

IDENTIFICATION

Product Code: MAINDEC-08-D01A-D
Product Name: PDP-8 Instruction Test - Part 2A
Date Created: November 15, 1967
Maintainer: Diagnostic Group
Previous Code: MAINDEC-801-2A

1. ABSTRACT

This program is a test of the memory reference instructions, operate instructions, and interrupt mode. An attempt is made to detect and isolate errors to its most basic fault.

2. REQUIREMENTS

2.1 Equipment

PDP-8 Processor, Keyboard Reader and Teleprinter.

2.2 Storage

Memory locations 20_8 - 5166_8 .

2.3 Subprograms and/or Subroutines

RIM Loader, Binary Loader

3. LOADING PROCEDURE

3.1 Method

If the Binary Loader beginning at 7777 is in memory, start loading the Instruction Test 2A; otherwise, the RIM Loader beginning at 7756_8 and/or the Binary Loader must be loaded into memory.

PDP-8 Instruction Test Part 2A, may now be loaded as follows:

Set 7777 in the Switch Register.

Press LOAD ADDRESS Key.

Place Instruction Test Part 2A in the keyboard reader.

Press START Key on the Operator's console.

Engage the keyboard reader.

4. STARTING PROCEDURE

4.1 Switch Settings

Set the Switch Register Keys to 7777 before starting the program. No other Switches are used.

4.2 Start Up and/or Entry

The starting address of the PDP-8 Part 2A Instruction Test is 1200.

Set 1200 in the Switch Register and press the LOAD ADDRESS Key.

Set the Switch Register Keys to 7777 and press the START Key.

5. OPERATING PROCEDURE (None)

6. ERRORS

6.1 Error Halts

Errors detected by the program cause the processor to halt and, in addition, there is one visual inspection halt. Each test has its own error halt address.

6.2 Error Recovery

Load memory address register with the address of the next sub test and press the START key to continue to the next test in sequence.

Deposit JMP Instructions at the error halt address and normal test exit address to enter a scope mode. Upon completion of the scope mode the original contents of the address must be restored.

7. RESTRICTIONS (Not Applicable)

8. MISCELLANEOUS

8.1 Execution Time

16 seconds

9. DESCRIPTION

9.1 Discussion

The PDP-8 Instruction Test Part 2A tests the memory reference instructions, operate instructions, and interrupt mode.

The Processor is tested using patterns necessary to detect and isolate errors to its basic cause and minimum logic card involved. Part 2A under program control will repeat each test 4096 times before exiting to the next test in sequence. If a failure does occur, the test will stop at a predetermined error halt.

The program starts a memory address 1200. Memory address 1200² is a visual inspection halt. Upon completion of the visual inspection halt, the program has no other non-error halt. *PRESS CONT*

The program has one Timeout; "2A." This timeout shows test completion. The program will loop until an error occurs.

The program is assembled in binary format.

9.2 Examples and/or Applications

For example, in testing the Link bit, the following method might be used by the program.

Set Link to a one.

Clear Link to a zero.

Repeat test 4096 times if Link is equal to zero, then skip to next test.

If Link equals a one, halt.

9.3 Scaling (Not Applicable)

10. LISTINGS

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/PDP-8 INSTRUCTION TEST PART2
#26

0020	0000	K0000,	0000
0021	0001	K0001,	0001
0022	0002	K0002,	0002
0023	0004	K0004,	0004
0024	0010	K0010,	0010
0025	0020	K0020,	0020
0026	0040	K0040,	0040
0027	0100	K0100,	0100
0030	0200	K0200,	0200
0031	0400	K0400,	0400
0032	1000	K1000,	1000
0033	2000	K2000,	2000
0034	4000	K4000,	4000
0035	7776	K7776,	7776
0036	7775	K7775,	7775
0037	7773	K7773,	7773
0040	7767	K7767,	7767
0041	7757	K7757,	7757
0042	7737	K7737,	7737
0043	7677	K7677,	7677
0044	7577	K7577,	7577
0045	7377	K7377,	7377
0046	6777	K6777,	6777
0047	5777	K5777,	5777
0050	3777	K3777,	3777
0051	7777	K7777,	7777
0052	5252	K5252,	5252
0053	2525	K2525,	2525
0054	6000	K6000,	6000
0055	7000	K7000,	7000
0056	7400	K7400,	7400
0057	7600	K7600,	7600
0060	7740	K7740,	7740
0061	7760	K7760,	7760
0062	7770	K7770,	7770
0063	7774	K7774,	7774
0064	0003	K0003,	0003
0065	0007	K0007,	0007
0066	0067	K0067,	0067
0067	0017	K0017,	0017
0070	0037	K0037,	0037
0071	0077	K0077,	0077
0072	0177	K0177,	0177
0073	0377	K0377,	0377
0074	0777	K0777,	0777
0075	1777	K1777,	1777
0076	7700	K7700,	7700

x1200

1200	1051		TAD Z K7777	
1201	7200		CLA	
1202	7402		HLT	/AC SHOULD EQUAL 0000
				/SET SR TO 7777 CONTINUE
1203	7200		CLA	
1204	3002		OCA Z 0002	/CLEAR TEST COUNTER
1205	7410	SKPT,	SKP	
1206	7402		HLT	/SKP FAILED
1207	2002		ISZ Z 0002	/COUNT TEST COUNTER
1210	5205		JMP SKPT	
1211	7200	SZAT,	CLA	
1212	7440		SZA	
1213	7402		HLT	/SZA SHOULD HAVE SKIPPED
				/AC SHOULD EQUAL 0000
1214	2002		ISZ Z 0002	
1215	5211		JMP SZAT	
1216	7200	SZAT1,	CLA	
1217	1034		TAD Z K4000	
1220	7440		SZA	
1221	7410		SKP	
1222	7402		HLT	/SZA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 4000
1223	2002		ISZ Z 0002	
1224	5216		JMP SZAT1	
1225	7200	SZAT2,	CLA	
1226	1033		TAD Z K2000	
1227	7440		SZA	
1230	7410		SKP	
1231	7402		HLT	/SZA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 2000
1232	2002		ISZ Z 0002	
1233	5225		JMP SZAT2	
1234	7200	SZAT3,	CLA	
1235	1032		TAD Z K1000	
1236	7440		SZA	
1237	7410		SKP	
1240	7402		HLT	/SZA SHOULD NOT HAVE SKIPPED
				/AC SHOULD EQUAL 1000
1241	2002		ISZ Z 0002	
1242	5234		JMP SZAT3	

ZAT4,		CLA
1244	1031	TAD Z K0400
1245	7440	SZA
1246	7410	SKP
1247	7402	HLT

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0400

1250	2002	ISZ Z 0002
1251	5243	JMP SZAT4

1252	7200	SZAT5,	CLA
1253	1030		TAD Z K0200
1254	7440		SZA
1255	7410		SKP
1256	7402		HLT

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0200

1257	2002	ISZ Z 0002
1260	5252	JMP SZAT5

1261	7200	SZAT6,	CLA
1262	1027		TAD Z K0100
1263	7440		SZA
1264	7410		SKP
1265	7402		HLT

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0100

1266	2002	ISZ Z 0002
1267	5261	JMP SZAT6

1270	7200	SZAT7,	CLA
1271	1026		TAD Z K0040
1272	7440		SZA
1273	7410		SKP
1274	7402		HLT

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0040

1275	2002	ISZ Z 0002
1276	5270	JMP SZAT7

1277	7200	SZAT8,	CLA
1300	1025		TAD Z K0020
1301	7440		SZA
1302	7410		SKP
1303	7402		HLT

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0020

1304	2002	ISZ Z 0002
1305	5277	JMP SZAT8

		SZAT9,	CLA
1307	1024		TAD Z K0010
1310	7440		SZA
1311	7410		SKP
1312	7402		HLT
1313	2002		ISZ Z 0002
1314	5306		JMP SZAT9

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0010

1315	7200	SZAT10,	CLA
1316	1023		TAD Z K0004
1317	7440		SZA
1320	7410		SKP
1321	7402		HLT

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0004

1322	2002		ISZ Z 0002
1323	5315		JMP SZAT10

1324	7200	SZAT11,	CLA
1325	1022		TAD Z K0002
1326	7440		SZA
1327	7410		SKP
1330	7402		HLT

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0002

1331	2002		ISZ Z 0002
1332	5324		JMP SZAT11

1333	7200	SZAT12,	CLA
1334	1021		TAD Z K0001
1335	7440		SZA
1336	7410		SKP
1337	7402		HLT

/SZA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 0001

1340	2002		ISZ Z 0002
1341	5333		JMP SZAT12

1342	7200	SNAT,	CLA
1343	1051		TAD Z K7777
1344	7450		SNA
1345	7402		HLT

/SNA SHOULD HAVE SKIPPED
/AC SHOULD EQUAL 7777

1346	2002		ISZ Z 0002
1347	5342		JMP SNAT

		SPAT,	CLA
1351	1050		TAD Z K3777
1352	7510		SPA
1353	7402		HLT

/SPA SHOULD HAVE SKIPPED
/AC SHOULD EQUAL 6777

1354	2002		ISZ Z 0002
1355	5350		JMP SPAT
1356	7000		NOP
1357	7000		NOP
1360	7000		NOP
1361	7000		NOP
1362	7000		NOP
1363	7000		NOP
1364	7000		NOP
1365	7000		NOP
1366	7000		NOP
1367	7000		NOP
1370	7000		NOP
1371	7000		NOP
1372	7000		NOP
1373	7000		NOP
1374	7000		NOP
1375	7000		NOP
1376	7000		NOP
1377	7000		NOP

		*1400	
		SPAT1,	CLA
1400	7200		TAD Z K4000
1401	1034		SPA
1402	7510		SKP
1403	7410		HLT
1404	7402		

/SPA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 4000

1405	2002		ISZ Z 0002
1406	5200		JMP SPAT1

		SMAT,	CLA
1407	7200		TAD Z K4000
1410	1034		SMA
1411	7500		HLT
1412	7402		

/SMA SHOULD HAVE SKIPPED
/AC SHOULD EQUAL 4000

1413	2002		ISZ Z 0002
1414	5207		JMP SMAT

		CLAT,	TAD Z K7777
1415	1051		CLA
1416	7200		SZA
1417	7440		HLT
1420	7402		

/CLA FAILED TO CLEAR AC
/AC SHOULD EQUAL 0000

1421	2002		ISZ Z 0002
1422	5215		JMP CLAT

CMAT,			TAD Z K7777	
1424	7040		CMA	
1425	7440		SZA	
1426	7402		HLT	/CMA DID NOT COMPLEMENT AC /AC SHOULD EQUAL 0000
1427	2002		ISZ Z 0002	
1430	5223		JMP CMAT	
1431	7200	CIAT,	CLA	
1432	1021		TAD Z K0001	
1433	7041		CIA	
1434	7040		CMA	
1435	7440		SZA	
1436	7402		HLT	/CIA DID NOT COMPLEMENT OR INCREMENT AC /AC SHOULD EQUAL 0000
1437	2002		ISZ Z 0002	
1440	5231		JMP CIAT	
1441	7200	STAT,	CLA	
1442	7240		STA	
1443	7040		CMA	
1444	7440		SZA	
1445	7402		HLT	/STA DID NOT SET AC TO 7777 /AC SHOULD EQUAL 0000
1446	2002		ISZ Z 0002	
1447	5241		JMP STAT	
1450	7300	SZLT,	CLA CLL	/CLEAR LINK
1451	7004		RAL	/CLEAR LINK SAFETY
1452	7430		SZL	
1453	7402		HLT	/SZL SHOULD HAVE SKIPPED /LINK SHOULD EQUAL ZERO
1454	2002		ISZ Z 0002	
1455	5250		JMP SZLT	
1456	7320	SZLT1,	STL CLA	/SET LINK
1457	1034		TAD Z K4000	
1460	7004		RAL	/SET LINK SAFETY
1461	7430		SZL	
1462	7410		SKP	
1463	7402		HLT	/SZL SHOULD NOT HAVE SKIPPED /LINK SHOULD EQUAL A ONE
1464	2002		ISZ Z 0002	
1465	5256		JMP SZLT1	
1466	7300	STLT,	CLA CLL	/CLEAR LINK
1467	7004		RAL	/CLEAR LINK SAFETY
1470	7120		STL	
1471	7430		SZL	
1472	7410		SKP	
1473	7402		HLT	/STL DID NOT SET LINK /LINK SHOULD EQUAL A ONE
1474	2002		ISZ Z 0002	
1475	5266		JMP STLT	

1477	7100	CLLT,	STL	
1500	7430		CLL	
1501	7402		SZL	
			HLT	/CLL DID NOT CLEAR LINK
				/LINK SHOULD EQUAL ZERO
1502	2002		ISZ Z 0002	
1503	5276		JMP CLLT	
1504	7120	CMLT,	STL	
1505	7020		CML	
1506	7440		SZA	
1507	7402		HLT	/CML DID NOT COMPLEMENT LINK
				/LINK SHOULD EQUAL A ZERO
1510	2002		ISZ Z 0002	
1511	5304		JMP CMLT	
1512	7100	CMLT1,	CLL	
1513	7020		CML	
1514	7430		SZL	
1515	7410		SKP	
1516	7402		HLT	/CML DID NOT COMPLEMENT LINK
				/LINK SHOULD EQUAL A ONE
1517	2002		ISZ Z 0002	
1520	5312		JMP CMLT1	
1521	7120	SNLT,	STL	
1522	7420		SNL	
1523	7402		HLT	/SNL SHOULD HAVE SKIPPED
				/LINK SHOULD EQUAL A ONE
1524	2002		ISZ Z 0002	
1525	5321		JMP SNLT	
1526	7200	IACT,	CLA	
1527	1035		TAD Z K7776	
1530	7001		IAC	
1531	7040		CMA	
1532	7440		SZA	
1533	7402		HLT	/IAC DID NOT INCREMENT AC
				/AC SHOULD EQUAL 0000
1534	2002		ISZ Z 0002	
1535	5326		JMP IACT	
1536	7200	OSRT,	CLA	
1537	7404		OSR	
1540	7040		CMA	
1541	7440		SZA	
1542	7402		HLT	/OSR DID NOT SET AC TO 7777
				/AC SHOULD EQUAL 0000
1543	2002		ISZ Z 0002	
1544	5336		JMP OSRT	

		RALT,	CLA CLL	
1546	1034		TAD Z K4000	/ROTATE PATTERN
1547	7004		RAL	
1550	7420		SNL	
1551	7402		HLT	/RAL LINK DROPPED A BIT
				/LINK SHOULD EQUAL A ONE
1552	2002		ISZ Z 0002	
1553	5345		JMP RALT	
1554	7300	RALT1,	CLA CLL	
1555	1020		TAD Z K0000	/ROTATE PATTERN
1556	7004		RAL	
1557	7440		SZA	
1560	7402		HLT	/RAL AC PICKED UP A BIT
				/A ONE IN AC EQUALS THE PICKED UP
1561	2002		ISZ Z 0002	/BIT
1562	5354		JMP RALT1	
1563	7300	RALT2,	CLA CLL	
1564	1020		TAD Z K0000	/ROTATE PATTERN
1565	7004		RAL	
1566	7430		SZL	
1567	7402		HLT	/RAL LINK PICKED UP A BIT
				/LINK SHOULD EQUAL A ZERO
1570	2002		ISZ Z 0002	
1571	5363		JMP RALT2	
1572	7000		NOP	
1573	7000		NOP	
1574	7000		NOP	
1575	7000		NOP	
1576	7000		NOP	
1577	7000		NOP	

1600	7320	*1600 RALT3,	CLA STL	
1601	1020		TAD Z K0000	/ROTATE PATTERN
1602	7004		RAL	
1603	7430		SZL	/RAL LINK PICKED UP A BIT
1604	7402		HLT	/LINK SHOULD EQUAL A ZERO
1605	2002		ISZ Z 0002	
1606	5200		JMP RALT3	
1607	7320	RALT4,	CLA STL	
1610	1051		TAD Z K7777	
1611	7004		RAL	
1612	7040		CMA	
1613	7440		SZA	
1614	7402		HLT	/RAL AC DROPPED A BIT
				/A ONE IN AC EQUALS THE DROPPED BIT
1615	2002		ISZ Z 0002	
1616	5207		JMP RALT4	
1617	7300	RALT5,	CLA CLL	
1620	1033		TAD Z K2000	/ROTATE PATTERN
1621	7004		RAL	
1622	1050		TAD Z K3777	
1623	7040		CMA	
1624	7450		SNA	
1625	7430		SZL	/RAL FAILED AC SHOULD EQUAL 0000
1626	7402		HLT	/LINK SHOULD EQUAL A ZERO
1627	2002		ISZ Z 0002	
1630	5217		JMP RALT5	
1631	7300	RALT6,	CLA CLL	
1632	1032		TAD Z K1000	/ROTATE PATTERN
1633	7004		RAL	
1634	1047		TAD Z K5777	
1635	7040		CMA	
1636	7450		SNA	
1637	7430		SZL	/RAL FAILED AC SHOULD EQUAL 0000
1640	7402		HLT	/LINK SHOULD EQUAL A ZERO
1641	2002		ISZ Z 0002	
1642	5231		JMP RALT6	
1643	7300	RALT7,	CLA CLL	
1644	1031		TAD Z K0400	/ROTATE PATTERN
1645	7004		RAL	
1646	1046		TAD Z K6777	
1647	7040		CMA	
1650	7450		SNA	
1651	7430		SZL	/RAL FAILED AC SHOULD EQUAL 0000
1652	7402		HLT	/LINK SHOULD EQUAL ZERO
1653	2002		ISZ Z 0002	
1654	5243		JMP RALT7	

1656	1030	RALT8,	CLA CLL	
1657	7004		TAD Z K0200	/ROTATE PATTERN
1660	1045		RAL	
1661	7040		TAD Z K7377	
1662	7450		CMA	
1663	7430		SNA	/RAL RAILED AC SHOULD EQUAL 0000
1664	7402		SZL	/LINK SHOULD EQUAL ZERO
1665	2002		HLT	
1666	5255		ISZ Z 0002	
			JMP RALT8	
1667	7300	RALT9,	CLA CLL	
1670	1027		TAD Z K0100	/ROTATE PATTERN
1671	7004		RAL	
1672	1044		TAD Z K7577	
1673	7040		CMA	
1674	7450		SNA	/RAL FAILED AC SHOULD EQUAL 0000
1675	7430		SZL	/LINK SHOULD EQUAL ZERO
1676	7402		HLT	
1677	2002		ISZ Z 0002	
1700	5267		JMP RALT9	
1701	7300	RALT10,	CLA CLL	
1702	1026		TAD Z K0040	/ROTATE PATTERN
1703	7004		RAL	
1704	1043		TAD Z K7677	
1705	7040		CMA	
1706	7450		SNA	/RAL FAILED AC SHOULD EQUAL 0000
1707	7430		SZL	/LINK SHOULD EQUAL A ZERO
1710	7402		HLT	
1711	2002		ISZ Z 0002	
1712	5301		JMP RALT10	
1713	7300	RALT11,	CLA CLL	
1714	1025		TAD Z K0020	/ROTATE PATTERN
1715	7004		RAL	
1716	1042		TAD Z K7737	
1717	7040		CMA	
1720	7450		SNA	/RAL FAILED AC SHOULD EQUAL 0000
1721	7430		SZL	/LINK SHOULD EQUAL A ZERO
1722	7402		HLT	
1723	2002		ISZ Z 0002	
1724	5313		JMP RALT11	
1725	7300	RALT12,	CLA CLL	
1726	1024		TAD Z K0010	/ROTATE PATTERN
1727	7004		RAL	
1730	1041		TAD Z K7757	
1731	7040		CMA	
1732	7450		SNA	/RAL FAILED AC SHOULD EQUAL 0000
1733	7430		SZL	/LINK SHOULD EQUAL A ZERO
1734	7402		HLT	
1735	2002		ISZ Z 0002	
1736	5325		JMP RALT12	

1740	1023	RALT13, CLA CLL
1741	7004	TAD Z K0004
1742	1040	RAL
1743	7040	TAD Z K7767
1744	7450	CMA
1745	7430	SNA
1746	7402	SZL
1747	2002	HLT
1750	5337	ISZ Z 0002
		JMP RALT13

/ROTATE PATTERN

/RAL FAILED AC SHOULD EQUAL 0000
/LINK SHOULD EQUAL A ZERO

1751	7300	RALT14, CLA CLL
1752	1022	TAD Z K0002
1753	7004	RAL
1754	1037	TAD Z K7773
1755	7040	CMA
1756	7450	SNA
1757	7430	SZL
1760	7402	HLT
1761	2002	ISZ Z 0002
1762	5351	JMP RALT14

/ROTATE PATTERN

/RAL FAILED AC SHOULD EQUAL 0000
/LINK SHOULD EQUAL A ZERO

1763	7300	RALT15, CLA CLL
1764	1021	TAD Z K0001
1765	7004	RAL
1766	1036	TAD Z K7775
1767	7040	CMA
1770	7450	SNA
1771	7430	SZL
1772	7402	HLT
1773	2002	ISZ Z 0002
1774	5363	JMP RALT15
1775	7000	NOP
1776	7000	NOP
1777	7000	NOP

/ROTATE PATTERN

/RAL FAILED AC SHOULD EQUAL 0000
/LINK SHOULD EQUAL ZERO

		*2000		
2000	7320	RALT16,	CLA STL	/ROTATE PATTERN
2001	7004		RAL	
2002	1035		TAD Z K7776	
2003	7040		CMA	
2004	7450		SNA	
2005	7430		SZL	
2006	7402		HLT	/RAL FAILED AC SHOULD EQUAL 0000 /LINK SHOULD EQUAL ZERO
2007	2002		ISZ Z 0002	
2010	5200		JMP RALT16	
2011	7300	RTLT,	CLA CLL	
2012	1033		TAD Z K2000	
2013	7006		RTL	
2014	7420		SNL	
2015	7402		HLT	/RTL LINK DROPPED A BIT /LINK SHOULD EQUAL A ONE
2016	2002		ISZ Z 0002	
2017	5211		JMP RTLT	
2020	7300	RTLT1,	CLA CLL	
2021	1020		TAD Z K0000	/ROTATE PATTERN
2022	7006		RTL	
2023	7440		SZA	
2024	7402		HLT	/RTL AC PICKED UP A BIT /A ONE IN AC EQUALS THE PICKED UP /BIT
2025	2002		ISZ Z 0002	
2026	5220		JMP RTLT1	
2027	7300	RTLT2,	CLA CLL	
2030	1020		TAD Z K0000	/ROTATE PATTERN
2031	7006		RTL	
2032	7430		SZL	
2033	7402		HLT	/RTL LINK PICKED UP A BIT /LINK SHOULD EQUAL ZERO
2034	2002		ISZ Z 0002	
2035	5227		JMP RTLT2	

2037	1020	RTLT3,	CLA STL	
2040	7006		TAD Z K0000	/ROTATE PATTERN
2041	7430		RTL	
2042	7402		SZL	/RTL LINK PICKED UP A BIT
			HLT	/LINK SHOULD EQUAL A ZERO
2043	2002		ISZ Z 0002	
2044	5236		JMP RTLT3	
2045	7320	RTLT4,	CLA STL	
2046	1051		TAD Z K7777	/ROTATE PATTERN
2047	7006		RTL	
2050	7040		CMA	
2051	7440		SZA	
2052	7402		HLT	/RTL AC DROPPED A BIT
				/A ONE IN AC EQUALS THE DROPPED BIT
2053	2002		ISZ Z 0002	
2054	5245		JMP RTLT4	
2055	7300	RTLT5,	CLA CLL	
2056	1034		TAD Z K4000	/ROTATE PATTERN
2057	7006		RTL	
2060	1035		TAD Z K7776	
2061	7040		CMA	
2062	7450		SNA	
2063	7430		SZL	
2064	7402		HLT	/RTL FAILED AC AND LINK SHOULD EQUAL 0000
2065	2002		ISZ Z 0002	
2066	5255		JMP RTLT5	
2067	7300	RTLT6,	CLA CLL	
2070	1033		TAD Z K2000	/ROTATE PATTERN
2071	7006		RTL	
2072	7450		SNA	
2073	7420		SNL	
2074	7402		HLT	/RTL FAILED AC AND LINK SHOULD
				/EQUAL 0000
2075	2002		ISZ Z 0002	
2076	5267		JMP RTLT6	
2077	7300	RTLT7,	CLA CLL	
2100	1032		TAD Z K1000	/ROTATE PATTERN
2101	7006		RTL	
2102	1050		TAD Z K3777	
2103	7040		CMA	
2104	7450		SNA	
2105	7430		SZL	
2106	7402		HLT	/RTL FAILED AC AND LINK SHOULD
				/EQUAL 0000
2107	2002		ISZ Z 0002	
2110	5277		JMP RTLT7	

		RTLT8,	CLA CLL	
2112	1031		TAD Z K0400	/ROTATE PATTERN
2113	7006		RTL	
2114	1047		TAD Z K5777	
2115	7040		CMA	
2116	7450		SNA	
2117	7430		SZL	
2120	7402		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL ZERO
2121	2002		ISZ Z 0002	
2122	5311		JMP RTLT8	
2123	7300	RTLT9,	CLA CLL	
2124	1030		TAD Z K0200	/ROTATE PATTERN
2125	7006		RTL	
2126	1046		TAD Z K6777	
2127	7040		CMA	
2130	7450		SNA	
2131	7430		SZL	
2132	7402		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000
2133	2002		ISZ Z 0002	
2134	5323		JMP RTLT9	
2135	7300	RTLT10,	CLA CLL	
2136	1027		TAD Z K0100	/ROTATE PATTERN
2137	7006		RTL	
2140	1045		TAD Z K7377	
2141	7040		CMA	
2142	7450		SNA	
2143	7430		SZL	
2144	7402		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000
2145	2002		ISZ Z 0002	
2146	5335		JMP RTLT10	
2147	7300	RTLT11,	CLA CLL	
2150	1026		TAD Z K0040	/ROTATE PATTERN
2151	7006		RTL	
2152	1044		TAD Z K7577	
2153	7040		CMA	
2154	7450		SNA	
2155	7430		SZL	
2156	7402		HLT	/RTL FAILED AC AND LINK SHOULD /EQUAL 0000
2157	2002		ISZ Z 0002	
2160	5347		JMP RTLT11	

RTLT12, CLA CLL

/ROTATE PATTERN

2162	1025	TAD Z K0020
2163	7006	RTL
2164	1043	TAD Z K7677
2165	7040	CMA
2166	7450	SNA
2167	7430	SZL
2170	7402	HLT

RTL FAILED AC AND LINK SHOULD
EQUAL 0000

2171	2002	ISZ Z 0002
2172	5361	JMP RTLT12
2173	7000	NOP
2174	7000	NOP
2175	7000	NOP
2176	7000	NOP
2177	7000	NOP

		*2200		
2200	7300	RTLT13,	CLA CLL	
2201	1024		TAD Z K0010	/ROTATE PATTERN
2202	7006		RTL	
2203	1042		TAD Z K7737	
2204	7040		CMA	
2205	7450		SNA	
2206	7430		SZL	
2207	7402		HLT	/RTL FAILED AC AND LINK SHOULD
2210	2002		ISZ Z 0002	/EQUAL 0000
2211	5200		JMP RTLT13	
2212	7300	RTLT14,	CLA CLL	
2213	1023		TAD Z K0004	/ROTATE PATTERN
2214	7006		RTL	
2215	1041		TAU Z K7757	
2216	7040		CMA	
2217	7450		SNA	
2220	7430		SZL	
2221	7402		HLT	/RTL FAILED AC AND LINK SHOULD
2222	2002		ISZ Z 0002	/EQUAL 0000
2223	5212		JMP RTLT14	
2224	7300	RTLT15,	CLA CLL	
2225	1022		TAD Z K0002	/ROTATE PATTERN
2226	7006		RTL	
2227	1040		TAD Z K7767	
2230	7040		CMA	
2231	7450		SNA	
2232	7430		SZL	
2233	7402		HLT	/RTL FAILED AC AND LINK
2234	2002		ISZ Z 0002	/SHOULD EQUAL 0000
2235	5224		JMP RTLT15	

2237	1021	RTLT16, CLA CLL	
2240	7006	TAD Z K0001	/ROTATE PATTERN
2241	1037	RTL	
2242	7040	TAD Z K7773	
2243	7450	CMA	
2244	7430	SNA	
2245	7402	SZL	/RTL FAILED AC AND LINK
		HLT	/SHOULD EQUAL 0000
2246	2002	ISZ Z 0002	
2247	5236	JMP RTLT16	
2250	7320	RTLT17, CLA STL	/ROTATE PATTERN
2251	7006	RTL	
2252	1036	TAD Z K7775	
2253	7040	CMA	
2254	7450	SNA	
2255	7430	SZL	/RTL FAILED AC AND LINK
2256	7402	HLT	/SHOULD EQUAL 0000
2257	2002	ISZ Z 0002	
2260	5250	JMP RTLT17	
2261	7300	RART, CLA CLL	
2262	1021	TAD Z K0001	/ROTATE PATTERN
2263	7010	RAR	
2264	7420	SNL	
2265	7402	HLT	/RAR FAILED LINK DROPPED A BIT
			/LINK SHOULD EQUAL A ONE
2266	2002	ISZ Z 0002	
2267	5261	JMP RART	
2270	7300	RART1, CLA CLL	
2271	1020	TAD Z K0000	/ROTATE PATTERN
2272	7010	RAR	
2273	7440	SZA	
2274	7402	HLT	/RAR FAILED AC PIKED UP A BIT
			/A ONE IN AC EQUALS THE
2275	2002	ISZ Z 0002	/PIKED UP BIT
2276	5270	JMP RART1	
2277	7300	RART2, CLA CLL	
2300	1020	TAD Z K0000	/ROTATE PATTERN
2301	7430	SZL	
2302	7402	HLT	/RAL LINK PICKED UP A BIT
			/LINK SHOULD EQUAL ZERO
2303	2002	ISZ Z 0002	
2304	5277	JMP RART2	

		RART3,	CLA STL	
2306	1020		TAD Z K0000	/ROTATE PATTERN
2307	7010		RAR	
2310	7430		SZL	
2311	7402		HLT	/RAR LINK PICKED UP A BIT /LINK SHOULD EQUAL ZERO
2312	2002		ISZ Z 0002	
2313	5305		JMP RART3	
2314	7320	RART4,	CLA STL	
2315	1051		TAD Z K7777	/ROTATE PATTERN
2316	7010		RAR	
2317	7040		CMA	
2320	7440		SZA	
2321	7402		HLT	/RAR AC DROPPED A BIT /A ONE IN AC EQUALS THE DROPPED BIT
2322	2002		ISZ Z 0002	
2323	5314		JMP RART4	
2324	7320	RART5,	CLA STL	
2325	1020		TAD Z K0000	/ROTATE PATTERN
2326	7010		RAR	
2327	1050		TAD Z K3777	
2330	7040		CMA	
2331	7450		SNA	
2332	7430		SZL	
2333	7402		HLT	/RAR FAILED AC AND LINK /SHOULD EQUAL 0000
2334	2002		ISZ Z 0002	
2335	5324		JMP RART5	
2336	7300	RART6,	CLA CLL	
2337	1034		TAD Z K4000	/ROTATE PATTERN
2340	7010		RAR	
2341	1047		TAD Z K5777	
2342	7040		CMA	
2343	7450		SNA	
2344	7430		SZL	
2345	7402		HLT	/RAR FAILED AC AND LINK SHOULD /EQUAL 0000
2346	2002		ISZ Z 0002	
2347	5336		JMP RART6	
2350	7300	RART7,	CLA CLL	
2351	1033		TAD Z K2000	/ROTATE PATTERN
2352	7010		RAR	
2353	1046		TAD Z K6777	
2354	7040		CMA	
2355	7450		SNA	
2356	7430		SZL	
2357	7402		HLT	/RAR FAILED AC AND LINK SHOULD /EQUAL 0000
2360	2002		ISZ Z 0002	
2361	5350		JMP RART7	

		RART8,	CLA CLL
2363	1032		TAD Z K1000
2364	7010		RAR
2365	1045		TAD Z K7377
2366	7040		CMA
2367	7450		SNA
2370	7430		SZL
2371	7402		HLT
2372	2002		ISZ Z 0002
2373	5362		JMP RART8
2374	7000		NOP
2375	7000		NOP
2376	7000		NOP
2377	7000		NOP

/ROTATE PATTERN

/RAR FAILED AC AND LINK SHOULD
/EQUAL 0000

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#2400
2400 7300 RART9, CLA CLL
2401 1031 TAD Z K0400 /ROTATE PATTERN
2402 7010 RAR
2403 1044 TAD Z K7577
2404 7040 CMA
2405 7450 SNA
2406 7430 SZL
2407 7402 HLT /RAR FAILED AC AND LINK
/SHOULD EQUAL 0000

2410 2002 ISZ Z 0002
2411 5200 JMP RART9

2412 7300 RART10, CLA CLL
2413 1030 TAD Z K0200 /ROTATE PATTERN
2414 7010 RAR
2415 1043 TAD Z K7677
2416 7040 CMA
2417 7450 SNA
2420 7430 SZL
2421 7402 HLT /RAR FAILED AC AND LINK
/EQUAL 0000

2422 2002 ISZ Z 0002
2423 5212 JMP RART10

2424 7300 RART11, CLA CLL
2425 1027 TAD Z K0100 /ROTATE PATTERN
2426 7010 RAR
2427 1042 TAD Z K7737
2430 7040 CMA
2431 7450 SNA
2432 7430 SZL
2433 7402 HLT /RAR FAILED AC AND LINK
/SHOULD EQUAL 0000

2434 2002 ISZ Z 0002
2435 5224 JMP RART11

2436 7300 RART12, CLA CLL
2437 1026 TAD Z K0040 /ROTATE PATTERN
2440 7010 RAR
2441 1041 TAD Z K7757
2442 7040 CMA
2443 7450 SNA
2444 7430 SZL
2445 7402 HLT /RAR FAILED AC AND LINK
/SHOULD EQUAL 0000

2446 2002 ISZ Z 0002
2447 5236 JMP RART12

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		RART13, CLA CLL	
2451	1025	TAD Z K0020	/ROTATE PATTERN
2452	7010	RAR	
2453	1040	TAD Z K7767	
2454	7040	CMA	
2455	7450	SNA	
2456	7430	SZL	
2457	7402	HLT	/RAR FAILED AC AND LINK /SHOULD EQUAL 0000
2460	2002	ISZ Z 0002	
2461	5250	JMP RART13	
2462	7300	RART14, CLA CLL	
2463	1024	TAD Z K0010	/ROTATE PATTERN
2464	7010	RAR	
2465	1037	TAD Z K7773	
2466	7040	CMA	
2467	7450	SNA	
2470	7430	SZL	
2471	7402	HLT	/RAR FAILED AC AND LINK /SHOULD EQUAL 0000
2472	2002	ISZ Z 0002	
2473	5262	JMP RART14	
2474	7300	RART15, CLA CLL	
2475	1023	TAD Z K0004	/ROTATE PATTERN
2476	7010	RAR	
2477	1036	TAD Z K7775	
2500	7040	CMA	
2501	7450	SNA	
2502	7430	SZL	
2503	7402	HLT	/RAR FAILED AC AND LINK /SHOULD EQUAL 0000
2504	2002	ISZ Z 0002	
2505	5274	JMP RART15	
2506	7300	RART16, CLA CLL	
2507	1022	TAD Z K0002	/ROTATE PATTERN
2510	7010	RAR	
2511	1035	TAD Z K7776	
2512	7040	CMA	
2513	7450	SNA	
2514	7430	SZL	
2515	7402	HLT	/RAR FAILED AC AND LINK /SHOULD EQUAL 0000
2516	2002	ISZ Z 0002	
2517	5306	JMP RART16	

2521	1021	RART17,	CLA CLL	
2522	7010		TAD Z K0001	/ROTATE PATTERN
2523	1051		RAR	
2524	7040		TAD Z K7777	
2525	7450		CMA	
2526	7420		SNA	
2527	7402		SNL	/RAR FAILED AC AND LINK
			HLT	/SHOULD EQUAL 0000
2530	2002		ISZ Z 0002	
2531	5320		JMP RART17	
2532	7300	RTRT,	CLA CLL	
2533	1022		TAD Z K0002	/ROTATE PATTERN
2534	7012		RTR	
2535	7420		SNL	
2536	7402		HLT	/RTR FAILED LINK DROPPED
				/A BIT LINK SHOULD EQUAL A ONE
2537	2002		ISZ Z 0002	
2540	5332		JMP RTRT	
2541	7300	RTRT1,	CLA CLL	
2542	1020		TAD Z K0000	/ROTATE PATTERN
2543	7012		RTR	
2544	7440		SZA	
2545	7402		HLT	/RTR FAILED AC PICKED UP A BIT
				/A ONE IN AC EQUALS THE PICKED UP BIT
2546	2002		ISZ Z 0002	
2547	5341		JMP RTRT1	
2550	7300	RTRT2,	CLA CLL	
2551	1020		TAD Z K0000	/ROTATE PATTERN
2552	7430		SZL	
2553	7402		HLT	/RTR LINK PICKED UP A BIT
				/LINK SHOULD EQUAL ZERO
2554	2002		ISZ Z 0002	
2555	5350		JMP RTRT2	
2556	7320	RTRT3,	CLA STL	
2557	1020		TAD Z K0000	/ROTATE PATTERN
2560	7010		RAR	
2561	7430		SZL	
2562	7402		HLT	/RTR LINK PICKED UP A BIT
				/LINK SHOULD EQUAL ZERO
2563	2002		ISZ Z 0002	
2564	5356		JMP RTRT3	
2565	7000		NOP	
2566	7000		NOP	
2567	7000		NOP	
2570	7000		NOP	
2571	7000		NOP	
2572	7000		NOP	
2573	7000		NOP	
2574	7000		NOP	
2575	7000		NOP	
2576	7000		NOP	
2577	7000		NOP	

		*2600		
2600	7320	RTRT4,	CLA STL	
2601	1051		TAD Z K7777	/ROTATE PATTERN
2602	7012		RTR	
2603	7040		CMA	
2604	7440		SZA	
2605	7402		HLT	/RTR AC DROPPED A BIT A ONE IN /AC EQUALS THE DROPPED BIT
2606	2002		ISZ Z 0002	
2607	5200		JMP RTRT4	
2610	7320	RTRT5,	CLA STL	
2611	1020		TAD Z K0000	/ROTATE PATTERN
2612	7012		RTR	
2613	1047		TAD Z K5777	
2614	7040		CMA	
2615	7450		SNA	
2616	7430		SZL	
2617	7402		HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2620	2002		ISZ Z 0002	
2621	5210		JMP RTRT5	
2622	7300	RTRT6,	CLA CLL	
2623	1034		TAD Z K4000	/ROTATE PATTERN
2624	7012		RTR	
2625	1046		TAD Z K6777	
2626	7040		CMA	
2627	7450		SNA	
2630	7430		SZL	
2631	7402		HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2632	2002		ISZ Z 0002	
2633	5222		JMP RTRT6	
2634	7300	RTRT7,	CLA CLL	
2635	1033		TAD Z K2000	/ROTATE PATTERN
2636	7012		RTR	
2637	1045		TAD Z K7377	
2640	7040		CMA	
2641	7450		SNA	
2642	7430		SZL	
2643	7402		HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2644	2002		ISZ Z 0002	
2645	5234		JMP RTRT7	

		RTRT8,	CLA CLL	
2647	1032		TAD Z K1000	/ROTATE PATTERN
2650	7012		RTR	
2651	1044		TAD Z K7577	
2652	7040		CMA	
2653	7450		SNA	
2654	7430		SZL	
2655	7402		HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2656	2002		ISZ Z 0002	
2657	5246		JMP RTRT8	
2660	7300	RTRT9,	CLA CLL	
2661	1031		TAD Z K0400	/ROTATE PATTERN
2662	7012		RTR	
2663	1043		TAD Z K7677	
2664	7040		CMA	
2665	7450		SNA	
2666	7430		SZL	
2667	7402		HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2670	2002		ISZ Z 0002	
2671	5260		JMP RTRT9	
2672	7300	RTRT10,	CLA CLL	
2673	1030		TAD Z K0200	/ROTATE PATTERN
2674	7012		RTR	
2675	1042		TAD Z K7737	
2676	7040		CMA	
2677	7450		SNA	
2700	7430		SZL	
2701	7402		HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2702	2002		ISZ Z 0002	
2703	5272		JMP RTRT10	
2704	7300	RTRT11,	CLA CLL	
2705	1027		TAD Z K0100	/ROTATE PATTERN
2706	7012		RTR	
2707	1041		TAD Z K7757	
2710	7040		CMA	
2711	7450		SNA	
2712	7430		SZL	
2713	7402		HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2714	2002		ISZ Z 0002	
2715	5304		JMP RTRT11	

		RTRT12, CLA CLL	
2717	1026	TAD Z K0040	/ROTATE PATTERN
2720	7012	RTR	
2721	1040	TAD Z K7767	
2722	7040	CMA	
2723	7450	SNA	
2724	7430	SZL	
2725	7402	HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2726	2002	ISZ Z 0002	
2727	5316	JMP RTRT12	
		RTRT13, CLA CLL	
2730	7300	TAD Z K0020	/ROTATE PATTERN
2731	1025	RTR	
2732	7012	TAD Z K7773	
2733	1037	CMA	
2734	7040	SNA	
2735	7450	SZL	
2736	7430	HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2737	7402		
2740	2002	ISZ Z 0002	
2741	5330	JMP RTRT13	
		RTRT14, CLA CLL	
2742	7300	TAD Z K0010	/ROTATE PATTERN
2743	1024	RTR	
2744	7012	TAD Z K7775	
2745	1036	CMA	
2746	7040	SNA	
2747	7450	SZL	
2750	7430	HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2751	7402		
2752	2002	ISZ Z 0002	
2753	5342	JMP RTRT14	
		RTRT15, CLA CLL	
2754	7300	TAD Z K0004	/ROTATE PATTERN
2755	1023	RTR	
2756	7012	TAD Z K7776	
2757	1035	CMA	
2760	7040	SNA	
2761	7450	SZL	
2762	7430	HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2763	7402		
2764	2002	ISZ Z 0002	
2765	5354	JMP RTRT15	
2766	7000	NOP	
2767	7000	NOP	
2770	7000	NOP	
2771	7000	NOP	
2772	7000	NOP	
2773	7000	NOP	
2774	7000	NOP	
2775	7000	NOP	
2776	7000	NOP	
2777	7000	NOP	

PAUSE

/PDP-8 INSTRUCTION TEST PART 2 TAPE 2

		x3000		
3000	7300	RTRT16,	CLA CLL	
3001	1022		TAD Z K0002	/ROTATE PATTERN
3002	7012		RTR	
3003	7450		SNA	
3004	7420		SNL	
3005	7402		HLT	/RTR FAILED AC SHOULD EQUAL /0000 LINK SHOULD EQUAL A ONE
3006	2002		ISZ Z 0002	
3007	5200		JMP RTRT16	
3010	7100	RTRT17,	CLL CLL	
3011	1021		TAD Z K0001	/ROTATE PATTERN
3012	7012		RTR	
3013	1050		TAD Z K3777	
3014	7040		CMA	
3015	7450		SNA	
3016	7430		SZL	
3017	7402		HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
3020	2002		ISZ Z 0002	
3021	5210		JMP RTRT17	
3022	7240	ANDT,	STA	
3023	0020		AND Z K0000	/AND PATTERN
3024	7440		SZA	
3025	7402		HLT	/AND FAILED A ONE IN AC /EQUALS THE FAILING BIT
3026	2002		ISZ Z 0002	
3027	5222		JMP ANDT	
3030	7200	ANDT1,	CLA	
3031	0051		AND Z K7777	/AND PATTERN
3032	7440		SZA	
3033	7402		HLT	/AND FAILED A ONE IN AC /EQUALS THE FAILING BIT
3034	2002		ISZ Z 0002	
3035	5230		JMP ANDT1	
3036	7240	ANDT2,	STA	
3037	0051		AND Z K7777	/AND PATTERN
3040	7040		CMA	
3041	7440		SZA	
3042	7402		HLT	/AND FAILED A ONE IN AC /EQUALS THE FAILING BIT
3043	2002		ISZ Z 0002	
3044	5236		JMP ANDT2	
		PAUSE		
3045	7300	TADT,	CLA CLL	
3046	1020		TAD Z K0000	/TAD PATTERN
3047	7450		SNA	
3050	7430		SZL	
3051	7402		HLT	/TAD FAILED AC AND LINK /SHOULD EQUAL 0000
3052	2002		ISZ Z 0002	
3053	5245		JMP TADT	

3054	7300	TADT1,	CLA CLL	
3055	1034		TAD Z K4000	/OPERAND 1
3056	1034		TAD Z K4000	/OPERAND 2
3057	7430		SZL	
3060	7440		SZA	
3061	7402		HLT	/LINK DROPPED A RIT
				/TAD FAILED AC SHOULD EQUAL 0000
3062	2002		ISZ Z 0002	
3063	5254		JMP TADT1	
3064	7300	TADT2,	CLA CLL	
3065	1054		TAD Z K6000	/OPERAND 1
3066	1033		TAD Z K2000	/OPERAND 2
3067	7430		SZL	
3070	7440		SZA	
3071	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
3072	2002		ISZ Z 0002	/LINK SHOULD EQUAL A ONE
3073	5264		JMP TADT2	
3074	7300	TADT3,	CLA CLL	
3075	1055		TAD Z K7000	/OPERAND 1
3076	1032		TAD Z K1000	/OPERAND 2
3077	7430		SZL	
3100	7440		SZA	
3101	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3102	2002		ISZ Z 0002	
3103	5274		JMP TADT3	

		TADT4,	CLA CLL	
3105	1056		TAD Z K7400	/OPERAND 1
3106	1031		TAD Z K0400	/OPERAND 2
3107	7430		SZL	
3110	7440		SZA	
3111	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3112	2002		ISZ Z 0002	
3113	5304		JMP TADT4	
3114	7300	TADT5,	CLA CLL	
3115	1057		TAD Z K7600	/OPERAND 1
3116	1030		TAD Z K0200	/OPERAND 2
3117	7430		SZL	
3120	7440		SZA	
3121	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3122	2002		ISZ Z 0002	
3123	5314		JMP TADT5	
3124	7300	TADT6,	CLA CLL	
3125	1076		TAD Z K7700	/OPERAND 1
3126	1027		TAD Z K0100	/OPERAND 2
3127	7430		SZL	
3130	7440		SZA	
3131	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3132	2002		ISZ Z 0002	
3133	5324		JMP TADT6	
3134	7300	TADT7,	CLA CLL	
3135	1060		TAD Z K7740	/OPERAND 1
3136	1026		TAD Z K0040	/OPERAND 2
3137	7430		SZL	
3140	7440		SZA	
3141	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3142	2002		ISZ Z 0002	
3143	5334		JMP TADT7	

		TADT8,	CLA CLL	
3145	1061		TAD Z K7760	/OPERAND 1
3146	1025		TAD Z K0020	/OPERAND 2
3147	7430		SZL	
3150	7440		SZA	
3151	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3152	2002		ISZ Z 0002	
3153	5344		JMP TADT8	
3154	7300	TADT9,	CLA CLL	
3155	1062		TAD Z K7770	/OPERAND 1
3156	1024		TAD Z K0010	/OPERAND 2
3157	7430		SZL	
3160	7440		SZA	
3161	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3162	2002		ISZ Z 0002	
3163	5354		JMP TADT9	
3164	7300	TADT10,	CLA CLL	
3165	1063		TAD Z K7774	/OPERAND 1
3166	1023		TAD Z K0004	/OPERAND 2
3167	7430		SZL	
3170	7440		SZA	
3171	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3172	2002		ISZ Z 0002	
3173	5364		JMP TADT10	
3174	7000		NOP	
3175	7000		NOP	
3176	7000		NOP	
3177	7000		NOP	

		*3200		
3200	7300	TADT11,	CLA CLL	
3201	1035		TAD Z K7776	/OPERAND 1
3202	1022		TAD Z K0002	/OPERAND 2
3203	7430		SZL	
3204	7440		SZA	
3205	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3206	2002		ISZ Z 0002	
3207	5200		JMP TADT11	
3210	7300	TADT12,	CLA CLL	
3211	1051		TAD Z K7777	/OPERAND 1
3212	1021		TAD Z K0001	/OPERAND 2
3213	7430		SZL	
3214	7440		SZA	
3215	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3216	2002		ISZ Z 0002	
3217	5210		JMP TADT12	
3220	7320	TADT13,	CLA SIL	
3221	1034		TAD Z K4000	/OPERAND 1
3222	1034		TAD Z K4000	/OPERAND 2
3223	7420		SNL	
3224	7440		SZA	
3225	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ZERO
3226	2002		ISZ Z 0002	
3227	5220		JMP TADT13	
3230	7300	TADT14,	CLA CLL	
3231	1050		TAD Z K3777	/OPERAND 1
3232	1033		TAD Z K2000	/OPERAND 2
3233	1033		TAD Z K2000	/OPERAND 3
3234	7040		CMA	
3235	7420		SNL	
3236	7440		SZA	
3237	7402		HLT	/TAD FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
3240	2002		ISZ Z 0002	
3241	5230		JMP TADT14	

		TADT15, CLA CLL	
3243	1047	TAD Z K5777	/OPERAND 1
3244	1032	TAD Z K1000	/OPERAND 2
3245	1032	TAD Z K1000	/OPERAND 3
3246	7040	CMA	
3247	7420	SNL	
3250	7440	SZA	
3251	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3252	2002	ISZ Z 0002	
3253	5242	JMP TADT15	
3254	7300	TADT16, CLA CLL	
3255	1046	TAD Z K6777	/OPERAND 1
3256	1031	TAD Z K0400	/OPERAND 2
3257	1031	TAD Z K0400	/OPERAND 3
3260	7040	CMA	
3261	7420	SNL	
3262	7440	SZA	
3263	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3264	2002	ISZ Z 0002	
3265	5254	JMP TADT16	
3266	7300	TADT17, CLA CLL	
3267	1045	TAD Z K7377	/OPERAND 1
3270	1030	TAD Z K0200	/OPERAND 2
3271	1030	TAD Z K0200	/OPERAND 3
3272	7040	CMA	
3273	7420	SNL	
3274	7440	SZA	
3275	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3276	2002	ISZ Z 0002	
3277	5266	JMP TADT17	
3300	7300	TADT18, CLA CLL	
3301	1044	TAD Z K7577	/OPERAND 1
3302	1027	TAD Z K0100	/OPERAND 2
3303	1027	TAD Z K0100	/OPERAND 3
3304	7040	CMA	
3305	7420	SNL	
3306	7440	SZA	
3307	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3310	2002	ISZ Z 0002	
3311	5300	JMP TADT18	

3313	1043	TADT19, CLA CLL	
		TAD Z K7677	/OPERAND 1
3314	1026	TAD Z K0040	/OPERAND 2
3315	1026	TAD Z K0040	/OPERAND 3
3316	7040	CMA	
3317	7420	SNL	
3320	7440	SZA	
3321	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3322	2002	ISZ Z 0002	
3323	5312	JMP TADT19	
3324	7300	TADT20, CLA CLL	
3325	1042	TAD Z K7737	/OPERAND 1
3326	1025	TAD Z K0020	/OPERAND 2
3327	1025	TAD Z K0020	/OPERAND 3
3330	7040	CMA	
3331	7420	SNL	
3332	7440	SZA	
3333	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3334	2002	ISZ Z 0002	
3335	5324	JMP TADT20	
3336	7300	TADT21, CLA CLL	
3337	1041	TAD Z K7757	/OPERAND 1
3340	1024	TAD Z K0010	/OPERAND 2
3341	1024	TAD Z K0010	/OPERAND 3
3342	7040	CMA	
3343	7420	SNL	
3344	7440	SZA	
3345	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3346	2002	ISZ Z 0002	
3347	5336	JMP TADT21	
3350	7300	TADT22, CLA CLL	
3351	1040	TAD Z K7767	/OPERAND 1
3352	1023	TAD Z K0004	/OPERAND 2
3353	1023	TAD Z K0004	/OPERAND 3
3354	7040	CMA	
3355	7420	SNL	
3356	7440	SZA	
3357	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3360	2002	ISZ Z 0002	
3361	5350	JMP TADT22	

		TADT23, CLA CLL	
3363	1037	TAD Z K7773	/OPERAND 1
3364	1022	TAD Z K0002	/OPERAND 2
3365	1022	TAD Z K0002	/OPERAND 3
3366	7040	CMA	
3367	7420	SNL	
3370	7440	SZA	
3371	7402	HLT	/TAD FAILED AC SHOULD EQUAL 0000
			/LINK SHOULD EQUAL ZERO
3372	2002	ISZ Z 0002	
3373	5362	JMP TADT23	
3374	7000	NOP	
3375	7000	NOP	
3376	7000	NOP	
3377	7000	NOP	

*3400

3400 7320 TADT24, CLA STL
 3401 1036 TAD Z K7775
 3402 1021 TAD Z K0001
 3403 1021 TAD Z K0001
 3404 7040 CMA
 3405 7430 SZL
 3406 7440 SZA
 3407 7402 HLT

/OPERAND 1
 /OPERAND 2
 /OPERAND 3

/TAD FAILED AC SHOULD EQUAL 0000
 /LINK SHOULD EQUAL A ONE

3410 2002 ISZ Z 0002
 3411 5200 JMP TADT24

3412 7300 CIAT1, CLA CLL
 3413 1051 TAD Z K7777
 3414 7041 CIA
 3415 1035 TAD Z K7776
 3416 7040 CMA
 3417 7420 SNL
 3420 7440 SZA
 3421 7402 HLT
 3422 2002 ISZ Z 0002
 3423 5212 JMP CIAT1

/TEST PATTERN
 /AC EQUALS 0001

/CIA FAILED AC SHOULD EQUAL 0000
 /LINK SHOULD EQUAL A ZERO

3424 7300 CIAT2, CLA CLL
 3425 1035 TAD Z K7776
 3426 7041 CIA
 3427 1036 TAD Z K7775
 3430 7040 CMA
 3431 7420 SNL
 3432 7440 SZA
 3433 7402 HLT
 3434 2002 ISZ Z 0002
 3435 5224 JMP CIAT2

/TEST PATTERN
 /AC EQUALS 0002

/CIA FAILED AC SHOULD EQUAL 0000
 /LINK SHOULD EQUAL A ZERO

3436 7300 CIAT3, CLA CLL
 3437 1063 TAD Z K7774
 3440 7041 CIA
 3441 1037 TAD Z K7773
 3442 7040 CMA
 3443 7420 SNL
 3444 7440 SZA
 3445 7402 HLT
 3446 2002 ISZ Z 0002
 3447 5236 JMP CIAT3

/TEST PATTERN
 /AC EQUALS 0004

/CIA FAILED AC SHOULD EQUAL 0000
 /LINK SHOULD EQUAL A ZERO

3451	1062	CIAT4,	CLA CLL	/TEST PATTERN
3452	7041		TAD Z K7770	/AC EQUALS 0010
3453	1040		CIA	
3454	7040		TAD Z K7767	
3455	7420		CMA	
3456	7440		SNL	
3457	7402		SZA	/CIA FAILED AC SHOULD EQUAL 0000
3460	2002		HLT	/LINK SHOULD EQUAL ZERO
3461	5250		ISZ Z 0002	
			JMP CIAT4	
3462	7300	CIAT5,	CLA CLL	
3463	1061		TAD Z K7760	/TEST PATTERN
3464	7041		CIA	/AC EQUALS 0020
3465	1041		TAD Z K7757	
3466	7040		CMA	
3467	7420		SNL	
3470	7440		SZA	/CIA FAILED AC SHOULD EQUAL 0000
3471	7402		HLT	/LINK SHOULD EQUAL ZERO
3472	2002		ISZ Z 0002	
3473	5262		JMP CIAT5	
3474	7300	CIAT6,	CLA CLL	
3475	1060		TAD Z K7740	/TEST PATTERN
3476	7041		CIA	/AC EQUALS 0040
3477	1042		TAD Z K7737	
3500	7040		CMA	
3501	7420		SNL	
3502	7440		SZA	/CIA FAILED AC SHOULD EQUAL 0000
3503	7402		HLT	/LINK SHOULD EQUAL ZERO
3504	2002		ISZ Z 0002	
3505	5274		JMP CIAT6	
3506	7300	CIAT7,	CLA CLL	
3507	1076		TAD Z K7700	/TEST PATTERN
3510	7041		CIA	/AC EQUALS 0100
3511	1043		TAD Z K7677	
3512	7040		CMA	
3513	7420		SNL	
3514	7440		SZA	/CIA FAILED AC SHOULD EQUAL 0000
3515	7402		HLT	/LINK SHOULD EQUAL ZERO
3516	2002		ISZ Z 0002	
3517	5306		JMP CIAT7	

		CIAT8,	CLA CLL	
3521	1057		TAD Z K7600	/TEST PATTERN
3522	7041		CIA	/AC EQUALS 0200
3523	1044		TAD Z K7577	
3524	7040		CMA	
3525	7420		SNL	
3526	7440		SZA	
3527	7402		HLT	/CIA FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
3530	2002		ISZ Z 0002	
3531	5320		JMP CIAT8	
3532	7300	CIAT9,	CLA CLL	
3533	1056		TAD Z K7400	/TEST PATTERN
3534	7041		CIA	/AC EQUALS 0400
3535	1045		TAD Z K7377	
3536	7040		CMA	
3537	7420		SNL	
3540	7440		SZA	
3541	7402		HLT	/CIA FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
3542	2002		ISZ Z 0002	
3543	5332		JMP CIAT9	
3544	7300	CIAT10,	CLA CLL	
3545	1055		TAD Z K7000	/TEST PATTERN
3546	7041		CIA	/AC EQUALS 1000
3547	1046		TAD Z K6777	
3550	7040		CMA	
3551	7420		SNL	
3552	7440		SZA	
3553	7402		HLT	/CIA FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
3554	2002		ISZ Z 0002	
3555	5344		JMP CIAT10	
3556	7300	CIAT11,	CLA CLL	
3557	1054		TAD Z K6000	/TEST PATTERN
3560	7041		CIA	/AC EQUALS 2000
3561	1047		TAD Z K5777	
3562	7040		CMA	
3563	7420		SNL	
3564	7440		SZA	
3565	7402		HLT	/CIA FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
3566	2002		ISZ Z 0002	
3567	5356		JMP CIAT11	
3570	7000		NOP	
3571	7000		NOP	
3572	7000		NOP	
3573	7000		NOP	
3574	7000		NOP	
3575	7000		NOP	
3576	7000		NOP	
3577	7000		NOP	

		*3600		
3600	7300	CIAT12,	CLA CLL	
3601	1034		TAD Z K4000	/TEST PATTERN
3602	7041		CIA	/AC EQUALS 4000
3603	1050		TAD Z K3777	
3604	7040		CMA	
3605	7420		SNL	
3606	7440		SZA	
3607	7402		HLT	/CIA FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
3610	2002		ISZ Z 0002	
3611	5200		JMP CIAT12	
3612	7300	CIAT13,	CLA CLL	
3613	1020		TAD Z K0000	/TEST PATTERN
3614	7041		CIA	/AC EQUALS 0000, LINK EQUALS A ONE
3615	7450		SNA	
3616	7420		SNL	
3617	7402		HLT	/CIA FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ONE
3620	2002		ISZ Z 0002	
3621	5212		JMP CIAT13	
3622	7410		SKP	
3623	0000	STRDCA,	0000	
3624	7320	DCAT,	CLA STL	
3625	1051		TAD Z K7777	
3626	3223		DCA STRDCA	
3627	7430		SAL	
3630	7440		SZA	/DCA FAILED ZERO TO AC TRANSFER
3631	7402		HLT	/LINK SHOULD EQUAL A ONE
3632	2002		ISZ Z 00002	
3633	5224		JMP DCAT	
3634	7300	DCAT1,	CLA CLL	
3635	1051		TAD Z K7777	/AC EQUALS 7777
3636	3223		DCA STRDCA	/STORE 7777
3637	1223		TAD STRDCA	
3640	7040		CMA	
3641	7420		SNL	
3642	7440		SZA	
3643	7402		HLT	/DCA FAILED AC TO MB TRANSFER
				/AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL ZERO
3644	2002		ISZ Z 0002	
3645	5234		JMP DCAT1	

		DCAT2,	CLA CLL	
3647	1020		TAD Z K0000	/AC EQUALS 0000
3650	3223		DCA STRDCA	/STORE 0000
3651	1223		TAD STRDCA	
3652	7420		SNL	
3653	7440		SZA	
3654	7402		HLT	/DCA FAILED AC SHOULD EQUAL 000
				/LINK SHOULD EQUAL A ZERO
3655	1051		TAD Z K7777	/AC EQUALS 7777
3656	3223		DCA STRDCA	/STORE 7777
3657	2002		ISZ Z 0002	
3660	5246		JMP DCAT2	
3661	7300	DCAT3,	CLA CLL	
3662	1051		TAD Z K7777	/AC EQUALS 7777
3663	3223		DCA STRDCA	/STORE 7777
3664	1223		TAD STRDCA	
3665	7040		CMA	
3666	7420		SNL	
3667	7440		SZA	
3670	7402		HLT	/DCA FAILED AC SHOULD EQUAL 0000
				/LINK SHOULD EQUAL A ZERO
3671	1020		TAD Z K0000	/AC EQUALS 0000
3672	3223		DCA STRDCA	/STORE 0000
3673	2002		ISZ Z 0002	
3674	5261		JMP DCAT3	
3675	7410		SKP	
3676	0000	STRISZ,	0000	
3677	7200		CLA	
3700	3002	ISZT,	DCA Z 0002	/STORE COUNTER
3701	7200		CLA	
3702	3276		DCA STRISZ	/STORE 0000
3703	2276		ISZ STRISZ	
3704	7410		SKP	
3705	7402		HLT	/ISZ FAILED IT SHOULD NOT HAVE SKIPPED
3706	1002		TAD Z 0002	
3707	7001		IAC	/INCREMENT COUNTER
3710	7440		SZA	
3711	5300		JMP ISZT	

3713	3002	ISZT1,	CLA	
3714	7300		DCA Z 0002	/STORE COUNTER
3715	3276		CLA CLL	/AC EQUALS 0000
3716	2276		DCA STRISZ	/STORE 0000
3717	1035		ISZ STRISZ	
3720	1276		TAD Z K7776	
3721	7040		TAD STRISZ	
3722	7420		CMA	
3723	7440		SNL	/AC AND LINK SHOULD EQUAL 0000
3724	7402		SZA	/ISZ FAILED ON A PLUS ONE
3725	7200		HLT	/TO THE MB TRANSFER
3726	1002		CLA	
3727	7001		TAD Z 0002	
3730	7440		IAC	/INCREMENT COUNTER
3731	5313		SZA	
			JMP ISZT1	
3732	7200		CLA	
3733	3002	ISZT2,	DCA Z 0002	/STORE COUNTER
3734	7300		CLA CLL	
3735	1036		TAD Z K7775	/TEST PATTERN
3736	3276		DCA STRISZ	/STORE 7775
3737	2276		ISZ STRISZ	/MB 7776
3740	1021		TAD Z K0001	
3741	1276		TAD STRISZ	
3742	7040		CMA	
3743	7420		SNL	
3744	7440		SZA	/AC AND LINK SHOULD EQUAL 0000
3745	7402		HLT	/ISZ FAILED MB COUNTED IN ERROR
3746	7200		CLA	
3747	1002		TAD Z 0002	
3750	7001		IAC	/INCRMENT COUNTER
3751	7440		SZA	
3752	5333		JMP ISZT2	
3753	7200		CLA	
3754	3002	ISZT3,	DCA Z 0002	/STORE COUNTER
3755	7300		CLA CLL	
3756	1037		TAD Z K7773	/TEST PATTERN
3757	3276		DCA STRISZ	/STORE 7773
3760	2276		ISZ STRISZ	/MB 7774
3761	1064		TAD Z K0003	
3762	1276		TAD STRISZ	
3763	7040		CMA	
3764	7420		SNL	
3765	7440		SZA	/AC AND LINK SHOULD EQUAL 0000
3766	7402		HLT	/ISZ FAILED MB COUNTED IN ERROR
3767	7200		CLA	
3770	1002		TAD Z 0002	
3771	7001		IAC	/INCREMENT COUNTER
3772	7440		SZA	
3773	5354		JMP ISZT3	
3774	7200		CLA	
3775	7000		NOP	
3776	7000		NOP	
3777	7410		SKP	

x4000			
4000	0000	ISZSTR, 0000	
4001	3002	ISZT4, DCA Z 0002	/STORE COUNTER
4002	7300	CLA CLL	
4003	1040	TAD Z K7767	/TEST PATTERN
4004	3200	DCA ISZSTR	/STORE 7767
4005	2200	ISZ ISZSTR	/MB 7770
4006	1065	TAD Z K0007	
4007	1200	TAD ISZSTR	
4010	7040	CMA	
4011	7420	SNL	
4012	7440	SZA	
4013	7402	HLT	/AC AND LINK SHOULD EQUAL 0000
4014	7200	CLA	/ISZ FAILED MB COUNTED IN ERROR
4015	1002	TAD Z 0002	
4016	7001	IAC	/INCREMENT COUNTER
4017	7440	SZA	
4020	5201	JMP ISZT4	
4021	7200	CLA	
4022	3002	ISZT5, DCA Z 0002	/STORE COUNTER
4023	7300	CLA CLL	
4024	1041	TAD Z K7757	/TEST PATTERN
4025	3200	DCA ISZSTR	/STORE 7757
4026	2200	ISZ ISZSTR	/MB 7760
4027	1067	TAD Z K0017	
4030	1200	TAD ISZSTR	
4031	7040	CMA	
4032	7420	SNL	
4033	7440	SZA	
4034	7402	HLT	/AC AND LINK SHOULD EQUAL 0000
4035	7200	CLA	/ISZ FAILED MB COUNTED IN ERROR
4036	1002	TAD Z 0002	
4037	7001	IAC	/INCREMENT COUNTER
4040	7440	SZA	
4041	5222	JMP ISZT5	
4042	7200	CLA	
4043	3002	ISZT6, DCA Z 0002	/STORE COUNTER
4044	7300	CLA CLL	
4045	1042	TAD Z K7737	/TEST PATTERN
4046	3200	DCA ISZSTR	/STORE 7737
4047	2200	ISZ ISZSTR	/MB 7740
4050	1070	TAD Z K0037	
4051	1200	TAD ISZSTR	
4052	7040	CMA	
4053	7420	SNL	
4054	7440	SZA	
4055	7402	HLT	/AC AND LINK SHOULD EQUAL 0000
4056	7200	CLA	/ISZ FAILED MB COUNTED IN ERROR
4057	1002	TAD Z 0002	
4060	7001	IAC	/INCREMENT COUNTER
4061	7440	SZA	
4062	5243	JMP ISZT6	

4064	3002	ISZT7,	CLA	/STORE COUNTER
4065	7300		DCA Z 0002	
4066	1043		CLA CLL	/TEST PATTERN
4067	3200		TAD Z K7677	/STORE 7677
4070	2200		DCA ISZSTR	/MB 7700
4071	1071		ISZ ISZSTR	
4072	1200		TAD Z K0077	
4073	7040		TAD ISZSTR	
4074	7420		CMA	
4075	7440		SNL	
4076	7402		SZA	/AC AND LINK SHOULD EQUAL 0000
4077	7200		HLT	/ISZ FAILED MB COUNTED IN ERROR
4100	1002		CLA	
4101	7001		TAD Z 0002	/INCREMENT COUNTER
4102	7440		IAC	
4103	5264		SZA	
			JMP ISZT7	
4104	7200		CLA	
4105	3002	ISZT8,	DCA Z 0002	/STORE COUNTER
4106	7300		CLA CLL	
4107	1044		TAD Z K7577	/TEST PATTERN
4110	3200		DCA ISZSTR	/STORE 7577
4111	2200		ISZ ISZSTR	/MB 7600
4112	1072		TAD Z K0177	
4113	1200		TAD ISZSTR	
4114	7040		CMA	
4115	7420		SNL	
4116	7440		SZA	/AC AND LINK SHOULD EQUAL 0000
4117	7402		HLT	/ISZ FAILED MB COUNTED IN ERROR
4120	7200		CLA	
4121	1002		TAD Z 0002	/INCREMENT COUNTER
4122	7001		IAC	
4123	7440		SZA	
4124	5305		JMP ISZT8	
4125	7200		CLA	
4126	3002	ISZT9,	DCA Z 0002	/STORE COUNTER
4127	7300		CLA CLL	
4130	1045		TAD Z K7377	/TEST PATTERN
4131	3200		DCA ISZSTR	/STORE 7377
4132	2200		ISZ ISZSTR	/MB 7400
4133	1073		TAD Z K0377	
4134	1200		TAD ISZSTR	
4135	7040		CMA	
4136	7420		SNL	
4137	7440		SZA	/AC AND LINK SHOULD EQUAL 0000
4140	7402		HLT	/ISZ FAILED MB COUNTED IN ERROR
4141	7200		CLA	
4142	1002		TAD Z 0002	/INCREMENT COUNTER
4143	7001		IAC	
4144	7440		SZA	
4145	5326		JMP ISZT9	

4147	3002	ISZT10,	CLA	
			DCA Z 0002	/STORE COUNTER
4150	7300		CLA CLL	
4151	1046		TAD Z K6777	/TEST PATTERN
4152	3200		DCA ISZSTR	/STORE 6777
4153	2200		ISZ ISZSTR	/MB 7000
4154	1074		TAD Z K0777	
4155	1200		TAD ISZSTR	
4156	7040		CMA	
4157	7420		SNL	
4160	7440		SZA	
4161	7402		HLT	/AC AND LINK SHOULD EQUAL 0000
4162	7200		CLA	/ISZ FAILED MB COUNTED IN ERROR
4163	1002		TAD Z 0002	
4164	7001		IAC	/INCREMENT COUNTER
4165	7440		SZA	
4166	5347		JMP ISZT10	
4167	7200		CLA	

x4200			
4200	0000	ISZPAT, 0000	
4201	3002	ISZT11, DCA Z 0002	/STORE COUNTER
4202	7300	CLA CLL	
4203	1047	TAD Z K5777	/TEST PATTERN
4204	3200	DCA ISZPAT	/STORE 5777
4205	2200	ISZ ISZPAT	/MB 6000
4206	1075	TAD Z K1777	
4207	1200	TAD ISZPAT	
4210	7040	CMA	
4211	7420	SNL	
4212	7440	SZA	
4213	7402	HLT	/AC AND LINK SHOULD EQUAL 0000
4214	7200	CLA	/ISZ FAILED MB COUNTED IN ERROR
4215	1002	TAD Z 0002	
4216	7001	IAC	/INCREMENT COUNTER
4217	7440	SZA	
4220	5201	JMP ISZT11	
4221	7200	CLA	
4222	3002	ISZT12, DCA Z 0002	/STORE COUNTER
4223	7300	CLA CLL	
4224	1050	TAD Z K3777	/TEST PATTERN
4225	3200	DCA ISZPAT	/STORE 3777
4226	2200	ISZ ISZPAT	/MB 4000
4227	1050	TAD Z K3777	
4230	1200	TAD ISZPAT	
4231	7040	CMA	
4232	7420	SNL	
4233	7440	SZA	
4234	7402	HLT	/AC AND LINK SHOULD EQUAL 0000
4235	7200	CLA	/ISZ FAILED MB COUNTED IN ERROR
4236	1002	TAD Z 0002	
4237	7001	IAC	/INCREMENT COUNTER
4240	7440	SZA	
4241	5222	JMP ISZT12	
4242	7200	CLA	
4243	3002	ISZT13, DCA Z 0002	/STORE COUNTER
4244	7300	CLA CLL	
4245	1051	TAD Z K7777	/TEST PATTERN
4246	3200	DCA ISZPAT	/STORE 7777
4247	2200	ISZ ISZPAT	/MB 0000
4250	7402	HLT	/ISZ FAILED TO SKIP
4251	1051	TAD Z K7777	
4252	1200	TAD ISZPAT	
4253	7040	CMA	
4254	7420	SNL	
4255	7440	SZA	
4256	7402	HLT	/AC AND LINK SHOULD EQUAL 0000
4257	7200	CLA	/ISZ FAILED MB COUNTED IN ERROR
4260	1002	TAD Z 0002	
4261	7001	IAC	/INCREMENT COUNTER
4262	7440	SZA	
4263	5243	JMP ISZT13	

	PZERT,	7340	/(STA CLL=7340)AC EQUALS 7777
4265	0020	AND	K0000 /TEST PATTERN
4266	7450	SNA	
4267	7430	SZL	/PAGE ZERO ADDRESSING FAILED
4270	7402	HLT	/AC AND LINK SHOULD EQUAL 0000
4271	2274	ISZ	ZERSTR /INCREMENT COUNTER
4272	5264	JMP	PZERT
4273	7410	SKP	
4274	0000	ZERSTR,	0000 /COUNTER REGISTER
4275	7300	INDRT,	CLA CLL
4276	1040	TAD	Z K7767 /TEST PATTERN
4277	7040	CMA	/AC EQUALS 0010
4300	1426	TAD	I Z 26 /((26) EQUAL 0040 (0040) EQUAL 7767
4301	7040	CMA	
4302	7420	SNL	
4303	7440	SZA	
4304	7402	HLT	/INDIRECT ADDRESSING PAGE ZERO FAILED
			/AC AND LINK SHOULD EQUAL 0000
4305	2002	ISZ	Z 0002
4306	5275	JMP	INDRT
4307	7410	SKP	
4310	4326	STRIND,	INDSTR
4311	7300	INDRT1,	CLA CLL
4312	3326	DCA	INDSTR /CLEAR CONTENTS OF INDIRECT ADDRESS
4313	1052	TAD	Z K5252 /TEST PATTERN
4314	3710	DCA	I STRIND /STORE 5252 AT INDIR
4315	1053	TAD	Z K2525
4316	1326	TAD	INDSTR
4317	7040	CMA	
4320	7420	SNL	
4321	7440	SZA	
4322	7402	HLT	/INDIRECT ADDRESSING CURRENT PAGE FAILED
			/AC AND LINK SHOULD EQUAL 0000
4323	2002	ISZ	Z 0002
4324	5311	JMP	INDRT1
4325	7410	SKP	
4326	0000	INDSTR,	0000
4327	7410	SKP	

		REGJMS, 0000
4331	5333	JMPT, JMP REGJMP
4332	7402	HLT
4333	2002	REGJMP, ISZ 2 0002
4334	4330	JMS REGJMS
4335	7200	JMPIT, CLA
4336	5737	JMP I IREG
4337	4340	IREG, CHECK
4340	7440	CHECK, SZA
4341	7402	HLT
4342	2002	ISZ 2 0002
4343	5335	JMP JMPIT
4344	7000	NOP

/JMP FAILED MB5-11 JAM PC FAILED TO OCCUR

/JMP INDIRECT FAILED
 /AC SHOULD EQUAL 0000
 /MB 0-4 JAM PC FAILED TO OCCUR

0146	5547	x0146	JMP I Z RJMPZ	/JMPZT RJMP
0147	4347	RJMPZ,	RJMPZX	
0150	0151		RJMPIZ	
0151	5552	RJMPIZ,	JMP I Z 152	
0152	4353		CHECK1	
		x4349		
4345	5146	JMPZT,	JMP Z 146	
4346	7402		HLT	/JMP PAGE ZERO DIRECTLY FAILED
4347	2002	RJMPZX,	ISZ Z 0002	/ZERO THE PC BITS 0-4 FAILED TO OCCUR
4350	5345		JMP JMPZT	
4351	7340	JMPIZT,	7340	/(STA CLL=7340)
4352	5550		JMP I Z 150	
4353	7040	CHECK1,	CMA	
4354	7420		SNL	
4355	7440		SZA	
4356	7402		HLT	/JMP PAGE ZERO INDIRECTLY FAILED
4357	2002		ISZ Z 0002	
4360	5351		JMP JMPIZT	
4361	7240	JMST,	STA	/AC EQUALS 7777
4362	4364		JMS JMSREG	
4363	7402		HLT	/JMS FAILED TO JMP
4364	4000	JMSREG,	0000	/TAD OCCURS ON COUNT PC FAILURE
4365	7001	JMST1,	IAC	
4366	7440		SZA	
4367	7402		HLT	/JMS COUNT PC FAILED
4370	2002		ISZ Z 0002	
4371	5361		JMP JMST	
4372	7000		NOP	
4373	7000		NOP	
4374	7000		NOP	
4375	7000		NOP	
4376	7000		NUP	
4377	7000		NOP	

4400	7300	*4400 JMST2,	CLA CLL	
4401	3203		DCA JMSR	
4402	4203		JMS JMSR	
4403	0000	JMSR,	0000	/(JMSR) EQUAL 0001 ON A PC JAM
4404	1203		TAD JMSR	/THE MB FAILURE
4405	7004		RAL	
4406	7420		SNL	/LINK SHOULD EQUAL ONE
4407	7402		HLT	/JMS PC JAM THE MB FAILED
4410	2002		ISZ Z 0002	
4411	5200		JMP JMST2	
4412	7410		SKP	
4413	4416	UJMS3,	JMSTX	/UJMS3 EQUALS ADDRESS OF JMSTX
4414	7200	JMST3,	CLA	
4415	3217		DCA RJMS3	
4416	4217	JMSTX,	JMS RJMS3	
4417	0000	RJMS3,	0000	
4420	7300		CLA CLL	
4421	1213		TAD UJMS3	
4422	7040		CMA	
4423	1217		TAD RJMS3	
4424	7040		CMA	
4425	7440		SZA	
4426	7420		SNL	/JMS COUNT MB FAILED
4427	7402		HLT	/UJMS3 SHOULD NOT HAVE EQUALED RJMS3
4430	2002		ISZ Z 0002	
4431	5214		JMP JMST3	
4432	7300	JMSIT,	CLA CLL	
4433	3235		DCA JMSIX	
4434	4650		JMS I IJMSR	
4435	0000	JMSIX,	0000	/JMSIX SHOULD EQUAL 4435
4436	1247		TAD K3342	
4437	1235		TAD JMSIX	
4440	7040		CMA	
4441	7420		SNL	
4442	7440		SZA	/AC AND LINK SHOULD EQUAL 0000
4443	7402		HLT	/PC JAM THE MB FAILED ON
				/AN INDIRECT JMS
4444	2002		ISZ Z 0002	
4445	5232		JMP JMSIT	
4446	5255		JMP AUINT	
4447	3342	K3342,	3342	
4450	4435	IJMSR,	JMSIX	/INDIRECT ADDRESS
4451	7402		HLT	/INDIRECT ADDRESSING FAILED
				/DURING A JMS OPERATION

		K4464,	4464	
4453	7000	NOOP,	NOP	
4454	7402	HALT,	HLT	
4455	7200	AUINT,	CLA	
4456	1254		TAD HALT	
4457	3265		DCA INDER	/STORE HLT
4460	1252		TAD K4464	
4461	3010		DCA Z 10	/SET AUTO INDEX ADDRESS 4464
4462	1253		TAD NOOP	
4463	3410		DCA I Z 10	/STORE NOP AT INOHLT.
4464	7000		NOP	
4465	7402	INDER,	HLT	/COUNT MB FAILED ONAUTO INDEX
4466	2002		ISZ Z 0002	
4467	5255		JMP AUINT	
4470	5273		JMP INDXT	
4471	4010	AUXX,	4010	
4472	7040	K7040,	7040	
4473	7300	INDXT,	CLA CLL	
4474	1272		TAD K7040	
4475	3671		DCA I AUXX	/STORE 7040 AT MA 4010
4476	5677		JMP I AUX	/JUMP TO XXX INDIRECTLY
4477	4172	AUX,	XXX	/XXX EQUALS 4172
4500	1671	RETAU,	TAD I AUXX	/(4010) SHOULD EQUAL 7040
4501	7010		RAR	
4502	7430		SZL	
4503	7402		HLT	/LINK SHOULD EQUAL ZERO
4504	2002		ISZ Z 0002	/MB AUTO INDEXED IN ERROR
4505	5273		JMP INDXT	/MA BIT ZERO OPEN

x4170

4170	5771		JMP I INCT11
4171	4201	INCT11,	ISZT11
4172	0610	XXX,	AND I 4010
4173	5774		JMP I RETX
4174	4500	RETX,	RETAU
4175	7000		NOP
4176	7000		NOP
4177	7000		NOP

/(4010) SHOULD EQUAL 7040
/RETURN TO TEST INDXT

x4506

4506	5311		JMP INDXT1
4507	2010	AUXX1,	2010
4510	5200	K5200,	5200
4511	7300	INDXT1,	CLA CLL
4512	1310		TAD K5200
4513	3707		DCA I AUXX1
4514	5715		JMP I AUX1
4515	2175	AUX1,	XXX1
4516	1707	RETAU1,	TAD I AUXX1
4517	7010		RAR
4520	7430		SZL
4521	7402		HLT
4522	2002		ISZ Z 0002
4523	5311		JMP INDXT1

/STORE 5200 AT MA 2010
/JUMP TO XXX1 INDIRECTLY
/XXX1 EQUALS 2175
/(2010) SHOULD EQUAL 5200

/LINK SHULD EQUAL ZERO
/MB AUTO INDEXED IN ERROR
/MA BIT ONE OPEN

x2173

2173	5774	JMP I R0T13	
2174	2200	R0T13,	RTLT13
2175	0610	XXX1,	AND I 2010
2176	5777	JMP I RETX1	
2177	4516	RETX1,	RETAU1

/(2010) SHOULD EQUAL 5200
/RETURN TO TEST INDXT1

x4524

4524	5327	JMP INDXT2	
4525	1010	AUXX2,	1010
4526	6001	K6001,	6001
4527	7300	INDXT2,	CLA CLL
4530	1326	TAD K6001	
4531	3725	DCA I AUXX2	/STORE 6001 AT MA 1010
4532	5733	JMP I AUX2	/JUMP TO XXX2 INDIRECTLY
4533	1175	AUX2,	XXX2
4534	1725	RETAU2,	TAD I AUXX2
4535	7010	RAR	/XXX2 EQUALS 1175
4536	7420	SNL	/(1010) SHOULD EQUAL 6001
4537	7402	HLT	
4540	2002	ISZ Z 0002	/LINK SHOULD EQUAL A ONE
4541	5327	JMP INDXT2	/MB AUTO INDEXED IN ERROR

/MA BIT 2 OPEN

x1170

1175	0610	XXX2,	AND I 1010
1176	5777	JMP I RETX2	
1177	4534	RETX2,	RETAU2

/(1010) SHOULD EQUAL 6001
/RETURN TO TEST INDXT2

x4542

4542	5345	JMP INDXT3	
4543	0410	AUXX3,	0410
4544	7100	K7100,	7100
4545	7300	INDXT3,	CLA CLL
4546	1344	TAD K7100	
4547	3743	DCA I AUXX3	/STORE 7100 AT MA 0410
4550	5751	JMP I AUX3	/JUMP TO XXX3 INDIRECTLY
4551	0575	AUX3,	XXX3
4552	1743	RETAU3,	TAD I AUXX3
4553	7010	RAR	/XXX3 EQUALS 0575
4554	7430	SZL	/(0410) SHOULD EQUAL 7100
4555	7402	HLT	
4556	2002	ISZ Z 0002	/LINK SHOULD EQUAL A ZERO
4557	5345	JMP INDXT3	/MB AUTO INDEXED IN ERROR

/MA BIT 3 OPEN

x0570

0575	0610	XXX3,	AND I 0410
0576	5777	JMP I RETX3	
0577	4552	RETX3,	RETAU3

/(0410) SHOULD EQUAL 7100
/RETURN TO TEST INDXT3

***4560**

```

4560 5363      JMP INDXT4
4561 0210  AUXX4, 0210
4562 7604  K7604, 7604
4563 7300  INDXT4, CLA CLL
4564 1362      TAD K7604
4565 3761      DCA I AUXX4
4566 5767      JMP I AUX4
4567 0375  AUX4,  XXX4
4570 1761  RETAU4, TAD I AUXX4
4571 7010      RAR
4572 7430      S&L
4573 7402      HLT

4574 2002      ISZ Z 0002
4575 5363      JMP INDXT4
4576 5777      JMP I DXT5
4577 4602  DXT5,  INDXT5

```

/STORE 7604 AT MA 0210
 /JUMP TO XXX4 INDIRECTLY
 /XXX4 EQUALS 0375
 /(0210) SHOULD EQUAL 7604

/LINK SHOULD EQUAL A ZERO
 /MB AUTO INDEXED IN ERROR
 /MA BIT 4 OPEN

***0375**

```

0375 0610  XXX4,  AND I 0210
0376 5777      JMP I RETX4
0377 4570  RETX4,  RETAU4

```

/(0210) SHOULD EQUAL 7604
 /RETURN TO TEST INDXT4

***4600**

```

4600 6611  K6611, 6611
4601 0110  AUXX5, 0110
4602 7300  INDXT5, CLA CLL
4603 1200      TAD K6611
4604 3601      DCA I AUXX5
4605 5606      JMP I AUX5
4606 0175  AUX5,  XXX5
4607 1601  RETAU5, TAD I AUXX5
4610 7010      RAR
4611 7420      S&L
4612 7402      HLT

4613 2002      ISZ Z 0002
4614 5202      JMP INDXT5

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/STORE 6611 AT MA 0110
 /JUMP TO XXX5 INDIRECTLY
 /XXX5 EQUALS 0175
 /(0110) SHOULD EQUAL 6611

/LINK SHOULD EQUAL A ZERO
 /MB AUTO INDEXED IN ERROR
 /MA BIT 5 OPEN

		x0172		
0175	0510	XXX5,	AND I \neq 110	/(0110) SHOULD EQUAL 6611
0176	5577		JMP I \neq RETX5	/RETURN TO TEST INDXT5
0177	4607	RETX5,	RETAU5	

		x4615		
4615	5220		JMP INDXT6	
4616	0050	AUXX6,	0050	
4617	3777	KZ3777,	3777	
4620	7300	INDXT6,	CLA CLL	
4621	1217		TAD KZ3777	
4622	3616		DCA I AUXX6	/STORE 3777 AT MA 0050
4623	5624		JMP I AUX6	/JUMP TO XXX6 INDIRECTLY
4624	0172	AUX6,	XXX6	/XX6 EQUALS 0172
4625	1616	RETAU6,	TAD I AUXX6	/(0050) SHOULD EQUAL 3777
4626	7010		RAR	
4627	7420		SNL	
4630	7402		HLT	/LINK SHOULD EQUAL A ONE
				/MB AUTO INDEXED IN ERROR
4631	2002		ISZ \neq 0002	/MA BIT 6 OPEN
4632	5220		JMP INDXT6	

		x0175		
0172	0450	XXX6,	AND I \neq 50	/(0050) SHOULD EQUAL 3777
0173	5574		JMP I \neq RETX6	/RETURN TO TEST INDXT6
0174	4625	RETX6,	RETAU6	

		x4633		
4633	5236		JMP INDXT7	
4634	0030	AUXX7,	0030	
4635	0200	KZ0200,	0200	
4636	7300	INDXT7,	CLA CLL	
4637	1235		TAD KZ0200	
4640	3634		DCA I AUXX7	/STORE 0200 AT MA 0030
4641	5642		JMP I AUX7	/JUMP TO XXX7 INDIRECTLY
4642	0167	AUX7,	XXX7	/XXX7 EQUALS 0167
4643	1634	RETAU7,	TAD I AUXX7	/(0030) SHOULD EQUAL 0200
4644	7010		RAR	
4645	7430		SZL	
4646	7402		HLT	/LINK SHOULD EQUAL ZERO
				/MB AUTO INDEXED IN ERROR
4647	2002		ISZ \neq 0002	/MA BIT 7 OPEN
4650	5236		JMP INDXT7	

		x0167		
0167	0430	XXX7,	AND I \neq 30	/(0030) SHOULD EQUAL 0200
0170	5571		JMP I \neq RETX7	/RETURN TO TEST INDXT7
0171	4643	RETX7,	RETAU7	

x4651			
4651	7410	SKP	
4652	0007	AUXX8, 0007	
4653	7300	INDXT8, CLA CLL	
4654	1020	TAD K0000	
4655	3652	DCA I AUXX8	/STORE 0000 AT MA 0007
4656	5657	JMP I AUX8	/JUMP TO XXX8 INDIRECTLY
4657	0164	AUX8, XXX8	/XXX8 EQUALS 0164
4660	1652	RETAU8, TAD I AUXX8	/(0007) SHOULD EQUAL 0000
4661	7010	RAR	
4662	7430	SZL	
4663	7402	HLT	/LINK SHOULD EQUAL ZERO
			/MB AUTOINDEXED IN ERROR
4664	2002	ISZ Z 0002	/MA BIT 8 OPEN
4665	5253	JMP INDXT8	
x0164			
0164	0407	XXX8, AND I Z 07	/(0007) SHOULD EQUAL 0000
0165	5566	JMP I Z RETX8	/RETURN TO TEXT INDXT8
0166	4660	RETX8, RETAU8	
x4660			
4666	7200	SZACLA, CLA	
4667	1051	TAD K7777	/AC EQUALS 7777
4670	7640	SZA CLA	
4671	7440	SZA	
4672	7402	HLT	/SZA CLA FAILED
			/AC SHOULD EQUAL 0000
4673	2002	ISZ Z 0002	
4674	5266	JMP SZACLA	
4675	7200	SNACLA, CLA	
4676	1051	TAD K7777	
4677	7650	SNA CLA	
4700	7402	HLT	/SNA FAILED
4701	7440	SZA	
4702	7402	HLT	/CLA FAILED AC SHOULD EQUAL 0000
4703	2002	ISZ Z 0002	
4704	5275	JMP SNACLA	
4705	7200	SMACLA, CLA	
4706	1034	TAD K4000	/AC EQUALS 4000
4707	7700	SMA CLA	
4710	7402	HLT	/SMA FAILED
4711	7440	SZA	
4712	7402	HLT	/CLA FAILED AC SHOULD EQUAL 0000
4713	2002	ISZ Z 0002	
4714	5305	JMP SMACLA	

	SPACIA,	CLA	
4716	1034	TAD K4000	
4717	7710	SPA CLA	
4720	7440	SZA	
4721	7402	HLT	
4722	2002	ISZ Z 0002	
4723	5315	JMP SPACLA	

/AC EQUALS 4000

/SPA CIA FAILED
/AC SHOULD EQUAL 0000

	x0077		
0077	0000	FJMS,	0000
0100	6012	RRB	
0101	6022	PCF	
0102	6032	KCC	
0103	6042	TCF	
0104	6072	DCF	
0105	6104	CMF	
0106	6502	PLCF	
0107	6534	ADRB	
0110	6611	DRCF	
0111	6671	CRRB	
0112	6641	6641	
0113	6652	LCP	
0114	6715	TSRD	
0115	6732	TCTI	
0116	6772	MMCF	
0117	7200	CLA	
0120	1034	TAD K4000	
0121	6702	MCD	
0122	7300	CLA CLL	
0123	5477	JMP I Z FJMS	

/CLEAR READER FLAG
/CLEAR PUNCH FLAG
/CLEAR AC CLEAR TTY READER FLAG
/CLEAR TTY PRINT FLAG
/CLEAR DISPLAY FLAG
/CLEAR MEMORY PARITY FLAG
/CLEAR PLOTTER FLAG
/CLEAR CONVERTER FLAG
/CLEAR DRUM FLAG
/CLEAR CARD READER FLAG
/CLEAR CARD PUNCH FLAG
/CLEAR LINE PRINTER FLAG
/CLEAR MAGNETIC TAPE DATA FLAG
/CLEAR MAGNETIC TAPE INTERRUPT FLAG
/CLEAR DECTAPE FLAG

/CLEAR AUTOMATIC MAG TAPE FLAG
/CLEAR AC AND LINK
/EXIT FLAG CLEAR ROUTINE

	x4724		
4724	7410	SKP	
4725	5553	XERR,	JMP I Z IERR
4726	7200	INTAK,	CLA
4727	1325	TAD XERR	
4730	3001	DCA Z 0001	
4731	4077	JMS Z FJMS	
4732	1073	TAD K0377	
4733	6046	TLS	
4734	6041	TTFLG,	TSF
4735	5334	JMP TTFLG	
4736	7410	SKP	
4737	7402	IERRI,	HLT
4740	7000	NOP	/GIVEN
4741	7000	NOP	

/STORE RETURN TO ERROR HALT
/JMS TO CLEAR ALL FLAGS
/RUBOUT

/SKIP ON A TTY FLAG EQUAL TO A

/INTERRUPT ACTION OCCURED
/IN ERROR NO ION INSTRUCTION

x0153

0153	4737	IERR,	IERR1	/RETURN TO TEST INTAK
0154	4752	IERR2,	IERR3	/RETURN TO TEST INTAK1
0155	4772	IERRN,	IERRN1	/RETURN TO TEST INTAK3
0156	5015	IERR4,	IERR5	/RETURN TO TEST INTAK3
0157	5036	IERR6,	IERR7	/RETURN TO TEST INTAK4
0160	2742	K2742,	2742	
0161	5064	IERRN2,	IERRN3	/RETURN TO TEST INTAK5

x4742

4742	7410		SKP	
4743	5554	XERR1,	JMP I Z IERR2	
4744	7200	INTAK1,	CLA	
4745	1343		TAD XERR1	
4746	3001		DCA Z 0001	/STORE RETURN TO ERROR HALT
4747	4077		JMS Z FJMS	/JMS TO CLEAR ALLFLAGS
4750	6001		ION	/TURN INTERRUPT ENABLE ON
4751	7410		SKP	
4752	7402	IERR3,	HLT	/INTERRUPT ACTION OCCURED IN /ERROR ALL FLAGS ARE CLEARED
4753	7000		NOP	
4754	7000		NOP	
4755	7410		SKP	
4756	5555	XERR2,	JMP I Z IERRN	
4757	6002	INTAK2,	IOF	/TURN INTERRUPT OFF
4760	7300		CLA CLL	
4761	1356		TAD XERR2	
4762	3001		DCA Z 0001	/STORE RETURN TO TEST
4763	1073		TAD K0377	/RUBOUT
4764	6046		TLS	
4765	6041	TTFLG1,	ISF	/SKIP ON A TTY FLAG EQUAL TO A ONE
4766	5365		JMP TTFLG1	
4767	6001		ION	/INT ACK SHOULD OCCUR
4770	7000		NOP	
4771	7402		HLT	/INTACK FAILED TO OCCUR /ZERO THE PC MAY ALSO HAVE FAILED
4772	7000	IERRN1,	NOP	
4773	7000		NOP	
4774	7000		NOP	
4775	7000		NOP	
4776	7000		NOP	
4777	7000		NOP	

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* 5000
5000 7410 SKP
5001 5556 XERR3, JMP I Z IERR4
5002 7300 INTAK3, CLA CLL
5003 1201 TAD XERR3
5004 3001 DCA Z 0001 /STORE RETURN TO ERROR HALT
5005 4077 JMS Z FJMS /CLEAR ALL FLAGS
5006 6001 ION /TURN INTERRUPT ENABLE ON
5007 6002 IOF /TURN INTERRUPT ENABLE OFF
5010 1073 TAD K0377 /RUBOUT
5011 6046 TLS
5012 6041 TTFLG2, TSF /SKIP ON TTY FLAG EQUAL TO ADNE
5013 5212 JMP TTFLG2
5014 7410 SKP
5015 7402 IERR5, HLT /INTAKC OCCURED IN ERROR
/IOF FAILED TO TURN OFF
/THE INTERRUPT ACTION

5016 7000 NOP
5017 7000 NOP
5020 7410 SKP
5021 5557 XERR4, JMP I Z IERR6
5022 6002 INTAK4, IOF
5023 7300 CLA CLL
5024 1221 TAD XERR4
5025 3001 DCA Z 0001 /STORE RETURN TO TEST
5026 4077 JMS Z FJMS /CLEAR ALL FLAGS
5027 1073 TAD K0377 /RUBOUT
5030 6046 TLS
5031 6041 TTFLG3, TSF /SKP ON TTYFLAG EQUAL TO A ONE
5032 5231 JMP TTFLG3
5033 6001 ION /TURN INTERRUPT ACTION ON
5034 7200 CLA
5035 7000 CLMA, NOP /SHOULD NOT CONTAIN 5035
5036 1235 IERR7, TAD CLMA
5037 1160 TAD K2742
5040 7040 CMA
5041 7450 SNA
5042 7402 HLT /AC SHOULD NOT EQUAL 0000
/ZERO THE MA FAILED ON INTACK
/CLMA CONTAINED 5035

5043 7000 NOP
5044 7000 NOP

5045 5250 JMP INTAK5
5046 5064 COMP, IERRN3
5047 5561 XERR5, JMP I Z IERRN2
5050 7300 INTAK5, CLA CLL
5051 6002 IOF /TURN INTERRUPT OFF
5052 3000 DCA Z 0000 /CLEAR MA 0000
5053 1247 TAD XERR5
5054 3001 DCA Z 0001 /STORE RETURN TO TEST
5055 4077 JMS Z FJMS /CLEAR ALL FLAGS
5056 1073 TAD K0377 /RUBOUT
5057 6046 TLS
5060 6041 TTFLG4, TSF /SKIP ON TTY EQUAL TO A ONE
5061 5260 JMP TTFLG4
5062 6001 ION /TURN INTERRUPT ACTION ON
5063 7300 CLA CLL

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5064	1000	IERRN3,	TAD Z 0000	/MA ZERO SHOULD EQUAL
5065	7040	CMA	/ADDRESS	
5066	1246	TAD COMP		
5067	7040	CMA		
5070	7420	SNL		
5071	7440	SZA		
5072	7402	HLT	/MA ZERO DID NOT EQUAL 5064	
5073	7000	NOP	/PC JAM THE MB FAILED	
5074	7000	NOP		
5075	7300	INTAK6,	CLA CLL	
5076	1364	TAD XERR6		/STR RETURN TO TSI
5077	3001	DCA Z 0001		
5100	3365	DCA INJMX		
5101	1073	TAD K0377		
5102	6046	TL8		
5103	6041	TSP		
5104	5303	JMP .-1		
5105	6001	ION		
5106	4765	JMS I INJMX		
5107	7402	HLT	/JMS I FAILED	
5110	7200	NOIE,	CLA	/INDIRECT FAILED AFTER ION
5111	1000	TAD Z 0000		
5112	7040	CMA		
5113	1021	TAD K0001		
5114	7040	CMA		
5115	7440	SZA		
5116	7402	HLT	/0000 NOT EQUAL TO 0001	
5117	6002	TIONOF,	IOF	
5120	4077	JMS FJMS	/CLEAR ALL FLAGS	
5121	7200	CLA		
5122	3000	DCA 0000	/CLR MA 0000	
5123	1163	TAD XONOF		/JMP I (ERONOF)
5124	3001	DCA 0001		/STORE RETURN JUMP
5125	1073	TAD K0377		
5126	6046	TL8		
5127	6041	TSP		
5130	5327	JMP .-1		/FLAG ON
5131	6001	ION		/TURN INTERRUPT ON
5132	6002	IOF		/TURN INTERRUPT OFF
5133	7610	CLA SKP		
5134	7402	FRONOF,	HLT	/ERROR, IOF FAILED TO TURN
5135	1000	TAD 0000		/OFF INTERRUPT. PI OCCURED
5136	7440	SZA		
5137	7402	FRONOF,	HLT	/ERROR, MA0000 CONTAINS
5140	7200	CLA		/R.JMP ADDRESS
5141	1063	TAD K7774		/PRINT 2A AND LOOP
5142	3002	DCA Z 0002		
5143	1363	TAD K5154		
5144	3010	DCA Z 10		
5145	1410	PRXX,	TAD I Z 10	
5146	6046	TL8		
5147	6041	TTFL05,	TSP	
5150	5347	JMP TTFLG5		
5151	2002	ISZ Z 0002		
5152	5361	JMP AXX+1		
5153	5754	JMP I BEGIN		

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*162
0162 5110 IERRP, NOIE
0163 5564 XONOF, JMP I .,+1

*5154\
5154 1203 BEGIN, 1203
5155 0215 CRX, 0215
5156 0212 LFX, 0212
5157 0062 XX2, 0062
5160 0301 AXX, 0301
5161 7200 CLA
5162 5345 JMP PRXX
5163 5154 K5154, 5154
5164 5562 XERR6, JMP I Z IERRP
5165 0000 INJMX, 0
5166 5765 JMP I .,-1

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ANDT	3022	CIAT8	3520	INDSTR	4326
ANDT1	3030	CIAT9	3532	INDXT	4473
ANDT2	3036	CLAT	1415	INDXT1	4511
AUINT	4455	CLLT	1476	INDXT2	4527
AUX	4477	CLMA	5035	INDXT3	4545
AUXX	4471	CMAT	1423	INDXT4	4563
AUXX1	4507	CMLT	1504	INDXT5	4602
AUXX2	4525	CMLT1	1512	INDXT6	4620
AUXX3	4543	CUMP	5046	INDXT7	4636
AUXX4	4561	CRX	5155	INDXT8	4653
AUXX5	4601	DCAT	3624	INJMY	5165
AUXX6	4616	DCAT1	3634	INTAK	4726
AUXX7	4634	DCAT2	3646	INTAK1	4744
AUXX8	4652	DCAT3	3661	INTAK2	4757
AUX1	4515	DXTB	4577	INTAK3	5002
AUX2	4533	EROFON	5137	INTAK4	5022
AUX3	4551	ERONOF	5134	INTAK5	5050
AUX4	4567	FUMB	0077	INTAK6	5075
AUX5	4606	HALT	4454	IREQ	4337
AUX6	4624	IACT	1526	ISZDAT	4200
AUX7	4642	IERR	0153	ISZSTR	4000
AUX8	4657	IERRN	0155	ISZT	3700
AXX	5160	IERRN1	4772	ISZT1	3713
BEGIN	5154	IERRN2	0161	ISZT10	4147
CHECK	4340	IERRN3	5064	ISZT11	4201
CHECK1	4353	IERRB	0162	ISZT12	4222
CIAT	1431	IERR1	4737	ISZT13	4243
CIAT1	3412	IERR2	0154	ISZT2	3733
CIAT10	3544	IERR3	4752	ISZT3	3754
CIAT11	3556	IERR4	0156	ISZT4	4001
CIAT12	3600	IERR5	5015	ISZT5	4022
CIAT13	3612	IERR6	0157	ISZT6	4043
CIAT2	3424	IERR7	5036	ISZT7	4064
CIAT3	3436	IUMBR	4450	ISZT8	4105
CIAT4	3450	INCT11	4171	ISZT9	4126
CIAT5	3462	INDER	4465	JMPIT	4335
CIAT6	3474	INDRT	4275	JMPIZT	4351
CIAT7	3506	INDRT1	4311	JMPT	4331

JMPZT	4345
JMSIT	4432
JMSIX	4435
JMSR	4403
JMSREG	4364
JMST	4361
JMSTX	4416
JMST1	4365
JMST2	4400
JMST3	4414
KZ0200	4635
KZ3777	4617
K0000	0020
K0001	0021
K0002	0022
K0003	0064
K0004	0023
K0007	0065
K0010	0024
K0017	0067
K0020	0025
K0037	0070
K0040	0026
K0067	0066
K0077	0071
K0100	0027
K0177	0072
K0200	0030
K0377	0073
K0400	0031
K0777	0074
K1000	0032
K1777	0075
K2000	0033
K2525	0053
K2742	0160
K3342	4447
K3777	0050
K4000	0034
K4464	4452
K5154	5163
K5200	4510
K5252	0052
K5777	0047
K6000	0054
K6001	4526
K6611	4600
K6777	0046
K7000	0055
K7040	4472
K7100	4544
K7377	0045
K7400	0056
K7577	0044
K7600	0057
K7604	4562
K7677	0043

K7700	0076
K7737	0042
K7740	0060
K7757	0041
K7760	0061
K7767	0040
K7770	0062
K7773	0037
K7774	0063
K7775	0036
K7776	0035
K7777	0051
LFX	5156
NOIE	5110
NOOP	4453
OSRT	1536
PRXX	5145
PZERT	4264
RALT	1545
RALT1	1554
RALT10	1701
RALT11	1713
RALT12	1725
RALT13	1737
RALT14	1751
RALT15	1763
RALT16	2000
RALT2	1563
RALT3	1600
RALT4	1607
RALT5	1617
RALT6	1631
RALT7	1643
RALT8	1655
RALT9	1667
RART	2261
RART1	2270
RART10	2412
RART11	2424
RART12	2436
RART13	2450
RART14	2462
RART15	2474
RART16	2506
RART17	2520
RART2	2277
RART3	2305
RART4	2314
RART5	2324
RART6	2336
RART7	2350
RART8	2362
RART9	2400
REGJMP	4333
REGJMS	4330
RETAU	4500

RETAU1	4516
RETAU2	4534
RETAU3	4552
RETAU4	4570
RETAU5	4607
RETAU6	4625
RETAU7	4643
RETAU8	4660
RETX	4174
RETX1	2177
RETX2	1177
RETX3	0577
RETX4	0377
RETX5	0177
RETX6	0174
RETX7	0171
RETX8	0166
RJMP1Z	0151
RJMP2	0147
RJMPZX	4347
RJMS3	4417
RTLT	2011
RTLT1	2020
RTLT10	2135
RTLT11	2147
RTLT12	2161
RTLT13	2200
RTLT14	2212
RTLT15	2224
RTLT16	2236
RTLT17	2250
RTLT2	2027
RTLT3	2036
RTLT4	2045
RTLT5	2055
RTLT6	2067
RTLT7	2077
RTLT8	2111
RTLT9	2123
RTRT	2532
RTRT1	2541
RTRT10	2672
RTRT11	2704
RTRT12	2716
RTRT13	2730
RTRT14	2742
RTRT15	2754
RTRT16	3000
RTRT17	3010
RTRT2	2550
RTRT3	2556

TRT4	2600
TRT5	2610
TRT6	2622
TRT7	2634
TRT8	2646
TRT9	2660
TOT13	2174
BKPT	1205
SMACLA	4705
SMAT	1407
SNACLA	4675
SNAT	1342
SNLT	1521
SPACLA	4715
SPAT	1350
SPAT1	1400
SIAT	1441
STLT	1466
STRDCA	3623
STRIND	4310
STRISZ	3676
SZACLA	4666
SZAT	1211
SZAT1	1216
SZAT10	1315
SZAT11	1324
SZAT12	1333
SZAT2	1225
SZAT3	1234
SZAT4	1243

SZAT5	1252
SZAT6	1261
SZAT7	1270
SZAT8	1277
SZAT9	1306
SZLT	1450
SZLT1	1456
TADT	3045
TADT1	3054
TADT10	3164
TADT11	3200
TADT12	3210
TADT13	3220
TADT14	3230
TADT15	3242
TADT16	3254
TADT17	3266
TADT18	3300
TADT19	3312
TADT2	3064
TADT20	3324
TADT21	3336
TADT22	3350
TADT23	3362
TADT24	3400
TADT3	3074
TADT4	3104
TADT5	3114
TADT6	3124
TADT7	3134

TADT8	3144
TADT9	3154
TIONOF	5117
TTFLQ	4734
TTFLQ1	4765
TTFLQ2	5012
TTFLQ3	5031
TTFLQ4	5060
TTFLQ5	5147
UJMB3	4413
XERR	4725
XERR1	4743
XERR2	4756
XERR3	5001
XERR4	5021
XERR5	5047
XERR6	5164
XONOF	0163
XXX	4172
XXX1	2175
XXX2	1175
XXX3	0575
XXX4	0375
XXX5	0175
XXX6	0172
XXX7	0167
XXXA	0164
XX2	5157
ZERSTR	4274
D	

