

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 7756₈ 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

MAINDEC-08-D01A-D

/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		DCA Z 0002	/CLEAR TEST COUNTER
1205	7410	SKPT,	SKP	
1206	7402		HLT	/SKP FAILED
1207	2002		ISZ Z 0002	
1210	5205		JMP SKPT	/COUNT TEST COUNTER
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	/SZA SHOULD NOT HAVE SKIPPED /AC SHOULD EQUAL 0010
1313	2002		ISZ Z 0002	
1314	5306		JMP SZAT9	
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
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

/SPA SHOULD HAVE SKIPPED
/AC SHOULD EQUAL 6777

		*1400	
		SPAT1,	CLA
1400	7200		TAD Z K4000
1401	1034		SPA
1402	7510		SKP
1403	7410		HLT
1404	7402		
1405	2002		ISZ Z 0002
1406	5200		JMP SPAT1
		SMAT,	CLA
1407	7200		TAD Z K4000
1410	1034		SMA
1411	7500		HLT
1412	7402		
1413	2002		ISZ Z 0002
1414	5207		JMP SMAT
		CLAT,	TAD Z K7777
1415	1051		CLA
1416	7200		SZA
1417	7440		HLT
1420	7402		
1421	2002		ISZ Z 0002
1422	5215		JMP CLAT

/SPA SHOULD NOT HAVE SKIPPED
/AC SHOULD EQUAL 4000

/SMA SHOULD HAVE SKIPPED
/AC SHOULD EQUAL 4000

/CLA FAILED TO CLEAR AC
/AC SHOULD EQUAL 0000

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	

		CLLT,	STL	
1477	7100		CLL	
1500	7430		SZL	
1501	7402		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 /BIT
1561	2002		ISZ Z 0002	
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	

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*1600
1600 7320 RALT3,  CLA STL
1601 1020          TAD Z K0000      /ROTATE PATTERN
1602 7004          RAL
1603 7430          SZL
1604 7402          HLT          /RAL LINK PICKED UP A BIT
                                   /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
1626 7402          HLT          /RAL FAILED AC SHOULD EQUAL 0000
                                   /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
1640 7402          HLT          /RAL FAILED AC SHOULD EQUAL 0000
                                   /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
1652 7402          HLT          /RAL FAILED AC SHOULD EQUAL 0000
                                   /LINK SHOULD EQUAL ZERO
1653 2002          ISZ Z 0002
1654 5243          JMP RALT7

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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	/ROTATE PATTERN
1742	1040	RAL	
1743	7040	TAD Z K7767	
1744	7450	CMA	
1745	7430	SNA	/RAL FAILED AC SHOULD EQUAL 0000
1746	7402	SZL	/LINK SHOULD EQUAL A ZERO
1747	2002	HLT	
1750	5337	ISZ Z 0002	
		JMP RALT13	
1751	7300	RALT14, CLA CLL	
1752	1022	TAD Z K0002	/ROTATE PATTERN
1753	7004	RAL	
1754	1037	TAD Z K7773	
1755	7040	CMA	
1756	7450	SNA	/RAL FAILED AC SHOULD EQUAL 0000
1757	7430	SZL	/LINK SHOULD EQUAL A ZERO
1760	7402	HLT	
1761	2002	ISZ Z 0002	
1762	5351	JMP RALT14	
1763	7300	RALT15, CLA CLL	
1764	1021	TAD Z K0001	/ROTATE PATTERN
1765	7004	RAL	
1766	1036	TAD Z K7775	
1767	7040	CMA	
1770	7450	SNA	/RAL FAILED AC SHOULD EQUAL 0000
1771	7430	SZL	/LINK SHOULD EQUAL ZERO
1772	7402	HLT	
1773	2002	ISZ Z 0002	
1774	5363	JMP RALT15	
1775	7000	NOP	
1776	7000	NOP	
1777	7000	NOP	

		*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	RTL1,	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 RTL1	
2020	7300	RTL1,	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 RTL1	
2027	7300	RTL2,	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 RTL2	

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	

		RTL8,	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 RTL8	
2123	7300	RTL9,	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 RTL9	
2135	7300	RTL10,	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 RTL10	
2147	7300	RTL11,	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 RTL11	

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

/ROTATE PATTERN

RTL FAILED AC AND LINK SHOULD
EQUAL 0000

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*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
2210 2002      ISZ Z 0002      /RTL FAILED AC AND LINK SHOULD
2211 5200      JMP RTLT13      /EQUAL 0000

2212 7300  RTLT14, CLA CLL
2213 1023      TAD Z K0004      /ROTATE PATTERN
2214 7006      RTL
2215 1041      TAD Z K7757
2216 7040      CMA
2217 7450      SNA
2220 7430      SZL
2221 7402      HLT
2222 2002      ISZ Z 0002      /RTL FAILED AC AND LINK SHOULD
2223 5212      JMP RTLT14      /EQUAL 0000

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
2234 2002      ISZ Z 0002      /RTL FAILED AC AND LINK
2235 5224      JMP RTLT15      /SHOULD EQUAL 0000

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		RTL16,	CLA CLL	
2237	1021		TAD Z K0001	/ROTATE PATTERN
2240	7006		RTL	
2241	1037		TAD Z K7773	
2242	7040		CMA	
2243	7450		SNA	
2244	7430		SZL	
2245	7402		HLT	/RTL FAILED AC AND LINK /SHOULD EQUAL 0000
2246	2002		ISZ Z 0002	
2247	5236		JMP RTL16	
2250	7320	RTL17,	CLA STL	/ROTATE PATTERN
2251	7006		RTL	
2252	1036		TAD Z K7775	
2253	7040		CMA	
2254	7450		SNA	
2255	7430		SZL	
2256	7402		HLT	/RTL FAILED AC AND LINK /SHOULD EQUAL 0000
2257	2002		ISZ Z 0002	
2260	5250		JMP RTL17	
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 /PIKED UP BIT
2275	2002		ISZ Z 0002	
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	

2306	1020	RART3,	CLA STL	
2307	7010		TAD Z K0000	/ROTATE PATTERN
2310	7430		RAR	
2311	7402		SZL	
			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	

		RAKT8,	CLA CLL	
2363	1032		TAD Z K1000	/ROTATE PATTERN
2364	7010		RAR	
2365	1045		TAD Z K7377	
2366	7040		CMA	
2367	7450		SNA	
2370	7430		SZL	
2371	7402		HLT	/RAR FAILED AC AND LINK SHOULD /EQUAL 0000
2372	2002		ISZ Z 0002	
2373	5362		JMP RAKT8	
2374	7000		NOP	
2375	7000		NOP	
2376	7000		NOP	
2377	7000		NOP	


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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	

		RART17,	CLA CLL	
2521	1021		TAD Z K0001	/ROTATE PATTERN
2522	7010		RAR	
2523	1051		TAD Z K7777	
2524	7040		CMA	
2525	7450		SNA	
2526	7420		SNL	
2527	7402		HLT	/RAR FAILED AC AND LINK /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	

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*2600
2600 7320 RTRT4,  CLA STL
2601 1051      TAD Z K7777
2602 7012      RTR
2603 7040      CMA
2604 7440      SZA
2605 7402      HLT
                                /ROTATE PATTERN
                                /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
2612 7012      RTR
2613 1047      TAD Z K5777
2614 7040      CMA
2615 7450      SNA
2616 7430      SZL
2617 7402      HLT
                                /ROTATE PATTERN
                                /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
2624 7012      RTR
2625 1046      TAD Z K6777
2626 7040      CMA
2627 7450      SNA
2630 7430      SZL
2631 7402      HLT
                                /ROTATE PATTERN
                                /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
2636 7012      RTR
2637 1045      TAD Z K7377
2640 7040      CMA
2641 7450      SNA
2642 7430      SZL
2643 7402      HLT
                                /ROTATE PATTERN
                                /RTR FAILED AC AND LINK
                                /SHOULD EQUAL 0000

2644 2002      ISZ Z 0002
2645 5234      JMP RTRT7

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		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	
2730	7300	RTRT13, CLA CLL	
2731	1025	TAD Z K0020	/ROTATE PATTERN
2732	7012	RTR	
2733	1037	TAD Z K7773	
2734	7040	CMA	
2735	7450	SNA	
2736	7430	SZL	
2737	7402	HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2740	2002	ISZ Z 0002	
2741	5330	JMP RTRT13	
2742	7300	RTRT14, CLA CLL	
2743	1024	TAD Z K0010	/ROTATE PATTERN
2744	7012	RTR	
2745	1036	TAD Z K7775	
2746	7040	CMA	
2747	7450	SNA	
2750	7430	SZL	
2751	7402	HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
2752	2002	ISZ Z 0002	
2753	5342	JMP RTRT14	
2754	7300	RTRT15, CLA CLL	
2755	1023	TAD Z K0004	/ROTATE PATTERN
2756	7012	RTR	
2757	1035	TAD Z K7776	
2760	7040	CMA	
2761	7450	SNA	
2762	7430	SZL	
2763	7402	HLT	/RTR FAILED AC AND LINK /SHOULD EQUAL 0000
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

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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

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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 BIT
				/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	

3105	1056	TADT4,	CLA CLL	
3106	1031		TAD Z K7400	/OPERAND 1
3107	7430		TAD Z K0400	/OPERAND 2
3110	7440		SZL	
3111	7402		SZA	
			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	
		TADT9,	CLA CLL	
3154	7300		TAD Z K7770	/OPERAND 1
3155	1062		TAD Z K0010	/OPERAND 2
3156	1024		SZL	
3157	7430		SZA	
3160	7440		HLT	/TAD FAILED AC SHOULD EQUAL 0000
3161	7402			/LINK SHOULD EQUAL A ONE
3162	2002		ISZ Z 0002	
3163	5354		JMP TADT9	
		TADT10,	CLA CLL	
3164	7300		TAD Z K7774	/OPERAND 1
3165	1063		TAD Z K0004	/OPERAND 2
3166	1023		SZL	
3167	7430		SZA	
3170	7440		HLT	/TAD FAILED AC SHOULD EQUAL 0000
3171	7402			/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	

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*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 SFL
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

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		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

x3400

3400	7320	TADT24,	CLA STL	
3401	1036		TAD Z K7775	/OPERAND 1
3402	1021		TAD Z K0001	/OPERAND 2
3403	1021		TAD Z K0001	/OPERAND 3
3404	7040		CMA	
3405	7430		SZL	
3406	7440		SZA	
3407	7402		HLT	/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	/TEST PATTERN
3414	7041		CIA	/AC EQUALS 0001
3415	1035		TAD Z K7776	
3416	7040		CMA	
3417	7420		SNL	
3420	7440		SZA	/CIA FAILED AC SHOULD EQUAL 0000
3421	7402		HLT	/LINK SHOULD EQUAL A ZERO
3422	2002		ISZ Z 0002	
3423	5212		JMP CIAT1	
3424	7300	CIAT2,	CLA CLL	
3425	1035		TAD Z K7776	/TEST PATTERN
3426	7041		CIA	/AC EQUALS 0002
3427	1036		TAD Z K7775	
3430	7040		CMA	
3431	7420		SNL	
3432	7440		SZA	/CIA FAILED AC SHOULD EQUAL 0000
3433	7402		HLT	/LINK SHOULD EQUAL A ZERO
3434	2002		ISZ Z 0002	
3435	5224		JMP CIAT2	
3436	7300	CIAT3,	CLA CLL	
3437	1063		TAD Z K7774	/TEST PATTERN
3440	7041		CIA	/AC EQUALS 0004
3441	1037		TAD Z K7773	
3442	7040		CMA	
3443	7420		SNL	
3444	7440		SZA	/CIA FAILED AC SHOULD EQUAL 0000
3445	7402		HLT	/LINK SHOULD EQUAL Z ZERO
3446	2002		ISZ Z 0002	
3447	5236		JMP CIAT3	

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	/TEST PATTERN
3463	1061		TAD Z K7760	/AC EQUALS 0020
3464	7041		CIA	
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	/TEST PATTERN
3475	1060		TAD Z K7740	/AC EQUALS 0040
3476	7041		CIA	
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	/TEST PATTERN
3507	1076		TAD Z K7700	/AC EQUALS 0100
3510	7041		CIA	
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	
		CIAT9,	CLA CLL	
3532	7300		TAD Z K7400	/TEST PATTERN
3533	1056		CIA	/AC EQUALS 0400
3534	7041		TAD Z K7377	
3535	1045		CMA	
3536	7040		SNL	
3537	7420		SZA	
3540	7440		HLT	/CIA FAILED AC SHOULD EQUAL 0000
3541	7402			/LINK SHOULD EQUAL ZERO
3542	2002		ISZ Z 0002	
3543	5332		JMP CIAT9	
		CIAT10,	CLA CLL	
3544	7300		TAD Z K7000	/TEST PATTERN
3545	1055		CIA	/AC EQUALS 1000
3546	7041		TAD Z K6777	
3547	1046		CMA	
3550	7040		SNL	
3551	7420		SZA	
3552	7440		HLT	/CIA FAILED AC SHOULD EQUAL 0000
3553	7402			/LINK SHOULD EQUAL ZERO
3554	2002		ISZ Z 0002	
3555	5344		JMP CIAT10	
		CIAT11,	CLA CLL	
3556	7300		TAD Z K6000	/TEST PATTERN
3557	1054		CIA	/AC EQUALS 2000
3560	7041		TAD Z K5777	
3561	1047		CMA	
3562	7040		SNL	
3563	7420		SZA	
3564	7440		HLT	/CIA FAILED AC SHOULD EQUAL 0000
3565	7402			/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	

		x3600		
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		SZL	
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
3644	2002		ISZ Z 0002	/LINK SHOULD EQUAL ZERO
3645	5234		JMP DCAT1	

3647	1020	DCAT2,	CLA CLL		
3650	3223		TAD Z K0000	/AC EQUALS 0000	
3651	1223		DCA STROCA	/STORE 0000	
3652	7420		TAD STROCA		
3653	7440		SNL		
3654	7402		SZA		
			HLT	/DCA FAILED AC SHOULD EQUAL 000	
				/LINK SHOULD EQUAL A ZERO	
3655	1051		TAD Z K7777	/AC EQUALS 7777	
3656	3223		DCA STROCA	/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 STROCA	/STORE 7777	
3664	1223		TAD STROCA		
3665	7040		CMA		
3666	7420		SNL		
3667	7440		SZA		
3670	7402		HLT	/DCA FAILED AC SHOULD EQUAL 2000	
				/LINK SHOULD EQUAL A ZERO	
3671	1020		TAD Z K0000	/AC EQUALS 0000	
3672	3223		DCA STROCA	/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		
			DCA Z 0002		/STORE COUNTER
3714	7300		CLA CLL		/AC EQUALS 0000
3715	3276		DCA STRISZ		/STORE 0000
3716	2276		ISZ STRISZ		
3717	1035		TAD Z K7776		
3720	1276		TAD STRISZ		
3721	7040		CMA		
3722	7420		SNL		
3723	7440		SZA		/AC AND LINK SHOULD EQUAL 0000
3724	7402		HLT		/ISZ FAILED ON A PLUS ONE
3725	7200		CLA		/TO THE MB TRANSFER
3726	1002		TAD Z 0002		
3727	7001		IAC		/INCREMENT COUNTER
3730	7440		SZA		
3731	5313		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		
3745	7402		HLT		/AC AND LINK SHOULD EQUAL 0000
3746	7200		CLA		/ISZ FAILED MB COUNTED IN ERROR
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		
3766	7402		HLT		/AC AND LINK SHOULD EQUAL 0000
3767	7200		CLA		/ISZ FAILED MB COUNTED IN ERROR
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, W000	
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	
			DCA Z 0002	/STORE COUNTER
4065	7300		CLA CLL	
4066	1043		TAD Z K7677	/TEST PATTERN
4067	3200		DCA ISZSTR	/STORE 7677
4070	2200		ISZ ISZSTR	/MB 7700
4071	1071		TAD Z K0077	
4072	1200		TAD ISZSTR	
4073	7040		CMA	
4074	7420		SNL	
4075	7440		SZA	
4076	7402		HLT	/AC AND LINK SHOULD EQUAL 0000
4077	7200		CLA	/ISZ FAILED MB COUNTED IN ERROR
4100	1002		TAD Z 0002	
4101	7001		IAC	/INCREMENT COUNTER
4102	7440		SZA	
4103	5264		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	
4117	7402		HLT	/AC AND LINK SHOULD EQUAL 0000
4120	7200		CLA	/ISZ FAILED MB COUNTED IN ERROR
4121	1002		TAD Z 0002	
4122	7001		IAC	/INCREMENT COUNTER
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	
4140	7402		HLT	/AC AND LINK SHOULD EQUAL 0000
4141	7200		CLA	/ISZ FAILED MB COUNTED IN ERROR
4142	1002		TAD Z 0002	
4143	7001		IAC	/INCREMENT COUNTER
4144	7440		SZA	
4145	5326		JMP ISZT9	

4147	3002	ISZT10,	CLA	
4150	7300		DCA Z 0002	/STORE COUNTER
4151	1046		CLA CLL	
4152	3200		TAD Z K6777	/TEST PATTERN
4153	2200		DCA ISZSTR	/STORE 6777
4154	1074		ISZ ISZSTR	/MB 7000
4155	1200		TAD Z K0777	
4156	7040		TAD ISZSTR	
4157	7420		CMA	
4160	7440		SNL	
4161	7402		SZA	
4162	7200		HLT	/AC AND LINK SHOULD EQUAL 0000
4163	1002		CLA	/ISZ FAILED MB COUNTED IN ERROR
4164	7001		TAD Z 0002	
4165	7440		IAC	/INCREMENT COUNTER
4166	5347		SZA	
4167	7200		JMP ISZT10	
			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	CLĀ	/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 INDSTR
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 7 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 7 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	7000		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,	NOOP	
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 INDHLT.
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,	RTL13	
2175	0610	XXX1,	AND I 2010	/(2010) SHOULD EQUAL 5200
2176	5777		JMP I RETX1	/RETURN TO TEST INDXT1
2177	4516	RETX1,	RETAU1	

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	/XXX2 EQUALS 1175
4534	1725	RETAU2,	TAD I AUXX2	/(1010) SHOULD EQUAL 6001
4535	7010		RAR	
4536	7420		SNL	
4537	7402		HLT	/LINK SHOULD EQUAL A ONE
				/MB AUTO INDEXED IN ERROR
				/MA BIT 2 OPEN
4540	2002		ISZ Z 0002	
4541	5327		JMP INDXT2	

x1175

1175	0610	XXX2,	AND I 1010	/(1010) SHOULD EQUAL 6001
1176	5777		JMP I RETX2	/RETURN TO TEST INDXT2
1177	4534	RETX2,	RETAU2	

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	/XXX3 EQUALS 0575
4552	1743	RETAU3,	TAD I AUXX3	/(0410) SHOULD EQUAL 7100
4553	7010		RAR	
4554	7430		SZL	
4555	7402		HLT	/LINK SHOULD EQUAL A ZERO
				/MB AUTO INDEXED IN ERROR
				/MA BIT 3 OPEN
4556	2002		ISZ Z 0002	
4557	5345		JMP INDXT3	

x0575

0575	0610	XXX3,	AND I 0410	/(0410) SHOULD EQUAL 7100
0576	5777		JMP I RETX3	/RETURN TO TEST INDXT3
0577	4552	RETX3,	RETAU3	

***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 \bar{Z} L
4573 7402 HLT

4574 2002 IS \bar{Z} 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 \bar{N} L
4612 7402 HLT

4613 2002 IS \bar{Z} Z 0002
4614 5202 JMP INDXT5

/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 ≠ 110	/(0110) SHOULD EQUAL 6611
0176	5577		JMP I ≠ 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		PAR	
4627	7420		SNL	
4630	7402		HLT	/LINK SHOULD EQUAL A ONE
				/MB AUTO INDEXED IN ERROR
4631	2002		ISZ ≠ 0002	/MA BIT 6 OPEN
4632	5220		JMP INDXT6	

		x0175		
0172	0450	XXX6,	AND I ≠ 50	/(0050) SHOULD EQUAL 3777
0173	5574		JMP I ≠ 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		PAR	
4645	7430		SZL	
4646	7402		HLT	/LINK SHOULD EQUAL ZERO
				/MB AUTO INDEXED IN ERROR
4647	2002		ISZ ≠ 0002	/MA BIT 7 OPEN
4650	5236		JMP INDXT7	

		x0167		
0167	0430	XXX7,	AND I ≠ 30	/(0030) SHOULD EQUAL 0200
0170	5571		JMP I ≠ 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	RETAUB,	TAD I AUXX8	/(0007) SHOULD EQUAL 0000	
4661	7010		RAR		
4662	7430		SZI		
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,	RETAUB		
		x4666			
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		

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SPACIA,      CLA
4716 1034   TAD K4000           /AC EQUALS 4000
4717 7710   SPA CLA
4720 7440   SZA
4721 7402   HLT                /SPA CIA FAILED
                                   /AC SHOULD EQUAL 0000

4722 2002   ISZ Z 0002
4723 5315   JMP SPACLA

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x0077
0077 0000   FJMS,           0000
0100 6012   RRB                /CLEAR READER FLAG
0101 6022   PCP                /CLEAR PUNCH FLAG
0102 6032   KCC                /CLEAR AC CLEAR TTY READER FLAG
0103 6042   TCF                /CLEAR TTY PRINT FLAG
0104 6072   DCF                /CLEAR DISPLAY FLAG
0105 6104   CMP                /CLEAR MEMORY PARITY FLAG
0106 6502   PLCF              /CLEAR PLOTTER FLAG
0107 6534   ADRB              /CLEAR CONVERTER FLAG
0110 6611   DRCF              /CLEAR DRUM FLAG
0111 6671   CRRB              /CLEAR CARD READER FLAG
0112 6641   6641              /CLEAR CARD PUNCH FLAG
0113 6652   LCF                /CLEAR LINE PRINTER FLAG
0114 6715   TSRD              /CLEAR MAGNETIC TAPE DATA FLAG
0115 6732   TCTI              /CLEAR MAGNETIC TAPE INTERRUPT FLAG
0116 6772   MDCF              /CLEAR DECTAPE FLAG
0117 7200   CLA
0120 1034   TAD K4000
0121 6702   MCD                /CLEAR AUTOMATIC MAG TAPE FLAG
0122 7300   CLA CLL           /CLEAR AC AND LINK
0123 5477   JMP I Z FJMS      /EXIT FLAG CLEAR ROUTINE

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x4724
4724 7410   SKP
4725 5553   XERR,           JMP I Z IERR
4726 7200   INTAK,         CLA
4727 1325   TAD XERR
4730 3001   DCA Z 0001       /STORE RETURN TO ERROR HALT
4731 4077   JMS Z FJMS      /JMS TO CLEAR ALL FLAGS
4732 1073   TAD K0377       /RUBOUT
4733 6046   TLR
4734 6041   TTFLG,         TSF           /SKIP ON A TTY FLAG EQUAL TO A
4735 5334   JMP TTFLG
4736 7410   SKP
4737 7402   IERRI,        HLT           /INTERRUPT ACTION OCCURED
                                   /IN ERROR NO ION INSTRUCTION

4740 7000   NOP           /GIVEN
4741 7000   NOP

```

		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,	TSF		/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 TERN3,      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

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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      TLS
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

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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      TLS
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      FROFON,      HLT      /ERROR, MA0000 CONTAINS
      /RIMP ADDRESS

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5140 7200      CLA      /PRINT 2A AND LOOP
5141 1063      TAD K7774
5142 3002      DCA Z 0002
5143 1363      TAD K5154
5144 3010      DCA Z 10
5145 1410      PRXX,      TAD I Z 10
5146 6046      TLS
5147 6041      TTFL05,      TSF
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

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*5154\
5154 1203 BEGIN, 1203 /REPEAT 2A TEST
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 /RETURN FROM LOC1
5165 0000 INJMX, 0
5166 5765 JMP I .-1

```

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----->
ANDT 3022 CIAT8 3520 INDBTR 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 INJMX 5165
AUXX6 4616 DCAT1 3634 INTAK 4726
AUXX7 4634 DCAT2 3646 INTAK1 4744
AUXX8 4652 DCAT3 3661 INTAK2 4757
AUX1 4515 DXT5 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 IREG 4337
AUX6 4624 IACT 1526 ISZBAT 4200
AUX7 4642 IERR 0153 ISZBTR 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 IERRP 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 IJMBR 4450 ISZT8 4105
CIAT4 3450 INCT11 4171 ISZT9 4126
CIAT5 3462 INDER 4465 JMPIT 4335
CIAT6 3474 INDRT 4275 JMPITZ 4351
CIAT7 3506 INDRT1 4311 JMPIT 4331

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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
 NOIR 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
 RJMP3 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
BMACLA	4705
BMAT	1407
BNACLA	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
TTFLG	4734
TTFLG1	4765
TTFLG2	5012
TTFLG3	5031
TTFLG4	5060
TTFLG5	5147
UJMS3	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
XXX8	0164
XX2	5157
ZERSTR	4274
D	

