

B044 DISK FRIENDS TEST

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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2          DECK 4
0000 3 DISK  START 0
0A00 4          ORG  X'A00'
5 *****
6 *          10/01/70                      LAST UPDATE
7 *****
8 *          DISK COMMANDS TEST           CONSOLE SWITCH ENTRY
9 *****
10 *         SECTION B04                   ROUTINES 01 - 03
11 *****
12 *
13 *****
0A00 B044 0A01 14          DC  XL2'B044'      PROGRAM ID AND REVISION LEVEL
0A02 00    0A02 15          DC  XL1'00'      SECTION FLAGS
0A03 01    0A03 16          DC  XL1'01'      CURRENT ROUTINE NUMBER
0A04 0000 0A05 17          DC  XL2'0000'     RESERVED
0A06 0A10 0A07 18          DC  AL2(RTN01)    FIRST ROUTINE ADDRESS
0A09 FFFF 0A09 19          DC  XL2'FFFF'     RESERVED
0A0A A04000 0A0C 20 AUDT DC  XL3'A04000'    SECTION PREFACE NOT TABLE
0A0D B01000 0A0F 21 BUDT DC  XL3'B01000'
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26 *****
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39 *****
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44 *****
45 * RTN01 *
46 *****
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57 *****
0A10 01    0A10 58 RTN01 DC  XL1'01'      ROUTINE 01
0A11 80    0A11 59          DC  XL1'80'      PROGRAM BUILDS A COMMANDS TABLE BY READING
0A12 00EB 0A13 60          DC  AL2(RTN02)    THE CONSOLE SWITCHES.
61
62 BEGIN  B  SETODT          NOTE - LAST OPTION SHOULD BE -0000- TO
63          LA  CMNDS,XR2    SIGNIFY END OF TABLE.
64          MVC PRT(91),PRT+1
65          MVC SCK(124),SCK+1
66          MVC TEMP(2),R0000
67          B   PRINT
68          DC  XL1'86'      NOTE - INDEX REGISTER 2 IS THE POINTER
0A32 86    0A32 69          DC  XL1'86'      FOR THE COMMANDS TABLE.
0A33 23    0A33 69          DC  IL1'85'

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B044 DISK FRIENDS TEST

ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT
	0A34	19C7		0A35	70	DC	AL2(INTRO)
	0A36	A0E0		0A37	71	DC	XL2'A0E0'
	0A38	3C 00 181A			72	MVI	FLAG,0
	0A3C	C0 87 0222			73	B	HALT
	0A40	A0E0		0A41	74	DC	XL2'A0E0'
	0A42	B0 00 01			75	RETRY	SNS 1(,XR2),X'00'
	0A45	2D 01 17E1 01			76	CLC	H0000(2),1(,XR2)
	0A4A	C0 81 0D80			77	BE	CONE
					78		*****
					79	*	CHECK SWITCH 1 FOR A CORRECT SETTING.
					80		*****
	0A4E	B9 F0 00			81	TBF	0(,XR2),X'F0'
	0A51	C0 10 0CFD			82	BT	ESW1
	0A55	3C 00 17F1			83	MVI	TEMP,0
	0A59	28 02 17F1 00			84	MNZ	TEMP,0(,XR2)
	0A5E	3D 0A 17F1			85	CLI	TEMP,10
	0A62	C0 84 0CFD			86	RH	ESW1
	0A66	3D 07 17F1			87	CLI	TEMP,7
	0A6A	F2 31 03			88	JNF	**6
	0A6D	BC 00 01			89	MVI	1(,XR2),X'00'
					90		*****
					91	*	CHECK SWITCH 2 FOR A CORRECT SETTING.
					92		*****
	0A70	B9 0F 00			93	TBF	0(,XR2),X'0F'
	0A73	C0 10 0D04			94	BT	ESW2
	0A77	B8 08 00			95	TBN	0(,XR2),X'08'
	0A7A	F2 90 07			96	JF	CKTHS
	0A7D	B9 07 00			97	TBF	0(,XR2),X'07'
	0A80	C0 90 0D04			98	BE	ESW2
	0A84	28 03 1805 00			99	CKTHS	MNN SWANL,0(,XR2)
	0A89	3D 05 1805			100	CLI	SWANL,X'05'
	0A8D	F2 82 3D			101	JL	CKPRP
	0A90	38 40 17FA			102	TBN	UDT,X'40'
	0A94	F2 90 22			103	JF	MODEP
	0A97	3D 07 1805			104	CLI	SWANL,7
	0A9B	F2 82 2F			105	JL	CKPRP
	0A9E	38 01 0A0F			106	TBN	BDDT,MOD3
	0AA2	F2 90 28			107	JF	CKPRP
					108	*	MOD 3 ERROR MESSAGE *
	0AA5	C0 87 021A			109	B	PRINT
	0AA9	C6		0AA9	110	DC	XL1'C6'
	0AAA	21		0AAA	111	DC	IL1'21'
	0AAB	1BAA		0AAC	112	DC	AL2(NODISK)
	0AAD	A0E8		0AAE	113	DC	XL2'A0E8'
	0AAF	C0 87 0222			114	B	HALT
	0AB3	A0F1		0AB4	115	DC	XL2'A0F1'
	0AB5	C0 87 0A42			116	R	RETRY
					117	*	SPINDLE -2- NOT DEFINED MESSAGE *
	0AB9	C0 87 021A			118	MODEP	B
	0ABD	C6		0ABD	119	DC	XL1'C6'
	0ABE	13		0ABE	120	DC	IL1'13'
	0ABF	1BAA		0AC0	121	DC	AL2(NOSP8)
	0AC1	A0E6		0AC2	122	DC	XL2'A0E6'
	0AC3	C0 87 0222			123	B	HALT
	0AC7	A0E6		0AC8	124	DC	XL2'A0E6'
	0AC9	C0 87 0A42			125	B	RETRY
	0ACD	B9 E0 00			126	CKPRP	TBF 0(,XR2),X'E0'
	0AD0	F2 10 A2			127	JT	CKSW3
	0AD3	3D 0A 17F1			128	CLI	TEMP,X'0A'
	0AD7	F2 81 9B			129	JE	CKSW3
	0ADA	36 02 17D2			130	A	NEG02,XR2
	0ADE	8D 01 01 18CB			131	CLC	1(2,XR2),HFOFO
	0AE3	F2 01 0D			132	JNE	NOCL
	0AE6	B8 01 02			133	TBN	2(,XR2),X'01'
	0AE9	F2 90 72			134	JF	BADHD
	0AEC	36 02 17C6			135	A	NEG02,XR2
	0AF0	F2 97 82			136	J	CKSW3
	0AF3	BD FF 00			137	NOCL	CLI 0(,XR2),X'FF'

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		OAF6 F2 01 47	138	JNE	NOML	JUMP IF NOT.
		OAF9 36 02 17D2	139	A	NEG02,XR2	DECREMENT POINTER TO CHECK HD SELECT
		OAFD 2C 00 17F1 01	140	MVC	TEMP(1),1(,XR2)	STORE STARTING SECTOR ID OF OLD CMND
		OB02 2E 00 17F1 03	141	ALC	TEMP(1),3(,XR2)	ADD THE MULTI-READ/WRITE COUNT.
		OB07 3D 18 17F1	142	CLI	TEMP,24	DID IT GO TO NEW HEAD DURING THE OP?
		OB0B F2 84 1C	143	JR	CKSWHD	JUMP IF SO.
		OB0E B9 01 00	144	TBN	0(,XR2),X'01'	HEAD 0 LAST SELECTED ?
		OB11 F2 10 09	145	JT	YEP1	JUMP IF SO.
		OB14 B9 01 04	146	TRF	4(,XR2),X'01'	CURRENT HEAD SELECTION FOR HD 1 ?
		OB17 F2 90 41	147	JF	BADHD4	JUMP IF NOT.
		OB1A F2 87 06	148	J	OUTHER	GO CHECK SWITCHES 3 & 4.
		OB1D B9 01 04	149	YEP1	TBN	CURRENT HEAD SELECTION FOR HD 0 ?
		O320 F2 90 38	150	JF	BADHD4	JUMP IF NOT.
		OB23 36 02 17CA	151	OUTHER	A	RESTORE THE POINTER.
		OB27 F2 87 4B	152	J	CKSW3	GO CHECK SWITCHES 3 AND 4.
		OB2A B2 01 00	153	CKSWHD	TBN	OLD HEAD SELECT START WITH HD 0 ?
		OB2D F2 10 06	154	JT	CKHD1	JUMP IF SO.
		OB30 B9 01 04	155	TBN	4(,XR2),X'01'	DOES NEW HEAD ALLOW FOR SWITCHING ?
		OB33 F2 90 25	156	JF	BADHD4	JUMP IF NOT HEAD 0 FOR CURRENT CMND.
		OB36 B9 01 04	157	CKHD1	TBN	NEW HD ALLOW FOR THE SWITCH ?
		OB39 F2 10 1F	158	JT	BADHD4	JUMP IF NOT HEAD 1 FOR CURRENT CMND.
		OB3C C0 87 0B23	159	B	OUTHER	GO CHECK SWITCHES 3 AND 4.
		OB40 B9 01 00	160	NOML	TBN	LAST SEEK USING HEAD 0 ?
		OB43 F2 10 C9	161	JT	YAO	JUMP IF SO.
		OB46 B9 01 02	162	TBN	2(,XR2),X'01'	CURRENT CMND FOR HEAD 1 ?
		OB49 F2 10 12	163	JT	BADHD	JUMP IF NOT.
		OB4C F2 87 06	164	J	HEROT	GO CHECK SWITCHES 3 AND 4.
		OB4F B9 01 02	165	YAO	TBN	HEAD 0 SELECTED FOR CURRENT CMND ?
		OB52 F2 90 09	166	JF	BADHD	JUMP IF NOT.
		OB55 E2 02 02	167	HEROT	LA	RESTORE TABLE POINTER.
		OB58 F2 37 1A	168	J	CKSW3	GO CHECK SWITCHES 3 AND 4.
			169	* BAD HEAD MESSAGE *		
		OB5E E2 02 02	170	BADHD4	LA	INCREMENT TABLE POINTER.
		OB5E E2 02 02	171	BADHD	LA	INCREMENT TABLE POINTER.
		OB61 C0 87 021A	172	B	B	PRINT WRONG HEAD.
		OB65 C6	0B65	DC	XL1'C6'	ID -AOE8-
		OB66 14	0B66	DC	IL1'20'	
		OB67 1DA7	0B68	DC	AL2(HDBD)	
		OB69 AOE8	0B6A	DC	XL2'AOE8'	
		OB6B C0 87 0222	177	B	B	ERROR HALT -E8-
		OB6F AOE8	0B70	DC	XL2'AOE8'	
		OB71 C0 87 0A42	179	B	B	RETRY
			180	*****		GO TRY AGAIN.
			181	* CHECK SWITCHES 3 & 4 FOR CORRECT SETTINGS. *		
			182	*****		
		OB75 3D 04 1805	183	CKSW3	CLI	SWANL,4
		OB79 F2 84 07	184	JH	**+10	THIS A DRIVE 1 CMND?
		OB7C 3A 01 181A	185	SRN	FLAG,X'01'	JUMP IF DRIVE 2 CMND.
		OB80 F2 87 04	186	J	**+7	SET DRIVE 1 FLAG.
		OB83 3A 02 181A	187	SRN	FLAG,X'02'	SET DRIVE 2 FLAG.
		OB87 B9 E0 00	188	TBF	0(,XR2),X'E0'	SWITCH 1 SET FOR A SEEK CMND ?
		OB8A F2 10 R6	189	JT	CKSEK	JUMP IF SO.
		OB8D 3C 00 17F1	190	MVI	TEMP,0	CLEAR WORKING BYTE.
		OB91 28 02 17F1 00	191	MNZ	TEMP,0(,XR2)	ISOLATE SWITCH 1.
		OB96 3D 0A 17F1	192	CLI	TEMP,10	THIS A SPECIAL SEEK ?
		OB9A F2 01 0A	193	JNE	**+13	JUMP IF NOT.
		OB9D 38 80 181A	194	TBN	FLAG,X'80'	PREVIOUS SPCL SEEK DEFINED ?
		OBA1 F2 10 14	195	JT	MANY	JUMP IF SO.
		OBA4 F2 87 9C	196	J	CKSEK	GO CHECK SW 3 AND 4.
		OBA7 B9 80 00	197	TBN	0(,XR2),X'80'	MULTI-READ/WRITE OPTION ?
		OBAA F2 10 19	198	JT	CKWJL	JUMP IF SO.
		OBAD BD 17 01	199	CLI	1(,XR2),X'17'	SWITCHES LARGER THAN 23 ?
		OBBO C0 84 0D1C	200	BH	ESCTR	JUMP IF SO.
		OBBA C0 87 0D3F	201	B	B	GO READ NEXT SWITCH SETTINGS.
			202	* TOO MANY SPECIAL SEEKS MESSAGE *		
		OBBC C6	0BBC	B	PRINT	PRINT TOO MANY.
		OBBD 25	0BBD	DC	XL1'C6'	ID -AOE8-
			205	DC	IL1'37'	

R044 DISK FRIENDS TEST

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
	OBBE 1AAC	OBBF	206	DC	AL2(YNAM)
	OBC0 A0E8	OBC1	207	DC	XL2'A0E8'
	OBC2 C0 87 0D12		208	B	HLTBS
			209		GO HALT.
			210	*	*****
			211	*	TELL OPERATOR TO SELECT # SECTORS TO READ/WRITE AND CHECK HIM. *
			212	CKMUL	TBN 0(,XR2),X'10'
	OBC6 B9 10 00		213	JT	**12
	OBC9 F2 10 09		214	MVC	SECSET(5),READ
	OBC0 C0 04 1D3D 1CF9		215	J	**9
	OBD2 F2 87 06		216	MVC	SECSET(5),WRITE
	OBD5 C0 04 1D3D 1CF9		217	SETM	B PRINT
	OBE8 C0 87 021A		218	DC	XL1'06'
	OBEF 06	OBEF	219	DC	IL1'57'
	OBE0 39	OBE0	220	DC	AL2(SECSET)
	OBE1 1D3D	OBE2	221	B	HALT
	OBE3 C0 87 0222		222	DC	XL2'A0EF'
	OBE7 A0EF	OBE9	223	SNS	3(,XR2),X'00'
	OBE9 B0 00 03		224	CLI	3(,XR2),X'00'
	OBE0 BD 00 03		225	JE	NOT00
	OBEF F2 81 2F		226	CLC	3(1,XR2),MAX
	OBE2 8D 00 03 180C		227	JH	FRMNY
	OBF7 F2 84 32		228	MVC	TEMP(1),1(,XR2)
	OBFA 2C 00 17F1 01		229	TBN	0(,XR2),X'01'
	OBFF B8 01 00		230	JT	**9
	OC02 F2 10 06		231	ALC	TEMP(1),N024
	OC05 0E 00 17F1 17CE		232	ALC	TEMP(1),3(,XR2)
	OC0B 2E 00 17F1 03		233	CLI	TEMP,X'30'
	OC10 3D 30 17F1		234	JH	ERLRG
	OC14 F2 84 20		235	MVI	2(,XR2),X'FF'
	OC17 BC FF 02		236	LA	2(,XR2),XR2
	OC1A E2 02 02		237	B	NEXT
	OC1D C0 87 0D3E		238	*	SECTOR NUMBER ERROR MESSAGES *
			239	NOT00	B PRINT
	OC21 C0 87 021A		240	DC	XL1'82'
	OC25 82	OC25	241	DC	IL1'13'
	OC26 0D	OC26	242	DC	AL2(KN0T0)
	OC27 1DEA	OC28	243	J	SETEA
	OC29 F2 87 13		244	FRMNY	B PRINT
	OC2C C0 87 021A		245	DC	XL1'82'
	OC30 82	OC30	246	DC	IL1'40'
	OC31 28	OC31	247	DC	AL2(XCED)
	OC32 1D65	OC33	248	J	SETMA
	OC34 F2 87 08		249	ERLRG	F PRINT
	OC37 C0 87 021A		250	DC	XL1'82'
	OC3B 82	OC3B	251	DC	IL1'46'
	OC3C 2F	OC3C	252	DC	AL2(VRBN)
	OC3D 1D93	OC3E	253	SETMA	B SETM
	OC3E C0 87 0BDB		254	*	*****
			255	*	CHECK SSWS 3 & 4 AGAINST THE CAPACITY OF THE DISK. *
			256	*	*****
	OC43 24 03 1805 00		257	CKSEK	MNN SWANL,0(,XR2)
	OC48 3D 05 1805		258	CLI	SWANL,X'05'
	OC4C F2 82 15		259	JL	A34
	OC4E 38 10 17FA		260	TBN	UDT,X'10'
	OC53 F2 90 07		261	JF	**10
	OC56 3C 67 0C77		262	MVI	CLC+1,103
	OC5A F2 87 19		263	J	CLC
	OC5D 3C CB 0C77		264	MVI	CLC+1,203
	OC61 F2 87 12		265	J	CLC
	OC64 38 20 17FA		266	A34	TBN UDT,X'20'
	OC68 F2 90 07		267	JF	**10
	OC6B 3C 67 0C77		268	MVI	CLC+1,103
	OC6F F2 87 04		269	J	CLC
	OC72 3C CB 0C77		270	MVI	CLC+1,203
	OC76 BD 00 01		271	CLC	CLI 1(,XR2),X'00'
	OC79 F2 84 A9		272	JH	ETRK
			273	*	*****

9044 DISK FRIENDS TEST

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		274	*		TEST TO SEE IF A REMOVABLE DISK WAS ADDRESSED. *
		275	*****		*****
0C7C	3D 01 1805	276		CLI SWANL,X'01'	SSW 2 SET TO A 1 ?
0C80	F2 81 18	277		JE DATRK	JUMP IF SO.
0C83	3D 02 1805	278		CLI SWANL,X'02'	SSW 2 SET TO A 2 ?
0C87	F2 81 11	279		JE DATRK	JUMP IF SO.
0C8A	3D 05 1805	280		CLI SWANL,X'05'	SSW 2 SET TO A 5 ?
0C8E	F2 81 0A	281		JE DATRK	JUMP IF SO.
0C91	3D 06 1805	282		CLI SWANL,X'06'	SSW 2 SET TO A 6 ?
0C95	F2 81 03	283		JE DATRK	JUMP IF SO.
0C98	F2 87 A3	284		J NEXT	GO READ NEXT SSW SETTING.
		285	*****		*****
		286	*		MAKE SURE THAT OPERATOR DOES NOT SEEK TO TRACKS 4-6 NOR TO *
		287	*		71-75 ON A REMOVABLE DISK. THIS IS A SAFE-GUARD TO PREVENT *
		288	*		DESTROYING DIAGNOSTIC PATTERNS ON REMOVABLE DISK. *
		289	*****		*****
0C9B	BD 06 01	290	DATRK	CLI 1(,XR2),X'06'	TRACK ID GREATER THAN 6 ?
0C9E	F2 84 06	291		JH NXTST	JUMP IF NOT.
0CA1	BD 03 01	292		CLI 1(,XR2),X'03'	TRACK ID GREATER THAN 3 ?
0CA4	F2 84 42	293		JH DUMMY	JUMP IF SO.
0CA7	BD 4R 01	294	NXTST	CLI 1(,XR2),X'4B'	TRACK ID GREATER THAN 75 ?
0CAA	F2 84 06	295		JH SAFE	JUMP IF NOT.
0CAD	BD 46 01	296		CLI 1(,XR2),X'46'	TRACK ID GREATER THAN 70 ?
0CB0	F2 84 36	297		JH DUMMY	JUMP IF SO.
0CB3	B8 80 00	298	SAFE	TBN 0(,XR2),X'80'	THIS A SPECIAL SEEK COMMAND ?
0CB6	F2 10 07	299		JT **10	JUMP IF SO.
0CB9	3A 4C 181A	300		SBN FLAG,X'40'	SET NORMAL SEEK FLAG.
0CBD	F2 87 04	301		J **7	
0CC0	3A 80 181A	302		SBN FLAG,X'80'	SET SPECIAL SEEK FLAG.
0CC4	38 C0 181A	303		TBN FLAG,X'C0'	BOTH SEEK FLAGS SET ?
0CC9	F2 90 73	304		JF NEXT	GO READ NEXT SSW SETTING IF NOT.
0CCB	C0 87 021A	305	MIX	B PRINT	PRINT DO NOT MIX.
0CCF	C6	306		DC XL1'C6'	ID -A0E8-.
0CD0	1B	307		DC IL1'27'	
0CD1	1DC2	308		DC AL2(MIXUP)	
0CD3	A0E8	309		DC XL2'A0E8'	
0CD5	B9 E0 00	310		TBF 0(,XR2),X'E0'	THIS A NORMAL SEEK ?
0CD9	F2 90 07	311		JF **10	JUMP IF NOT.
0CDB	3B 40 181A	312		SBF FLAG,X'40'	RESET NORMAL SEEK FLAG.
0CDE	F2 87 04	313		J **7	
0CE2	3B 80 181A	314		SBF FLAG,X'80'	RESET SPECIAL FLAG BIT.
0CE7	F2 87 29	315		J HLTER	GO HALT.
		316	*		BAD TRACK MESSAGE *
0CF9	C0 87 021A	317	DUMMY	B PRINT	PRINT BAD SELECTION.
0CED	C6	318		DC XL1'C6'	ID -A0E7-.
0CEE	30	319		DC IL1'48'	
0CEP	13EF	320		DC AL2(STUPID)	
0CF1	A0E7	321		DC XL2'A0E7'	
0CF3	C0 87 0222	322		B HALT	ERROR HALT -E7-.
0CF7	A0E7	323		DC XL2'A0E7'	
0CF9	C0 87 0A42	324		B RETRY	GO RETRY.
		325	*		SWITCH SETTING ERROR MESSAGES *
0CFD	3C F1 1858	326	ESW1	MVI BIGSSW-12,X'F1'	SET UP FOR SWITCH 1 ERROR.
0D01	F2 87 04	327		J **7	
0D04	3C F2 1858	328	ESW2	MVI BIGSSW-12,X'F2'	SET UP FOR SWITCH 2 ERROR.
0D08	C0 87 021A	329		B PRINT	PRINT SWITCH CHECK.
0D0C	C6	330		DC XL1'C6'	ID -A0E8-.
0D0D	14	331		DC IL1'20'	
0D0E	1864	332		DC AL2(BIGSSW)	
0D10	A0E8	333		DC XL2'A0E8'	
0D12	C0 87 0222	334	HLTER	B HALT	ERROR HALT -E8-.
0D16	A0E8	335		DC XL2'A0E8'	
0D18	C0 87 0A42	336		B RETRY	GO BACK AND RETRY.
0D1C	C0 05 1889 1AE4	337	ESCTR	MVC LRGSSW(6),SECTOR	MOVE IN SECTOR LABEL.
0D22	F2 87 06	338		J **9	
0D25	C0 05 1889 1ADR	339	ETR	MVC LRGSSW(6),TRCK	MOVE IN TRACK LABEL.
0D2B	C0 87 021A	340		B PRINT	PRINT SSW 364 ERROR MESSAGE.
0D2F	C6	341		DC XL1'C6'	ID -A0E9-.

IBM MAINTENANCE DIAGNOSTIC PROGRAM

PART NO. 5129648  
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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
	0D30	25	0D30	342	DC	IL1'37'
	0D31	1B99	0D32	343	DC	AL2(LRGSSW)
	0D33	A0E9	0D34	344	DC	XL2'A0E9'
	0D35	C0 87 0222		345	B	HALT
	0D39	A0E9	0D3A	346	DC	XL2'A0E9'
	0D3B	F2 87 31		347	J	RDHLT+1
				348		*****
				349	*	INCREMENT TABLE POINTER FOR NEXT COMMAND. *
				350	*****	*****
	0D3E	E2 02 02		351	NEXT LA	2(,XR2),XR2
	0D41	38 01 0D6E		352	TBN	RDHLT,X'01'
	0D45	F2 10 07		353	JT	**10
	0D48	3C E1 0D6E		354	MVI	RDHLT,X'E1'
	0D4C	F2 87 04		355	J	**7
	0D4F	3C E2 0D6E		356	MVI	RDHLT,X'E2'
	0D53	34 02 17F1		357	ST	TEMP,XR2
	0D57	0D 01 17F1 17F5		358	CLC	TEMP(2),END01
	0D5D	F2 81 13		359	JE	MUCH
	0D60	0D 01 17F1 17E7		360	CLC	TEMP(2),END02
	0D66	F2 81 0A		361	JE	MUCH
	0D69	C0 87 0222		362	B	HALT
	0D6D	A0E2	0D6E	363	RDHLT DC	XL2'A0E2'
	0D6F	C0 87 0A42		364	B	RETRY
				365	*****	*****
				366	*	DUMP CURRENT COMMANDS TABLE. *
				367	*****	*****
	0D73	C0 87 021A		368	MUCH B	PRINT
	0D77	04	0D77	369	DC	XL1'04'
	0D78	0C	0D78	370	DC	IL1'12'
	0D79	1AD5	0D7A	371	DC	AL2(FILUP)
	0D7B	8C 01 01 17E1		372	MVC	1(2,XR2),H0000
	0D80	C0 87 021A		373	DC	PRINT
	0D84	02	0D84	374	DC	XL1'02'
	0D85	40	0D85	375	DC	IL1'64'
	0D86	1A07	0D87	376	DC	AL2(CNNDMS)
	0D88	C2 02 18CC		377	LA	CMNDS,XR2
	0D8C	2C 03 0D98 03		378	MVIN MVC	ORG(4),3(,XR2)
	0D91	C0 87 143E		379	B	NTBPT
	0D95	00000000	0D98	380	DC	XL4'00000000'
	0D99	C0 87 021A		381	B	PRINT
	0D9D	01	0D9D	382	DC	XL1'01'
	0D9E	5B	0D9E	383	DC	IL1'91'
	0D9F	19A3	0DA0	384	DC	AL2(PRT)
	0DA1	0C 5A 19A3 19A4		385	MVC	PRT(91),PRT+1
	0DA7	E2 02 02		386	INC2 IA	2(,XR2),XR2
	0DAA	8D 01 01 17E1		387	CLC	1(2,XR2),H0000
	0DAF	F2 81 0B		388	JE	GENIT
	0DB2	8D FF 00		389	CLI	0(,XR2),X'FF'
	0DB5	C0 81 0DA7		390	BE	INC2
	0DB9	C0 87 0D8C		391	B	MVIN
	0DBD	3C 5C 1989		392	GENIT MVI	PRT-26,C'*
	0DC1	0C 35 1988 1989		393	MVC	PRT-27(54),PRT-26
	0DC7	0C 0B 1972 1AC9		394	MVC	PRT-49(12),LSTONE
	0DCD	0C 03 194D 1A3F		395	MVC	PRT-86("),DECOO
	0DD3	C0 87 021A		396	B	PRINT
	0DD7	06	0DD7	397	DC	XL1'06'
	0DD8	5B	0DD8	398	DC	IL1'91'
	0DD9	19A3	0DDA	399	DC	AL2(PRT)
	0DDB	0C 5A 19A3 19A4		400	MVC	PRT(91),PRT+1
	0DE1	C0 87 0222		401	B	HALT
	0DE5	A0E3	0DE6	402	DC	XL2'A0E3'
	0DE7	C0 87 0216		403	B	LINK
				404		RETURN TO DCP.
				405		
				406	*****	
				407	* RTH02 *	
				408	*****	
				409	*	

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
			410	*	ROUTINE 02	THE COMMANDS STORED IN THE TABLE ARE
			411	*		ISSUED SEQUENTIALLY TO THE DISK AND
			412	*		THE RESPONSES CHECKED.
			413	*		
			414	*	*****	*****
			415	RTN02	DC	XL1'02'
			416		DC	XL1'00'
			417		DC	AL2(RTN03)
			418			
			419		B	PRINT
			420		DC	XL1'45'
			421		DC	IL1'18'
			422		DC	AL2(HD02)
			423		DC	XL2'A0A2'
			424		MVC	PRT(91),PRT+1
			425		LA	CMNDS-2,XR2
			426		SBF	FLAG,X'04'
			427	*	*****	*****
			428	*	RECALIBRATE THE DISKS BEFORE STARTING THE COMMANDS TABLE.	
			429	*	*****	*****
			430	DOCAL	SBF	FLAG,X'20'
			431		TBN	FLAG,X'01'
			432		JF	CLRB2
			433		TBN	FLAG,X'04'
			434		JT	GOA
			435		TIO	NTRDYA,X'A0'
			436		J	*+7
			437		B	*-7
			438	GOA	SBF	FLAG,X'04'
			439		TIO	BUSYA,X'A2'
			440		LIO	RCALA,X'A6'
			441		LIO	DARA,X'A4'
			442		SIO	X'00',X'A0'
			443	WATA	SNS	STSBY1,X'A2'
			444		TBN	STSBY1,X'10'
			445		BT	WATA
			446		TBN	STSBY1,X'40'
			447		JF	RCLCKA
			448		MVC	LSEKA(2),SEEK0+1
			449		TBN	FLAG,X'02'
			450		JF	REINIT
			451	CLRB2	TBN	FLAG,X'04'
			452		JT	GOB
			453		TIO	NTRDYB,X'B0'
			454		J	*+7
			455		B	*-7
			456	GOB	SBF	FLAG,X'04'
			457		TIO	BUSYB,X'B2'
			458		LIO	RCALB,X'B6'
			459		LIO	DARB,X'B4'
			460		SIO	X'00',X'B0'
			461	WATB	SNS	STSBY1,X'B2'
			462		TBN	STSBY1,X'10'
			463		BT	WATB
			464		TBN	STSBY1,X'40'
			465		JF	RCLCKB
			466		MVC	LSEKB(2),SEEK0+1
			467		J	REINIT
			468	*	RECALIBRATE ERROR MESSAGE *	
			469	RCLCKB	MVI	BRATE-18,X'F2'
			470		SNS	STSBY3,X'B3'
			471		J	*+11
			472	RCLCKA	MVI	BRATE-18,X'F1'
			473		SNS	STSBY3,X'A3'
			474		MVC	STSCF-13(1),BRATE-18
			475		B	PRINT
			476		DC	XL1'C6'
			477		DC	IL1'25'

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT
		OEB7	1B00	OEB8	478	DC	AL2(BRATE)
		OEB9	A00E	OEB8	479	DC	XL2'A00E'
		OEBB	39 FF 1808		480	TBF	STSBY0,X'FF'
		OEBF	C0 90 1368		481	BF	STSER
		OEC3	39 84 180A		482	TBF	STSBY2,X'84'
		OEC7	C0 90 1368		483	BF	STSER
		OECB	C0 87 0222		484	B	HALT
		OECF	A00E	OED0	485	DC	XL2'A00E'
		OED1	C0 87 0E07		486	B	DOCAL
					487		GO TRY AGAIN.
					488	*	*****
					488	*	START EXECUTING COMMANDS TABLE.
					489	*	*****
		OED5	C2 02 18CC		490	REINIT	LA CMNDS,XR2
		OED9	38 01 020A		491	TBN	SBYTE2,SSW17
		OEDD	F2 90 18		492	JF	CLRCW
		OEE0	3C 5C 1989		493	MVI	PRT-26,X'5C'
		OEE4	0C 3F 1988 1989		494	MVC	PRT-27(64),PRT-26
		OEEA	C0 87 021A		495	B	PRINT
		OEE E 01		OEE E	496	DC	XL1'01'
		OEE F 5B		OEE F	497	DC	IL1'91'
		OEF0	19A3	OEF1	498	DC	AL2(PRT)
		OEF2	0C 5A 19A3 19A4		499	MVC	PRT(91),PRT+1
		OEF8	0C 03 1815 1816		500	CLRCW	MVC TMPCCW(4),TMPCCW+1
		OEFE	0C 01 1819 183A		501	MVC	TMPSIO+2(2),HFFF
		OF04	8D 01 01 17E1		502	CLC	1(2,XR2),H0000
		OF09	C0 81 11CE		503	BE	ENDIT
		OF0D	BD FF 00		504	CLI	0(,XR2),X'FF'
		OF10	F2 01 07		505	JNE	CLROK
		OF13	E2 02 02		506	LA	2(,XR2),XR2
		OF16	C0 87 0EFR		507	B	CLRCW
					508	*	*****
					509	*	ANALYZE CURRENT SWITCH 1 AND MODIFY START I/O ACCORDINGLY.
					510	*	*****
		OF1A	C2 01 1839		511	CLROK	LA OPTSW1,XR1
		OF1E	28 02 1805 00		512	MNZ	SWANL,0(,XR2)
		OF23	D2 01 02		513	INCSW1	LA 2(,XR1),XR1
		OF26	0F 00 1805 17C4		514	SLC	SWANL(1),N001
		OF2C	C0 84 0F23		515	BP	INCSW1
		OF30	1C 01 1814 01		516	MVC	TMPSIO+2(2),1(,XR1)
					517	*	*****
					518	*	ANALYZE CURRENT SWITCH 2 AND MODIFY START I/O ACCORDINGLY.
					519	*	*****
		OF35	C2 01 1857		520	LA	OPTSW2,XR1
		OF39	28 03 1805 00		521	MNZ	SWANL,0(,XR2)
		OF3E	D2 01 01		522	INCSW2	LA 1(,XR1),XR1
		OF41	0F 00 1805 17C4		523	SLC	SWANL(1),N001
		OF47	C0 84 0F3E		524	BP	INCSW2
		OF4B	1C 00 0F35 00		525	MVC	SETT+1(1),0(,XR1)
		OF50	3B 01 0F55		526	SBF	SETT+1,X'01'
		OF54	3A 00 1818		527	SETT	SPN TMPSIO+1,X'00'
		OF58	39 07 1818		528	TBF	TMPSIO+1,X'07'
		OF5C	F2 10 62		529	JF	SKFLD'
					530	*	*****
					531	*	BUILD THE CONTROL FIELD FOR A READ OR WRITE COMMAND.
					532	*	*****
		OF5P	2C 00 17F1 01		533	MVC	TEMP(1),1(,XR2)
		OF64	0E 00 17F1 17F1		534	ALC	TEMP(1),TEMP
		OF6A	0E 00 17F1 17F1		535	ALC	TEMP(1),TEMP
		OF70	78 01 00		536	TBN	0(,XR1),X'01'
		OF73	F2 90 04		537	JF	*+7
		OF76	3A 80 17F1		538	SRN	TEMP,X'80'
		OF7A	0C 00 1814 17F1		539	MVC	TMPCW-1(1),TEMP
		OF80	3B 10 1818		540	TBN	TMPSIO+1,X'10'
		OF84	F2 90 09		541	JF	*+12
		OF87	0C 01 1813 1802		542	MVC	TMPCW-2(2),LSEKB
		OF8D	F2 87 06		543	J	*+9
		OF90	0C 01 1813 1800		544	MVC	TMPCW-2(2),LSEKA
		OF96	BD FF 02		545	CLI	2(,XR2),X'FF'

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT
		OF99	F2 01 0E	546	JNE	GORUN	JUMP IF NOT.
		OF9C	2C 00 1815 03	547	MVC	TMPCCW(1),3(,XR2)	STORE NUMBER SECTORS TO READ/WRITE.
		0FA1	0F 00 1815 17C4	548	SLC	TMPCCW(1),N001	SET IT TO DISK LANGUAGE.
		0FA7	F2 87 04	549	J	**7	
		0FAA	3C 00 1815	550	GORUN	MVI	TMPCCW,X'00'
		0FAE	3D 02 1819	551	CLI	TMPSIO+2,X'02'	READ/WRITE 1 SECTOR.
		0FB2	F2 01 81	552	JNE	TSRDY	THIS A DIAGNOSTIC READ COMMAND ?
		0FB5	2C 00 1815 01	553	MVC	TMPCCW(1),1(,XR2)	GO ON IF NOT.
		0FBA	3B 7C 1814	554	SBF	TMPCCW-1,X'7C'	STORE # SECTORS TO READ.
		0FBE	F2 87 75	555	J	TSRDY	SET STARTING SECTOR TO 00.
				556			GO ISSUE THIS COMMAND.
				557	*	BUILD CONTROL FIELD FOR A NEW SEEK COMMAND.	
				558			
		0FC1	B9 30 00	559	SKFLD	TBN	0(,XR2),X'80'
		0FC4	F2 90 12	560	JF	HD1H+4	THIS A SPECIAL SEEK COMMAND ?
		0FC7	39 20 181A	561	TBN	FLAG,X'20'	JUMP IF NOT.
		0FCB	F2 90 07	562	JF	HD1H	ISSUED THIS COMMAND YET ?
		0FCE	E2 02 02	563	LA	2(,XR2),XR2	JUMP IF NOT.
		0FD1	C0 87 0E8F	564	B	CLRCCW	INCREMENT TABLE POINTER.
		0FD5	3A 20 181A	565	HD1H	SBN	FLAG,X'20'
		0FD9	78 01 00	566	TBN	0(,XR1),X'01'	SKIP THIS COMMAND.
		0FDC	F2 90 04	567	JF	**7	TURN ON ISSUED FLAG.
		0FDE	3A 80 1814	568	SRN	TMPCCW-1,X'80'	SSW 2 SET FOR HEAD 1 FLAG ?
		0FE3	2C 00 1813 01	569	MVC	TMPCCW-2(1),1(,XR2)	JUMP IF NOT.
		0FE8	38 10 1818	570	TBN	TMPSIO+1,X'10'	TURN ON HEAD BIT IN THE -S- BYTE.
		0FEC	F2 90 09	571	JF	**12	STORE CURRENT TRACK ID IN -C- BYTE.
		0FEE	0C 00 17F1 1802	572	MVC	TEMP(1),LSEKB	THIS FOR SPINDLE -B- COMMAND ?
		0FF5	F2 87 06	573	J	**9	JUMP IF NOT.
		0FF8	0C 00 17F1 1800	574	MVC	TEMP(1),LSEKA	STORE OLD TRACK ID FOR -B-.
		0FFE	0D 00 17F1 1813	575	CLC	TEMP(1),TMPCCW-2	STORE OLD TRACK ID FOR -A-.
		1004	F2 82 09	576	JL	NEWLRG	CURRENT TRACK ID GREATER THAN OLD ?
		1007	0F 00 17F1 1813	577	SLC	TEMP(1),TMPCCW-2	JUMP IF SO.
		100D	F2 87 20	578	J	STRIT	FIGURE # TRACKS TO MOVE REVERSELY.
		1010	0C 00 17F1 1813	579	NEWLRG	MVC	TEMP(1),TMPCCW-2
		1016	38 10 1818	580	TBN	TMPSIO+1,X'10'	MOVE CURRENT TRACK ID.
		101A	F2 90 09	581	JF	**12	THIS FOR SPINDLE -B- COMMAND ?
		101D	0F 00 17F1 1802	582	SLC	TEMP(1),LSEKB	JUMP IF NOT.
		1023	F2 87 06	583	J	**9	FIGURE # TRACKS TO MOVE FORWARD, -B-
		1026	0F 00 17F1 1800	584	SLC	TEMP(1),LSEKA	FIGURE # TRACKS TO MOVE FORWARD, -A-
		102C	3A 01 1814	585	SBN	TMPCCW-1,X'01'	TURN ON MOVE FORWARD BIT IN -S- BYTE
		1030	0C 00 1815 17F1	586	STRIT	MVC	TMPCCW(1),TEMP
				587			STORE # TRACKS TO MOVE.
				588	*	MAKE SURE THAT THE SPINDLE IS READY BEFORE ISSUING A COMMAND.	
				589			
		1036	38 10 1818	590	TSRDY	TBN	TMPSIO+1,X'10'
		103A	F2 10 0B	591	JT	RDYB	NEXT CMD FOR DRIVE -2- ?
		103D	C1 A0 12D5	592	RDYA	TIO	NTRDYA,X'A0'
		1041	F2 87 0F	593	J	CK16	JUMP IF SO.
		1044	C0 87 103D	594	B	RDYA	BRANCH IF DRIVE -1- IS NOT READY.
		1048	C1 B0 12EC	595	RDYB	TIO	NTRDYB,X'B0'
		104C	F2 87 04	596	J	CK16	GO DO NEW CMD IF READY.
		104F	C0 87 1048	597	B	RDYB	GO TRY AGAIN.
				598			
				599	*	CHECK SSW OPTIONS BEFORE ISSUING NEW COMMAND.	
				600			
		1053	38 01 020A	601	CK16	TBN	SBYTE2,SSW17
		1057	C0 10 150A	602	BT	DMPBIT	SSW 17 SET ?
				603			GO DUMP CORE IMAGE ETC.
				604	*	FILL MAXIMUM READ/WRITE AREA WITH FF'S.	
				605			
		105B	38 08 020B	606	BSIO	TBN	SBYTE3,SSW1C
		105F	F2 10 52	607	JT	DONE3	SSW 1C SET ?
		1062	C2 01 1FEA	608	LA	PIL+X'0100',XR1	SKIP FILLING IF SO.
		1066	3D 10 190C	609	CLI	MAX,X'10'	SET ADDRESS FOR 1 SECTOR.
		106A	F2 01 04	610	JNE	**7	16 SECTOR THE MAXIMUM ?
		106D	C2 01 2DEA	611	LA	PIL+X'0F00',XR1	JUMP IF NOT.
		1071	3D 20 190C	612	CLI	MAX,X'20'	SET ADDRESS FOR 16 SECTORS.
		1075	F2 01 04	613	JNE	**7	32 SECTOR THE MAXIMUM ?
							JUMP IF NOT.

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT
	1078	C2	01	3DEA	614	LA	FIL+X'1F00',XR1 SET ADDRESS FOR 32 SECTORS.
	107C	3D	30	180C	615	CLI	MAX,X'30' 48 SECTORS THE MAXIMUM ?
	1080	F2	01	04	616	JNE	**7 JUMP IF NOT.
	1083	C2	01	4DEA	617	LA	FIL+X'2F00',XR1 SET ADDRESS FOR 48 SECTORS.
	1087	34	01	109C	618	ST	MOV+3,XR1 BUILD MOVE INSTRUCTIONS TO FILL ALL
	108B	34	01	10A2	619	ST	MOV+9,XR1 THE READ/WRITE AREA WITH -PF-'S.
	108F	34	01	10A0	620	ST	MOV+7,XR1
	1093	0F	01	10A0 17C4	621	SLC	MOV+7(2),N001
	1099	3C	FF	0000	622	MOVS	MVI *-*,X'FF' DO THE ACTUAL FILLING.
	109D	0C	FF	0000 0000	623	MVC	*-*(256),*-*
	10A3	0D	01	10A0 180E	624	CLC	MOV+7(2),LSTADR FINISHED THE FILL YET ?
	10A9	F2	81	08	625	JE	DONE3 JUMP IF SO.
	10AC	36	01	17D4	626	A	NEG256,XR1 DECREMENT THE ADDRESS.
	10B0	C0	87	1087	627	B	STMVS CONTINUE THE MOVEMENT.
					628		*****
					629	*	NEW COMMAND IS STORED IN THE INSTRUCTION STREAM AND EXECUTED. *
					630		*****
	10B4	0C	01	10DD 1819	631	DONE3	MVC ILSIO+2(2),TMPPIO+2 BRING IN NEW SIO AND CONTROL FIELD.
	10BA	0C	03	10DA 1815	632	MVC	ILCCW(4),TMPCCW
	10C0	08	00	10CD 10DC	633	MZZ	LDDPCR+1,ILSIO+1 SET UP LIO CMNDS TO CORR TO SPNDL.
	10C6	08	00	10D1 10DC	634	MZZ	LDDAR+1,ILSIO+1
	10CC	31	A6	17FC	635	LDDPCR	LIO CCW,X'A6' LOAD CONTROL REGISTER.
	10D0	31	A4	17FE	636	LDDAR	LIO DAR,X'A4' LOAD DATA ADDRESS REGISTER.
	10D4	F2	87	04	637	J	ILSIO JUMP OVER CONTROL FIELD.
					638		*****
					639	*	IN-LINE START I/O COMMAND AND ITS CONTROL FIELD STORAGE. *
	10D7	00000000		10DA 640	ILCCW	DC	XL4'00000000' - CONTROL FIELD STORAGE. *
	10DB	F3	00	00	641	ILSIO	SIO X'00',X'00' - INLINE START I/O COMMAND. *
					642		*****
					643		*****
					644		*****
					645	*	MONITOR BUSY TILL IT TIMES OUT OR 'HANGS UP'. *
					646		*****
	10DE	39	07	10DC	647	TRF	ILSIO+1,X'07' THIS COMMAND A SEPK ?
	10E2	F2	10	50	648	JT	BSYSK JUMP IF SO.
	10E5	08	00	110A 10DC	649	MZZ	HANG+1,ILSIO+1 SET UP BUSY COMMANDS.
	10EB	08	00	10FB 10DC	650	MZZ	BUSY+1,ILSIO+1
	10F1	0C	01	1804 17E3	651	MVC	COUNT(2),BSYTIM CLEAR BUSY COUNT.
	10F7	C1	A2	10FF	652	BUSY	TIO YIMY,X'A2' BRANCH IF SPINDLE IS BUSY.
	10FB	C0	87	1739	653	B	NOBSY GO PRINT NO BUSY ON.
	10FF	0F	01	1804 17C4	654	YIMY	SLC COUNT(2),N001 DECREMENT STALL VALUE.
	1105	C0	82	1762	655	BM	TOLNG LOOP TILL DONE STALLING.
	1109	C1	A2	10FF	656	HANG	TIO YIMY,X'A2' STAY HERE TILL BUSY DROPS.
	110D	39	02	10DC	657	TRF	ILSIO+1,X'02' THIS A WHITE COMMAND ?
	1111	F2	90	7B	658	JF	INCRER JUMP IF SO.
	1114	38	01	10DC	659	TBN	ILSIO+1,X'01' THIS A READ COMMAND ?
	1118	F2	90	74	660	JF	INCRER JUMP IF NOT.
	111R	3D	01	10DD	661	CLI	ILSIO+2,X'01' THIS A READ ID COMMAND ?
	111F	F2	01	6D	662	JNE	INCRER JUMP IF NOT.
	1122	0D	00	10DB 1813	663	CLC	ILCCW-2(1),TMPCCW-2 EXPECTED AND ACTUAL TRACK ID'S EQUAL?
	1128	F2	81	64	664	JE	INCRER JUMP IF SO.
	112B	39	03	10D7	665	TRF	ILCCW-3,X'03' THIS AN ALTERNATE OR DEFECTIVE TRAK?
	112F	F2	10	2E	666	JT	BADID JUMP IF NOT.
	1132	F2	87	5A	667	J	INCRER GO DO NEXT COMMAND.
					668		*****
					669	*	TIME OUT SEEK BUSY. *
					670		*****
	1135	08	00	113C 10DC	671	BSYSK	MZZ SNS+1,ILSIO+1 SET UP CORRECT SENSE COMMAND.
	113B	30	A2	1809	672	SNS	STSBY1,X'A2' ISSUE SENSE FOR STATUS BYTE 1.
	113P	38	10	1809	673	TBN	STSBY1,X'10' SEEK BUSY BIT ON ?
	1143	C0	10	113B	674	BT	SNS STAY IN LOOP TILL BIT DROPS.
	1147	38	10	10DC	675	TRN	ILSIO+1,X'10' LAST COMMAND FOR SPINDLE -B- ?
	114B	F2	90	J9	676	JF	**12 JUMP IF NOT.
	114E	0C	01	1802 10D5	677	MVC	LSEKB(2),ILCCW-2 STORE THE F AND C BYTES FOR -B-.
	1154	F2	87	06	678	J	**9
	1157	0C	01	1800 10D8	679	MVC	LSEKA(2),ILCCW-2 STORE THE F AND C BYTES FOR -A-.
	115D	F2	87	2P	680	J	INCRER GO INCREMENT COUNTERS.
					681	*	SEEK CHECK MESSAGE *

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE STATEMENT		
1160	C0 87 021E	682	BADID	B UNPACK		
1164	01	1164	683	DC IL1'1'	UNPACK ACTUAL TRACK ID.	
1165	10D8	1166	684	DC AL2(ILCCW-2)		
1167	1C39	1168	685	DC AL2(SKITCK)		
1169	C0 87 021E		686	B UNPACK		
116D	01	116D	687	DC IL1'1'	UNPACK EXPECTED TRACK ID.	
116E	1813	116F	688	DC AL2(TMPCCW-2)		
1170	1C2F	1171	689	DC AL2(SKITCK-10)		
1172	C0 87 021A		690	B PRINT		
1176	C6	1176	691	DC XL1'C6'	PRINT EXPT/ACT TRACK ID'S.	
1177	24	1177	692	DC IL1'36'	ID -A00A-	
1178	1C39	1179	693	DC AL2(SKITCK)		
117A	A00A	117B	694	DC XL2'A00A'		
117C	C0 87 1329		695	B STSOK		
1180	8E 01 53 17C4		696	ALC 93(2, XR2), N001	GO CHECK OUT STATUS.	
1185	C0 87 0222		697	B HALT	INCREMENT ERROR COUNT.	
1189	A00A	118A	698	DC XL2'A00A'	ERROR HALT -0A-	
118B	C0 87 0E07		699	B DOCAL		
700				*****	GO TRY AGAIN.	
701	*			INCREMENT LOG-OUT TABLE COUNTERS, CHECK SSW OPTIONS.		
702				*****		
118F	8E 01 2B 17C4	703	INCR	ALC 43(2, XR2), N001	GO CHECK STATUS OUT.	
1194	C0 87 1329	704	B	STSOK	INCREMENT INDIVIDUAL CMND COUNT.	
1198	E2 02 02	705	LA	2(, XR2), XR2	INCREMENT CMND TABLE POINTER.	
119B	38 80 020B	706	TRN	SBYTE3, SSW18	SSW 18 SET?	
119F	F2 90 0E	707	JF	CK15	JUMP IF NOT.	
11A2	30 00 17F1	708	SNS	TEMP, X'00'	READ CONSOLE SWITCHES FOR STALLING.	
11A6	0F 01 17F1 17C4	709	SUB	SLC TEMP(2), N001	LOOP TILL DONE STALLING.	
11AC	C0 84 11A6	710	BP	SUR		
11B0	C0 87 0212	711	CK15	B TEST	TEST FOR SSW CHANGE.	
11B4	39 02 10DC	712	TBF	ILS10+1, X'02'	WAS LAST COMND POSSIBLY A READ ?	
11B8	F2 90 0F	713	JF	GOCLR	JUMP IF NOT.	
11BB	38 01 10DC	714	TRN	ILS10+1, X'01'	READ BIT ON ?	
11BF	F2 90 08	715	JF	GOCLR	JUMP IF NOT.	
11C2	38 40 020B	716	TRN	SBYTE3, SSW19	SSW 19 SET ?	
11C6	C0 10 15A5	717	BT	DMDATA	GO DUMP READ DATA IF SO.	
11CA	C0 87 0EFA	718	GOCLR	B CLRCCW	GO BACK AND SET UP NEW COMMAND.	
719				*****		
720	*			CHECK END OF TABLE SSW OPTIONS.		
721				*****		
11CE	38 20 020B	722	ENDIT	TBN SBYTE3, SSW1A	SSW 1A ON ?	
11D2	F2 90 06	723	JF	RND	JUMP IF NOT.	
11D5	C0 87 0222	724	B	HALT	DO END OF TABLE HALT -E4-	
11D9	A0E4	11DA	725	DC XL2'A0E4'		
11DB	C0 87 0212	726	RND	B TEST	TEST FOR SSW CHANGE.	
11DF	C0 87 0ED5	727	B	REINIT	GO START OVER.	
728						
729				*****		
730	*			PTN03 *		
731				*****		
732	*					
733	*			ROUTINE 03	DUMP ALL COUNTERS.	
734	*					
735				*****		
11E3	03	11E3	736	PTN03	DC XL1'03'	ROUTINE NUMBER
11E4	00	11E4	737	DC	XL1'00'	NO MANUAL INTERVENTION REQUIRED
11E5	FFFF	11E6	738	DC	XL2'FFFF'	LAST ROUTINE
11E7	0C 03 1947 1948	739				
11ED	C2 02 18CA	740	MVC	SCK(4), SCK+1	CLEAR OLD TOTALS.	
11F1	C0 87 021A	741	LA	CMNDS-2, XR2	INITIALIZE TABLE POINTER.	
11F5	42	11F5	742	B PRINT	PRINT SUMMARY HEADING.	
11F6	10	11F6	743	DC XL1'42'		
11F7	1A21	11F8	744	DC IL1'16'		
11F9	A0A2	11FA	745	DC AL2(SUM1)		
11FB	0C 3F 1988 1A07	746	DC	XL2'A0A2'		
1201	0C 0E 19A3 1A30	747	MVC	PRT-27(64), CMNDMS	SET UP HEADINGS.	
		748	MVC	PRT(15), SUM2		

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
	1207	C0 87 021A		749	B	PRINT PRINT SWS HEADING.
	120B	02	120B	750	DC	XL1'02'
	120C	5B	120C	751	DC	IL1'91'
	120D	19A3	120E	752	DC	AL2(PRT)
	120F	0C 5A 19A3 19A4		753	MVC	PRT(91),PRT+1 CLEAR PRINT AREA.
	1215	8D 01 01 17E1		754	CLC	1(2,XP2),H0000 THIS THE LAST COMMAND ?
	121A	F2 81 0D		755	JE	NOK JUMP IF SO.
	121D	BD FF 00		756	CLI	0(,XR2),X'FF' THIS A SECTOR COUNT OPTION ?
	1220	F2 01 26		757	JNE	UNMR JUMP IF NOT.
	1223	E2 02 02		758	LA	2(,XR2),XR2 INCREMENT POINTER TO SKIP THIS.
	1226	C0 87 1215		759	B	DOO GO CHECK FOR LAST OPTION.
	122A	0C 03 17F1 1947		760	MVC	TEMP(4),SCK STORE TOTALS.
	1230	0C 05 1992 1A45		761	MVC	PRT-17(5),SUM4 STORE SUMMARY HEADING.
	1236	3C 5C 1989		762	MVI	PRT-26,C'*' GENERATE LINE OF '*S.
	123A	0C 35 1988 1989		763	MVC	PRT-27(54),PRT-26
	1240	0C 0B 1972 1AC9		764	MVC	PRT-49(12),LSTONF
	1246	F2 87 23		765	J	INCT
	1249	2C 03 1255 03		766	MVC	**12(4),3(,XR2)
	124E	C0 87 143F		767	B	NRPT GO INTERPRET THIS COMMAND.
	1252	00000000	1255	768	DC	XL4'00000000'
	1256	2C 01 17EF 2B		769	MVC	TEMP-2(2),43(,XR2) BRING IN CURRENT LOGOUT INFO.
	125B	2C 01 17F1 53		770	MVC	TEMP(2),83(,XR2)
	1260	0E 01 1945 17EF		771	ALC	SIS(2),TEMP-2 INCREMENT TOTAL COUNTERS.
	1266	0E 01 1947 17F1		772	ALC	SCK(2),TEMP
	126C	0C 0E 19A3 1A3F		773	INCT	MVC PRT(15),SUM3 INITIALIZE COUNTERS.
	1272	0D 03 17F1 17E1		774	LPCLR	CLC TEMP(4),H0000 ALL COUNTERS ZERO ?
	1278	F2 81 2E		775	JE	NEWON JUMP IF SO.
	127B	0D 01 17EF 17E1		776	CLC	TEMP-2(2),H0000 ISSUED COUNT 0 ?
	1281	F2 81 0C		777	JE	ERCNT JUMP IF SO.
	1284	06 50 199A 17D5		778	AZ	PRT-9(5),DECO1(1) INCREMENT DECIMAL COUNT.
	128A	0F 01 17EF 17C4		779	SLC	TEMP-2(2),N001 DECREMENT BINARY COUNT.
	1290	0D 01 17F1 17E1		780	ERCNT	CLC TEMP(2),H0000 ERROR COUNT 0 ?
	1296	F2 81 0C		781	JE	OOO JUMP IF SO.
	1299	06 50 19A3 17D5		782	AZ	PRT(6),DECO1(1) INCREMENT DECIMAL ERROR COUNT.
	129F	0F 01 17F1 17C4		783	SLC	TEMP(2),N001 DECREMENT BINARY COUNT.
	12A5	C0 87 1272		784	OOO	B LPCLR CONTINUE CONVERSION LOOP.
	12A9	CO 87 021A		785	NEWON	B PRINT PRINT CURRENT INFORMATION.
	12AD	01	12AD	786	DC	XL1'01'
	12AE	5B	12AE	787	DC	IL1'91'
	12AF	19A3	12B0	788	DC	AL2(PRT)
	12B1	0C 5A 19A3 19A4		789	MVC	PRT(91),PRT+1 CLEAR PRINT AREA.
	12B7	8D 01 01 17E1		790	CLC	1(2,XP2),H0000 THIS THE LAST COMMAND ?
	12BC	F2 81 07		791	JE	SPCUP JUMP OUT IF SO.
	12BF	E2 02 02		792	LA	2(,XR2),XR2 INCREMENT TABLE POINTER.
	12C2	C0 87 1215		793	B	DOO GO FINISH UP LOOP.
	12C6	C0 87 021A		794	SPCUP	B PRINT SPACE UP THE PAPER.
	12CA	16	12CA	795	DC	XL1'16'
	12CB	C0 87 0222		796	B	HALT INLINE HALT -B5-.
	12CF	A0E5	12D0	797	DC	XL2'A0E5'
	12D1	C0 87 0216		798	B	LINK RETURN TO DJP.
				799		

```

800 *****
801 * NTRDYX *
802 *****
803 * SUBROUTINE IS CALLED WHEN A SPINDLE DROPS *
804 * READY. THE STATUS BYTES FOR THAT SPINDLE *
805 * ARE SENSED AND CHECKED. A -NOT READY- *
806 * MESSAGE IS PRINTED IF ONLY THE -INTERVENTION *
807 * BIT- IS ON. OTHERWISE THE STATUS BITS ARE *
808 * INTERPRETED AND PRINTED. *
809 *
810 * NOTE - ISSUE A -TIO- AS SUCH- *
811 *
812 * TIO NTRDYX BRANCH IF NOT DY. *
813 * J **7 JUMP IF OK. *
814 * B AFTER RETURN HERE IF NOT RDY *
815 *****
816 NTRDYA A N003,ARR
    
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FRP	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT
12D9	34	08	1328	817	ST	RDY+3,ARR	SAVE NOT READY RETURN ADDRESS.
12DD	30	A2	1809	818	SNS	STSBY1,X'A2'	SENSE SPNDL A STATUS BYTES 0 & 1.
12E1	30	A3	180B	819	SNS	STSBY3,X'A3'	SENSE SPNDL A STATUS BYTES 2 & 3.
12E5	3C	F1	1AB3	820	MVI	SPDNR-10,X'F1'	SET UP POP SPINDLE -1- CHECK.
12E9	F2	87	14	821	J	CKOUT	GO ANALIZE STATUS BITS.
12EC	36	08	17C8	822	NTRDYS	A N003,ARR	
12F0	34	08	1328	823	ST	RDY+3,ARR	SAVE NOT READY RETURN ADDRESS.
12F4	30	B2	1809	824	SNS	STSBY1,X'B2'	SENSE SPNDL B STATUS BYTES 0 & 1.
12F8	30	B3	180B	825	SNS	STSBY3,X'B3'	SENSE SPNDL B STATUS BYTES 2 & 3.
12FC	3C	F2	1AB3	826	MVI	SPDNR-10,X'F2'	SET UP FOR SPINDLE -2- CHECK.
1300	38	40	180B	827	CKOUT	TBN STSBY0,X'40'	INTERVENTION BIT ON ?
1304	F2	90	5B	828	JF	DMP	JUMP IF NOT.
1307	39	BF	180B	829	TBF	STSBY0,X'BF'	ARE REST OF THE BITS OFF ?
130B	F2	90	54	830	JF	DMP	JUMP IF NOT.
130E	39	84	190A	831	TBF	STSBY2,X'84'	ANY BITS ON IN BYTE 2 ?
1312	F2	90	4D	832	JF	DMP	JUMP IF SO.
1315	C0	87	021A	833	* NOT READY ERROR MESSAGE *		
1319	C6			834	B	PRINT	PRINT SPINDLE NOT READY.
131A	11			131A	835	DC	XL1'C6'
131B	1ABD			131C	836	DC	IL1'17'
131D	A0FE			131E	837	DC	AL2(SPDNR)
131F	C0	87	0222	838	DC	XL2'A0FE'	
1323	A0FE			839	B	HALT	ERROR HALT --FE--.
1325	C0	87	6090	1324	840	DC	XL2'A0FE'
841	RDY	B		841	B	**	RETURN TO NOT READY BRANCH.
842	*****						
843	* STSOK *						
844	*****						
845	SUBROUTINE SENSES THE CORRESPONDING DRIVE'S						
846	STATUS BYTES AND CHECKS FOR ERRORS. IF OK,						
847	THE SUBROUTINE BRANCHES BACK.						
848	*****						
1329	34	08	1361	849	ST	OKST+3,ARR	STORE RETURN ADDRESS.
132D	09	00	1349 10DC	850	MZZ	SA+1,ILSIO+1	BUILD CORRS SENSE COMMANDS.
1333	09	00	134D 10DC	851	MZZ	SB+1,ILSIO+1	
1339	3C	F2	1B39	852	MVI	STSCK-13,C'2'	SET UP MESSAGE FOR DRIVE 2.
133D	38	10	10DC	853	TBN	ILSIO+1,X'10'	THIS DRIVE 2 ?
1341	F2	10	04	854	JT	**7	JUMP IF SO.
1344	3C	F1	1B39	855	MVI	STSCK-13,C'1'	SET UP MESSAGE FOR DRIVE 1.
1348	30	A2	1809	856	SA	SNS STSBY1,X'A2'	STORE CORRS SENSE INFORMATION.
134C	30	A3	180B	857	SB	SNS STSBY3,X'A3'	
1350	39	FF	180B	858	TBF	STSBYC,X'FF'	STATUS OK ?
1354	F2	90	11	859	JF	STSER	BRANCH IF NOT.
1357	39	84	180A	860	TBF	STSBY2,X'84'	STATUS OK ?
135B	F2	90	0A	861	JF	STSER	BRANCH IF NOT.
135E	C0	87	0000	862	OKST	B **	RETURN TO MAIN PROGRAM.
863	* STATUS BYTE ERROR MESSAGE *						
1362	0C	00	1B39 1AB3	864	DMP	MVC STSCK-13(1),SPDNR-10	STORE SPINDLE ID.
1368	C0	87	021A	865	STSER	B PRINT	PRINT STATUS CHECK.
136C	C2			136C	866	DC	XL1'C2'
136D	14			136D	867	DC	IL1'20'
136F	1B46			136F	868	DC	AL2(STSCK)
1370	A097			1371	869	DC	XL2'A097'
1372	38	01	020A	870	TBN	SBYTE2,SSW17	SSW 17 SET ?
1376	F2	10	55	871	JT	ESTS	SKIP COMMAND ID MESSAGE IF SO.
1379	BD	FF	00	872	CLI	0(,XR2),X'FF'	THIS A --FF- FLAG ?
137C	F2	01	04	873	JNE	**7	JUMP IF NOT.
137F	36	02	17D2	874	F	NEG02,XR2	DECREMENT POINTER SOME MORE.
1383	2C	03	138F 03	875	BVC	**12,3(4,XR2)	STORE CURRENT COMMAND SSWs.
1388	C0	87	143E	876	B	NTRPT	INTERPRET CURRENT COMMAND.
138C	00000000			138F	877	DC	XL4'00000000'
1390	BD	FF	00	878	CLI	0(,XR2),X'FF'	THIS A --FF- FLAG ?
1393	F2	01	04	879	JNE	**7	JUMP IF NOT.
1396	36	02	17C6	880	A	N002,XR2	RESTORE POINTER.
139A	C0	87	021A	881	B	PRINT	PRINT SSW SETTING LABEL.
139E	01			139E	882	DC	XL1'01'
139F	40			139F	883	DC	IL1'64'
13A0	1AC7			13A1	884	DC	AL2(CMDMS)

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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
	13A2	CO 87 021A		885	B	PRINT PRINT THIS COMMAND ID.
	13A6	82	13A6	886	DC	XL1'82'
	13A7	5B	13A7	887	DC	IL1'91'
	13A9	19A3	13A9	888	DC	AL2(PRT)
	13AA	OC 5A 19A3 19A4		889	MVC	PRT(91),PRT+1
	13B0	CO 87 021F		890	B	CLEAR PRINT FIELD.
	13B4	03	13B4	891	DC	UNPACK UNPACK CORE IMAGE OF SIO CMND.
	13B5	10DD		892	DC	IL1'3'
	13B7	1B1R		892	DC	AL2(ILSIO+2)
	13B9	CO 87 021E		893	DC	AL2(IMG-23)
	13BD	04		894	B	UNPACK UNPACK CORE IMAGE OF CONTROL FIELD.
	13BE	10DA		895	DC	IL1'4'
	13BF	10DA	13BF	896	DC	AL2(ILCCW)
	13C0	1B32	13C1	897	DC	AL2(IMG)
	13C2	CO 87 021A		898	B	PRINT PRINT THE CORE IMAGE.
	13C6	02	13C6	899	DC	XL1'02'
	13C7	32	13C7	900	DC	IL1'50'
	13C8	1B32	13C9	901	DC	AL2(IMG)
	13CA	34 01 1807		902	ST	SVXF1,XR1 SAVE REGISTER 1.
	13CE	C2 01 181D		903	ESTS	LA RTS0+2,XR1 LOAD TABLE ADDRESS IN INDEX REG 1.
	13D2	3C 01 13D7		904	MVI	TST0+1,X'01' PRESET BIT POINTER FOR BYTE 0.
	13D6	38 00 1808		905	TST0	TBN STSBY0,X'00' CURRENT BIT ON ?
	13DA	CO 10 1425		906	ST	PRTSTS GO PRINT ID IF SO.
	13DE	D2 01 03		907	LA	3(,XR1),XR1 INCREMENT TABLE POINTER.
	13E1	0E 00 13D7 13D7		908	ALC	TST0+1(1),TST0+1 SHIFT BIT POINTER TO NEXT BIT.
	13E7	3D 00 13D7		909	CLI	TST0+1,X'00' ALL BITS TESTED ?
	13EB	CO 01 13D6		910	RNE	TST0 BRANCH BACK IF NOT.
	13EF	38 04 180A		911	TBN	STSBY2,X'04' HEAD SETTLING BIT ON ?
	13F3	CO 10 1425		912	BT	PRTSTS GO PRINT ID IF SO.
	13F7	D2 01 03		913	LA	3(,XR1),XR1 INCREMENT TABLE POINTER.
	13FA	3C 3A 140D		914	MVI	RGS,X'3A' SET TO TURN ON GO BIT.
	13FE	38 80 180A		915	TBN	STSBY2,X'80' UNSAFE BIT ON ?
	1402	F2 90 08		916	JF	RGS JUMP IF NOT
	1405	3C 3B 140D		917	MVI	RGS,X'3B' SET TO TURN OFF GO BIT.
	1409	CO 87 1425		918	B	PRTSTS GO PRINT UNSAFE ID.
	140D	3B 04 181A		919	RGS	SBF FLAG,X'04' SET/RESET GO
	1411	CO 87 021A		920	B	PRINT SPACE UP PAPER.
	1415	16	1415	921	DC	XL1'16'
	1416	8E 01 53 17C4		922	ALC	83(2,XR2),N001 INCREMENT ERROR COUNT.
	141B	CO 87 0222		923	B	HALT ERROR HALT -97-
	141F	A097	1420	924	DC	XL2'A097'
	1421	CO 87 0E07		925	B	DOCAL GO START ALL OVER.
	1425	34 08 1439		925	* PRINT BIT ID *	
	1429	1C 02 1435 00		927	PRTSTS	ST SPT+3,ARR STORE RETURN ADDRESS.
	142E	CO 87 021A		928	MVC	SPT-1(3),0(,XR1) STORE CORR MESSAGE ADRS/LENGTH.
	1432	8.	1432	929	B	PRINT PRINT THIS BIT ID.
	1433	00	1433	930	DC	XL1'81'
	1434	0000	1435	931	DC	XL1'00'
	1435	0 87 0000		932	DC	XL2'0000'
				933	SPT	B ** CONTINUE THE BIT CHECK.
				934	*****	
				935	* NTRPT *	
				936	*****	
				937	SUBROUTINE INTERPRETS SENSE SWITCH SETTINGS *	
				938	INTO AN ENGLISH MEANING. OUTPUT IS STORED *	
				939	IN 'PRT' PRINT AREA. SUBROUTINE IS CALLED *	
				940	BY- *	
				941	* *	
				942	B NTRPT *	
				943	DC 2,X'ACTUAL SENSE SWITCH SETTING' *	
				944	DC 2,X'NEXT SETTING IN TABLE.' *	
				945	OUTPUT IS FORMATED AS- *	
				946	* *	
				947	SSWS COMMAND DISK ID LOCATION *	
				948	SSWS COMMAND DISK ID LOCATION *	
				949	0000 ** END OF TABLE ** *	
				950	*****	
	143A	00000000	143D	951	DC	XL4'00000000' SSWS STORAGE
	143E	36 08 17C8		952	NTRPT	A N003,ARR



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ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT	
	1525	19A3	1526	1021	DC	AL2(PRT)	
	1527	0C 5A 19A3 19A4		1022	MVC	PRT(91),PRT+1	
	152D	C0 87 021F		1023	B	CLEAR PRINT AREA.	
	1531	03	1531	1024	B	UNPACK CORE IMAGE OF SIO CMND.	
	1532	1819	1533	1025	DC	IL1'13'	
	1534	1B1B	1535	1026	DC	AL2(TMPSIO+2)	
	1536	C0 87 021E		1027	R	UNPACK CORE IMAGE OF CONTROL FIELD.	
	153A	04	153A	1028	DC	IL1'14'	
	153B	1815	153C	1029	DC	AL2(TMPCCN)	
	153D	1B32	153E	1030	DC	AL2(IMGE)	
	153F	C0 87 021A		1031	B	PRINT	
	1543	01	1543	1032	DC	XL1'01'	
	1544	32	1544	1033	DC	IL1'50'	
	1545	1B32	1545	1034	DC	AL2(IMGE)	
	1547	38 01 1818		1035	TBN	TMPSIO+1,X'01'	
	1548	F2 90 16		1036	JF	SIO READ BIT ON ?	
	1549	38 02 1818		1037	TBN	TMPSIO+1,X'02'	
	1552	F2 10 0F		1038	JT	WRITE BIT ON ?	
	1555	38 40 020B		1039	TBN	SBYTE?,SSW19	
	1559	F2 90 08		1040	JF	SSW 19 TURNED ON ?	
	155C	C0 87 021A		1041	B	JUMP IF NOT.	
	1560	11	1560	1042	DC	SPACE UP THE PAPER.	
	1561	F2 87 3D		1043	J	BRANCH BACK.	
	1564	8D 01 03 17E1		1044	CK00	CLC 3(2,XR2),H0000	
	1569	F2 81 19		1045	JE	LINE NEXT COMMAND THE LAST ?	
	156C	BD FF 02		1046	CLI	2(,XR2),X'FF'	
	156F	F2 01 08		1047	JNE	**+11	
	1572	8D 01 05 17E1		1048	CLC	5(2,XR2),H0000	
	1577	F2 81 08		1049	JE	LINE THIS THE LAST COMMAND ?	
	157A	3C 60 1989		1050	MVI	PRT-26,C'-'	
	157E	3C 01 1597		1051	MVI	SPS,X'01'	
	1582	F2 87 08		1052	J	GNIT	
	1585	3C 5C 1989		1053	LINE	MVI PRT-26,X'5C'	
	1589	3C 06 1597		1054	MVI	SPS,X'06'	
	158D	0C 3F 1988 1989		1055	GNIT	MVC PRT-27(54),PRT-26	
	1593	C0 87 021A		1056	B	PRINT	
	1597	06	1597	1057	SPS	DC XL1'06'	
	1598	5B	1598	1058	DC	IL1'91'	
	1599	19A3	159A	1059	DC	AL2(PRT)	
	159B	0C 5A 19A3 19A4		1060	MVC	PRT(91),PRT+1	
	15A1	C0 87 105B		1061	BSIOY B	BSIO	
	1062	*****					
	1063	* DMDATA *					
	1064	*****					
	1065	SUBROUTINE DETERMINES TYPE OF READ COMMAND					
	1066	ISSUED AND DUMPS THE CORRESPONDING DATA.					
	1067	*****					
	15A5	38 10 10DC		1068	DMDATA TBN	ILSIO+1,X'10'	
	15A9	F2 10 08		1069	JT	RDYRY	
	15AC	C1 A0 12D5		1070	RDYAY TIO	NTRDYA,X'A0'	
	15B0	F2 87 0F		1071	J	CKOK	
	15B3	C0 87 15AC		1072	B	RDYAY	
	15B7	C1 B0 12EC		1073	RDYBY TIO	NTRDYB,X'B0'	
	15BB	F2 87 04		1074	J	CKOK	
	15BE	C0 87 15B7		1075	R	RDYBY	
	15C2	36 02 17D2		1076	CKOK A	NEG02,XR2	
	15C6	3D 01 10DD		1077	CLI	ILSIO+2,X'01'	
	15CA	C0 81 16CF		1078	BE	OTRRD	
	15CE	3D 03 10DD		1079	CLI	ILSIO+2,X'03'	
	15D2	F2 81 B5		1080	JE	STRE	
	15D5	2C 00 1810 01		1081	MVC	WRK2(1),1(,XR2)	
	15DA	RD FF 02		1082	CLI	2(,XR2),X'FF'	
	15DD	F2 01 0E		1083	JNE	**+17	
	15E0	2C 00 180F 03		1084	MVC	WRK1(1),3(,XR2)	
	15E5	0F 00 180F 17C4		1085	SLC	WRK1(1),N001	
	15EB	F2 87 04		1086	J	**+7	
	15EE	3C 00 180F		1087	MVI	WRK1,X'00'	
	15F2	C0 87 021A		1088	B	PRINT	

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ERR	LOC	OBJECT	CODE	ADDR	STMT	SOURCE	STATEMENT
	15F6		02	15F6	1089	DC	XL1'02'
	15F7		09	15F7	1090	DC	IL1'9'
	15F8		18F8	15F9	1091	DC	AL2(DMPOP)
	15FA		38 01 020A		1092	TBN	SBYTE2,SSW17
	15FB		F2 10 1D		1093	JT	INRD
	1601		2C 03 160D 03		1094	MVC	**12(4),3(XR2)
	1605		C0 87 143E		1095	B	NTRPT
	160A		00000000	160D	1096	DC	XL4'00000000'
	160E		C0 87 021A		1097	B	PRINT
	1612		01	1612	1098	DC	XL1'01'
	1613		40	1613	1099	DC	IL1'64'
	1614		1AC7	1615	1100	DC	AL2(CMNDMS)
	1615		C0 87 021A		1101	B	PRINT
	161A		02	161A	1102	DC	XL1'02'
	161B		5B	161B	1103	DC	IL1'91'
	161C		19A3	161D	1104	DC	AL2(PRT)
	161E		0C 5A 19A3 19A4		1105	INRD MVC	PRT(91),PRT+1
	1624		C2 01 1DEA		1106	LA	READIN-1,XR1
	1628		3C 08 1811		1107	DMORE MVI	WRK3,R
	162C		36 01 17D0		1108	INCBLK A	NO32,XR1
	1630		34 01 163A		1109	ST	UNPK,XR1
	1634		C0 87 021E		1110	B	UNPACK
	1638		20	1638	1111	DC	IL1'32'
	1639		0000	163A	1112	UNPK DC	AL2(***)
	163B		19A3	163C	1113	DC	AL2(PRT)
	163D		C0 87 021A		1114	B	PRINT
	1641		01	1641	1115	DC	XL1'01'
	1642		5B	1642	1116	DC	IL1'91'
	1643		19A3	1644	1117	DC	AL2(PRT)
	1645		0C 5A 19A3 19A4		1118	MVC	PRT(91),PRT+1
	1648		0F 00 1811 17C4		1119	SLC	WRK3(1),N001
	1651		C0 84 162C		1120	BP	INCBLK
	1655		C0 87 021A		1121	B	PRINT
	1659		11	1659	1122	DC	XL1'11'
	165A		01 00 180F 17C4		1123	SLC	WRK1(1),N001
	1660		F2 27		1124	JM	STRE
	1663		0E 00 1810 17C4		1125	ALC	WRK2(1),N001
	1669		C0 87 021E		1126	B	UNPACK
	166D		01	166D	1127	DC	IL1'1'
	166E		1810	166F	1128	DC	AL2(WPK2)
	1670		1AE7	1671	1129	DC	AL2(CPSCT)
	1672		0C 08 1989 1AE7		1130	MVC	PRT-26(9),CRSCT
	1678		C0 87 021A		1131	B	PRINT
	167C		02	167C	1132	DC	XL1'02'
	167D		5B	167D	1133	DC	IL1'91'
	167E		19A3	167E	1134	DC	AL2(PRT)
	1680		0C 5A 19A3 19A4		1135	MVC	PRT(91),PRT+1
	1686		C0 87 1628		1136	B	DMORE
	168A		36 02 17C6		1137	SLD A	N002,XR2
	168E		BD FF 00		1138	CLI	0(XR2),X'FF'
	1691		F2 01 08		1139	JNE	CKPRS
	1694		8D 01 03 17E1		1140	CLC	1(2,XR2),H0000
	1699		F2 81 13		1141	JF	GEL
	169C		8F 01 01 17E1		1142	CKPRS CLC	1(2,XR2),H0000
	16A1		F2 81 08		1143	JE	GEL
	16A4		3C 60 1989		1144	MVI	PRT-26,C'-'
	16A8		3C 01 16C1		1145	MVI	NUMB,X'01'
	16AC		F2 87 08		1146	J	**11
	16AF		3C 5C 1989		1147	GEL MVI	PRT-26,C'**
	16B3		3C 06 16C1		1148	MVI	NUMB,X'06'
	16B7		0C 1F 1988 1989		1149	MVC	PRT-27(64),PRT-26
	16BD		C0 87 021A		1150	B	PRINT
	16C1		00	16C1	1151	DC	XL1'00'
	16C2		5B	16C2	1152	DC	IL1'91'
	16C3		19A3	16C4	1153	DC	AL2(PRT)
	16C5		0C 5A 19A3 19A4		1154	MVC	PRT(91),PRT+1
	16C8		C0 87 0EF8		1155	B	CLRCCW
	16CF		C0 87 021A		1156	OTPRD B	PRINT

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
16D3	02	16D3	1157	DC	XL1'02'
16D4	09	16D4	1158	DC	IL1'9'
16D5	1BF8	16D6	1159	DC	AL2(DMPOP)
16D7	38 01 020A		1160	TBN	SBYT2,SSW17
16DB	F2 10 23		1161	JT	UPCCW
16DE	C0 87 021A		1162	B	PRINT
16E2	01	16E2	1163	DC	XL1'01'
16E3	40	16E3	1164	DC	IL1'64'
16E4	1A07	16E5	1165	DC	AL2(CMNDNS)
16E6	2C 03 16F2 93		1166	MVC	**12(4),3(,XR2)
16EB	C0 87 143E		1167	B	NTRPT
16EF	0000G000	16F2	1168	DC	XL4'00000000'
16F3	C0 87 021A		1169	B	PRINT
16F7	02	16F7	1170	DC	XL1'02'
16F8	5B	16F8	1171	DC	IL1'91'
16F9	19A3	16FA	1172	DC	AL2(PRT)
16FB	0C 5A 19A3 19A4		1173	MVC	PRT(91),PRT+1
1701	C0 87 021F		1174	UPCCW	B
1705	04	1705	1175	DC	IL1'4'
1706	10DA	1707	1176	DC	AL2(ILCCW)
1708	1C15	1709	1177	DC	AL2(IDFLD)
170A	C0 87 021A		1178	B	PRINT
170E	01	170E	1179	DC	XL1'01'
170F	1D	170F	1180	DC	IL1'29'
1710	1C15	1711	1181	DC	AL2(IDFLD)
1712	C0 87 168A		1182	B	STRE
1183					*****
1184					* BUSY *
1185					*****
1186					SUBROUTINE IS CALLED WHEN A BUSY ERROR
1187					OCCURS FOR EITHER SPINDLE.
1188					*****
1716	3C F1 1C40	1189	BUSYA	MVI	BISZY-R,X'F1'
171A	F2 87 04	1190		J	**7
171D	3C F2 1C40	1191	BUSYR	MVI	BISZY-R,X'F2'
1721	C0 87 178C	1192		B	DMOP
1725	C0 87 021A	1193		B	PRINT
1729	C6	1729	1194	DC	XL1'C6'
172A	0F	172A	1195	DC	IL1'15'
172B	1C48	172C	1196	DC	AL2(BISZY)
172D	A098	172E	1197	DC	XL2'A098'
172F	C0 87 0222		1198	B	HALT
1733	A098	1734	1199	DC	XL2'A098'
1735	C0 87 0E07		1200	B	DOCAL
1739	38 10 10DC	1201	NOBSY	TBN	ILSIO+1,X'10'
173D	F2 10 07		1202	JT	**10
1740	3C F1 1C4F		1203	MVI	NBZY-16,X'F1'
1744	F2 87 04		1204	J	**7
1747	3C F2 1C4F		1205	MVI	NBZY-16,X'F2'
174B	C0 87 178C		1206	B	DMOP
174F	C0 87 021A		1207	B	PRINT
1753	C6	1753	1208	DC	XL1'C6'
1754	17	1754	1209	DC	IL1'23'
1755	1C5F	1756	1210	DC	AL2(NBZY)
1757	A099	1758	1211	DC	XL2'A099'
1759	C0 87 0222		1212	B	HALT
175D	A099	175E	1213	DC	XL2'A099'
175F	F2 87 26		1214	J	DOCALY
1762	38 10 10DC		1215	TOLNG	TBN
1766	F2 10 07		1216	JT	**10
1769	3C F1 1BB1		1217	MVI	BSYLN-14,X'F1'
176D	F2 87 04		1218	J	**7
1770	3C F2 1BB1		1219	MVI	BSYLN-14,X'F2'
1774	C0 87 178C		1220	B	DMOP
1778	C0 87 021A		1221	B	PRINT
177C	C6	177C	1222	DC	XL1'C6'
177D	15	177D	1223	DC	IL1'21'
177E	18BF	177F	1224	DC	AL2(BSYLN)

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ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1780	A08E	1781	1225	DC	XL2'A08E'
1782	C0 87 0222		1226	B	HALT
1786	8E	1787	1227	DC	XL2'A08E'
1788	C0 87 0E07		1228	DOCALY B	DOCAL
			1229	*	DUMP COMMAND ID THAT HAS BUSY ERROR.
178C	34 08 17C2		1230	DMOP ST	MP+3,ARR
1790	38 01 020A		1231	TBN	SEYTE2,SSW17
1794	F2 10 28		1232	JT	MP
1797	2C 03 17A3 03		1233	MVC	PM(4),3(,XR2)
179C	C0 87 143E		1234	B	NTRPT
17A0	00000000	17A3	1235	PM DC	XL4'00000000'
17A4	C0 87 021A		1236	B	PRINT
17A8	01	17A8	1237	DC	XL1'01'
17A9	40	17A9	1238	DC	IL1'64'
17AA	1A07	17AB	1239	DC	AL2(CMNDS)
17AC	C0 87 021A		1240	R	PRINT
17B0	02	17B0	1241	DC	XL1'02'
17B1	5B	17B1	1242	DC	IL1'91'
17B2	19A3	17B3	1243	DC	AL2(PRT)
17B4	0C 5A 19A3 19A4		1244	MVC	PRT(91),PRT+1
17B8	8E 01 53 17C4		1245	ALC	93(2,XR2),N001
17BF	C0 87 0000		1246	MP B	**
			1247		
			1248	*****	
			1249	* CONSTANTS *	
			1250	*****	
17C3	0001	17C4	1251	N001 DC	IL2'1'
17C5	0002	17C6	1252	N002 DC	IL2'2'
17C7	0003	17C8	1253	N003 DC	IL2'3'
17C9	0004	17CA	1254	N004 DC	IL2'4'
17CB	0006	17CC	1255	N006 DC	IL2'6'
17CD	0018	17CE	1256	N024 DC	IL2'24'
17CF	0020	17D0	1257	N032 DC	IL2'32'
17D1	FFFE	17D2	1258	NEG02 DC	XL2'FFFE'
17D3	FF00	17D4	1259	NEG256 DC	XL2'FF00'
17D5	F1	17D5	1260	DEC01 DC	CL1'1'
17D6	0A18	17D7	1261	BYPAS DC	AL2(BEGIN+4)
17D8	17DA	17D9	1262	CKID DC	AL2(IDCCW-3)
17DA	00000000	17DB	1263	IDCCW DC	XL4'00000000'
17DE	00000000	17E1	1264	H0000 DC	XL4'00000000'
17E2	00DD	17E3	1265	BSYTIM DC	XL2'00DD'
17E4	18F0	17E5	1266	END01 DC	AL2(FILD)
17E6	18F2	17E7	1267	END02 DC	AL2(FILD+2)
17E8	109A	17E9	1268	ADR01 DC	AL2(MOVS+1)
17EA	18CC	17EB	1269	ADR02 DC	AL2(CMNDS)
17EC	1DE3	17ED	1270	ADR03 DC	AL2(READIN)
			1271		
			1272	*****	
			1273	* RESERVED AREAS *	
			1274	*****	
17EE	00000000	17F1	1275	TEMP DC	XL4'00000000'
		17F2	1276	SEEKO EQU	*
17F2	000000FF	17F5	1277	DC	XL4'000000FF'
17F6	17F2	17F7	1278	RCALA DC	AL2(SEEKO)
17F8	1DEB	17F9	1279	DARA DC	AL2(READIN)
17FA	00	17FA	1280	UDT DC	XL1'00'
17FB	10D7	17FC	1281	CCW DC	AL2(ILCCW-3)
17FD	1DEB	17FE	1282	DAR DC	AL2(READIN)
17FF	0000	1800	1283	LSEKA DC	XL2'0000'
1801	0000	1802	1284	LSEKB DC	XL2'0000'
1803	0000	1804	1285	COUNT DC	XL2'0000'
1805	00	1805	1286	SWANL DC	XL1'00'
1806	0000	1807	1287	SVXR1 DC	XL2'0000'
1808	00	1808	1288	STSBY0 DC	XL1'00'
1809	00	1809	1289	STSBY1 DC	XL1'00'
180A	00	180A	1290	STSBY2 DC	XL1'00'
180B	00	180B	1291	STSBY3 DC	XL1'00'
180C	00	180C	1292	MAX DC	XL1'00'

B044 DISK FRIENDS TEST

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
180D	1EE9	180E	1293	LSTADF DC	AL2(READIN+254)
180F	00	180F	1294	WRK1 DC	XL1'00'
1810	00	1810	1295	WRK2 DC	XL1'00'
1811	00	1811	1296	WRK3 DC	XL1'00'
			1297		
			1298	*****	
			1299	*	
			1300	*	TEMPORARY STORAGE AREA FOR NEW DISK I/O COMMAND AND IT'S CONTROL FIELD.
			1301	*	
1812	00000000	1815	1302	TMPCCW DC	XL4'00000000' - CONTROL FIELD STORAGE.
1816	00	1816	1303	DC	XL1'00' - CLEARING BYTE.
1817	F3 00 00	1304	1304	TMPSIO SIO	X'00',X'00' - START I/O STORAGE.
			1305	*****	
			1306	*****	
181A	00	181A	1308	FLAG DC	XL1'00' DRIVE USAGE FLAG.
			1309	*	
			1310	*	
			1311	*	BIT 0 - SPECIAL SEEK COMMAND USED.
			1312	*	
			1313	*	BIT 1 - NORMAL SEEK COMMAND USED.
			1314	*	
			1315	*	BIT 2 - SPECIAL SEEK COMMAND ISSUED.
			1316	*	
			1317	*	BIT 5 - FORCES SIO TO CLEAR STATUS
			1318	*	
			1319	*	BIT 6 - DRIVE 2 COMMANDS USED.
			1320	*	
			1321	*	BIT 7 - DRIVE 1 COMMANDS USED.
			1322	*****	
			1323	*****	
			1324	*****	
			1325	* TABLES *	
			1326	*****	
181B	0A	181B	1327	BTS0 EQU	*
181C	1CD1	181B	1328	DC	IL1'10' TABLE OF STATUS BYTE 0 ID'S
181E	15	181D	1329	DC	AL2(BT07)
181F	1CC7	181E	1330	DC	IL1'21' BIT 7.
1821	0F	1820	1331	DC	AL2(BT06)
1822	1CB2	1821	1332	DC	IL1'15' BIT 6.
1824	0A	1823	1333	DC	AL2(BT05)
1825	1CA3	1824	1334	DC	IL1'10' BIT 5.
1827	0F	1826	1335	DC	AL2(BT04)
1828	1C99	1827	1336	DC	IL1'15' BIT 4.
182A	11	1829	1337	DC	AL2(BT03)
182B	1C8A	182A	1338	DC	IL1'17' BIT 3.
182D	15	182C	1339	DC	AL2(BT02)
182E	1C79	182D	1340	DC	IL1'21' BIT 2.
1830	05	182E	1341	DC	AL2(BT01)
1831	1C64	1830	1342	DC	IL1'5' BIT 1.
		1832	1343	DC	AL2(BT00)
		1833	1344	BTS3 EQU	*
1833	0D	1833	1345	DC	IL1'13' TABLE OF STATUS BYTE 3 ID'S.
1834	1CB4	1835	1346	DC	AL2(BT35)
1836	05	1836	1347	DC	IL1'6' BIT 5.
1837	1CD7	1838	1348	DC	AL2(BT30)
		1839	1349	OPTSW1 EQU	*
1839	FFFF	183A	1350	DC	XL2'FFFF' SWITCH 1 COMMANDS TABLE.
183B	A000	183C	1351	DC	XL2'A000' UNDEFINED.
183D	A100	183E	1352	DC	XL2'A100' SEEK.
183F	A101	1840	1353	DC	XL2'A101' READ DATA.
1841	A102	1842	1354	DC	XL2'A102' READ IDENTIFIER.
1843	A103	1844	1355	DC	XL2'A103' READ DIAGNOSTIC.
1845	A200	1846	1356	DC	XL2'A200' READ VERIFY.
1847	A201	1848	1357	DC	XL2'A201' WRITE DATA.
1849	A100	184A	1358	DC	XL2'A100' WRITE IDENTIFIER.
184B	A200	184C	1359	DC	XL2'A200' MULTI-READ.
184D	A000	184E	1360	DC	XL2'A000' MULTI-WRITE.
					SPECIAL SEEK COMMAND.

MOD4 DISK FRIENDS TEST

ERR LOC OBJECT CODE ADDR SYMT SOURCE STATEMENT

1847 FFFF		1850 1361	DC	XL2'FFFF'	UNDEFINED.
1851 FFFF		1852 1362	DC	XL2'FFFF'	UNDEFINED.
1853 FFFF		1854 1363	DC	XL2'FFFF'	UNDEFINED.
1855 FFFF		1856 1364	DC	XL2'FFFF'	UNDEFINED.
		1857 1365	OPTS*2 EQU	*	UNDEFINED.
1857 FF		1857 1366	DC	XL1'FF'	SWITCH 2 FLAG TABLE.
1858 AD		1858 1367	DC	XL1'A0'	UNDEFINED.
1859 A1		1859 1368	DC	XL1'A1'	DRIVE 1 - RMVBL - HD 0
185A A9		185A 1369	DC	XL1'A9'	DRIVE 1 - RMVBL - HD 1
185B A9		185B 1370	DC	XL1'A9'	DRIVE 1 - FIXED - HD 2
185C B0		185C 1371	DC	XL1'B0'	DRIVE 1 - FIXED - HD 3
185D B1		185D 1372	DC	XL1'B1'	DRIVE 2 - RMVBL - HD 0
185E B8		185E 1373	DC	XL1'B8'	DRIVE 2 - RMVBL - HD 1
185F B9		185F 1374	DC	XL1'B9'	DRIVE 2 - FIXED - HD 2
1860 FF		1860 1375	DC	XL1'FF'	DRIVE 2 - FIXED - HD 3
1861 FF		1861 1376	DC	XL1'FF'	UNDEFINED.
1862 FF		1862 1377	DC	XL1'FF'	UNDEFINED.
1863 FF		1863 1378	DC	XL1'FF'	UNDEFINED.
1864 FF		1864 1379	DC	XL1'FF'	UNDEFINED.
1865 FF		1865 1380	DC	XL1'FF'	UNDEFINED.
1866 FF		1866 1381	DC	XL1'FF'	UNDEFINED.
		1866 1382	MVCYND EQU	**1	UNDEFINED.
1867 0C 03 1956 1AA5		1383	MVC	PRT-77(4),SK	SWITCH 1 DEFINITIONS TABLE.
186D 0C 08 195B 1A4E		1384	MVC	PRT-72(9),RDDAT	SEEK.
1873 0C 0C 195F 1A5D		1385	MVC	PRT-68(13),RDIDR	READ DATA.
1879 0C 0E 1961 1A6A		1386	MVC	PRT-66(15),RDDIAG	READ IDENTIFIER.
187F 0C 0A 195D 1A75		1387	MVC	PRT-70(11),RDVRF	READ DIAGNOSTIC
1885 0C 08 195C 1A7F		1388	MVC	PRT-71(10),WRDAT	READ VERIFY.
188B 0C 07 195A 1A87		1389	MVC	PRT-73(9),WRID	WRITE DATA.
1891 0C 0F 1962 1CF4		1390	MVC	PRT-65(16),RDMUL	WRITE IDENTIFIER.
1897 0C 0F 1962 1D04		1391	MVC	PRT-65(16),RDMUL	READ MULTIPLE.
189D 0C 0C 195F 1AA5		1392	MVC	PRT-68(13),SPCL01	WRITE MULTIPLE.
		18A3 1393	IDHEAD EQU	*	ONE-TIME SEEK.
18A3 F1D9F0		18A5 1394	DC	CL3'1R0'	SWITCH 2 DEFINITIONS TABLE.
18A6 F1D9F1		18A8 1395	DC	CL3'1R1'	DRIVE 1 RMVBL HD 0
18A9 F1C6F2		18AB 1396	DC	CL3'1F2'	DRIVE 1 RMVBL HD 1
18AC F1C6F3		18AE 1397	DC	CL3'1F3'	DRIVE 1 FIXED HD 2
18AF F2D9F0		18B1 1398	DC	CL3'2F0'	DRIVE 1 FIXED HD 3
18B2 F2D9F1		18B4 1399	DC	CL3'2F1'	DRIVE 2 RMVBL HD 0
18B5 F2C6F2		18B7 1400	DC	CL3'2F2'	DRIVE 2 RMVBL HD 1
18B8 F2C6F3		18BA 1401	DC	CL3'2F3'	DRIVE 2 FIXED HD 2
		18BB 1402	MAXSCT EQU	*	DRIVE 2 FIXED HD 3
18BB FF		18BB 1403	DC	XL1'FF'	COPY VS SECTORS TABLE.
18BC FF		18BC 1404	DC	XL1'FF'	COPY SECTORS
18BD 02		18BD 1405	DC	XL1'02'	
18BE 10		18BE 1406	DC	XL1'10'	08 K 2
18BF 20		18BF 1407	DC	XL1'20'	12 K 16
18C0 FF		18C0 1408	DC	XL1'FF'	16 K 32
18C1 30		18C1 1409	DC	XL1'30'	
18C2 FF		18C2 1410	DC	XL1'FF'	24 K 48
18C3 30		18C3 1411	DC	XL1'30'	
18C4 FF		18C4 1412	DC	XL1'FF'	32 K 48
18C5 FF		18C5 1413	DC	XL1'FF'	
18C6 FF		18C6 1414	DC	XL1'FF'	
18C7 FF		18C7 1415	DC	XL1'FF'	
18C8 FF		18C8 1416	DC	XL1'FF'	
18C9 FF		18C9 1417	DC	XL1'FF'	
		1418 *	MISCELLANEOUS STORAGE AREAS.		
18CA F0F0		18CB 1419	DC	XL2'F0F0'	RECALIBRATE FLAG.
		18CC 1420	CMNDS EQU	*	
18CC		18FB 1421	DS	CL40	
		18FD 1422	FILD EQU	**4	DISK COMMANDS TABLE.
18FD		191B 1423	DS	CL40	
191C		1943 1424	DS	CL40	SUMMARY COUNT TABLE.
1944		1945 1425	SIS	CL2	ERROR COUNT TABLE.
1945		1947 1426	SCK	CL2	SUMMARY OF CMNDS ISSUED.
1946		1948 1427	DS	CL1	SUMMARY OF CMNDS CHECKS.
1947		19A3 1428	PPT	CL91	CLR'ING BYTE.
1948					PRINT AREA.

B044 DISK FRIENDS TEST

SRR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
19A4	40		19A4	1429	DC	XL1'40'
				1430		
				1431		*****
				1432	*	MESSAGES *
				1433		*****
19A5	E2C5E340D6D7E3C9	19C7	1434	INTRO	DC	CL35'SET OPTIONS IN SWITCHES, RESET HALT'
19AD	D6D5E240C9D540E2		1434			
19B5	E6C9E3C3C8C5E26B		1434			
19BD	40D9C5E2C5E340C9		1434			
19C5	C1D3E3		1434			
19C8	D6D7F3C9D6D54040	19FF	1435		DC	CL56'OPTION COMMAND DRIVE DISK HEAD'
19D0	4040C3D6D4D4C1D5		1435			
19D8	C440404040404040		1435			
19E0	404040404040C4D9		1435			
19E9	C9E5C54040404040		1435			
19F0	C4C9E2D240404040		1435			
19F8	C8C5C1C440404040		1435			
1A00	D3D6C3C1E3C9D6D5	1A07	1436	CMNDMS	DC	CL9'LOCATION'
1A08	C5E7C5C3E4E3C9D5	1A11	1437		DC	CL10'EXECUTING '
1A10	C740		1437			
1A12	C3D6D4D4C1D5C4E2	1A21	1438	SUM1	DC	CL16'COMMANDS SUMMARY'
1A1A	40E2E4D4D4C1D9E8		1438			
1A22	C9E2E2E4C5C44040	1A30	1439	SUM2	DC	CL15'ISSUED CHECKS'
1A2A	40C3C8C5C3D2E2		1439			
1A31	F0F0F0F0F0F04040	1A3F	1440	SUM3	DC	CL15'000000 000000'
1A39	40F0F0F0F0F0F0		1440			
1A40	E3D6E3C1D3E2	1A45	1441	SUM4	DC	CL6'TOTALS'
1A46	D9C5C1C440C4C1E3	1A4E	1442	RDDAT	DC	CL9'READ DATA'
1A4E	C1		1442			
1A4F	D9C5C1C440E3D9C1	1A5B	1443	RDIDR	DC	CL13'READ TRACK ID'
1A57	C3D240C9C4		1443			
1A5C	D9C5C1C440C4C9C1	1A6A	1444	RDDIAG	DC	CL15'READ DIAGNOSTIC'
1A64	C7D5D6E2E3C9C3		1444			
1A6B	D9C5C1C440E5C5D9	1A75	1445	RDRR	DC	CL11'READ VERIFY'
1A73	C9C6F8		1445			
1A76	E6D9C9E3C540C4C1	1A7F	1446	WRDAT	DC	CL10'WRITE DATA'
1A7F	E3C1		1446			
1A80	E6D9C9E3C540C9C4	1A87	1447	WRID	DC	CL8'WRITE ID'
1A88	C3C1D540D6D5D3E8	1A98	1448		DC	CL17'CAN ONLY HAVE 1, '
1A90	40C8C1E5C540F16B		1448			
1A98	40		1448			
1A99	D6D5C560E3C9D4C5	1AA5	1449	SPCL01	DC	CL13'ONE-TIME SPEK'
1AA1	40E2C5C5D2		1449			
1AA6	40D6D7E3C9D6D5	1AAC	1450	YNAM	DC	CL7' OPTION'
1AAD	C4D9C9E5C540E740	1ABD	1451	SPDNR	DC	CL17'DRIVE X NOT 'READY'
1AB5	D5D6E340D9C5C1C4		1451			
1ABD	E8		1451			
1ABE	C5D5C440D6C640E3	1AC9	1452	LSTONE	DC	CL12'END OF TABLE'
1AC6	C1C2D3C5		1452			
1ACA	E3C1C2D3C540C6C9	1AD5	1453	FILUP	DC	CL12'TABLE FILLED'
1AD2	D3D3C5C4		1453			
1AD6	E3D9C1C3D24040F0	1ADE	1454	TRACK	DC	CL9'TRACK 00'
1ADE	F0		1454			
1ADF	E2C5C3E3D6D940F0	1AE7	1455	SCTR	DC	CL9'SECTOR 00'
1AE7	F0		1455			
1AER	C4D9C9E5C540E740	1B00	1456	BRATE	DC	CL25'DRIVE X RECALIBRATE CHECK'
1AF0	D9C5C3C1D3C9C2D9		1456			
1AF9	C1E3C540C3C8C5C3		1456			
1B00	D2		1456			
1B01	C3D6D9C540C9D4C1	1B32	1457	INGE	DC	CL50'CORE IMAGE - COMMAND XXXXXX CONTROL FIELD XXXXXXXX'
1B09	C7C5406040C3D6D4		1457			
1B11	D4C1D5C440E7E7E7		1457			
1B19	E7E7E740C3D6D5E3		1457			
1B21	D9D6D340C6C9C5D3		1457			
1B29	C440E7E7E7E7E7E7		1457			
1B31	E7E7		1457			
1B33	C4D9C9E5C540E740	1B46	1458	STSCR	DC	CL20'DRIVE X STATUS CHECK'
1B35	E2E3C1E3E4E240C3		1458			

B044 DISK FRIENDS TEST

ERR	LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
		1B43	C8C5C3D2		1458	
		1B47	E76B40C9D5C9F3C9	1B50	1459	STCKIN DC CL10'S, INITIAL'
		1B4F	C1D3		1459	
		1B51	E2E6C9E3C3C8A0E7	1B54	1460	BIGSSW DC CL20'SWITCH X IS IN ERROR'
		1B59	40C9E240C9D540C5		1460	
		1B61	D9D9D6D9		1460	
		1B65	E2E6C9E3C3C8C5E2	1B89	1461	LRGSSW DC CL37'SWITCHES 3,4 TOO LARGE FOR THE'
		1B6D	40F36BF440E3D6D6		1461	
		1B75	40D3C1D9C7C540C6		1461	
		1B7D	D6D940E3C8C54040		1461	
		1B85	4040404040		1461	
		1B81	C6C9E7C5C440C4C9	1B97	1462	DC CL14'FIXED DISK OF '
		1B92	E2D240D6C640		1462	
		1B98	C4D9C9E5C540F240	1BAA	1463	NOSPB DC CL19'DRIVE 2 NOT DEFINED'
		1BA0	D5D6E340C4C5C6C9		1463	
		1BA9	D5C5C4		1463	
		1BA3	C4D9C9E5C540F740	1BBF	1464	BSYLNG DC CL21'DRIVE X BUSY TOO LONG'
		1BB3	C2E4E2E840E3D6D6		1464	
		1BBB	40D3D6D5C7		1464	
		1BC0	C3C1D5D5D6E340E4	1BEF	1465	STUPID DC CL18'CANNOT USE TRACKS 4-6 OR 47-48 ON REMOVABLE DISK'
		1BC8	E2C540E3D9C1C3D2		1465	
		1BD0	E240F460F640D6D9		1465	
		1BD9	40F4F760F4C240D6		1465	
		1BE0	D540D9C5D4D6F5C1		1465	
		1BF8	C2D3C540C4C9E2D2		1465	
		1BF0	C4C1E3C140C4E4D4	1BF8	1466	DMPOP DC CL9'DATA DUMP'
		1BF8	D7		1466	
		1B79	C3D6D5E3D9D6D340	1C15	1467	IDFLD DC CL29'CONTROL FIELD READ - XXXXXXXX'
		1C01	C6C9C5D3C440D9C5		1467	
		1C09	C1C4406040E7E7E7		1467	
		1C11	E7E7E7E7E7		1467	
		1C16	D9C5C1C440C9C440	1C39	1468	SKITCK DC CL36'READ ID CHECK, EXPECTED XX ACTUAL XX'
		1C1E	C3C8C5C3D26B40C5		1468	
		1C26	E7E7C9C3E3C5C440		1468	
		1C2E	E7E740C1C3E3E4C1		1468	
		1C36	D340E7E7		1468	
		1C3A	C4D9C9E5C540E740	1C48	1469	RISZY DC CL15'DRIVE X IS BUSY'
		1C42	C9E240C2E4E2E8		1469	
		1C49	C4D9C9E5C540E740	1C5F	1470	NRZY DC CL23'DRIVE X DID NOT GO BUSY'
		1C51	C4C9C440D5D6E340		1470	
		1C59	C7D640C2E4E2E8		1470	
		1C60	D5D660D3D7	1C64	1471	BT00 DC CL5'NO-OP'
		1C65	C9D5E3C5D9E5C5D5	1C79	1472	BT01 DC CL21'INTERVENTION REQUIRED'
		1C6D	E3C9D6D540D9C5D8		1472	
		1C75	E4C9D9C5C4		1472	
		1C7A	D5D640C1C4C4D9C5	1C8A	1473	BT02 DC CL17'NO ADDRESS MARKER'
		1C82	E2E240D4C1D9D2C5		1473	
		1C8A	D9		1473	
		1C8B	C5D8E24C9D7D4C5D5	1C99	1474	BT03 DC CL15'EQUIPMENT CHECK'
		1C93	E340C3C9C5C3D2		1474	
		1C9A	C4C1E3C140C3C9C5	1CA3	1475	BT04 DC CL10'DATA CHECK'
		1CA2	C3D2		1475	
		1CA4	D5D640D9C5C3D6D9	1CB2	1476	BT05 DC CL15'NO RECORD FOUND'
		1CAC	C440C6D6E4D5C4		1476	
		1CB3	F1D9C1C3D240C3D6	1CC7	1477	BT06 DC CL21'TRACK CONDITION CHECK'
		1CB5	D5C4C9E3C9D6D540		1477	
		1CC3	C3C8C5C3D2		1477	
		1CC9	E2C5C5D240C3C8C5	1CD1	1478	BT07 DC CL10'SEEK CHECK'
		1CD0	C3D2		1478	
		1CD2	E4D5E2C1C6C5	1CD7	1479	BT30 DC CL6'UNSAFE'
		1CD9	C8C5C1C440E2C5E3	1CE4	1480	BT35 DC CL13'HEAD SETTLING'
		1CE0	E3D3C9D5C7		1480	
		1CF5	D9C5C1C44040F0F0	1CF4	1481	RMUL DC CL16'PSAD 00 SECTORS'
		1CED	40E2C5C3E3D6D9E2		1481	
		1CF5	E6D9C9E3C540F0F0	1D04	1482	WMUL DC CL16'WRITE 00 SECTORS'
		1CFD	40E2C5C3E3D6D9E2		1482	
		1D05	E4E2C540E2E6C9E7	1D35	1483	DC CL49'USE SWITCHES 3,4 TO SELECT HEX NUMBER OF SECTORS'
		1D0D	C3C8C5E240F36BF4		1483	

IBM MAINTNANCE DIAGNOSTIC PROGRAM

B044 DISK FRIENDS TEST

ERR LOC OBJECT CODE ADDR STMT SOURCE STATEMENT

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1D15 40E3D640E2C5D3C5      1483
1D1D C3E340C8C5E740D5      1483
1D25 E4D8C2C5D940D6C6      1483
1D2D 40E2C5C3E3D6D9E2      1483
1D35 40                      1483
1D36 E3D6404040404040 1D3D 1484 SECSRT DC CL8'TO'
1D3E C3C1D540D5D6E340 1D65 1485 XCED DC CL40'CAN NOT SPECIFY MORE THAN HEX XX SECTORS'
1D46 E2D7C5C3C9C6E840      1485
1D4E D4D6D9C540E3C8C1      1485
1D56 D540C8C5E740E7E7      1485
1D5E 40E2C5C3E3D6D9E2      1485
1D66 E2E3C1D9E3C9D5C7 1D93 1486 VRUN DC CL46'STARTING SECTOR PLUS NUMBER IS GREATER THAN 48'
1D6E 40E2C5C3E3D6D940      1486
1D76 D7D3E4E240D5E4D4      1486
1D7E C2C5D940C9E240C7      1486
1D86 D9C5C1E3C5D940E3      1486
1D8E C8C1D540F4F8          1486
1D94 C8C5C1C440E2C5D3 1DA7 1487 HDBD DC CL20'HEAD SELECTION CHECK'
1D9C C5C3E3C9D6D540C3      1487
1DA4 C8C5C3D2              1487
1DA8 C3C1D5D5D6E340C9 1DC2 1488 MIXUP DC CL27'CANNOT INTERMIX OPTIONS 1,A'
1DB0 D5E3C5D9D4C9E740      1488
1DB8 D6D7E3C9D6D5E240      1488
1DC0 F16BC1                1488
1DC3 D9D4E5C2D3           1DC7 1489 RMVBL DC CL5'RMVBL'
1DC8 C4D9C9E5C540E740 1DDD 1490 SHELL DC CL22'DRIVE X FIXED HD X'
1DD0 4040C6C9E7C5C440      1490
1DD8 4040C8C440E7          1490
1DDE C3C1D5D5E3E340E4 1DEA 1491 KNOTO DC CL13'CANNOT USE 00'
1DE6 E2C540F0F0           1491
1492 *****
1493 READIN EQU *
1494 *****
1495 * BEGINNING OF DISK READ/WRITE FIELD.
1496 *****
1DEB D4C1E7C9D4E4D440 1E1B 1497 HDSUB DC CL49'MAXIMUM NUMBER OF SECTORS TO READ/WRITE IS HEX XX'
1DF3 D5E4D4C2C5D940D6      1497
1DFB C640E2C5C3E3D6D9      1497
1E03 E240E3D640D9C5C1      1497
1E0B C467E6D9C9E3C540      1497
1E13 C9E240C8C5E740E7      1497
1E1B E7                    1497
1E1C C4C1E3C140C2E9E3 1E4C 1498 ALTPAT DC CL49'DATA BYTE --FF- AT XXXX GENERATES WRITE DATA FIELD'
1E24 C54060C6C66040C1      1498
1E2C E340E7E7E7E740C7      1498
1E34 C5D5C5D9C1E3C5E2      1499
1E3C 40E6D9C9E3C540C4      1499
1E44 C1E3C140C6C9C5D3      1499
1E4C C4                    1499
1E4D C3C540E3D9C1C3D2 1E5E 1499 CELOC DC CL18'CE TRACK IS HEX XX'
1E55 40C9E240C8C5E740      1499
1E5D E7E7                  1499
1E5F E2E6C9E3C3C840D6 1E7B 1500 STERT DC CL29'SWITCH OPTIONS STORED AT XXXX'
1E67 D7E3C9D6D5E240E2      1500
1E6F E3D6D9C5C440C1E3      1500
1E77 40E7E7E7E7          1500
1E7C D9C5C1C461E6D9C9 1E9F 1501 STRFLD DC CL36'READ/WRITE DATA FIELD STARTS AT XXXX'
1E84 E3C540C4C1E3C140      1501
1E8C C6C9C5D3C440E2E3      1501
1E94 C1D9E3E240C1E340      1501
1E9C E7E7E7E7            1501
1EA0 E5F4F4F440C4C9E2 1EB4 1502 HDB04 DC CL21'5444 DISK FRIEND TEST'
1EA8 D240C6D9C9C5D5C4      1502
1EB0 40E3C5E2F3           1502
1EB5 C4C9E2D240E4C4E3 1EC2 1503 UDTCK DC CL14'DISK UDT CHECK'
1EBD 40C3C8C5C3D2         1503
1504
1505 *****

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DISK'

ORS'

B044 DISK FRIENDS TEST

ERR LOC OBJECT CODE ADDR SINT SOURCE STATEMENT

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1506 * SETUDT *
1507 *****
1508 *
1509 *
1510 *
1511 *
1512 *
1513 *
1514 *
1515 *
1516 *
1517 *
1518 *
1519 *
1520 *
1521 *
1522 *
1523
1524 *****
1525 *
1526 *****
1527 *
1528 *
1529 *
1530 *****
1531 SETUDT TB. AU DT-1,X'20' SPINDLE -A- DEFINED ?
1532 JF **7 JUMP IF NOT.
1533 SBN UDT,X'80' TURN ON SPINDLE -A- FLAG.
1534 TBN BU DT-1,X'20' SPINDLE -B- DEFINED TO DCP ?
1535 JF **7 JUMP IF NOT.
1536 SBN UDT,X'40' SET SPINDLE -B- FLAG BIT.
1537 TBF UDT,X'C0' ANY FLAG BITS SET ?
1538 JT BRU DT GO PRINT MESSAGE IF NOT.
1539 TBN AU DT,CAP2 100 CYLINDER BIT ON ?
1540 JF **7 JUMP IF NOT.
1541 SBN UDT,X'20' SET SPINDL -A- HALF CAPACITY FLAG.
1542 TBN UDT,X'40' SPINDLE -B- DEFINED ?
1543 JF PARE JUMP IF NOT.
1544 TBN BU DT,CAP2 100 CYLINDER BIT ON ?
1545 JF **7 JUMP IF NOT.
1546 SBN UDT,X'10' SET SPINDL -B- HALF CAPACITY FLAG.
1547 *****
1548 * PRINT PROGRAM TITLE AND INFORMATION FOR THE CE.
1549 *****
1550 PARE MVC PRT(91),PRT+1 CLEAR PRINT FIELD.
1551 MVC PRT-59(21),HDE04 BRING IN TITLE.
1552 B PRINT PRINT THE TITLE.
1553 DC XL1'01'
1554 DC IL1'91'
1555 DC AL2(PRT)
1556 MNZ TEMP,SIZE-1 ISOLATE CORE SIZE.
1557 LA MAXSCT,XR1 LOAD TABLE ADDRESS.
1558 A TEMP,XR1 INCREMENT POINTER TO CORR TO CORE.
1559 CLI 0(,XR1),X'FF' THIS AN INVALID SELECTION ?
1560 JNE NOSO JUMP IF NOT.
1561 MVI MAX,X'02' SET MAX SECTORS FOR READING TO 2.
1562 J **8
1563 NOSO MVC MAX(1),0(,XR1) STORE MAX NUMBER OF SECTORS TO READ.
1564 B UNPACK UNPACK MAXIMUM NUMBER.
1565 DC IL1'1'
1566 DC AL2(MAX)
1567 DC AL2(HDSUB)
1568 MVC XCEP-8(2),HDSUB SAVE FOR LATER REFERENCING.
1569 B UNPACK UNPACK ADDRESS FOR PRINTING.
1570 DC IL1'2'
1571 DC AL2(ADRO1)
1572 DC AL2(ALT PAT-27)
1573 MVI TEMP,203 PRESET CE TRACK ID.

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B044 DISK FRIENDS TEST

ERR LOC	OBJECT CODE	ADDR	STMT	SOURCE	STATEMENT
1F4D	38 20 17PA		1574	TRN	UDT,X'20'
1F51	F2 90 04		1575	JF	**7
1F54	3C 67 17F1		1576	MVI	TEMP,103
1F58	C0 87 021E		1577	B	UNPACK
1F5C	01	1F5C	1578	DC	IL1'1'
1F5D	17F1	1F5E	1579	DC	AL2(TEMP)
1F5F	1E5E	1F60	1580	DC	AL2(CELOC)
1F61	C0 87 021E		1581	B	UNPACK
1F65	02	1F65	1582	DC	IL1'2'
1F66	17EB	1F67	1583	DC	AL2(ADR02)
1F68	1E7B	1F69	1584	DC	AL2(STERT)
1F6A	C0 87 021E		1585	B	UNPACK
1F6E	02	1F6E	1586	DC	IL1'2'
1F6F	17ED	1F70	1587	DC	AL2(ADR03)
1F71	1E9F	1F72	1588	DC	AL2(STRPLD)
1F73	3C 60 197B		1589	MVI	PRT-40,C'-'
1F77	C0 31 197A 197B		1590	MVC	PRT-41(50),PRT-40
1F7D	C0 87 021A		1591	B	PRINT
1F81	01	1F81	1592	DC	XL1'01'
1F82	5B	1F82	1593	DC	IL1'91'
1F83	19A3	1F84	1594	DC	AL2(PRT)
1F85	C0 87 021A		1595	B	PRINT
1F89	01	1F89	1596	DC	XL1'01'
1F8A	31	1F8A	1597	DC	IL1'49'
1F8B	1E1B	1F8C	1598	DC	AL2(HDSUB)
1F8D	C0 87 021A		1599	B	PRINT
1F91	01	1F91	1600	DC	XL1'01'
1F92	12	1F92	1601	DC	IL1'18'
1F93	1E5E	1F94	1602	DC	AL2(C'LOC)
1F95	C0 87 021A		1603	B	PRINT
1F99	01	1F99	1604	DC	XL1'01'
1F9A	31	1F9A	1605	DC	IL1'49'
1F9B	1E4C	1F9C	1606	DC	AL2(ALTPT)
1F9D	C0 87 021A		1607	B	PRINT
1FA1	01	1FA1	1608	DC	XL1'01'
1FA2	1D	1FA2	1609	DC	IL1'29'
1FA3	1E7B	1FA4	1610	DC	AL2(STERT)
1FA5	C0 87 021A		1611	B	PRINT
1FA9	01	1FA9	1612	DC	XL1'01'
1FAA	24	1FAA	1613	DC	IL1'36'
1FAB	1E9F	1FAC	1614	DC	AL2(STRPLD)
1FAD	C0 87 021A		1615	B	PRINT
1FB1	04	1FB1	1616	DC	XL1'04'
1FB2	5B	1FB2	1617	DC	IL1'91'
1FB3	19A3	1FB4	1618	DC	AL2(PRT)
1FB5	3C 00 1948		1619	MVI	SCK+1,X'00'
1FB9	0C 01 0A17 17D7		1620	MVC	BEGIN+3(2),BYPAS
1FBF	C0 87 0A14		1621	B	BEGIN
1FC3	C0 87 021A		1622	B	PRINT
1FC7	C6	1FC7	1623	DC	XL1'04'
1FC8	0E	1FC8	1624	DC	IL1'14'
1FC9	1EC2	1FCA	1625	DC	AL2(UDTCK)
1FCB	AOEA	1FCC	1626	DC	XL2'AOEA'
1FCD	C0 87 0222		1627	B	HALT
1FD1	AOEA	1FD2	1628	DC	XL2'AOEA'
1FD3	C0 87 1EC3		1629	B	GETUDT
			1630		*****
			1631		* EQUATES *
			1632		*****
0008	1633	ARR	EQU	X'08'	
0222	1634	HALT	EQU	X'222'	
0216	1635	LINK	EQU	X'216'	
021A	1636	PRINT	EQU	X'21A'	
0212	1637	TEST	EQU	X'212'	
021E	1638	UNPACK	EQU	X'21E'	
0001	1639	XR1	EQU	X'01'	
0002	1640	XR2	EQU	X'02'	
1FEA	1641	FIL	EQU	READIN+255	

THIS 1/2 CAP DISK ?  
JUMP IF NOT.  
SET UP FOR 1/2 CAPACITY.  
UNPACK CE TRACK ID.

UNPACK SWITCH STORAGE ADDRESS.

UNPACK READ/WRITE FIELD ADDRESS.

GENERATE LINE OF '-S.

PRINT LINE OF '-S.

PRINT MAXIMUM SECTOR TO READ/WRITE.

PRINT CE TRACK LOCATION.

PRINT ALTER ADDRESS.

PRINT ADDRESS FOR SWITCH STORAGE.

PRINT READ/WRITE ADDRESS.

PRINT LINE OF '-S.

SET UP CLEARING BYTE.  
MODIFY BRANCH INSTRUCTION.  
GO START PROGRAM.  
PRINT UDT CHECK.  
ID -AOEA-.

ERROR HALT -EA-.

GO TRY IT AGAIN.

R044 DISK FRIENDS TEST

```

ERR LOC OBJECT CODE      ADDR STMT SOURCE STATEMENT
      17E1 1642 N000      EQU      H0000
      020A 1643 SBYTE2    EQU      X'020A'
      020B 1644 SBYTE3    EQU      X'020B'
      0001 1645 SSW17     EQU      X'01'
      0080 1646 SSW18     EQU      X'80'
      0040 1647 SSW19     EQU      X'40'
      0020 1648 SSW1A     EQU      X'20'
      0008 1649 SSW1C     EQU      X'08'
      0203 1650 SIZE      EQU      X'0203'
      183A 1651 HFFFF     EQU      OPTSW1+1
      18CB 1652 HFOFO     EQU      CMNDS-1
      0001 1653 MOD3      EQU      X'01'
      1AE7 1654 CRSCT     EQU      SCTR
      1A3F 1655 DEC00     EQU      SUM3
      1AA5 1656 SK        EQU      SPCL01
      1AF4 1657 SECTOR    EQU      SCTR-3
      1ADB 1658 TRCK      EQU      TRACK-3
      1CE9 1659 READ      EQU      RDMUL-11
      1CF9 1660 WRITE     EQU      WRMUL-11
      0002 1661 CAP2      EQU      X'02'
      17F7 1662 RCALB     EQU      FCALA
      17E9 1663 DARB      EQU      DARA
      1AFA 1664 RCLB      EQU      BRATE-6
      1BAA 1665 NODISK    EQU      NOSPB
      1A19 1666 HD02      EQU      SUM1-R
      1667 *****
      1668 * COMMENT CARDS *
      1669 *****
      1670 TREP
      1671 TREP
      1672 TREP
      1673 TREP
      1674 TREP
      1675 TREP
      1676 TREP
      1677 TREP
      1678 TREP
      1679 TREP
      1680 TREP
      1681 TREP
      1682 TREP
      1683 TREP
      1684 TREP
      1685 TREP
      1686 TREP
      1687 TREP
      1688 TREP
      1689 TREP
      1690 TREP
      1691 TREP
      0A14 1692 END      BEGIN
    
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SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
ADD22	A	004	14AC	0978	0980
ADD6	A	004	1481	0969	0971
ADR01	A	002	17E9	1268	1571
ADR02	A	002	17EB	1269	1585
ADR03	A	002	17FD	1270	1587
ALTPAT	A	049	1E4C	1498	1512 1606
ARR	C	001	0008	1633	0816* 0817 0822* 0823 0849 0927 0952* 0953 0956* 0956 1230
AUDT	A	003	0A0C	0020	1531 1539
A34	A	004	0C64	0266	0259
BADHD	A	003	0B5E	0171	0134 0163 0166
BADHD4	A	003	0B5E	0170	0147 0150 0156 0158
BADID	A	004	1160	0682	0666
BEGIN	A	004	0A14	0062	1261 1620* 1621 1692
BIGSSW	A	020	1B64	1460	0326* 0328* 0332
BISZY	A	015	1C48	1469	1189* 1191* 1196
BRATE	A	025	1B00	1456	0469* 0472* 0474 0478 1664
BSIO	A	004	105B	0606	1061
BSIOY	A	004	15A1	1061	1043
BSYNG	A	021	1BBF	1464	1217* 1219* 1224
BSYSK	A	006	1135	0671	0648
BSYTIM	A	002	17F3	1265	0651
BTS0	A	001	181B	1327	0903
BTS3	A	001	1833	1344	
BT00	A	005	1C64	1471	1343
BT01	A	021	1C79	1472	1341
BT02	A	017	1C8A	1473	1339
BT03	A	015	1C99	1474	1337
BT04	A	010	1CA3	1475	1335
BT05	A	015	1CB2	1476	1333
BT06	A	021	1CC7	1477	1331
BT07	A	010	1CD1	1478	1329
BT3C	A	006	1CD7	1479	1348
BT35	A	013	1CF4	1480	1346
BUDT	A	003	0A0F	0021	0106 1534 1544
BUSY	A	004	10F7	0652	0650*
BUSYA	A	004	1716	1199	0439
BUSYB	A	004	171D	1191	0457
BYPAS	A	002	17D7	1261	1620
CAP2	C	001	0002	1661	1539 1544
CCW	A	002	17FC	1281	0635
CELOC	A	018	1E5E	1499	1580 1602
CKHD1	A	003	0B36	0157	0154
CKID	A	002	17D9	1262	
CKMUL	A	003	0BC6	0212	0198
CKOK	A	004	15C2	1076	1071 1074
CKOUT	A	004	1300	0827	0821
CKPRP	A	003	0ACD	0126	0101 0105 0107
CKPRS	A	005	169C	1142	1139
CKSEK	A	005	0C43	0257	0189 0196
CKSWHD	A	003	0B2A	0153	0143
CKSW3	A	004	0B75	0183	0127 0129 0136 0152 0168
CKTHS	A	005	0A84	0099	0096
CK00	A	005	1564	1044	1036 1038 1040
CK15	A	004	11B0	0711	0707
CK16	A	004	1053	0601	0593 0596
CLC	A	003	0C76	0271	0262* 0263 0264* 0265 0268* 0269 0270*
CLRB2	A	004	0E57	0451	0432
CLBCCW	A	006	0EFA	0500	0492 0507 0564 0718 1155
CLBCK	A	004	0F1A	0511	0505
CMNDMS	A	008	1A07	1436	0376 0747 0884 1014 1100 1165 1239
CMNDS	A	001	18CC	1420	0063 0377 0425 0490 0741 1269 1652
COUNT	A	002	1804	1285	0653* 0654*
CRSCT	A	009	1AE7	1654	1129 1130
DAR	A	002	17FE	1282	0636
DARA	A	002	17F9	1279	0441 1663
DARB	A	002	17F9	1663	0459

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
DATEK	A	003	0C9B	0290	0277 0279 0281 0283
DECOO	A	015	1A3F	1655	0395
DECO1	A	001	17D5	1260	0778 0782
DISK	A	001	0000	0003	
DMDATA	A	004	15A5	1068	0717
DMOP	A	004	178C	1230	1192 1206 1220
DMORE	A	004	1628	1107	1136
DMP	A	006	1362	0864	0828 0830 0832
DMPOP	A	009	1BFB	1466	1091 1159
DOCAL	A	004	0E07	0430	0486 0699 0925 1200 1228
DOCALY	A	004	1788	1228	1214
DONE	A	004	0D80	0373	0077
DONE3	A	006	10B4	0631	0607 0625
DOSEK	A	006	14F6	0991	0988
DOO	A	005	1215	0754	0759 0793
DUMMY	A	004	0CE9	0317	0293 0297
DUMPI	A	004	150A	1011	0602
ENDIT	A	004	11CE	0722	0503
END01	A	002	17E5	1266	0358
END02	A	002	17E7	1267	0360
PRCNT	A	006	1290	0780	0777
ERLPG	A	004	0C37	0249	0234
ERMNY	A	004	0C2C	0244	0227
ERUDT	A	004	1FC3	1622	1538
ESCTR	A	006	0D1C	0337	0200
ESTS	A	004	13CE	0903	0871
ESW1	A	004	0CFD	0326	0082 0086
ESW2	A	004	0D04	0328	0094 0098
ETPK	A	006	0D25	0339	0272
FIL	A	001	1EEA	1641	0608 0611 0614 0617
FILD	A	001	18F0	1422	1266 1267
FILHP	A	012	1AD5	1453	0371
FLAG	A	001	181A	1308	0072* 0185* 0187* 0194 0300* 0302* 0303 0312* 0314* 0426* 0430* 0431 0433 0438* 0449 0451 0456* 0561 0565* 0919*
GEL	A	004	16AF	1147	1141 1143
GENIT	A	004	0DFD	0392	0388
GNIT	A	006	158D	1055	1052
GOA	A	004	0E24	0438	0434
GOB	A	004	0E69	0456	0452
GOCLR	A	004	11CA	0718	0713 0715
GOFUN	A	004	0FAM	0550	0546
HAIR	A	004	151F	1017	1015*
HALT	C	001	0222	1634	0073 0114 0123 0177 0221 0322 0334 0345 0362 0401 0484 0697 0724 0796 0839 0923 1198 1212 1226 1627 0649*
HANG	A	004	1109	0656	0175
HDBD	A	020	1DA7	1487	1551
HDB04	A	021	1EP4	1502	1567 1568 1598
HDSUP	A	049	1E1B	1497	0422
HDO2	A	016	1A19	1666	0560 0562
HD14	A	004	0FD5	0565	0164
HEROT	A	003	0B55	0167	0501
HFFFF	A	001	193A	1651	0131 0958
HFOFO	A	001	18CB	1652	0208 0315
HLTFR	A	004	0D12	0334	0066 0076 0372 0387 0502 0754 0774 0776 0780 0790 1044 1048 1140 1142 1642
H0000	A	004	17E1	1264	1262
IDCCW	A	004	17DD	1263	1177 1181
IDFLD	A	029	1C15	1467	0976
IDHEAD	A	001	18A3	1393	0632* 0663 0665 0677 0679 0684 0896 1176 1291
ILCCW	A	004	10DA	0640	0631* 0633 0634 0637 0647 0649 0650 0657 0659 0661 0671 0675
ILSIO	A	003	10EP	0641	0712 0714 0850 0851 0853 0892 1068 1077 1079 1201 1215
IMGE	A	050	1B32	1457	0893 0897 0901 1026 1030 1034
INCRK	A	004	162C	1108	1120
INCEP	A	005	118F	0703	0658 0660 0662 0664 0667 0680
INCSW1	A	003	0F23	0513	0515

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
INCSW2	A	003	0F3E	0522	0524
INCT	A	006	126C	0773	0765
INC2	A	003	0DA7	0386	0390
INRD	A	006	161E	1105	1093
INTRO	A	035	19C7	1434	0070
KNOTO	A	013	1DEA	1491	0242
LDDAR	A	004	10D0	0636	0634*
LDDPCR	A	004	10CC	0635	0633*
LINE	A	004	1585	1053	1045 1049
LINK	C	001	0216	1635	0403 0798
LPCLR	A	006	1272	0774	0784
LRGSSW	A	037	1889	1461	0337* 0339* 0343
LSEKA	A	002	1800	1283	0448* 0544 0574 0584 0679*
LSEKB	A	002	1802	1284	0466* 0542 0572 0582 0677*
LSTADR	A	002	180E	1293	0624
LSTONE	A	012	1AC9	1452	0394 0764
MANY	A	004	0888	0203	0195
MAX	A	001	180C	1292	0226 0609 0612 0615 1561* 1563* 1566
MAXSCT	A	001	188B	1402	1557
MIX	A	004	0CCB	0305	
MIXUP	A	027	1DC2	1488	0308
MOD3	C	001	0001	1653	0106
MOVS	A	004	1099	0622	0618* 0619* 0620* 0621* 0624 1268
MP	A	004	17BF	1246	1230* 1232
MUCH	A	004	0D73	0368	0359 0361
MVCMND	A	001	1866	1382	0968
MVIN	A	005	0DBC	0378	0391
NBZY	A	023	1C5F	1470	1203* 1205* 1210
NEG02	A	002	17D2	1258	0130 0139 0874 1076
NEG256	A	002	17D4	1259	0626
NEWLRG	A	006	1010	0579	0576
NEWON	A	004	12A9	0785	0775
NEXT	A	003	0D3E	0351	0201 0237 0284 0304
NOBSY	A	004	1739	1201	0653
NOCL	A	003	0AF3	0137	0132
NODEP	A	004	0AB9	0118	0103
NODISK	A	010	18AA	1665	0112
NOK	A	006	122A	0760	0755
NOML	A	003	0B40	0160	0138
NOMULT	A	004	1502	0999	0994
NOSO	A	005	1F2C	1563	1560
NOSPB	A	019	18AA	1463	0121 1665
NOTOO	A	004	0C21	0239	0225
NTRDYA	A	004	12D5	0816	0435 0592 1070
NTRDYB	A	004	12FC	0822	0453 0595 1073
NTRPT	A	004	143E	0952	0379 0767 0876 0954* 0958 0964 0967 0975 0987 0993 0997 1016 1095 1167 1234
NUMB	A	001	16C1	1151	1145* 1149*
NXTST	A	003	0CA7	0294	0291
N000	A	004	17E1	1642	
N001	A	002	17C4	1251	0514 0523 0548 0621 0654 0696 0703 0709 0779 0783 0922 0955 0970 0979 1085 1119 1123 1125 1245
N002	A	002	17C6	1252	0135 0880 1137
N003	A	002	17C8	1253	0816 0822 0952 0978
N004	A	002	17CA	1254	0151
N006	A	002	17CC	1255	0969
N024	A	001	17CF	1256	0231
N072	A	002	17D0	1257	1108
OKST	A	004	135E	0862	0849*
OON	A	004	12A5	0784	0781
OPTSW1	A	001	1839	1349	0511 1651
OPTSW2	A	001	1857	1365	0520
ORG	A	004	0D98	0380	0378*
OTRRD	A	004	16CF	1156	1078
OUTHER	A	004	0B23	0151	0148 0159
PARE	A	006	1EFD	1550	1543

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
PM	A	004	17A3	1235	1233*
PRINT	C	001	021A	1636	0067 0109 0118 0172 0203 0217 0239 0244 0249 0305 0317 0329 0340 0368 0373 0381 0396 0419 0475 0495 0690 0742 0749 0785 0794 0834 0865 0881 0885 0898 0920 0929 1011 1018 1031 1041 1056 1088 1097 1101 1114 1121 1131 1150 1156 1162 1169 1178 1193 1207 1221 1236 1240 1552 1591 1595 1599 1603 1607 1611 1615 1622
PRT	A	091	19A3	1428	0064 0064* 0384 0385 0385* 0392* 0393 0393* 0394* 0395* 0399 0400 0400* 0424 0424* 0493* 0494 0494* 0498 0499 0499* 0747* 0748* 0752 0753 0753* 0761* 0762* 0763 0763* 0764* 0773* 0778* 0782* 0788 0789 0789* 0888 0889 0889* 0960* 0965 0981* 0982* 0983* 0986* 0989* 0991* 0992 0992* 0998 1021 1022 1022* 1050* 1053* 1055 1055* 1059 1060 1060* 1104 1105 1105* 1113 1117 1118 1118* 1130* 1134 1135 1135* 1144* 1147* 1149 1149* 1153 1154 1154* 1172 1173 1173* 1243 1244 1244* 1383* 1384* 1385* 1386* 1387* 1388* 1389* 1390* 1391* 1392* 1550 1550* 1551* 1555 1589* 1590 1590* 1594 1618
PRTSTS	A	004	1425	0927	0906 0912 0918
RCALA	A	002	17F7	1278	0440 1662
RCALB	A	002	17F7	1662	0458
RCLB	A	025	1AFA	1664	
RCLCKA	A	004	0EA3	0472	0447
RCLCKB	A	004	0E98	0469	0465
RDDAT	A	009	1A4E	1442	1384
RDDIAG	A	015	1A6A	1444	1386
RDHLT	A	002	0D6E	0363	0347 0352 0354* 0356*
RDIER	A	013	1A5B	1443	1385
RDML	A	016	1CF4	1481	1390 1659
RDVR	A	011	1A75	1445	1387
RDY	A	004	1325	0841	0817* 0823*
RDYA	A	004	103D	0592	0594
RDYAY	A	004	15AC	1070	1072
RDYB	A	004	1048	0595	0591 0597
RDYBY	A	004	15R7	1073	1069 1075
READ	A	016	1CE9	1659	0214
READIN	A	001	1DEB	1493	1106 1270 1279 1282 1293 1641
REGY	A	004	146A	0962	0959
REINIT	A	004	0ED5	0490	0450 0467 0727
RETRY	A	003	0A42	0075	0116 0125 0179 0324 0336 0364
RGS	A	004	140D	0919	0914* 0916 0917*
RMVBL	A	005	1DC7	1489	0986
RND	A	004	11DE	0726	0723
RPT	A	004	1506	1000	0956* 0961
RTN01	A	001	0A10	0058	0018
RTN02	A	001	0DEB	0415	0060
RTN03	A	001	11E3	0736	0417
SA	A	004	1348	0856	0850*
SAFE	A	003	0CB3	0298	0295
SB	A	004	134C	0857	0851*
SBYTE2	C	001	020A	1643	0491 0601 0870 1092 1160 1231
SBYTE3	C	001	020B	1644	0606 0706 0716 0722 1039
SCK	A	002	1947	1426	0065 0065* 0740 0740* 0760 0772* 1619*
SCTR	A	009	1AE7	1455	0989 1654 1657
SECSET	A	008	1D3D	1484	0214* 0216* 0220
SECTOR	A	009	1AE4	1657	0337
SEEK0	A	001	17F2	1276	0448 0466 1278
SETM	A	004	0BDB	0217	0253
SETMA	A	004	0C3F	0253	0243 0248
SETT	A	004	0F54	0527	0525* 0526*
SETUDT	A	004	1EC3	1531	0062 1629
SHELL	A	022	1DDD	1490	0981
SIS	A	002	1945	1425	0771*
SIZE	C	001	0203	1650	1556
SK	A	013	1AA5	1656	1383
SKFLD	A	003	0FC1	0559	0529
SKITCK	A	036	1C39	1468	0685 0689 0693
SNS	A	004	113B	0672	0671* 0674

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CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
SPCL01	A	013	1AA5	1449	1392 1656
SPCHP	A	004	12C6	0794	0791
SPDNR	A	017	1ABD	1451	0820* 0826* 0837 0864
SPS	A	001	1597	1057	1051* 1054*
SPT	A	004	1436	0933	0927* 0928*
SSW1A	C	001	0020	1648	0722
SSW1C	C	001	0008	1649	0606
SSW17	C	001	0001	1645	0491 0601 0870 1092 1160 1231
SSW18	C	001	0080	1646	0706
SSW19	C	001	0040	1647	0716 1039
STCKIN	A	010	1B50	1459	0960
STERT	A	029	1E7B	1500	1584 1610
STMVS	A	004	1087	0618	0627
STRE	A	004	168A	1137	1080 1124 1182
STRFLD	A	036	1E9F	1501	1588 1614
STRIT	A	006	1030	0586	0578
STSBY0	A	001	1808	1288	0480 0827 0829 0858 0905
STSBY1	A	001	1809	1289	0443* 0444 0446 0461* 0462 0464 0672* 0673 0818* 0824* 0856*
STSBY2	A	001	180A	1290	0482 0831 0860 0911 0915
STSBY3	A	001	180B	1291	0470* 0473* 0819* 0825* 0857*
STSCK	A	020	1B46	1458	0474* 0852* 0855* 0864* 0868
STSER	A	004	1368	0865	0481 0483 0859 0861
STSOK	A	004	1329	0849	0695 0704
STUPID	A	048	1BFF	1465	0320
SUB	A	006	11A6	0709	0710
SUM1	A	016	1A21	1438	0745 1666
SUM2	A	015	1A30	1439	0748
SUM3	A	015	1A3F	1440	0773 1655
SUM4	A	006	1A45	1441	0761
SVXR1	A	002	1807	1287	0902* 0957* 0999
SWANL	A	001	1805	1286	0099* 0100 0104 0183 0257* 0258 0276 0279 0280 0282 0512* 0514*
TEMP	A	004	17F1	1275	0521* 0523* 0066* 0083* 0084* 0085 0087 0128 0140* 0141* 0142 0190* 0191* 0192 0228* 0231* 0232* 0233 0357* 0358 0360 0533* 0534 0534* 0535 0535* 0538* 0539 0572* 0574* 0575 0577* 0579* 0582* 0584* 0586 0708* 0709* 0760* 0769* 0770* 0771 0772 0774 0776 0779* 0780 0783* 0966* 0967* 0970* 0975* 0979* 1556* 1559 1573* 1576* 1579
TFST	C	001	0212	1637	0711 0726
TMPCCW	A	004	1815	1302	0500 0500* 0539* 0542* 0544* 0547* 0548* 0550* 0553* 0554* 0554* 0559* 0575 0577 0579 0585* 0586* 0632 0663 0688 1029
TMPSIO	A	003	1817	1304	0501* 0516* 0527* 0528 0540 0551 0570 0580 0590 0631 1025 1035 1037
TOLNG	A	004	1762	1215	0655
TRACK	A	009	1ADE	1454	0991 1658
TRCK	A	009	1ADR	1658	0339
TSEBDY	A	004	1036	0590	0552 0555
TST0	A	004	13D6	0905	0904* 0908 0908* 0909 0910
UDT	A	001	17FA	1280	0102 0260 0266 1533* 1536* 1537 1541* 1542 1546* 1574
UDTCK	A	014	1EC2	1503	1625
UNMR	A	005	1249	0766	0757
UNPACK	C	001	021E	1638	0682 0686 0890 0894 0962 0995 1023 1027 1110 1126 1174 1564 1569 1577 1581 1585
UNPK	A	002	163A	1112	1109*
UPCCW	A	004	1701	1174	1161
VRUN	A	046	1D93	1486	0252
WATA	A	004	0E37	0443	0445
WATB	A	004	0E7C	0461	0463
WRDAT	A	010	1A7F	1446	1388
WRID	A	008	1A87	1447	1389
WRITE	A	016	1CF9	1660	0216
WRK1	A	001	180F	1294	1084* 1085* 1087* 1123*
WRK2	A	001	1810	1295	1081* 1125* 1128
WRK3	A	001	1811	1296	1107* 1119*
WRMUL	A	016	1D04	1482	1391 1660
XCPD	A	040	1D65	1485	0247 1568*
XR1	C	001	0001	1639	0511* 0513 0513* 0516 0520* 0522 0522* 0525 0536 0566 0609* 0611*

8044 DISK FRIENDS TEST

CROSS-REFERENCE

SYMBOL	T	LEN	VALUE	DEFN	REFERENCES
					0614* 0617* 0618 0619 0620 0626* 0902 0903* 0907 0907* 0913 0913*
					0928 0957 0968* 0969* 0972 0976* 0978* 0982 0983 0984 0999* 1106*
					1108* 1109 1557* 1558* 1559 1563
XR2	C	001	0002	1640	0063* 0075 0076 0081 0084 0089 0093 0095 0097 0099 0126 0130*
					0131 0133 0135* 0137 0139* 0140 0141 0144 0146 0149 0151* 0153
					0155 0157 0160 0162 0165 0167 0167* 0170 0170* 0171 0171* 0188
					0191 0197 0199 0212 0223 0224 0226 0228 0229 0232 0235 0236
					0236* 0257 0271 0290 0292 0294 0296 0298 0310 0351 0351* 0357
					0372 0377* 0378 0386 0386* 0387 0389 0425* 0490* 0502 0504 0506
					0506* 0512 0521 0533 0545 0547 0553 0559 0563 0563* 0569 0696
					0703 0705 0705* 0741* 0754 0756 0758 0758* 0766 0769 0770 0790
					0792 0792* 0872 0874* 0875 0878 0880* 0922 1015 1044 1046 1048
					1076* 1081 1082 1084 1094 1137* 1138 1140 1142 1166 1233 1245
YAO	A	003	0B4F	0165	0161
YEP1	A	003	0B1D	0149	0145
YIMY	A	006	10FF	0654	0652 0656
YNAM	A	007	1AAC	1450	0206

TOTAL STATEMENTS FLAGGED IN THIS ASSEMBLY = 0

B044 DISK FRIENDS TEST

OBJECT CARD LISTING

THE CHARACTER ' ' INDICATES A BLANK COLUMN AND THE CHARACTERS D E H INDICATE NUMERIC SHIFT.

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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T+-Y:MD8  E  B/C  "' :A  .  &  F  C ; ?  /1#C0-HQ3 1EPEK  RZ 1#FM*PK 0AE"D  P8*8G /ZFH1XGY+  @  A- 33MB0440001
T+-Z5F8BG SH-8.  K4AE=DAOHD(-.X  0 < &C|4@ A-1H H  P@E 'B/-10HS<"L4  GE"G2  E+@  F9COC  D 4 "Q%B0440002
T+-D0A.-H |H8A#0  G <B&C&EY 1-E  C4  EF P2-T48EA-:@Z  S|E*QA-HB.3-AB-"  2UBT /0HE1SD$DDC  YOH* --8B0440003
T+-. , SH-@*BGBU.  /0HE1/<8DDCW0H#  BHDCW0H*HE,X- |H  8YT4HE"G2-3%6 /-  XT&DAF<?2  868  E.  2UGd ) LUB0440004
T+-%W(-HP1?HG-,7  " |HAJ3QBE'H% A-  1 K8  F"DC|J-P@-H  DG.-A |HEBSUAA|H  88-HGA,-A|HE&CQ  BE@Y ) $  B0440005
T+-_/@Y).> D @/  F> DD@Z  V> DD@/  -OH*.H#-A |H&B$-  A ?H&D?HGA, -A ?H  8R;HB ?HGF>HB >H  B %  JI<B0440006
T+->*/0HE1/8) Z:C  YOH*BHDYOH*H&T4  DF P2/ *: J-E@Y*  D+-HQF,X- |HE_TO  E"DY /-1 C4HE"G  2  8Y  KL  B0440007
T+-?P+H QF?HEE|H  GX.S  |H&F$4P *B  DCJ3 /04=OH*BF%Q  VFD2-:<BGCSH&D  C  2D  U<AA4'G+X2/0Q  <AA4  2C<B0440008
T+-OK|J390H*BF-Q  9GL7 /0HSY+=0  +  '  |2-K=(  <QC|H  D<SO  E"DA>  D @/  FC- P@J+,- P@E<  'A*  EH-B0440009
T+-1(@-HDH.3" >H  B %BGCL# /0HE--4  ):?HGD@BG /DBHA5  V@Y*H0H*BFYH>GR|  /0?SH <QAE 'AJ-  E@YH  N,QB0440010
T+-2HEL-8E",2U *  @P017@Y*R|<%<)"H  GDT--E",2U *@R01  7@Y*D|<%< )#4  -H  DDL4AF P2-J-' /-  E@YD ;EDB0440011
T+-3CDL4EF P2-8Y  'A/-E@YDC@Y;T2&Q  A@Y&F?S<A@YJB?%  A@Y&F?KQA@Y$6>H  @/ G+U QF?HGACD  'FAY 'S*B0440012
T+-3=+< QF?HG*@B  G /,FF17BY+S98  C  2U **8A-E@Y*D+S  QF?HG*RG /,F<A?  ?Y+ /0HSY+ /0Z  B|J D  @Y4B0440013
T+-49P3T2/08@@/_  QOH*BF%QMF6K-:<B  G SH-:<BGBUH<AJ>  IF>L2/0Q<AJ>IF?  /0HE1SM$S&ECZ0H*  B&D  JZYB0440014
T+-54:-HG<;HB T-  ACO#2D *@855>@Y*  D|+H($TEBE"D( J-  1E=P2-J<( J-1E=-  2-E, /0HSY+. /0Z  R0H*  MS@B0440015
T+-6? /YDCA,NT D  AE=G /0HE  U  EA@H  BF<0% 06Q @BGECS  *****  OH*BF-ESPE<  <O/WTFELS -H(  8D  P8-H  9#8B0440016
T+-7D-8>"OC -86  XOH*(TC1*POU<(JW  HFOUCB1V2F%U< 1V  (FT" /0HEAV%RY01  EPE<RZ<BG SH-8@B  G /Q  PQOB0440017
T+-8V - J8@BG /Z  ED/YRYH<O/WTFEL  B /TH+08QFT%-FAY  8 J-E@ZAE+  8QF?H  8B@F-D_P2/OL /08  P+08  KIQB0440018
T+-9-FA,AY/*O<EQ  P'3FUE"X3Y  OY/-  I+A  QB*  ECT*86A-  I@ZARC  DQ  A-3+  H  QF?HG-T-DFA,2D ?  A$AH  8Z@B0440019
T+-: $+|HGA<BGCV8  #AA-E0$HPGLF6E"*  1_A-9@#  <.HQBL-  8F  X  D  9@+D  QB-H  8B80AF  HP@H@G|L3  2F>8  S  HB0440020
T+-YO<.<QB"HGBC3  1F>80Y1-.C  $+J,  >OH*BF%QRF0B-CTX  "F  T  UA(Y+Q5QB%B  8D6T /0HSY  # /08  GO-H  #KMB0440021

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BC44 DISK FRIENDS TEST

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+-@JF<08 EHHZ	Q EORSE0"FO-RS*B	G /YAO1WTCBYRY1W	UC <QBJ-OC DQFJ-	105DAE=6 -JG+?~2	5-D KHHR0460077
T+-<A=HB %BGC?T	B J-9H HQASCK 6H	A-REEL / @TG D	QF889 J/PH <QAS6	K 8D  A-REEL / @	43 *** 41CR0440022
T+-=GC5M +0D NLY	FA-9A1-Q2/AS.	P86D+ A-1E"D+ A-	1E"EB 8C2U 8:-A-	1C "OEA-1+A QP E	8*89 *THR0440074
T+-"B J-LF .2/00	< J-LF B'0.2 8R	* A-N 08 PAMP1 H	GACO YAM' /-PB-F	A. " QREDE-A-?@Y)	93# "N*TR0440025
T+-"  HEDT--FA,	2U -S -. /0*8+S	QFX-A  H8ACD PAS	* A-L L-8PAT2U Y	< A-1P .2/00< A-	1P "OS-80440026
T+ / 8CE P@J-L@YH	IC0 P@J-L@Y*-C	P@J-L+A QF H8B8@	E"DO ?HGA-8 F"0	Q CYAPA6< A-NEMD	8DA- 41CR0440027
T+/A3F H8B@P-D_P	2/0" /1 '05 K# H	GA<BGDD-8 EHH0A	NBT-H -?2DE.B J"	D J CC HAA<HA.IY	18A- Y Y 80440028
T+/B>C HAA<HA ;Y	'<A-<@-DD0-E(:T8	AD 04 JBS( B&Y @	ADH P1C3" <"0	( J8-F 82-8-	6 J* 9180440029
T+/CZ5<BGDH*< JC	)FAU< 1CEFAMH AC	(D(OH ACJD(01Z/-	8<E8P"?HGA *****	? " 9A1C*B/A68	J8/ " K180440030
T+/DU7 - D -67 0	AF 8P9@P8D  " /1*	9C0DQAA-DOHHPQKF	SD 89 /C*8ZA** D	87 HE)C4AD(72 04	( A " 3, 8P0440031
T+/E-6A-L@YEU+8<	85"HE.?HGO-- DLO	87CBSF U8DA-I0A	J+3-3D(32D U< J-	8D(72/00< J- 8(T	2/28 8: 80440032
T+/F80R*BG-DS6A0	90H*BG-DQD10?0H*	8F8QUCGW-888GD2H	+ X<D1<BG SH-B58	8C- + 88P1<8GD2X	8 -H 13 80440033
T+/GN+H 8B"HECT	E"DI J-1E@L /AF	WON*BDTUBD(32U @	8 JC*8Z H+D 88@	8P8P /0+8+3 8H"8	8A8 "UC080440034
T+/HE/0HSY+L /0H	KOH*+86< ""@< 1V	GFMTB /THOH*BFUH	8P8P-Y-0"FO-8A00	+88<88<86 /Y8D1H	CCPY 51<80440035
T+/I.F88RZH4A J-	/@Y8(7-@ @-D88-H	8OH*KE80CE"DRJ00	8P888JL1+FOU<(JW	8PQ <81V2F8Y2/2<	8 19 8880440036
T+/HFNE  /18=	BOAE=@, DP8N<	+ JVEE=@+ JVG8"D	<C/WFT8( 1-1E=8	2-K8( J-?E=82-88	8*AD 80440037
T+/.A4/-NCODP#1-	DC8DE@J-/@YD<AV	RY1-NCODP@J-DOH*	K*88G /YAO1VTCEY	RY1W8T8DAE=82-8-	8 -H 8 80440038
T+/.@0H*KE*8G //	00H*8H8CV0H*8ET0	HE@-4BA<Y<8HQB18	TF 888J888Y+X(--	82CR8D2-08/-IK.<	8880 18880440039
T+ /<7@/D3+D Q8 H	803W"8 T2UE89/A-	H@ZA(OH*8F8QJF,6	- "88G SH-"888	48A(/8 LKJC*8	LLJ 8880440040
T+/(27C32F3U8DAC	*@/ D 188+LBSF U	0Y1-.-+@Q8 H8DLW	DF ,2U , /0 "C	8+J830H*8P888P8E	-W3- 0Y880440041
T+ /+ 8H8@/AN?-@	@-DD(-HP4S0CD8@	COH*8M  - "B"0C	2 886 /-?0H*8F-E	F-4 /0H8-V8RY01	8F8< 83<80440042
T+ / YF8L /0H; 1C	)F1? /0H;AAC8F3.	/0H8 TR8<T8AF	8 J-)   DL53- 8 T	8A8V4-DCC- L51	818 8880440043

B044 DISK FRIENDS TEST

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
T+/X;E+.E84C05=	I5_PSE<XNE+.W2;	C2<PSE4CR1;.E84C	H0 T5_-T2)\$N&DA	E< O5!LA5*J EDA	ED 088B0440066
T+/YR&DA SDA &CL	R2;PE&DA SDCD2;.	K&DA &<TE0*J SDA	4'SC0; I5_PE9&P	C9+ I5*) 0'SM5<G	N1+H Q8-B0440067
T+/ZMS+.U5(LA6;T	I8>.U1*J SDC2<P	C4>.0& C0& A SDC	0& C0& CT5> A4=.	R1+GD&<LA&GR1*G	D&+< #S4B0440068
T+/D 6*GC4UCI1(X	E0*J 1<XA1'P08>	I0'XE0*J 9*PR2*\$	Y9_XI&N 1<GT0;\$	R2; E&<XD0&GNE(\$	N4=- Q9-B0440069
T+//H&<TA9*N @_	5_PEQ+ I5<N B&P	E4UC05= I5_PD6*X	V1MCX&(P084CR1*G	D:<PN1BC01UCT0*.	L1;< 8\$-B0440070
T+//X&E0*.L1MCF2	L1*LT6*GC4UA @ C	S1* T5_V @ CD6*X	V1MCX&(XE0&GL2*.	R0; E&< H1* K0'S	R1M 7HMB0440071
T+/_ 2)LA1&N QDC	C5_LM0)PD&+~X9=~	X94CC5_PT6)\$L&<\$	I1) D&+~X9=~X9=~	X1(XI9*N 94CS8&G	T9+H 6RHB0440072
T+/_*8< H1* K&W_	2)PI&XA4=.W2;	C2DCX&<XS&<XN&<P	R6)\$R8>\$I&@ H1;I	@6?4&+ O5UCL0)X	G1M 88<B0440073
T+//>61_S&E+ H1MA	SDA SDCP2;~E1DC	D2;.K&(\$P&<LR2;P	E& I 5)ST&<LE1&X	N1*LD6*XV1MCX&<.	D8>- 8-0B0440074
T+//?1&+ O5UCL5_P	G0&GN5)\$P&+LS1MC	T6*GC4>Y 'PC6&(\$	R& L7Q LB&(\$N&(X	E5(\$V0*.L1MCD2;.	K1<D LBMB0440075
T+//0%&@E 1+LM&@	O5; R5_ ( 1%X&4&J	6*PA1DA-@+~X9=~	X9=~X5*PA1DCI1DC	C2<PC4W_ 1;~P1*	T1*E :AYB0440076
T+//1X&+~X&<GC&=L	A44CX9&LR2;PE&+)	2;I 0>LS:<LR2;P	E&+) 1<XD&(P084C	G5UCB9+.Y5)R-5_~	I5;< 0#HB0440077
T+//2S1)XV1)PT2)\$	N&(XE6+LI6*PD5)R	0*LD6*PS8UCM0)X	K1)XE6+LI5'LE5;(	0&TE0'.D0; A&<	H1*< *Y B0440078
T+//3)4_PO&(XE0'S	R1DCF5>LN1+ P0*	K&< O5*LI&@X05MC	C2<PC4>.E1)I 0&T	E0'.U5;.A1&PH1*G	D&+H 7#QB0440079
T+//4Q1; T4&XN1'X	E0*J & C0&+.E0=	O6;.W6*XT1MC0&DC	S1* T5_XS9+.E&+.	W2; C2<PS& ('DC	T5U 2,UB0440080
T+//5LR&PL1* T&<T	E94CN9(LB1)V 5&R	8%PC&'&P8UCT5UA	SDA &< A5MCN5>(	8_-E0&XF:DCM5_X	E&+< M3 B0440081
T+//6+2<GN&<TE94C	X94CS1* T5_XS8>	A6; I5*) 8%PC&'&	R&(~L9+I 5;LM0&P	R&<XS&<~R1*GT1)V	8&- @YHB0440082
T+//7I0)N ' TH1*G	D&+.E4&PC&@X05MC	C2<PC4% A5)P084C	I5; E6)LI94C05=	I5_P&E E,0)XM9*.	L1(U M.4B0440083
T+//8D2;PE&+) SDC	F2;~E1DA &<TD&+~	C0)PN5>( 9+.E& C	O5<GX2)LU5DCN9(L	B1)V 5&R 8%PC&'&	R8U )RDB0440084
T+//8"8'R 6*PA1FG	W6*XT1MCI8UCH1;)	9=~D0; A&<.Y&@N	Q<\$FQDC&A4CX9=~	X&<~E5*PR0; E&UC	W6*U 8D&B0440085
T+//9:8&N 1<GT0MC	F2*PL1< E&+ R0*	K&<XS&<TE94CX9=.	W2; C2DC05= I5_P	SE+.T5_XE1DCA&C	X9=* \$Z&B0440086
T+//:59'XE0*J/9_X	I&@N 1<GT0MCF2*P	L1DCS8&GR8=I 0;(	9=~X9"4' J 1<X	S4UCP6*X&E5*J 8&P	S&@& *24B0440087

DATE	13MAR70	06APR70	22MAY70	01AUG70	01OCT70	28APR71
PC NO.	571512	571516	571513	571531	571540	571565

PROG ID	0B04-4
PAGE	19

B044 DISK FRIENDS TEST

OBJECT CARD LISTING

CL 1 THROUGH 16 CL 17 THROUGH 32 CL 33 THROUGH 48 CL 49 THROUGH 64 CL 65 THROUGH 80 CL 81 THROUGH 96

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T+/#02;.KE+LD84C C2<PC4T--B-?2U 8 :-A-:+B HC?HSACZ E"Y90A-: @/CT+ H HC|H&ACY-E"Y8EA- :@Z 2-MR0440088
T+/@,R3-BB-"2U 8 :DA-:CEBY1WUCAS RFA:40H*BF-ESFEK H /-1 -.B JS#(-D P@P7" |HAA30BF 3 2/OM KCDB0440089
T+/'WG OC C /OH ; J-<G/%< J5)G/? /OH; /-ZGTD@21- 1+B P=?HSAC1XE"G /OH; J-1GV# /OH ; /* PB B0440090
T+//:19#0H*BG-H P#J:-1P R;001PPY R;@BG /YAO1WTOH* BF-D1G/? /OHE JH ;P%BG /YA<J9<0H* BF-D P18B0440091
T(A"OGJ9#0H*BF-D UGZ" /OHEAETRY30 FM-< EYPE'- /OY MOH*BF%Q+G%R-:%R G SH-:%BGG%< 3:<B0440092

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* ..... CONS OLE SWITCH OPTIO NS ..... * ..... 00#B0440093
* ..... SWITCH 1 I SWITCH 2 I SWITCHES 3 + 4 ..... * ..... MS#B0440095
* 1 - ISSUE A SE BK I 1 - DRIVE 1 - RM VBL - HD 0 I ..... * ..... E6#B0440096
* 2 - READ DATA FROM SECTOR I 2 - DRIVE 1 - RM VBL - HD 1 I XX - SPECIFY, IN ..... * ..... 2R#B0440097
* 3 - READ TRACK ID I 3 - DRIVE 1 - FI XED - HD 2 I HEX, TRACK ..... * ..... *YQ#B0440098
* 4 - READ DIAGN OSTIC I 4 - DRIVE 1 - FI XED - HD 3 I OR SECTOR ID. ..... * ..... 01#B0440099
* 5 - READ VERIF Y I 5 - DRIVE 2 - RM VBL - HD 0 I ..... * ..... 5: B0440100
* 6 - WRITE DATA ON SECTOR I 6 - DRIVE 2 - RM VBL - HD 1 I ..... * ..... 1 -B0440101
* 7 - WRITE ID O N TRACK I 7 - DRIVE 2 - FI XED - HD 2 I ..... * ..... R3<B0440102
* 8 - DO MULTI-S ECTOR READ I 8 - DRIVE 2 - FI XED - HD 3 I ..... * ..... RE#B0440103
* 9 - DO MULTI-S ECTOR WRITE I ..... I ..... * ..... 0R#B0440104
* A - ONE-TIME S ECK I ..... I ..... * ..... 9I#B0440105
* ..... SET SWITCHES TO -0000- TO INDICA TE END OF OPTION S ..... * ..... JQ#B0440106
* ..... ***** ..... * ..... E-HS0440107
* ..... SENSE SWITCHES, WHEN SET, DICTAT E THE FOLLOWING ..... * ..... 92#B0440108
* 17 - THE DISK SIO AND ITS CONT ROL FIELD ARE PR INTED BEFORE BEI NG EXECUTED. ..... * ..... 7,4#B0440109

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8044 DISK FRIENDS TEST

OBJECT CARD LISTING

CL 1 THROUGH 16	CL 17 THROUGH 32	CL 33 THROUGH 48	CL 49 THROUGH 64	CL 65 THROUGH 80	CL 81 THROUGH 96
* 19 - THE PROCP	AY READS THE CON	SOLE SWITCHES AS	A DELAY AFTER E	ACH COMMAND.	* 15R00440110
* 19 - AFTER A P	EAD COMMAND IS E	TECHNLS, DRP DAT	A IS PRINTED IN	HEX.	* 15R00440111
* 19 - PROGRAM H	ALTS -F4- AFTER	EXECUTING ALL ST	ORED COMMANDS.		* 05R00440112
* 1C - PROGRAM X	ILL NOT CLEAR TH	E READ/WRITE VIE	LD BEFORE ISSUIN	G A COMMAND.	* 15R00440113
*****	*****	*****	*****	*****	* 15R00440114
EB/C*E7*=-DCMPS	=M75F1 I C	F4 MSC P A	SL Q	15050501790	61771*51R00440115

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