

Column available for Installation Use after Initiation

Date:-

OS - DUMMY DRI SERVICE

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Step	Instruction	Address	Comment	Octal	Step
00	↓ ENTRY		Output *BASE*	← BA →	00
01	DATIA/START			015400	01
02	JSBR	0020	Wait for DONE flag		02
03	DATIA/STOP			016200	03
04	ANZ		[INCA 1A/56]		04
05	JUMP	I 0000	Return		05
06	→ NOOP		*STATUS		06
07	STA	0013	Status		07
10	CLA				10
11	STA	0014	Indicate Completion		11
12	JUMP	0066			12
13			Live Feed Count / Status	-	13
14			→ Buffer Word 1	-	14
15			Count	-	15
16	↓ ENTRY		SERVICE INTERRUPT	← BA →	16
17	JUMP	I 0020	Resume Channel Program		17
20	↓ ENTRY		WAIT 0/0021	← BA →	20
21	JUMP	I 0016	Dequeue Interrupt		21
22	INT OFF		*START CHANNEL PROGRAM	002005	22
23	DATIA/STOP			016200	23
24	A=0		[AASC]		24
25	JUMP	0006	Status - abort		25
26	→ LDB	I 0014	= word 1		26
27	BPOS				27
30	LDA	Z 0213	"NUL VT"		30
31	→ BNP				31
32	LDA	Z 0214	"NUL FF"		32
33	→ A=0				33
34	JUMP	0044			34
35	→ STB	0013	Live Feed Count		35
36	JUMP	0041			36
37	LDA	Z 0212	"NUL LF"		37
40	JSBR	0000	Output character (Live Feed)		40
41	DESZ	0012	Live feed count		41
42	JUMP	0037	Out next live feed		42
43	→ SHIP				43
44	JSBR	0000	Output character (Vertical Tab & Form Feed)		44
45	INSZ	0015	Count (character)		45
46	LDA	0014			46
47	ADA	0014	x2		47
50	ADA	Z 0303	CFB		50
51	STA	0014	Status x2		51
52	JUMP	0061			52
53	LDB	0014	Status x2	↓ Next character	53
54	INSZ	0014			54
55	JSBR	I 1417	Read Block into Buffer		55
56	CMPA	Z 0260	"NUL B"		56
57	ADA	Z 0227	"NUL 0"		57
60	→ JSBR	0000	Output character		60
61	DESZ	0015	Count		61
62	JUMP	0053	Out next character!		62
63	→ LDA	Z 0215	"NUL CR"		63
64	JSBR	0000	Output character (Carriage Return)		64
65	JUMP	0010	Complete		65
66	JSBR	0020	Wait		66
67	STOP			012000	67
70	JUMP	0066			70
71					71
72					72
73					73
74					74
75					75
76					76
77					77

Programmer:-

OS - DUMMY CDC 400 SERVICE

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Step	Instruction	Address	Comment	Octal	Step
00	*ENTRY		Output *BASE*	← BA →	00
01	DAT12B/STOP			012200	01
02	B=0				02
03	JUMP	0012	Status - abort		03
04	→ DAT02H		(Data Channel Mode)	014500	04
05	DAT01A/START			015400	05
06	JSBR	0024	Wait for DONE flag		06
07	DAT12B/STOP			012200	07
10	-BND				10
11	JUMP	I 0000	Reset		11
12	→ NOOP		↓STATUS		12
13	STB	0017	Status		13
14	CYA				14
15	STA	0020	Indicate Completion		15
16	JSBR	0024	WAIT		16
17			Status	-	17
20			→ buffer word 1	-	20
21			Count	-	21
22	*ENTRY		SERVICE INTERRUPT	← BA →	22
23	JUMP	I 0024	Resume Channel Program		23
24	*ENTRY		WAIT 0/0021	← BA →	24
25	JUMP	I 0022	Dismiss Interrupt		25
26	LDB	0020	→ Buffer Word 1	*START CHANNEL PROGRAM	26
27	ADB	0060	CF67		27
30	LDA	I2 B	Insert CR at end of line		30
31	ANDH	Z 1753	Top byte		31
32	JORH	Z 0215	"MIX CR"		32
33	STH	I2 B			33
34	LDB	I 0020	=Word 1		34
35	LDA	0061	→ 000415 (Line Feed buffer)		35
36	BPOS				36
37	-INCA..		→ 021015. (Wait and take buffer)		37
40	→ BND				40
41	ADH	Z 0202	→ 020015 (Formfeed buffer)		41
42	→ STB	0021	Count (line feeds)		42
43	INT OFF			000005	43
44	CHPA	0061	→ 000415		44
45	JUMP	0055			45
46	→ JSBR	0000	Output buffer (Vertical tab at Formfeed)		46
47	LDA	0020	→ Word 1		47
50	INCH		→ data		50
51	JSBR	0000	Output buffer: (data line)		51
52	JUMP	0014	Complete		52
53	LDA	0061	→ 000415	→ Next line feed	53
54	JSBR	0000	Output buffer: (line feed)		54
55	DESZ	0021	Count		55
56	JUMP	0053	Orbit next line feed		56
57	→ JUMP	0047	Output data line		57
60			CF 67	000103	60
61			→ 000415 (Line Feed buffer)	3/1575	61
62					62
63					63
64					64
65					65
66					66
67					67
70					70
71					71
72					72
73					73
74					74
75					75
76					76
77					77

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OS - Dummy BCL Printer Service

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Step	Instruction	Address	Comment	Octal	Step
00	* ENTRY		Output	← BA →	00
01	DATIA/START			015400	01
02	JSBR	0022	Wait for Data Store		02
03	DATIA/STOP			016200	03
04	AND				04
05	JUMP	I 0000	Return		05
06	NOOP			↓ STATUS	06
07	STA	0015	Status		07
10	CYA				10
11	STA	0016	Indicate Completion		11
12	JSBR	0022	WAIT		12
13			Program = 66 lines	000102	13
14			lines feeds to next page	000102	14
15			↓ Count of Status	-	15
16			→ Buffer Word 1	-	16
17			Count	-	17
20	* ENTRY		SERVICE INTERRUPT	← BA →	20
21	JUMP	I 0022	Resume Channel Program		21
22	* ENTRY		WAIT	0/0021 ← BA →	22
23	JUMP	I 0020	Divides Interrupt		23
24	.INT OFF		↓ START CHANNEL PROGRAM	000005	24
25	DATIA/STOP			016200	25
26	A=0				26
27	JUMP	0006	Status - abort		27
30	→ LDB	I 0016	= Word 1		30
31	BPOS				31
32	LDB	Z 0202	(Paper Vertical Tab by 2 line feeds)		32
33	→ BNA				33
34	LDB	0014	(Paper Form Feed by No. of line feeds to next page)		34
35	→ STB	0015	line feed count		35
36	SKIP				36
37	JSBR	0064	line feed		37
40	→ DESZ	0015	line feed count		40
41	JUMP	0037	up next line feed		41
42	→ INSZ	0017	Count (Character)		42
43	LDA	0016			43
44	ADA	0016			44
45	ADA	Z 0203	CF3		45
46	STA	0016	Source x2		46
47	JUMP	0056			47
50	LDB	0016	Source x2	* NEXT CHARACTER	50
51	INSZ	0016			51
52	JSBR	IL 1417	Load Alternate Byte		52
53	CHPA	Z 0260	"NIL 0"		53
54	ADA	Z 0237	"NIL 0"		54
55	→ JSBR	0000	Output Character		55
56	DESZ	0017	Count		56
57	JUMP	0050	Next next character		57
60	→ JSBR	0064	line feed		60
61	LDA	Z 0215	"NIL CR"		61
62	JSBR	0000	Output Character (Correct Return)		62
63	JUMP	0010	Complete		63
64	* ENTRY		LINE FEED	← BA →	64
65	LDA	Z 0212	"NIL LF"		65
66	JSBR	0000	Output Character (line feed)		66
67	DESZ	0014	line feeds to next page		67
70	JUMP	I 0064	Return	← BA →	70
71	→ LDA	0013	Print Sign		71
72	STA	0014	Print		72
73	JUMP	I 0064	Return		73
74					74
75					75
76					76
77					77

*OS - On-line - Security (SW intercept)
called by TASK 0*

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Step	Instruction	Address	Comment	Octal	Step
00	*ENTRY		SWITCH REGISTER Intercept.	← BA →	00
01	ESWRA				01
02	CMPA	0373	Action Mask (switches 12, 11, 8, 7, 4, 3)		02
03	SKIP				03
04	JUMP	I 0300	Return.		04
05	LDA	IZ 0022	= 1st word of OAS Control Block.		05
06	APOS				06
07	JUMP	I 0300	Return (ignore leaving OAS)		07
10	AND				10
11	JUMP	I 0300	Return (ignore)		11
12	STA	0473	= Word of OAS Master Device in system. (Digits 12, 11, 8, 7, 4, 3)		12
13	HAAT				13
14	ESWRA				14
15	ANEG				15
16	JUMP	I 0300	Return - false alarm.		16
17	STA	0372	Save Switch Reg.		17
20	LDA	Z 0032	→ Control Block		20
21	INCA		*NEXT PAIR		21
22	STA	Z 0176	→ 1st word		22
23	INCA				23
24	STA	Z 0177	→ 2nd word		24
25	INCA				25
26	STA	0474	→ 3rd word		26
27	JSBR	0234	Process this pair		27
30	LDA	0474			30
31	DESB	0473	Counter		31
32	JUMP	0321	Auto next pair		32
33	JUMP	0374	End.		33
34	*ENTRY		PROCESS DISC PAIR	← BA →	34
35	LDA	IZ 0176	1st word		35
36	JORH	IZ 0177	2nd word		36
37	LDR	0372	Switch Reg.		37
40	LRB/BMSB/USE				40
41	JUMP	0351	Ignore - both switches are set.		41
42	APOS				42
43	JUMP	0351	Ignore - 1 cartridge is already inserted.		43
44	BASB				44
45	JUMP	0354	Disconnect MASTER		45
46	LRB/BASB				46
47	JUMP	0360	Disconnect SLAVE		47
50	SKIP				50
51	LSB				51
52	STB	0372	Switch Reg.		52
53	JUMP	I 0334	Return.		53
54	LDA	IZ 0177	2nd word *MARK MASTER	176	54
55	CISA/COMISA		*MARK Out-of-Commission		55
56	STA	IZ 0177		176	56
57	JUMP	0351		176 0574	57
60	STB	0372	Switch Reg. *MARK SLAVE		60
61	LDA	IZ 0176	1st word		61
62	CISA/COMISA		*MARK Out-of-Commission		62
63	STA	IZ 0176		176 0574	63
64	LDA	I 0474	= 3rd word		64
65	AND		Enable?		65
66	JUMP	I 0334	No-return.		66
67	JUMP	0572	Yes - recheck Master Varta		67
70					70
71					71
72			Switch Register		72
73			Action Mask	006314	73
74	CHA		(from 0233)		74
75	STA	Z 1717	Indicate No Decision Code.		75
76	JSBR	IZ 1674	Recheckable Unauthorised Disc Device.		76
77	JUMP	I 0300	Return done.		77

OS - On-line - Security

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Step	Instruction	Address	Comment	Octal	Step
00	*ENTRY		SKIP IF O.S. NOT BUSY	←BA→	00
01	JSBR	0410	Skip O.S. Master Disc		01
02	JUMP	0406	Not O.S. therefore not busy.		02
03	INSZ	Z 0177	→ 3rd word		03
04	LDA	IZ 0177	= 3rd word (→ Vector if disc is busy)		04
05	ANφ		Busy?		05
06	INSZ	0400	No.		06
07	JUMP	I 0400	Yes. Return.		07
10	*ENTRY		SKIP IF O.S. MASTER DISC	←BA→	10
11	LDA	IZ 0032	= No. of O.S. Master Discs		11
12	ANφ				12
13	JUMP	I 0410	Return - no O.S. discs		13
14	APOS				14
15	JUMP	0441	Program "MEND" is in action		15
16	STA	Z 0177	Counter (No. of Discs)		16
17	LDA	Z 0032			17
20	INCA		→ 1st field		20
21	CMPB	IZ A	↓ NEXT DISC		21
22	JUMP	0427	this is an O.S. Master Disc		22
23	ADA	Z 0203			23
24	DESZ	Z 0177	Counter		24
25	JUMP	0421	goto next disc		25
26	JUMP	I 0410	Return - not in list (at Slave out of use)		26
27	INCA				27
30	STA	Z 0177	→ In Use / Slave Disc No.		30
31	LDA	IZ A	= Full / Slave Disc No.		31
32	APOS		Master Full?		32
33	JUMP	0436	No.		33
34	INSZ	0410	Yes. (sleep)		34
35	JUMP	I 0410	Return.		35
36	CASA				36
37	LDB	Z A	Replace Master Disc by Slave Disc.		37
40	JUMP	I 0410	Return (no sleep)		40
41	CASA		*MEND in action.		41
42	CMPA	Z 0040	Current Task = Program "MEND"?		42
43	JUMP	I 0410	Yes - return (no sleep)		43
44	LDA	Z 0040	Current Task		44
45	APOS		Task Scheduler?		45
46	JUMP	I 0410	Yes - return (no sleep)		46
47	JSBR	I 0477	12/0540 Define Callbac hold on		47
50	JSBR	IZ 1777	HALT - attempt to Read/Write during "MEND"		50
51					51
52					52
53					53
54					54
55					55
56					56
57					57
60					60
61					61
62					62
63					63
64					64
65					65
66					66
67					67
70					70
71					71
72					72
73			Slave Disc No. (Count Discs)	/	73
74			→ 3rd word of Control block	/	74
75			→ Count Control Control word. 12/1776 I		75
76			12/1730		76
77			12/0540		77

OS - on-line - security

Step	Instruction	Address	Comment	Octal	Step
00	* ENTRY		Completion Test	← BA →	00
01	STA	I 0476	1211730 → Vectat		01
02	ADA	Z 0203	CF3		02
03	LDA	I2 A	=R/W, No. Sector, Disc No.		03
04	ANEG		Recard?		04
05	JUMP	I 0500	Yes - return.		05
06	ANDA	Z 1752	(Reserved Disc No.)		06
07	LDB	Z A	= Disc No.		07
10	JSR	0410	Stop if OLS Master Disc		10
11	JUMP	I 0500	Not OLS - return.		11
12	STA	0473	Save Slave Disc No.		12
13	LDA	Z 0177			13
14	INCH				14
15	STA	0474	→ 3rd word of Control Block		15
16	LDB	I 0475	1211776I = Unit Control Word (→ Vectat)		16
17	CLSB				17
20	STB	I 0474	Indicate OLS Disc is Busy		20
21	STB	0527	→ Vectat		21
22	LDA	I2 B	→ Next Vectat in Q? Address Unit Controller		22
23	STA	I 0475	1211776I ↓ sets next Q vectat		23
24	A=0				24
25	JSR	I2 1674	Re-schedule Disc Q for this Unit.		25
26	JSR	I2 1707	Duplicate (Vectat from Q) → Duplicate Slave Vectat		26
27	K=				27
30	R=0/0140				30
31	R=16units				31
32	LDA	Z 0143	R/W, No. Sector (R/W)		32
33	ANDA	Z 1753	Top B/Ae } Master Slave Disc No.		33
34	IORA	0473	Slave Disc No.		34
35	STA	Z 0143			35
36	LDA	0474	→ 3rd word of Control Block		36
37	STA	Z 0150	into Slave Vectat		37
40	CLA/COMP				40
41	STA	Z 1717	Indicate No. Discs Error		41
42	JSR	I2 1673	WRITE to SLAVE		42
43	LDA	I2 0150	→ Master Vectat		43
44	AN0		Has Slave been taken out of commission?		44
45	JUMP	I2 1624	Yes - ignore. (to Task Scheduler)		45
46	STA	0554			46
47	CLA				47
50	STA	I2 0150	Indicate OLS Not Busy		50
51	STA	Z 1717	No. Discs Error		51
52	JSR	I2 1674	Reschedule Unallocated Disc Q		52
53	JSR	I2 1707	Duplicate (Retrieves Master Vectat)		53
54	R=				54
55	R=0/0140				55
56	R=16units				56
57	LDA	Z 0054	→ 1st/2nd/3rd/4th		57
60	STA	I 0554	} return to prev chain		60
61	LDA	0554			61
62	STA	Z 0054			62
63	JUMP	I2 0157	Return from READQ or WRITE.		63
64					64
65					65
66					66
67					67
70					70
71					71
72	LDB	Z 0107	→ 1st Unalloc. Vectat (from 0367)		72
73	STB	I2 A	} Master Vectat to Head of Unallocated Q.		73
74	STA	Z 0107			74
75	CLA				75
76	STA	I 0474	Indicate not in use.		76
77	JUMP	I 0334	Return		77

OS-PRINTER COMPLETION

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Step	Instruction	Address	Comment	Octal	Step
00	LDB	Z 0074	→ I/O Control Area * Printer Completion		00
01	ADB	Z 0212			01
02	LDA	Z 1720	Stacks		02
03	← A=0				03
04	JUMP	0625	Stacks. finish		04
05	→ STA	I2 B	Clear Control Stacks (3732-)		05
06	ADB	Z 0206	CF6		06
07	DESZ	I2 B	Order Buffer In Use Count		07
10	SKIP				10
11	→ JUMP	I2 1624	WAIT for further work		11
12	ADB	Z 0210			12
13	STB	Z 0176	→ Order Buffer A		13
14	INCR				14
15	STB	Z 0177	→ Order Buffer B		15
16	LDA	I2 0176			16
17	LDB	I2 0177			17
20	STA	I2 0177			20
21	STB	I2 0176			21
22	JSBR	0645	START PRINTER (Buffer B) * Retry		22
23	INT ON			000004	23
24	JUMP	I2 1624	WAIT		24
25	CMPA	I2 B	Control Stacks * STATUS FAIL		25
26	← JUMP	0640	No change - don't flush		26
27	→ STA	I2 B			27
30	JSBR	I2 1612	Stacks → Octal		30
31	P ₁ = 13/1771½				31
32	JSBR	I2 1771	Load Byte		32
33	P ₁ = 3733½ -		Printer Identifier		33
34	P ₁ = JSBR	I2 1775		Store Byte	
35	P ₁ = 13/1764				35
36	P ₁ = JSBR	I2 1653	FLASH "PRINTER STATUS"		36
37	P ₁ = 13/1756½				37
40	P ₁ = JUMP	0774			40
41					41
42			Stacks	000000	42
43			→ Buffer Word 1		43
44			Count		44
45	* ENTRY		START PRINTER	→ BA →	45
46	STA	0643	→ Buffer		46
47	LDA	I2 0074	?		47
50	JUMP	0667	Set "Full" indicator @ 3720-		50
51	STA	I2 0074			51
52	LDB	Z 0024	→ Device Table Offset		52
53	ADB	Z 1717	Device Code		53
54	LDA	I2 B	= Device ID		54
55	CHSA				55
56	SFA	Z 0103	CF3		56
57	STA	0664			57
60	ADA	Z 0207	CF7		60
61	STA	Z 0177			61
62	JSBR	I2 1707	DUPLICATE		62
63	P ₁ = 3/0642				63
64	P ₂ = ✓				64
65	P ₃ = 4 words				65
66	JUMP	I2 0177	to Channel Program.		66
67	CHSA	1717		(Non 0650)	67
70	STB	Z 1717	Device Code		70
71	COMPSA				71
72	LDB	I 0643	= Word 0 (Device Count)		72
73	STB	0644			73
74	INCR	0643	→ Word 1		74
75	JUMP	0651			75
76					76
77					77

OS -

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Step	Instruction	Address	Comment	Octal	Step	
00	* ENTRY		GET PASSWORD	← BA →	00	
01	LDA	0700			01	
02	JSBR	I2 1725	STA (Save return addresses)		02	
03	P=3730-	0700			03	
04	NOOP				04	
05	JSBR	I2 1640	GET "PASSWORD" (12 characters max)		05	
06	H=310751				06	
07	JSBR	I2 1721	LDA		07	
10	P=3730-		= 8 } restore return addresses		10	
11	STA	0700			11	
12	NOOP				12	
13	LDB	I 0700	= P1 → Password		13	
14	JSBR	I2 1414	Resolve Absolute Ptrs		14	
15	NOOP				15	
16	STB	Z 0176	Password x2		16	
17	LDB	Z 0066	→ Input Buffer		17	
20	ADB	Z 0066			20	
21	STB	Z 0177	In x2		21	
22	LDB	Z 0177		* Next Input char.	22	
23	INSZ	Z 0177			23	
24	JUMP	0730			24	
25					25	
26					26	
27					27	
30	JSBR	I2 1415	Load Absolute Ptrs		30	
31	STA	Z 0175	Save		31	
32	LDB	Z 0176		* Next Password char.	32	
33	INSZ	Z 0176			33	
34	JUMP	0740			34	
35					35	
36					36	
37					37	
40	JSBR	I2 1415	Load Absolute Ptrs		40	
41	CMPH	Z 0175	Same Character - Input?		41	
42	(SKIP)		Yes		42	
43	→ JUMP	I2 1641	No - Error		43	
44	(A=0)		end of Password?		44	
45	→ JUMP	0722	No - cuts next character		45	
46	→ INSZ	0700	Yes - Matched		46	
47	JUMP	I 0700	Return.		47	
50				011402 P	50	
51			GET "PASSWORD"	R10414	51	
52					310753	52
53			CR P			53
54			A S			54
55			S W			55
56			O R			56
57			D SP			57
60			NUL		60	
61	* ENTRY			← BA →	61	
62	ANDA	Z 0474	Program Permit Marks		62	
63	AND				63	
64	(JUMP)	I 0761	Return - program may run		64	
65	→ JSBR	I2 1652	GET "INITIALIZED!"		65	
66	P=1311744!				66	
67	JUMP	Z 1402	to "BROWSE"		67	
70					70	
71					71	
72	* ENTRY		COMPUTE CHECK DIGIT	← BA →	72	
73	JUMP	1000			73	
74	JSBR	I2 1625	SUSPEND		74	
75	JSBR	I2 1721	LDA → octal buffer B	patch from 0637	75	
76	P=3751-				76	
77	JUMP	0622	to 10th		77	

OS

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Step	Instruction	Address	Comment	Octal	Step
00	CASH				00
01	J>BK	Z 1745	Divide by 10 Unrounded		01
02	STB	Z 0176	Unit Digit		02
03	JSBR	Z 1745	Divide by 10 Unrounded		03
04	STB	Z 0175	10's Digit		04
05	JSBR	Z 1745	Divide by 10 Unrounded		05
06	LSA				06
07	STA	Z 0177			07
10	LSA				10
11	ADA	Z 0177	= 1000's digit x 6		11
12	ADB	Z 0175	= 100's digit + 10's digit		12
13	LSB				13
14	LSB				14
15	ADA	Z B			15
16	ADA	Z 0175	= 1000's x 6 + 100's x 4 + 10's x 5		16
17	ADA	Z 0176			17
20	ADA	Z 0176			20
21	ADA	Z 0176			21
22	STA	Z 0177	= 1000's x 6 + 100's x 4 + 10's x 5 + 1's x 3		22
23	JSBR	Z 1732	DIVIDE by 26 with Remainder		23
24	R=10/0177		Remainder		24
25	R=10/0232		CF26		25
26	R=10/0176		Product		26
27	LDA	Z 0177	= Remainder (0-25)		27
30	ADA	Z 0303	000101 (ASCII A-2)		30
31	JUMP	Z 0772	Notes		31
32	*ENTRY		MOVE & PAD		32
33	LDB	I 1032	= R1 -> Source		33
34	JSBR	Z 1414	Reverse Absolute Byte		34
35	NOOP				35
36	STB	Z 0177	Source x 2		36
37	INSZ				37
40	LDB	I 1032	= R2 -> Target		40
41	JSBR	Z 1414	Reverse Absolute Byte		41
42	NOOP				42
43	STB	Z 0176	Target x 2		43
44	INSZ				44
45	LDA	I 1032	= R3 = No of Characters in Target		45
46	INCH				46
47	STA	Z 0175	Counter		47
50	INSZ				50
51	LDB	Z 0177	Source x 2		51
52	BNP				52
53	JUMP		Pad.		53
54	INSZ	Z 0177			54
55	JUMP				55
56					56
57					57
60					60
61	JSBR	Z 1415	Reverse Absolute Byte		61
62	A=0				62
63	JUMP				63
64	STA	Z 0177	Increment Counter Source (Reverse)		64
65	LDA	Z 0240	"NUM SP" Padding		65
66	DESZ	Z 0175	Counter		66
67	JUMP				67
70	LDA	Z 0177	= 0 if Source < Target in length		70
71	JUMP	I 1032	Return		71
72	LDB	Z 0176	Target x 2		72
73	INSZ	Z 0176	*STORE CHAR. in TARGET		73
74	JSBR	Z 1416	Stop Absolute Byte		74
75	JUMP		End of program		75
76					76
77					77

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Step	Instruction	Address	Comment	Octal	Step
00					00
01					01
02					02
03					03
04					04
05					05
06					06
07	* ENTRY		HALT	← BA →	07
10	JSBR	I2 1605	Address → ASCII (A register)		10
11	P1= 711666				11
12	LDA	I 1107			12
13	JSBR	I2 1605	Address → ASCII (Bank address)		13
14	P1= 711660				14
15	LDA	Z 0040			15
16	JSBR	I2 1612	Octal → ASCII (Task Number)		16
17	P1= 711645				17
20	JSBR	I2 1741	Word Bank (Program Name)		20
21	P1= S.111716				21
22	P2= 711650				22
23	P3= 4clw13				23
24	JSBR	I2 1653	FLASH "TASK HALTED"		24
25	P1= 711641				25
26	LDA	Z 0074	→ I/O Control Word		26
27	ADA	Z 0202	CF2		27
30	CHB/COMPB				30
31	STB	I2 A	Indicate no restart address		31
32	JSBR	I2 1625	SUSPEND		32
33	LDA	Z 0074	→ I/O Control Word		33
34	ADA	Z 0202	CF2		34
35	LDA	I2 A			35
36	COMPA	Z 0376	377777		36
37	JUMP	I 1132	Resp.		37
40	JSBR	Z 1630	Resolve Object		40
41	JUMP	I2 A	RESTART TASK.		41
42					42
43	STA	Z 0177	Save packet date (Patch from 1202)		43
44	A=0				44
45	JUMP	I 1203	Continue		45
46	STA	Z 0160			46
47	JUMP	I 1236	Space field format		47
50					50
51	* ENTRY		Specify Default Restart Address	← BA →	51
52	LDA	I 1151	= P1 (Restart address)		52
53	JSBR	I2 1725	STA into TCA		53
54	P1= 3772				54
55	INSZ	I 1151			55
56	JUMP	I 1151	Return.		56
57	* ENTRY		STORE BYTE	← BA →	57
60	ANDH	Z 1752	Bottom Byte	← BA →	60
61	LDB	I 1157	= P1		61
62	INSZ	I 1157			62
63	JSBR	I2 1414	Resolve Absolute Byte		63
64	JSBR	I2 1416	Store Absolute Byte		64
65	JUMP	I 1157	Return.		65
66	* ENTRY		LOAD BYTE	← BA →	66
67	LDB	I 1166	= P1		67
70	INSZ	I 1166			70
71	JSBR	I2 1414	Resolve Absolute Byte		71
72	JSBR	I2 1415	Load Absolute Byte		72
73	JUMP	I 1166	Return.		73
74					74
75					75
76					76
77					77

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Step	Instruction	Address	Comment	Octal	Step	
00	JUMP	I 1157	INITIAL		00	
01	*ENTRY		CONST PACHED DATE → #SCII	← BA →	01	
02	JUMP	Z 1143	Patch.	021173	02	
03	ANDA	Z 0237	Mask 000057	022237	03	
04	STA	Z 0176	=day		04	
05	JSBR	IZ 1765	Day → #SCII	037765	05	
06	R=0,0,1,3				06	
07	R=0/0176				07	
10	R2=0/0160				10	
11	LDA	Z 0177	=Packed Date		11	
12	RSA				12	
13	RSA				13	
14	RSA				14	
15	RSA				15	
16	ANDA	Z 0236	Mask 000036 (gives Monthx2)	022236	16	
17	ADA	1247	+Month Table origin		17	
20	LDB	IZ A	} set up "SP 24 24 m"		20	
21	STB	Z 0161				21
22	INCH				023001	22
23	LDB	IZ #		026000	23	
24	STB	Z 0162			24	
25	LDA	Z 0177	=Packed Date	212177	25	
26	RSA				26	
27	ANDA	Z 1753	Top Byte		27	
30	SWAPH			005010	30	
31	STA	Z 0176	=Year	032276	31	
32	JSBR	IZ 1765	Year → #SCII		32	
33	R=0,0,1,4				33	
34	R=0/0176				34	
35	R=0/0163				35	
36	LDA	I 1201	→ Target		36	
37	NOOP				37	
40	STA	1243	R2		40	
41	JSBR	IZ 1741	Move B PAD (ASCII code → target)		41	
42	R=0/0160				42	
43	R=				43	
44	R=9 characters				44	
45	JMSZ	1201			45	
46	JUMP	I 1201	INITIAL		46	
47			→ MONTH TABLE ORIGIN	31246	47	
50			SP J		50	
51			A N		51	
52			SP F		52	
53			E B		53	
54			SP M		54	
55			A R		55	
56			SP A		56	
57			P R		57	
60			SP M		60	
61			A Y		61	
62			SP J		62	
63			U N		63	
64			SP J		64	
65			U L		65	
66			SP H		66	
67			U G		67	
70			SP S		70	
71			E P		71	
72			SP O		72	
73			C T		73	
74			SP N		74	
75			O V		75	
76			SP D		76	
77			E C		77	

05

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Step	Instruction	Address	Comment	Octal	Step
00	*ENTRY		CONVERT TO BINARY & TEST LIMITS	← BA →	00
01	JSR	I2 1731	LDA A reg. of last CUB call		01
02	P=3773-				02
03	ANZ		End of Input string reached?		03
04	JUMP	I 1317	Yes - take input field as zero.		04
05	INCB				05
06	LDA	I2 3	3774- → Next Position in Input buffer		06
07	STA	I 1311	P ₁		07
10	JSR	I2 1762	Convert to Binary		10
11	P ₁ =				11
12	P ₂ =0/0177		Waterfall		12
13	P ₃ =9,1,0				13
14	APOS				14
15	JUMP	I2 1641	Error		15
16	LDA	Z 0177			16
17	CMPL	I 1300	Minimum & test limits		17
20	JUMP	I 1323			20
21	SKGT				21
22	JUMP	I2 1641	Error < Minimum		22
23	INSL	I 1300			23
24	CMPL	I 1300	Maximum		24
25	JUMP	I 1330			25
26	SKGT				26
27	JUMP	I2 1641	Error > Maximum		27
30	INSL	I 1300			30
31	JUMP	I 1300	Return (A contains binary number)		31
32	*ENTRY		PACK DATE	← BA →	32
33	JSR	I2 1606	Convert Day to Binary		33
34	P=1		Min		34
35	B=31		Max		35
36	STA	Z 0176			36
37	JSR	I2 1606	Convert Month to Binary		37
40	P=1		Min		40
41	B=12		Max		41
42	SWAPA				42
43	RSA		} Year field to bits 9-6		43
44	RSA				44
45	RSA				45
46	JORA	Z 0176	Merge with Day		46
47	STA	Z 0176			47
50	JSR	I2 1606	Convert Year to Binary		50
51	P=10				51
52	B=99				52
53	SWAPA		} Year field to bits 16-10		53
54	LSA				54
55	JORA	Z 0176	Merge with Month and Day		55
56	JUMP	I 1332	Return		56
57	*ENTRY		OCTAL → ASCII CONVERSION	← BA →	57
60	STA	Z 0177	Source Octal Digit		60
61	LDB	I 1357	→ Target String		61
62	JSR	I2 1414	Negative Overflow Byte		62
63	MOCP				63
64	RDB	Z 0205	CF5 → Early Target String		64
65	STB	Z 0176	Target x 2		65
66	INSL	I 1357			66
67	LDA	Z 0206	CF6		67
70	STA	Z 0175	Carry		70
71	LDA	Z 0177			71
72	LDB	Z 0177	*NEXT Source Digit		72
73	BPOS/CIC				73
74	COMPC				74
75	ARBC				75
76	RSB				76
77	RSB				77

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Step	Instruction	Address	Comment	Octal	Step
00	STB	Z 0177			00
01	HADA	Z 0207	000007 Bottom Digit	0207	01
02	JORA	Z 0260	000060 Count to ASCII		02
03	LDB	Z 0176	Format x2 *STORE CHAR in THASET		03
04	DESZ	Z 0176			04
05	JSBR	IL 1416	Store Absolute Byte		05
06	DESZ	Z 0175	Counter		06
07	JUMP	1371	Auto reset direct		07
10	JUMP	I 1357	Return		10
11					11
12					12
13					13
14					14
15					15
16					16
17					17
20					20
21	JUMP				21
22	* ENTRY		SPECIFY PROGRAM ESCAPE POINT	← BA →	22
23	LDB	Z 0074	→ Info Control Area		23
24	ADB	Z 0244	CF36		24
25	LDA	IZ B	= Previous Escape Point		25
26	STA	Z 0177	Save		26
27	LDA	I 1422	= New Escape Point		27
30	JSBR	Z 1630	Resoluto Offset		30
31	STA	IZ B	Info Control Area		31
32	LDA	Z 0177			32
33	INSZ	IZ 1422			33
34	JUMP	I 1422	Return		34
35	JSBR	IZ	Lead key { handle keypress		35
36	JMP	1435	Seq. sequant → Sequant		36
37	* ENTRY		COMPLEMENT DOUBLE WORD	← BA →	37
40	LDA	I 1437	→ Binary No. (Word)		40
41	INSZ	1437			41
42	JSBR	Z 1630	Resoluto Offset		42
43	LDB	IZ A	} 1st Word		43
44	COMPB				
45	STB	IZ A			45
46	INCA		→ 2nd word		46
47	LDB	IZ A			47
50	BNP				50
51	JUMP	1456			51
52	JSBR	1570	COMPB/CASB		52
53	INCB				53
54	STB	IZ A			54
55	JUMP	I 1437	Return		55
56	DECA		→ 1st word		56
57	INSZ	IZ A			57
60	NOOP				60
61	JUMP	I 1437	Return		61
62	* ENTRY		RESTORATION	← BA →	62
63	STA	1435	= length required (words)		63
64	ADB	Z 0240	0/00 to		64
65	DECB		* NEXT SEGMENT		65
66	STB	1436	→ Previous Segment		66
67	LDB	I 1436	→ Current Segment		67
70	BNP				70
71	JUMP	1565	Insufficient core available		71
72	INCB				72
73	LDA	IZ B	= length of segment		73
74	SFA	1435	length required		74
75	A POS				75
76	JUMP	1465	block request has failed - try next		76
77	STA	IZ B	= length remaining		77

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Step	Instruction	Address	Comment	Octal	Step
00	CHPA	Z 0202	CFZ (Minimum Segment Size)		00
01	JUMP	1504			01
02	SKBT				02
03	JUMP	1506	Remove segment from free chain.		03
04	LDA	I 1436			04
05	JUMP	I 1462	Return.		05
06	DECB				06
07	LDB	I2 B	→ next segment		07
10	LDA	I 1436			10
11	STB	I 1436			11
12	JUMP	I 1462	Return.		12
13	*ENTRY		BREAKPOINT	← BA →	13
14	STA	Z 0175			14
15	STB	Z 0176			15
16	SKINC/A				16
17	INCA				17
20	SKINCT				20
21	LDA	Z 0204	CFZ		21
22	STA	Z 0177			22
23	JSR	IL 1721	LDA Control Test No.		23
24	P=3731-				24
25	A=0		Under Breakpoint Control?		25
26	JUMP	1531	Yes-		26
27	LDA	1513			27
30	JUMP	Z 1366	HALT - End of Control		30
31	LDA	Z 0047	+Test Control Table		31
32	LDB	I2 A	→ TCA of Control Test		32
33	SFB	Z 0343	3720 (→) End of Control Portion		33
34	LDB	I2 B	→ Breakpoint 1511.		34
35	JUMP	I2 B			35
36					36
37					37
40					40
41					41
42					42
43					43
44					44
45					45
46					46
47					47
50					50
51					51
52					52
53					53
54					54
55					55
56					56
57					57
60					60
61					61
62					62
63					63
64					64
65	LDA	1462	Return address (from 1471)		65
66	HALT		INSUFFICIENT FREECORE for 'SETMAIN'		66
67	JUMP	Z 1365	HALT - Invalid User Request Error		67
70	*ENTRY		Dr. Mem Program 1511.	← BA →	70
71	COMVB				71
72	CRSB				72
73	JUMP	I 1570	Return.		73
74					74
75			{ via Feed Buffer	000415	75
76			{ Vertical Tab Buffer	021015	76
77			{ Form Feed Buffer	020015	77

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Step	Instruction	Address	Comment	Octal	Step
00	*ENTRY			← BA →	00
01	LDA	1600			01
02	JSBR	I2 1725	STA Save return address in I/O Counter.		02
03	P ₁ = 3776-				03
04	CIA				04
05	INCB				05
06	STA	I2 B	Clear exit counter.		06
07	LDA	I 1600	= P ₁ *Trickling Walkways		07
10	JSBR	Z 1630	Resolve		10
11	STA	Z 0177			11
12	LDB	Z 0177	→ Next parameter block * Next Parameter block.		12
13	BNP				13
14	JUMP	1627	End of list		14
15	LDA	I2 B	→ next parameter block		15
16	JSBR	Z 1630	Resolve		16
17	STA	Z 0177			17
20	LDA	Z B	→ W ₁		20
21	INVCB		→ W ₂		21
22	ADA	Z 0204	→ W ₅		22
23	LDB	I2 B	= W ₂ (→ Source Address)		23
24	JSBR	I2 1414	Resolve Absolute Byte		24
25	STB	I2 A	= 1/2 of block = Walkways = Source x 2.		25
26	JUMP	1612	Outs next parameter block.		26
27	JSBR	I2 1721	LDA * NEXT LINE.		27
30	P ₁ = 3776-				30
31	STA	1600	= return address		31
32	LDA	I 1600	= P ₁		32
33	STA	Z 0170	→ next parameter block		33
34	INSZ	1600			34
35	LDA	I 1600	= P ₂		35
36	JSBR	Z 1630	Resolve		36
37	STA	Z 0171	→ Exit Routine		37
40	INSZ	1600			40
41	LDA	I 1600	= P ₂ (No. of Lines)		41
42	INSZ	1600			42
43	INCB		→ Exit Counter (3777-		43
44	CMFA	I2 B			44
45	JUMP	I 1600	Return - all lines processed		45
46	INSZ	I2 B	Exit Counter.		46
47	LDA	Z 0170	→ Next parameter block & next address		47
50	ANP				50
51	JUMP	1657	End of parameter blocks		51
52	JSBR	Z 1630	Resolve		52
53	LDB	I2 A			53
54	STB	Z 0170	→ next parameter block.		54
55	JSBR	1663	Set up address line.		55
56	JUMP	1647	Outs next address.		56
57	JSBR	I2 1721	LDA Exit Counter		57
60	P ₁ = 3777-				60
61	JSBR	I2 0171	Exit Routine		61
62	JUMP	1627	Outs next line.		62
63	*ENTRY		SET-UP ADDRESS LINE	← BA →	63
64	ADA	Z 0202	CF2		64
65	STA	Z 0175	Parameter pointer		65
66	LDB	I2 A	= W ₃		66
67	JSBR	I2 1414	Resolve Absolute Byte		67
70	NOOP				70
71	STB	Z 0176	Target x2		71
72	INSZ	Z 0175			72
73	LDA	I2 0175	= P ₄ (Target Length, characters)		73
74	STA	Z 0177	Counter		74
75	INSZ	Z 0175	→ P ₅ (Source x2)		75
76	LDB	I2 0175	Source x2 * NEXT Source Char.		76
77	BNP				77

Programmer:-

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Step	Instruction	Address	Comment	Octal	Step
00	JUMP	I 1663	End of line (No source string left)		00
01	INSZ	I2 0175	Source x2		01
02	JUMP	1706			02
03					03
04					04
05					05
06	JSBR	I2 1415	Load Absolute Byte		06
07	← A=0				07
10	JUMP	1713			10
11	→ STA	I2 0175	Source x2		11
12	JUMP	I 1663	End of line		12
13	← CMPA	Z 0215	"NULL CR"		13
14	JUMP	I 1663	End of line		14
15	→ LDB	Z 0176	Target x2 *NEXT Target dist.		15
16	← BNB				16
17	JUMP	1676	bypass (count exhausted)		17
20	→ INSZ	Z 0176	Target x2		20
21	← JSBR	I2 1416	Store Absolute Byte		21
22	← DESZ	Z 0177	Counter		22
23	JUMP	1676	Auto next source dist.		23
24	→ CR				24
25	STB	Z 0176	Target x2 (critical target is full)		25
26	JUMP	1676	auto next source dist.		26
27					27
30					30
31					31
32					32
33					33
34					34
35					35
36					36
37					37
40					40
41					41
42					42
43					43
44					44
45					45
46					46
47			CR S0		47
50			BEL T		50
51			A S		51
52			K SP		52
53					53
54			Task No. }		54
55					55
56			SP A		56
57			W A		57
60			I T		60
61			S SP		61
62			D I		62
63			S C		63
64			SP		64
65			Proc No. }		65
66					66
67			SP		67
70			A T		70
71			SP		71
72					72
73			Each Address }		73
74					74
75					75
76			SI SP		76
77			WHL		77