37363	LAS	CAL MZE	BIT TO ACC
27336	0767	00 0	00001		ALS 1	Q POSITION
27337	0560	00 0	37363		LDQ MZE	COMPARED STORAGE VALUE
27340	-0340	00 0	37363		LAS MZE	STG -0
27341	0020	00 0	27344		TRA **3	OK
27342	0761	00 0	00000		NOP	ERROR
27343	0074	00 4	00105		TSX ERROR,4	SKIPS
27344	0074	00 4	00106		TSX OK,4	
27345	0020	00 0	27335		TRA LAS	

27346 432162606060

BCD 1LAS

27347	0500	00 0	37364	LAS1	CLA ONE	ACC +1
27350	0560	00 0	37362		LDQ PZE	COMPARED STORAGE VALUE
27351	-0340	00 0	37362		LAS PZE	STG +0
27352	0020	00 0	27355		TRA **3	OK
27353	0761	00 0	00000		NOP	ERROR
27354	0074	00 4	00105		TSX ERROR,4	SKIPS
27355	0074	00 4	00106		TSX OK,4	
27356	0020	00 0	27347		TRA LAS1	

27357 432162606060

BCD 1LAS

27360	0500	00 0	37363	LAS2	CLA MZE	BITS TO ACC
27361	0760	00 0	00006		COM	S, Q THRU 35
27362	0560	00 0	37401		LDQ ONES	COMPARED STORAGE VALUE
27363	-0340	00 0	37401		LAS ONES	STG -377777777777
27364	0020	00 0	27367		TRA **3	OK
27365	0761	00 0	00000		NOP	ERROR
27366	0074	00 4	00105		TSX ERROR,4	SKIPS
27367	0074	00 4	00106		TSX OK,4	
27370	0020	00 0	27360		TRA LAS2	

27371 432162606060

BCD 1LAS

27372	-0500	00 0	37363	LAS3	CAL MZE	BITS TO
27373	0767	00 0	00001		ALS 1	ACC S
27374	-0760	00 0	00003		SSM	AND Q
27375	0560	00 0	37401		LDQ ONES	COMPARED STORAGE VALUE
27376	-0340	00 0	37401		LAS ONES	STG -377777777777
27377	0020	00 0	27402		TRA **3	OK
27400	0761	00 0	00000		NOP	ERROR
27401	0074	00 4	00105		TSX ERROR,4	SKIPS
27402	0074	00 4	00106		TSX OK,4	
27403	0020	00 0	27372		TRA LAS3	



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CHECK LAS WITH ACC EQUAL TO STORAGE

27446	432162606060		BCD 1LAS	
27447	0500 00 0 37362	LAS6	CLA PZE	ACC +0
27450	0560 00 0 37362		LDQ PZE	COMPARED STORAGE VALUE
27451	-0340 00 0 37362		LAS PZE	STG +0
27452	0020 00 0 27454		TRA **2	ERROR
27453	0020 00 0 27455		TRA **2	OK
27454	0074 00 4 00105		TSX ERROR,4	ERROR
27455	0074 00 4 00106		TSX OK,4	
27456	0020 00 0 27447		TRA LAS6	
27457	432162606060		BCD 1LAS	
27460	-0500 00 0 37363	LAS7	CAL MZE	BIT TO ACC P
27461	0560 00 0 37363		LDQ MZE	COMPARED STORAGE VALUE
27462	-0340 00 0 37363		LAS MZE	STG -0
27463	0020 00 0 27465		TRA **2	ERROR
27464	0020 00 0 27466		TRA **2	OK
27465	0074 00 4 00105		TSX ERROR,4	
27466	0074 00 4 00106		TSX OK,4	
27467	0020 00 0 27460		TRA LAS7	
27470	432162606060		BCD 1LAS	
27471	0500 00 0 37364	LAS8	CLA ONE	ACC +1
27472	0560 00 0 37364		LDQ ONE	COMPARED STORAGE VALUE
27473	-0340 00 0 37364		LAS ONE	STG +1
27474	0020 00 0 27476		TRA **2	ERROR
27475	0020 00 0 27477		TRA **2	OK
27476	0074 00 4 00105		TSX ERROR,4	ERROR
27477	0074 00 4 00106		TSX OK,4	
27500	0020 00 0 27471		TRA LAS8	
27501	432162606060		BCD 1LAS	
27502	-0500 00 0 37401	LAS9	CAL ONES	BITS TO ACC P THRU 35
27503	0560 00 0 37401		LDQ ONES	COMPARED STORAGE VALUE
27504	-0340 00 0 37401		LAS ONES	STG -377777777777
27505	0020 00 0 27507		TRA **2	ERROR
27506	0020 00 0 27510		TRA **2	OK
27507	0074 00 4 00105		TSX ERROR,4	ERROR
27510	0074 00 4 00106		TSX OK,4	
27511	0020 00 0 27502		TRA LAS9	

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LAS RIPPLE TEST WITH ACC EQUAL TO STORAGE

27512	432162606060	BCD 1LAS	
27513	-0500 00 0 37363	LAS10 CAL MZE	BIT TO ACC P
27514	0560 00 0 37363	LDQ MZE	MQ -0
27515	-0600 00 0 40015	STQ TEMP	SAVE MQ
27516	0020 00 0 27520	TRA **2	PROCEED
27517	432162606060	BCD 1LAS	
27520	-0340 00 0 40015	LASL LAS TEMP	STG SAME AS MQ
27521	0020 00 0 27523	TRA **2	ERROR
27522	0020 00 0 27525	TRA **3	OK
27523	0074 00 4 00104	TSX ERROR-1,4	ERROR
27524	0020 00 0 27520	TRA LASL	
27525	-0765 00 0 00001	LGR 1	SET UP NEXT COMPARE
27526	-0100 00 0 27515	TNZ *-9	UNTIL ACC EQUAL ZERO
27527	0074 00 4 00106	TSX OK,4	
27530	0020 00 0 27513	TRA LAS10	
27531	432162606060	BCD 1LAS	
27532	-0500 00 0 37401	LAS11 CAL ONES	BITS TO ACC P THRU 35
27533	0560 00 0 37401	LDQ ONES	MQ -3777777777
27534	-0600 00 0 40015	STQ TEMP	SAVE MQ
27535	0020 00 0 27537	TRA **2	PROCEED
27536	432162606060	BCD 1LAS	
27537	-0340 00 0 40015	LASM LAS TEMP	STG SAME AS MQ
27540	0020 00 0 27542	TRA **2	ERROR
27541	0020 00 0 27544	TRA **3	OK
27542	0074 00 4 00104	TSX ERROR-1,4	ERROR
27543	0020 00 0 27537	TRA LASM	
27544	0402 00 0 37364	SUB ONE	REMOVE ACC 35 BIT
27545	-0765 00 0 00001	LGR 1	SET UP NEXT COMPARE
27546	-0100 00 0 27534	TNZ *-10	UNTIL ACC EQUAL ZERO
27547	0074 00 4 00106	TSX OK,4	
27550	0020 00 0 27532	TRA LAS11	

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CHECK LAS WITH ACC LESS THAN STORAGE

27551 432162606060

BCD 1LAS

27552	0500 00 0 37362	LAS12 CLA PZE	ACC +0
27553	0560 00 0 37363	LDQ MZE	COMPARED STORAGE VALUE
27554	-0340 00 0 37363	LAS MZE	STG -0
27555	0761 00 0 00000	NOP	ERROR
27556	0074 00 4 00105	TSX ERROR,4	SKIPS
27557	0074 00 4 00106	TSX OK,4	
27560	0020 00 0 27552	TRA LAS12	

27561 432162606060

BCD 1LAS

27562	0500 00 0 37362	LAS13 CLA PZE	ACC +0
27563	0560 00 0 37364	LDQ ONE	COMPARED STORAGE VALUE
27564	-0340 00 0 37364	LAS ONE	STG +1
27565	0761 00 0 00000	NOP	ERROR
27566	0074 00 4 00105	TSX ERROR,4	SKIPS
27567	0074 00 4 00106	TSX OK,4	
27570	0020 00 0 27562	TRA LAS13	

27571 432162606060

BCD 1LAS

27572	0500 00 0 37365	LAS14 CLA MONE	ACC -1
27573	0560 00 0 37363	LDQ MZE	COMPARED STORAGE VALUE
27574	-0340 00 0 37363	LAS MZE	STG -0
27575	0761 00 0 00000	NOP	ERROR
27576	0074 00 4 00105	TSX ERROR,4	SKIPS
27577	0074 00 4 00106	TSX OK,4	
27600	0020 00 0 27572	TRA LAS14	

27601 432162606060

BCD 1LAS

27602	0500 00 0 37401	LAS15 CLA ONES	ACC -377777777777
27603	0560 00 0 37401	LDQ ONES	COMPARED STORAGE VALUE
27604	-0340 00 0 37401	LAS ONES	STG -377777777777
27605	0761 00 0 00000	NOP	ERROR
27606	0074 00 4 00105	TSX ERROR,4	SKIPS
27607	0074 00 4 00106	TSX OK,4	
27610	0020 00 0 27602	TRA LAS15	

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LAS RIPPLE TEST WITH ACC LESS THAN STORAGE

27611	432162606060	BCD 1LAS	
27612	-0500 00 0 37363	LAS16 CAL MZE	BIT TO
27613	0771 00 0 00001	ARS 1	ACC 1
27614	0560 00 0 37363	LDQ MZE	MQ -0
27615	-0600 00 0 40015	STQ TEMP	SAVE MQ
27616	0020 00 0 27620	TRA **2	PROCEED
27617	432162606060	BCD 1LAS	
27620	-0340 00 0 40015	LASN LAS TEMP	STG SAME AS MQ
27621	0761 00 0 00000	NOP	ERROR
27622	0020 00 0 27624	TRA **2	SKIPS
27623	0020 00 0 27626	TRA **3	OK
27624	0074 00 4 00104	TSX ERROR-1,4	ERROR
27625	0020 00 0 27620	TRA LASN	
27626	-0765 00 0 00001	LGR 1	SET UP NEXT COMPARE
27627	-0100 00 0 27615	TNZ *-10	UNTIL ACC EQUAL ZERO
27630	0074 00 4 00106	TSX OK,4	
27631	0020 00 0 27612	TRA LAS16	
27632	432162606060	BCD 1LAS	
27633	0500 00 0 37401	LAS17 CLA ONES	ACC -377777777777
27634	0560 00 0 37401	LDQ ONES	MQ -377777777777
27635	0600 00 0 40015	STQ TEMP	SAVE MQ
27636	0020 00 0 27640	TRA **2	PROCEED
27637	432162606060	BCD 1LAS	
27640	-0340 00 0 40015	LASO LAS TEMP	STG SAME AS MQ
27641	0761 00 0 00000	NOP	ERROR
27642	0020 00 0 27644	TRA **2	SKIPS
27643	0020 00 0 27646	TRA **3	OK
27644	0074 00 4 00104	TSX ERROR-1,4	ERROR
27645	0020 00 0 27640	TRA LASO	
27646	0400 00 0 37364	ADD ONE	REMOVE ACC 35 BIT
27647	-0765 00 0 00001	LGR 1	SET UP NEXT COMPARE
27650	-0100 00 0 27635	TNZ *-11	UNTIL ACC EQUAL ZERO
27651	0074 00 4 00106	TSX OK,4	
27652	0020 00 0 27633	TRA LAS17	

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CHECK ANA WITH BOTH ACCUMULATOR AND STORAGE LOCATION CLEAR

27653	214521606060		BCD 1ANA	
27654	0500 00 0 37362	ANA	CLA PZE	CLEAR ACC
27655	0601 00 0 40015		STO TEMP	AND STG LOC
27656	-0320 00 0 40015		ANA TEMP	ACC SHOULD REMAIN CLEAR
27657	0340 00 0 37362		CAS PZE	CHECK ANA EXECUTION
27660	0020 00 0 27662		TRA **2	ERROR
27661	0020 00 0 27665		TRA **4	OK, ACC +0
27662	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE
27663	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
27664	0020 00 0 27654		TRA ANA	
27665	0500 00 0 40015		CLA TEMP	CHECK STORAGE
27666	0340 00 0 37362		CAS PZE	UNCHANGED
27667	0020 00 0 27671		TRA **2	ERROR
27670	0020 00 0 27673		TRA **3	OK, STG UNCHANGED
27671	0560 00 0 37362		LDQ PZE	CORRECT STG VALUE
27672	0074 00 4 00105		TSX ERROR,4	STG CHANGED
27673	0074 00 4 00106		TSX OK,4	
27674	0020 00 0 27654		TRA ANA	

CHECK ANA WHEN CORRESPONDING BITS MATCH

27675	214521606060		BCD 1ANA	
27676	-0500 00 0 37401	ANA1	CAL ONES	BITS TO ACC P THRU 35
27677	0602 00 0 40015		SLW TEMP	AND STG LOCATION
27700	-0320 00 0 40015		ANA TEMP	BITS SHOULD REMAIN IN ACC
27701	-0340 00 0 37401		LAS ONES	CHECK ANA EXECUTION
27702	0020 00 0 27704		TRA **2	ERROR
27703	0020 00 0 27707		TRA **4	OK, ACC P THRU 35 ONES
27704	0560 00 0 37401		LDQ ONES	MQ S-35 EQU ACC P-35
27705	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
27706	0020 00 0 27676		TRA ANA1	
27707	0500 00 0 40015		CLA TEMP	CHECK STORAGE
27710	0340 00 0 37401		CAS ONES	UNCHANGED
27711	0020 00 0 27713		TRA **2	ERROR
27712	0020 00 0 27715		TRA **3	OK, STG UNCHANGED
27713	0560 00 0 37401		LDQ ONES	CORRECT STG VALUE
27714	0074 00 4 00105		TSX ERROR,4	STORAGE CHANGED
27715	0074 00 4 00106		TSX OK,4	
27716	0020 00 0 27676		TRA ANA1	

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CHECK ANA WHEN CORRESPONDING BITS DO NOT MATCH

27717 214521606060

BCD 1ANA

27720	0500	00	0	37401	ANA2	CAL ONES	SET ONES IN
27721	0602	00	0	40015		SLW TEMP	STG LOCATION
27722	0500	00	0	37362		CLA PZE	CLEAR ACC
27723	0320	00	0	40015		ANA TEMP	ACC SHOULD REMAIN CLEAR
27724	0340	00	0	37362		CAS PZE	CHECK ANA EXECUTION
27725	0020	00	0	27727		TRA **2	ERROR
27726	0020	00	0	27732		TRA **4	OK, ACC +0
27727	0560	00	0	37362		LDQ PZE	CORRECT ACC VALUE
27730	0074	00	4	00104		TSX ERROR-1,4	ERROR IN ACC
27731	0020	00	0	27720		TRA ANA2	

27732	0500	00	0	40015		CLA TEMP	CHECK STORAGE
27733	0340	00	0	37401		CAS ONES	UNCHANGED
27734	0020	00	0	27736		TRA **2	ERROR
27735	0020	00	0	27740		TRA **3	OK, STG UNCHANGED
27736	0560	00	0	37401		LDQ ONES	CORRECT STG VALUE
27737	0074	00	4	00105		TSX ERROR,4	STG CHANGED
27740	0074	00	4	00106		TSX OK,4	
27741	0020	00	0	27720		TRA ANA2	

27742 214521606060

BCD 1ANA

27743	0500	00	0	37415	ANA3	CLA ITIX	+252525252525
27744	0601	00	0	40015		STO TEMP	IN STG LOCATION
27745	0767	00	0	00001		ALS 1	ACC +P125252525252
27746	0320	00	0	40015		ANA TEMP	SHOULD CLEAR ACC
27747	0340	00	0	37362		CAS PZE	CHECK ANA EXECUTION
27750	0020	00	0	27752		TRA **2	ERROR
27751	0020	00	0	27755		TRA **4	OK, ACC +0
27752	0560	00	0	37362		LDQ PZE	CORRECT ACC VALUE
27753	0074	00	4	00104		TSX ERROR-1,4	ERROR IN ACC
27754	0020	00	0	27743		TRA ANA3	

27755	0500	00	0	40015		CLA TEMP	CHECK STORAGE
27756	0340	00	0	37415		CAS ITIX	UNCHANGED
27757	0020	00	0	27761		TRA **2	ERROR
27760	0020	00	0	27763		TRA **3	OK, STG UNCHANGED
27761	0560	00	0	37415		LDQ ITIX	CORRECT STG VALUE
27762	0074	00	4	00105		TSX ERROR,4	STG CHANGED
27763	0074	00	4	00106		TSX OK,4	
27764	0020	00	0	27743		TRA ANA3	

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CHECK ANA WHEN CORRESPONDING BITS DO NOT MATCH

27765	214521606060		BCD 1ANA	
27766	0500 00 0 37415	ANA4	CLA IT1X	-125252525252
27767	0767 00 0 00001		ALS 1	IN STORAGE
27770	0602 00 0 40015		SLW TEMP	LOCATION
27771	0771 00 0 00001		ARS 1	+2525252525 IN ACC
27772	0320 00 0 40015		ANA TEMP	SHOULD CLEAR ACC
27773	0340 00 0 37362		CAS PZE	CHECK ANA EXECUTION
27774	0020 00 0 27776		TRA **2	ERROR
27775	0020 00 0 30000		TRA **3	OK, ACC +0
27776	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE
27777	0074 00 4 00105		TSX ERROR,4	ACC NOT +0
30000	0074 00 4 00106		TSX OK,4	
30001	0020 00 0 27766		TRA ANA4	

CHECK ANA WITH STORAGE CLEAR AND BITS IN THE ACCUMULATOR

30002	214521606060		BCD 1ANA	
30003	0600 00 0 40015	ANA5	STZ TEMP	CLEAR STG LOCATION
30004	0500 00 0 37401		CAL ONES	ACC +P37777777777
30005	0320 00 0 40015		ANA TEMP	SHOULD CLEAR ACC
30006	0340 00 0 37362		CAS PZE	CHECK ANA EXECUTION
30007	0020 00 0 30011		TRA **2	ERROR
30010	0020 00 0 30014		TRA **4	OK, ACC +0
30011	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE
30012	0074 00 4 00104		TSX ERROR-1,4	ACC NOT +0
30013	0020 00 0 30003		TRA ANA5	
30014	0500 00 0 40015		CLA TEMP	CHECK STORAGE
30015	0340 00 0 37362		CAS PZE	UNCHANGED
30016	0020 00 0 30020		TRA **2	ERROR
30017	0020 00 0 30022		TRA **3	OK, STORAGE UNCHANGED
30020	0560 00 0 37362		LDQ PZE	CORRECT STG VALUE
30021	0074 00 4 00105		TSX ERROR,4	STG NOT +0
30022	0074 00 4 00106		TSX OK,4	
30023	0020 00 0 30003		TRA ANA5	

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S E C T I O N T W O

CHECK ACC S AND Q CLEARED WITH ANA EXECUTION

30024	214521606060		BCD 1ANA	
30025	0500 00 0 37363	ANA6	CLA MZE	BITS TO ACC
30026	0760 00 0 00006		COM	S, Q THRU 35
30027	0600 00 0 40015		STZ TEMP	CLEAR STG LOCATION
30030	-0320 00 0 40015		ANA TEMP	CLEAR ENTIRE ACC
30031	0340 00 0 37362		CAS PZE	CHECK ANA EXECUTION
30032	0020 00 0 30034		TRA **2	ERROR
30033	0020 00 0 30036		TRA **3	OK, ACC +0
30034	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE
30035	0074 00 4 00105		TSX ERROR,4	ACC NOT +0
30036	0074 00 4 00106		TSX OK,4	
30037	0020 00 0 30025		TRA ANA6	
30040	214521606060		BCD 1ANA	
30041	0500 00 0 37363	ANA7	CLA MZE	BITS TO ACC
30042	0760 00 0 00006		COM	S, Q THRU 35
30043	0602 00 0 40015		SLW TEMP	BITS S THRU 35 IN STG LOC
30044	-0320 00 0 40015		ANA TEMP	CLEAR S AND Q ONLY
30045	-0340 00 0 37401		LAS ONES	CHECK ANA EXECUTION
30046	0020 00 0 30050		TRA **2	ERROR
30047	0020 00 0 30053		TRA **4	OK, BITS IN ACC P-35
30050	0560 00 0 37401		LDQ ONES	MQ S-35 EQU ACC P-35
30051	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
30052	0020 00 0 30041		TRA ANA7	
30053	0120 00 0 30057		TPL **4	TRA IF ACC SIGN PLUS
30054	0771 00 0 00045		ARS 37	CLEAR ACC EXCEPT SIGN
30055	0560 00 0 37362		LDQ PZE	CORRECT ACC SIGN
30056	0074 00 4 00105		TSX ERROR,4	ACC SIGN NOT PLUS
30057	0074 00 4 00106		TSX OK,4	
30060	0020 00 0 30041		TRA ANA7	

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CHECK ACC S AND Q CLEARED WITH ANA EXECUTION

30061 214521606060

BCD 1ANA

30062	-0500	00	0	37363	ANA7A	CAL MZE	BITS IN
30063	0767	00	0	00001		ALS 1	ACC S
30064	-0760	00	0	00003		SSM	AND Q
30065	0600	00	0	40015		STZ TEMP	CLEAR STG LOC
30066	-0320	00	0	40015		ANA TEMP	CLEAR S AND Q
30067	0340	00	0	37362		CAS PZE	CHECK ANA EXECUTION
30070	0020	00	0	30072		TRA **2	ERROR
30071	0020	00	0	30074		TRA **3	OK, ACC +0
30072	0560	00	0	37362		LDQ PZE	CORRECT ACC VALUE
30073	0074	00	4	00105		TSX ERROR, 4	ACC NOT +0
30074	0074	00	4	00106		TSX OK, 4	
30075	0020	00	0	30062		TRA ANA7A	

30076 214521606060

BCD 1ANA

30077	0500	00	0	37363	ANA7B	CLA MZE	BITS IN ACC
30100	0760	00	0	00006		COM	S AND Q ONLY
30101	0601	00	0	40015		STO TEMP	STG LOC
30102	0767	00	0	00044		ALS 36	ALL ONES
30103	-0320	00	0	40015		ANA TEMP	CLEAR S AND Q
30104	0340	00	0	37362		CAS PZE	CHECK ANA EXECUTION
30105	0020	00	0	30107		TRA **2	ERROR
30106	0020	00	0	30111		TRA **3	OK, ACC +0
30107	0560	00	0	37362		LDQ PZE	CORRECT ACC VALUE
30110	0074	00	4	00105		TSX ERROR, 4	ACC NOT +0
30111	0074	00	4	00106		TSX OK, 4	
30112	0020	00	0	30077		TRA ANA7B	

S E C T I O N T W O

ANA RIPPLE TESTS

30113 214521606060

BCD 1ANA

30114	0560	00	0	37364	ANA8	LDQ ONE	+1 IN MQ
30115	-0600	00	0	40013		STQ T1	STORE MQ IN
30116	-0600	00	0	40015		STQ TEMP	THESE LOCATIONS
30117	0020	00	0	30121		TRA **2	PROCEED

30120 214521606060

BCD 1ANA

30121	-0500	00	0	37363	ANA8A	CAL MZE	BITS TO ACC
30122	-0760	00	0	00003		SSM	S, Q AND
30123	0767	00	0	00001		ALS 1	POSITION
30124	-0501	00	0	40013		ORA T1	CHECKING
30125	-0320	00	0	40015		ANA TEMP	SHOULD NOT CLEAR POSITION
30126	-0340	00	0	40013		LAS T1	CHECK ANA EXECUTION
30127	0020	00	0	30131		TRA **2	ERROR
30130	0020	00	0	30133		TRA **3	ACC OK
30131	0074	00	4	00104		TSX ERROR-1,4	ERROR IN ACC
30132	0020	00	0	30121		TRA ANA8A	

30133	0120	00	0	30136		TPL **3	TRA IF ACC SIGN PLUS
30134	0074	00	4	00104		TSX ERROR-1,4	ACC SIGN NOT PLUS
30135	0020	00	0	30121		TRA ANA8A	

30136	0500	00	0	37362		CLA PZE	SET UP NEXT
30137	-0763	00	0	00001		LGL 1	COMPARE
30140	0760	00	0	00001		LBT	UNTIL ALL
30141	0020	00	0	30115		TRA ANA8+1	ACC TESTED
30142	0074	00	4	00106		TSX OK,4	
30143	0020	00	0	30114		TRA ANA8	

30144 214521606060

BCD 1ANA

30145	0600	00	0	40015	ANA9	STZ TEMP	CLEAR STORAGE LOCATION
30146	0560	00	0	37364		LDQ ONE	+1 TO MQ
30147	-0600	00	0	40013		STQ T1	SAVE MQ IN TEMP STORAGE
30150	0020	00	0	30152		TRA **2	PROCEED

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30151 214521606060

BCD 1ANA

30152 -0500 00 0 37363	ANA9A CAL MZE	BITS TO ACC
30153 -0760 00 0 00003	SSM	S, Q AND
30154 0767 00 0 00001	ALS 1	POSITION
30155 -0501 00 0 40013	ORA T1	TESTING
30156 -0320 00 0 40015	ANA TEMP	SHOULD CLEAR ACC
30157 0340 00 0 37362	CAS PZE	CHECK ANA EXECUTION
30160 0020 00 0 30162	TRA *+2	ERROR
30161 0020 00 0 30165	TRA *+4	OK, ACC +0
30162 0560 00 0 37362	LDQ PZE	CORRECT ACC VALUE
30163 0074 00 4 00104	TSX ERROR-1,4	ACC NOT +0
30164 0020 00 0 30152	TRA ANA9A	

30165 0500 00 0 37362	CLA PZE	CLEAR ACC
30166 0560 00 0 40013	LDQ T1	SET UP NEXT
30167 -0763 00 0 00001	LGL 1	COMPARE
30170 0760 00 0 00001	LBT	UNTIL ALL
30171 0020 00 0 30147	TRA ANA9+2	ACC TESTED
30172 0074 00 4 00106	TSX OK,4	
30173 0020 00 0 30145	TRA ANA9	

30174 214521606060

BCD 1ANA

30175 0560 00 0 37401	ANA10 LDQ ONES	ONES TO MQ
30176 -0600 00 0 40013	STQ T1	STORE MQ IN
30177 -0600 00 0 40015	STQ TEMP	THESE LOCATIONS
30200 0020 00 0 30202	TRA *+2	PROCEED

30201 214521606060

BCD 1ANA

30202 -0500 00 0 37363	ANAOA CAL MZE	BITS TO ACC
30203 -0760 00 0 00003	SSM	S, Q AND
30204 0767 00 0 00001	ALS 1	POSITIONS
30205 -0501 00 0 40013	ORA T1	TESTING
30206 -0320 00 0 40015	ANA TEMP	CLEAR ONLY S AND Q
30207 -0340 00 0 40013	LAS T1	CHECK ANA EXECUTION
30210 0020 00 0 30212	TRA *+2	ERROR
30211 0020 00 0 30214	TRA *+3	OK
30212 0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
30213 0020 00 0 30202	TRA ANAOA	

30214 0120 00 0 30217	TPL *+3	TRA IF ACC SIGN PLUS
30215 0074 00 4 00104	TSX ERROR-1,4	ACC SIGN NOT PLUS
30216 0020 00 0 30202	TRA ANAOA	

30217 -0763 00 0 00001	LGL 1	SET UP NEXT
30220 0162 00 0 30222	TQP *+2	COMPARE UNTIL
30221 0020 00 0 30176	TRA ANA10+1	ALL ACC TESTED
30222 0074 00 4 00106	TSX OK,4	
30223 0020 00 0 30175	TRA ANA10	

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30224	214521606060	BCD 1ANA	
30225	0600 00 0 40015	ANA11 STZ TEMP	CLEAR STG LOCATION
30226	0560 00 0 37401	LDQ ONES	ONES TO MQ
30227	-0600 00 0 40013	STQ T1	SAVE MQ IN TEMP STORAGE
30230	0020 00 0 30232	TRA **2	PROCEED
30231	214521606060	BCD 1ANA	
30232	-0500 00 0 37363	ANA1A CAL MZE	BITS TO ACC
30233	-0760 00 0 00003	SSM	S, Q AND
30234	0767 00 0 00001	ALS 1	POSITIONS
30235	-0501 00 0 40013	ORA T1	TESTING
30236	-0320 00 0 40015	ANA TEMP	CLEAR ENTIRE ACC
30237	0340 00 0 37362	CAS PZE	CHECK ANA EXECUTION
30240	0020 00 0 30242	TRA **2	ERROR
30241	0020 00 0 30245	TRA **4	OK
30242	0560 00 0 37362	LDQ PZE	CORRECT ACC VALUE
30243	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
30244	0020 00 0 30232	TRA ANA1A	
30245	0560 00 0 40013	LDQ T1	SET UP
30246	-0763 00 0 00001	LGL 1	NEXT COMPARE
30247	0162 00 0 30251	TQP **2	UNTIL ALL
30250	0020 00 0 30227	TRA ANA11+2	ACC TESTED
30251	0074 00 4 00106	TSX OK,4	
30252	0020 00 0 30225	TRA ANA11	
30253	214521606060	BCD 1ANA	
30254	0560 00 0 37401	ANA12 LDQ ONES	ONES TO MQ
30255	-0600 00 0 40015	STQ TEMP	STORE MQ IN
30256	-0600 00 0 40013	STQ T1	THESE LOCATIONS
30257	0020 00 0 30261	TRA **2	PROCEED
30260	214521606060	BCD 1ANA	
30261	-0500 00 0 37363	ANA1B CAL MZE	BIT2 TO
30262	-0760 00 0 00003	SSM	ACC S
30263	0767 00 0 00001	ALS 1	AND Q
30264	-0320 00 0 40015	ANA TEMP	CLEAR S AND Q
30265	0340 00 0 37362	CAS PZE	CHECK ANA EXECUTION
30266	0020 00 0 30270	TRA **2	ERROR
30267	0020 00 0 30273	TRA **4	OK
30270	0560 00 0 37362	LDQ PZE	CORRECT ACC VALUE
30271	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
30272	0020 00 0 30261	TRA ANA1B	
30273	0560 00 0 40013	LDQ T1	SET UP
30274	-0763 00 0 00001	LGL 1	NEXT COMPARE
30275	0162 00 0 30277	TQP **2	UNTIL ALL
30276	0020 00 0 30255	TRA ANA12+1	ACC TESTED
30277	0074 00 4 00106	TSX OK,4	
30300	0020 00 0 30254	TRA ANA12	

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CHECK ANS WITH BOTH ACCUMULATOR AND STORAGE CLEAR

30301	214562606060		BCD 1ANS
30302	0500 00 0 37362	ANS0	CLA PZE CLEAR ACC
30303	0601 00 0 40015		STO TEMP AND STG LOC
30304	0320 00 0 40015		ANS TEMP STG SHOULD REMAIN CLEAR
30305	0340 00 0 37362		CAS PZE CHECK ACC UNCHANGED
30306	0020 00 0 30310		TRA **2 ERROR
30307	0020 00 0 30313		TRA **4 OK, ACC +0
30310	0560 00 0 37362		LDQ PZE CORRECT ACC VALUE
30311	0074 00 4 00104		TSX ERROR-1,4 ERROR IN ACC
30312	0020 00 0 30302		TRA ANS0
30313	0500 00 0 40015		CLA TEMP CHECK ANS
30314	0340 00 0 37362		CAS PZE EXECUTION
30315	0020 00 0 30317		TRA **2 ERROR
30316	0020 00 0 30321		TRA **3 OK, ACC +0
30317	0560 00 0 37362		LDQ PZE CORRECT STG VALUE
30320	0074 00 4 00105		TSX ERROR,4 STG NOT +0
30321	0074 00 4 00106		TSX OK,4
30322	0020 00 0 30302		TRA ANS0

CHECK ANS WHEN CORRESPONDING BITS MATCH

30323	214562606060		BCD 1ANS
30324	-0500 00 0 37401	ANS1A	CAL ONES BITS TO ACC P THRU 35
30325	0602 00 0 40015		SLW TEMP AND STG LOCATION
30326	0320 00 0 40015		ANS TEMP BITS SHOULD REMAIN IN STG
30327	-0340 00 0 37401		LAS ONES CHECK ACC UNCHANGED
30330	0020 00 0 30332		TRA **2 ERROR
30331	0020 00 0 30335		TRA **4 OK, ACC UNCHANGED
30332	0560 00 0 37401		LDQ ONES MQ S-35 EQU ACC P-35
30333	0074 00 4 00104		TSX ERROR-1,4 ACC CHANGED
30334	0020 00 0 30324		TRA ANS1A
30335	0500 00 0 40015		CLA TEMP CHECK ANS
30336	0340 00 0 37401		CAS ONES EXECUTION
30337	0020 00 0 30341		TRA **2 ERROR
30340	0020 00 0 30343		TRA **3 OK
30341	0560 00 0 37401		LDQ ONES CORRECT STG VALUE
30342	0074 00 4 00105		TSX ERROR,4 STG LOC NOT ONES
30343	0074 00 4 00106		TSX OK,4
30344	0020 00 0 30324		TRA ANS1A

SECTION TWO

CHECK ANS WHEN CORRESPONDING BITS DO NOT MATCH

30345 214562606060

BCD 1ANS

30346 -0500 00 0 37401
30347 0602 00 0 40015
30350 0500 00 0 37362
30351 0320 00 0 40015
30352 0340 00 0 37362
30353 0020 00 0 30355
30354 0020 00 0 30360
30355 0560 00 0 37362
30356 0074 00 4 00104
30357 0020 00 0 30346

ANS2A CAL ONES SET ONES IN
SLW TEMP STG LOCATION
CLA PZE CLEAR ACC
ANS TEMP SHOULD CLEAR STG
CAS PZE CHECK ACC UNCHANGED
TRA **2 ERROR
TRA **4 OK
LDQ PZE CORRECT ACC VALUE
TSX ERROR-1,4 ACC CHANGED
TRA ANS2A

30360 0500 00 0 40015
30361 0340 00 0 37362
30362 0020 00 0 30364
30363 0020 00 0 30366
30364 0560 00 0 37362
30365 0074 00 4 00105
30366 0074 00 4 00106
30367 0020 00 0 30346

CLA TEMP CHECK ANS
CAS PZE EXECUTION
TRA **2 ERROR
TRA **3 OK
LDQ PZE CORRECT STG VALUE
TSX ERROR,4 STG NOT +0
TSX OK,4
TRA ANS2A

30370 214562606060

BCD 1ANS

30371 0500 00 0 37415
30372 0601 00 0 40015
30373 0767 00 0 00001
30374 0320 00 0 40015
30375 0771 00 0 00001
30376 0340 00 0 37415
30377 0020 00 0 30401
30400 0020 00 0 30404
30401 0560 00 0 37415
30402 0074 00 4 00104
30403 0020 00 0 30371

ANS3A CLA ITIX +2525252525
STO TEMP IN STG LOCATION
ALS 1 ACC +P1252525252
ANS TEMP SHOULD CLEAR STG LOC
ARS 1 CHECK ACC
CAS ITIX UNCHANGED
TRA **2 ERROR
TRA **4 OK, ACC UNCHANGED
LDQ ITIX CORRECT ACC VALUE
TSX ERROR-1,4 ACC CHANGED
TRA ANS3A

30404 0500 00 0 40015
30405 0340 00 0 37362
30406 0020 00 0 30410
30407 0020 00 0 30412
30410 0560 00 0 37362
30411 0074 00 4 00105
30412 0074 00 4 00106
30413 0020 00 0 30371

CLA TEMP CHECK ANS
CAS PZE EXECUTION
TRA **2 ERROR
TRA **3 OK, STG LOC +0
LDQ PZE CORRECT STG VALUE
TSX ERROR,4 STG NOT +0
TSX OK,4
TRA ANS3A

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CHECK ANS WHEN CORRESPONDING BITS DO NOT MATCH

30414	214562606060	BCD IANS	
30415	0500 00 0 37415	ANS4A CLA ITIX	-125252525252
30416	0767 00 0 00001	ALS 1	IN STORAGE
30417	0602 00 0 40015	SLW TEMP	LOCATION
30420	0771 00 0 00001	ARS 1	ACC +252525252525
30421	0320 00 0 40015	ANS TEMP	SHOULD CLEAR STG
30422	0340 00 0 37415	CAS ITIX	CHECK ACC UNCHANGED
30423	0020 00 0 30425	TRA **2	ERROR
30424	0020 00 0 30430	TRA **4	OK, ACC UNCHANGED
30425	0560 00 0 37415	LDQ ITIX	CORRECT ACC VALUE
30426	0074 00 4 00104	TSX ERROR-1,4	ACC CHANGED
30427	0020 00 0 30415	TRA ANS4A	
30430	0500 00 0 40015	CLA TEMP	CHECK ANS
30431	0340 00 0 37362	CAS PZE	EXECUTION
30432	0020 00 0 30434	TRA **2	ERROR
30433	0020 00 0 30436	TRA **3	OK, STG +0
30434	0560 00 0 37362	LDQ PZE	CORRECT STG VALUE
30435	0074 00 4 00105	TSX ERROR,4	STG NOT +0
30436	0074 00 4 00106	TSX OK,4	
30437	0020 00 0 30415	TRA ANS4A	

CHECK ANS WITH STORAGE CLEAR AND BITS IN THE ACCUMULATOR

30440	214562606060	BCD IANS	
30441	0600 00 0 40015	ANS5A STZ TEMP	CLEAR STG LOCATION
30442	--0500 00 0 37401	CAL ONES	ACC +P377777777777
30443	0320 00 0 40015	ANS TEMP	NO CHANGE TO ACC AND STG
30444	--0340 00 0 37401	LAS ONES	CHECK ACC UNCHANGED
30445	0020 00 0 30447	TRA **2	ERROR
30446	0020 00 0 30452	TRA **4	OK
30447	0560 00 0 37401	LDQ ONES	MQ S-35 EQU ACC P-35
30450	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
30451	0020 00 0 30441	TRA ANS5A	
30452	0500 00 0 40015	CLA TEMP	CHECK ANS
30453	0340 00 0 37362	CAS PZE	EXECUTION
30454	0020 00 0 30456	TRA **2	ERROR
30455	0020 00 0 30460	TRA **3	OK, STG +0
30456	0560 00 0 37362	LDQ PZE	CORRECT STG VALUE
30457	0074 00 4 00105	TSX ERROR,4	STG NOT +0
30460	0074 00 4 00106	TSX OK,4	
30461	0020 00 0 30441	TRA ANS5A	

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CHECK ACC S AND Q NOT CLEARED BY ANS EXECUTION

30462 214562606060

BCD 1ANS

30463	0500 00 0 37363	ANS6	CLA MZE	BITS TO ACC
30464	0760 00 0 00006		COM	S, Q THRU 35
30465	0600 00 0 40015		STZ TEMP	CLEAR STG LOC
30466	0320 00 0 40015		ANS TEMP	SHOULD NOT CHANGE ACC

IF ACC WAS NOT CHANGED, ADDING ONE WILL RIPPLE DOWN AND CLEAR Q THRU 35

30467	0402 00 0 37364		SUB ONE	L +1
30470	0340 00 0 37363		CAS MZE	CHECK ACC WAS UNCHANGED
30471	0020 00 0 30473		TRA **2	ERROR
30472	0020 00 0 30476		TRA **4	OK
30473	0560 00 0 37363		LDQ MZE	CORRECT ACC AFTER ADDITION
30474	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
30475	0020 00 0 30463		TRA ANS6	

30476	0500 00 0 40015		CLA TEMP	CHECK ANS
30477	0340 00 0 37362		CAS PZE	EXECUTION
30500	0020 00 0 30502		TRA **2	ERROR
30501	0020 00 0 30504		TRA **3	OK
30502	0560 00 0 37362		LDQ PZE	CORRECT STG VALUE
30503	0074 00 4 00105		TSX ERROR,4	STG NOT +0
30504	0074 00 4 00106		TSX OK,4	
30505	0020 00 0 30463		TRA ANS6	

30506 214562606060

BCD 1ANS

30507	0500 00 0 37363	ANS7	CLA MZE	BITS TO ACC
30510	0760 00 0 00006		COM	S, Q THRU 35
30511	0602 00 0 40015		SLW TEMP	BITS S-35 IN STG LOC
30512	0320 00 0 40015		ANS TEMP	NO CHANGE TO ACC OR STG LOC

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IF ACC WAS NOT CHANGED, ADDING ONE WILL RIPPLE DOWN AND CLEAR Q THRU 35

30513	0402	00	0	37364	SUB ONE	L +1
30514	0340	00	0	37363	CAS MZE	CHECK ACC WAS UNCHANGED
30515	0020	00	0	30517	TRA **2	ERROR
30516	0020	00	0	30522	TRA **4	OK
30517	0560	00	0	37363	LDQ MZE	CORRECT ACC AFTER ADDITION
30520	0074	00	4	00104	TSX ERROR-1,4	ERROR IN ACC
30521	0020	00	0	30507	TRA ANS7	
30522	0500	00	0	40015	CLA TEMP	CHECK ANS
30523	0340	00	0	37401	CAS ONES	EXECUTION
30524	0020	00	0	30526	TRA **2	ERROR
30525	0020	00	0	30530	TRA **3	OK
30526	0560	00	0	37401	LDQ ONES	CORRECT STG VALUE
30527	0074	00	4	00105	TSX ERROR,4	ERROR IN STG LOC
30530	0074	00	4	00106	TSX OK,4	
30531	0020	00	0	30507	TRA ANS7	

30532 214562606060 BCD 1ANS

30533	-0500	00	0	37363	ANS8 CAL MZE	BITS IN
30534	0767	00	0	00001	ALS 1	ACC S
30535	-0760	00	0	00003	SSM	AND Q
30536	0600	00	0	40015	STZ TEMP	CLEAR STG LOC
30537	0320	00	0	40015	ANS TEMP	NO CHANGE TO ACC AND STG

IF ACC REMAINED UNCHANGED, EXECUTION OF ACL AND SUB WILL CLEAR ACC Q-35

30540	0361	00	0	37401	ACL ONES	ACC NOW -QP37777777777
30541	0402	00	0	37364	SUB ONE	CLEAR ACC Q-35
30542	0340	00	0	37363	CAS MZE	CHECK ACC WAS UNCHANGED
30543	0020	00	0	30545	TRA **2	ERROR
30544	0020	00	0	30550	TRA **4	OK
30545	0560	00	0	37363	LDQ MZE	CORRECT ACC AFTER ADDITIONS
30546	0074	00	4	00104	TSX ERROR-1,4	ERROR IN ACC
30547	0020	00	0	30533	TRA ANS8	
30550	0500	00	0	40015	CLA TEMP	CHECK ANS
30551	0340	00	0	37362	CAS PZE	EXECUTION
30552	0020	00	0	30554	TRA **2	ERROR
30553	0020	00	0	30556	TRA **3	OK, STG +0
30554	0560	00	0	37362	LDQ PZE	CORRECT STG VALUE
30555	0074	00	4	00105	TSX ERROR,4	ACC NOT +0
30556	0074	00	4	00106	TSX OK,4	
30557	0020	00	0	30533	TRA ANS8	

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30560	214562606060		BCD 1ANS
30561	0500 00 0 37363	ANS9	CLA MZE
30562	0760 00 0 00006		COM
30563	0601 00 0 40015		STO TEMP
30564	0767 00 0 00044		ALS 36
30565	0320 00 0 40015		ANS TEMP

BITS IN ACC
S AND Q ONLY
STG LOC
ALL ONES
NO CHANGE TO ACC

IF ACC REMAINED UNCHANGED, EXECUTION OF ACL AND SUB WILL CLEAR ACC Q-35

30566	0361 00 0 37401	ACL ONES	ACC NOW -QP377777777777
30567	0402 00 0 37364	SUB ONE	CLEAR ACC Q-35
30570	0340 00 0 37363	CAS MZE	CHECK ACC WAS UNCHANGED
30571	0020 00 0 30573	TRA **2	ERROR
30572	0020 00 0 30576	TRA **4	OK
30573	0560 00 0 37363	LDQ MZE	CORRECT ACC AFTER ADDITIONS
30574	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
30575	0020 00 0 30561	TRA ANS9	
30576	0500 00 0 40015	CLA TEMP	CHECK ANS
30577	0340 00 0 37362	CAS PZE	EXECUTION
30600	0020 00 0 30602	TRA **2	ERROR
30601	0020 00 0 30604	TRA **3	OK, STG +0
30602	0560 00 0 37362	LDQ PZE	CORRECT STG VALUE
30603	0074 00 4 00105	TSX ERROR, 4	STG NOT +0
30604	0074 00 4 00106	TSX OK, 4	
30605	0020 00 0 30561	TRA ANS9	

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ANS RIPPLE TESTS

30606	214562606060	BCD 1ANS	
30607	0560 00 0 37364	ANS10 LDQ ONE	+1 IN MQ
30610	-0600 00 0 40013	STQ T1	STORE MQ
30611	0020 00 0 30613	TRA **2	PROCEED
30612	214562606060	BCD 1ANS	
30613	-0600 00 0 40015	ANS0A STQ TEMP	STORE MQ
30614	-0500 00 0 40013	CAL T1	POSITION TESTING TO ACC
30615	0320 00 0 40015	ANS TEMP	NO CHANGE TO STG LOC
30616	-0500 00 0 40015	CAL TEMP	CHECK ANS
30617	-0340 00 0 40013	LAS T1	EXECUTION
30620	0020 00 0 30622	TRA **2	ERROR
30621	0020 00 0 30624	TRA **3	OK
30622	0074 00 4 00104	TSX ERROR-1,4	ERROR IN STG LOC
30623	0020 00 0 30613	TRA ANS0A	
30624	0500 00 0 37362	CLA PZE	SET UP NEXT
30625	-0763 00 0 00001	LGL 1	COMPARE
30626	0760 00 0 00001	LBT	UNTIL ALL
30627	0020 00 0 30610	TRA ANS10+1	STG TESTED
30630	0074 00 4 00106	TSX OK,4	
30631	0020 00 0 30607	TRA ANS10	
30632	214562606060	BCD 1ANS	
30633	0560 00 0 37364	ANS11 LDQ ONE	+1 TO MQ
30634	-0600 00 0 40013	STQ T1	SAVE C MQ IN TEMP STORAGE
30635	0020 00 0 30637	TRA **2	PROCEED
30636	214562606060	BCD 1ANS	
30637	0600 00 0 40015	ANS1B STZ TEMP	CLEAR LOCATION
30640	-0500 00 0 40013	CAL T1	POSITION TESTING TO ACC
30641	0320 00 0 40015	ANS TEMP	NO CHANGE TO STG LOC
30642	0500 00 0 40015	CLA TEMP	CHECK ANS
30643	0340 00 0 37362	CAS PZE	EXECUTION
30644	0020 00 0 30646	TRA **2	ERROR
30645	0020 00 0 30651	TRA **4	OK
30646	0560 00 0 37362	LDQ PZE	CORRECT STG VALUE
30647	0074 00 4 00104	TSX ERROR-1,4	ERROR IN STG LOC
30650	0020 00 0 30637	TRA ANS1B	
30651	0500 00 0 37362	CLA PZE	CLEAR ACC
30652	0560 00 0 40013	LDQ T1	SET UP NEXT
30653	-0763 00 0 00001	LGL 1	COMPARE
30654	0760 00 0 00001	LBT	UNTIL ALL
30655	0020 00 0 30634	TRA ANS11+1	STG TESTED
30656	0074 00 4 00106	TSX OK,4	
30657	0020 00 0 30633	TRA ANS11	

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30660 214562606060

BCD 1ANS

30661 0560 00 0 37401
30662 -0600 00 0 40013
30663 0020 00 0 30665

ANS12 LDQ ONES
STQ T1
TRA **2

ONES TO MQ
STORE MQ
PROCEED

30664 214562606060

BCD 1ANS

30665 -0600 00 0 40015
30666 -0500 00 0 40013
30667 0320 00 0 40015
30670 -0500 00 0 40015
30671 -0340 00 0 40013
30672 0020 00 0 30674
30673 0020 00 0 30676
30674 0074 00 4 00104
30675 0020 00 0 30665

ANS1C STQ TEMP
CAL T1
ANS TEMP
CAL TEMP
LAS T1
TRA **2
TRA **3
TSX ERROR-1,4
TRA ANS1C

STORE MQ
POSITIONS TESTING TO ACC
NO CHANGE TO ACC OR STG LOC
CHECK ANS
EXECUTION
ERROR
OK
ERROR IN STG LOC

30676 -0763 00 0 00001
30677 0162 00 0 30701
30700 0020 00 0 30662
30701 0074 00 4 00106
30702 0020 00 0 30661

LGL 1
TQP **2
TRA ANS12+1
TSX OK,4
TRA ANS12

SET UP NEXT
COMPARE UNTIL
ALL STG TESTED

30703 214562606060

BCD 1ANS

30704 0560 00 0 37401
30705 -0600 00 0 40013
30706 0020 00 0 30710

ANS13 LDQ ONES
STQ T1
TRA **2

ONES TO MQ
SAVE C MQ IN TEMP STORAGE
PROCEED

30707 214562606060

BCD 1ANS

30710 0600 00 0 40015
30711 -0500 00 0 40013
30712 0320 00 0 40015
30713 0500 00 0 40015
30714 0340 00 0 37362
30715 0020 00 0 30717
30716 0020 00 0 30722
30717 0560 00 0 37362
30720 0074 00 4 00104
30721 0020 00 0 30710

ANS1D STZ TEMP
CAL T1
ANS TEMP
CLA TEMP
CAS PZE
TRA **2
TRA **4
LDQ PZE
TSX ERROR-1,4
TRA ANS1D

CLEAR LOCATION
POSITIONS TESTING TO ACC
NO CHANGE TO STG LOC
CHECK ANS
EXECUTION
ERROR
OK
CORRECT STG VALUE
ERROR IN STG LOC

30722 0560 00 0 40013
30723 -0763 00 0 00001
30724 0162 00 0 30726
30725 0020 00 0 30705
30726 0074 00 4 00106
30727 0020 00 0 30704

LDQ T1
LGL 1
TQP **2
TRA ANS13+1
TSX OK,4
TRA ANS13

SET UP
NEXT COMPARE
UNTIL ALL
STG TESTED

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30730	214562606060		BCD 1ANS	
30731	0560 00 0 37401	ANS14	LDQ ONES	ONES TO MQ
30732	-0600 00 0 40013		STQ T1	SAVE C MQ IN TEMP STORAGE
30733	0020 00 0 30736		TRA **3	PROCEED
30734	214562606060		BCD 1ANS	
30735	0560 00 0 40013	ANS1E	LDQ T1	POSITIONS TESTING TO MQ
30736	-0600 00 0 40015		STQ TEMP	STORE IN LOCATION
30737	0500 00 0 37362		CLA PZE	CLEAR ACC
30740	0320 00 0 40015		ANS TEMP	CLEAR STG LOCATION
30741	0500 00 0 40015		CLA TEMP	CHECK ANS
30742	0340 00 0 37362		CAS PZE	EXECUTION
30743	0020 00 0 30745		TRA **2	ERROR
30744	0020 00 0 30750		TRA **4	OK
30745	0560 00 0 37362		LDQ PZE	CORRECT STG VALUE
30746	0074 00 4 00104		TSX ERROR-1,4	ERROR IN STG LOC
30747	0020 00 0 30735		TRA ANS1E	
30750	0560 00 0 40013		LDQ T1	SET UP
30751	-0763 00 0 00001		LGL 1	NEXT COMPARE
30752	0162 00 0 30754		TQP **2	UNTIL ALL
30753	0020 00 0 30732		TRA ANS14+1	ACC TESTED
30754	0074 00 4 00106		TSX OK,4	
30755	0020 00 0 30731		TRA ANS14	

CHECK ERA WITH BOTH ACCUMULATOR AND STORAGE LOCATION CLEAR

30756	255121606060		BCD 1ERA	
30757	0500 00 0 37362	ERA	CLA PZE	CLEAR ACCUMULATOR
30760	0601 00 0 40015		STO TEMP	AND STORAGE LOC
30761	0322 00 0 40015		ERA TEMP	ACC SHOULD REMAIN CLEAR
30762	0340 00 0 37362		CAS PZE	CHECK ERA EXECUTION
30763	0020 00 0 30765		TRA **2	ERROR
30764	0020 00 0 30770		TRA **4	OK, ACC +0
30765	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE
30766	0074 00 4 00104		TSX ERROR-1,4	ACC NOT +0
30767	0020 00 0 30757		TRA ERA	
30770	0500 00 0 40015		CLA TEMP	CHECK STORAGE
30771	0340 00 0 37362		CAS PZE	UNCHANGED
30772	0020 00 0 30774		TRA **2	ERROR
30773	0020 00 0 30776		TRA **3	OK, STG UNCHANGED
30774	0560 00 0 37362		LDQ PZE	CORRECT STG VALUE
30775	0074 00 4 00105		TSX ERROR,4	STG CHANGED
30776	0074 00 4 00106		TSX OK,4	
30777	0020 00 0 30757		TRA ERA	

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CHECK ERA CLEARS ACCUMULATOR WHEN CORRESPONDING BITS MATCH

31000	255121606060		BCD 1ERA	
31001	-0500 00 0 37401	ERA1	CAL ONES	BITS TO ACC P THRU 35
31002	0602 00 0 40015		SLW TEMP	AND STG LOCATION
31003	0322 00 0 40015		ERA TEMP	SHOULD CLEAR ACC
31004	0340 00 0 37362		CAS PZE	CHECK ERA EXECUTION
31005	0020 00 0 31007		TRA **2	ERROR
31006	0020 00 0 31012		TRA **4	OK, ACC +0
31007	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE
31010	0074 00 4 00104		TSX ERROR-1,4	ACC NOT +0
31011	0020 00 0 31001		TRA ERA1	
31012	0500 00 0 40015		CLA TEMP	CHECK STG
31013	0340 00 0 37401		CAS ONES	UNCHANGED
31014	0020 00 0 31016		TRA **2	ERROR
31015	0020 00 0 31020		TRA **3	OK, STG UNCHANGED
31016	0560 00 0 37401		LDQ ONES	CORRECT STG VALUE
31017	0074 00 4 00105		TSX ERROR,4	STG LOCATION CHANGED
31020	0074 00 4 00106		TSX OK,4	
31021	0020 00 0 31001		TRA ERA1	

CHECK ERA SETS BITS IN ACCUMULATOR WHEN CORRESPONDING BITS DO NOT MATCH

31022	255121606060		BCD 1ERA	
31023	-0500 00 0 37401	ERA2	CAL ONES	SET ONES INTO
31024	0602 00 0 40015		SLW TEMP	STG LOCATION
31025	0500 00 0 37362		CLA PZE	CLEAR ACC
31026	0322 00 0 40015		ERA TEMP	BITS TO ACC P THRU 35
31027	-0340 00 0 37401		LAS ONES	CHECK ERA EXECUTION
31030	0020 00 0 31032		TRA **2	ERROR
31031	0020 00 0 31035		TRA **4	OK, BITS IN ACC P THRU 35
31032	0560 00 0 37401		LDQ ONES	S-35 OF MQ EQU P-35 OF ACC
31033	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
31034	0020 00 0 31023		TRA ERA2	
31035	0500 00 0 40015		CLA TEMP	CHECK STG
31036	0340 00 0 37401		CAS ONES	UNCHANGED
31037	0020 00 0 31041		TRA **2	ERROR
31040	0020 00 0 31043		TRA **3	OK, STG UNCHANGED
31041	0560 00 0 37401		LDQ ONES	CORRECT STG VALUE
31042	0074 00 4 00105		TSX ERROR,4	STG LOCATION CHANGED
31043	0074 00 4 00106		TSX OK,4	
31044	0020 00 0 31023		TRA ERA2	

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CHECK ERA SETS BITS IN ACCUMULATOR WHEN CORRESPONDING BITS DO NOT MATCH

31045 255121606060

BCD 1ERA

31046	0500	00	0	37415	ERA2A	CLA ITIX	+2525252525
31047	0601	00	0	40015		STO TEMP	TO STG LOCATION
31050	0767	00	0	00001		ALS 1	ACC +P12525252525
31051	0322	00	0	40015		ERA TEMP	CHECK ERA EXECUTION
31052	-0340	00	0	37401		LAS ONES	CHECK ACC CONTENTS
31053	0020	00	0	31055		TRA **2	ERROR
31054	0020	00	0	31060		TRA **4	OK, BITS IN ACC P THRU 35
31055	0560	00	0	37401		LDQ ONES	MQ S-35 EQU ACC P-35
31056	0074	00	4	00104		TSX ERROR-1,4	ERROR IN ACC
31057	0020	00	0	31046		TRA ERA2A	

31060	0500	00	0	40015		CLA TEMP	CHECK STG
31061	0340	00	0	37415		CAS ITIX	UNCHANGED
31062	0020	00	0	31064		TRA **2	ERROR
31063	0020	00	0	31066		TRA **3	OK, STG UNCHANGED
31064	0560	00	0	37415		LDQ ITIX	CORRECT STG VALUE
31065	0074	00	4	00105		TSX ERROR,4	STG CHANGED
31066	0074	00	4	00106		TSX OK,4	
31067	0020	00	0	31046		TRA ERA2A	

31070 255121606060

BCD 1ERA

31071	0500	00	0	37415	ERA2B	CLA ITIX	-125252525252
31072	0767	00	0	00001		ALS 1	IN STOTAGE
31073	0602	00	0	40015		SLW TEMP	LOCATION
31074	0771	00	0	00001		ARS 1	+252525252525 IN ACC
31075	0322	00	0	40015		ERA TEMP	SHOULD ONES IN P THRU 35
31076	-0340	00	0	37401		LAS ONES	CHECK ERA EXECUTION
31077	0020	00	0	31101		TRA **2	ERROR
31100	0020	00	0	31103		TRA **3	OK, ONES IN ACC P THRU 35
31101	0560	00	0	37401		LDQ ONES	MQ S-35 EQU ACC P-35
31102	0074	00	4	00105		TSX ERROR,4	ERROR IN ACC
31103	0074	00	4	00106		TSX OK,4	
31104	0020	00	0	31071		TRA ERA2B	

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CHECK ERA WITH STORAGE CLEAR AND BITS IN THE ACCUMULATOR

31105	255121606060		BCD 1ERA	
31106	0600 00 0 40015	ERA3	STZ TEMP	CLEAR STG LOCATION
31107	-0500 00 0 37401		CAL ONES	BITS TO ACC P THRU 35
31110	0322 00 0 40015		ERA TEMP	BITS SHOULD REMAIN IN ACC
31111	-0340 00 0 37401		LAS ONES	CHECK ERA EXECUTION
31112	0020 00 0 31114		TRA **2	ERROR
31113	0020 00 0 31117		TRA **4	OK, BITS IN ACC P THRU 35
31114	0560 00 0 37401		LDQ ONES	MQ S-35 EQU ACC P-35
31115	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
31116	0020 00 0 31106		TRA ERA3	
31117	0500 00 0 40015		CLA TEMP	CHECK STORAGE
31120	0340 00 0 37362		CAS PZE	UNCHANGED
31121	0020 00 0 31123		TRA **2	ERROR
31122	0020 00 0 31125		TRA **3	OK, STORAGE +0
31123	0560 00 0 37362		LDQ PZE	CORRECT STORAGE VALUE
31124	0074 00 4 00105		TSX ERROR,4	STG NOT +0
31125	0074 00 4 00106		TSX OK,4	
31126	0020 00 0 31106		TRA ERA3	

CHECK ACC S AND Q CLEARED WITH ERA EXECUTION

31127	255121606060		BCD 1ERA	
31130	0500 00 0 37363	ERA4	CLA MZE	BITS TO ACC
31131	0760 00 0 00006		COM	S, Q THRU 35
31132	0600 00 0 40015		STZ TEMP	CLEAR STORAGE LOCATION
31133	0322 00 0 40015		ERA TEMP	CLEAR ONLY S AND Q
31134	-0340 00 0 37401		LAS ONES	CHECK ERA EXECUTION
31135	0020 00 0 31137		TRA **2	ERROR
31136	0020 00 0 31142		TRA **4	OK, BITS IN ACC P THRU 35
31137	0560 00 0 37401		LDQ ONES	MQ S-35 EQU ACC P-35
31140	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
31141	0020 00 0 31130		TRA ERA4	
31142	0120 00 0 31146		TPL **4	TRA IF ACC SIGN PLUS
31143	0771 00 0 00045		ARS 37	CLEAR ACC EXCEPT SIGN
31144	0560 00 0 37362		LDQ PZE	CORRECT ACC SIGN TO MQ
31145	0074 00 4 00105		TSX ERROR,4	ACC SIGN NOT CLEARED
31146	0074 00 4 00106		TSX OK,4	
31147	0020 00 0 31130		TRA ERA4	

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CHECK ACC S AND Q CLEARED WITH ERA EXECUTION

31150	255121606060	BCD 1ERA	
31151	0500 00 0 37363	ERA5 CLA MZE	BITS TO ACC
31152	0760 00 0 00006	COM	S, Q THRU 35
31153	0601 00 0 40015	STO TEMP	BITS IN STG LOC S THRU 35
31154	0322 00 0 40015	ERA TEMP	SHOULD CLEAR ACC
31155	0340 00 0 37362	CAS PZE	CHECK ERA EXECUTION
31156	0020 00 0 31160	TRA **2	ERROR
31157	0020 00 0 31162	TRA **3	OK, ACC +0
31160	0560 00 0 37362	LDQ PZE	CORRECT ACC VALUE
31161	0074 00 4 00105	TSX ERROR,4	ACC NOT +0
31162	0074 00 4 00106	TSX OK,4	
31163	0020 00 0 31151	TRA ERA5	

31164	255121606060	BCD 1ERA	
31165	-0500 00 0 37363	ERA5A CAL MZE	BITS IN
31166	0767 00 0 00001	ALS 1	ACC S
31167	-0760 00 0 00003	SSM	AND Q
31170	0600 00 0 40015	STZ TEMP	CLEAR STG LOC
31171	0322 00 0 40015	ERA TEMP	CLEAR S AND Q
31172	0340 00 0 37362	CAS PZE	CHECK ERA EXECUTION
31173	0020 00 0 31175	TRA **2	ERROR
31174	0020 00 0 31177	TRA **3	OK, ACC +0
31175	0560 00 0 37362	LDQ PZE	CORRECT ACC VALUE
31176	0074 00 4 00105	TSX ERROR,4	ACC NOT +0
31177	0074 00 4 00106	TSX OK,4	
31200	0020 00 0 31165	TRA ERA5A	

31201	255121606060	BCD 1ERA	
31202	0500 00 0 37363	ERA5B CLA MZE	BITS IN ACC
31203	0760 00 0 00006	COM	S AND Q ONLY
31204	0601 00 0 40015	STO TEMP	STG LOC
31205	0767 00 0 00044	ALS 36	ALL ONES
31206	0322 00 0 40015	ERA TEMP	CLEAR S AND Q
31207	-0340 00 0 37401	LAS ONES	CHECK ERA EXECUTION
31210	0020 00 0 31212	TRA **2	ERROR
31211	0020 00 0 31215	TRA **4	OK
31212	0560 00 0 37401	LDQ ONES	MQ S-35 EQU ACC P-35
31213	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
31214	0020 00 0 31202	TRA ERA5B	
31215	0120 00 0 31221	TPL **4	TRA IF ACC PLUS
31216	0771 00 0 00045	ARS 37	CLEAR ACC EXCEPT SIGN
31217	0560 00 0 37362	LDQ PZE	CORRECT ACC SIGN
31220	0074 00 4 00105	TSX ERROR,4	ACC SIGN NOT PLUS
31221	0074 00 4 00106	TSX OK,4	
31222	0020 00 0 31202	TRA ERA5B	

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ERA RIPPLE TESTS

31223 255121606060

BCD 1ERA

31224 0560 00 0 37364
31225 -0600 00 0 40013
31226 -0600 00 0 40015
31227 0020 00 0 31231

ERA6 LDQ ONE
STQ T1
STQ TEMP
TRA **2

+1 IN MQ
STORE MQ IN
THESE LOCATIONS
PROCEED

31230 255121606060

BCD 1ERA

31231 -0500 00 0 37363
31232 -0760 00 0 00003
31233 0767 00 0 00001
31234 -0501 00 0 40013
31235 0322 00 0 40015
31236 0340 00 0 37362
31237 0020 00 0 31241
31240 0020 00 0 31244
31241 0560 00 0 37362
31242 0074 00 4 00104
31243 0020 00 0 31231

ERA6A CAL MZE
SSM
ALS 1
ORA T1
ERA TEMP
CAS PZE
TRA **2
TRA **4
LDQ PZE
TSX ERROR-1,4
TRA ERA6A

BITS TO ACC
S, Q AND
POSITION
CHECKING
CLEAR ACC
CHECK ERA EXECUTION
ERROR
OK, ACC +0
CORRECT ACC VALUE
LOC 0 HAS POSITION TESTING

31244 0500 00 0 37362
31245 0560 00 0 40013
31246 -0763 00 0 00001
31247 0760 00 0 00001
31250 0020 00 0 31225
31251 0074 00 4 00106
31252 0020 00 0 31224

CLA PZE
LDQ T1
LGL 1
LBT
TRA ERA6+1
TSX OK,4
TRA ERA6

CLEAR ACC
SET UP NEXT
COMPARE
UNTIL ALL
ACC TESTED

31253 255121606060

BCD 1ERA

31254 0600 00 0 40015
31255 0560 00 0 37364
31256 -0600 00 0 40013
31257 0020 00 0 31261

ERA7 STZ TEMP
LDQ ONE
STQ T1
TRA **2

CLEAR STORAGE LOCATION
+1 TO MQ
SAVE C MQ IN TEMP STORAGE
PROCEED

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31260 255121606060

BCD 1ERA

31261	-0500	00	0	37363	ERA7A	CAL MZE	BITS TO ACC
31262	-0760	00	0	00003		SSM	S, Q AND
31263	0767	00	0	00001		ALS 1	POSITION
31264	-0501	00	0	40013		ORA T1	CHECKING
31265	0322	00	0	40015		ERA TEMP	BIT SHOULD REMAIN IN ACC
31266	-0340	00	0	40013		LAS T1	CHECK ERA EXECUTION
31267	0020	00	0	31271		TRA **2	ERROR
31270	0020	00	0	31273		TRA **3	OK
31271	0074	00	4	00104		TSX ERROR-1,4	ERROR IN ACC
31272	0020	00	0	31261		TRA ERA7A	

31273	0120	00	0	31276		TPL **3	TRA IF ACC SIGN PLUS
31274	0074	00	4	00104		TSX ERROR-1,4	ACC SIGN NOT PLUS
31275	0020	00	0	31261		TRA ERA7A	

31276	0500	00	0	37362		CLA PZE	SET UP NEXT
31277	-0763	00	0	00001		LGL 1	COMPARE
31300	0760	00	0	00001		LBT	UNTIL ALL
31301	0020	00	0	31256		TRA ERA7+2	ACC TESTED
31302	0074	00	4	00106		TSX OK,4	
31303	0020	00	0	31254		TRA ERA7	

31304 255121606060

BCD 1ERA

31305	0560	00	0	37401	ERA8	LDQ ONES	ONES TO MQ
31306	-0600	00	0	40013		STQ T1	STORE MQ IN
31307	-0600	00	0	40015		STQ TEMP	THESE LOCATIONS
31310	0020	00	0	31312		TRA **2	PROCEED

31311 255121606060

BCD 1ERA

31312	-0500	00	0	37363	ERA8A	CAL MZE	BITS TO ACC
31313	-0760	00	0	00003		SSM	S, Q AND
31314	0767	00	0	00001		ALS 1	POSITIONS
31315	-0501	00	0	40013		ORA T1	CHECKING
31316	0322	00	0	40015		ERA TEMP	CLEAR ACC
31317	0340	00	0	37362		CAS PZE	CHECK ERA EXECUTION
31320	0020	00	0	31322		TRA **2	ERROR
31321	0020	00	0	31325		TRA **4	OK, ACC +0
31322	0560	00	0	37362		LDQ PZE	CORRECT ACC VALUE
31323	0074	00	4	00104		TSX ERROR-1,4	LOC 0 HAS POSITION TESTING
31324	0020	00	0	31312		TRA ERA8A	

31325	0560	00	0	40013		LDQ T1	SET UP NEXT
31326	-0763	00	0	00001		LGL 1	COMPARE
31327	0162	00	0	31331		TQP **2	UNTIL ALL
31330	0020	00	0	31306		TRA ERA8+1	ACC TESTED
31331	0074	00	4	00106		TSX OK,4	
31332	0020	00	0	31305		TRA ERA8	

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31333	255121606060		
31334	0600 00 0 40015	ERA9	BCD 1ERA
31335	0560 00 0 37401		STZ TEMP
31336	-0600 00 0 40013		LDQ ONES
31337	0020 00 0 31341		STQ T1
			TRA **2
			CLEAR STORAGE LOCATION ONES TO MQ SAVE C MQ IN TEMP STORAGE PROCEED
31340	255121606060		
31341	-0500 00 0 37363	ERA9A	BCD 1ERA
31342	-0760 00 0 00003		CAL MZE
31343	0767 00 0 00001		SSM
31344	-0501 00 0 40013		ALS 1
31345	0322 00 0 40015		ORA T1
31346	-0340 00 0 40013		ERA TEMP
31347	0020 00 0 31351		LAS T1
31350	0020 00 0 31353		TRA **2
31351	0074 00 4 00104		TRA **3
31352	0020 00 0 31341		TSX ERROR-1,4
			TRA ERA9A
			ERROR IN ACC
31353	0120 00 0 31356		
31354	0074 00 4 00104		TPL **3
31355	0020 00 0 31341		TRA IF ACC SIGN PLUS
			TSX ERROR-1,4
			TRA ERA9A
			ACC SIGN NOT PLUS
31356	-0763 00 0 00001		
31357	0162 00 0 31361		LGL 1
31360	0020 00 0 31336		TQP **2
31361	0074 00 4 00106		TRA ERA9+2
31362	0020 00 0 31334		TSX OK,4
			TRA ERA9
			SET UP NEXT COMPARE UNTIL ALL ACC TESTED
31363	255121606060		
31364	0560 00 0 37401	ERA10	BCD 1ERA
31365	-0600 00 0 40015		LDQ ONES
31366	-0600 00 0 40013		STQ TEMP
31367	0020 00 0 31371		STQ T1
			TRA **2
			ONES TO MQ STORE MQ IN THESE LOCATIONS PROCEED
31370	255121606060		
			BCD 1ERA
31371	-0500 00 0 37363	ERA11	CAL MZE
31372	-0760 00 0 00003		SSM
31373	0767 00 0 00001		ALS 1
31374	0322 00 0 40015		ERA TEMP
31375	-0340 00 0 40013		LAS T1
31376	0020 00 0 31400		TRA **2
31377	0020 00 0 31402		TRA **3
31400	0074 00 4 00104		TSX ERROR-1,4
31401	0020 00 0 31371		TRA ERA11
			ERROR IN ACC
31402	0120 00 0 31405		
31403	0074 00 4 00104		TPL **3
31404	0020 00 0 31371		TRA IF ACC SIGN PLUS
			TSX ERROR-1,4
			TRA ERA11
			ACC SIGN MINUS
31405	-0763 00 0 00001		
31406	0162 00 0 31410		LGL 1
31407	0020 00 0 31365		TQP **2
31410	0074 00 4 00106		TRA ERA10+1
31411	0020 00 0 31364		TSX OK,4
			TRA ERA10
			SET UP NEXT COMPARE UNTIL ALL ACC TESTED

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CHECK TLQ WITH MQ LESS THAN ACCUMULATOR

31412	634350606060		BCD 1TLQ
31413	0500 00 0 37364	TLQ	CLA ONE ACC +1
31414	0560 00 0 37362		LDQ PZE MQ +0
31415	0040 00 0 31420		TLQ **3 SHOULD TRA WITH MQ LESS
31416	0074 00 4 00104		TSX ERROR-1,4 TLQ FAILED TO TRA
31417	0020 00 0 31413		TRA TLQ

CHECK MQ AND ACC REGISTERS UNCHANGED

31420	-0600 00 0 40015	STQ TEMP	SAVE MQ VALUE
31421	0340 00 0 37364	CAS ONE	CHECK ACC UNCHANGED
31422	0020 00 0 31424	TRA **2	ERROR
31423	0020 00 0 31427	TRA **4	OK
31424	0560 00 0 37364	LDQ ONE	CORRECT ACC VALUE
31425	0074 00 4 00104	TSX ERROR-1,4	ACC CHANGED
31426	0020 00 0 31413	TRA TLQ	
31427	0500 00 0 40015	CLA TEMP	CHECK MQ
31430	0340 00 0 37362	CAS PZE	UNCHANGED
31431	0020 00 0 31433	TRA **2	ERROR
31432	0020 00 0 31435	TRA **3	OK
31433	0560 00 0 37362	LDQ PZE	CORRECT MQ VALUE
31434	0074 00 4 00105	TSX ERROR,4	MQ CHANGED
31435	0074 00 4 00106	TSX OK,4	
31436	0020 00 0 31413	TRA TLQ	

31437	634350606060		BCD 1TLQ
31440	0500 00 0 37362	TLQ1	CLA PZE ACC +0
31441	0560 00 0 37363		LDQ MZE MQ -0
31442	0040 00 0 31444		TLQ **2 SHOULD TRA WITH MQ LESS
31443	0074 00 4 00105		TSX ERROR,4 TLQ FAILED TO TRANSFER
31444	0074 00 4 00106		TSX OK,4
31445	0020 00 0 31440		TRA TLQ1

31446	634350606060		BCD 1TLQ
31447	0500 00 0 37365	TLQ2	CLA MONE ACC -1
31450	0560 00 0 37367		LDQ MTW MQ -2
31451	0040 00 0 31453		TLQ **2 SHOULD TRA WITH MQ LESS
31452	0074 00 4 00105		TSX ERROR,4 TLQ FAILED TO TRANSFER
31453	0074 00 4 00106		TSX OK,4
31454	0020 00 0 31447		TRA TLQ2

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TLQ RIPPLE TESTS WITH MQ LESS THAN ACCUMULATOR

31455	634350606060	BCD 1TLQ		
31456	--0500 00 0 37363	TLQ3	CAL MZE	BIT TO ACC
31457	0767 00 0 00001		ALS 1	Q POSITION
31460	0560 00 0 37363		LDQ MZE	MQ --0
31461	0020 00 0 31463		TRA **2	PROCEED
31462	634350606060	BCD 1TLQ		
31463	0040 00 0 31466	TLQ3A	TLQ **3	TRANSFER WITH MQ LESS
31464	0074 00 4 00104		TSX ERROR-1,4	TLQ FAILED TO TRANSFER
31465	0020 00 0 31463		TRA TLQ3A	
31466	--0765 00 0 00001		LGR 1	SET UP NEXT COMPARE
31467	--0100 00 0 31463		TNZ TLQ3A	UNTIL ACC EQUAL ZERO
31470	0074 00 4 00106		TSX OK,4	
31471	0020 00 0 31456		TRA TLQ3	
31472	634350606060	BCD 1TLQ		
31473	0500 00 0 37362	TLQ4	CLA PZE	BITS TO ACC
31474	0760 00 0 00006		COM	Q THRU 35
31475	0560 00 0 37401		LDQ ONES	MQ -377777777777
31476	0020 00 0 31500		TRA **2	PROCEED
31477	634350606060	BCD 1TLQ		
31500	0040 00 0 31503	TLQ4A	TLQ **3	TRANSFER WITH MQ LESS
31501	0074 00 4 00104		TSX ERROR-1,4	TLQ FAILED TO TAANSFER
31502	0020 00 0 31500		TRA TLQ4A	
31503	0402 00 0 37364		SUB ONE	REMOVE ACC 35 BIT
31504	--0765 00 0 00001		LGR 1	SET UP NEXT COMPARE
31505	--0100 00 0 31500		TNZ TLQ4A	UNTIL ACC EQUAL ZERO
31506	0074 00 4 00106		TSX OK,4	
31507	0020 00 0 31473		TRA TLQ4	

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CHECK TLQ WITH MQ GREATER THAN ACCUMULATOR

31510	634350606060		BCD 1TLQ	
31511	0500 00 0 37362	TLQ5	CLA PZE	ACC +0
31512	0560 00 0 37364		LDQ ONE	MQ +1
31513	0040 00 0 31515		TLQ **2	NO TRA WITH MQ GREATER
31514	0020 00 0 31516		TRA **2	OK
31515	0074 00 4 00105		TSX ERROR,4	TRANSFERRED WITH MQ GREATER
31516	0074 00 4 00106		TSX OK,4	
31517	0020 00 0 31511		TRA TLQ5	
31520	634350606060		BCD 1TLQ	
31521	0500 00 0 37363	TLQ6	CLA MZE	ACC -0
31522	0560 00 0 37362		LDQ PZE	MQ +0
31523	0040 00 0 31525		TLQ **2	NO TRA WITH MQ GREATER
31524	0020 00 0 31526		TRA **2	OK
31525	0074 00 4 00105		TSX ERROR,4	TRANSFERRED WITH MQ GREATER
31526	0074 00 4 00106		TSX OK,4	
31527	0020 00 0 31521		TRA TLQ6	
31530	634350606060		BCD 1TLQ	
31531	0500 00 0 37367	TLQ7	CLA MTW	ACC -2
31532	0560 00 0 37365		LDQ MONE	MQ -1
31533	0040 00 0 31535		TLQ **2	NO TRA WITH MQ GREATER
31534	0020 00 0 31536		TRA **2	OK
31535	0074 00 4 00105		TSX ERROR,4	TRANSFERRED WITH MQ GREATER
31536	0074 00 4 00106		TSX OK,4	
31537	0020 00 0 31531		TRA TLQ7	

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TLQ RIPPLE TESTS WITH MQ GREATER THAN ACC

31540	634350606060	BCD 1TLQ	
31541	-0500 00 0 37363	TLQ8	CAL MZE MAKE THE MQ
31542	0771 00 0 00001		ARS 1 GREATER THAN
31543	0560 00 0 37363		LDQ MZE THE ACC
31544	0020 00 0 31552		TRA **6 PROCEED
31545	634350606060	BCD 1TLQ	
31546	0040 00 0 31550	TLQ8A	TLQ **2 NO TRA WITH MQ GREATER
31547	0020 00 0 31552		TRA **3 OK
31550	0074 00 4 00104		TSX ERROR-1,4 TRANSFERRED WITH MQ GREATER
31551	0020 00 0 31546		TRA TLQ8A
31552	-0765 00 0 00001		LGR 1 SET UP NEXT COMPARE
31553	0162 00 0 31546		TQP TLQ8A UNTIL ACC EQUAL ZERO
31554	0074 00 4 00106		TSX OK,4
31555	0020 00 0 31541		TRA TLQ8
31556	634350606060	BCD 1TLQ	
31557	0500 00 0 37363	TLQ9	CLA MZE MAKE THE
31560	0760 00 0 00006		COM ACC LESS
31561	0560 00 0 37401		LDQ ONES THAN THE MQ
31562	0020 00 0 31570		TRA **6 PROCEED
31563	634350606060	BCD 1TLQ	
31564	0040 00 0 31566	TLQ9A	TLQ **2 NO TRA WITH MQ GREATER
31565	0020 00 0 31570		TRA **3 OK
31566	0074 00 4 00104		TSX ERROR-1,4 TRANSFERRED WITH MQ GREATER
31567	0020 00 0 31564		TRA TLQ9A
31570	0400 00 0 37364		ADD ONE REMOVE ACC 35 BIT
31571	0765 00 0 00001		LRS 1 SET UP NEXT COMPARE
31572	-0100 00 0 31564		TNZ TLQ9A UNTIL ACC EQUAL ZERO
31573	0074 00 4 00106		TSX OK,4
31574	0020 00 0 31557		TRA TLQ9

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CHECK TLQ WITH MQ EQUAL TO ACCUMULATOR

31575	634350606060	BCD 1TLQ	
31576	0500 00 0 37362	TLQ10 CLA PZE	ACC +0
31577	0560 00 0 37362	LDQ PZE	MQ +0
31600	0040 00 0 31602	TLQ **2	NO TRANSFER WITH MQ EQUAL
31601	0020 00 0 31603	TRA **2	OK
31602	0074 00 4 00105	TSX ERROR,4	TRANSFERRED WITH MQ EQUAL
31603	0074 00 4 00106	TSX OK,4	
31604	0020 00 0 31576	TRA TLQ10	
31605	634350606060	BCD 1TLQ	
31606	0500 00 0 37363	TLQ11 CLA MZE	ACC -0
31607	0560 00 0 37363	LDQ MZE	MQ -0
31610	0040 00 0 31612	TLQ **2	NO TRANSFER WITH MQ EQUAL
31611	0020 00 0 31613	TRA **2	OK
31612	0074 00 4 00105	TSX ERROR,4	TRANSFERRED WITH MQ EQUAL
31613	0074 00 4 00106	TSX OK,4	
31614	0020 00 0 31606	TRA TLQ11	
31615	634350606060	BCD 1TLQ	
31616	0500 00 0 37401	TLQ12 CLA ONES	ACC -377777777777
31617	0560 00 0 37401	LDQ ONES	MQ -377777777777
31620	0040 00 0 31622	TLQ **2	NO TRANSFER WITH MQ EQUAL
31621	0020 00 0 31623	TRA **2	OK
31622	0074 00 4 00105	TSX ERROR,4	TRANSFERRED WITH MQ EQUAL
31623	0074 00 4 00106	TSX OK,4	
31624	0020 00 0 31616	TRA TLQ12	

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TLQ RIPPLE TESTS WITH MQ AND ACCUMULATOR EQUAL

31625 634350606060

BCD 1TLQ

31626 -0500 00 0 37363
31627 0560 00 0 37363
31630 0020 00 0 31636

TLQ13 CAL MZE
LDQ MZE
TRA **6

SET UP ACC
AND MQ FOR
EQUAL TEST

31631 634350606060

BCD 1TLQ

31632 0040 00 0 31634
31633 0020 00 0 31636
31634 0074 00 4 00104
31635 0020 00 0 31632

TLQX TLQ **2
TRA **3
TSX ERROR-1,4
TRA TLQX

NO TRANSFER WITH MQ EQUAL
OK
TRANSFERRED WITH MQ EQUAL

31636 -0765 00 0 00001
31637 -0100 00 0 31632
31640 0074 00 4 00106
31641 0020 00 0 31626

LGR 1
TNZ TLQX
TSX OK,4
TRA TLQ13

SET UP NEXT COMPARE
UNTIL ACC EQUAL ZERO

31642 634350606060

BCD 1TLQ

31643 -0500 00 0 37401
31644 0560 00 0 37401
31645 0020 00 0 31653

TLQ14 CAL ONES
LDQ ONES
TRA **6

MAKE ACC AND
THE MQ EQUAL
BEFORE TLQ TEST

31646 634350606060

BCD 1TLQ

31647 0040 00 0 31651
31650 0020 00 0 31653
31651 0074 00 4 00104
31652 0020 00 0 31647

TLQY TLQ **2
TRA **3
TSX ERROR-1,4
TRA TLQY

NO TRANSFER WITH MQ EQUAL
OK
TRANSFERRED WITH MQ EQUAL

31653 0402 00 0 37364
31654 -0765 00 0 00001
31655 -0100 00 0 31647
31656 0074 00 4 00106
31657 0020 00 0 31643

SUB ONE
LGR 1
TNZ TLQY
TSX OK,4
TRA TLQ14

REMOVE ACC 35 BIT
SET UP NEXT COMPARE
UNTIL ACC EQUAL ZERO

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31660	634350606060		BCD	1TLQ	
31661	0500 00 0 37362	BLQ1	CLA	PZE	ZERO TO ACC
31662	0760 00 0 00006		COM		
31663	0601 00 0 40015		STO	TEMP	+377777777777 TO STG
31664	0560 00 0 40015		LDQ	TEMP	RIPPLE
31665	-0773 00 0 00001		RQL	1	THE NOT ONE
31666	-0600 00 0 40015		STQ	TEMP	
31667	0162 00 0 31700		TQP	BLQ1A	BREAK LOOP
31670	0500 00 0 40015		CLA	TEMP	C ACC EQUAL C MQ
31671	0040 00 0 31673		TLQ	++2	SHOULD NOT TRANSFER
31672	0020 00 0 31675		TRA	++3	OK
31673	0074 00 4 00104		TSX	ERROR-1,4	INDICATE ERROR
31674	0761 00 0 31661		NOP	BLQ1	
31675	0760 00 0 00161		SWT	1	TEST SWITCH ONE
31676	0020 00 0 31664		TRA	BLQ1+3	GO ON
31677	0020 00 0 31670		TRA	BLQ1+7	REPEAT WITH SAME DATA
31700	0074 00 4 00106	BLQ1A	TSX	OK,4	
31701	0020 00 0 31661		TRA	BLQ1	
31702	634350606060		BCD	1TLQ	
31703	0500 00 0 37362	BLQ2	CLA	PZE	ZERO TO ACC
31704	0760 00 0 00006		COM		
31705	0601 00 0 40015		STO	TEMP	+377777777777 TO STORAGE
31706	0560 00 0 40015		LDQ	TEMP	RIPPLE THE
31707	-0773 00 0 00001		RQL	1	NOT ONE
31710	0162 00 0 31722		TQP	BLQ2A	BREAK LOOP
31711	-0600 00 0 40015		STQ	TEMP	CONTENTS OF MQ
31712	0500 00 0 40015		CLA	TEMP	ONE LESS THAN
31713	0400 00 0 37364		ADD	ONE	CONTENTS OF ACCUMULATOR
31714	0040 00 0 31717		TLQ	++3	SHOULD TRANSFER
31715	0074 00 4 00104		TSX	ERROR-1,4	
31716	0761 00 0 31703		NOP	BLQ2	
31717	0760 00 0 00161		SWT	1	TEST SWITCH ONE
31720	0020 00 0 31706		TRA	BLQ2+3	GO ON
31721	0020 00 0 31712		TRA	BLQ2+7	REPEAT WITH SAME DATA
31722	0074 00 4 00106	BLQ2A	TSX	OK,4	
31723	0020 00 0 31703		TRA	BLQ2	

S E C T I O N T W O

CHECK SLQ EXECUTION

31724 624350606060

BCD 1SLQ

31725 0600 00 0 40015
31726 0560 00 0 37365
31727 -0620 00 0 40015

SLQ STZ TEMP CLEAR STG LOCATION
LDQ MONE MQ -1
SLQ TEMP STORE ONLY MQ S THRU 17

CHECK MQ UNCHANGED

31730 0131 00 0 00000
31731 0340 00 0 37365
31732 0020 00 0 31734
31733 0020 00 0 31737
31734 0560 00 0 37365
31735 0074 00 4 00104
31736 0020 00 0 31725

XCA MQ TO ACC
CAS MONE CHECK MQ UNCHANGED
TRA **2 ERROR
TRA **4 OK
LDQ MONE CORRECT MQ VALUE
TSX ERROR-1,4 MQ CHANGED
TRA SLQ

31737 0500 00 0 40015
31740 0340 00 0 37363
31741 0020 00 0 31743
31742 0020 00 0 31745
31743 0560 00 0 37363
31744 0074 00 4 00105
31745 0074 00 4 00106
31746 0020 00 0 31725

CLA TEMP CHECK SLQ
CAS MZE EXECUTION
TRA **2 ERROR
TRA **3 OK
LDQ MZE CORRECT STG VALUE
TSX ERROR,4 ERROR IN STG VALUE
TSX OK,4
TRA SLQ

31747 624350606060

BCD 1SLQ

31750 0600 00 0 40015
31751 -0500 00 0 37400
31752 0625 00 0 40015
31753 0621 00 0 40015
31754 -0765 00 0 00022
31755 -0620 00 0 40015

SLQ1 STZ TEMP CLEAR STG LOCATION
CAL PONES BITS IN ACC P THRU 35
STT TEMP STORE TAG AND
STA TEMP THE ADDRESS
LGR 18 MAKE MQ -377777000000
SLQ TEMP MAKE LOCATION -377777777777

31756 0500 00 0 40015
31757 0340 00 0 37401
31760 0020 00 0 31762
31761 0020 00 0 31764
31762 0560 00 0 37401
31763 0074 00 4 00105
31764 0074 00 4 00106
31765 0020 00 0 31750

CLA TEMP CHECK SLQ
CAS ONES EXECUTION
TRA **2 ERROR
TRA **3 OK
LDQ ONES CORRECT STG VALUE
TSX ERROR,4 ERROR IN STG VALUE
TSX OK,4
TRA SLQ1

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TLQ RIPPLE TEST

31766	634350606060	BCD	1TLQ	
31767	-0500 00 0 37365	CAL	MONE	SET ONES IN ACC P AND 35
31770	0560 00 0 37365	LDQ	MONE	SET ONES IN MQ S AND 35
31771	-0765 00 0 00001	LGR	1	SHIFT RIGHT ONCE
31772	0162 00 0 32012	TQP	**+16	BREAK LOOP
31773	0765 00 0 00000	LRS	0	SET MQ SIGN PLUS
31774	0040 00 0 31776	TLQ	**+2	C ACC EQUAL C MQ
31775	0020 00 0 32000	TRA	**+3	OK - TLQ DID NOT XFER
31776	0074 00 4 00104	TSX	ERROR-1,4	
31777	0761 00 0 31767	NOP	**+8	
32000	0760 00 0 00161	SWT	1	TEST FOR TIGHT LOOP
32001	0020 00 0 32003	TRA	**+2	GO ON
32002	0020 00 0 31774	TRA	**+6	
32003	0402 00 0 37365	SUB	MONE	ADD ONE TO C ACC
32004	0040 00 0 32007	TLQ	**+3	SHOULD TRANSFER
32005	0074 00 4 00104	TSX	ERROR-1,4	
32006	0761 00 0 31767	NOP	**+15	
32007	0760 00 0 00161	SWT	1	TEST FOR TIGHT LOOP
32010	0020 00 0 31771	TRA	**+15	SHIFT FOR NEXT COLUMN
32011	0020 00 0 32004	TRA	**+5	
32012	0074 00 4 00106	TSX	OK,4	
32013	0020 00 0 31767	TRA	**+20	

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SLQ RIPPLE TEST

32014	624350606060	BCD 1SLQ	
32015	-0500 00 0 37401	SLQ2 CAL ONES	MAKE
32016	0771 00 0 00022	ARS 18	MQ
32017	0765 00 0 00043	LRS 35	+000000777777
32020	-0600 00 0 40016	STQ TEMP+1	SAVE MQ
32021	0020 00 0 32024	TRA **3	PROCEED
32022	624350606060	BCD 1SLQ	
32023	0560 00 0 40016	SLQ2A LDQ TEMP+1	RESTORE MQ
32024	0600 00 0 40015	STZ TEMP	CLEAR
32025	0600 00 0 40013	STZ T1	LOCATIONS
32026	-0130 00 0 00000	XCL	SAVE
32027	0630 00 0 40013	STP T1	MQ
32030	0622 00 0 40013	STD T1	POSITIONS
32031	-0130 00 0 00000	XCL	TESTING
32032	-0620 00 0 40015	SLQ TEMP	STORE ONLY MQ S THRU 35
32033	-0500 00 0 40015	CAL TEMP	CHECK
32034	-0340 00 0 40013	LAS T1	EXECUTION
32035	0020 00 0 32037	TRA **2	ERROR
32036	0020 00 0 32043	TRA **5	OK
32037	0560 00 0 40013	LDQ T1	CORRECT STG VALUE
32040	0074 00 4 00104	TSX ERROR-1,4	ERROR IN STG VALUE
32041	0020 00 0 32023	TRA SLQ2A	
32042	0560 00 0 40016	LDQ TEMP+1	RESTORE MQ ON ERROR
32043	0500 00 0 37362	CLA PZE	CLEAR ACC
32044	-0763 00 0 00001	LGL 1	SET UP NEXT
32045	0760 00 0 00001	LBT	TEST UNTIL ACC
32046	0020 00 0 32020	TRA SLQ2+3	35 HAS A BIT
32047	0074 00 4 00106	TSX OK,4	
32050	0020 00 0 32015	TRA SLQ2	

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CHECK RND WITH NO BIT IN MQ 1

32051	514524606060		BCD 1RND	
32052	0500 00 0 37401	RND	CLA ONES	ACC -377777777777
32053	0560 00 0 37430		LDQ ANS3	MQ +0525252526
32054	0760 00 0 00010		RND	NO CHANGE TO ACC
32055	0340 00 0 37401		CAS ONES	CHECK RND EXECUTION
32056	0020 00 0 32060		TRA **2	ERROR
32057	0020 00 0 32062		TRA **3	OK
32060	0560 00 0 37401		LDQ ONES	CORRECT ACC VALUE
32061	0074 00 4 00105		TSX ERROR,4	ACC CHANGED
32062	0074 00 4 00106		TSX OK,4	
32063	0020 00 0 32052		TRA RND	

32064	514524606060		BCD 1RND	
32065	0500 00 0 37401	RND1	CLA ONES	ACC -377777777777
32066	0560 00 0 37426		LDQ ANS1	MQ -1252525253
32067	0760 00 0 00010		RND	NO CHANGE TO ACC
32070	0340 00 0 37401		CAS ONES	CHECK RND EXECUTION
32071	0020 00 0 32073		TRA **2	ERROR
32072	0020 00 0 32075		TRA **3	OK
32073	0560 00 0 37401		LDQ ONES	CORRECT ACC VALUE
32074	0074 00 4 00105		TSX ERROR,4	ACC CHANGED
32075	0074 00 4 00106		TSX OK,4	
32076	0020 00 0 32065		TRA RND1	

CHECK RND WITH A BIT IN MQ 1

32077	514524606060		BCD 1RND	
32100	0500 00 0 37402	RND2	CLA UNA	ACC +177777777777
32101	0560 00 0 37410		LDQ TOO	MQ +200000000000
32102	0760 00 0 00010		RND	ROUND OFF ACC
32103	-0600 00 0 40015		STQ TEMP	SAVE MQ VALUE
32104	0340 00 0 37410		CAS TOO	CHECK RND EXECUTION
32105	0020 00 0 32107		TRA **2	ERROR
32106	0020 00 0 32112		TRA **4	OK
32107	0560 00 0 37410		LDQ TOO	CORRECT ACC VALUE
32110	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
32111	0020 00 0 32100		TRA RND2	
32112	0500 00 0 40015		CLA TEMP	CHECK MQ
32113	0340 00 0 37410		CAS TOO	UNCHANGED
32114	0020 00 0 32116		TRA **2	ERROR
32115	0020 00 0 32120		TRA **3	OK
32116	0560 00 0 37410		LDQ TOO	CORRECT MQ VALUE
32117	0074 00 4 00105		TSX ERROR,4	MQ CHANGED
32120	0074 00 4 00106		TSX OK,4	
32121	0020 00 0 32100		TRA RND2	

SECTION TWO

SET PRODUCT SIGN AND CLEAR ACCUMULATOR IN E TIME IN MPY

32122 444770206720

BCD IMPY+X+

32123	0500	00	0	37363	MPY	CLA MZE	SET ACC SIGN MINUS
32124	0760	00	0	00006		COM	BITS TO ACC Q THRU 35
32125	0560	00	0	37362		LDQ PZE	MULTIPLIER +0
32126	0200	00	0	37362		MPY PZE	MULTIPLICAND +0
32127	-0600	00	0	40015		STQ TEMP	SAVE MQ PRODUCT
32130	0340	00	0	37362		CAS PZE	CHECK ACC PRODUCT
32131	0020	00	0	32133		TRA **2	ERROR
32132	0020	00	0	32136		TRA **4	ACC PRODUCT OK
32133	0560	00	0	37362		LDQ PZE	CORRECT ACC SIGN TO MQ
32134	0074	00	4	00104		TSX ERROR-1,4	ACC SIGN MINUS
32135	0020	00	0	32123		TRA MPY	REPEAT LOOP
32136	0500	00	0	40015		CLA TEMP	SAVED MQ PRODUCT
32137	0120	00	0	32142		TPL **3	TRA IF MQ SIGN PLUS
32140	0560	00	0	37362		LDQ PZE	CORRECT MQ SIGN
32141	0074	00	4	00105		TSX ERROR,4	MQ SIGN MINUS
32142	0074	00	4	00106		TSX OK,4	
32143	0020	00	0	32123		TRA MPY	

SET PRODUCT SIGN AND CLEAR MQ IN E TIME IN MPY WITH SR ZERO

32144 444770406740

BCD IMPY-X-

32145	0500	00	0	37363	MPY1	CLA MZE	SET ACC SIGN MINUS
32146	0560	00	0	37401		LDQ ONES	MULTIPLIER -377777777777
32147	0200	00	0	37363		MPY MZE	MULTIPLICAND -0
32150	-0600	00	0	40015		STQ TEMP	SAVE MQ PRODUCT
32151	0120	00	0	32155		TPL **4	TRA IF ACC SIGN PLUS
32152	0560	00	0	37362		LDQ PZE	CORRECT ACC SIGN
32153	0074	00	4	00104		TSX ERROR-1,4	ACC SIGN MINUS
32154	0020	00	0	32145		TRA MPY1	REPEAT LOOP
32155	0500	00	0	40015		CLA TEMP	SAVED MQ PRODUCT
32156	0340	00	0	37362		CAS PZE	CHECK MQ PRODUCT
32157	0020	00	0	32161		TRA **2	ERROR
32160	0020	00	0	32163		TRA **3	MQ PRODUCT OK
32161	0560	00	0	37362		LDQ PZE	CORRECT MQ PRODUCT
32162	0074	00	4	00105		TSX ERROR,4	MQ WAS NOT CLEAR
32163	0074	00	4	00106		TSX OK,4	
32164	0020	00	0	32145		TRA MPY1	

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MULTIPLY WITH MQ AND SR SIGNS UNLIKE

32165 444770406720

BCD 1MPY-X+

32166 -0754 00 0 00000
32167 0560 00 0 37363
32170 0200 00 0 37362
32171 -0600 00 0 40015
32172 -0120 00 0 32176
32173 0560 00 0 37363
32174 0074 00 4 00104
32175 0020 00 0 32166

MPY2

PXD CLEAR ACC
LDQ MZE MULTIPLIER -0
MPY PZE MULTIPLICAND +0
STQ TEMP SAVE MQ PRODUCT
TMI *+4 TRA IF ACC SIGN MINUS
LDQ MZE CORRECT ACC SIGN
TSX ERROR-1,4 ACC SIGN PLUS
TRA MPY2 REPEAT LOOP

32176 0500 00 0 40015
32177 -0120 00 0 32202
32200 0560 00 0 37363
32201 0074 00 4 00105
32202 0074 00 4 00106
32203 0020 00 0 32166

CLA TEMP SAVED MQ PRODUCT
TMI *+3 OK IF MQ SIGN WAS MINUS
LDQ MZE CORRECT MQ SIGN
TSX ERROR,4 MQ SIGN PLUS
TSX OK,4
TRA MPY2

32204 444770602067

BCD 1MPY +X-

32205 -0754 00 0 00000
32206 0560 00 0 37362
32207 0200 00 0 37363
32210 -0600 00 0 40015
32211 -0120 00 0 32215
32212 0560 00 0 37363
32213 0074 00 4 00104
32214 0020 00 0 32205

MPY3

PXD CLEAR ACC
LDQ PZE MULTIPLIER +0
MPY MZE MULTIPLICAND -0
STQ TEMP SAVE MQ PRODUCT
TMI *+4 TRA IF ACC SIGN MINUS
LDQ MZE CORRECT ACC SIGN
TSX ERROR-1,4 ACC SIGN PLUS
TRA MPY3 REPEAT LOOP

32215 0500 00 0 40015
32216 -0120 00 0 32221
32217 0560 00 0 37363
32220 0074 00 4 00105
32221 0074 00 4 00106
32222 0020 00 0 32205

CLA TEMP SAVED MQ PRODUCT
TMI *+3 OK IF MQ SIGN WAS MINUS
LDQ MZE CORRECT MQ SIGN
TSX ERROR,4 MQ SIGN PLUS
TSX OK,4
TRA MPY3

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*
NO ACC SIGN TEST IN MPY IF SR +1 SINCE SIGN CONTROL TESTED PREVIOUSLY
*

MULTIPLY BY ZERO-NO ADD CYCLE

32223	444770606760		BCD 1MPY X	
32224	0560 00 0 37362	MPY4	LDQ PZE	MULTIPLIER +0
32225	0200 00 0 37364		MPY ONE	MULTIPLICAND +1
32226	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
32227	0100 00 0 32233		TZE **4	TRA IF ACC PRODUCT ZERO
32230	0560 00 0 37362		LDQ PZE	CORRECT ACC PRODUCT
32231	0074 00 4 00104		TSX ERROR-1,4	ACC PRODUCT NOT ZERO
32232	0020 00 0 32224		TRA MPY4	REPEAT LOOP
32233	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
32234	0100 00 0 32237		TZE **3	TRA IF MQ PRODUCT WAS ZERO
32235	0560 00 0 37362		LDQ PZE	CORRECT MQ PRODUCT
32236	0074 00 4 00105		TSX ERROR,4	MQ PRODUCT WAS NOT ZERO
32237	0074 00 4 00106		TSX OK,4	
32240	0020 00 0 32224		TRA MPY4	

MULTIPLY BY ONE-ADD MULTIPLICAND TO PARTIAL PRODUCT

32241	444770600167		BCD 1MPY 1X	
32242	0560 00 0 37364	MPY5	LDQ ONE	MULTIPLIER +1
32243	0200 00 0 37364		MPY ONE	MULTIPLICAND +1
32244	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
32245	0100 00 0 32251		TZE **4	TRA IF ACC PRODUCT ZERO
32246	0560 00 0 37362		LDQ PZE	CORRECT ACC PRODUCT
32247	0074 00 4 00104		TSX ERROR-1,4	ACC NOT ZERO
32250	0020 00 0 32242		TRA MPY5	REPEAT LOOP
32251	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
32252	0340 00 0 37364		CAS ONE	CHECK MQ PRODUCT
32253	0020 00 0 32255		TRA **2	ERROR
32254	0020 00 0 32257		TRA **3	OK, MQ WAS +1
32255	0560 00 0 37364		LDQ ONE	CORRECT MQ PRODUCT
32256	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT +1
32257	0074 00 4 00106		TSX OK,4	
32260	0020 00 0 32242		TRA MPY5	

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MULTIPLY BY ONE-ADD MULTIPLICAND TO PARTIAL PRODUCT

32261	444770600167		BCD 1MPY 1X
32262	0560 00 0 37371	MPY6	LDQ FOUR MULTIPLIER +4
32263	0200 00 0 37364		MPY ONE MULTIPLICAND +1
32264	-0600 00 0 40015		STQ TEMP SAVE MQ PRODUCT
32265	0100 00 0 32271		TZE **4 TRA IF ACC PRODUCT ZERO
32266	0560 00 0 37362		LDQ PZE CORRECT ACC PRODUCT
32267	0074 00 4 00104		TSX ERROR-1,4 ACC NOT ZERO
32270	0020 00 0 32262		TRA MPY6 REPEAT LOOP
32271	0500 00 0 40015		CLA TEMP SAVED MQ PRODUCT
32272	0340 00 0 37371		CAS FOUR CHECK MQ PRODUCT
32273	0020 00 0 32275		TRA **2 ERROR
32274	0020 00 0 32277		TRA **3 OK, MQ WAS +4
32275	0560 00 0 37371		LDQ FOUR CORRECT MQ PRODUCT
32276	0074 00 4 00105		TSX ERROR,4 MQ WAS NOT +4
32277	0074 00 4 00106		TSX OK,4
32300	0020 00 0 32262		TRA MPY6

MULTIPLY BY TWO-SHIFT MULTIPLICAND LEFT ONE AND ADD PARTIAL PRODUCT

32301	444770600267		BCD 1MPY 2X
32302	0560 00 0 37366	MPY7	LDQ TWO MULTIPLIER +2
32303	0200 00 0 37364		MPY ONE MULTIPLICAND +1
32304	-0600 00 0 40015		STQ TEMP SAVE MQ PRODUCT
32305	0100 00 0 32311		TZE **4 TRA IF ACC PRODUCT ZERO
32306	0560 00 0 37362		LDQ PZE CORRECT ACC PRODUCT
32307	0074 00 4 00104		TSX ERROR-1,4 ACC NOT ZERO
32310	0020 00 0 32302		TRA MPY7 REPEAT LOOP
32311	0500 00 0 40015		CLA TEMP SAVED MQ PRODUCT
32312	0340 00 0 37366		CAS TWO CHECK MQ PRODUCT
32313	0020 00 0 32315		TRA **2 ERROR
32314	0020 00 0 32317		TRA **3 OK, MQ WAS +2
32315	0560 00 0 37366		LDQ TWO CORRECT MQ PRODUCT
32316	0074 00 4 00105		TSX ERROR,4 MQ WAS NOT +2
32317	0074 00 4 00106		TSX OK,4
32320	0020 00 0 32302		TRA MPY7

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MULTIPLY BY TWO-SHIFT MULTIPLICAND LEFT ONE AND ADD PARTIAL PRODUCT

32321	444770600267		BCD IMPY 2X	
32322	0560 00 0 37374	MPY8	LDQ TEN	MULTIPLIER +10
32323	0200 00 0 37364		MPY ONE	MULTIPLICAND +1
32324	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
32325	0100 00 0 32331		TZE **4	TRA IF ACC PRODUCT ZERO
32326	0560 00 0 37362		LDQ PZE	CORRECT ACC PRODUCT
32327	0074 00 4 00104		TSX ERROR-1,4	ACC NOT ZERO
32330	0020 00 0 32322		TRA MPY8	REPEAT LOOP
32331	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
32332	0340 00 0 37374		CAS TEN	CHECK MQ PRODUCT
32333	0020 00 0 32335		TRA **2	ERROR
32334	0020 00 0 32337		TRA **3	OK, MQ WAS +10
32335	0560 00 0 37374		LDQ TEN	CORRECT MQ PRODUCT
32336	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT +10
32337	0074 00 4 00106		TSX OK,4	
32340	0020 00 0 32322		TRA MPY8	

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MPY BY 3-SUBTRACT MULTIPLICAND FROM PARTIAL PRODUCT AND SET STRING BIT

32341 444770400167 BCD 1MPY-1X

32342	0560	00	0	37370	MPY9	LDQ THREE	MULTIPLIER +3
32343	0200	00	0	37364		MPY ONE	MULTIPLICAND +1
32344	-0600	00	0	40015		STQ TEMP	SAVE MQ PRODUCT

1ST ITERATION IS -1X AND SET STRING BIT, 2ND ITERATION IS 1X

32345	0100	00	0	32351	TZE **4	TRA IF ACC PRODUCT ZERO
32346	0560	00	0	37362	LDQ PZE	CORRECT ACC PRODUCT
32347	0074	00	4	00104	TSX ERROR-1,4	ACC NOT ZERO
32350	0020	00	0	32342	TRA MPY9	REPEAT LOOP

32351	0500	00	0	40015	CLA TEMP	SAVED MQ PRODUCT
32352	0340	00	0	37370	CAS THREE	CHECK MQ PRODUCT
32353	0020	00	0	32355	TRA **2	ERROR
32354	0020	00	0	32357	TRA **3	OK, MQ WAS +3
32355	0560	00	0	37370	LDQ THREE	CORRECT MQ PRODUCT
32356	0074	00	4	00105	TSX ERROR,4	MQ WAS NOT +3
32357	0074	00	4	00106	TSX OK,4	
32360	0020	00	0	32342	TRA MPY9	

32361 444770400167 BCD 1MPY-1X

32362	0560	00	0	37376	MPY10	LDQ FRTN	MULTIPLIER +14
32363	0200	00	0	37364		MPY ONE	
32364	-0600	00	0	40015		STQ TEMP	SAVE MQ PRODUCT
32365	0100	00	0	32371		TZE **4	TRA IF ACC PRODUCT ZERO
32366	0560	00	0	37362		LDQ PZE	CORRECT ACC PRODUCT
32367	0074	00	4	00104		TSX ERROR-1,4	ACC NOT ZERO
32370	0020	00	0	32362		TRA MPY10	REPEAT LOOP

32371	0500	00	0	40015	CLA TEMP	SAVED MQ PRODUCT
32372	0340	00	0	37376	CAS FRTN	CHECK MQ PRODUCT
32373	0020	00	0	32375	TRA **2	ERROR
32374	0020	00	0	32377	TRA **3	OK, MQ WAS +14
32375	0560	00	0	37376	LDQ FRTN	CORRECT MQ PRODUCT
32376	0074	00	4	00105	TSX ERROR,4	MQ WAS NOT +14
32377	0074	00	4	00106	TSX OK,4	
32400	0020	00	0	32362	TRA MPY10	

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PERFORM ITERATION AFTER SETTING STRING BIT TRIGGER

32401 444770400167

BCD IMPY-1X

32402	0560	00	0	37373	MPY11	LDQ	SVN	MULTIPLIER +7
32403	0200	00	0	37364		MPY	ONE	MULTIPLICAND +1
32404	-0600	00	0	40015		STQ	TEMP	SAVE MQ PRODUCT
32405	0100	00	0	32411		TZE	**4	TRA IF ACC PRODUCT ZERO
32406	0560	00	0	37362		LDQ	PZE	CORRECT ACC PRODUCT
32407	0074	00	4	00104		TSX	ERROR-1,4	ACC NOT ZERO
32410	0020	00	0	32402		TRA	MPY11	REPEAT LOOP
32411	0500	00	0	40015		CLA	TEMP	SAVED MQ PRODUCT
32412	0340	00	0	37373		CAS	SVN	CHECK MQ PRODUCT
32413	0020	00	0	32415		TRA	**2	ERROR
32414	0020	00	0	32417		TRA	**3	OK, MQ WAS +7
32415	0560	00	0	37373		LDQ	SVN	CORRECT MQ PRODUCT
32416	0074	00	4	00105		TSX	ERROR,4	MQ WAS NOT +7
32417	0074	00	4	00106		TSX	OK,4	
32420	0020	00	0	32402		TRA	MPY11	

32421 444770400167

BCD IMPY-1X

32422	0560	00	0	37375	MPY12	LDQ	THRTN	MULTIPLIER +13
32423	0200	00	0	37364		MPY	ONE	MULTIPLICAND +1
32424	-0600	00	0	40015		STQ	TEMP	SAVE MQ PRODUCT
32425	0100	00	0	32431		TZE	**4	TRA IF ACC PRODUCT ZERO
32426	0560	00	0	37362		LDQ	PZE	CORRECT ACC PRODUCT
32427	0074	00	4	00104		TSX	ERROR-1,4	ACC NOT ZERO
32430	0020	00	0	32422		TRA	MPY12	REPEAT LOOP
32431	0500	00	0	40015		CLA	TEMP	SAVED MQ PRODUCT
32432	0340	00	0	37375		CAS	THRTN	CHECK MQ PRODUCT
32433	0020	00	0	32435		TRA	**2	ERROR
32434	0020	00	0	32437		TRA	**3	OK, MQ WAS +13
32435	0560	00	0	37375		LDQ	THRTN	CORRECT MQ PRODUCT
32436	0074	00	4	00105		TSX	ERROR,4	MQ WAS NOT +13
32437	0074	00	4	00106		TSX	OK,4	
32440	0020	00	0	32422		TRA	MPY12	

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PERFORM ITERATION AFTER SETTING STRING BIT TRIGGER

32441	444770400167	BCD 1MPY-1X	
32442	0560 00 0 37377	MPY13 LDQ SVNTN	MULTIPLIER +17
32443	0200 00 0 37364	MPY ONE	MULTIPLICAND +1
32444	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
32445	0100 00 0 32451	TZE **4	TRA IF ACC PRODUCT ZERO
32446	0560 00 0 37362	LDQ PZE	CORRECT ACC PRODUCT
32447	0074 00 4 00104	TSX ERROR-1,4	ACC NOT ZERO
32450	0020 00 0 32442	TRA MPY13	REPEAT LOOP
32451	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
32452	0340 00 0 37377	CAS SVNTN	CHECK MQ PRODUCT
32453	0020 00 0 32455	TRA **2	ERROR
32454	0020 00 0 32457	TRA **3	OK, MQ WAS +17
32455	0560 00 0 37377	LDQ SVNTN	CORRECT MQ PRODUCT
32456	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT +17
32457	0074 00 4 00106	TSX OK,4	
32460	0020 00 0 32442	TRA MPY13	

PERFORM FINAL ITERATION WHEN SHIFT COUNTER EQUALS ONE

32461	444770606760	BCD 1MPY X	
32462	0560 00 0 37411	MPY14 LDQ SC1X	MULTIPLIER +040000000000
32463	0200 00 0 37364	MPY ONE	MULTIPLICAND +1
32464	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
32465	0100 00 0 32471	TZE **4	TRA IF ACC PRODUCT ZERO
32466	0560 00 0 37362	LDQ PZE	CORRECT ACC PRODUCT
32467	0074 00 4 00104	TSX ERROR-1,4	ACC NOT ZERO
32470	0020 00 0 32462	TRA MPY14	REPEAT LOOP
32471	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
32472	0340 00 0 37411	CAS SC1X	CHECK MQ PRODUCT
32473	0020 00 0 32475	TRA **2	ERROR
32474	0020 00 0 32477	TRA **3	OK, MQ WAS +040000000000
32475	0560 00 0 37411	LDQ SC1X	CORRECT MQ PRODUCT
32476	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT +040000000000
32477	0074 00 4 00106	TSX OK,4	
32500	0020 00 0 32462	TRA MPY14	

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PERFORM FINAL ITERATION WHEN SHIFT COUNTER EQUALS ONE

32501 444770600167

BCD IMPY 1X

32502 0560 00 0 37412
32503 0200 00 0 37364
32504 -0600 00 0 40015
32505 0100 00 0 32511
32506 0560 00 0 37362
32507 0074 00 4 00104
32510 0020 00 0 32502

32511 0500 00 0 40015
32512 0340 00 0 37412
32513 0020 00 0 32515
32514 0020 00 0 32517
32515 0560 00 0 37412
32516 0074 00 4 00105
32517 0074 00 4 00106
32520 0020 00 0 32502

MPY15 LDQ SC11X MULTIPLIER +140000000000
MPY ONE MULTIPLICAND +1
STQ TEMP SAVE MQ PRODUCT
TZE **4 TRA IF ACC PRODUCT ZERO
LDQ PZE CORRECT ACC PRODUCT
TSX ERROR-1,4 ACC NOT ZERO
TRA MPY15 REPEAT LOOP

CLA TEMP SAVED MQ PRODUCT
CAS SC11X CHECK MQ PRODUCT
TRA **2 ERROR
TRA **3 OK, MQ WAS +140000000000
LDQ SC11X CORRECT MQ PRODUCT
TSX ERROR,4 MQ WAS NOT +140000000000
TSX OK,4
TRA MPY15

32521 444770600167

BCD IMPY 1X

32522 0560 00 0 37413
32523 0200 00 0 37364
32524 -0600 00 0 40015
32525 0100 00 0 32531
32526 0560 00 0 37362
32527 0074 00 4 00104
32530 0020 00 0 32522

32531 0500 00 0 40015
32532 0340 00 0 37413
32533 0020 00 0 32535
32534 0020 00 0 32537
32535 0560 00 0 37413
32536 0074 00 4 00105
32537 0074 00 4 00106
32540 0020 00 0 32522

MPY16 LDQ SC1SX MULTIPLIER +240000000000
MPY ONE MULTIPLICAND +1
STQ TEMP SAVE MQ PRODUCT
TZE **4 TRA IF ACC PRODUCT ZERO
LDQ PZE CORRECT ACC PRODUCT
TSX ERROR-1,4 ACC NOT ZERO
TRA MPY16 REPEAT LOOP

CLA TEMP SAVED MQ PRODUCT
CAS SC1SX CHECK MQ PRODUCT
TRA **2 ERROR
TRA **3 OK, MQ WAS +240000000000
LDQ SC1SX CORRECT MQ PRODUCT
TSX ERROR,4 MQ WAS NOT +240000000000
TSX OK,4
TRA MPY16

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PERFORM FINAL ITERATION WHEN SHIFT COUNTER EQUALS ONE

32541	444770600267		BCD 1MPY 2X	
32542	0560 00 0 37414	MPY17	LDQ SC12X	MULTIPLIER +340000000000
32543	0200 00 0 37364		MPY ONE	MULTIPLICAND +1
32544	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
32545	0100 00 0 32551		TZE **4	TRA IF ACC PRODUCT ZERO
32546	0560 00 0 37362		LDQ PZE	CORRECT ACC PRODUCT
32547	0074 00 4 00104		TSX ERROR-1,4	ACC NOT ZERO
32550	0020 00 0 32542		TRA MPY17	REPEAT LOOP
32551	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
32552	0340 00 0 37414		CAS SC12X	CHECK MQ PRODUCT
32553	0020 00 0 32555		TRA **2	ERROR
32554	0020 00 0 32557		TRA **3	OK, MQ WAS +340000000000
32555	0560 00 0 37414		LDQ SC12X	CORRECT MQ PRODUCT
32556	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT +340000000000
32557	0074 00 4 00106		TSX OK,4	
32560	0020 00 0 32542		TRA MPY17	

PERFORM CONSECUTIVE 1X ITERATIONS

32561	444770600167		BCD 1MPY 1X	
32562	0560 00 0 37415	MPY18	LDQ IT1X	MULTIPLIER +252525252525
32563	0200 00 0 37401		MPY ONES	MULTIPLICAND -377777777777
32564	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
32565	0340 00 0 37425		CAS ANS	CHECK ACC PRODUCT
32566	0020 00 0 32570		TRA **2	ERROR
32567	0020 00 0 32573		TRA **4	OK, ACC -252525252524
32570	0560 00 0 37425		LDQ ANS	CORRECT MQ PRODUCT
32571	0074 00 4 00104		TSX ERROR-1,4	ACC NOT -252525252524
32572	0020 00 0 32562		TRA MPY18	REPEAT LOOP
32573	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
32574	0340 00 0 37426		CAS ANS1	CHECK MQ PRODUCT
32575	0020 00 0 32577		TRA **2	ERROR
32576	0020 00 0 32601		TRA **3	OK, MQ WAS -125252525253
32577	0560 00 0 37426		LDQ ANS1	CORRECT MQ PRODUCT
32600	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT -125252525253
32601	0074 00 4 00106		TSX OK,4	
32602	0020 00 0 32562		TRA MPY18	

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PERFORM CONSECUTIVE 2X ITERATIONS-LAST ITERATION 1X

32603 444770600267

BCD IMPY 2X

32604	0560	00	0	37416	MPY19	LDQ	IT2X	MULTIPLIER -3252525252
32605	0200	00	0	37401		MPY	ONES	MULTIPLICAND -3777777777
32606	-0600	00	0	40015		STQ	TEMP	SAVE MQ PRODUCT
32607	0340	00	0	37427		CAS	ANS2	CHECK ACC PRODUCT
32610	0020	00	0	32612		TRA	**2	ERROR
32611	0020	00	0	32615		TRA	**4	OK, ACC +3252525251
32612	0560	00	0	37427		LDQ	ANS2	CORRECT MQ PRODUCT
32613	0074	00	4	00104		TSX	ERROR-1,4	ACC NOT +3252525251
32614	0020	00	0	32604		TRA	MPY19	REPEAT LOOP

32615	0500	00	0	40015		CLA	TEMP	SAVED MQ PRODUCT
32616	0340	00	0	37430		CAS	ANS3	CHECK MQ PRODUCT
32617	0020	00	0	32621		TRA	**2	ERROR
32620	0020	00	0	32623		TRA	**3	OK, MQ WAS +0525252526
32621	0560	00	0	37430		LDQ	ANS3	CORRECT MQ PRODUCT
32622	0074	00	4	00105		TSX	ERROR,4	MQ WAS NOT +0525252526
32623	0074	00	4	00106		TSX	OK,4	
32624	0020	00	0	32604		TRA	MPY19	

PERFORM CONSECUTIVE -1X ITERATIONS-SET STRING BIT-LAST ITERATION 2X

32625 444770400167

BCD IMPY-1X

32626	0560	00	0	37417	MPY20	LDQ	ITCOM	MULTIPLIER -3252525253
32627	0200	00	0	37364		MPY	ONE	MULTIPLICAND +1
32630	-0600	00	0	40015		STQ	TEMP	SAVE MQ PRODUCT
32631	0340	00	0	37363		CAS	MZE	CHECK ACC PRODUCT
32632	0020	00	0	32634		TRA	**2	ERROR
32633	0020	00	0	32637		TRA	**4	OK IF ACC PRODUCT -0
32634	0560	00	0	37363		LDQ	MZE	CORRECT ACC PRODUCT
32635	0074	00	4	00104		TSX	ERROR-1,4	ACC SIGN PLUS
32636	0020	00	0	32626		TRA	MPY20	REPEAT LOOP

32637	0500	00	0	40015		CLA	TEMP	SAVED MQ PRODUCT
32640	0340	00	0	37417		CAS	ITCOM	CHECK MQ PRODUCT
32641	0020	00	0	32643		TRA	**2	ERROR
32642	0020	00	0	32645		TRA	**3	OK, MQ WAS -3252525253
32643	0560	00	0	37417		LDQ	ITCOM	CORRECT MQ PRODUCT
32644	0074	00	4	00105		TSX	ERROR,4	MQ WAS NOT -3252525253
32645	0074	00	4	00106		TSX	OK,4	
32646	0020	00	0	32626		TRA	MPY20	

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ALTERNATELY PERFORM -1X AND 1X ITERATIONS

32647	400167730167	BCD 1-1X,1X	
32650	0560 00 0 37420	MPY21 LDQ ALT	MULTIPLIER +146314631463
32651	0200 00 0 37364	MPY ONE	MULTIPLICAND +1
32652	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
32653	0100 00 0 32657	TZE **4	TRA IF ACC PRODUCT ZERO
32654	0560 00 0 37362	LDQ PZE	CORRECT ACC PRODUCT
32655	0074 00 4 00104	TSX ERROR-1,4	ACC NOT ZERO
32656	0020 00 0 32650	TRA MPY21	REPEAT LOOP
32657	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
32660	0340 00 0 37420	CAS ALT	CHECK MQ PRODUCT
32661	0020 00 0 32663	TRA **2	ERROR
32662	0020 00 0 32665	TRA **3	OK, MQ WAS +146314631463
32663	0560 00 0 37420	LDQ ALT	CORRECT MQ PRODUCT
32664	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT +146314631463
32665	0074 00 4 00106	TSX OK,4	
32666	0020 00 0 32650	TRA MPY21	

ALTERNATELY PERFORM -1X AND 2X ITERATIONS

32667	400167730267	BCD 1-1X,2X	
32670	0560 00 0 37421	MPY22 LDQ ALT1	MULTIPLIER +356735673567
32671	0200 00 0 37364	MPY ONE	MULTIPLICAND +1
32672	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
32673	0100 00 0 32677	TZE **4	TRA IF ACC PRODUCT ZERO
32674	0560 00 0 37362	LDQ PZE	CORRECT ACC PRODUCT
32675	0074 00 4 00104	TSX ERROR-1,4	ACC NOT ZERO
32676	0020 00 0 32670	TRA MPY22	REPEAT LOOP
32677	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
32700	0340 00 0 37421	CAS ALT1	CHECK MQ PRODUCT
32701	0020 00 0 32703	TRA **2	ERROR
32702	0020 00 0 32705	TRA **3	OK, MQ WAS +356735673567
32703	0560 00 0 37421	LDQ ALT1	CORRECT MQ PRODUCT
32704	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT +356735673567
32705	0074 00 4 00106	TSX OK,4	
32706	0020 00 0 32670	TRA MPY22	

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ALTERNATELY PERFORM -1X AND X ITERATIONS-LAST ITERATION 2X

32707	400167736760	BCD 1-1X,X	
32710	0560 00 0 37422	MPY23 LDQ ALT2	MULTIPLIER +335673567357
32711	0200 00 0 37364	MPY ONE	MULTIPLICAND +1
32712	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
32713	0100 00 0 32717	TZE **4	TRA IF ACC PRODUCT ZERO
32714	0560 00 0 37362	LDQ PZE	CORRECT ACC PRODUCT
32715	0074 00 4 00104	TSX ERROR-1,4	ACC NOT ZERO
32716	0020 00 0 32710	TRA MPY23	REPEAT LOOP
32717	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
32720	0340 00 0 37422	CAS ALT2	CHECK MQ PRODUCT
32721	0020 00 0 32723	TRA **2	ERROR
32722	0020 00 0 32725	TRA **3	OK, MQ WAS +335673567357
32723	0560 00 0 37422	LDQ ALT2	CORRECT MQ PRODUCT
32724	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT +335673567357
32725	0074 00 4 00106	TSX OK,4	
32726	0020 00 0 32710	TRA MPY23	

ALTERNATELY PERFORM X, 1X, 2X, AND -1X ITERATIONS

32727	444770606060	BCD 1MPY	
32730	0774 00 1 00043	MPY24 AXT 35,1	43 IN XRA
32731	0560 00 1 37466	LDQ ALT3+35,1	MULTIPLIER +364331171020
32732	0200 00 1 37444	MPY ONES+35,1	MULTIPLICAND -377777777777
32733	-0600 00 1 40060	STQ TEMP+35,1	SAVE MQ PRODUCT
32734	0340 00 1 37474	CAS ANS4+35,1	CHECK ACC PRODUCT
32735	0020 00 1 33002	TRA **37,1	ERROR
32736	0020 00 1 33005	TRA **39,1	OK, ACC -364331171017
32737	0560 00 1 37474	LDQ ANS4+35,1	CORRECT ACC PRODUCT
32740	0074 00 4 00104	TSX ERROR-1,4	ACC NOT -364331171017
32741	0020 00 0 32730	TRA MPY24	REPEAT LOOP
32742	0500 00 1 40060	CLA TEMP+35,1	SAVED MQ PRODUCT
32743	0340 00 1 37475	CAS ANS5+35,1	CHECK MQ PRODUCT
32744	0020 00 1 33011	TRA **37,1	ERROR
32745	0020 00 1 33013	TRA **38,1	OK, MQ WAS -013446606760
32746	0560 00 1 37475	LDQ ANS5+35,1	CORRECT MQ PRODUCT
32747	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT -013446606760
32750	0074 00 4 00106	TSX OK,4	
32751	0020 00 0 32730	TRA MPY24	

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ALTERNATELY PERFORM X, 1X, 2X, AND -1X ITERATIONS

32752	444770606060		BCD 1MPY	
32753	0560 00 0 37424	MPY25	LDQ ALT4	MULTIPLIER +376547265756
32754	0200 00 0 37364		MPY ONE	MULTIPLICAND +1
32755	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
32756	0100 00 0 32762		TZE **4	TRA IF ACC PRODUCT ZERO
32757	0560 00 0 37362		LDQ PZE	CORRECT ACC PRODUCT
32760	0074 00 4 00104		TSX ERROR-1,4	ACC NOT ZERO
32761	0020 00 0 32753		TRA MPY25	REPEAT LOOP
32762	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
32763	0340 00 0 37424		CAS ALT4	CHECK MQ PRODUCT
32764	0020 00 0 32766		TRA **2	ERROR
32765	0020 00 0 32770		TRA **3	OK, MQ WAS +376547265756
32766	0560 00 0 37424		LDQ ALT4	CORRECT MQ PRODUCT
32767	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT +376547265756
32770	0074 00 4 00106		TSX OK,4	
32771	0020 00 0 32753		TRA MPY25	

CHECK VLM WITH COUNT ZERO DOES NOT ALTER REGISTERS

32772	654344606060		BCD 1VLM	
32773	-0500 00 0 37401	VLM	CAL ONES	BITS TO ACC P THRU 35
32774	0560 00 0 37401		LDQ ONES	MQ -377777777777
32775	0204 00 0 37365		VLM MONE	NO COUNT FOR SHIFT COUNTER
32776	-0600 00 0 40015		STQ TEMP	SAVE MQ CONTENTS

CHECK REGISTERS UNCHANGED

32777	-0340 00 0 37401		LAS ONES	CHECK ACC P THRU 35 ONES
33000	0020 00 0 33002		TRA **2	ERROR
33001	0020 00 0 33005		TRA **4	OK, ACC P THRU 35 UNCHANGED
33002	0560 00 0 37401		LDQ ONES	CORRECT ACC P THRU 35
33003	0074 00 4 00104		TSX ERROR-1,4	ACC P THRU 35 CHANGED
33004	0020 00 0 32773		TRA VLM	
33005	0771 00 0 00045		ARS 37	LEAVE ONLY ACC SIGN
33006	0120 00 0 33012		TPL **4	CHECK ACC SIGN
33007	0560 00 0 37362		LDQ PZE	CORRECT ACC SIGN
33010	0074 00 4 00104		TSX ERROR-1,4	ACC SIGN MINUS
33011	0020 00 0 32773		TRA VLM	
33012	0500 00 0 40015		CLA TEMP	SAVED MQ CONTENTS
33013	0340 00 0 37401		CAS ONES	CHECK MQ UNCHANGED
33014	0020 00 0 33016		TRA **2	ERROR
33015	0020 00 0 33020		TRA **3	OK, MQ CONTENTS UNCHANGED
33016	0560 00 0 37401		LDQ ONES	CORRECT MQ CONTENTS
33017	0074 00 4 00105		TSX ERROR,4	MQ CONTENTS CHANGED
33020	0074 00 4 00106		TSX OK,4	
33021	0020 00 0 32773		TRA VLM	

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CHECK VLM WITH COUNT ZERO HAS PRECEDENCE OVER SR ZERO

33022	654344606060	BCD 1VLM	
33023	0500 00 0 37363	VLM1 CLA MZE	BITS TO ACC
33024	0760 00 0 00006	COM	S, Q THRU 35
33025	0560 00 0 37401	LDQ ONES	MQ -377777777777
33026	0204 00 0 37362	VLM PZE	SR +0 WITH NO COUNT
33027	-0600 00 0 40015	STQ TEMP	SAVE MQ CONTENTS

CHECK REGISTERS UNCHANGED

IF ACC REMAINED UNCHANGED BY VLM, ADDING 1 SHOULD CLEAR ACC Q THRU 35

33030	0402 00 0 37364	SUB ONE	SHOULD CLEAR ACC
33031	0340 00 0 37363	CAS MZE	CHECK ACC RESULT
33032	0020 00 0 33034	TRA **2	ERROR
33033	0020 00 0 33037	TRA **4	OK, ACC HAD BITS IN Q -35
33034	0560 00 0 37363	LDQ MZE	CORRECT ACC AFTER ADDING 1
33035	0074 00 4 00104	TSX ERROR-1,4	ACC Q THRU 35 WERE NOT ONES
33036	0020 00 0 33023	TRA VLM1	
33037	0500 00 0 40015	CLA TEMP	SAVED MQ CONTENTS
33040	0340 00 0 37401	CAS ONES	CHECK MQ UNCHANGED
33041	0020 00 0 33043	TRA **2	ERROR
33042	0020 00 0 33045	TRA **3	OK, MQ UNCHANGED
33043	0560 00 0 37401	LDQ ONES	CORRECT MQ CONTENTS
33044	0074 00 4 00105	TSX ERROR,4	MQ CONTENTS CHANGED
33045	0074 00 4 00106	TSX OK,4	
33046	0020 00 0 33023	TRA VLM1	

SET PRODUCT SIGN AND CLEAR ACC AND MQ IN E TIME IN VLM WITH SR ZERO

33047	654344606060		BCD 1VLM
33050	0500 00 0 37363	VLM2	CLA MZE BITS TO ACC
33051	0760 00 0 00006		COM S, Q THRU 35
33052	0560 00 0 37401		LDQ ONES MULTIPLIER -377777777777
33053	0204 07 0 37363		VLM MZE,0,7 SR ZERO WITH COUNT 7
33054	-0600 00 0 40015		STQ TEMP SAVE MQ PRODUCT
33055	0340 00 0 37362		CAS PZE CHECK ACC PRODUCT
33056	0020 00 0 33060		TRA **2 ERROR
33057	0020 00 0 33063		TRA **4 OK, ACC PRODUCT +0
33060	0560 00 0 37362		LDQ PZE CORRECT ACC PRODUCT
33061	0074 00 4 00104		TSX ERROR-1,4 ACC WAS NOT +0
33062	0020 00 0 33050		TRA VLM2
33063	0500 00 0 40015		CLA TEMP SAVED MQ PRODUCT
33064	0340 00 0 37362		CAS PZE CHECK MQ PRODUCT
33065	0020 00 0 33067		TRA **2 ERROR
33066	0020 00 0 33071		TRA **3 OK, MQ PRODUCT WAS +0
33067	0560 00 0 37362		LDQ PZE CORRECT MQ PRODUCT
33070	0074 00 4 00105		TSX ERROR,4 MQ WAS NOT +0
33071	0074 00 4 00106		TSX OK,4
33072	0020 00 0 33050		TRA VLM2

MULTIPLY WITH COUNT OF 1-END OP IN E TIME

33073	654344606760		BCD 1VLM X
33074	0560 00 0 37401	VLM3	LDQ ONES MAKE MULTIPLIER
33075	0763 00 0 00001		LLS 1 -377777777776
33076	0204 01 0 37401		VLM ONES,0,1 MULTIPLICAND -ONES, COUNT 1
33077	-0600 00 0 40015		STQ TEMP SAVE MQ PRODUCT
33100	0340 00 0 37362		CAS PZE CHECK ACC PRODUCT
33101	0020 00 0 33103		TRA **2 ERROR
33102	0020 00 0 33106		TRA **4 OK, ACC WAS +0
33103	0560 00 0 37362		LDQ PZE CORRECT ACC PRODUCT
33104	0074 00 4 00104		TSX ERROR-1,4 ACC WAS NOT +0
33105	0020 00 0 33074		TRA VLM3
33106	0500 00 0 40015		CLA TEMP SAVED MQ PRODUCT
33107	0340 00 0 37402		CAS UNA CHECK MQ PRODUCT
33110	0020 00 0 33112		TRA **2 ERROR
33111	0020 00 0 33114		TRA **3 OK, MQ WAS +177777777777
33112	0560 00 0 37402		LDQ UNA CORRECT MQ PRODUCT
33113	0074 00 4 00105		TSX ERROR,4 MQ WAS NOT +177777777777
33114	0074 00 4 00106		TSX OK,4
33115	0020 00 0 33074		TRA VLM3

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MULTIPLY WITH COUNT OF 1-END OP IN E TIME

33116	654344600167		BCD 1VLM 1X	
33117	0560 00 0 37415	VLM4	LDQ IT1X	MULTIPLIER +2525252525
33120	0204 01 0 37401		VLM ONES,0,1	MULTIPLICAND -ONES, COUNT 1
33121	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
33122	0340 00 0 37403		CAS MUNA	CHECK ACC PRODUCT
33123	0020 00 0 33125		TRA **2	ERROR
33124	0020 00 0 33130		TRA **4	OK, ACC WAS -177777777777
33125	0560 00 0 37403		LDQ MUNA	CORRECT ACC PRODUCT
33126	0074 00 4 00104		TSX ERROR-1,4	ACC WAS NOT -177777777777
33127	0020 00 0 33117		TRA VLM4	
33130	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
33131	0340 00 0 37416		CAS IT2X	CHECK MQ PRODUCT
33132	0020 00 0 33134		TRA **2	ERROR
33133	0020 00 0 33136		TRA **3	OK, MQ WAS -325252525252
33134	0560 00 0 37416		LDQ IT2X	CORRECT MQ PRODUCT
33135	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT -325252525252
33136	0074 00 4 00106		TSX OK,4	
33137	0020 00 0 33117		TRA VLM4	

MULTIPLY WITH COUNT OF 2-PERFORM X ITERATION

33140	654344606760		BCD 1VLM X	
33141	0560 00 0 37374	VLM5	LDQ TEN	MULTIPLIER +10
33142	0204 02 0 37401		VLM ONES,0,2	MULTIPLICAND -ONES, COUNT 2
33143	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
33144	0340 00 0 37363		CAS MZE	CHECK ACC PRODUCT
33145	0020 00 0 33147		TRA **2	ERROR
33146	0020 00 0 33152		TRA **4	OK, ACC WAS -0
33147	0560 00 0 37363		LDQ MZE	CORRECT ACC PRODUCT
33150	0074 00 4 00104		TSX ERROR-1,4	ACC WAS NOT -0
33151	0020 00 0 33141		TRA VLM5	
33152	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
33153	0340 00 0 37367		CAS MTW	CHECK MQ PRODUCT
33154	0020 00 0 33156		TRA **2	ERROR
33155	0020 00 0 33160		TRA **3	OK MQ WAS -2
33156	0560 00 0 37367		LDQ MTW	CORRECT MQ PRODUCT
33157	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT -2
33160	0074 00 4 00106		TSX OK,4	
33161	0020 00 0 33141		TRA VLM5	

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MULTIPLY WITH COUNT OF 2-PERFORM 1X ITERATION

33162	654344600167		BCD 1VLM 1X	
33163	0560 00 0 37415	VLM6	LDQ ITIX	MULTIPLIER +2525252525
33164	0204 02 0 37372		VLM SIX,0,2	MULTIPLICAND +6, COUNT 2
33165	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
33166	0340 00 0 37364		CAS ONE	CHECK ACC PRODUCT
33167	0020 00 0 33171		TRA **2	ERROR
33170	0020 00 0 33174		TRA **4	OK, ACC WAS +1
33171	0560 00 0 37364		LDQ ONE	CORRECT ACC PRODUCT
33172	0074 00 4 00104		TSX ERROR-1,4	ACC WAS NOT +1
33173	0020 00 0 33163		TRA VLM6	
33174	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
33175	0340 00 0 37415		CAS ITIX	CHECK MQ PRODUCT
33176	0020 00 0 33200		TRA **2	ERROR
33177	0020 00 0 33202		TRA **3	OK, MQ WAS +2525252525
33200	0560 00 0 37415		LDQ ITIX	CORRECT MQ PRODUCT
33201	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT +2525252525
33202	0074 00 4 00106		TSX OK,4	
33203	0020 00 0 33163		TRA VLM6	

MULTIPLY WITH COUNT OF 2-END OP IN 1ST L TIME

33204	654344600267		BCD 1VLM 2X	
33205	0560 00 0 37372	VLM7	LDQ SIX	MULTIPLIER +6
33206	0204 02 0 37366		VLM TWO,0,2	MULTIPLICAND +2, COUNT 2
33207	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
33210	0340 00 0 37364		CAS ONE	CHECK ACC PRODUCT
33211	0020 00 0 33213		TRA **2	ERROR
33212	0020 00 0 33216		TRA **4	OK, ACC WAS +1
33213	0560 00 0 37364		LDQ ONE	CORRECT ACC PRODUCT
33214	0074 00 4 00104		TSX ERROR-1,4	ACC WAS NOT +1
33215	0020 00 0 33205		TRA VLM7	
33216	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
33217	0340 00 0 37364		CAS ONE	CHECK MQ PRODUCT
33220	0020 00 0 33222		TRA **2	ERROR
33221	0020 00 0 33224		TRA **3	OK, MQ WAS +1
33222	0560 00 0 37364		LDQ ONE	CORRECT MQ PRODUCT
33223	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT +1
33224	0074 00 4 00106		TSX OK,4	
33225	0020 00 0 33205		TRA VLM7	

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MULTIPLY WITH COUNT OF 2-END OP IN 1ST L TIME

33226	400167730167	BCD 1-1X,1X	
33227	0560 00 0 37401	VLM8 LDQ ONES	MULTIPLIER -377777777777
33230	0204 02 0 37403	VLM MUNA,0,2	SR -177777777777, COUNT 2
33231	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
33232	0340 00 0 37404	CAS UNAS	CHECK ACC PRODUCT
33233	0020 00 0 33235	TRA **2	ERROR
33234	0020 00 0 33240	TRA **4	OK, ACC WAS +137777777777
33235	0560 00 0 37404	LDQ UNAS	CORRECT ACC PRODUCT
33236	0074 00 4 00104	TSX ERROR-1,4	ACC WAS NOT +137777777777
33237	0020 00 0 33227	TRA VLM8	
33240	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
33241	0340 00 0 37402	CAS UNA	CHECK MQ PRODUCT
33242	0020 00 0 33244	TRA **2	ERROR
33243	0020 00 0 33246	TRA **3	OK, MQ WAS +177777777777
33244	0560 00 0 37402	LDQ UNA	CORRECT MQ PRODUCT
33245	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT +177777777777
33246	0074 00 4 00106	TSX OK,4	
33247	0020 00 0 33227	TRA VLM8	

CHECK VLM WITH ASSORTED ITERATIONS AND EVEN COUNT OF 44 OCTAL

33250	654344606060	BCD 1VLM	
33251	0560 00 0 37423	VLM9 LDQ ALT3	MULTIPLIER +364331171020
33252	0204 44 0 37401	VLM ONES,0,36	MULTIPLICAND -ONES,COUNT 44
33253	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
33254	0340 00 0 37433	CAS VLAC	CHECK ACC PRODUCT
33255	0020 00 0 33257	TRA **2	ERROR
33256	0020 00 0 33262	TRA **4	OK, ACC WAS -172154474407
33257	0560 00 0 37433	LDQ VLAC	CORRECT ACC PRODUCT
33260	0074 00 4 00104	TSX ERROR-1,4	ACC WAS NOT -172154474407
33261	0020 00 0 33251	TRA VLM9	
33262	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
33263	0340 00 0 37437	CAS VLMQ	CHECK MQ PRODUCT
33264	0020 00 0 33266	TRA **2	ERROR
33265	0020 00 0 33270	TRA **3	OK, MQ WAS -205623303370
33266	0560 00 0 37437	LDQ VLMQ	CORRECT MQ PRODUCT
33267	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT -205623303370
33270	0074 00 4 00106	TSX OK,4	
33271	0020 00 0 33251	TRA VLM9	

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CHECK VLM WITH ASSORTED ITERATIONS AND ODD COUNT OF 57 OCTAL

33272	654344606060	BCD 1VLM	
33273	0560 00 0 37423	VLM10 LDQ ALT3	MULTIPLIER +364331171020
33274	0204 57 0 37401	VLM ONES,0,47	MULTIPLICAND -ONES, COUNT 57
33275	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
33276	0340 00 0 37434	CAS VLAC1	CHECK ACC PRODUCT
33277	0020 00 0 33301	TRA **2	ERROR
33300	0020 00 0 33304	TRA **4	OK, ACC WAS -337036433116
33301	0560 00 0 37434	LDQ VLAC1	CORRECT ACC PRODUCT
33302	0074 00 4 00104	TSX ERROR-1,4	ACC WAS NOT -337036433116
33303	0020 00 0 33273	TRA VLM10	
33304	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
33305	0340 00 0 37440	CAS VLMQ1	CHECK MQ PRODUCT
33306	0020 00 0 33310	TRA **2	ERROR
33307	0020 00 0 33312	TRA **3	OK, MQ WAS -101741344660
33310	0560 00 0 37440	LDQ VLMQ1	CORRECT MQ PRODUCT
33311	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT -101741344660
33312	0074 00 4 00106	TSX OK,4	
33313	0020 00 0 33273	TRA VLM10	

CHECK VLM WITH COUNT OF 3

33314	654344606060	BCD 1VLM	
33315	0560 00 0 37401	VLM3C LDQ ONES	MULTIPLIER -377777777777
33316	0204 03 0 37401	VLM ONES,0,3	MULTIPLICAND -ONES, COUNT 3
33317	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
33320	0340 00 0 37405	CAS ACK3	CHECK ACC PRODUCT
33321	0020 00 0 33323	TRA **2	ERROR
33322	0020 00 0 33326	TRA **4	OK
33323	0560 00 0 37405	LDQ ACK3	CORRECT ACC PRODUCT
33324	0074 00 4 00104	TSX ERROR-1,4	ACC PRODUCT ERROR
33325	0020 00 0 33315	TRA VLM3C	
33326	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
33327	0340 00 0 37406	CAS MQK3	CHECK MQ PRODUCT
33330	0020 00 0 33332	TRA **2	ERROR
33331	0020 00 0 33334	TRA **3	OK
33332	0560 00 0 37406	LDQ MQK3	CORRECT MQ PRODUCT
33333	0074 00 4 00105	TSX ERROR,4	MQ PRODUCT ERROR
33334	0074 00 4 00106	TSX OK,4	
33335	0020 00 0 33315	TRA VLM3C	

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CHECK VLM WITH COUNT OF 4

33336	654344606060	BCD 1VLM	
33337	0560 00 0 37400	VLM4C LDQ PONES	MULTIPLIER +37777777777
33340	0204 04 0 37401	VLM ONES,0,4	MULTIPLICAND -ONES, COUNT 4
33341	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
33342	0340 00 0 37407	CAS ACK4	CHECK ACC PRODUCT
33343	0020 00 0 33345	TRA **2	ERROR
33344	0020 00 0 33350	TRA **4	OK
33345	0560 00 0 37407	LDQ ACK4	CORRECT ACC PRODUCT
33346	0074 00 4 00104	TSX ERROR-1,4	ACC PRODUCT ERROR
33347	0020 00 0 33337	TRA VLM4C	
33350	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
33351	0340 00 0 37435	CAS VLAC2	CHECK MQ PRODUCT
33352	0020 00 0 33354	TRA **2	ERROR
33353	0020 00 0 33356	TRA **3	OK
33354	0560 00 0 37435	LDQ VLAC2	CORRECT MQ PRODUCT
33355	0074 00 4 00105	TSX ERROR,4	MQ PRODUCT ERROR
33356	0074 00 4 00106	TSX OK,4	
33357	0020 00 0 33337	TRA VLM4C	

CHECK VLM WITH COUNT OF 7

33360	654344606060	BCD 1VLM	
33361	0560 00 0 37423	VLM11 LDQ ALT3	MULTIPLIER +364331171020
33362	0204 07 0 37401	VLM ONES,0,7	MULTIPLICAND -ONES, COUNT 7
33363	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
33364	0340 00 0 37435	CAS VLAC2	CHECK ACC PRODUCT
33365	0020 00 0 33367	TRA **2	ERROR
33366	0020 00 0 33372	TRA **4	OK, ACC WAS -03777777777
33367	0560 00 0 37435	LDQ VLAC2	CORRECT ACC PRODUCT
33370	0074 00 4 00104	TSX ERROR-1,4	ACC WAS NOT -03777777777
33371	0020 00 0 33361	TRA VLM11	
33372	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
33373	0340 00 0 37441	CAS VLMQ2	CHECK MQ PRODUCT
33374	0020 00 0 33376	TRA **2	ERROR
33375	0020 00 0 33400	TRA **3	OK, MQ WAS -341721544744
33376	0560 00 0 37441	LDQ VLMQ2	CORRECT MQ PRODUCT
33377	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT -341721544744
33400	0074 00 4 00106	TSX OK,4	
33401	0020 00 0 33361	TRA VLM11	

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CHECK VLM WITH COUNT OF 10

33402	654344606060	BCD 1VLM	
33403	0560 00 0 37423	VLM12 LDQ ALT3	MULTIPLIER +364331171020
33404	0204 10 0 37401	VLM ONES,0,8	MULTIPLICAND -ONES,COUNT 10
33405	-0600 00 0 40015	STQ TEMP	SAVE MQ PRODUCT
33406	0340 00 0 37436	CAS VLAC3	CHECK ACC PRODUCT
33407	0020 00 0 33411	TRA **2	ERROR
33410	0020 00 0 33414	TRA **4	OK, ACC WAS -013777777777
33411	0560 00 0 37436	LDQ VLAC3	CORRECT ACC PRODUCT
33412	0074 00 4 00104	TSX ERROR-1,4	ACC WAS NOT -013777777777
33413	0020 00 0 33403	TRA VLM12	
33414	0500 00 0 40015	CLA TEMP	SAVED MQ PRODUCT
33415	0340 00 0 37442	CAS VLMQ3	CHECK MQ PRODUCT
33416	0020 00 0 33420	TRA **2	ERROR
33417	0020 00 0 33422	TRA **3	OK, MQ WAS -360750662362
33420	0560 00 0 37442	LDQ VLMQ3	CORRECT MQ PRODUCT
33421	0074 00 4 00105	TSX ERROR,4	MQ WAS NOT -360750662362
33422	0074 00 4 00106	TSX OK,4	
33423	0020 00 0 33403	TRA VLM12	

CHECK VLM WITH COUNT OF 100 OCTAL

33424	654344606060	BCD 1VLM	
33425	-0500 00 0 37401	VLM13 CAL ONES	BITS TO ACC P THRU 35
33426	0560 00 0 37401	LDQ ONES	MQ -377777777777
33427	0205 00 0 37365	VLM MONE,0,64	NO COUNT FOR SHIFT CTR
33430	-0600 00 0 40015	STQ TEMP	SAVE MQ CONTENTS

CHECK REGISTERS UNCHANGED

33431	-0340 00 0 37401	LAS ONES	CHECK ACC P THRU 35 ONES
33432	0020 00 0 33434	TRA **2	ERROR
33433	0020 00 0 33437	TRA **4	OK, ACC P THRU 35 ONES
33434	0560 00 0 37401	LDQ ONES	MQ S-35 EQU ACC P-35
33435	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
33436	0020 00 0 33425	TRA VLM13	
33437	0771 00 0 00045	ARS 37	LEAVE ONLY ACC SIGN
33440	0120 00 0 33444	TPL **4	CHECK ACC SIGN
33441	0560 00 0 37362	LDQ PZE	CORRECT ACC SIGN
33442	0074 00 4 00104	TSX ERROR-1,4	ACC SIGN MINUS
33443	0020 00 0 33425	TRA VLM13	
33444	0500 00 0 40015	CLA TEMP	SAVED MQ CONTENTS
33445	0340 00 0 37401	CAS ONES	CHECK MQ UNCHANGED
33446	0020 00 0 33450	TRA **2	ERROR
33447	0020 00 0 33452	TRA **3	OK, MQ UNCHANGED
33450	0560 00 0 37401	LDQ ONES	CORRECT MQ CONTENTS
33451	0074 00 4 00105	TSX ERROR,4	ERROR IN MQ
33452	0074 00 4 00106	TSX OK,4	
33453	0020 00 0 33425	TRA VLM13	

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CHECK VLM WITH A COUNT OF 143 OCTAL

33454	654344606060		BCD 1VLM	
33455	0560 00 0 37423	VLM14	LDQ ALT3	MULTIPLIER +364331171020
33456	0205 43 0 37401		VLM ONES,0,99	MULTIPLICAND -15, COUNT 143
33457	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
33460	0340 00 0 37431		CAS ANS4	CHECK ACC PRODUCT
33461	0020 00 0 33463		TRA **2	ERROR
33462	0020 00 0 33466		TRA **4	OK, ACC -364331171017
33463	0560 00 0 37431		LDQ ANS4	CORRECT ACC PRODUCT
33464	0074 00 4 00104		TSX ERROR-1,4	ACC NOT -364331171017
33465	0020 00 0 33455		TRA VLM14	
33466	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
33467	0340 00 0 37432		CAS ANS5	CHECK MQ PRODUCT
33470	0020 00 0 33472		TRA **2	ERROR
33471	0020 00 0 33474		TRA **3	OK, MQ WAS -013446606760
33472	0560 00 0 37432		LDQ ANS5	CORRECT MQ PRODUCT
33473	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT -013446606760
33474	0074 00 4 00106		TSX OK,4	
33475	0020 00 0 33455		TRA VLM14	

CHECK VLM FOLLOWED BY A SHIFT INSTRUCTION

33476	654344606060		BCD 1VLM	
33477	0560 00 0 37365	VLMS	LDQ MONE	MULTIPLIER -1
33500	0204 57 0 37362		VLM PZE,0,47	MULTIPLICAND +0, COUNT 57
33501	-0773 00 0 00044		RQL 36	NO CHANGE TO MQ AFTER SHIFT
33502	0131 00 0 00000		XCA	MQ TO ACC
33503	0340 00 0 37363		CAS MZE	CHECK MQ PRODUCT
33504	0020 00 0 33506		TRA **2	ERROR
33505	0020 00 0 33510		TRA **3	OK, MQ WAS -0
33506	0560 00 0 37363		LDQ MZE	CORRECT MQ VALUE
33507	0074 00 4 00105		TSX ERROR,4	ERROR IN MQ
33510	0074 00 4 00106		TSX OK,4	
33511	0020 00 0 33477		TRA VLMS	

CHECK MPR WITH NO BIT IN MQ 1 PRODUCT

33512	444751606060		BCD 1MPR	
33513	0560 00 0 37403	MPR	LDQ MUNA	MULTIPLIER -177777777777
33514	-0200 00 0 37364		MPR ONE	MULTIPLICAND +1
33515	0340 00 0 37363		CAS MZE	CHECK FOR NO ROUNDING
33516	0020 00 0 33520		TRA **2	ERROR
33517	0020 00 0 33522		TRA **3	OK, ACC -0
33520	0560 00 0 37363		LDQ MZE	CORRECT ACC PRODUCT
33521	0074 00 4 00105		TSX ERROR,4	ACC WAS NOT -0
33522	0074 00 4 00106		TSX OK,4	
33523	0020 00 0 33513		TRA MPR	

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CHECK MPR WITH BIT IN MQ 1 PRODUCT

33524	444751606060		BCD IMPR	
33525	0502 00 0 37410	MPR1	CLS TOO	MAKE MULTIPLIER
33526	0131 00 0 00000		XCA	-200000000000
33527	-0200 00 0 37401		MPR ONES	MULTIPLICAND -377777777777
33530	-0600 00 0 40015		STQ TEMP	SAVE MQ PRODUCT
33531	0340 00 0 37410		CAS TOO	CHECK ACC PRODUCT
33532	0020 00 0 33534		TRA **2	ERROR
33533	0020 00 0 33537		TRA **4	OK, ACC WAS +200000000000
33534	0560 00 0 37410		LDQ TOO	CORRECT ACC PRODUCT
33535	0074 00 4 00104		TSX ERROR-1,4	ACC WAS NOT +200000000000
33536	0020 00 0 33525		TRA MPR1	
33537	0500 00 0 40015		CLA TEMP	SAVED MQ PRODUCT
33540	0340 00 0 37410		CAS TOO	CHECK MQ PRODUCT
33541	0020 00 0 33543		TRA **2	ERROR
33542	0020 00 0 33545		TRA **3	OK, MQ WAS +200000000000
33543	0560 00 0 37410		LDQ TOO	CORRECT MQ PRODUCT
33544	0074 00 4 00105		TSX ERROR,4	MQ WAS NOT +200000000000
33545	0074 00 4 00106		TSX OK,4	
33546	0020 00 0 33525		TRA MPR1	

CHECK DCT INDICATOR WHEN OFF

33547	242363606060		BCD IDCT	
33550	0760 00 0 00012	DCT	DCT	TURN OFF THE
33551	0761 00 0 00000		NOP	DCT INDICATOR
33552	0760 00 0 00012		DCT	CHECK FOR SKIP WHEN OFF
33553	0074 00 4 00105		TSX ERROR,4	FAILED TO SKIP
33554	0074 00 4 00106		TSX OK,4	
33555	0020 00 0 33550		TRA DCT	
33556	242363606060		BCD IDCT	
33557	0500 00 0 37362	DCT1	CLA PZE	CLEAR ACC
33560	0560 00 0 37415		LDQ IT1X	MQ +2525252525
33561	0760 00 0 00012		DCT	CHECK FOR FALSE DECODING
33562	0761 00 0 00000		NOP	WITH BITS IN MQ 1 AND 9
33563	0100 00 0 33565		TZE **2	OK IF ACC ZERO
33564	0074 00 4 00105		TSX ERROR,4	ACC NOT ZERO
33565	0074 00 4 00106		TSX OK,4	
33566	0020 00 0 33557		TRA DCT1	

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CHECK DVP WITH MAGNITUDE OF ACC GREATER THAN SR

33567	246547242363		BCD 1DVPDCT	
33570	0760 00 0 00012	DVP	DCT	INDICATOR
33571	0761 00 0 00000		NOP	OFF IF ON
33572	0500 00 0 37410		CLA TOO	+2 ACC DIVIDEND
33573	0560 00 0 37362		LDQ PZE	+0 MQ DIVIDEND
33574	0221 00 0 37364		DVP ONE	+1 DIVISOR

NO Q CARRY WITH SR ADDED TO COMPLEMENTED ACC PREVENTS DIVISION

33575	0760 00 0 00012	DCT	OK IF DCT
33576	0020 00 0 33601	TRA **3	IND IS ON
33577	0074 00 4 00104	TSX ERROR-1,4	DCT IND OFF
33600	0020 00 0 33570	TRA DVP	
33601	-0600 00 0 40015	STQ TEMP	SAVE MQ
33602	0340 00 0 37410	CAS TOO	CHECK ACC UNCHANGED
33603	0020 00 0 33605	TRA **2	ERROR
33604	0020 00 0 33610	TRA **4	OK
33605	0560 00 0 37410	LDQ TOO	CORRECT ACC VALUE
33606	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
33607	0020 00 0 33570	TRA DVP	
33610	0500 00 0 40015	CLA TEMP	CHECK MQ
33611	0340 00 0 37362	CAS PZE	UNCHANGED
33612	0020 00 0 33614	TRA **2	ERROR
33613	0020 00 0 33616	TRA **3	OK
33614	0560 00 0 37362	LDQ PZE	CORRECT MQ VALUE
33615	0074 00 4 00105	TSX ERROR,4	ERROR IN MQ
33616	0074 00 4 00106	TSX OK,4	
33617	0020 00 0 33570	TRA DVP	

33620	246547242363		BCD 1DVPDCT	
33621	0760 00 0 00012	DVPO	DCT	INDICATOR
33622	0761 00 0 00000		NOP	OFF IF ON
33623	-0500 00 0 37363		CAL MZE	BIT TO
33624	0767 00 0 00001		ALS 1	ACC Q
33625	0560 00 0 37401		LDQ ONES	-377777777777 MQ DIVIDEND
33626	0221 00 0 37401		DVP ONES	-377777777777 DIVISOR

NO Q CARRY WITH SR ADDED TO COMPLEMENTED ACC PREVENTS DIVISION

33627	0760 00 0 00012	DCT	OK IF DCT
33630	0020 00 0 33633	TRA **3	IND IS ON
33631	0074 00 4 00104	TSX ERROR-1,4	DCT IND OFF
33632	0020 00 0 33621	TRA DVPO	

33633 -0600 00 0 40015

STQ TEMP

SAVE MQ

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33634	0361	00	0	37401	ACL	ONES	SHOULD CLEAR
33635	0400	00	0	37364	ADD	ONE	ACCUMULATOR
33636	0340	00	0	37362	CAS	PZE	CHECK ACC AFTER ADDITION
33637	0020	00	0	33641	TRA	**+2	ERROR
33640	0020	00	0	33644	TRA	**+4	OK
33641	0560	00	0	37362	LDQ	PZE	CORRECT ACC AFTER ADDITION
33642	0074	00	4	00104	TSX	ERROR-1,4	ERROR IN ACC
33643	0020	00	0	33621	TRA	DVPO	
33644	0500	00	0	40015	CLA	TEMP	CHECK MQ
33645	0340	00	0	37401	CAS	ONES	UNCHANGED
33646	0020	00	0	33650	TRA	**+2	ERROR
33647	0020	00	0	33652	TRA	**+3	OK
33650	0560	00	0	37401	LDQ	ONES	CORRECT MQ VALUE
33651	0074	00	4	00105	TSX	ERROR,4	ERROR IN MQ
33652	0074	00	4	00106	TSX	OK,4	
33653	0020	00	0	33621	TRA	DVPO	

33654	246547242363		BCD	IDVPOCT	
33655	0760 00 0 00012	DVP1	DCT		INDICATOR
33656	0761 00 0 00000		NOP		OFF IF ON
33657	0500 00 0 37401		CLA ONES	-377777777777	ACC DIVIDEND
33660	0560 00 0 37401		LDQ ONES	-377777777777	ACC DIVIDEND
33661	0221 00 0 37401		DVP ONES	-377777777777	DIVISOR

33662	0760	00	0	00012	DCT		OK IF DCT
33663	0020	00	0	33666	TRA	*+3	IND IS ON
33664	0074	00	4	00104	TSX	ERROR-1,4	DCT IND OFF
33665	0020	00	0	33655	TRA	DVP1	
33666	-0600	00	0	40015	STQ	TEMP	SAVE MQ
33667	0340	00	0	37401	CAS	ONES	CHECK ACC UNCHANGED
33670	0020	00	0	33672	TRA	*+2	ERROR
33671	0020	00	0	33675	TRA	*+4	OK
33672	0560	00	0	37401	LDQ	ONES	CORRECT ACC VALUE
33673	0074	00	4	00104	TSX	ERROR-1,4	ERROR IN ACC
33674	0020	00	0	33655	TRA	DVP1	
33675	0500	00	0	40015	CLA	TEMP	CHECK MQ
33676	0340	00	0	37401	CAS	ONES	UNCHANGED
33677	0020	00	0	33701	TRA	*+2	ERROR
33700	0020	00	0	33703	TRA	*+3	OK
33701	0560	00	0	37401	LDQ	ONES	CORRECT MQ VALUE
33702	0074	00	4	00105	TSX	ERROR,4	ERROR IN MQ
33703	0074	00	4	00106	TSX	OK,4	
33704	0020	00	0	33655	TRA	DVP1	

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CHECK DVP WITH THE DIVISOR ZERO

33705 246547242363 BCD 1DVPDCT

33706	0760	00	0	00012	DVP2	DCT	INDICATOR
33707	0761	00	0	00000		NOP	OFF IF ON
33710	0500	00	0	37363		CLA MZE	-0 ACC DIVIDEND
33711	0560	00	0	37365		LDQ MONE	-1 MQ DIVIDEND
33712	0221	00	0	37362		DVP PZE	+0 DIVISOR

NO Q CARRY WITH SR ADDED TO COMPLEMENTED ACC PREVENTS DIVISION

33713	0760	00	0	00012	DCT	OK IF DCT
33714	0020	00	0	33717	TRA **3	IND IS ON
33715	0074	00	4	00104	TSX ERROR-1,4	DCT IND OFF
33716	0020	00	0	33706	TRA DVP2	

33717	-0600	00	0	40015	STQ TEMP	SAVE MQ
33720	0340	00	0	37363	CAS MZE	CHECK ACC UNCHANGED
33721	0020	00	0	33723	TRA **2	ERROR
33722	0020	00	0	33726	TRA **4	OK
33723	0560	00	0	37363	LDQ MZE	CORRECT ACC VALUE
33724	0074	00	4	00104	TSX ERROR-1,4	ERROR IN ACC
33725	0020	00	0	33706	TRA DVP2	

33726	0500	00	0	40015	CLA TEMP	CHECK MQ
33727	0340	00	0	37365	CAS MONE	UNCHANGED
33730	0020	00	0	33732	TRA **2	ERROR
33731	0020	00	0	33734	TRA **3	OK
33732	0560	00	0	37365	LDQ MONE	CORRECT MQ VALUE
33733	0074	00	4	00105	TSX ERROR,4	ERROR IN MQ
33734	0074	00	4	00106	TSX OK,4	
33735	0020	00	0	33706	TRA DVP2	

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CHECK DVP WITH DIVISOR AND DIVIDEND ZERO

33736	246547242363		BCD 1DVPDCT	
33737	0760 00 0 00012	DVP3	DCT	INDICATOR
33740	0761 00 0 00000		NOP	OFF IF ON
33741	0500 00 0 37362		CLA PZE	+0 ACC DIVIDEND
33742	0560 00 0 37363		LDQ MZE	-0 MQ DIVIDEND
33743	0221 00 0 37362		DVP PZE	+0 DIVISOR
33744	0760 00 0 00012		DCT	OK IF DCT
33745	0020 00 0 33750		TRA **3	IND IS ON
33746	0074 00 4 00104		TSX ERROR-1,4	DCT IND OFF
33747	0020 00 0 33737		TRA DVP3	
33750	-0600 00 0 40015		STQ TEMP	SAVE MQ
33751	0340 00 0 37362		CAS PZE	CHECK ACC UNCHANGED
33752	0020 00 0 33754		TRA **2	ERROR
33753	0020 00 0 33757		TRA **4	OK
33754	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE
33755	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
33756	0020 00 0 33737		TRA DVP3	
33757	0500 00 0 40015		CLA TEMP	CHECK MQ
33760	0340 00 0 37363		CAS MZE	UNCHANGED
33761	0020 00 0 33763		TRA **2	ERROR
33762	0020 00 0 33765		TRA **3	OK
33763	0560 00 0 37363		LDQ MZE	CORRECT MQ VALUE
33764	0074 00 4 00105		TSX ERROR,4	ERROR IN MQ
33765	0074 00 4 00106		TSX OK,4	
33766	0020 00 0 33737		TRA DVP3	

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CHECK DVP WITH DIVIDEND ZERO

33767 246547606060

BCD 1DVP

33770	0760	00	0	00012	DVP4	DCT	INDICATOR
33771	0761	00	0	00000		NOP	OFF IF ON
33772	0500	00	0	37362		CLA PZE	+0 ACC DIVIDEND
33773	0560	00	0	37362		LDQ PZE	+0 MQ DIVIDEND
33774	0221	00	0	37364		DVP ONE	+1 DIVISOR

Q CARRY WITH SR ADDED TO COMPLEMENTED ACC ALLOWS DIVISION

33775	-0600	00	0	40015		STQ TEMP	SAVE QUOTIENT
33776	0340	00	0	37362		CAS PZE	CHECK REMAINDER
33777	0020	00	0	34001		TRA **2	ERROR
34000	0020	00	0	34004		TRA **4	OK
34001	0560	00	0	37362		LDQ PZE	CORRECT REMAINDER
34002	0074	00	4	00104		TSX ERROR-1,4	ERROR IN REMAINDER
34003	0020	00	0	33770		TRA DVP4	

34004	0500	00	0	40015		CLA TEMP	CHECK THE
34005	0340	00	0	37362		CAS PZE	QUOTIENT
34006	0020	00	0	34010		TRA **2	ERROR
34007	0020	00	0	34013		TRA **4	OK
34010	0560	00	0	37362		LDQ PZE	CORRECT QUOTIENT
34011	0074	00	4	00104		TSX ERROR-1,4	ERROR IN QUOTIENT
34012	0020	00	0	33770		TRA DVP4	

34013	0760	00	0	00012		DCT	CHECK DCT IND OFF
34014	0074	00	4	00105		TSX ERROR,4	DCT IND ON
34015	0074	00	4	00106		TSX OK,4	OK, DCT IND OFF
34016	0020	00	0	33770		TRA DVP4	

CHECK SIGN CONTROL WITH DVP

34017 246547623145

BCD 1DVPSIN

34020	0500	00	0	37363	DVP5	CLA MZE	-0 ACC DIVIDEND
34021	0560	00	0	37362		LDQ PZE	+0 MQ DIVIDEND
34022	0221	00	0	37364		DVP ONE	+1 DIVISOR
34023	-0120	00	0	34026		TMI **3	TRA IF REMAINDER SIGN MINUS
34024	0074	00	4	00104		TSX ERROR-1,4	REMAINDER SIGN PLUS
34025	0020	00	0	34020		TRA DVP5	
34026	0162	00	0	34030		TQP **2	ERROR IF QUOTIENT SIGN PLUS
34027	0020	00	0	34031		TRA **2	OK, QUOTIENT SIGN MINUS
34030	0074	00	4	00105		TSX ERROR,4	QUOTIENT SIGN MINUS
34031	0074	00	4	00106		TSX OK,4	
34032	0020	00	0	34020		TRA DVP5	

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34033	246547623145		BCD 1DVPSIN	
34034	0500 00 0 37363	DVP6	CLA MZE	--0 ACC DIVIDEND
34035	0560 00 0 37363		LDQ MZE	--0 MQ DIVIDEND
34036	0221 00 0 37364		DVP ONE	+1 DIVISOR
34037	-0120 00 0 34042		TMI **3	TRA IF REMAINDER SIGN MINUS
34040	0074 00 4 00104		TSX ERROR-1,4	REMAINDER SIGN PLUS
34041	0020 00 0 34034		TRA DVP6	
34042	0162 00 0 34044		TQP **2	ERROR IF QUOTIENT SIGN PLUS
34043	0020 00 0 34045		TRA **2	PK, QUOTIENT SIGN MINUS
34044	0074 00 4 00105		TSX ERROR,4	
34045	0074 00 4 00106		TSX OK,4	
34046	0020 00 0 34034		TRA DVP6	
34047	246547623145		BCD 1DVPSIN	
34050	0500 00 0 37363	DVP7	CLA MZE	--0 ACC DIVIDEND
34051	0560 00 0 37363		LDQ MZE	--0 MQ DIVIDEND
34052	0221 00 0 37365		DVP MONE	-1 DIVISOR
34053	-0120 00 0 34056		TMI **3	TRA IF REMAINDER SIGN MINUS
34054	0074 00 4 00104		TSX ERROR-1,4	REMAINDER SIGN PLUS
34055	0020 00 0 34050		TRA DVP7	
34056	0162 00 0 34060		TQP **2	TRA IF QUOTIENT SIGN PLUS
34057	0074 00 4 00105		TSX ERROR,4	QUOTIENT SIGN MINUS
34060	0074 00 4 00106		TSX OK,4	
34061	0020 00 0 34050		TRA DVP7	
34062	246547623145		BCD 1DVPSIN	
34063	0500 00 0 37362	DVP8	CLA PZE	+0 ACC DIVIDEND
34064	0560 00 0 37362		LDQ PZE	+0 MQ DIVIDEND
34065	0221 00 0 37365		DVP MONE	-1 DIVISOR
34066	0120 00 0 34071		TPL **3	TRA IF REMAINDER SIGN PLUS
34067	0074 00 4 00104		TSX ERROR-1,4	REMAINDER SIGN MINUS
34070	0020 00 0 34063		TRA DVP8	
34071	0162 00 0 34073		TQP **2	ERROR IF QUOTIENT SIGN PLUS
34072	0020 00 0 34074		TRA **2	OK, QUOTIENT SIGN MINUS
34073	0074 00 4 00105		TSX ERROR,4	
34074	0074 00 4 00106		TSX OK,4	
34075	0020 00 0 34063		TRA DVP8	

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34076 246547623145

BCD 1DVPSIN

34077 0500 00 0 37362
34100 0560 00 0 37363
34101 0221 00 0 37365

DVP9

CLA PZE
LDQ MZE
DVP MONE

+0 ACC DIVIDEND
-0 MQ DIVIDEND
-1 DIVISOR

34102 0120 00 0 34105
34103 0074 00 4 00104
34104 0020 00 0 34077

TPL **3
TSX ERROR-1,4
TRA DVP9

TRA IF REMAINDER SIGN PLUS
REMAINDER SIGN MINUS

34105 0162 00 0 34107
34106 0020 00 0 34110
34107 0074 00 4 00105
34110 0074 00 4 00106
34111 0020 00 0 34077

TQP **2
TRA **2
TSX ERROR,4
TSX OK,4
TRA DVP9

ERROR IF QUOTIENT SIGN PLUS
OK, QUOTIENT SIGN MINUS
QUOTIENT SIGN MINUS

34112 246547623145

BCD 1DVPSIN

34113 0500 00 0 37363
34114 0560 00 0 37362
34115 0221 00 0 37365

DVP10

CLA MZE
LDQ PZE
DVP MONE

-0 ACC DIVIDEND
+0 MQ DIVIDEND
-1 DIVISOR

34116 -0120 00 0 34121
34117 0074 00 4 00104
34120 0020 00 0 34113

TMI **3
TSX ERROR-1,4
TRA DVP10

TRA IF REMAINDER SIGN MINUS
REMAINDER SIGN PLUS

34121 0162 00 0 34123
34122 0074 00 4 00105
34123 0074 00 4 00106
34124 0020 00 0 34113

TQP **2
TSX ERROR,4
TSX OK,4
TRA DVP10

TRA IF QUOTIENT SIGN PLUS

34125 246547623145

BCD 1DVPSIN

34126 0500 00 0 37362
34127 0560 00 0 37363
34130 0221 00 0 37364

DVP11

CLA PZE
LDQ MZE
DVP ONE

+0 ACC DIVIDEND
-0 MQ DIVIDEND
+1 DIVISOR

34131 0120 00 0 34134
34132 0074 00 4 00104
34133 0020 00 0 34126

TPL **3
TSX ERROR-1,4
TRA DVP11

TRA IF REMAINDER SIGN PLUS
REMAINDER SIGN MINUS

34134 0162 00 0 34136
34135 0074 00 4 00105
34136 0074 00 4 00106
34137 0020 00 0 34126

TQP **2
TSX ERROR,4
TSX OK,4
TRA DVP11

TRA IF QUOTIENT SIGN PLUS

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RIPPLE DIVISION TESTS

34140	246547606060	BCD 1DVP	
34141	0560 00 0 37364	DVP12 LDQ ONE	+1 TO MQ
34142	-0600 00 0 40013	STQ T1	SAVE C MQ IN TEMP STORAGE
34143	0020 00 0 34146	TRA **3	PROCEED
34144	246547606060	BCD 1DVP	
34145	0560 00 0 40013	DVP1A LDQ T1	SET MQ DIVIDEND
34146	0500 00 0 37362	CLA PZE	SET ACC DIVIDEND
34147	0221 00 0 40013	DVP T1	PERFORM DIVIDE
34150	-0600 00 0 40015	STQ TEMP	SAVE QUOTIENT
34151	0340 00 0 37362	CAS PZE	CHECK REMAINDER
34152	0020 00 0 34154	TRA **2	ERROR
34153	0020 00 0 34157	TRA **4	OK
34154	0560 00 0 37362	LDQ PZE	CORRECT REMAINDER
34155	0074 00 4 00104	TSX ERROR-1,4	REMAINDER ERROR
34156	0020 00 0 34145	TRA DVP1A	
34157	0500 00 0 40015	CLA TEMP	CHECK
34160	0340 00 0 37364	CAS ONE	QUOTIENT
34161	0020 00 0 34163	TRA **2	ERROR
34162	0020 00 0 34166	TRA **4	OK
34163	0560 00 0 37364	LDQ ONE	CORRECT QUOTIENT
34164	0074 00 4 00104	TSX ERROR-1,4	QUOTIENT ERROR
34165	0020 00 0 34145	TRA DVP1A	
34166	0560 00 0 40013	LDQ T1	SET UP
34167	-0763 00 0 00001	LGL 1	FOR NEXT
34170	0162 00 0 34142	TQP DVP12+1	DIVIDE
34171	0074 00 4 00106	TSX OK,4	
34172	0020 00 0 34141	TRA DVP12	
34173	246547606060	BCD 1DVP	
34174	0560 00 0 37401	DVP13 LDQ ONES	ONES TO MQ
34175	-0600 00 0 40013	STQ T1	SAVE C MQ IN TEMP STORAGE
34176	0020 00 0 34201	TRA **3	PROCEED

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34177 246547606060

BCD 1DVP

34200 0560 00 0 40013
34201 0760 00 0 00012
34202 0761 00 0 00000
34203 0500 00 0 37363
34204 0221 00 0 37365

DVP1B LDQ T1 SET MQ DIVIDEND
DCT INDICATOR
NOP OFF IF ON
CLA MZE -0 ACC DIVIDEND
DVP MONE -1 DIVISOR

34205 0760 00 0 00012
34206 0020 00 0 34210
34207 0020 00 0 34212
34210 0074 00 4 00104
34211 0020 00 0 34200

DCT ERROR
TRA **2 IF
TRA **3 INDICATOR
TSX ERROR-1,4 ON
TRA DVP1B

34212 -0600 00 0 40015
34213 0340 00 0 37363
34214 0020 00 0 34216
34215 0020 00 0 34221
34216 0560 00 0 37363
34217 0074 00 4 00104
34220 0020 00 0 34200

STQ TEMP SAVE QUOTIENT
CAS MZE CHECK REMAINDER
TRA **2 ERROR
TRA **4 OK
LDQ MZE CORRECT REMAINDER
TSX ERROR-1,4 REMAINDER ERROR
TRA DVP1B

34221 0502 00 0 40013
34222 0340 00 0 40015
34223 0020 00 0 34225
34224 0020 00 0 34231
34225 0131 00 0 00000
34226 0500 00 0 40015
34227 0074 00 4 00104
34230 0020 00 0 34200

CLS T1 CHECK
CAS TEMP QUOTIENT
TRA **2 ERROR
TRA **5 OK
XCA CORRECT QUOTIENT IN MQ
CLA TEMP ERROR QUOTIENT IN ACC
TSX ERROR-1,4 ERROR IN QUOTIENT
TRA DVP1B

34231 0560 00 0 40013
34232 -0763 00 0 00001
34233 0162 00 0 34235
34234 0020 00 0 34175
34235 0074 00 4 00106
34236 0020 00 0 34174

LDQ T1 SET UP
LGL 1 FOR
TQP **2 NEXT
TRA DVP13+1 DIVIDE
TSX OK,4
TRA DVP13

34237 246547606060

BCD 1DVP

34240 0560 00 0 37401
34241 -0600 00 0 40013
34242 -0520 00 0 40013
34243 0020 00 0 34301
34244 0020 00 0 34247

DVP14 LDQ ONES ONES TO MQ
STQ T1 SAVE C MQ IN TEMP STORAGE
NZT T1 FINISHED IF
TRA DVP10 LOC BLANK
TRA **3 PROCEED

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34245	246547606060		BCD 1DVP	
34246	0560 00 0 40013	DVP1C	LDQ T1	SET MQ DIVIDEND
34247	0760 00 0 00012		DCT	INDICATOR
34250	0761 00 0 00000		NOP	OFF IF ON
34251	0500 00 0 37362		CLA PZE	+0 ACC DIVIDEND
34252	0221 00 0 40013		DVP T1	PERFORM DIVISION
34253	0760 00 0 00012		DCT	ERROR
34254	0020 00 0 34256		TRA **2	IF
34255	0020 00 0 34260		TRA **3	INDICATOR
34256	0074 00 4 00104		TSX ERROR-1,4	ON
34257	0020 00 0 34246		TRA DVP1C	
34260	-0600 00 0 40015		STQ TEMP	SAVE QUOTIENT
34261	0340 00 0 37362		CAS PZE	CHECK REMAINDER
34262	0020 00 0 34264		TRA **2	ERROR
34263	0020 00 0 34267		TRA **4	OK
34264	0560 00 0 37362		LDQ PZE	CORRECT REMAINDER
34265	0074 00 4 00104		TSX ERROR-1,4	REMAINDER ERROR
34266	0020 00 0 34246		TRA DVP1C	
34267	0500 00 0 40015		CLA TEMP	CHECK
34270	0340 00 0 37365		CAS MONE	QUOTIENT
34271	0020 00 0 34273		TRA **2	ERROR
34272	0020 00 0 34276		TRA **4	OK
34273	0560 00 0 37365		LDQ MONE	CORRECT QUOTIENT
34274	0074 00 4 00104		TSX ERROR-1,4	QUOTIENT ERROR
34275	0020 00 0 34246		TRA DVP1C	
34276	0560 00 0 40013		LDQ T1	SET UP
34277	-0763 00 0 00001		LGL 1	FOR NEXT
34300	0020 00 0 34241		TRA DVP14+1	DIVIDE
34301	0074 00 4 00106	DVP1D	TSX OK,4	
34302	0020 00 0 34240		TRA DVP14	

34303	246547606060		BCD 1DVP	
34304	0560 00 0 37400	DVP15	LDQ PONES	MAKE THE MQ
34305	-0763 00 0 00001		LGL 1	-37777777776
34306	-0600 00 0 40013		STQ T1	SAVE C MQ IN TEMP STORAGE
34307	-0520 00 0 40013		NZT T1	FINISHED IF
34310	0020 00 0 34346		TRA DVP1F	LOC BLANK
34311	0020 00 0 34314		TRA **3	PROCEED

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34312 246547606060

BCD 1DVP

34313	0560	00	0	40013	DVP1E	LDQ T1	SET MQ DIVIDEND
34314	0760	00	0	00012		DCT	INDICATOR
34315	0761	00	0	00000		NOP	OFF IF ON
34316	0500	00	0	37363		CLA MZE	-0 ACC DIVIDEND
34317	0221	00	0	37400		DVP PONES	PERFORM DVP
34320	0760	00	0	00012		DCT	ERROR
34321	0020	00	0	34323		TRA **2	IF
34322	0020	00	0	34325		TRA **3	INDICATOR
34323	0074	00	4	00104		TSX ERROR-1,4	ON
34324	0020	00	0	34313		TRA DVP1E	
34325	-0600	00	0	40015		STQ TEMP	SAVE QUOTIENT
34326	0340	00	0	40013		CAS T1	CHECK REMAINDER
34327	0020	00	0	34331		TRA **2	ERROR
34330	0020	00	0	34334		TRA **4	OK
34331	0560	00	0	40013		LDQ T1	CORRECT REMAINDER
34332	0074	00	4	00104		TSX ERROR-1,4	REMAINDER ERROR
34333	0020	00	0	34313		TRA DVP1E	
34334	0500	00	0	40015		CLA TEMP	CHECK QUOTIENT
34335	0340	00	0	37363		CAS MZE	QUOTIENT
34336	0020	00	0	34340		TRA **2	ERROR
34337	0020	00	0	34343		TRA **4	OK
34340	0560	00	0	37363		LDQ MZE	CORRECT QUOTIENT
34341	0074	00	4	00104		TSX ERROR-1,4	QUOTIENT ERROR
34342	0020	00	0	34313		TRA DVP1E	
34343	0560	00	0	40013		LDQ T1	SET UP
34344	-0763	00	0	00001		LGL 1	FOR NEXT
34345	0020	00	0	34306		TRA DVP15+2	DIVIDE
34346	0074	00	4	00106	DVP1F	TSX OK,4	
34347	0020	00	0	34304		TRA DVP15	

34350 246547606060

BCD 1DVP

34351	0500	00	0	37402	DVP16	CLA UNA	ACC DIVIDEND
34352	0767	00	0	00001		ALS 1	+377777777776
34353	0560	00	0	37365		LDQ MONE	-1 MQ DIVIDEND
34354	0221	00	0	37401		DVP ONES	-ONES DIVISOR
34355	-0600	00	0	40015		STQ TEMP	SAVE QUOTIENT
34356	0340	00	0	37362		CAS PZE	CHECK REMAINDER
34357	0020	00	0	34361		TRA **2	ERROR
34360	0020	00	0	34364		TRA **4	OK
34361	0560	00	0	37362		LDQ PZE	CORRECT REMAINDER
34362	0074	00	4	00104		TSX ERROR-1,4	REMAINDER ERROR
34363	0020	00	0	34351		TRA DVP16	
34364	0500	00	0	40015		CLA TEMP	CHECK
34365	0340	00	0	37401		CAS ONES	QUOTIENT
34366	0020	00	0	34370		TRA **2	ERROR
34367	0020	00	0	34372		TRA **3	OK
34370	0560	00	0	37401		LDQ ONES	CORRECT QUOTIENT
34371	0074	00	4	00105		TSX ERROR,4	QUOTIENT ERROR
34372	0074	00	4	00106		TSX OK,4	
34373	0020	00	0	34351		TRA DVP16	

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CHECK DVH WITH SR GREATER THAN ACC

34374	246530606060		BCD 1DVH	
34375	0760 00 0 00012	DVH	DCT	INDICATOR
34376	0761 00 0 00000		NOP	OFF IF ON
34377	0500 00 0 37402		CLA UNA	ACC DIVIDEND
34400	0767 00 0 00001		ALS 1	+377777777776
34401	0560 00 0 37364		LDQ ONE	+1 MQ DIVIDEND
34402	0220 00 0 37401		DVH ONES	DIVISOR -377777777777

Q CARRY RESULTS WITH SR ADDED TO COMPLEMENTED ACC AND DIVISION POSSIBLE

34403	-0600 00 0 40015		STQ TEMP	SAVE QUOTIENT
34404	0340 00 0 37362		CAS PZE	CHECK REMAINDER
34405	0020 00 0 34407		TRA **2	ERROR
34406	0020 00 0 34412		TRA **4	OK, REMAINDER +0
34407	0560 00 0 37362		LDQ PZE	CORRECT REMAINDER
34410	0074 00 4 00104		TSX ERROR-1,4	REMAINDER ERROR
34411	0020 00 0 34375		TRA DVH	
34412	0500 00 0 40015		CLA TEMP	CHECK THE
34413	0340 00 0 37401		CAS ONES	QUOTIENT
34414	0020 00 0 34416		TRA **2	ERROR
34415	0020 00 0 34421		TRA **4	OK, QUOTIENT -377777777777
34416	0560 00 0 37401		LDQ ONES	CORRECT QUOTIENT
34417	0074 00 4 00104		TSX ERROR-1,4	QUOTIENT ERROR
34420	0020 00 0 34375		TRA DVH	
34421	0760 00 0 00012		DCT	ERROR IF DCT
34422	0074 00 4 00105		TSX ERROR,4	INDICATOR ON
34423	0074 00 4 00106		TSX OK,4	
34424	0020 00 0 34375		TRA DVH	

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CHECK VDP WITH NO COUNT AND SR GREATER THAN ACC

34425	652447606060		BCD 1VDP	
34426	0760 00 0 00012	VDP	DCT	INDICATOR
34427	0761 00 0 00000		NOP	OFF IF ON
34430	0500 00 0 37402		CLA UNA	+177777777777 ACC DIVIDEND
34431	0560 00 0 37401		LDQ ONES	-377777777777 MQ DIVIDEND
34432	0225 00 0 37401		VDP ONES	-377777777777 DIVISOR
34433	0760 00 0 00012		DCT	ERROR
34434	0020 00 0 34436		TRA **2	IF
34435	0020 00 0 34440		TRA **3	INDICATOR
34436	0074 00 4 00104		TSX ERROR-1,4	ON
34437	0020 00 0 34426		TRA VDP	

WITH NO COUNT, ACC AND MQ SHOULD REMAIN UNCHANGED

34440	-0600 00 0 40015	STQ TEMP	SAVE MQ
34441	0340 00 0 37402	CAS UNA	CHECK ACC UNCHANGED
34442	0020 00 0 34444	TRA **2	ERROR
34443	0020 00 0 34447	TRA **4	OK
34444	0560 00 0 37402	LDQ UNA	CORRECT ACC VALUE
34445	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
34446	0020 00 0 34426	TRA VDP	
34447	0500 00 0 40015	CLA TEMP	CHECK MQ
34450	0340 00 0 37401	CAS ONES	UNCHANGED
34451	0020 00 0 34453	TRA **2	ERROR
34452	0020 00 0 34455	TRA **3	OK
34453	0560 00 0 37401	LDQ ONES	CORRECT MQ VALUE
34454	0074 00 4 00105	TSX ERROR,4	ERROR IN MQ
34455	0074 00 4 00106	TSX OK,4	
34456	0020 00 0 34426	TRA VDP	

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CHECK VDP WITH NO COUNT AND ACC GREATER THAN SR

34457	652447606060		BCD 1VDP	
34460	0760 00 0 00012	VDP1	DCT	INDICATOR
34461	0761 00 0 00000		NOP	OFF IF ON
34462	0500 00 0 37401		CLA ONES	-377777777777 ACC DIVIDEND
34463	0560 00 0 37401		LDQ ONES	-377777777777 MQ DIVIDEND
34464	0225 00 0 37402		VDP UNA	+177777777777 DIVISOR
34465	0760 00 0 00012		DCT	ERROR
34466	0020 00 0 34470		TRA **2	IF
34467	0020 00 0 34472		TRA **3	INDICATOR
34470	0074 00 4 00104		TSX ERROR-1,4	ON
34471	0020 00 0 34460		TRA VDP1	

WITH NO COUNT, ACC AND MQ SHOULD REMAIN UNCHANGED

34472	-0600 00 0 40015		STQ TEMP	SAVE MQ
34473	0340 00 0 37401		CAS ONES	CHECK ACC UNCHANGED
34474	0020 00 0 34476		TRA **2	ERROR
34475	0020 00 0 34501		TRA **4	OK
34476	0560 00 0 37401		LDQ ONES	CORRECT ACC VALUE
34477	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
34500	0020 00 0 34460		TRA VDP1	
34501	0500 00 0 40015		CLA TEMP	CHECK MQ
34502	0340 00 0 37401		CAS ONES	UNCHANGED
34503	0020 00 0 34505		TRA **2	ERROR
34504	0020 00 0 34507		TRA **3	OK
34505	0560 00 0 37401		LDQ ONES	CORRECT MQ VALUE
34506	0074 00 4 00105		TSX ERROR,4	ERROR IN MQ
34507	0074 00 4 00106		TSX OK,4	
34510	0020 00 0 34460		TRA VDP1	

CHECK VDP WITH NO COUNT AND ACC EQUAL TO SR

34511	652447606060		BCD 1VDP	
34512	0760 00 0 00012	VDP2	DCT	INDICATOR
34513	0761 00 0 00000		NOP	OFF IF ON
34514	0500 00 0 37401		CLA ONES	-377777777777 ACC DIVIDEND
34515	0560 00 0 37401		LDQ ONES	-377777777777 MQ DIVIDEND
34516	0225 00 0 37401		VDP ONES	-377777777777 DIVISOR
34517	0760 00 0 00012		DCT	ERROR
34520	0020 00 0 34522		TRA **2	IF
34521	0020 00 0 34524		TRA **3	INDICATOR
34522	0074 00 4 00104		TSX ERROR-1,4	ON
34523	0020 00 0 34512		TRA VDP2	

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WITH NO COUNT, ACC AND MQ SHOULD REMAIN UNCHANGED

34524	-0600	00 0	40015	STQ TEMP	SAVE MQ
34525	0340	00 0	37401	CAS ONES	CHECK ACC UNCHANGED
34526	0020	00 0	34530	TRA **2	ERROR
34527	0020	00 0	34533	TRA **4	OK
34530	0560	00 0	37401	LDQ ONES	CORRECT ACC VALUE
34531	0074	00 4	00104	TSX ERROR-1,4	ERROR IN ACC
34532	0020	00 0	34512	TRA VDP2	
34533	0500	00 0	40015	CLA TEMP	CHECK MQ
34534	0340	00 0	37401	CAS ONES	UNCHANGED
34535	0020	00 0	34537	TRA **2	ERROR
34536	0020	00 0	34541	TRA **3	OK
34537	0560	00 0	37401	LDQ ONES	CORRECT MQ VALUE
34540	0074	00 4	00105	TSX ERROR,4	ERROR IN MQ
34541	0074	00 4	00106	TSX OK,4	
34542	0020	00 0	34512	TRA VDP2	

CHECK VDP WITH DIVISOR ZERO

34543	652447606060		BCD 1VDP
34544	0760	00 0	00012 VDP3 DCT
34545	0761	00 0	00000 NOP
34546	0500	00 0	37363 CLA MZE
34547	0560	00 0	37365 LDQ MONE
34550	0225	01 0	37362 VDP PZE,0,1
			INDICATOR
			OFF IF ON
			-0 ACC DIVIDEND
			-1 MQ DIVIDEND
			+0 DIVISOR, COUNT 1

NO Q CARRY WITH SR ADDED TO COMPLEMENTED ACC PREVENTS DIVISION

34551	0760	00 0	00012	DCT	OK IF DCT
34552	0020	00 0	34555	TRA **3	IND IS ON
34553	0074	00 4	00104	TSX ERROR-1,4	DCT IND OFF
34554	0020	00 0	34544	TRA VDP3	
34555	-0600	00 0	40015	STQ TEMP	SAVE MQ
34556	0340	00 0	37363	CAS MZE	CHECK ACC UNCHANGED
34557	0020	00 0	34561	TRA **2	ERROR
34560	0020	00 0	34564	TRA **4	OK, ACC -0
34561	0560	00 0	37363	LDQ MZE	CORRECT ACC VALUE
34562	0074	00 4	00104	TSX ERROR-1,4	ERROR IN ACC
34563	0020	00 0	34544	TRA VDP3	
34564	0500	00 0	40015	CLA TEMP	CHECK MQ
34565	0340	00 0	37365	CAS MONE	UNCHANGED
34566	0020	00 0	34570	TRA **2	ERROR
34567	0020	00 0	34572	TRA **3	OK MQ WAS -1
34570	0560	00 0	37365	LDQ MONE	CORRECT MQ VALUE
34571	0074	00 4	00105	TSX ERROR,4	ERROR IN MQ
34572	0074	00 4	00106	TSX OK,4	
34573	0020	00 0	34544	TRA VDP3	

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CHECK VDP WITH DIVISOR AND DIVIDEND ZERO

34574	652447606060		BCD 1VDP	
34575	0760 00 0 00012	VDP4	DCT	INDICATOR
34576	0761 00 0 00000		NOP	OFF IF ON
34577	0500 00 0 37362		CLA PZE	+0 ACC DIVIDEND
34600	0560 00 0 37363		LDQ MZE	-0 MQ DIVIDEND
34601	0225 14 0 37362		VDP PZE,0,12	DIVISOR +0, COUNT 14
34602	0760 00 0 00012		DCT	OK IF DCT
34603	0020 00 0 34606		TRA **3	IND IS ON
34604	0074 00 4 00104		TSX ERROR-1,4	DCT IND OFF
34605	0020 00 0 34575		TRA VDP4	
34606	-0600 00 0 40015		STQ TEMP	SAVE MQ
34607	0340 00 0 37362		CAS PZE	CHECK ACC UNCHANGED
34610	0020 00 0 34612		TRA **2	ERROR
34611	0020 00 0 34615		TRA **4	OK, ACC +0
34612	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE
34613	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
34614	0020 00 0 34575		TRA VDP4	
34615	0500 00 0 40015		CLA TEMP	CHECK MQ
34616	0340 00 0 37363		CAS MZE	UNCHANGED
34617	0020 00 0 34621		TRA **2	ERROR
34620	0020 00 0 34623		TRA **3	OK, MQ WAS -0
34621	0560 00 0 37363		LDQ MZE	CORRECT MQ VALUE
34622	0074 00 4 00105		TSX ERROR,4	ERROR IN MQ
34623	0074 00 4 00106		TSX OK,4	
34624	0020 00 0 34575		TRA VDP4	

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CLA TEMP          CHECK THE
CAS ITIX          QUOTIENT
TRA **+2          ERROR
TRA **+3          OK, QUOTIENT +252525252525
LDQ ITIX          CORRECT QUOTIENT
TSX ERROR,4       QUOTIENT ERROR
TSX OK,4
TRA VDP6

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CHECK VDP WITH COUNT OF 2

34700	652447606060		BCD 1VDP	
34701	0500 00 0 37363	VDP7	CLA MZE	-0 ACC DIVIDEND
34702	0560 00 0 37367		LDQ MTW	-2 MQ DIVIDEND
34703	0225 02 0 37401		VDP ONES,0,2	DIVISOR -ONES, COUNT 2
34704	-0600 00 0 40015		STQ TEMP	SAVE QUOTIENT
34705	0340 00 0 37363		CAS MZE	CHECK REMAINDER
34706	0020 00 0 34710		TRA **2	ERROR
34707	0020 00 0 34713		TRA **4	OK, REMAINDER -0
34710	0560 00 0 37363		LDQ MZE	CORRECT REMAINDER
34711	0074 00 4 00104		TSX ERROR-1,4	REMAINDER ERROR
34712	0020 00 0 34701		TRA VDP7	
34713	0500 00 0 40015		CLA TEMP	CHECK THE
34714	0340 00 0 37374		CAS TEN	QUOTIENT
34715	0020 00 0 34717		TRA **2	ERROR
34716	0020 00 0 34721		TRA **3	OK, QUOTIENT +10
34717	0560 00 0 37374		LDQ TEN	CORRECT QUOTIENT
34720	0074 00 4 00105		TSX ERROR,4	QUOTIENT ERROR
34721	0074 00 4 00106		TSX OK,4	
34722	0020 00 0 34701		TRA VDP7	

CHECK VDP WITH AN EVEN COUNT OF 44

34723	652447606060		BCD 1VDP	
34724	0500 00 0 37433	VDP8	CLA VLAC	-172154474407 ACC DIVIDEND
34725	0560 00 0 37437		LDQ VLMQ	-205623303370 MQ DIVIDEND
34726	0225 44 0 37401		VDP ONES,0,36	DIVISOR -ONES, COUNT 44
34727	-0600 00 0 40015		STQ TEMP	SAVE QUOTIENT
34730	0340 00 0 37363		CAS MZE	CHECK REMAINDER
34731	0020 00 0 34733		TRA **2	ERROR
34732	0020 00 0 34736		TRA **4	OK, REMAINDER -0
34733	0560 00 0 37363		LDQ MZE	CORRECT REMAINDER
34734	0074 00 4 00104		TSX ERROR-1,4	REMAINDER ERROR
34735	0020 00 0 34724		TRA VDP8	
34736	0500 00 0 40015		CLA TEMP	CHECK THE
34737	0340 00 0 37423		CAS ALT3	QUOTIENT
34740	0020 00 0 34742		TRA **2	ERROR
34741	0020 00 0 34744		TRA **3	OK, QUOTIENT +364331171020
34742	0560 00 0 37423		LDQ ALT3	CORRECT QUOTIENT
34743	0074 00 4 00105		TSX ERROR,4	QUOTIENT ERROR
34744	0074 00 4 00106		TSX OK,4	
34745	0020 00 0 34724		TRA VDP8	

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CHECK VDP WITH ODD COUNT OF 57

34746	652447606060	BCD 1VDP	
34747	0500 00 0 37434	VDP9	CLA VLACT -337036433116 ACC DIVIDEND
34750	0560 00 0 37440	LDQ VLMQ1	-101741344660 MQ DIVIDEND
34751	0225 57 0 37401	VDP ONES,0,47	DIVISOR -ONES, COUNT 57
34752	-0600 00 0 40015	STQ TEMP	SAVE QUOTIENT
34753	0340 00 0 37363	CAS MZE	CHECK REMAINDER
34754	0020 00 0 34756	TRA **2	ERROR
34755	0020 00 0 34761	TRA **4	OK, REMAINDER -0
34756	0560 00 0 37363	LDQ MZE	CORRECT REMAINDER
34757	0074 00 4 00104	TSX ERROR-1,4	REMAINDER ERROR
34760	0020 00 0 34747	TRA VDP9	
34761	0500 00 0 40015	CLA TEMP	CHECK THE
34762	0340 00 0 37423	CAS ALT3	QUOTIENT
34763	0020 00 0 34765	TRA **2	ERROR
34764	0020 00 0 34767	TRA **3	OK, QUOTIENT +364331171020
34765	0560 00 0 37423	LDQ ALT3	CORRECT QUOTIENT
34766	0074 00 4 00105	TSX ERROR,4	QUOTIENT ERROR
34767	0074 00 4 00106	TSX OK,4	
34770	0020 00 0 34747	TRA VDP9	

CHECK VDP WITH A COUNT OF 200

34771	652447606060	BCD 1VDP	
34772	0500 00 0 37401	VDP10	CLA ONES -377777777777 ACC DIVIDEND
34773	0560 00 0 37401	LDQ ONES	-377777777777 MQ DIVIDEND
34774	0227 00 0 37401	VDP ONES,0,128	DIVISOR -ONES, COUNT 200
34775	-0600 00 0 40015	STQ TEMP	SAVE MQ
34776	0340 00 0 37401	CAS ONES	CHECK ACC UNCHANGED
34777	0020 00 0 35001	TRA **2	ERROR
35000	0020 00 0 35004	TRA **4	OK, ACC UNCHANGED
35001	0560 00 0 37401	LDQ ONES	CORRECT ACC VALUE
35002	0074 00 4 00104	TSX ERROR-1,4	ERROR IN ACC
35003	0020 00 0 34772	TRA VDP10	
35004	0500 00 0 40015	CLA TEMP	CHECK
35005	0340 00 0 37401	CAS ONES	THE MQ
35006	0020 00 0 35010	TRA **2	ERROR
35007	0020 00 0 35012	TRA **3	CORRECT MQ VALUE
35010	0560 00 0 37401	LDQ ONES	CORRECT MQ VALUE
35011	0074 00 4 00105	TSX ERROR,4	ERROR IN MQ
35012	0074 00 4 00106	TSX OK,4	
35013	0020 00 0 34772	TRA VDP10	

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CHECK VDP WITH A COUNT OF 243

35014	652447606060		BCD 1VDP	
35015	0500 00 0 37431	VDP11	CLA ANS4	-364331171017 ACC DIVIDEND
35016	0560 00 0 37432		LDQ ANS5	-013446606760 MQ DIVIDEND
35017	0227 43 0 37401		VDP ONES,0,163	DIVISOR -ONES, COUNT 243
35020	-0600 00 0 40015		STQ TEMP	SAVE QUOTIENT
35021	0340 00 0 37363		CAS MZE	CHECK REMAINDER
35022	0020 00 0 35024		TRA **2	ERROR
35023	0020 00 0 35027		TRA **4	OK, REMAINDER -0
35024	0560 00 0 37363		LDQ MZE	CORRECT REMAINDER
35025	0074 00 4 00104		TSX ERROR-1,4	REMAINDER ERROR
35026	0020 00 0 35015		TRA VDP11	
35027	0500 00 0 40015		CLA TEMP	CHECK THE
35030	0340 00 0 37423		CAS ALT3	QUOTIENT
35031	0020 00 0 35033		TRA **2	ERROR
35032	0020 00 0 35035		TRA **3	OK, QUOTIENT +364331171020
35033	0560 00 0 37423		LDQ ALT3	CORRECT QUOTIENT
35034	0074 00 4 00105		TSX ERROR,4	QUOTIENT ERROR
35035	0074 00 4 00106		TSX OK,4	
35036	0020 00 0 35015		TRA VDP11	

CHECK VDP FOLLOWED BY A SHIFT INSTRUCTION

35037	652447606060		BCD 1VDP	
35040	0760 00 0 00012	VDP12	DCT	INDICATOR
35041	0761 00 0 00000		NOP	OFF IF ON
35042	0500 00 0 37362		CLA PZE	+0 ACC DIVIDEND
35043	0560 00 0 37365		LDQ MONE	-1 MQ DIVIDEND
35044	0225 57 0 37363		VDP MZE,0,47	DIVISOR -0, COUNT 57
35045	-0773 00 0 00044		RQL 36	NO CHANGE TO MQ AFTER SHIFT
35046	0131 00 0 00000		XCA	MQ TO ACC
35047	0340 00 0 37365		CAS MONE	CHECK MQ VALUE
35050	0020 00 0 35052		TRA **2	ERROR
35051	0020 00 0 35055		TRA **4	OK, MQ WAS -1
35052	0560 00 0 37365		LDQ MONE	CORRECT MQ VALUE
35053	0074 00 4 00104		TSX ERROR-1,4	ERROR IN MQ
35054	0020 00 0 35040		TRA VDP12	
35055	0760 00 0 00012		DCT	OK IF DCT
35056	0020 00 0 35060		TRA **2	IND IS ON
35057	0074 00 4 00105		TSX ERROR,4	DCT IND OFF
35060	0074 00 4 00106		TSX OK,4	
35061	0020 00 0 35040		TRA VDP12	

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CHECK VDH WITH SR GREATER THAN ACC

35062	652430606060		BCD 1VDH
35063	0760 00 0 00012	VDH	DCT
35064	0761 00 0 00000		NOP
35065	0500 00 0 37362		CLA PZE
35066	0560 00 0 37402		LDQ UNA
35067	-0763 00 0 00001		LGL 1
35070	0224 41 0 37400		VDH PONES,0,33 DIVISOR -ONES, COUNT 41

Q CARRY RESULTS WITH SR ADDED TO COMPLEMENTED ACC AND DIVISION POSSIBLE

35071	-0600 00 0 40015	STQ TEMP	SAVE QUOTIENT
35072	0340 00 0 37406	CAS MQK3	CHECK REMAINDER
35073	0020 00 0 35075	TRA **2	ERROR
35074	0020 00 0 35100	TRA **4	OK, REMAINDER +07777777777
35075	0560 00 0 37406	LDQ MQK3	CORRECT REMAINDER
35076	0074 00 4 00104	TSX ERROR-1,4	REMAINDER ERROR
35077	0020 00 0 35063	TRA VDH	
35100	0500 00 0 40015	CLA TEMP	CHECK THE
35101	0340 00 0 37410	CAS TOO	QUOTIENT
35102	0020 00 0 35104	TRA **2	ERROR
35103	0020 00 0 35107	TRA **4	OK, QUOTIENT +200000000000
35104	0560 00 0 37410	LDQ TOO	CORRECT QUOTIENT
35105	0074 00 4 00104	TSX ERROR-1,4	QUOTIENT ERROR
35106	0020 00 0 35063	TRA VDH	
35107	0760 00 0 00012	DCT	ERROR IF DCT
35110	0074 00 4 00105	TSX ERROR,4	INDICATOR
35111	0074 00 4 00106	TSX OK,4	
35112	0020 00 0 35063	TRA VDH	

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CHECK VDH WITH NO COUNT

35113	652430606060		BCD 1VDH	
35114	0760 00 0 00012	VDH1	DCT	INDICATOR
35115	0761 00 0 00000		NOP	OFF IF ON
35116	0500 00 0 37401		CLA ONES	-377777777777 ACC DIVIDEND
35117	0560 00 0 37401		LDQ ONES	-377777777777 MQ DIVIDEND
35120	0224 00 0 37401		VDH ONES	DIVISOR -ONES, NO COUNT

ERROR IF A PROGRAM STOP HERE

35121	-0600 00 0 40015		STQ TEMP	SAVE MQ
35122	0340 00 0 37401		CAS ONES	CHECK ACC UNCHANGED
35123	0020 00 0 35125		TRA **2	ERROR
35124	0020 00 0 35130		TRA **4	OK, ACC UNCHANGED
35125	0560 00 0 37401		LDQ ONES	CORRECT ACC
35126	0074 00 4 00104		TSX ERROR-1,4	ERROR IN ACC
35127	0020 00 0 35114		TRA VDH1	
35130	0500 00 0 40015		CLA TEMP	CHECK
35131	0340 00 0 37401		CAS ONES	THE MQ
35132	0020 00 0 35134		TRA **2	ERROR
35133	0020 00 0 35137		TRA **4	OK, MQ UNCHANGED
35134	0560 00 0 37401		LDQ ONES	CORRECT MQ
35135	0074 00 4 00104		TSX ERROR-1,4	ERROR IN MQ
35136	0020 00 0 35114		TRA VDH1	
35137	0760 00 0 00012		DCT	ERROR IF DCT
35140	0074 00 4 00105		TSX ERROR,4	INDICATOR ON
35141	0074 00 4 00106		TSX OK,4	
35142	0020 00 0 35114		TRA VDH1	

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CHECK TTR OUT OF TRAP MODE

35143	636351606060		BCD	1TTR	
35144	0021 00 0 35146	TTR	TTR	*+2	SHOULD TRANSFER
35145	0074 00 4 00105		TSX	ERROR,4	FAILED TO TRANSFER
35146	0074 00 4 00106		TSX	OK,4	
35147	0020 00 0 35144		TRA	TTR	

TEST THAT TTR DOES NOT SET MEMORY NULLIFICATION MODE

35150	636351606060		BCD	1TTR	
35151	0774 00 1 00000	SNM	AXT	,1	
35152	0021 00 0 35153		TTR	*+1	
35153	-0774 00 1 40000		AXC	16384,1	
35154	3 37777 1 35156		TXH	*+2,1,16383	
35155	0074 00 4 00105		TSX	ERROR,4	
35156	0074 00 4 00106		TSX	OK,4	
35157	0020 00 0 35151		TRA	SNM	

CHECK LTM RESETS TRAP MODE

35160	436344606060		BCD	1LTM	
35161	0760 00 0 00007	LTM	ETM		SET TRAP MODE
35162	-0760 00 0 00007		LTM		RESET TRAP MODE
35163	0634 00 0 00000		SXA	,,	
35164	3 77777 1 35165		TXH	*+1,1,-1	DUMMY TRANSFER
35165	0534 00 1 00000		LXA	,1	
35166	0600 00 0 40015		STZ	TEMP	
35167	0634 00 1 40015		SXA	TEMP,1	
35170	-0520 00 0 40015		NZT	TEMP	SHOULD NOT SKIP
35171	0020 00 0 35174		TRA	*+3	
35172	0760 00 0 00162		SWT	2	
35173	0420 00 0 00000		HPR		
35174	0760 00 0 00161		SWT	1	
35175	0074 00 4 00106		TSX	OK,4	
35176	0021 00 0 35161		TTR	LTM	

CHECK ETM SETS TRAP MODE

35177	256344606060		BCD	1ETM	
35200	-0774 00 4 35203	ETM	AXC	*+3,4	SET
35201	0500 00 0 37445		CLA	STRS2	RETURN
35202	0601 00 0 00001		STO	1	FROM
35203	0020 00 4 00001		TRA	1,4	LOC 00001
35204	-0774 00 2 35205		AXC	*+1,2	LOC 2-S COMPLEMENT TO XRB
35205	0760 00 0 00007		ETM		ENTER TRAP MODE
35206	0021 00 2 00004		TTR	4,2	SHOULD TRANSFER
35207	-0760 00 0 00007		LTM		RETURN FROM LOC 00001
35210	0020 00 2 00010		TRA	8,2	PROCEED
35211	-0754 00 0 00000		PXD		CLEAR ACC
35212	0100 00 2 00006		TZE	6,2	SHOULD TRAP TO LOC 00001
35213	-0760 00 0 00007		LTM		TZE FAILED TO
35214	0074 00 4 00105		TSX	ERROR,4	TRAP TO LOC 00001
35215	0074 00 4 00106		TSX	OK,4	
35216	0021 00 0 35200		TTR	ETM	

CHECK TRA IN TRAP MODE

35217 256344606060
35220 0074 00 4 35201
35221 0600 00 0 00000
35222 0600 00 0 40015
35223 0760 00 0 00007
35224 -0774 00 2 35227
35225 0020 00 2 77777

BCD 1ETM
ETM1 TSX ETM+1,4 INITIALIZE LOC 00001
STZ CLEAR LOC 00000
STZ TEMP CLEAR LOCATION
ETM ENTER TRAP MODE
AXC **3,2 LOC 2-S COMPLEMENT IN XRB
TRA -1,2 SHOULD TRAP

35226 -0760 00 0 00007
35227 0074 00 4 00104
35230 0020 00 0 35220

LTM TRA FAILED
TSX ERROR-1,4 TO TRAP
TRA ETM1

35231 -0760 00 0 00007
35232 0774 00 4 35225
35233 0634 00 4 40015
35234 0500 00 0 00000
35235 0340 00 0 40015
35236 0020 00 0 35240
35237 0020 00 0 35242
35240 0560 00 0 40015
35241 0074 00 4 00105
35242 0074 00 4 00106
35243 0020 00 0 35220

LTM CHECK ADR IN LOC 00000
AXT *-5,4 CORRECT ADR
SXA TEMP,4 FOR LOC 00000
CLA CHECK TRA IN TRAP
CAS TEMP MODE EXECUTION
TRA **2 ERROR
TRA **3 OK
LDQ TEMP CORRECT VALUE FOR LOC 00000
TSX ERROR,4 ERROR IN LOC 00000 VALUE
TSX OK,4
TRA ETM1

TEST CONDITIONAL TRANSFERS WITH CONDITION NOT MET

35244 256344606060

BCD 1ETM

35245 0074 00 4 35201
35246 0600 00 0 00000
35247 0600 00 0 40015
35250 0140 00 0 35251
35251 -0774 00 2 35320
35252 0600 00 0 40015
35253 0774 00 1 35257
35254 0634 00 1 40015
35255 0760 00 0 00007

ETM2 TSX ETM+1,4 INITIALIZE LOC 00001
STZ CLEAR LOC 00000
STZ TEMP CLEAR LOCATION
TOV **1 TURN OFF INDICATOR
AXC ETM2A,2 LOC 2-S COMPLEMENT IN XRB
STZ TEMP CLEAR LOCATION
AXT **4,1 LOC IN ARA
SXA TEMP,1 SAVE XRA
ETM ENTER TRAP MODE

35256 0500 00 0 00000
35257 -0100 00 2 00002
35260 002! 00 2 00005

CLA CLEAR ACC
TNZ 2,2 SHOULD NOT TRAP
TTR 5,2 CHECK LOC 00000

35261 0760 00 0 00003
35262 -0120 00 2 00002
35263 0021 00 2 00005

SSP SET ACC SIGN PLUS
TMI 2,2 SHOULD NOT TRAP
TTR 5,2 CHECK LOC 00000

35264 0761 00 0 00000
35265 0140 00 2 00002
35266 0021 00 2 00005

NOP
TOV 2,2 SHOULD NOT TRAP
TTR 5,2 CHECK LOC 00000

35267 0560 00 0 37400
35270 0040 00 2 00002

LDQ PONES MQ +377777777777
TLQ 2,2 SHOULD NOT TRAP

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S E C T I O N T W O

35271 0021 00 2 00005

TTR 5,2

CHECK LOC 00000

35272 0761 00 0 00000

NOP

35273 0100 00 2 00002

TZE 2,2

SHOULD NOT TRAP

35274 0021 00 2 00005

TTR 5,2

CHECK LOC 00000

35275 -0760 00 0 00003

SSM

SET ACC SIGN MINUS

35276 0120 00 2 00002

TPL 2,2

SHOULD NOT TRAP

35277 0021 00 2 00005

TTR 5,2

CHECK LOC 00000

35300 0767 00 0 00045

ALS 37

OVERFLOW IND ON

35301 -0140 00 2 00002

TNO 2,2

SHOULD NOT TRAP

35302 0021 00 2 00005

TTR 5,2

CHECK LOC 00000

35303 0560 00 0 37363

LDQ MZE

-0 IN MQ

35304 0162 00 2 00002

TQP 2,2

SHOULD NOT TRAP

35305 0021 00 2 00005

TTR 5,2

CHECK LOC 00000

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TEST CONDITIONAL TRANSFERS WITH CONDITION NOT MET

35306	0761	00	0	00000	NOP	
35307	3 35310	1	35322	TXH	ETM2A+2,1,*+1	SHOULD NOT TRAP
35310	0021	00	2 00005	TTR	5,2	CHECK LOC 00000
35311	0761	00	0 00000	NOP		
35312	-3 35311	1	35322	TXL	ETM2A+2,1,*-1	SHOULD NOT TRAP
35313	0021	00	2 00005	TTR	5,2	CHECK LOC 00000
35314	0761	00	0 00000	NOP		
35315	2 35315	1	35322	TIX	ETM2A+2,1,*	SHOULD NOT TRAP
35316	0021	00	2 00005	TTR	5,2	CHECK LOC 00000
35317	0761	00	0 00000	NOP		
35320	-0760	00	0 00007	ETM2A LTM		CONDITION NOT MET
35321	0020	00	0 35345	TRA	ETM2B	TESTS FINISHED
35322	-0760	00	0 00007	LTM		INDICATE
35323	0074	00	4 00104	TSX	ERROR-1,4	TRAP
35324	0020	00	0 35245	TRA	ETM2	ERROR
35325	0500	00	0 00000	CLA		CHECK CONTENTS OF
35326	0340	00	0 40015	CAS	TEMP	LOCATION 00000
35327	0021	00	0 35331	TTR	*+2	ERROR
35330	0021	00	0 35336	TTR	*+6	OK
35331	-0760	00	0 00007	LTM		LEAVE TRAP MODE
35332	0560	00	0 40015	LDQ	TEMP	CORRECT VALUE FOR LOC 00000
35333	0074	00	4 00104	TSX	ERROR-1,4	ERROR IN LOC 00000 VALUE
35334	0020	00	0 35245	TRA	ETM2	
35335	0760	00	0 00007	ETM		RESTORE TRAP MODE ON ERROR
35336	0500	00	0 40015	CLA	TEMP	CHECK
35337	0400	00	0 37370	ADD	THREE	EACH
35340	0734	00	1 00000	PAX	0,1	OF
35341	0621	00	0 40015	STA	TEMP	THE
35342	0402	00	0 37364	SUB	ONE	CONDITIONAL
35343	0621	00	0 35344	STA	*+1	TRANSFER
35344	0021	00	0 00000	TTR		INSTRUCTIONS
35345	0074	00	4 00106	ETM2B	TSX	OK,4
35346	0020	00	0 35245	TRA	ETM2	

S E C T I O N T W O

CHECK CONDITIONAL TRANSFERS WITH CONDITION MET

35347	256344606060		BCD IETM	
35350	0074 00 4 35201	ETM3	TSX ETM+1,4	INITIALIZE LOC 00001
35351	0774 00 1 35365		AXT ETM3A,1	LOC ADR IN XRA
35352	-0774 00 2 35420		AXC ETM3B,2	LOC 2-S COMPLEMENT IN XRB
35353	0600 00 0 40015		STZ TEMP	CLEAR LOCATION
35354	0020 00 0 35357		TRA ++3	PROCEED
35355	-0760 00 0 00007		LTM	LEAVE TRAP MODE
35356	0534 00 1 40015		LXA TEMP,1	GET LOCATION VALUE
35357	1 00003 1 35360		TXI ++1,1,3	FOR COMPARE CHECK
35360	3 35417 1 35433		TXH ETM3C,1,ETM3B-1	FINISHED AFTER TQP
35361	0634 00 1 40015		SXA TEMP,1	SAVE XRA
35362	0600 00 0 00000		STZ	CLEAR LOC 00000
35363	1 77777 1 35364		TXI ++1,1,-1	CHECK
35364	0760 00 0 00007		ETM	EACH
35365	0634 00 1 35366	ETM3A	SXA ++1,1	CONDITIONAL
35366	0021 00 0 00000		TTR	TRANSFER
35367	0500 00 0 00000		CLA	CLEAR ACC
35370	0100 00 2 77777		TZE -1,2	SHOULD TRAP
35371	0021 00 2 77777		TTR -1,2	FAILED TO TRAP
35372	0760 00 0 00003		SSP	SET ACC SIGN PLUS
35373	0120 00 2 77777		TPL -1,2	SHOULD TRAP
35374	0021 00 2 77777		TTR -1,2	FAILED TO TRAP
35375	0767 00 0 00045		ALS 37	ACC OVERFLOW LITE ON
35376	0140 00 2 77777		TOV -1,2	SHOULD TRAP
35377	0021 00 2 77777		TTR -1,2	FAILED TO TRAP

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CHECK CONDITIONAL TRANSFERS WITH CONDITION MET

35400	0761	00	0	00000	NOP	
35401	-0140	00	2	77777	TNO -1,2	SHOULD TRAP
35402	0021	00	2	77777	TTR -1,2	FAILED TO TRAP
35403	0560	00	0	37401	LDQ ONES	MQ -377777777777
35404	0040	00	2	77777	TLQ -1,2	SHOULD TRAP
35405	0021	00	2	77777	TTR -1,2	FAILED TO TRAP
35406	-0760	00	0	00003	SSM	SET ACC SIGN MINUS
35407	-0120	00	2	77777	TMI -1,2	SHOULD TRAP
35410	0021	00	2	77777	TTR -1,2	FAILED TO TRAP
35411	0761	00	0	00000	NOP	
35412	-0100	00	2	77777	TNZ -1,2	SHOULD TRAP
35413	0021	00	2	77777	TTR -1,2	FAILED TO TRAP
35414	0560	00	0	37362	LDQ PZE	MQ +0
35415	0162	00	2	77777	TQP -1,2	SHOULD TRAP
35416	0021	00	2	77777	TTR -1,2	FAILED TO TRAP
35417	-0760	00	0	00007	LTM	INDICATE
35420	0074	00	4	00104	ETM3B TSX ERROR-1,4	NO TRAP
35421	0020	00	0	35350	TRA ETM3	ERROR
35422	0500	00	0	00000	CLA	CHECK ETM CONDITIONAL
35423	0340	00	0	40015	CAS TEMP	TRANSFER EXECUTION
35424	0021	00	0	35426	TTR **2	ERROR
35425	0021	00	0	35432	TTR **5	OK
35426	-0760	00	0	00007	LTM	LEAVE TRAP MODE
35427	0560	00	0	40015	LDQ TEMP	CORRECT VALUE FOR LOC 00000
35430	0074	00	4	00104	TSX ERROR-1,4	ERROR IN LOC 00000 VALUE
35431	0020	00	0	35350	TRA ETM3	
35432	0021	00	0	35355	TTR ETM3+5	CHECK EACH CONDITIONAL TRA
35433	0074	00	4	00106	ETM3C TSX OK,4	
35434	0020	00	0	35350	TRA ETM3	

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CHECK CONDITIONAL INDEX TRANSFERS WITH CONDITION MET

35435	256344606060		BCD 1ETM	
35436	0074 00 4 35201	ETM4	TSX ETM+1,4	INITIALIZE LOCATION 00001
35437	0774 00 1 35452		AXT ETM4A,1	LOC ADR TO XRA
35440	-0774 00 2 35462		AXC ETM4B,2	LOC 2-S COMPLEMENT TO XRB
35441	0600 00 0 40015		STZ TEMP	CLEAR LOCATION
35442	0020 00 0 35445		TRA **3	PROCEED
35443	-0760 00 0 00007		LTM	LEAVE TRAP MODE
35444	0534 00 1 40015		LXA TEMP,1	SET CORRECT
35445	1 00002 1 35446		TXI **1,1,2	XRA VALUE
35446	3 35462 1 35521		TXH ETM4D,1,ETM4B	FINISHED AFTER TSX TEST
35447	0760 00 0 00007		ETM	ENTER TRAP MODE
35450	0600 00 0 00000		STZ	CLEAR LOC 00000
35451	0634 00 1 40015		SXA TEMP,1	SAVE XRA
35452	0634 00 1 35453	ETM4A	SXA **1,1	IN LOCATIONS
35453	0021 00 0 00000		TTR	CHECK CONDITIONAL TRANSFERS
35454	3 35453 1 35515		TXH ETM4C,1,*-1	SHOULD TRAP
35455	0021 00 0 35515		TTR ETM4C	FAILED TO TRAP
35456	-3 35456 1 35515		TXL ETM4C,1,*	SHOULD TRAP
35457	0021 00 0 35515		TTR ETM4C	FAILED TO TRAP
35460	2 00000 1 35515		TIX ETM4C,1,0	SHOULD TRAP
35461	0021 00 0 35515		TTR ETM4C	FAILED TO TRAP
35462	0074 00 2 35515	ETM4B	TSX ETM4C,2	SHOULD TRAP
35463	0021 00 0 35515		TTR ETM4C	FAILED TO TRAP
35464	0500 00 0 00000		CLA	CHECK ETM CONDITIONAL
35465	0340 00 0 40015		CAS TEMP	TRANSFER EXECUTION
35466	0021 00 0 35470		TTR **2	ERROR
35467	0021 00 0 35474		TTR **5	OK
35470	-0760 00 0 00007		LTM	LEAVE TRAP MODE
35471	0560 00 0 40015		LDQ TEMP	CORRECT VALUE FOR LOC 00000
35472	0074 00 4 00104		TSX ERROR-1,4	ERROR IN LOC 00000 VALUE
35473	0020 00 0 35436		TRA ETM4	

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CHECK CONDITIONAL INDEX TRANSFERS WITH CONDITION MET

35474	0754	00	1	00000	PXA 0,1	XRA CONTENTS TO
35475	0340	00	0	40015	CAS TEMP	ACCUMULATOR
35476	0021	00	0	35500	TTR *+2	ERROR
35477	0021	00	0	35504	TTR *+5	OK
35500	-0760	00	0	00007	LTM	LEAVE TRAP MODE
35501	0560	00	0	40015	LDQ TEMP	CORRECT XRA VALUE
35502	0074	00	4	00104	TSX ERROR-1,4	ERROR IN XRA
35503	0020	00	0	35436	TRA ETM4	
35504	0754	00	2	00000	PXA 0,2	XRB CONTENTS TO
35505	0340	00	0	37450	CAS CKXR2	ACCUMULATOR
35506	0021	00	0	35510	TTR *+2	ERROR
35507	0021	00	0	35514	TTR *+5	OK
35510	-0760	00	0	00007	LTM	LEAVE TRAP MODE
35511	0560	00	0	37450	LDQ CKXR2	CORRECT XRB CONTENTS
35512	0074	00	4	00104	TSX ERROR-1,4	ERROR IN XRB
35513	0020	00	0	35436	TRA ETM4	
35514	0021	00	0	35443	TTR ETM4+5	CHECK EACH CONDITIONAL TRA
35515	-0760	00	0	00007	ETM4C LTM	INDICATE
35516	0074	00	4	00104	TSX ERROR-1,4	NO TRAP
35517	0020	00	0	35436	TRA ETM4	ERROR
35520	0020	00	0	35444	TRA ETM4+6	CHECK EACH CONDITIONAL TRA
35521	0074	00	4	00106	ETM4D TSX OK,4	
35522	0020	00	0	35436	TRA ETM4	

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CHECK STR STORES PROGRAM COUNTER IN LOC 00000 AND TRAPS TO LOC 00002

35523	626351606060		BCD 1STR	
35524	0500 00 0 37401	STR	CLA ONES	-377777777777 IN
35525	0601 00 0 00000		STO	LOCATION 00000
35526	0500 00 0 37444		CLA STRS1	TTR -7,2 IN
35527	0601 00 0 00001		STO 1	LOCATION 00001
35530	0500 00 0 37445		CLA STRS2	TTR 2,2 IN
35531	0601 00 0 00002		STO 2	LOCATION 00002
35532	0500 00 0 37446		CLA STRS3	TRA -3,2 IN
35533	0601 00 0 00010		STO 8	LOCATION 00010
35534	-0774 00 2 35551		AXC STR2,2	LOC 2-S COMPLEMENT IN XRB
35535	0774 00 1 77777		AXT -1,1	77777 IN XRA
35536	-1 00001 1 35551		STR STR2,1,1	STORE AND TRAP
35537	0074 00 4 00104	STR1	TSX ERROR-1,4	FAILED TO TRAP
35540	0020 00 0 35524		TRA STR	TO LOCATION 00002
35541	0020 00 2 00002		TRA 2,2	PROCEED
35542	-0760 00 0 00007		LTM	JUST IN CASE
35543	0074 00 4 00104		TSX ERROR-1,4	TRAPPED IN ERROR
35544	0020 00 0 35524		TRA STR	TO LOCATION 00001
35545	0020 00 2 00002		TRA 2,2	PROCEED
35546	0074 00 4 00104		TSX ERROR-1,4	TRAPPED IN ERROR
35547	0020 00 0 35524		TRA STR	TO LOCATION 00010
35550	0020 00 2 00002		TRA 2,2	PROCEED
35551	0074 00 4 00104	STR2	TSX ERROR-1,4	TRA IN ERROR FROM
35552	0020 00 0 35524		TRA STR	STR INSTRUCTION

CHECK CONTENTS OF LOCATION 00000

35553	0500 00 0 00000	CLA	CONTENTS OF LOCATION 00000
35554	0340 00 0 37447	CAS STRS4	CHECK ONLY ADDRESS CHANGE
35555	0020 00 0 35557	TRA **2	ERROR
35556	0020 00 0 35562	TRA **4	OK
35557	0560 00 0 37447	LDQ STRS4	CORRECT VALUE FOR LOC 00000
35560	0074 00 4 00104	TSX ERROR-1,4	ERROR IN LOC 00000 CONTENTS
35561	0020 00 0 35524	TRA STR	

CHECK CONTENTS OF XRA

35562	3 77776 1 35570	TXH **6,1,-2	CHECK XRA UNCHANGED
35563	0774 00 4 77777	AXT -1,4	VALUES
35564	0754 00 4 00000	PXA 0,4	IN
35565	0131 00 0 00000	XCA	ACC
35566	0754 00 1 00000	PXA 0,1	AND
35567	0074 00 4 00105	TSX ERROR,4	MQ
35570	0074 00 4 00106	TSX OK,4	
35571	0020 00 0 35524	TRA STR	

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CHECK STR IN TRAP MODE

35572	626351606060		BCD 1STR	
35573	0760 00 0 00007	STR3	ETM	ENTER TRAP MODE
35574	-0774 00 2 35606		AXC STR4,2	LOC 2-S COMPLEMENT IN XRB
35575	-1 00000 0 00000		STR	STORE AND TRAP
35576	0021 00 2 77777		TTR -1,2	FAILED TO TRAP TO LOC 00002
35577	-0760 00 0 00007		LTM	TRAPPED TO LOCATION
35600	0074 00 4 00104		TSX ERROR-1,4	00001 IN ERROR
35601	0020 00 0 35573		TRA STR3	
35602	0020 00 2 00002		TRA 2,2	PROCEED
35603	0761 00 0 00000		NOP	DUMMY
35604	0761 00 0 00000		NOP	INSTRUCTIONS
35605	-0760 00 0 00007		LTM	FAILED TO TRAP
35606	0074 00 4 00104	STR4	TSX ERROR-1,4	TO LOCATION 00002
35607	0020 00 0 35573		TRA STR3	
35610	-0760 00 0 00007		LTM	OK IF RETURNED HERE
35611	0500 00 0 40011		CLA KONE	RESTORE
35612	0601 00 0 00000		STO	LOCATION ZERO
35613	0500 00 0 40012		CLA KTW0	RESTORE LOCATION TWO
35614	0601 00 0 00002		STO 2	
35615	0074 00 4 00106		TSX OK,4	FROM LOCATION 00002
35616	0020 00 0 35573		TRA STR3	

CHECK XEC EXECUTION BLOCKS PROGRAM COUNTER ADVANCE

35617	672523606060		BCD 1XEC	
35620	0500 00 0 37362	XEC	CLA PZE	MAKE ACC +0
35621	0522 00 0 35622		XEC **1	MAKE ACC
35622	0400 00 0 37364		ADD ONE	A +2
35623	0340 00 0 37366		CAS TWO	CHECK XEC EXECUTION
35624	0020 00 0 35626		TRA **2	ERROR
35625	0020 00 0 35630		TRA **3	OK, ACC +2
35626	0560 00 0 37366		LDQ TWO	CORRECT ACC VALUE
35627	0074 00 4 00105		TSX ERROR,4	ACC NOT +2
35630	0074 00 4 00106		TSX OK,4	
35631	0020 00 0 35620		TRA XEC	

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CHECK XEC TO TRA INSTRUCTION ALTERS PROGRAM COUNTER

35632	672523606060		BCD I XEC	
35633	0500 00 0 37362	XEC1	CLA PZE	MAKE +0
35634	0522 00 0 35636		XEC **2	XEC TO A TRA
35635	0400 00 0 37364		ADD ONE	NEVER EXECUTE INSTRUCTION
35636	0020 00 0 35637		TRA **1	PROCEED ON EXECUTION
35637	0340 00 0 37362		CAS PZE	CHECK XEC EXECUTION
35640	0020 00 0 35642		TRA **2	ERROR
35641	0020 00 0 35644		TRA **3	OK, ACC +0
35642	0560 00 0 37362		LDQ PZE	CORRECT ACC VALUE AFTER XEC
35643	0074 00 4 00105		TSX ERROR,4	ERROR IN ACC
35644	0074 00 4 00106		TSX OK,4	
35645	0020 00 0 35633		TRA XEC1	

CHECK XEC TO A TEST INSTRUCTION

35646	672523606060		BCD I XEC	
35647	0500 00 0 37401	XEC2	CLA ONES	ACC -377777777777
35650	0020 00 0 35657		TRA XEC2A	PROCEED TO XEC
35651	0340 00 0 37401		CAS ONES	CHECK XEC EXECUTION
35652	0761 00 0 00000		NOP	FAILED TO PROCEED
35653	0761 00 0 00000		NOP	RELATIVE TO THE
35654	0074 00 4 00104		TSX ERROR-1,4	XEC INSTRUCTION
35655	0020 00 0 35647		TRA XEC2	
35656	0020 00 0 35664		TRA XEC2A+5	
35657	0522 00 0 35651	XEC2A	XEC XEC2+2	XEC TO CAS
35660	0020 00 0 35662		TRA **2	ERROR
35661	0020 00 0 35664		TRA **3	COMPARE AND RETURN OK
35662	0560 00 0 37401		LDQ ONES	ERROR IN
35663	0074 00 4 00105		TSX ERROR,4	COMPARISON
35664	0074 00 4 00106		TSX OK,4	
35665	0020 00 0 35647		TRA XEC2	

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CHECK XEC WITH VARIOUS INDEXING INSTRUCTIONS

35666	672523606060	BCD 1XEC	
35667	0774 00 1 00000	XEC3	AXT 0,1 CLEAR XRA
35670	0522 00 0 35674	XEC	XEC3A XEC TO TXI
35671	0074 00 4 00104	TSX	ERROR-1,4 ERROR RETURN
35672	0020 00 0 35667	TRA	XEC3 FROM XEC3A
35673	0020 00 0 35701	TRA	XEC3B PROCEED
35674	1 00001 1 35702	XEC3A	TXI XEC3B+1,1,1 ADVANCE PROGRAM COUNTER
35675	0074 00 4 00104	TSX	ERROR-1,4 FAILED TO TRANSFER WITH
35676	0020 00 0 35667	TRA	XEC3 UNCONDITIONAL TRANSFER
35677	0020 00 0 35702	TRA	XEC3B+1 PROCEED
35700	672523606060	BCD 1XEC	
35701	0774 00 1 00001	XEC3B	AXT 1,1 1 IN XRA
35702	0522 00 0 35704	XEC	XEC3C XEC TO TXL
35703	0020 00 0 35715	TRA	XEC3E+1 OK
35704	-3 00000 1 35710	XEC3C	TXL XEC3D,1,0 NO PROGRAM COUNTER ADVANCE
35705	0074 00 4 00104	TSX	ERROR-1,4 DID NOT RETURN TO XEC3B+2
35706	0020 00 0 35701	TRA	XEC3B WITH CONDITION NOT MET
35707	0020 00 0 35715	TRA	XEC3E+1 PROCEED
35710	0074 00 4 00104	XEC3D	TSX ERROR-1,4 TRA IN ERROR FROM XEC3C
35711	0020 00 0 35701	TRA	XEC3B WITH CONDITION NOT MET
35712	0020 00 0 35715	TRA	XEC3E+1 PROCEED
35713	672523606060	BCD 1XEC	
35714	0774 00 1 00001	XEC3E	AXT 1,1 1 IN XRA
35715	0522 00 0 35721	XEC	XEC3F XEC TO TXL
35716	0074 00 4 00104	TSX	ERROR-1,4 RETURNED FROM XEC3F
35717	0020 00 0 35714	TRA	XEC3E WITH CONDITION MET
35720	0020 00 0 35727	TRA	XEC3G+1 PROCEED
35721	-3 00001 1 35727	XEC3F	TXL XEC3G+1,1,1 ADVANCE PROGRAM COUNTER
35722	0074 00 4 00104	TSX	ERROR-1,4 FAILED TO TRANSFER
35723	0020 00 0 35714	TRA	XEC3E WITH CONDITION MET
35724	0020 00 0 35727	TRA	XEC3G+1 PROCEED
35725	672523606060	BCD 1XEC	
35726	0774 00 1 00001	XEC3G	AXT 1,1 1 IN XRA
35727	0522 00 0 35733	XEC	XEC3H XEC TO TXH
35730	0074 00 4 00104	TSX	ERROR-1,4 RETURNED FROM XEC3H
35731	0020 00 0 35726	TRA	XEC3G WITH CONDITION MET
35732	0020 00 0 35741	TRA	XEC3I+1 PROCEED

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35733	3 00000 1 35741	XEC3H	TXH XEC3I+1,1,0 ADVANCE PROGRAM COUNTER
35734	0074 00 4 00104		TSX ERROR-1,4 FAILED TO TRANSFER
35735	0020 00 0 35726		TRA XEC3G WITH CONDITION MET
35736	0020 00 0 35741		TRA XEC3I+1 PROCEED
35737	672523606060		BCD 1XEC
35740	0774 00 1 00001	XEC3I	AXT 1,1 1 IN XRA
35741	0522 00 0 35743		XEC XEC3J XEC TO TXH
35742	0020 00 0 35754		TRA XEC3L+1 OK
35743	3 00001 1 35747	XEC3J	TXH XEC3K,1,1 NO PROGRAM COUNTER ADVANCE
35744	0074 00 4 00104		TSX ERROR-1,4 DID NOT RETURN TO XEC3I+2
35745	0020 00 0 35740		TRA XEC3I WITH CONDITION NOT MET
35746	0020 00 0 35754		TRA XEC3L+1 PROCEED
35747	0074 00 4 00104	XEC3K	TSX ERROR-1,4 TRA IN ERROR FROM XEC3J
35750	0020 00 0 35740		TRA XEC3I WITH CONDITION MET
35751	0020 00 0 35754		TRA XEC3L+1 PROCEED
35752	672523606060		BCD 1XEC
35753	0774 00 1 00001	XEC3L	AXT 1,1 1 IN XRA
35754	0522 00 0 35760		XEC XEC3M XEC TO TIX
35755	0074 00 4 00104		TSX ERROR-1,4 RETURNED FROM XEC3M
35756	0020 00 0 35753		TRA XEC3L WITH CONDITION MET
35757	0020 00 0 35766		TRA XEC3N+1 PROCEED
35760	2 00000 1 35766	XEC3M	TIX XEC3N+1,1,0 ADVANCE PROGRAM COUNTER
35761	0074 00 4 00104		TSX ERROR-1,4 FAILED TO TRANSFER
35762	0020 00 0 35753		TRA XEC3L WITH CONDITION MET
35763	0020 00 0 35766		TRA XEC3N+1 PROCEED
35764	672523606060		BCD 1XEC
35765	0774 00 1 00001	XEC3N	AXT 1,1 1 IN XRA
35766	0522 00 0 35770		XEC XEC3O XEC TO TIX
35767	0020 00 0 36000		TRA XEC3Q OK
35770	2 00001 1 35774	XEC3O	TIX XEC3P,1,1 NO PROGRAM COUNTER ADVANCE
35771	0074 00 4 00104		TSX ERROR-1,4 DID NOT RETURN TO XEC3N+2
35772	0020 00 0 35765		TRA XEC3N WITH CONDITION NOT MET
35773	0020 00 0 36000		TRA XEC3Q PROCEED
35774	0074 00 4 00104	XEC3P	TSX ERROR-1,4 TRANSFER IN ERROR FROM XEC3O
35775	0020 00 0 35765		TRA XEC3N WITH CONDITION NOT MET
35776	0020 00 0 36000		TRA XEC3Q PROCEED

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35777	672523606060	BCD 1XEC	
36000	0600 00 0 40015	XEC3Q STZ TEMP	CLEAR LOCATION
36001	0500 00 0 37443	CLA RITNO	CORRECT VALUE FOR CHECKING
36002	0020 00 0 36004	TRA XEC3T	PROCEED
36003	672523606060	BCD 1XEC	
36004	0522 00 0 36010	XEC3T XEC XEC3R	XEC TO TSX
36005	0074 00 4 00104	TSX ERROR-1,4	ERROR RETURN
36006	0020 00 0 36000	TRA XEC3Q	FROM XEC3R
36007	0020 00 0 36013	TRA XEC3S	PROCEED
36010	0074 00 1 36013	XEC3R TSX XEC3S,1	ADVANCE PROGRAM COUNTER
36011	0074 00 4 00104	TSX ERROR-1,4	FAILED TO TRANSFER WITH
36012	0020 00 0 36000	TRA XEC3Q	UNCONDITIONAL TRANSFER
36013	0601 00 0 40015	XEC3S STO TEMP	SAVE ACC VALUE
36014	0754 00 1 00000	PXA 0,1	CHECK XEC TO
36015	0340 00 0 40015	CAS TEMP	TSX INSTRUCTION
36016	0020 00 0 36020	TRA **2	ERROR
36017	0020 00 0 36023	TRA **4	OK
36020	0560 00 0 40015	LDQ TEMP	CORRECT XRA VALUE
36021	0074 00 4 00104	TSX ERROR-1,4	ERROR WITH XEC TO TSX
36022	0020 00 0 36000	TRA XEC3Q	
36023	0074 00 4 00106	TSX OK,4	
36024	0020 00 0 35667	TRA XEC3	

CHECK SUCCESSIVE INDEXED XEC-S

36025	672523606060	BCD 1XEC	
36026	0774 00 1 00005	XEC4 AXT 5,1	5 IN XRA
36027	0500 00 0 37364	CLA ONE	ACC +1
36030	0522 00 1 36036	XEC **6,1	PERFORM
36031	0522 00 1 36037	XEC **6,1	SUCCESSIVE
36032	0522 00 1 36040	XEC **6,1	INDEXED
36033	0522 00 1 36041	XEC **6,1	EXECUTES
36034	0522 00 1 36042	XEC **6,1	INCREMENTING
36035	0400 00 0 37364	ADD ONE	ACCUMULATOR
36036	0340 00 0 37373	CAS SVN	CHECK XEC EXECUTION
36037	0020 00 0 36041	TRA **2	ERROR
36040	0020 00 0 36043	TRA **3	OK
36041	0560 00 0 37373	LDQ SVN	CORRECT ACC VALUE
36042	0074 00 4 00105	TSX ERROR,4	ERROR WITH SUCCESSIVE XEC-S
36043	0074 00 4 00106	TSX OK,4	
36044	0020 00 0 36026	TRA XEC4	

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COMPLETE TESTING SENSE LIGHTS

TEST REACTION OF SENSE LIGHTS TO INVALID INSTRUCTIONS

36045 624363606060
36046 0760 00 0 00140
36047 0760 00 0 00101
36050 0761 00 0 00000
36051 -0760 00 0 00141
36052 0020 00 0 36054

BCD 1SLT
SLF
PSE 65
NOP
SLT 1
TRA **2

RESET SENSE LIGHTS
SHOULD ACT AS NOP

TEST LIGHT ONE

36053 0074 00 4 00105
36054 0074 00 4 00106
36055 0020 00 0 36046

TSX ERROR,4
TSX OK,4
TRA *-7

TROUBLE WITH OP PANEL
CLASS ADDRESS DECODING
REPEAT THIS TEST

36056 624363606060
36057 0760 00 0 00140
36060 0760 00 0 00041
36061 0761 00 0 00000

BCD 1SLT
SLF
PSE 33
NOP

RESET SENSE LIGHTS
SHOULD ACT AS NOP
JUST IN CASE

36062 -0760 00 0 00141
36063 0020 00 0 36065
36064 0074 00 4 00105
36065 0074 00 4 00106
36066 0020 00 0 36057

SLT 1
TRA **2
TSX ERROR,4
TSX OK,4
TRA *-7

SHOULD BE OFF

TROUBLE WITH OP PANEL
CLASS ADDRESS DECODING
REPEAT THIS TEST

36067 624363606060
36070 0760 00 0 00140
36071 -0625 00 0 00000
36072 0760 00 0 00341
36073 0761 00 0 00000
36074 -0760 00 0 00141
36075 0020 00 0 36077
36076 0074 00 4 00105
36077 0074 00 4 00106
36100 0020 00 0 36070

BCD 1SLT
SLF
STL 0
PSE 225
NOP
SLT 1
TRA **2
TSX ERROR,4
TSX OK,4
TRA *-8

IN CASE OF OUT-OF-CONTROL
SHOULD ACT AS NOP

TROUBLE DECODING OP PANEL
CLASS ADDRESS

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TEST THAT SENSE LIGHT ONE IS NOT INADVERTENTLY SET

36101	624363606060	BCD	1SLT	
36102	0760 00 0 00140	SLF		RESET SENSE LIGHTS
36103	0760 00 0 00145	SLN	5	
36104	-0760 00 0 00141	SLT	1	SHOULD NOT SKIP
36105	0020 00 0 36107	TRA	*+2	
36106	0074 00 4 00105	TSX	ERROR, 4	TROUBLE WITH UA 01
36107	0074 00 4 00106	TSX	OK, 4	
36110	0020 00 0 36102	TRA	*-6	REPEAT THIS TEST

36111	624363606060	BCD	1SLT	
36112	0760 00 0 00140	SLF		RESET SENSE LIGHTS
36113	0760 00 0 00001	LBT		SHOULD NOT AFFECT LIGHT 1
36114	0761 00 0 00000	NOP		
36115	-0760 00 0 00141	SLT	1	SHOULD BE OFF
36116	0020 00 0 36120	TRA	*+2	
36117	0074 00 4 00105	TSX	ERROR, 4	LBT SETS SENSE LIGHT ONE
36120	0074 00 4 00106	TSX	OK, 4	
36121	0020 00 0 36112	TRA	*-7	REPEAT THIS TEST

TEST THAT SENSE LIGHT ONE IS NOT INADVERTENTLY RESET

36122	624363606060	BCD	1SLT	
36123	0760 00 0 00140	SLF		RESET SENSE LIGHTS
36124	0760 00 0 00141	SLN	1	SET LIGHT ONE
36125	-0760 00 0 00143	SLT	3	SHOULD NOT SKIP
36126	-0760 00 0 00141	SLT	1	SHOULD SKIP
36127	0074 00 4 00105	TSX	ERROR, 4	TROUBLE DECODING UA 01
36130	0074 00 4 00106	TSX	OK, 4	
36131	0020 00 0 36123	TRA	*-6	REPEAT THIS TEST

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TEST THAT SENSE LIGHT TWO IS NOT INADVERTENTLY SET

36132	624345606060	BCD 1SLN	
36133	0760 00 0 00140	SLF	RESET SENSE LIGHTS
36134	0760 00 0 00146	SLN 6	
36135	-0760 00 0 00142	SLT 2	SHOULD NOT SKIP
36136	0020 00 0 36140	TRA **2	
36137	0074 00 4 00105	TSX ERROR, 4	TROUBLE DECODING UA 02
36140	0074 00 4 00106	TSX OK, 4	
36141	0020 00 0 36133	TRA *-6	

TEST THAT SENSE LIGHT TWO IS NOT INADVERTENTLY SET

36142	624345606060	BCD 1SLN	
36143	0760 00 0 00140	SLF	RESET SENSE LIGHTS
36144	0760 00 0 00143	SLN 3	
36145	-0760 00 0 00142	SLT 2	SHOULD NOT SKIP
36146	0020 00 0 36150	TRA **2	
36147	0074 00 4 00105	TSX ERROR, 4	TROUBLE DECODING UA 02
36150	0074 00 4 00106	TSX OK, 4	
36151	0020 00 0 36143	TRA *-6	REPEAT THIS TEST

TEST THAT SENSE LIGHT TWO IS NOT INADVERTENTLY RESET

36152	624363606060	BCD 1SLT	
36153	0760 00 0 00142	SLN 2	SET LIGHT 2
36154	-0760 00 0 00143	SLT 3	
36155	0761 00 0 00000	NOP	
36156	-0760 00 0 00142	SLT 2	SHOULD SKIP
36157	0074 00 4 00105	TSX ERROR, 4	
36160	0074 00 4 00106	TSX OK, 4	
36161	0020 00 0 36153	TRA *-6	REPEAT THIS TEST

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TEST THAT SENSE LIGHT THREE IS NOT INADVERTENTLY SET

36162	624345606060	BCD	1SLN	
36163	0760 00 0 00140	SLF		RESET SENSE LIGHTS
36164	0760 00 0 00147	SLN	7	SHOULD NOT AFFECT LIGHT 3
36165	-0760 00 0 00143	SLT	3	
36166	0020 00 0 36170	TRA	**2	
36167	0074 00 4 00105	TSX	ERROR,4	TROUBLE DECODING UA 03
36170	0074 00 4 00106	TSX	OK,4	
36171	0020 00 0 36163	TRA	*-6	REPEAT THIS TEST

36172	624345606060	BCD	1SLN	
36173	0760 00 0 00140	SLF		RESET SENSE LIGHTS
36174	0760 00 0 00142	SLN	2	SHOULD NOT AFFECT LIGHT 3
36175	-0760 00 0 00143	SLT	3	
36176	0020 00 0 36200	TRA	**2	
36177	0074 00 4 00105	TSX	ERROR,4	TROUBLE DECODING UA 03
36200	0074 00 4 00106	TSX	OK,4	
36201	0020 00 0 36173	TRA	*-6	REPEAT THIS TEST

TEST THAT LIGHT THREE IS NOT INADVERTENTLY RESET

36202	624363606060	BCD	1SLT	
36203	0760 00 0 00143	SLN	3	SET LIGHT 3
36204	-0760 00 0 00142	SLT	2	
36205	0761 00 0 00000	NOP		LIGHT 3 SHOULD REMAIN ON
36206	-0760 00 0 00143	SLT	3	
36207	0074 00 4 00105	TSX	ERROR,4	TEST LIGHT TWO RESETS
36210	0074 00 4 00106	TSX	OK,4	LIGHT THREE
36211	0020 00 0 36203	TRA	*-6	REPEAT THIS TEST

TEST THAT LIGHT FOUR IS NOT INADVERTENTLY SET

36212	624345606060	BCD	1SLN	
36213	0760 00 0 00140	SLF		RESET SENSE LIGHTS
36214	0760 00 0 00146	SLN	6	
36215	-0760 00 0 00144	SLT	4	LIGHT FOUR SHOULD BE OFF
36216	0020 00 0 36220	TRA	**2	
36217	0074 00 4 00105	TSX	ERROR,4	TROUBLE DECODING UA 04
36220	0074 00 4 00106	TSX	OK,4	
36221	0020 00 0 36213	TRA	*-6	REPEAT THIS TEST

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TEST THAT LIGHT FOUR IS NOT INADVERTENTLY SET

36222 624345606060
36223 0760 00 0 00140
36224 0760 00 0 00145
36225 -0760 00 0 00144
36226 0020 00 0 36230
36227 0074 00 4 00105
36230 0074 00 4 00106
36231 0020 00 0 36223

BCD 1SLN
SLF
SLN 5
SLT 4
TRA *+2
TSX ERROR, 4
TSX OK, 4
TRA *-6

RESET SENSE LIGHTS

TROUBLE DECODING UA 04

REPEAT THIS TEST

TEST THAT LIGHT FOUR IS NOT INADVERTENTLY RESET

36232 624363606060
36233 0760 00 0 00144
36234 -0760 00 0 00145
36235 0761 00 0 00000
36236 -0760 00 0 00144
36237 0074 00 4 00105
36240 0074 00 4 00106
36241 0020 00 0 36233

BCD 1SLT
SLN 4
SLT 5
NOP
SLT 4
TSX ERROR, 4
TSX OK, 4
TRA *-6

SET LIGHT FOUR

SHOULD SKIP

REPEAT THIS TEST

TEST THAT SLN 3 IS NOT DECODED AS SSP

36242 624345626247
36243 -0760 00 0 00003
36244 0760 00 0 00143
36245 -0120 00 0 36247
36246 0074 00 4 00105
36247 0074 00 4 00106
36250 0020 00 0 36243

BCD 1SLNSSP
SSM
SLN 3
TMI *+2
TSX ERROR, 4
TSX OK, 4
TRA *-5

SET AC SIGN MINUS

SHOULD TRANSFER

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TEST INDIRECT ADDRESSING

TEST THAT IA TRIGGER IS PROPERLY RESET

36251	0761	00	0	36252	NOP	++1	WASTE INSTRUCTION
36252	0500	60	0	37770	CLA*	BZERO	
36253	0020	00	0	36254	TRA	++1	SHOULD NOT IA
36254	0761	00	0	36256	NOP	++2	
36255	0020	00	0	36257	TRA	++2	
36256	0000	00	0	36251	HTR	*-5	IA TRIGGER STAYS ON
36257	0074	00	4	00106	TSX	OK, 4	
36260	0020	00	0	36252	TRA	*-6	REPEAT THIS TEST

TEST THAT CLA, INDIRECTLY ADDRESSED, DOES NOT LOAD AC WITH C LOC 00000

36261	312160606060				BCD	1IA	
36262	0500	60	0	36264	CLA*	++2	
36263	0340	00	0	00000	CAS	0	SHOULD NOT BE EQUAL
36264	0020	00	0	36266	TRA	++2	
36265	0074	00	4	00105	TSX	ERROR, 4	CLA WITH IA FAILS
36266	0074	00	4	00106	TSX	OK, 4	
36267	0020	00	0	36262	TRA	*-5	REPEAT THIS TEST

TEST THAT AN INDIRECTLY ADDRESSED CLA DOES NOT LOAD AC FROM THE INDIRECT ADDRESS

36270	312160606060				BCD	1IA	
36271	0500	60	0	36273	CLA*	++2	
36272	0340	00	0	36273	CAS	++1	SHOULD NOT BE EQUAL
36273	0020	00	0	36275	TRA	++2	
36274	0074	00	4	00105	TSX	ERROR, 4	
36275	0074	00	4	00106	TSX	OK, 4	
36276	0020	00	0	36271	TRA	*-5	REPEAT THIS TEST

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TEST THAT AN INDIRECTLY ADDRESSED CLA IS PROPERLY EXECUTED

36277	312160606060	BCD 11A	
36300	0500 60 0 36302	CLA* **2	
36301	0340 00 0 36304	CAS **3	SHOULD BE EQUAL
36302	0020 00 0 36304	TRA **2	
36303	0020 00 0 36305	TRA **2	
36304	0074 00 4 00105	TSX ERROR, 4	INDIRECT ADDRESSING FAILS
36305	0074 00 4 00106	TSX OK, 4	
36306	0020 00 0 36300	TRA *-6	REPEAT THIS TEST

TEST THAT AN INDIRECTLY ADDRESSED NZT IS PROPERLY EXECUTED

36307	312160606060	BCD 11A	
36310	0520 60 0 36313	NZT* **3	SHOULD NOT SKIP
36311	0020 00 0 36315	TRA **4	
36312	0020 00 0 36314	TRA **2	
36313	0340 00 0 37770	CAS BZERO	THIS IS A CONSTANT
36314	0074 00 4 00105	TSX ERROR, 4	
36315	0074 00 4 00106	TSX OK, 4	
36316	0020 00 0 36310	TRA *-6	REPEAT THIS TEST

DOES AN INDIRECTLY ADDRESSED STO INSTRUCTION MODIFY
THE CONTENTS OF THE INDIRECT ADDRESS

36317	312160606060	BCD 11A	
36320	0500 00 0 37774	CLA B21T35	+000000077777
36321	0601 00 0 40013	STO T1	
36322	0500 00 0 36321	CLA *-1	
36323	0601 60 0 40013	STO* T1	STORE AT LOCATION 77777
36324	0500 00 0 40013	CLA T1	
36325	0560 00 0 37774	LDQ B21T35	
36326	0340 00 0 37774	CAS B21T35	SHOULD COMPARE EQUAL
36327	0020 00 0 36331	TRA **2	GO TO ERROR
36330	0020 00 0 36332	TRA **2	GO TO OK
36331	0074 00 4 00105	TSX ERROR, 4	
36332	0074 00 4 00106	TSX OK, 4	
36333	0020 00 0 36320	TRA *-11	

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TEST THAT AN INDIRECTLY ADDRESSED STO IS PROPERLY EXECUTED

36334	312160606060	BCD	11A	
36335	0600 00 0 40013	STZ	T1	
36336	0500 00 0 36335	CLA	*-1	LOAD AC WITH STZ INST
36337	0601 00 0 40014	STO	T2	SET UP INDIRECT ADDRESS
36340	0500 00 0 36340	CLA	*	CLA ITSELF
36341	0601 60 0 40014	STO*	T2	
36342	0500 00 0 40013	CLA	T1	
36343	0340 00 0 36340	CAS	*-3	SHOULD COMPARE EQUAL
36344	0020 00 0 36346	TRA	*+2	GO TO ERROR
36345	0020 00 0 36347	TRA	*+2	GO TO OK
36346	0074 00 4 00105	TSX	ERROR,4	
36347	0074 00 4 00106	TSX	OK,4	
36350	0020 00 0 36335	TRA	*-11	REPEAT THIS TEST

TEST THAT AN INDIRECTLY ADDRESSED ORA INSTRUCTION IS PROPERLY EXECUTED

36351	312160606060	BCD	11A	
36352	0500 00 0 37770	CLA	BZERO	OR ZEROS TO ZEROS
36353	-0501 60 0 36352	ORA*	*-1	
36354	0100 00 0 36356	TZE	*+2	
36355	0074 00 4 00105	TSX	ERROR,4	ORA WITH IA FAILS
36356	0074 00 4 00106	TSX	OK,4	
36357	0020 00 0 36352	TRA	*-5	REPEAT THIS TEST

TEST THAT AN INDIRECTLY ADDRESSED MPY IS PROPERLY EXECUTED

36360	312160606060	BCD	11A	
36361	0560 00 0 40003	LDQ	B6A7	+006000000000
36362	0200 60 0 36361	MPY*	*-1	SQUARE 6000000000
36363	0340 00 0 37777	CAS	B11A14	SHOULD COMPARE EQUAL
36364	0020 00 0 36366	TRA	*+2	GO TO ERROR
36365	0020 00 0 36370	TRA	*+3	
36366	0074 00 4 00104	TSX	ERROR-1,4	WRONG PRODUCT IN AC
36367	0020 00 0 36361	TRA	*-6	
36370	-0130 00 0 00000	XCL		
36371	0100 00 0 36373	TZE	*+2	SHOULD TRANSFER
36372	0074 00 4 00105	TSX	ERROR,4	
36373	0074 00 4 00106	TSX	OK,4	
36374	0020 00 0 36361	TRA	*-11	REPEAT THIS TEST

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TEST THAT AN INDIRECTLY ADDRESSED ALS INSTRUCTION IS PROPERLY EXECUTED

36375	312160606060	BCD 11A	
36376	0500 00 0 37771	CLA 835	+000000000001
36377	0767 60 0 00012	ALS* 10	SHOULD NOT TAKE 1A CYCLE
36400	0340 00 0 37773	CAS 825	SHOULD COMPARE EQUAL
36401	0020 00 0 36403	TRA **2	
36402	0020 00 0 36404	TRA **2	
	POD 76 SHOULD NEGATE INDIRECT ADDRESSING		
36403	0074 00 4 00105	TSX ERROR,4	
36404	0074 00 4 00106	TSX OK,4	
36405	0020 00 0 36376	TRA *-7	REPEAT THIS TEST

TEST THAT INDIRECT ADDRESSING DOES NOT OCCUR WITH SR 13 EQUAL TO ZERO

36406	312160606060	BCD 11A	
36407	0500 40 0 36411	CLA **2,32	
36410	0340 00 0 36411	CAS **1	SHOULD COMPARE EQUAL
36411	0020 00 0 36413	TRA **2	GO TO ERROR
36412	0020 00 0 36414	TRA **2	
36413	0074 00 4 00105	TSX ERROR,4	
36414	0074 00 4 00106	TSX OK,4	
36415	0020 00 0 36407	TRA *-6	REPEAT THIS TEST

TEST THAT INDIRECT ADDRESSING DOES NOT OCCUR WITH SR 12 EQUAL TO ZERO

36416	312160606060	BCD 11A	
36417	0500 20 0 36421	CLA **2,16	BIT IN 13
36420	0340 00 0 36421	CAS **1	SHOULD COMPARE EQUAL
36421	0020 00 0 36423	TRA **2	GO TO ERROR
36422	0020 00 0 36424	TRA **2	
36423	0074 00 4 00105	TSX ERROR,4	
36424	0074 00 4 00106	TSX OK,4	
36425	0020 00 0 36417	TRA *-6	REPEAT THIS TEST

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TEST THAT SECOND LEVEL INDIRECT ADDRESSING DOES NOT OCCUR

36426	312160606060	BCD	11A	
36427	0500 00 0 40000	CLA	B12A13	
36430	0601 00 0 40013	STO	T1	
36431	-0625 00 0 40013	STL	T1	
36432	0761 00 0 40007	NOP	BONES	
36433	0500 60 0 40013	CLA*	T1	SHOULD CLEAR ADD NOP
36434	0340 00 0 36432	CAS	*-2	SHOULD COMPARE EQUAL
36435	0020 00 0 36437	TRA	**2	GO TO ERROR
36436	0020 00 0 36440	TRA	**2	
36437	0074 00 4 00105	TSX	ERROR,4	
36440	0074 00 4 00106	TSX	OK,4	
36441	0020 00 0 36427	TRA	*-10	REPEAT THIS TEST

TEST THAT CLA, WITH TAGS AND INDIRECT ADDRESS, IS PROPERLY EXECUTED

36442	312160606060	BCD	11A	
36443	0774 00 1 00001	AXT	1,1	SET UP XRS
36444	-0774 00 2 36445	AXC	**1,2	
36445	0500 60 1 37776	CLA*	B19+1,1	SHOULD CLA ITSELF
36446	0340 00 0 36445	CAS	*-1	
36447	0020 00 0 36451	TRA	**2	GO TO ERROR
36450	0020 00 0 36452	TRA	**2	GO TO OK
36451	0074 00 4 00105	TSX	ERROR,4	
36452	0074 00 4 00106	TSX	OK,4	
36453	0020 00 0 36443	TRA	*-8	REPEAT THIS TEST

TEST THAT INDIRECT ADDRESSING DOES NOT OCCUR ON XR INSTRUCTIONS

36454	312160606060	BCD	11A	
36455	0600 00 0 40013	STZ	T1	
36456	-0625 00 0 40013	STL	T1	SET UP TEMP STORAGE
36457	0535 60 2 40013	LAC*	T1,2	SHOULD NOT INDIRECT ADDRESS
36460	3 41321 2 36462	TXH	**2,2,1-*	SHOULD NOT TRANSFER
36461	3 41320 2 36463	TXH	**2,2,1-*	SHOULD TRANSFER
36462	0074 00 4 00105	TSX	ERROR,4	
36463	0074 00 4 00106	TSX	OK,4	
36464	0020 00 0 36455	TRA	*-7	REPEAT THIS TEST

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S E C T I O N T W O

TEST ONE CYCLE TRANSFER INDIRECTLY ADDRESSED

36465	312160606060	BCD 11A	
36466	0140 00 0 36467	TOV **1	
36467	-0140 60 0 36471	TNO* **2	SHOULD GO TO OK
36470	0761 00 0 00000	NOP	
36471	0761 00 0 36473	NOP **2	
36472	0074 00 4 00105	TSX ERROR,4	INDIRECTLY ADDRESSED
36473	0074 00 4 00106	TSX OK,4	TNO INSTRUCTION FAILS
36474	0020 00 0 36466	TRA *-6	REPEAT THIS TEST

TEST TWO CYCLE TRANSFER INDIRECTLY ADDRESSED

36475	312160606060	BCD 11A	
36476	-0500 00 0 36476	CAL *	SET UP ARITHMETIC
36477	0560 00 0 36476	LDQ *-1	REGISTERS
36500	0040 60 0 36502	TLQ* **2	SHOULD GO TO OK
36501	0761 00 0 00000	NOP	
36502	0761 00 0 36504	NOP **2	
36503	0074 00 4 00105	TSX ERROR,4	
36504	0074 00 4 00106	TSX OK,4	
36505	0020 00 0 36476	TRA *-7	REPEAT THIS TEST

TEST CAS WITH INDIRECT ADDRESS

36506	312160606060	BCD 11A	
36507	-0774 00 2 36511	AXC **2,2	
36510	0500 00 0 36511	CLA **1	
36511	0340 60 0 37775	CAS* B19	SHOULD COMPARE EQUAL
36512	0020 00 0 36514	TRA **2	GO TO ERROR
36513	0020 00 0 36515	TRA **2	GO TO OK
36514	0074 00 4 00105	TSX ERROR,4	
36515	0074 00 4 00106	TSX OK,4	
36516	0020 00 0 36507	TRA *-7	REPEAT THIS TEST

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*****
*
*               TEST CONVERT INSTRUCTIONS
*
*****
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TEST THAT CRQ, WITH COUNT FIELD ZERO, DOES NOT TRANSFER

36517	235150606060		BCD 1CRQ	
36520	0500 00 0 36526	CNVA	CLA **6	RETURN TO ERROR
36521	0601 00 0 77777		STO -1	STORE AT 77777
36522	0500 00 0 37770		CLA BZERO	CLEAR AC
36523	0560 00 0 37770		LDQ BZERO	AND MQ
36524	-0154 00 0 37551		CRQ CONVB,0	C CONVB -3 00000 0 77777

INSTRUCTION SHOULD END OP IN L TIME

36525	0020 00 0 36530		TRA **3	GO TO OK
36526	0020 00 0 36527		TRA **1	THIS IS STORED AT 77777
36527	0074 00 4 00105		TSX ERROR,4	
36530	0074 00 4 00106		TSX OK,4	
36531	0020 00 0 36520		TRA CNVA	REPEAT THIS TEST

TEST THAT CRQ WITH COUNT FIELD OF ONE DOES NOT TRANSFER

36532	235150606060		BCD 1CRQ	
36533	0500 00 0 36541	CNVB	CLA **6	RETURN TO ERROR
36534	0601 00 0 77777		STO -1	STORE AT 77777
36535	0500 00 0 37770		CLA BZERO	CLEAR AC
36536	0560 00 0 37770		LDQ BZERO	AND MQ
36537	-0154 01 0 37551		CRQ CONVB,1	C CONVB -3 00000 0 77777

INSTRUCTION SHOULD END OP IN E TIME WITH
SHIFT COUNTER EQUAL TO ZERO

36540	0020 00 0 36543		TRA **3	GO TO OK
36541	0020 00 0 36542		TRA **1	THIS IS STORED AT 77777
36542	0074 00 4 00105		TSX ERROR,4	
36543	0074 00 4 00106		TSX OK,4	
36544	0020 00 0 36533		TRA CNVB	REPEAT THIS TEST

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TEST THAT CVR WITH COUNT FIELD EQUAL TO ONE, DOES NOT TRANSFER

36545	236551606060		BCD 1CVR	
36546	0500 00 0 36554	CNVC	CLA **6	RETURN TO ERROR
36547	0601 00 0 77777		STO -1	STORE AT 77777
36550	0500 00 0 37770		CLA BZERO	CLEAR AC
36551	0560 00 0 37770		LDQ BZERO	AND MQ
36552	0114 01 0 37551		CVR CONVB, 1	C CONVB -3 00000 0 77777

INSTRUCTION SHOULD END OP IN E TIME

36553	0020 00 0 36556		TRA **3	GO TO OK
36554	0020 00 0 36555		TRA **1	THIS IS STORED AT 77777
36555	0074 00 4 00105		TSX ERROR, 4	
36556	0074 00 4 00106		TSX OK, 4	
36557	0020 00 0 36546		TRA CNVC	REPEAT THIS TEST

DOES CRQ WITH TAG ZERO, GATE ANYTHING TO XRA. IT SHOULD NOT

36560	235150606060		BCD 1CRQ	
36561	0500 00 0 37770	CNVD	CLA BZERO	CLEAR AC
36562	0560 00 0 37770		LDQ BZERO	AND MQ
36563	0774 00 1 77777		AXT -1, 1	
36564	-0154 01 0 37766		CRQ CONVG, 1	

A FAILURE HERE MAY INDICATE THAT TAG REG 20 IS BEING SET IN E TIME

36565	3 77776 1 36567		TXH **2, 1, -2	SHOULD TRANSFER
36566	0074 00 4 00105		TSX ERROR, 4	
36567	0074 00 4 00106		TSX OK, 4	
36570	0020 00 0 36561		TRA CNVD	REPEAT THIS TEST

TEST THAT CVR GATES SR-AR AT A9D2 AND AR-XAD AT A10D1.

36571	236551606060		BCD 1CVR	
36572	0500 00 0 37770	CNVE	CLA BZERO	CLEAR AC AND MQ
36573	0560 00 0 37770		LDQ BZERO	
36574	0774 00 1 00377		AXT 255, 1	
36575	0114 00 1 77777		CVR -1, 1, 0	SHOULD GATE 77777 TO XRA
36576	3 77776 1 36600		TXH **2, 1, -2	SHOULD TRANSFER
36577	0074 00 4 00105		TSX ERROR, 4	
36600	0074 00 4 00106		TSX OK, 4	
36601	0020 00 0 36572		TRA CNVE	

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TEST THAT TAG REGISTER 19 IS HELD RESET DURING CRQ INSTRUCTION

36602	235150606060		BCD	ICRQ	
36603	0774 00 2 77777	CNVF	AXT	-1,2	
36604	-0154 00 2 00000		CRQ	0,2,0	
36605	3 77776 2 36607		TXH	**2,2,-2	SHOULD TRANSFER
36606	0074 00 4 00105		TSX	ERROR,4	
36607	0074 00 4 00106		TSX	OK,4	
36610	0020 00 0 36603		TRA	CNVF	REPEAT THIS TEST

TEST THAT CRQ GOES TO E TIME AND THAT NO HOT BITS ARE GATED FROM THE MQ REGISTER TO THE INDEX ADDER

36611	235150606060		BCD	ICRQ	
36612	0500 00 0 37770	CNVG	CLA	BZERO	CLEAR AC
36613	0560 00 0 37770		LDQ	BZERO	AND MQ
36614	-0154 01 1 37751		CRQ	CONVD,1,1	THE LOCATION OF THIS INST SHOULD BE GATED TO XRA
36615	-3 36613 1 36617		TXL	**2,1,-2	SHOULD NOT TRANSFER
36616	-3 36614 1 36620		TXL	**2,1,-2	SHOULD TRANSFER
36617	0074 00 4 00105		TSX	ERROR,4	
36620	0074 00 4 00106		TSX	OK,4	
36621	0020 00 0 36612		TRA	CNVG	REPEAT THIS TEST

TEST THAT CRQ GATES MQ S-5 TO INDEX ADDERS

36622	235150606060		BCD	ICRQ	
36623	0500 00 0 37770	CNVH	CLA	BZERO	CLEAR AC
36624	0560 00 0 37755		LDQ	GK77	770000000000
36625	0774 00 1 00000		AXT	0,1	
36626	-0154 01 1 37650		CRQ	CONVC-1,1,1	
36627	-3 77776 1 36631		TXL	**2,1,-2	SHOULD TRANSFER
36630	0074 00 4 00105		TSX	ERROR,4	
36631	0074 00 4 00106		TSX	OK,4	
36632	0020 00 0 36623		TRA	CNVH	REPEAT THIS TEST

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TEST THAT CRQ SHIFTS MQ LEFT AT EOD6

36633	235150606060		BCD 1CRQ	
36634	0500 00 0 37770	CNVI	CLA BZERO	CLEAR AC
36635	0560 00 0 37753		LDQ GA77	000000000077
36636	-0154 01 0 37451		CRQ CONVA _{0,1}	
36637	0131 00 0 00000		XCA	
36640	0340 00 0 37754		CAS GC77	000000007700
				SHOULD COMPARE EQUAL
36641	0020 00 0 36643		TRA **2	GO TO ERROR
36642	0020 00 0 36645		TRA **3	GO TO OK
36643	0560 00 0 37754		LDQ GC77	
36644	0074 00 4 00105		TSX ERROR ₄	CRQ FAILS
36645	0074 00 4 00106		TSX OK ₄	
36646	0020 00 0 36634		TRA CNVI	REPEAT THIS TEST

TEST THAT CAQ ROTATES MQ LEFT AT EOD6

36647	232150606060		BCD 1CAQ	
36650	0560 00 0 40004	CNVJ	LDQ B6T11	007700000000
36651	-0500 00 0 37770		CAL BZERO	
36652	-0114 02 0 37451		CAQ CONVA _{0,2}	

A FAILURE HERE MAY INDICATE ERRONEOUS SR-MQ GATING

36653	0131 00 0 00000		XCA	
36654	0340 00 0 37753		CAS GA77	000000000077
				SHOULD COMPARE EQUAL
36655	0020 00 0 36657		TRA **2	GO TO ERROR
36656	0020 00 0 36661		TRA **3	GO TO OK
36657	0560 00 0 37753		LDQ GA77	
36660	0074 00 4 00105		TSX ERROR ₄	CAQ FAILS
36661	0074 00 4 00106		TSX OK ₄	
36662	0020 00 0 36650		TRA CNVJ	REPEAT THIS TEST

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TEST THAT CRQ GATES SR S-5 TO MQ 30-35

36663	235150606060		BCD	1CRQ	
36664	0560 00 0 37770	CNVK	LDQ	BZERO	CLEAR MQ
36665	0500 00 0 37770		CLA	BZERO	AND AC
36666	-0154 01 0 37551		CRQ	CONVB,,1	
36667	0131 00 0 00000		XCA		
36670	0340 00 0 37753		CAS	GA77	SHOULD COMPARE EQUAL
36671	0020 00 0 36673		TRA	**2	GO TO ERROR
36672	0020 00 0 36675		TRA	**3	GO TO OK

MISSING BITS IN AC 30-35 SHOW BAD GATING LINES

36673	0560 00 0 37753		LDQ	GA77	
36674	0074 00 4 00105		TSX	ERROR,,4	
36675	0074 00 4 00106		TSX	OK,,4	
36676	0020 00 0 36664		TRA	CNVK	REPEAT THIS TEST

TEST THAT CRQ DROPS NO BITS WHEN GATING MQ S-5 TO INDEX ADDERS

36677	235150606060		BCD	1CRQ	
36700	0500 00 0 37770	CNVL	CLA	BZERO	CLEAR AC
36701	0560 00 0 37755		LDQ	GK77	
36702	-0154 01 0 37651		CRQ	CONVC,,1	
36703	0131 00 0 00000		XCA		
36704	0340 00 0 37753		CAS	GA77	SHOULD COMPARE EQUAL
36705	0020 00 0 36707		TRA	**2	GO TO ERROR
36706	0020 00 0 36711		TRA	**3	GO TO OK

MISSING BITS IN AC 30-35 SHOW BAD GATING LINES FROM MQ TO XAD 12-17

36707	0560 00 0 37753		LDQ	GA77	
36710	0074 00 4 00105		TSX	ERROR,,4	
36711	0074 00 4 00106		TSX	OK,,4	
36712	0020 00 0 36700		TRA	CNVL	

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TEST THAT CRQ DOES NOT ALTER CONTENTS OF ACCUMULATOR

36713 235150606060
36714 0500 00 0 37756
36715 0560 00 0 37756
36716 -0154 06 0 37651

CNVM BCD 1CRQ
CLA GXX1
LDQ GXX1
CRQ CONV, 6

767573675737

36717 0340 00 0 37756
36720 0020 00 0 36722
36721 0020 00 0 36724
36722 0560 00 0 37756
36723 0074 00 4 00105
36724 0074 00 4 00106
36725 0020 00 0 36714

CAS GXX1
TRA *+2
TRA *+3
LDQ GXX1
TSX ERROR, 4
TSX OK, 4
TRA CNVM

SHOULD COMPARE EQUAL
GO TO ERROR
GO TO OK

TEST THAT CRQ WITH COUNT OF THREE IS PROPERLY EXECUTED

36726 235150606060
36727 0560 00 0 40001
36730 0500 00 0 37770
36731 -0154 03 0 37651

CNVM BCD 1CRQ
LDQ B11
CLA BZERO
CRQ CONV, 3

000100000000

CONTENTS OF MQ AFTER FIRST E TIME SHOULD BE 010000000000
AFTER SECOND E TIME 000000000001
AFTER LAST E TIME 000000000100

36732 0131 00 0 00000
36733 0340 00 0 37772
36734 0020 00 0 36736
36735 0020 00 0 36740
36736 0560 00 0 37772
36737 0074 00 4 00105
36740 0074 00 4 00106
36741 0020 00 0 36727

XCA
CAS B29
TRA *+2
TRA *+3
LDQ B29
TSX ERROR, 4
TSX OK, 4
TRA CNVM

SHOULD COMPARE EQUAL
GO TO ERROR
GO TO OK

CRQ FAILS

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TEST THAT CVR HOLDS TAG REGISTER 18 RESET

36742	236551606060		BCD	1CVR	
36743	0774 00 4 00000	CNVO	AXT	0,4	CLEAR XRC
36744	0500 00 0 37770		CLA	BZERO	AND AC
36745	0560 00 0 37770		LDQ	BZERO	AND MQ
36746	0114 01 4 37451		CVR	CONVA,4,1	
36747	-3 00000 4 36751		TXL	**2,4,0	
36750	0074 00 4 00105		TSX	ERROR,4	CVR FAILS
36751	0074 00 4 00106		TSX	OK,4	
36752	0020 00 0 36743		TRA	CNVO	REPEAT THIS TEST

TEST THAT CVR GOES TO E TIME AND THAT NO HOT BITS ARE GATED FROM THE ACCUMULATOR TO THE INDEX ADDER

36753	236551606060		BCD	1CVR	
36754	0500 00 0 37770	CNVP	CLA	BZERO	CLEAR AC
36755	0560 00 0 37770		LDQ	BZERO	AND MQ
36756	0114 01 1 37752		CVR	CONVE,1,1	THE LOCATION OF THIS INST SHOULD BE GATED TO XRA
36757	-3 36755 1 36761		TXL	**2,1,-2	SHOULD NOT TRANSFER
36760	-3 36756 1 36762		TXL	**2,1,-2	SHOULD TRANSFER
36761	0074 00 4 00105		TSX	ERROR,4	CVR FAILS
36762	0074 00 4 00106		TSX	OK,4	
36763	0020 00 0 36754		TRA	CNVP	

TEST THAT NO HOT BITS ARE GATED FROM SR S-5 TO AC P-5 ON CVR

36764	236551606060		BCD	1CVR	
36765	0500 00 0 37770	CNVQ	CLA	BZERO	CLEAR AC
36766	0560 00 0 37770		LDQ	BZERO	AND MQ
36767	0114 01 0 37451		CVR	CONVA,,1	
36770	0100 00 0 36772		TZE	**2	SHOULD TRANSFER
36771	0074 00 4 00105		TSX	ERROR,4	
36772	0074 00 4 00106		TSX	OK,4	
36773	0020 00 0 36765		TRA	CNVQ	REPEAT THIS TEST

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TEST THAT CVR SHIFTS AC RIGHT AT EOD2

36774	236551606060		BCD	ICVR	
36775	0500 00 0 37754	CNVR	CLA	GC77	000000007700
36776	0560 00 0 37770		LDQ	BZERO	
36777	0114 01 0 37451		CVR	CONVA, 1	000000000077
37000	0340 00 0 37753		CAS	GA77	SHOULD COMPARE EQUAL
37001	0020 00 0 37003		TRA	**2	GO TO ERROR
37002	0020 00 0 37005		TRA	**3	GO TO OK
37003	0560 00 0 37753		LDQ	GA77	
37004	0074 00 4 00105		TSX	ERROR, 4	
37005	0074 00 4 00106		TSX	OK, 4	
37006	0020 00 0 36775		TRA	CNVR	REPEAT THIS TEST

TEST THAT CVR DOES NOT GATE BITS FROM MQ TO XAD

37007	236551606060		BCD	ICVR	
37010	0500 00 0 37770	CNVS	CLA	BZERO	CLEAR AC
37011	0560 00 0 37755		LDQ	GK77	770000000000
37012	0114 01 1 37550		CVR	CONVB-1, 1, 1	
37013	-3 77776 1 37015		TXL	**2, 1, -2	SHOULD TRANSFER
37014	0074 00 4 00105		TSX	ERROR, 4	
37015	0074 00 4 00106		TSX	OK, 4	
37016	0020 00 0 37010		TRA	CNVS	

TEST THAT SOME BITS ARE GATED FROM SR S-5 TO AC P-5 ON CVR

37017	236551606060		BCD	ICVR	
37020	0500 00 0 37770	CNVT	CLA	BZERO	CLEAR AC
37021	0114 01 0 37551		CVR	CONVB, 1	
37022	-0100 00 0 37025		TNZ	**3	SHOULD TRANSFER
37023	0560 00 0 37755		LDQ	GK77	CORRECT RESULT TO MQ
37024	0074 00 4 00105		TSX	ERROR, 4	CVR FAILS
37025	0074 00 4 00106		TSX	OK, 4	
37026	0020 00 0 37020		TRA	CNVT	REPEAT THIS TEST

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TEST THAT SOME BITS ARE GATED FROM AC 30-35 TO XAD ON CVR

37027	236551606060		BCD	1CVR	
37030	0500 00 0 37753	CNVU	CLA	GA77	000000000077
37031	0114 01 0 37550		CVR	CONVB-1,0,1	
37032	-0100 00 0 37035		TNZ	**3	SHOULD TRANSFER
37033	0560 00 0 37755		LDQ	GK77	770000000000
					CORRECT RESULT TO MQ
37034	0074 00 4 00105		TSX	ERROR,4	
37035	0074 00 4 00106		TSX	OK,4	
37036	0020 00 0 37030		TRA	CNVU	REPEAT THIS TEST

TEST THAT ALL BITS ARE GATED FROM SR S-5 TO AC P-5 ON CVR

37037	236551606060		BCD	1CVR	
37040	0500 00 0 37753	CNVV	CLA	GA77	
37041	0560 00 0 37770		LDQ	BZERO	
37042	0114 01 0 37551		CVR	CONVB,0,1	
37043	-0340 00 0 37755		LAS	GK77	SHOULD COMPARE EQUAL
37044	0020 00 0 37046		TRA	**2	DROPPED BITS INDICATE
37045	0020 00 0 37050		TRA	**3	BAD GATING LINES
37046	0560 00 0 37755		LDQ	GK77	770000000000
37047	0074 00 4 00105		TSX	ERROR,4	
37050	0074 00 4 00106		TSX	OK,4	
37051	0020 00 0 37040		TRA	CNVV	REPEAT THIS TEST

TEST THAT ALL BITS ARE GATED FROM AC 30-35 TO XAD ON CVR
IN E TIME AND L TIME

37052	236551606060		BCD	1CVR	
37053	0500 00 0 37757	CNVW	CLA	B24T35	000000007777
37054	0114 02 0 37651		CVR	CONVC,,2	
37055	-0340 00 0 37760		LAS	BST11	777700000000 SHOULD
37056	0020 00 0 37060		TRA	**2	COMPARE EQUAL
37057	0020 00 0 37062		TRA	**3	
37060	0560 00 0 37760		LDQ	BST11	MISSING BITS INDICATE BAD
					GATING LINES
37061	0074 00 4 00105		TSX	ERROR,4	
37062	0074 00 4 00106		TSX	OK,4	
37063	0020 00 0 37053		TRA	CNVW	REPEAT THIS TEST

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TEST THAT CVR GATES NO BITS TO MQ

37064	236551606060		BCD	1CVR	
37065	0560 00 0 37770	CNVX	LDQ	BZERO	CLEAR MQ
37066	-0500 00 0 37756		CAL	GXX1	
37067	0114 06 0 37651		CVR	CONVC, 6	
37070	0131 00 0 00000		XCA		
37071	0100 00 0 37074		TZE	++3	SHOULD TRANSFER
37072	0560 00 0 37770		LDQ	BZERO	
37073	0074 00 4 00105		TSX	ERROR, 4	
37074	0074 00 4 00106		TSX	OK, 4	
37075	0020 00 0 37065		TRA	CNVX	REPEAT THIS TEST

TEST THAT CVR WITH COUNT OF SIX IS PROPERLY EXECUTED

37076	236551606060		BCD	1CVR	
37077	-0500 00 0 37756	CNVY	CAL	GXX1	767573675737
37100	0114 06 0 37651		CVR	CONVC, 6	
37101	-0340 00 0 37756		LAS	GXX1	SHOULD COMPARE EQUAL
37102	0020 00 0 37104		TRA	++2	
37103	0020 00 0 37106		TRA	++3	GO TO OK
37104	0560 00 0 37756		LDQ	GXX1	CORRECT RESULT TO MQ
37105	0074 00 4 00105		TSX	ERROR, 4	
37106	0074 00 4 00106		TSX	OK, 4	
37107	0020 00 0 37077		TRA	CNVY	REPEAT THIS TEST

TEST THAT CVR DOES NOT SHIFT THE CONTENTS OF THE MQ REGISTER

37110	236551606060		BCD	1CVR	
37111	0560 00 0 37754	CNVZ	LDQ	GC77	000000007700
37112	0500 00 0 37770		CLA	BZERO	
37113	0114 02 0 37451		CVR	CONVA, 2	
37114	0131 00 0 00000		XCA		
37115	0340 00 0 37754		CAS	GC77.	SHOULD COMPARE EQUAL
37116	0020 00 0 37120		TRA	++2	
37117	0020 00 0 37122		TRA	++3	GO TO OK
37120	0560 00 0 37754		LDQ	GC77	
37121	0074 00 4 00105		TSX	ERROR, 4	
37122	0074 00 4 00106		TSX	OK, 4	
37123	0020 00 0 37111		TRA	CNVZ	

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TEST THAT CVR WITH COUNT OF ZERO DOES NOT GATE C AC 30-35 TO XAD

37124	236551675121		BCD	1CVRXRA	
37125	0774 00 1 00777	GORA	AXT	511,1	00777 TO XRA
37126	0500 00 0 37753		CLA	GA77	
37127	0114 00 1 00000		CVR	0,1,0	
37130	-3 00000 1 37132		TXL	*+2,1,0	SHOULD TRANSFER
37131	0074 00 4 00105		TSX	ERROR,4	
37132	0074 00 4 00106		TSX	OK,4	
37133	0020 00 0 37125		TRA	GORA	REPEAT THIS TEST

TEST THAT CVR WITH COUNT OF ONE DOES NOT GATE C AC 30-35 TO XAD
IN E TIME

37134	236551675121		BCD	1CVRXRA	
37135	0500 00 0 37754	GORB	CLA	GC77	000000007700
37136	0774 00 1 00777		AXT	511,1	00777 TO XRA
37137	0114 01 1 37451		CVR	CONVA,1,1	
37140	-3 37451 1 37143		TXL	*+3,1,CONVA	SHOULD TRANSFER
37141	0560 00 0 37753		LDQ	GA77	
37142	0074 00 4 00105		TSX	ERROR,4	
37143	0074 00 4 00106		TSX	OK,4	
37144	0020 00 0 37135		TRA	GORB	REPEAT THIS TEST

TEST THAT CAQ WITH COUNT OF ONE DOES NOT RIGHT SHIFT AC

37145	232150606060		BCD	1CAQ	
37146	-0500 00 0 40002	GORC	CAL	B6	004000000000
37147	0560 00 0 37776		LDQ	B12	000040000000
37150	-0114 01 0 37770		CAQ	BZERO,1	
37151	-0340 00 0 37776		LAS	B12	SHOULD COMPARE UNEQUAL
37152	0020 00 0 37154		TRA	*+2	
37153	0074 00 4 00105		TSX	ERROR,4	
37154	0074 00 4 00106		TSX	OK,4	
37155	0020 00 0 37146		TRA	GORC	REPEAT THIS TEST

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TEST THAT CAQ GATES NO BITS FROM AC TO XAD

37156	232150675121		BCD	1CAQXRA	
37157	0500 00 0 37753	GORO	CLA	GA77	000000000077
37160	0560 00 0 37770		LDQ	BZERO	CLEAR MQ
37161	0774 00 1 77777		AXT	-1,1	
37162	-0114 01 1 37550		CAQ	CONVB-1,1,1	
37163	-3 77776 1 37165		TXL	*+2,1,-2	SHOULD TRANSFER
37164	0074 00 4 00105		TSX	ERROR,4	
37165	0074 00 4 00106		TSX	OK,4	
37166	0020 00 0 37157		TRA	GORO	REPEAT THIS TEST

TEST THAT CAQ GATES ALL BITS FROM MQ S-5 TO XAD

37167	232150675121		BCD	1CAQXRA	
37170	0560 00 0 37755	GORE	LDQ	GK77	770000000000
37171	-0114 01 1 37452		CAQ	CONVA+1,1,1	
37172	3 77776 1 37174		TXH	*+2,1,-2	SHOULD TRANSFER
37173	0074 00 4 00105		TSX	ERROR,4	
37174	0074 00 4 00106		TSX	OK,4	
37175	0020 00 0 37170		TRA	GORE	REPEAT THIS TEST

TEST THAT CAQ WITH COUNT OF ZERO DOES NOT GATE THE
CAQ INSTRUCTION TO THE ACCUMULATOR

37176	232150606060		BCD	1CAQ	
37177	0500 00 0 37770	GORF	CLA	BZERO	CLEAR AC
37200	0560 00 0 37770		LDQ	BZERO	AND MQ
37201	-0114 00 0 37770		CAQ	BZERO,0	
37202	0100 00 0 37204		TZE	*+2	SHOULD TRANSFER

THE CAQ TRIGGER, WHICH SHOULD BE SET DURING E TIME, AND WHICH SHOULD
REMAIN OFF IN THIS ROUTINE, APPEARS TO HAVE BEEN SET

37203	0074 00 4 00105		TSX	ERROR,4	
37204	0074 00 4 00106		TSX	OK,4	
37205	0020 00 0 37177		TRA	GORF	REPEAT THIS TEST

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TEST THAT CAQ WITH A COUNT OF ZERO DOES NOT ALTER AC

37206	232150606060		BCD	1CAQ	
37207	-0500 00 0 40010	GORG	CAL	BS135	77777777777
37210	0560 00 0 40010		LDQ	BS135	
37211	-0114 00 0 37770		CAQ	BZERO, 0	
37212	-0340 00 0 40010		LAS	BS135	SHOULD COMPARE EQUAL
37213	0020 00 0 37215		TRA	**2	GO TO ERROR
37214	0020 00 0 37216		TRA	**2	
37215	0074 00 4 00105		TSX	ERROR, 4	
37216	0074 00 4 00106		TSX	OK, 4	
37217	0020 00 0 37207		TRA	GORG	REPEAT THIS TEST

TEST THAT CAQ TRIGGER IS SET PROPERLY

37220	232150606060		BCD	1CAQ	
37221	-0500 00 0 37770	GORH	CAL	BZERO	
37222	0560 00 0 37770		LDQ	BZERO	
37223	-0114 01 0 37652		CAQ	CONVC+1, 1	
37224	-0340 00 0 37652		LAS	CONVC+1	SHOULD COMPARE EQUAL
37225	0020 00 0 37227		TRA	**2	
37226	0020 00 0 37231		TRA	**3	GO TO OK
37227	0560 00 0 37652		LDQ	CONVC+1	
37230	0074 00 4 00105		TSX	ERROR, 4	
37231	0074 00 4 00106		TSX	OK, 4	
37232	0020 00 0 37221		TRA	GORH	REPEAT THIS TEST

TEST THAT CAQ WITH COUNT OF ONE ADDS PROPERLY

37233	232150606060		BCD	1CAQ	
37234	-0500 00 0 40005	GORI	CAL	B3T17	077777000000
37235	0560 00 0 40006		LDQ	B2A3	140000000000
37236	-0114 01 0 37651		CAQ	CONVC, 1	
37237	-0340 00 0 37761		LAS	GXX2	SHOULD COMPARE EQUAL
37240	0020 00 0 37242		TRA	**2	
37241	0020 00 0 37244		TRA	**3	
37242	0560 00 0 37761		LDQ	GXX2	
37243	0074 00 4 00105		TSX	ERROR, 4	
37244	0074 00 4 00106		TSX	OK, 4	
37245	0020 00 0 37234		TRA	GORI	REPEAT THIS TEST

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TEST THAT CAQ SHIFTS MQ PROPERLY

37246	232150606060		BCD	1CAQ	
37247	0560 00 0 37756	GORJ	LDQ	GXX1	767573675737
37250	-0114 06 0 37451		CAQ	CONVA.,6	
37251	-0130 00 0 00000		XCL		
37252	-0340 00 0 37756		LAS	GXX1	SHOULD COMPARE EQUAL
37253	0020 00 0 37255		TRA	**2	
37254	0020 00 0 37257		TRA	**3	GO TO OK
37255	0560 00 0 37756		LDQ	GXX1	
37256	0074 00 4 00105		TSX	ERROR.,4	
37257	0074 00 4 00106		TSX	OK.,4	
37260	0020 00 0 37247		TRA	GORJ	REPEAT THIS TEST

TEST THAT CAQ ADDS PROPERLY IN E TIME

37261	232150606060		BCD	1CAQ	
37262	0500 00 0 37770	GORJ	CLA	BZERO	CLEAR AC
37263	0560 00 0 40001		LDQ	B11	000100000000
37264	-0114 02 0 37651		CAQ	CONVC.,2	
37265	-0340 00 0 37762		LAS	GXX3	SHOULD COMPARE EQUAL
37266	0020 00 0 37270		TRA	**2	
37267	0020 00 0 37272		TRA	**3	GO TO OK
37270	0560 00 0 37762		LDQ	GXX3	
37271	0074 00 4 00105		TSX	ERROR.,4	
37272	0074 00 4 00106		TSX	OK.,4	
37273	0020 00 0 37262		TRA	GORJ	

TEST THAT CVR DOES NOT INDIRECTLY ADDRESS, IN SPIKE OF BITS 12 AND 13

37274	236551606060		BCD	1CVR	
37275	0500 00 0 37770	GORL	CLA	BZERO	
37276	0560 00 0 37770		LDQ	BZERO	
37277	0114 60 0 37763		CVR	CONVF.,48	
37300	-0340 00 0 37771		LAS	B35	SHOULD COMPARE EQUAL
37301	0020 00 0 37303		TRA	**2	PLUS ONE SHOULD BE IN AC
37302	0020 00 0 37305		TRA	**3	
37303	0560 00 0 37771		LDQ	B35	CORRECT RESULT TO MQ
37304	0074 00 4 00105		TSX	ERROR.,4	CVR FAILS
37305	0074 00 4 00106		TSX	OK.,4	
37306	0020 00 0 37275		TRA	GORL	REPEAT THIS TEST

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TEST THAT CAQ WITH COUNT OF SIX SHIFTS MQ PROPERLY

37307	232150606060		BCD	1CAQ	
37310	0560 00 0 37756	GORM	LDQ	GXX1	
37311	-0500 00 0 37770		CAL	BZERO	
37312	-0114 06 0 37451		CAQ	CONVA,6	
37313	-0130 00 0 00000		XCL		
37314	-0340 00 0 37756		LAS	GXX1	SHOULD COMPARE EQUAL
37315	0020 00 0 37317		TRA	++2	
37316	0020 00 0 37321		TRA	++3	GO TO OK
37317	0560 00 0 37756		LDQ	GXX1	
37320	0074 00 4 00105		TSX	ERROR,4	
37321	0074 00 4 00106		TSX	OK,4	
37322	0020 00 0 37310		TRA	GORM	REPEAT THIS TEST

TEST THAT CRQ WITH COUNT OF SIX IS EXECUTED PROPERLY

37323	235150606060		BCD	1CRQ	
37324	0560 00 0 37756	GORN	LDQ	GXX1	
37325	-0154 06 0 37651		CRQ	CONVC,6	
37326	-0130 00 0 00000		XCL		
37327	-0340 00 0 37756		LAS	GXX1	SHOULD COMPARE EQUAL
37330	0020 00 0 37332		TRA	++2	
37331	0020 00 0 37334		TRA	++3	GO TO OK
37332	0560 00 0 37756		LDQ	GXX1	
37333	0074 00 4 00105		TSX	ERROR,4	
37334	0074 00 4 00106		TSX	OK,4	
37335	0020 00 0 37324		TRA	GORN	

FINAL TEST OF CAQ

37336	232150606060		BCD	1CAQ	
37337	0774 00 2 00022	GORO	AXT	18,2	
37340	-0500 00 0 37770		CAL	BZERO	
37341	0400 00 2 37676		ADD	CONVC+21,2	
37342	2 00003 2 37341		TIX	+-1,2,3	
37343	0602 00 0 40013		SLW	T1	SAVE IN TEMP STORAGE
37344	0560 00 0 37767		LDQ	GXX4	
37345	0500 00 0 37770		CLA	BZERO	CLEAR AC
37346	-0114 06 0 37651		CAQ	CONVC,6	
37347	-0340 00 0 40013		LAS	T1	SHOULD COMPARE EQUAL
37350	0020 00 0 37352		TRA	++2	
37351	0020 00 0 37353		TRA	++2	
37352	0074 00 4 00105		TSX	ERROR,4	CAQ FAILS
37353	0074 00 4 00106		TSX	OK,4	
37354	0020 00 0 37337		TRA	GORO	REPEAT THIS TEST

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CONSTANTS

37355 432162636060
37356 0760 00 0 00140
37357 0020 00 0 37361
37360 0 00000 0 00002
37361 0074 00 4 00111

BCD 1LAST
SLF
TRA **2
PZE 2
TSX LOOP 4

37362 0 00000 0 00000
37363 0 00000 0 00000
37364 +000000000001
37365 -000000000001
37366 +000000000002
37367 -000000000002
37370 +000000000003
37371 +000000000004
37372 +000000000006
37373 +000000000007
37374 +000000000010
37375 +000000000013
37376 +000000000014
37377 +000000000017
37400 +377777777777
37401 -377777777777
37402 +177777777777
37403 -177777777777
37404 +137777777777
37405 +337777777777
37406 +077777777777
37407 -357777777777
37410 +200000000000
37411 +040000000000
37412 +140000000000
37413 +240000000000
37414 +340000000000
37415 +252525252525
37416 -325252525252
37417 -325252525253
37420 +146314631463
37421 +356735673567
37422 +335673567357
37423 +364331171020
37424 +376547265756
37425 -252525252524
37426 -125252525253
37427 +325252525251
37430 +052525252526
37431 -364331171017
37432 -013446606760
37433 -172154474407
37434 -337036433116
37435 -037777777777
37436 -017777777777
37437 -205623303370
37440 -101741344660
37441 -341721544744

PZE PZE
MZE MZE
ONE OCT 1
MONE OCT 400000000001
TWO OCT 2
MTW OCT 400000000002
THREE OCT 3
FOUR OCT 4
SIX OCT 6
SVN OCT 7
TEN OCT 10
THRTN OCT 13
FRTN OCT 14
SVNTN OCT 17
PONES OCT 377777777777
ONES OCT 777777777777
UNA OCT 177777777777
MUNA OCT 577777777777
UNAS OCT 137777777777
ACK3 OCT 337777777777
MQK3 OCT 777777777777
ACK4 OCT 757777777777
TOO OCT 200000000000
SC1X OCT 400000000000
SC11X OCT 140000000000
SC15X OCT 240000000000
SC12X OCT 340000000000
IT1X OCT 252525252525
IT2X OCT 725252525252
ITCOM OCT 725252525253
ALT OCT 146314631463
ALT1 OCT 356735673567
ALT2 OCT 335673567357
ALT3 OCT 364331171020
ALT4 OCT 376547265756
ANS OCT 652525252524
ANS1 OCT 525252525253
ANS2 OCT 325252525251
ANS3 OCT 525252525256
ANS4 OCT 764331171017
ANS5 OCT 413446606760
VLAC OCT 572154474407
VLAC1 OCT 737036433116
VLAC2 OCT 437777777777
VLAC3 OCT 417777777777
VLMQ OCT 605623303370
VLMQ1 OCT 501741344660
VLMQ2 OCT 741721544744

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37442	-360750662362	VLMQ3	OCT	760750662362
37443	0000 00 0 41774	RITNO	HTR	0-XEC3T
37444	0021 00 2 77771	STRS1	TTR	-7.2
37445	0021 00 2 00002	STRS2	TTR	2.2
37446	0020 00 2 77775	STRS3	TRA	-3.2
37447	3 77777 7 35537	STRS4	TXL	STR1.7,-1
37450	0000 00 0 42316	CKXR2	HTR	0-ETM4B
37451	0 00000 0 37451	CONVA	PZE	CONVA
37452	0 00000 0 37451		PZE	CONVA
37453	0 00000 0 37451		PZE	CONVA
37454	0 00000 0 37451		PZE	CONVA
37455	0 00000 0 37451		PZE	CONVA
37456	0 00000 0 37451		PZE	CONVA
37457	0 00000 0 37451		PZE	CONVA
37460	0 00000 0 37451		PZE	CONVA
37461	0 00000 0 37451		PZE	CONVA
37462	0 00000 0 37451		PZE	CONVA
37463	0 00000 0 37451		PZE	CONVA
37464	0 00000 0 37451		PZE	CONVA
37465	0 00000 0 37451		PZE	CONVA
37466	0 00000 0 37451		PZE	CONVA
37467	0 00000 0 37451		PZE	CONVA
37470	0 00000 0 37451		PZE	CONVA
37471	0 00000 0 37451		PZE	CONVA
37472	0 00000 0 37451		PZE	CONVA
37473	0 00000 0 37451		PZE	CONVA
37474	0 00000 0 37451		PZE	CONVA
37475	0 00000 0 37451		PZE	CONVA
37476	0 00000 0 37451		PZE	CONVA
37477	0 00000 0 37451		PZE	CONVA
37500	0 00000 0 37451		PZE	CONVA
37501	0 00000 0 37451		PZE	CONVA
37502	0 00000 0 37451		PZE	CONVA
37503	0 00000 0 37451		PZE	CONVA
37504	0 00000 0 37451		PZE	CONVA
37505	0 00000 0 37451		PZE	CONVA
37506	0 00000 0 37451		PZE	CONVA
37507	0 00000 0 37451		PZE	CONVA
37510	0 00000 0 37451		PZE	CONVA
37511	0 00000 0 37451		PZE	CONVA
37512	0 00000 0 37451		PZE	CONVA
37513	0 00000 0 37451		PZE	CONVA
37514	0 00000 0 37451		PZE	CONVA
37515	0 00000 0 37451		PZE	CONVA
37516	0 00000 0 37451		PZE	CONVA
37517	0 00000 0 37451		PZE	CONVA
37520	0 00000 0 37451		PZE	CONVA
37521	0 00000 0 37451		PZE	CONVA
37522	0 00000 0 37451		PZE	CONVA
37523	0 00000 0 37451		PZE	CONVA
37524	0 00000 0 37451		PZE	CONVA
37525	0 00000 0 37451		PZE	CONVA
37526	0 00000 0 37451		PZE	CONVA
37527	0 00000 0 37451		PZE	CONVA
37530	0 00000 0 37451		PZE	CONVA
37531	0 00000 0 37451		PZE	CONVA

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[illegible][illegible]

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37621	-3	70000	0	77777	SVN	-1.,28672
37622	-3	70000	0	77777	SVN	-1.,28672
37623	-3	70000	0	77777	SVN	-1.,28672
37624	-3	70000	0	77777	SVN	-1.,28672
37625	-3	70000	0	77777	SVN	-1.,28672
37626	-3	70000	0	77777	SVN	-1.,28672
37627	-3	70000	0	77777	SVN	-1.,28672
37630	-3	70000	0	77777	SVN	-1.,28672
37631	-3	70000	0	77777	SVN	-1.,28672
37632	-3	70000	0	77777	SVN	-1.,28672
37633	-3	70000	0	77777	SVN	-1.,28672
37634	-3	70000	0	77777	SVN	-1.,28672
37635	-3	70000	0	77777	SVN	-1.,28672
37636	-3	70000	0	77777	SVN	-1.,28672
37637	-3	70000	0	77777	SVN	-1.,28672
37640	-3	70000	0	77777	SVN	-1.,28672
37641	-3	70000	0	77777	SVN	-1.,28672
37642	-3	70000	0	77777	SVN	-1.,28672
37643	-3	70000	0	77777	SVN	-1.,28672
37644	-3	70000	0	77777	SVN	-1.,28672
37645	-3	70000	0	77777	SVN	-1.,28672
37646	-3	70000	0	77777	SVN	-1.,28672
37647	-3	70000	0	77777	SVN	-1.,28672
37650	-3	70000	0	77777	SVN	-1.,28672
37651	0	00000	0	37651	CONVC	PZE CONVC.,0
37652	0	10000	0	37651	PZE	CONVC.,4096
37653	0	20000	0	37651	PZE	CONVC.,8192
37654	0	30000	0	37651	PZE	CONVC.,12288
37655	0	40000	0	37651	PZE	CONVC.,16384
37656	0	50000	0	37651	PZE	CONVC.,20480
37657	0	60000	0	37651	PZE	CONVC.,24576
37660	0	70000	0	37651	PZE	CONVC.,28672
37661	1	00000	0	37651	PON	CONVC.,0
37662	1	10000	0	37651	PON	CONVC.,4096
37663	1	20000	0	37651	PON	CONVC.,8192
37664	1	30000	0	37651	PON	CONVC.,12288
37665	1	40000	0	37651	PON	CONVC.,16384
37666	1	50000	0	37651	PON	CONVC.,20480
37667	1	60000	0	37651	PON	CONVC.,24576
37670	1	70000	0	37651	PON	CONVC.,28672
37671	2	00000	0	37651	PTW	CONVC.,0
37672	2	10000	0	37651	PTW	CONVC.,4096
37673	2	20000	0	37651	PTW	CONVC.,8192
37674	2	30000	0	37651	PTW	CONVC.,12288
37675	2	40000	0	37651	PTW	CONVC.,16384
37676	2	50000	0	37651	PTW	CONVC.,20480
37677	2	60000	0	37651	PTW	CONVC.,24576
37700	2	70000	0	37651	PTW	CONVC.,28672
37701	3	00000	0	37651	PTH	CONVC.,0
37702	3	10000	0	37651	PTH	CONVC.,4096
37703	3	20000	0	37651	PTH	CONVC.,8192
37704	3	30000	0	37651	PTH	CONVC.,12288

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37705 3 40000 0 37651
37706 3 50000 0 37651
37707 3 60000 0 37651
37710 3 70000 0 37651

PTH CONV., 16384
PTH CONV., 20480
PTH CONV., 24576
PTH CONV., 28672

37711 -0 00000 0 37651
37712 -0 10000 0 37651
37713 -0 20000 0 37651
37714 -0 30000 0 37651
37715 -0 40000 0 37651
37716 -0 50000 0 37651
37717 -0 60000 0 37651
37720 -0 70000 0 37651

FOR CONV., 0
FOR CONV., 4096
FOR CONV., 8192
FOR CONV., 12288
FOR CONV., 16384
FOR CONV., 20480
FOR CONV., 24576
FOR CONV., 28672

37721 -1 00000 0 37651
37722 -1 10000 0 37651
37723 -1 20000 0 37651
37724 -1 30000 0 37651
37725 -1 40000 0 37651
37726 -1 50000 0 37651
37727 -1 60000 0 37651
37730 -1 70000 0 37651

FVE CONV., 0
FVE CONV., 4096
FVE CONV., 8192
FVE CONV., 12288
FVE CONV., 16384
FVE CONV., 20480
FVE CONV., 24576
FVE CONV., 28672

37731 -2 00000 0 37651
37732 -2 10000 0 37651
37733 -2 20000 0 37651
37734 -2 30000 0 37651
37735 -2 40000 0 37651
37736 -2 50000 0 37651
37737 -2 60000 0 37651
37740 -2 70000 0 37651

SIX CONV., 0
SIX CONV., 4096
SIX CONV., 8192
SIX CONV., 12288
SIX CONV., 16384
SIX CONV., 20480
SIX CONV., 24576
SIX CONV., 28672

37741 -3 00000 0 37651
37742 -3 10000 0 37651
37743 -3 20000 0 37651
37744 -3 30000 0 37651
37745 -3 40000 0 37651
37746 -3 50000 0 37651
37747 -3 60000 0 37651
37750 -3 70000 0 37651

SVN CONV., 0
SVN CONV., 4096
SVN CONV., 8192
SVN CONV., 12288
SVN CONV., 16384
SVN CONV., 20480
SVN CONV., 24576
SVN CONV., 28672

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37751	0 00000 0 36614	CONVD	PZE	CNVG+2
37752	0 00000 0 36756	CONVE	PZE	CNVP+2
37753	+000000000077	GA77	OCT	000000000077
37754	+000000007700	GC77	OCT	000000007700
37755	-370000000000	GK77	OCT	770000000000
37756	-367573675737	GXX1	OCT	767573675737
37757	+000000007777	B24T35	OCT	000000007777
37760	-377700000000	BST11	OCT	777700000000
37761	2 37777 0 37651	GXX2	PTW	CONVC,,16383
37762	0 10000 0 77522	GXX3	PZE	2*CONVC,,4096
37763	0 10000 0 37764	CONVF	PZE	CONVF+1,,4096
37764	0 00000 0 37764		PZE	CONVF+1,,0
37765	0 10000 0 37764		PZE	CONVF+1,,4096
37766	0 00000 7 77777	CONVG	PZE	-1,7,0
37767	+221714110603	GXX4	OCT	221714110603
37770	+000000000000	BZERO	OCT	0
37771	+000000000001	B35	OCT	1
37772	+000000000100	B29	OCT	100
37773	+000000002000	B25	OCT	2000
37774	+000000077777	B21T35	OCT	77777
37775	+000000200000	B19	OCT	200000
37776	+000040000000	B12	OCT	40000000
37777	+000110000000	B11A14	OCT	000110000000
40000	+000060000000	B12A13	OCT	60000000
40001	+000100000000	B11	OCT	100000000
40002	+004000000000	B6	OCT	4000000000
40003	+006000000000	B6A7	OCT	6000000000
40004	+007700000000	B6T11	OCT	7700000000
40005	+077777000000	B3T17	OCT	077777000000
40006	+140000000000	B2A3	OCT	140000000000
40007	+377777777777	BONES	OCT	377777777777
40010	-377777777777	BS135	OCT	777777777777
40011	-1 00000 0 00000	KONE	STR	
40012	0021 00 0 00113	KTWO	TTR	RESTR
	40013	T1	BSS	1
	40014	T2	BSS	1
40015	+000000000000	TEMP	OCT	0
40016	+000000000000		OCT	0