OS- SPOOLING

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Step	Instruction		Address	Comment	Octal	Step
00						00
01						01
02						02
03					SPOOL	03
04					FCB	04
05					(old ~~Spool~~)	05
06						06
07						07
10	STA	Z	0154		0/0476	10
11	JSBR	IZ	1700	Extract from FCB (SpoolFCB,Word1) (0277)		11
12	P1=0,1,000			N Sectors, DCC		12
13	CLSA/COMPSA			"Write"		13
14	STA	Z	0143			14
15	LDA	IZ	0070	=Next Spool Record No., Clear track		15
16	STA	Z	0153	Save (for SPOOLPOST)		16
17	DECA					17
20	ADB	Z	0203			20
21	STB	Z	0160	=This Record No.		21
22	ADB	Z	0203			22
23	ADA	IZ	B	+Base Sector No., SpoolFCB		23
24	STA	Z	0145	Absolute Sector No. for Transfer		24
25	INCB					25
26	LDB	IZ	B	=FCB Status & Track (Sector in USE)		26
27	LDA	IZ	B	=Spool Sector To Use		27
30	INCA					30
31	CMPA	IZ	0160	This Record No.		31
32	NOOP					32
33	SKNGT					33
34	JUMP		1250	HALT (Outside Limits) - Spool FCB Fault		34
35	STA	IZ	B	Update FCB To Use Record		35
36	STA	IZ	0070	Next Spool Record No., Clear track.		36
37	LDB	Z	0067	=SPOOL BUFFER, Clear track.		37
40	STB	Z	0144	Give Address for Transfer		40
41	ADB	Z	0375	000177		41
42	STA	IZ	B	Link current record to next record in chain		42
43	LDA		0154	Report Indicator (BA)		43
44	DECB			3576-		44
45	STA	IZ	B	Indicate this record not "locked".		45
46	DECB			3575-		46
47	STB	Z	0177			47
50	LDB	Z	0074	=TCA		50
51	DECB			3717-		51
52	LDA	IZ	B	23rd-24th chars		52
53	STA	IZ	0177	of Pgm Name	Program Name (with FibTable Mask) into Spool Buffer	53
54	DECB			3716-		54
55	LDA	IZ	B	1st-22nd chars		55
56	ADB	Z	0257	3775-		56
57	IORA	IZ	B	FibTable Mask		57
60	DES2	Z	0177	3574-		60
61	STA	IZ	0177			61
62	JSBR	IZ	1623	LOADQ		62
63	LDA	Z	0040	=Test No.		63
64	STA	IZ	0067	into 1st word of Spool Buffer		64
65	JUMP	IZ	0156	Return.		65
66	*ENTRY			LINSPOOL	←BA→	66
67	LDA		0066			67
70	CLB					70
71	STB	Z	0142	Options, FibID		71
72	STA	Z	0156	Return Address		72
73	JSBR	IZ	1700	Extract from FCB (SpoolFCB, Word1)		73
74	P1=0,1,000			N Sectors, DCC		74
75	STA	Z	0143	Read		75
76	LDA	IZ	0156	=P1		76
77	JSBR	Z	1630	Recalculate Offset		77

Programmer:-

OS - SPOOLING

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Step	Instruction		Address	Comment	Octal	Step
00	LDA	I2	A	= Record No. to be unspooled		00
01	ANØ					01
02	JUMP		1250	HALT (Outside Fab limits)		02
03	ADB	Z	0202	→ Mon. Record No.		03
04	CMPA	I2	B			04
05	NOOP					05
06	SHNCI					06
07	JUMP		1250	HALT (Outside Fab limits)		07
10	DECA					10
11	ADB	Z	0203	→ Base Sector No.		11
12	ADA	I2	B			12
13	STA	Z	0145	Absolute Sector No. for Transfer		13
14	LDA	Z	0067	→ Spool Buffer, this task		14
15	STA	Z	0144	Copy Address for transfer		15
16	JSBR	I2	1623	IOADQ (Read)		16
17	INSZ	Z	0156			17
20	JUMP	I2	0156	Return.		20
21	*ENTRY			SPOOL & POST	← BA →	21
22	JSBR		0145	Obtain U Queue		22
23	JUMP		0126	= No spooling (phase assigned)		23
24	JSBR		0373	Save register indicator		24
25	JUMP		0131			25
26	LDA	Z	0040	Task No.		26
27	STA	I2	0067	calls I2 loaded of Spool Buffer		27
30	JUMP	I	0121	Return.		30
31	LDA		0121			31
32	STA	Z	0155	Return Address (level 2)		32
33	LDB	Z	0355	Bit 15 (2nd level call)		33
34	LDA		0143	12/0136		34
35	JUMP		0275	to "SPOOL"		35
36	LDB	Z	0355	Bit 15 (2nd level call)		36
37	LDA		0144	12/0141		37
40	JUMP		0203	to "POST"		40
41	B = 0/0152					41
42	JUMP	I2	0155	Return.		42
43				12/0136.		43
44				12/0141		44
45	*ENTRY			Obtain Computing & Monitor	← BA →	45
46	LDB	Z	0074	→ TCA		46
47	ADB	Z	0207	3727 -		47
50	LDB	I2	B	= Pool # this task is computing		50
51	B = Ø					51
52	INSZ		0145	(Skip)		52
53	JUMP	I	0145	Return.		53
54				Logical Indicator	✓	54
55						55
56				→ Get I Fetch Handler 13/0540		56
57	JSBR		0450	D.A. Primitive *DIRECT ACCESS (ordinary)		57
60	STA	Z	0170	Record No. - 1	CLB	60
61	LDB	I2	0160		SFA I2 0160	61
62	STB	Z	0171	= Records for transfer	APOS	62
63	JSBR	I2	1722	DIVIDE Fixed remainder	JUMP 0166	63
64	R = 1,0/0170			Remainder	INCB	64
65	R = 1,0/0171			Records for transfer	JUMP 0161	65
66	R = 1,0/0172			Result	ADA I2 0160	66
67	LDB	Z	0151	Record Pointer	STB Z 0172	67
70	LDA	Z	0170	Remainder	LDB Z 0151	70
71	ANØ					71
72	JUMP		0176			72
73	ADB	Z	0152	Logical Record Length		73
74	DECA					74
75	JUMP		0171			75
76	STB	Z	0151	→ Record in Buffer		76
77	JUMP		1122	Monitor		77

Programmer:-

BUSINESS COMPUTERS LTD. **MOLECULAR 18** 49

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Date:-

OS- SPOOLING

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Step	Instruction		Address	Comment	Octal	Step
00	*ENTRY			POST to PRINT QUEUE	←BA→	00
01	LDA		0200			01
02	CLB					02
03	STA	Z	0156	Return Address *from "SpoolPut"		03
04	COMPSB			"Lock"		04
05	STB	Z	0142	Option, File ID		05
06	JSBR		0145	Obtain a Queue		06
07	JUMP	Z	1371	HALT – Print Q not assigned.		07
10	NOOP					10
11	NOOP					11
12	ChSB					12
13	LSB			x2		13
14	ADB	Z	0022	+ Print Q table origin		14
15	STB	Z	0170	→ Record No., 1st Posting in this Queue		15
16	INCB					16
17	STB	Z	0171	→ Record No. last Posting in the Queue		17
20	JSBR	IZ	1700	Extract from FCB (Start FCB, word 1)		20
21	P_1 = 0,1,000			N. Sector, Disc No.		21
22	STA	Z	0143	Read		22
23	LDA	IZ	0156	= P_1		23
24	JSBR	Z	1630	Overlay Offset		24
25	LDA	IZ	#	= Record No. this Posting		25
26	ANØ					26
27	JUMP		1250	HALT (Outside File Limits)		27
30	ADB	Z	0203	→ Max. Record No.		30
31	CMPA	IZ	B			31
32	NOOP					32
33	SKNGT					33
34	JUMP		1250	HALT (Outside File Limits)		34
35	ADB	Z	0203	→ Base Sector No.		35
36	LDB	IZ	B	= Base Sector No.		36
37	DECB					37
40	ADB	IZ	0171	+ Record No. (last in Q, if any)		40
41	STB	Z	0145	Absolute Sector No. for transfer		41
42	STA	IZ	0171	Set last record no. in Q.		42
43	INSZ	Z	0156	Return Address		43
44	LDB	IZ	0170	= 1st record in Q		44
45	B=Ø					45
46	JUMP		0252	Queue is not empty		46
47	INSZ	Z	0030	Spooling Activity Counter (Q in use)		47
50	STA	IZ	0170	Set 1st Record No.		50
51	JUMP		0263	Return.		51
52	STA	Z	0146	Save end of Q record no.		52
53	LDA	Z	0067	→ Spool Buffer this task		53
54	STA	Z	0144	Core Address for transfer		54
55	JSBR	IZ	1623	LOADQ Read old End of Queue Header		55
56	JSBR	IZ	172V	LDA }		56
57	P_1=3576-			} End-of-Queue Header record no.		57
60	IORA	Z	0146	= " } into old-end-of-queue header.		60
61	STA	IZ	B	}		61
62	JSBR	IZ	1673	WRITE		62
63	LDA	Z	0040	= Task No.		63
64	STA	IZ	0067	into 1st word of Spool Buffer		64
65	JUMP	IZ	0156	Return.		65
66	*ENTRY			SPOOL	←BA→	66
67	LDA		0266			67
70	JSBR		0145	Obtain a queue		70
71	JUMP	Z	1371	HALT – No print queue assigned for spooling		71
72	JSBR	IZ	0373	Save reprint indicator		72
73	NOOP					73
74	CLB					74
75	STB	Z	0142	Option, File ID + from "SpoolPut"		75
76	STA	Z	0156	Return Address		76
77	JUMP		0011			77

Programmer:-

OS - SKIP & UNSPOOL if Q not empty.

Page:- 12 Col:- 03

Step	Instruction		Address	Comment	Octal	Step
00	*ENTRY			SKIP&UNSPOOL if Q Not EMPTY	←BA→	00
01	LDB	Z	0074	→I/O Control Area		01
02	ADB	Z	0223			02
03	LDB	IZ	B	=Print Q No.		03
04	BNØ					04
05	JUMP	I	0300	Return - Q Ø is always empty.		05
06	STB	Z	0170	Save Q No.		06
07	LSB			×2		07
10	ADB	Z	0022	+Print Q Table Origin		10
11	LDM	IZ	B	=Record No, 1st location in Q		11
12	ANØ					12
13	JUMP	I	0300	Return - Q is empty.		13
14	STA	Z	0153	=Record No. to be unspooled.		14
15	STB	Z	0151	→1st Record No. in Print Q Table, this Q.		15
16	INCB					16
17	STB	Z	0152	→last " " " " " " "		17
20	LDB	Z	0170	=Q No.		20
21	CMPB	Z	0057	Mask Q. No		21
22	JSBR		0350	Check that deletions are allowed to run.		22
23	CMPA	IZ	0152	1st record = last record in Q ?		23
24	JSBR		0341	Yes - Indicate Q is now empty.		24
25	LDA		0300	)		25
26	INCA			} Save return address.		26
27	STA	Z	0155	)		27
30	INSZ	Z	0030	Spooling Activity Counter (Printer Working)		30
31	JSBR	IZ	1646	UNSPOOL Header Record		31
32	A=Ø/0153			→Record No.		32
33	JSBR	IL	1721	LDA Record No, next header in Q		33
34	X=3576-					34
35	ANDA	-2	0772	07.7777 (remove reprint controls)		35
36	A=Ø					36
37	STA	IZ	0151	Advance Q onto next header.		37
40	JUMP	IZ	0155	Return (to JSBR+2)		40
41	*ENTRY			INDICATE Q EMPTY	←SA→	41
42	CLA					42
43	STA	IZ	0151	Clear 1st Record No. this Q		43
44	DSZ	Z	0030	Spooling Activity Counter (Q empty)		44
45	NOOP					45
46	JUMP	I	0341	Return.		46
47						47
50	*ENTRY			Check that Deletions are allowed to run	←ZA→	50
51	DECB					51
52	STB	Z	0177	Counter		52
53	CLA					53
54	LDB	Z	0022	Print Q Table Origin		54
55	ADB	Z	0202	CF2		55
56	IORA	IZ	B	1st record no., then queue. } Scan all		56
57	DSZ	Z	0177	Counter } print Q's		57
60	JUMP		0355	Onto next queue. } except mask.		60
61	A=Ø/CLA			All Q's except deletions empty?		61
62	JUMP		0365	No - stop deletions.		62
63	LDA	Z	0153	Restore Record No in H		63
64	JUMP	I	0350	Continue with deletions.		64
65	LDB	Z	0074	→I/O Control Area +STOP DELETIONS.		65
66	ADB	Z	0214			66
67	STA	IZ	B	Clear Printer Control Word (Force printer to Q Ø)		67
70	JSBR	IZ	1653	FLASH "DELETIONS STOPPED"		70
71	A=7777+					71
72	JUMP	IZ	1404	to Printer Control Area		72
73	*ENTRY			Save reprint indicator	←BA→	73
74	BPOS/CLB					74
75	COMBB					75
76	STB		0154	Reprint Indicator		76
77	JUMP	I	0373	Return.		77

Programmer:-

BUSINESS COMPUTERS LTD. **MOLECULAR 18**

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Date:-

OS - [illegible] Track No 1

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Step	Instruction		Address	Comment	Octal	Step
00	*ENTRY			OBTAIN DEVICE CODE	← BA →	00
01	LDA	Z	0145	Drive, Sector No.		01
02	ANDA		1773	037777 } Remove any previous		02
03	STA	Z	0145	drive identification		03
04	LDA	Z	0143	R/W, N, Drive No.		04
05	ANDA	Z	1752	Bottom Byte		05
06	LDA	Z	#A	#Required Drive No.		06
07	SKIP			JSBR I 1766 Skip if OS Not Busy		07
10	JUMP		0445			10
11	LDA	Z	0204	CF4 *SEARCH DISC LIST		11
12	STA	Z	0177	Device Counter		12
13	LDA	Z	0270	1st device code		13
14	STA	Z	1717	Device Code		14
15	ADA	Z	0053	Disc list Origin		15
16	STA	Z	0176	→ Device Data		16
17	ADA	Z	0204	CF4		17
20	STA		0566	→ Current Entry		20
21	LDA	I2	0176	= Device Data *Next Device		21
22	ANØ					22
23	JUMP		0440	Bypass - this controller not installed.		23
24	SWAPA					24
25	ANDA	Z	1752	Bottom Byte (leaves no. of discs)		25
26	STA	Z	0174	Disc Counter, this device		26
27	LDA		0567	→ Drive Identifier Table		27
30	STA	Z	0172	→ Drive Identifier		30
31	CMPB	I	0566	Disc Number *Next Disc		31
32	JUMP		0514	Disc Found.		32
33	INSZ		0566	} → Current Entry.		33
34	INSZ		0566	}		34
35	INSZ	Z	0173	→ Drive Identifier		35
36	DESZ	Z	0174	Disc Counter		36
37	JUMP		0431	Others on disc		37
40	INSZ	Z	0176	→ Device Data		40
41	INSZ	Z	1717	Device Code		41
42	DESZ	Z	0177	Device Counter		42
43	JUMP		0421			43
44	JSBR		1630	Flash "Reads Disc" *Disc Not On Line		44
45	LDA	Z	0267	000067 "Unallocated" Results-device-code		45
46	STA	Z	1717	Device Code = 67		46
47	JUMP	I	0400	Return.		47
50	*ENTRY			Direct F.D. Access pre-amble	← BA →	50
51	LDA	I2	0160			51
52	STA	Z	0143	= RW, N Sectors, Disc No.		52
53	SWAPA					53
54	ANDA	I2	0375	000177		54
55	STA	Z	0161	= No. of sectors per transfer		55
56	JSBR		0750	Buffer processing		56
57	LDA	I2	0150	= Record No.		57
60	CMPA	I2	0160	Minimum		60
61	JUMP		0464			61
62	SKGT					62
63	JUMP		1250	Key Error (Record No. Too Small)		63
64	INSZ	Z	0160			64
65	CMPA	I2	0160	Maximum		65
66	NOOP					66
67	SKNGT					67
70	JUMP		1250	Key Error (Record No. Too Large)		70
71	DECA					71
72	INSZ	Z	0160			72
73	LDB	I2	0160			73
74	STB	Z	0152	= Record Length (words)		74
75	INSZ	Z	0160			75
76	JUMP	I	0450	Return.		76
77						77

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BUSINESS COMPUTERS LTD. **MOLECULAR 18**

Sheet:-

Date:-

OS -

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Step	Instruction		Address	Comment	Octal	Step
00	ENTRY			PROTECTION CHECK	← BA →	00
01	LDA	Z	1717	Device Code		01
02	CMPA	Z	0267			02
03	JUMP	I	0500	Return - disc not-ready		03
04	LDA	Z	0142	Options		04
05	ANDA	Z	0323	Bit 9		05
06	A=Ø					06
07	JUMP	I	0500	Return - OK		07
10	JSBR		0540	Define Calling Addr. *PROTECTION VIOLATION.		10
11	JUMP	Z	1367	Halt		11
12						12
13						13
14	LDA	Z	0145	*DISC FOUND		14
15	STA	Z	0177	Save Sector No		15
16	IORA	IZ	0172			16
17	STA	Z	0145			17
20	ISZ		0566	→ Retain limit.		20
21	LDA	I	0566			21
22	LSA					22
23	LSA/AMSB			Security Disc?		23
24	JUMP	I	0400	Yes - return.		24
25	LDA	Z	1666	Security Flag		25
26	A=Ø			Security In Progress?		26
27	JUMP		0557	Yes.		27
30	LDA	Z	0143	No.		30
31	AMSB			Protected File?		31
32	JUMP	I	0400	Yes - return.		32
33	LDA	Z	0142			33
34	IORA	Z	0323	Bit 9 } Set Write Permit Flag.		34
35	STA	Z	0142	}		35
36	JUMP	I	0400	Return.		36
37						37
40	ENTRY			Define Calling Addr. (from 0510, 1250, 1643)	← BA →	40
41	LDA	Z	0142	Options, Id. Regs		41
42	ANDA		0776	Bits 15 e 12		42
43	ANØ					43
44	JUMP		1252	1st Local call		44
45	CMPA	Z	0355	Bit 15		45
46	JUMP		1254	2nd Local call		46
47	NOOP					47
50	LDA	Z	0141	} Task No.		50
51	ANDA	Z	1752	}		51
52	ADA	Z	0047	+ Task Control Table origin		52
53	LDA	IZ	A	→ TCA		53
54	ADA	Z	0202	CF2		54
55	LDA	IZ	A	= Return address of 'GET'		55
56	JUMP	I	0540	Return.		56
57	LDA	Z	0177	Sector No. (from 0527)		57
60	CMPA	Z	0240	Label Sector?		60
61	JUMP		0530	Yes - proceed		61
62	LDA	Z	0142			62
63	ANDA		0565	Remove bit 9 } Cancel Write Permit Flag.		63
64	JUMP		0535	}		64
65				MASK	377377	65
66				Disc Unit Part.	—	66
67				→ Drive Identific. Table 12|05To		67
70					000000	70
71					200000	71
72					040000	72
73				Drive Identific. Table }	240000	73
74					100000	74
75					300000	75
76					140000	76
77					340000	77

Programmer:-

OS-OVERLAY FILE ACCESS

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Step	Instruction		Address	Comment	Octal	Step
00	LDA	Z	0156	? Return Address of calling "FETCH"		00
01	STA	Z	0155	}		01
02	LDA	Z	0142	} Options Id. of calling "FETCH"		02
03	IORA	Z	0355	bit 8 = 1 = load.		03
04	STA	Z	0147	}		04
05	LDA	IZ	0150	= Program No.		05
06	STA	Z	0153	(from 0723)		06
07	JSBR	IZ	1670	FETCH Overlay Indexed Element		07
10	P2 = 3rd word "01"				040001	10
11	P2 = 0/0153			→ Program No		11
12	P3 = 0/0143			→ Extract Buffer		12
13	LDA	Z	0143			13
14	ANDA	Z	1752	Bottom Byte		14
15	JUMP	Z	0651	Patch		15
16	BMSB			Test?		16
17	INSZ	Z	0155	(Skips on return)		17
20	LDA	Z	0143			20
21	ANDA	Z	1753	Top Byte		21
22	IORA	Z	0177	Disc No.		22
23	STA	Z	0143			23
24	LDA	Z	0147	? Restore Options, Id.		24
25	STA	Z	0142	{		25
26	LDB	Z	0143			26
27	ANDA		0774	Bits 9 e 10 ? Store?		27
30	CMPA		0774	Bits 9 e 10 }		30
31	CASB/COMPSB			Yes - indicate "Owite"		31
32	STB	Z	0143			32
33	NOOP					33
34	LDA	Z	0144	?		34
35	JSBR	Z	1630	} Header Core Address		35
36	STA	Z	0144	}		36
37	LDA	Z	0145	Relative Sector No. ?		37
40	INSZ	Z	0160	? Exclusive		40
41	INSZ	Z	0160	}		41
42	ADA	IZ	0160	Base Sector No.		42
43	DECA					43
44	STA	Z	0145	Sector No. }		44
45	JSBR	Z	1623	HOADR		45
46	JUMP		1200			46
47						47
50						50
51	LDB	Z	0147	Options Patch from 0615		51
52	CMPA	Z	0202	File "02" ?		52
53	JUMP		0657	Yes - a Linus		53
54	BMSB			Test?		54
55	JUMP	IZ	0155	Yes - return		55
56	JUMP		1250	No - Halt (Key Error)		56
57	ADA	Z	0073	File Table entry		57
60	LDA	IZ	A	→ FCB		60
61	INCA					61
62	STA	Z	0160			62
63	LDA	IZ	0160	FCB word 1.		63
64	ANDA	Z	1752			64
65	STA	Z	0177	= Disc No.		65
66	JUMP		0616			66
67						67
70						70
71						71
72						72
73	X					73
74						74
75				13/0552 }		75
76	JUMP		0600	} *OVERLAY FILE		76
77				13/0553		77

Programmer:-

BUSINESS COMPUTERS LTD. **MOLECULAR 18**

Sheet:-

Date:-

OS - Program Access Rtn.

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Step	Instruction		Address	Comment	Octal	Step
00	LDA	Z	0156	PROGRAM ACCESS Rtn. ("from FETCH")		00
01	STA	Z	0155	Return Address of calling "FETCH"		01
02	LDA	Z	0142			02
03	IORM	..	0773	Bit 15&8 (2nd Level Program Call)		03
04	STA	Z	0147	Offset to, Id. of calling "FETCH"		04
05	LDA	I2	0160	= Directory File Identifier (+2 of Level)		05
06	STA		0712	P1		06
07	LDA	Z	0150	→ Key (Address of Program Name)		07
10	STA		0713	P2		10
11	JSBR	I2	1670	FETCH Directory Element		11
12	P1 = 0					12
13	P2 = 0					13
14	P3 = 0/0170			(4 word buffer)		14
15	JUMP	I2	0155	Return (to "FETCH"+2) - Name not found.		15
16	INSZ	Z	0155	→ "FETCH"+4 words		16
17	LDA	Z	0173			17
20	JSBR	Z	1630	Relative Offset		20
21	STA	Z	0154	→ Logical Entry Point		21
22	LDA	Z	0172	Overlay Number		22
23	JUMP		0606	Merge.		23
24	[illegible]			13/0540 Call Fetch Handler		24
25	JSBR		0450	D.A. Request to DIRECT ACCESS (Binary)		25
26	STB	Z	0176	= Record Key (B)		26
27	LDB	I2	0160	= loop counter		27
30	BNØ	..	[illegible]			30
31	JUMP		0746	Bypass (no record pos Sector)		31
32	STB	Z	0177	Counter		32
33	CLC/RSA			& next doubling		33
34	SKC					34
35	JUMP		0741	Bypass		35
36	LDB	Z	0151	}		36
37	ADB	Z	0176	} record pointer		37
40	STB	Z	0151	}		40
41	LDB	Z	0176	}		41
42	LSB			} double		42
43	STB	Z	0176	}		43
44	DESZ	Z	0177	Counter		44
45	JUMP		0733			45
46	STA.	Z	0172	= Result		46
47	JUMP		1122.	Merge		47
50	* ENTRY			BUFFER 20/12 047	← BA →	50
51	INSZ	Z	0160	→ Number not in FCB.		51
52	LDA	I2	0160	= Number in		52
53	INSZ	Z	0160			53
54	A=Ø			Skipped		54
55	JUMP		0762	Yes		55
56	LDA	Z	0072	→ Master Buffer		56
57	STA	Z	0144	Core Address		57
60	STA	Z	0151	Record Address provisional		60
61	JUMP	I	0750	Return.		61
62	STA	Z	0144	→ Buffer Control		62
63	INCH					63
64	LDA	I2	4	→ Buffer		64
65	STA	Z	0151	Record Address.		65
66	LDA	Z	0142	}		66
67	IORA		0775	Bit 15&12 } Skipped, Buffer.		67
70	STA	Z	0142	}		70
71	JUMP	I	0750	Return.		71
72				MASK	077777	72
73				Bits 8 15 MASK	040200	73
74				Bits 9 to 10 MASK	001400	74
75				MASK	210000	75
76				Bit 15 & 12 MASK	044000	76
77	[illegible]			13/0553		77

Programmer:-

BCL/MI8/PSI

OS - Pgm Directory Header

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Step	Instruction		Address	Comment	Octal	Step
00	LDA	I2	0160	PROGRAM DIRECTORY ACCESS		00
01	STA	Z	0143	R/W, N, Dir No.		01
02	JSBR		0750	Process Buffer Data		02
03	LDA	I2	0160	= No. of Transfers		03
04	STA	Z	0146	Transfer Counter		04
05	INS2	Z	0160			05
06	LDA	I2	0160	= Start Sector No.		06
07	STA	Z	0145			07
10	LDA	Z	0201	CF4		10
11	STA	Z	0152	= Logical Record Length		11
12	JSBR	I2	1623	LOAD Load Directory ↓NEXT TRANSFER		12
13	LDA	Z	0143	R/W, N, Dir No.		13
14	SWAPA					14
15	ANDA	Z	0375	000177		15
16	STA	Z	0177	No. of Sectors transferred		16
17	STA	Z	0170			17
20	JUMP		1074	Patch.		20
21	CLA					21
22	ADA	Z	0240	CF32 (No. of records per sector)		22
23	DES2	Z	0177	Sector Count		23
24	JUMP		1022			24
25	STA	Z	0177	= Record Count (for transfer)		25
26	LDA	Z	0150	→ Key (1st word)		26
27	INCA					27
30	STA	Z	0176	→ Key (2nd word)		30
31	LDA	I2	0150	= 1st word of key		31
32	LDB	Z	0151	→ Current Record		32
33	CMPA	I2	0151	↓ Next record		33
34	JUMP		1045	Test 1st word		34
35	ADB	Z	0152	+ Record Length		35
36	STB	Z	0151			36
37	DES2	Z	0177	Record Counter		37
40	JUMP		1023	Onto next record.		40
41	DES2	Z	0146	Transfer Counter		41
42	JUMP		1066	Onto next transfer		42
43	JSBR		1055	↓ Not found.		43
44	JUMP	I2	0156	Return to "FETCH" 4-4		44
45	INCB			→ 2nd word of record ↓ Test 2nd word.		45
46	LDB	I2	B	= 2nd word of record		46
47	CMPB	I2	0176	2nd word of key		47
50	JUMP		1053	Record found.		50
51	LDB	Z	0151			51
52	JUMP		1035	Continue search		52
53	JSBR		1055	↓ Record found		53
54	JUMP		1147	Merge.		54
55	↓ENTRY			Set up to extract address	← LBA →	55
56	LDA	I2	0156	= P3 (extract buffer pointer)		56
57	JSBR	Z	1630	Receive Object		57
60	STA	Z	0146	→ Extract Buffer		60
61	INS2	Z	0156	→ "FETCH" + 4 words		61
62	LDA	Z	0142			62
63	IORA	Z	0352	Edit { Set "Complete" record		63
64	STA	Z	0142			64
65	JUMP	I	1055			65
66	LDA	Z	0145	(from 1042)		66
67	ADA	Z	0170	No. of Sectors transferred } Add to start sector		67
70	STA	Z	0145			70
71	LDA	Z	0175			71
72	STA	Z	0151	Point → Current record		72
73	JUMP		1012	Onto next transfer		73
74	LDA	Z	0151	(from 1020)		74
75	STA	Z	0175	Save address → Current record		75
76	JUMP		1021			76
77						77

Programmer:-

OS - FETCH/STOW

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Step	Instruction		Address	Comment	Octal	Step
00	*ENTRY			FETCH/STOW	← BA →	00
01	LDA		1100		2111 00	01
02	STA	Z	0156	→P1	35 2156	02
03	LDA	IZ	0156	=P1	21 6156	03
04	STA	Z	0142	Options, Fib Identifier	35 0142	04
05	ANDA	Z	0277	000077 (leaves Fib Identifier)	15 0277	05
06	ADA	Z	0073	+Fib Table 0 reg.	05 0073	06
07	LDA	IZ	A	→ Fib Control Block	21 1000	07
10	STA	Z	0160	Fib Control Pointer	35 0160	10
11	INSZ	Z	0156	→P2	27 0156	11
12	LDA	IZ	0156	=P2	21 6156	12
13	JSBR	Z	1630	Resolve Offset	23 1630	13
14	STA	Z	0150	→ Record Key	35 0150	14
15	INSZ	Z	0156	→ "FETCH"+3 words	27 0156	15
16	LDA	IZ	0160	→ Fib Access Routine (=FCB word 0)	21 6160	16
17	INSZ	Z	0160	→ FCB+1 word	27 0160	17
20	JUMP	IZ	A	FILE ACCESS ROUTINE	61 1000	20
21						21
22	INSZ	Z	0160	*DIRECT FILE		22
23	LDA	IZ	0160	=Base Sector No. of File		23
24	ADA	Z	0172	Result of computation + from HASH-CI		24
25	DESZ	Z	0161	No. of Sectors per track		25
26	JUMP		1124			26
27	STA	Z	0145	Sector No.		27
30	LDA	IZ	0156	=P3 (Extract Buffer Pointer)	21 6156	30
31	JSBR	Z	1630	Resolve Offset (not essential?)	23 1630	31
32	STA	Z	0146	→ Extract Hdr	35 0146	32
33	JSBR	IZ	1623	20 ADQ	23 1623	33
34	INSZ	Z	0156	→ "FETCH"+4 words	27 0156	34
35	LDA	Z	0142	Options etc	21 0142	35
36	IORA	Z	0352	Bit 14	07 0352	36
37	STA	Z	0142	Set "Favorite" permit	35 0142	37
40	ANDA	Z	0356	Bit 16	15 0356	40
41	ANØ			TEST options?		41
42	JUMP		1150	No - leave		42
43	LDA	IZ	0150	=Record Number ± TEST		43
44	CMPA	IZ	0151	=1st word of record		44
45	SKIP			Records Matched		45
46	JUMP	IZ	0156	Return to "FETCH"+4 (Bypass Extraction)		46
47	INSZ	Z	0156	→"FETCH"+5 (skips) (from 1054)		47
50	LDA	Z	0146	→ Extract Buffer		50
51	ANØ			EXTRACT?		51
52	JUMP	IZ	0156	No - return.		52
53	JUMP		1164	Yes. *EXTRACT		53
54	STA		1160		35 1160	54
55	LDA	Z	0152	=logical record length	21 0152	55
56	STA		1162		35 1162	56
57	JSBR	IZ	1707	DUPLICATE (Extract from buffer)	23 1707	57
60	P1=0				—	60
61	P2=0				—	61
62	P3=0				—	62
63	JUMP	IZ	0156	Return from "FETCH"	61 0156	63
64	STA		1161	→ Record written (added from 1152)		64
65	LDA	Z	0151			65
66	JUMP		1154			66
67	—	Z	—	(13/0553 - 19		67
70	LDA	Z	0156	*INVALID FILE		70
71	JUMP	Z	1373	HALT - Fib Not Found		71
72						72
73						73
74						74
75						75
76						76
77						77

Programmer:-

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Date:-

OS - FETCH/STOW Continued.

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Step	Instruction		Address	Comment	Octal	Step
00	LDA	Z	0142	R/W N. Size *PROGRAM file		00
01	ANDA		1247	037400		01
02	RSA					02
03	STA	Z	0177	= Word Count		03
04	LDA	Z	0144	Core Address		04
05	STA	Z	0176			05
06	Noop					06
07	CLA					07
10	ADA	IZ	0176			10
11	INSZ	Z	0176	Core Address } Sum		11
12	DESZ	Z	0177	Counter		12
13	JUMP		1210			13
14	LDB	Z	0143	R/W N. Size		14
15	BPOS					15
16	STA	Z	0146	Insert new Hash Total (this is a W file call)		16
17	CMPA	Z	0146	Compare Hash Totals		17
20	JUMP		1223	O.K.		20
21	LDA	Z	0155	Return Addr.		21
22	JUMP	Z	1372	Halt - HASHFAIL.		22
23	LDA	Z	0142	Options		23
24	ANDA	Z	0316	Bit 8		24
25	A=Ø			Program File call?		25
26	JUMP		1232	Yes		26
27	JUMP		1240	No - bypass auto-resolve.		27
30						30
31						31
32	LDA	Z	0144	→ 1st word of overlay		32
33	STA		1235			33
34	JSBR	IZ	1627	RESOLVE OFFSET BLOCK.		34
35	P_1=/					35
36	LDB	Z	0154	→ logical Entry Point		36
37	SKIP					37
40	LDB	Z	0144	→ 1st word of overlay		40
41	LDA	Z	0142	Options		41
42	ANDA	Z	0341	Bit 11		42
43	ANØ			Link?		43
44	JUMP	IZ	0155	No - return.		44
45	JUMP	IZ	B	Yes.		45
46						46
47					037400	47
50	JSBR		0540	Define Calling Addr. *FETCH KEY ERROR		50
51	JUMP	Z	1376	Halt.		51
52	LDA	Z	0156	1st level return address (from 0544)		52
53	JUMP	I	0540	Return.		53
54	LDA	Z	0155	2nd level return address (from 0546)		54
55	JUMP	I	0540	Return		55
56						56
57						57
60						60
61	LDA	Z	0142	Flags from 1374		61
62	CMPA	Z	0341	Bit 11 Rebuild failed?		62
63	SKIP			Yes - forget this vector!		63
64	JSBR		1440	ENQUEUE (& return to unallocated P)		64
65	LDA		1363			65
66	JUMP		1357	Onto next vector		66
67	RENTRY			STOW CONTROL RECORD	← RA →	67
70	LDA		1267			70
71	STA	Z	0155			71
72	JSBR	IZ	1670	FETCH & LOCK Control Record		72
73	P_1= lock, 1st level, "10"			NB Shared Buffer	240410	73
74	P_2= 0/0201			Record No 1. } prevents "read"		74
75	P_3=0			No Extraction		75
76	JSBR	IZ	1671	REWRITE		76
77	JUMP	IZ	0155	Return.		77

Programmer:-

OS – DISC DEVICE ON-LINE

Page:- 12 Col:- 13

Step	Instruction		Address	Comment	Octal	Step
00	LDB	Z	0053	→ Disc list Origin * DISC ON-LINE		00
01	ADB	Z	1717	Device Code		01
02	LDA	IZ	B	= No. of devices, Offset to 1st entry.		02
03	SWAPA					03
04	ANDA	Z	1752	Bottom Byte.		04
05	STA	Z	0150	= Disc Count		05
06	LDA	IZ	B			06
07	ANDA	Z	1752	Bottom Byte (leaves offset to 1st entry)		07
10	ADA	Z	0053	Disc List Origin		10
11	STA	Z	0151	→ 1st entry in list, this device		11
12	CLA					12
13	STA	Z	0152	Drive No.		13
14	LDA		0567	→ Drive Identifier Table * NEXT LABEL		14
15	ADA	Z	0152	Drive No.		15
16	LDA	IZ	A	= Drive Identifier		16
17	JSBR		1400	Read label		17
20	NOOP					20
21	NOOP					21
22	LDB	Z	0144	→ 1st word of label		22
23	LDA	IZ	B	} Disc Number into Disc List		23
24	STA	IZ	0151	}		24
25	INCB					25
26	INSZ	Z	0151	List pointer		26
27	LDA	IZ	B	} Protection Limit into Disc List		27
30	STA	IZ	0151	}		30
31	INSZ	Z	0151	List pointer		31
32	INSZ	Z	0152	Drive No.		32
33	DESZ	Z	0150	Disc Counter		33
34	JUMP		1314	Onto next label		34
35	JSBR	IZ	1674	RE-SCHEDULE DISC Q		35
36	JUMP	IZ	1624	TEST SCHEDULER		36
37						37
40	*ENTRY			RE-SCHEDULE DISC QUEUE	← LA →	40
41	ADB	Z	1717	Device Code		41
42	BNØ					42
43	JUMP		1355	Bypass		43
44	ADB	Z	0052	+ Disc Control Table origin		44
45	STB	Z	0177	→ Control Word		45
46	LDA		1376	Ø/0107 → Unallocated Q Control word.		46
47	JSBR	I	1561	Search for End of Queue		47
50	ADB	IZ	0177	= Control word		50
51	CLSB			(not in use)		51
52	STB	IZ	A	Transfer Q to end of unallocated Q.		52
53	CLB	I				53
54	STB	IZ	0177	Empty Disc Queue		54
55	LDA	I	1376	→ 1st unallocated sector.		55
56	STB	I	1376	Empty unallocated queue		56
57	ANØ					57
60	JUMP	I	1340	Return.		60
61	STA		1363			61
62	JSBR	IZ	1707	Dequeue (Extract first from Queue)		62
63	P=/					63
64	P=Ø/0140					64
65	Disc Interrupt					65
66	ADA	Z	0054	}		66
67	STA	I	1363	} Add to Free chain		67
70	LDA		1363	}		70
71	STA	Z	0054	}		71
72	LDA	Z	0140			72
73	STA		1363			73
74	JUMP		1261	Patch Line		74
75						75
76				→ Control Word, Unallocated Q Ø/0107		76
77				→ Label Word in Table Ø/0024		77

Programmer:-

OS – READ DISC LABEL

Page:- 12 Col:- 14

Step	Instruction		Address	Comment	Octal	Step
00	*ENTRY			READ DISC LABEL	← BA →	00
01	IOBA	Z	0240	Label Sector No.		01
02	STA	Z	0145	Drive, Sector		02
03	CLA					03
04	STA	Z	0141	Track Ø		04
05	LDA	Z	0341	Ref 11		05
06	STA	Z	0142	Track into "Read Label" transfer		06
07	LDA		1400	} Return address		07
10	STA	Z	0157	}		10
11	LDA	Z	0323	Bit 9		11
12	STA	Z	0143	"Read 1 sector"		12
13	LDA	Z	1717	Device Code		13
14	ADA		1377	Scaled Buffer Table origin		14
15	LDA	I2	#	→ Label Buffer		15
16	STA	Z	0144	→ Buffer		16
17	LDA	Z	1717	Device Code		17
20	ADA	Z	0052	Disc Control Table origin		20
21	JSBR	=	1561	Search for end of Queue		21
22	JSBR		1460	Transfer Vector to end of queue.		22
23	JUMP	I2	1624	TO TASK SCHEDULER		23
24						24
25						25
26						26
27						27
30						30
31						31
32						32
33						33
34						34
35						35
36						36
37						37
40	*ENTRY			ENQUEUE	← BA →	40
41	JSBR		0400	Obtain Device Code		41
42	LDA	Z	0143	R/W, etc.		42
43	APOS					43
44	JSBR		0500	Protection check (Write requested)		44
45	LDA	Z	0052	Disc Control Table Origin *Add to End of Queue.		45
46	ADA	Z	1717	Device Code		46
47	JSBR	=	1561	Search for end of queue.		47
50	JSBR		1460	Transfer Vector to Queue		50
51	JUMP	I	1440	Return.		51
52	STA		1474	Save (from 1465)		52
53	LDA	=	1475	Length of Used Q element		53
54	JSBR	I2	1704	Get Chain		54
55	STA	I	1474			55
56	STA	=	1474			56
57	JUMP		1472			57
60	*ENTRY			TRANSFER VECTOR TO DISC QUEUE	← BA →	60
61	LDB	I2	#			61
62	STB	Z	0140	→ next element in chain		62
63	LDB	Z	0054	→ I2 free queue element		63
64	BNØ					64
65	JUMP	=	1452	Obtain next Q element.		65
66	STB		1474			66
67	STB	I2	#	Link this vector into queue		67
70	LDB	I2	0054	} Update free chain		70
71	STB	Z	0054	}		71
72	JSBR	I2	1707	Deallocate (Vector to Queue)		72
73	P1= Q/440					73
74	P2= /					74
75	P3= 16 words					75
76	JUMP	I	1460	Return		76
77						77

Programmer:-

BUSINESS COMPUTERS LTD. **MOLECULAR 18**

Sheet:-

Date:-

OS WRITE to DISC

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Step	Instruction		Address	Comment	Octal	Step
00	*ENTRY			OVERWRITE	← BA →	00
01	LDB		1500			01
02	INCB			= return address		02
03	LDA	I	1500	= P_1		03
04	JSBR	Z	1620	Resolve Offset		04
05	JUMP		1511	Merge.		05
06	*ENTRY			REWRITE	← BA →	06
07	LDB		1506	= return address		07
10	LDA	Z	0146	→ Extract Area.		10
11	STB	Z	0156	Return Address ↓ Merge.		11
12	LDB	Z	A	= Extract of Overwrite Area		12
13	LDA	Z	0142	Options		13
14	ANDA		1577	Bits 17&14		14
15	CMPA		1577			15
16	JUMP		1573	O.K.		16
17	LDA	Z	0156	Return Address		17
20	JUMP	Z	1375	Halt – out of context		20
21	BNØ			Register reentrin buffer?		21
22	JUMP		1534	No – bypass		22
23	STB		1531	P_1		23
24	LDA	Z	0151	→ Record in Buffer		24
25	STA		1532	P_2		25
26	LDA	Z	0152	Logical Record length		26
27	STA		1533	P_3		27
30	JSBR	I2	1707	Duplicate Record → Buffer		30
31	P_1 = /					31
32	P_2 = /					32
33	P_3 = /					33
34	JSBR	I2	1673	WRITE		34
35	JUMP	I2	0156	Return.		35
36	*ENTRY			WRITE	← BA →	36
37	LDA		1536			37
40	STA	Z	0157	Return address		40
41	LDA	Z	0143	Mic; Head #, Disc No.)		41
42	CLSA/COMPSA			} Technical Words		42
43	STA	Z	0143			43
44	LDA	Z	1717	Device Code		44
45	APOS					45
46	JSBR		0400	Obtain Device Code		46
47	JSBR		0500	Protection Check.		47
50	LDA	Z	0052	Disc Conf Table origin		50
51	ADA	Z	1717	Device Code		51
52	LDB	I2	A			52
53	BNEG			Controller Failure?		53
54	JUMP		1557	No		54
55	CLSB			Yes – Sleep 12 element in Q		55
56	LDA	Z	B			56
57	JSBR		1460	Transfer Vector to Head of Q		57
60	JUMP	I2	1624	TASIT SCHEDULER		60
61	*ENTRY			SEARCH for END of QUEUE	← BA →	61
62	LDB	I2	#	= Pointer to next element in chain		62
63	CLSB			(ignore "In Use" indicator)		63
64	BNØ					64
65	JUMP	I	1561	Return (# → end of QUEUE)		65
66	LDA	Z	B	Reference to next element		66
67	JUMP		1562	Onto next.		67
70	*ENTRY			Write (record key Disc Security Bits)	← BA →	70
71	LDA		1570			71
72	JUMP		1540	Clear.		72
73	XORA	Z	0142	Remove bits 17&14 (from 1516)		73
74	STA	Z	0142	}		74
75	JUMP		1521			75
76				MASK	157777	76
77				bits 17&14	220000	77

Programmer:-

BCL/MI8/PSI

OS-LOHD DISC QUEUE

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Step	Instruction		Address	Comment	Octal	Step
00	*ENTRY			TRANSFER	2 ← BA →	00
01	LDA	I	11600	→ Parameter Block		01
02	JSBR	Z	1630	Resolve OSAP		02
03	LDB	Z	A			03
04	LDA		1600	}		04
05	INCA			} return address		05
06	STA	Z	0156	}		06
07	LDA	IZ	B	} options		07
10	STA	Z	0142	}		10
11	INCB					11
12	LDA	IZ	B	} R/W, Sector, Disc No.		12
13	STA	Z	0143	}		13
14	INCB					14
15	LDA	IZ	B			15
16	JSBR	Z	1630	Resolve OSAP } → Buffer		16
17	STA	Z	0144	}		17
20	INCB					20
21	LDA	IZ	B			21
22	STA	Z	0145	Sector No.		22
23	JSBR	IZ	1623	LOADQ		23
24	JUMP	IZ	0156	Return.		24
25						25
26						26
27						27
30	*ENTRY			TASK WAITS FOR DISC	← BA →	30
31	NOOP					31
32	NOOP					32
33	LDA	Z	0141	Task No.		33
34	ANDA	Z	1752			34
35	JSBR	IZ	1612	Octal → BSTJ		35
36	R=3|1752					36
37	LDA	Z	0143	R/W, N, Disc No.		37
40	ANDA	Z	1752	Position Byte (Sector No.)		40
41	JSBR	IZ	1612	Octal → BSTJ		41
42	R=3|1764					42
43	JSBR		0540	Device Call, Hold Regs.		43
44	JSBR	IZ	1605	Put Regs → HSCLI		44
45	R=3|1771					45
46	JSBR	IZ	1653	FINISH "TASK WAITS DISC"		46
47	R=3|1747					47
50	JUMP	I	1630	Return.		50
51	*ENTRY			LOADQ	← BA →	51
52	LDA	Z	0040	} Issuing task No.		52
53	STA	Z	0141	}		53
54	LDA	Z	0142	Options.		54
55	ANDA	Z	0347	Bit 3		55
56	ANP			Shared Buffer?		56
57	JUMP		1666	No - continue		57
60	LDA	Z	0143	R/W, etc.		60
61	APOS			Read?		61
62	JUMP		1666	No - continue		62
63	LDA	IZ	0144	= Sector currently in buffer.		63
64	CMPA	Z	0145	= Sector required.		64
65	JUMP		1672			65
66	LDA		1651	} Return address		66
67	STA	Z	0157	}		67
70	JSBR		1440	Enqueue		70
71	JUMP	IZ	1624	WAIT.		71
72	CLA/COMPA					72
73	STA	Z	1717	Indicate no device code.		73
74	JUMP	I	1651	Return - jump thro guesses		74
75						75
76						76
77				SP ANL		77

Programmer:-

OS - CHECK DISCS.

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Step	Instruction		Address	Comment	Octal	Step
00	*ENTRY			CHECK DISCS	← BA →	00
01	LDA	Z	0204	= Max. No. of Controllers		01
02	STA		1777	Counter		02
03	LDA	Z	0270	000070		03
04	STA	Z	1717	1st Device Code		04
05	ADA	Z	0052	+ Control Table Origin		05
06	STA		1776	Table Pointer		06
07	LDA	I	1776	= Control Word *Has disc		07
10	APOS					10
11	JUMP		1770	" "		11
12	ANØ					12
13	JUMP		1760	Queue Empty - Monitor for "Device On line"		13
14	JSBR	I	1774	START DISC		14
15	INSZ	Z	1717	Device Code *NEXT DISC		15
16	INSZ		1776	Table pointer		16
17	DESZ		1777	Counter		17
20	JUMP		1707	Check this disc		20
21	JUMP	I	1700	Return.		21
22	JSBR	I	1775	TEST DISC *TEST for Completion		22
23	JUMP		1715	Still Busy		23
24	LDA	I	1776	= Control Word		24
25	CLSA					25
26	STA		1730	[JSBR I 1767] Completion Test.		26
27	JSBR	I2	1707	Dequeue (Extract Address Vector from Q)		27
30	P_1 = /					30
31	P_2 = 0/0140					31
32	P_3 = 16 words					32
33	LDA	Z	0142	Options, Id.		33
34	ANDA	Z	0347	Bit 13		34
35	ANØ			Shared Buffer ?	Shared Buffer Patching	35
36	JUMP		1742	No - bypass		36
37	LDA	Z	0145	Drive, Sector Number		37
40	ANDA		1773	037777 (Leaves Sector Number)		40
41	STA	I2	0144	Sector No. into Buffer Control Block		41
42	LDA	Z	0141	Issuing Task No.		42
43	JSBR	I2	1620	Establish Task.		43
44	LDA	Z	0054	→ 1st Free Queue Element	Update Q chains	44
45	STA	I	1730			45
46	LDA		1730	.		46
47	STA	Z	0054	Add to Free Element chain		47
50	LDA	Z	0140	→ Next Element in Q		50
51	STA	I	1776	Advance Control Word to next element		51
52	AND					52
53	JUMP	I2	0157	Return from LOAD Q or REWRITE		53
54	LDB	Z	0142	Options, Id.		54
55	SNEG			Record lock ?		55
56	JSBR	I	1774	START DISC (record not locked)		56
57	JUMP	I2	0157	Return from LOAD Q or REWRITE		57
60	JSBR	I	1775	TEST DISC *Monitor for "On line"		60
61	JUMP		1715	Onto next disc		61
62	JUMP		1300	Device On line - not Reliable.		62
63						63
64						64
65						65
66	ON-LINE-SECURITY	Interrupts		→ Skip if DLS Not Busy 3/0400		66
67				→ Completion Test 3/0500		67
70	CMPA	Z	0376	QF-1		70
71	JUMP		1715	Not initialised - bypass		71
72	JUMP		1722	Failure - wait for Completion		72
73				Mask	037777	73
74				→ START DISC 2/1132		74
75				→ TEST DISC 2/1212		75
76				Table Pointer	-	76
77				Counter	-	77

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