

OS - START-UP INTERCEPT P4.

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Step	Instruction	Address	Comment	Octal	Step	
00	*ENTRY			← EA →	00	
01	BTA	Z 1716	Save Addr.		01	
02	STA	Z 1720	Save Scndry Reg.		02	
03	APOS				03	
04	JUMP	0012	Change Device Codes for "OP?"		04	
05	CMPA	Z 0302	Bit 7 only		05	
06	JUMP	0600	To "OP" utility		06	
07	CMPA	Z 0356	Bit 16 only		07	
10	JUMP	0161	To MKI Device OP utility		10	
11	JUMP	I 0000	Return		11	
12	ANDA	Z 1752	Bottom byte (Output Device Code)		12	
13	ADA	0077	} Setup output instructions		13	
14	STA	0702		14		
15	ADA	0076		15		
16	STA	0704		16		
17	ADA	0075		17		
20	STA	0701	20			
21	LDA	Z 1604	} → device H/W.		21	
22	STA	1374	}		22	
23	LDA	Z 1605	} → device H/W		23	
24	STA	1373	}		24	
25	LDA	Z 1720	Search Reg		25	
26	SWTPT				26	
27	ANDA	Z 1752	Bottom byte (Input Device Code)		27	
30	ADA	0074	} Setup Input Instructions		30	
31	STA	0707		31		
32	ADA	0073		32		
33	STA	0710		33		
34	ADA	0072		34		
35	STA	0712	35			
36	ANDA	Z 0277	- Bottom Input Device Code		36	
37	LDB	0367	→ VDU Terminator list		37	
40	CMPA	Z 0227			40	
41	NOOP				41	
42	SKGT				42	
43	JUMP	0967	ANK - modify operand		43	
44	CTB	0046			44	
45	TERB	I 1707	Device Terminator list		45	
46	R=				46	
47	R= 111061				47	
50	R= 116005				50	
51	JUMP	0600	to "OP" utility.		51	
52			GD if 16 line VDU	CR	52	
53					53	
54					54	
55			Address	}	55	
56					56	
57					57	
60			Octal		60	
61					61	
62				SP	62	
63					63	
64					64	
65			Decimal	}	65	
66					66	
67					67	
70						70
71			SP INCL			71
72				004200	72	
73				000700	73	
74			3/5 instruction decimino	011000	74	
75				003100	75	
76				000100	76	
77				011700	77	



OS - "OP?" Read/Write careful

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Step	Instruction	Address	Comment	Octal	Step
00	*ENTRY		READ	← BA →	00
01	B=0	Z 0000			01
02	JUMP	0106			02
03	ORA				03
04	JSBR	Z 0114	READ OS		04
05	JUMP	0600	to "OP?"		05
06	CMPB	Z 0201			06
07	SKIP				07
10	JUMP	1041	Enter		10
11	STB	Z 1715			11
12	LDA	Z 0055	"DATA/B/START" → Read Configuration Table		12
13	JSBR	I 0265	Transfer Configuration Table		13
14	LDB	Z 0323	→ Configuration Table		14
15	JUMP	1300	to Micro Interrupt		15
16					16
17					17
20					20
21					21
22					22
23					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		WRITE	← BA →	40
41	CMPB	Z 1715	=0?		41
42	SKIP				42
43	JUMP	0235			43
44	B=0				44
45	JUMP	0151			45
46	ORA/COMPA				46
47	JSBR	Z 0114	WRITE OS		47
50	JUMP	I 0140	Return		50
51	CMPB	Z 0201			51
52	SKIP				52
53	JUMP	1041	Enter		53
54	LDA	Z 0056	"DATA/B/START"		54
55	JSBR	I 0265	Transfer Configuration Table		55
56	JUMP	I 0140	Return		56
57				11/0200	57
60				SP SP	60
61	LDA	0160	"SP" to 8K "OP" (from 0010)		61
62	STB	0056			62
63	STB	0057			63
64	LDA	0157	11/0200 } register address An.		64
65	STB	1373			65
66	LDA	0266	} 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 }		66
67	STB	1374			67
70	JSBR	I 1707	11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 } 11/0200 }		70
71	11/0175				71
72	11/0637				72
73	11/0600				73
74	JUMP	0600	to "OP?"		74
75			→ 8K Read 11/0600	11/0600	75
76			→ 8K Read 11/0600	11/0600	76
77			→ 8K Write 11/0500	11/0500	77



# OS- LABEL DISC ROUTINE / CONFIG. TABLE

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Step	Instruction	Address	Comment	Octal	Step
00	LDA	Z 1002	Disc ID	*DEVICE 70	00
01	DAT03A/STOP			016670	01
02	LDA	Z 0332	0/1000		02
03	LDB	Z 0240	Sector 000040		03
04	DAT02A			014570	04
05	DAT01B/IOPLS			012470	05
06	NOT BUSY			011770	06
07	JUMP	0206			07
10	→ DAT03A/STOP			016370	10
11	ANDA	0215	000777		11
12	A=φ				12
13	HALT		Stops		13
14	→ JUMP	I2 0006	to "OP?"		14
15				000777	15
16					16
17					17
20	LDA	Z 1002		*DEVICE 71	20
21	DAT03A/STOP				21
22	LDA	Z 0332	0/1000		22
23	LDB	Z 0240	sector 000040		23
24	DAT02A				24
25	DAT01B/IOPLS				25
26	NOT BUSY				26
27	JUMP	0226			27
30	→ DAT03A/STOP				30
31	ANDA	0215			31
32	A=φ				32
33	HALT				33
34	→ JUMP	I2 0006	to "OP?"		34
35	LDA	Z 1715		(from 0143)	35
36	A=φ				36
37	JUMP	1041	End		37
40	→ CMPB	Z 0270	000070		40
41	JUMP	0200	Label Device 70		41
42	→ CMPB	Z 0271	000071		42
43	JUMP	0220	Label Device 71		43
44	→ JUMP	1041	End		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			→ Transfer Configuration Table to 5/1100		65
66			→ Disky available after 11/0273		66
67	LDA	0266	? during decode after.		67
70	STA	1374			70
71	LDB	0354	→ AHT terminates last		71
72	JUMP	0044	Margin.		72
73	*ENTRY		Dummy Decode after.	← BA →	73
74	CHT				74
75	STA	0063			75
76	INS2	0273			76
77	JUMP	I 0273	Return.		77



OS - "OP" Odel → ASCII ch.

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Step	Instruction	Address	Comment	Octal	Step
00	* ENTRY		Odel → ASCII	1 - bit →	00
01	STA	0377	Source Octal Word		01
02	LDA	I 0300	→ Target of String		02
03	LRA				03
04	ADA	0372	CFS → end of String		04
05	STA	0376			05
06	IWSZ	0300			06
07	LDA	0373	CF6		07
10	STA	0375	Counter		10
11	LDA	0377	* Word Source Digit		11
12	LDB	0377			12
13	RPOS/CAC				13
14	COMPC				14
15	→ RRBC				15
16	RSB				16
17	RES				17
20	STB	0377			20
21	ANDA	1776	000007 Bottom Digit		21
22	JORA	1777	000060 Counter b) ASCII		22
23	LDB	0376	Target X2 * Same in Target		23
24	DESZ	0376			24
25	CAC/RSB				25
26	SFC				26
27	SWAPA				27
30	→ STA	0374	On top of word		30
31	LDA	0371	Bottom byte		31
32	SKNC				32
33	SWAPA				33
34	→ ANDA	I2 B			34
35	JORA	0374			35
36	STA	I2 B			36
37	DESZ	0375	Counter		37
40	JUMP	0311	Out of word digit		40
41	→ JUMP	I 0300	iteration.		41
42					42
43				NUL GS	43
44				NUL CR	44
45				NUL TAB	45
46				CFI	46
47				NUL /	47
50			ANK	NUL 7	50
51				NUL 0	51
52				NUL -	52
53				NUL STB	53
54			11/0343		54
55				NUL CAN	55
56				NUL SUB	56
57				NUL BS	57
60				NUL NAK	60
61				CFI	61
62			UDM	NUL /	62
63				NUL 7	63
64				NUL 0	64
65				NUL FI	65
66				NUL GS	66
67			11/0356		67
70				NUL ETR	70
71			Bottom byte	000277	71
72				CFS	72
73				CF6	73
74			Destination		74
75			Counter		75
76			Target location		76
77			Octal Word		77



"OP?" 8K Packag Road Rty.

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Step	Instruction	Address	Comment	Octal	Step	
00	* ENTRY		HEAD PROGRAM	← BA →	00	
01	CMPB	0444	CF7	210444	01	
02	JUMP	0436	Control 2 rejected	020436	02	
03	SKNET			006010	03	
04	JUMP	I 0400	Return - Jumped Page No.	020400	04	
05	STB	0453	Page No.	260453	05	
06	JSBR	0462	Read 8K TCRD	030462	06	
07	CLA			007002	07	
10	CLB			006002	10	
11	JSBR	I 0452	Read 8K Control 03	034452	11	
12	LDA	0453	Page No.	210453	12	
13	AND			007500	13	
14	JUMP	I 0400	Return - Control 3 rejected.	020400	14	
15	JSBR	I 1661	LOAD Disc	037661	15	
16	P=0,70			000070	16	
17	P2=100		Track Disc No.	00014A	17	
20	P3=11/0454		→ Request		20	
21	AND			007500	21	
22	JUMP	0430	Successful find.	020430	22	
23	STA	0417	P2	350417	23	
24	ANDA	0446	360000	060446	24	
25	A=B			007100	25	
26	JUMP	0426	Find - Read Error	020426	26	
27	JUMP	0415	Return load	020415	27	
30	LDA	0447	"JUMP I 0577"	210447	30	
31	STA	I 0451	3/0674	254451	31	
32	LDA	0453	Page No.	210453	32	
33	CLB		"Reset"	006002	33	
34	JSBR	I 0450	3/0577 Pseudo-Manual ABRTAP	034450	34	
35	JUMP	I 0400	Return.	020400	35	
36	STB	0453	Page No.	260453	36	
37	JSBR	0462	Read 8K TCRD	030462	37	
40	CLA			007002	40	
41	LDB	0445	CF2	220445	41	
42	JSBR	I 0452	Read 8K Control 2	034452	42	
43	JUMP	I 0400	Return.	020400	43	
44			CF7	000007	44	
45			CF2	000002	45	
46			Mask 360000	360000	46	
47			"JUMP I 0577"	0204577	47	
50			Pseudo-Manual ABRTAP	3/0577	006577	50
51				3/0674	006674	51
52			TCRD Routine entry	7/1614	017614	52
53			PROGRAM No.		377777	53
54						54
55						55
56						56
57						57
60						60
61						61
62	* ENTRY		HEAD VK TCRD	← BA →	62	
63	LDA	0476	7/1600	310476	63	
64	LDB	0477	40:	320477	64	
65	DATOPR			014570	65	
66	DATOPR/START			011470	66	
67	NOT BUSY			011770	67	
70	JUMP	0467		020467	70	
71	DATE/STOP			016370	71	
72	AND			007500	72	
73	JUMP	I 0462	Return.	020462	73	
74	MARKT		STATUS	000001	74	
75	JUMP	0463	Ready	020463	75	
76			7/1600	017600	76	
77			40:	000040	77	



"Op?" 8K Peckay Write Rtn.

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Step	Instruction	Address	Comment	Octal	Step
00	* ENTRY		WRITE PROGRAM	← BA →	00
01	CMPB	0453	Program No. last read.	240453	01
02	SKIP			004020	02
03	JUMP	0503	Jump - does not match	020503	03
04	STB	0563	Program No. to be read.	260563	04
05	BNO			006500	05
06	JUMP	0531	Control 0	020531	06
07	CMPB	0444	CF7	240444	07
10	JUMP	0540	Control 2	020540	10
11	LSB			002300	11
12	LSB			002300	12
13	HDB	0563	Program No.	120563	13
14	HDB	0562	3/0377	120562	14
15	STB	0561	→ HASH Total in HRDMP Mem.	260561	15
16	CLA/COMP SB		"Write"	004402	16
17	LDA	0563	Program No.	210563	17
20	JSBR	I 0450	3/0577 Search-Downward HRDMP WRITE (p.)	034450	20
21	LDA	I 0561	= New Hash Total	214561	21
22	STA	0560	Save	250560	22
23	CLA			007002	23
24	CLB			006002	24
25	JSBR	I 0452	Read 8K Control 0	034452	25
26	LDA	0560	= New Hash Value	210560	26
27	STA	I 0561	Insert into Control 0 HRDMP Mem.	254561	27
30	CLB		Control 0	006002	30
31	CLA/COMP SA		"Write"	005402	31
32	JSBR	I 0452	Write 8K Control 0	034452	32
33	LDA	0557	? Radio Downward Mode	210557	33
34	STA	I 0452	TARD Line Address	254452	34
35	INT OFF			000005	35
36	JSBR	0564	Write 8K TARD	020564	36
37	JUMP	I 0500	Return.	024500	37
40	LDB	0445	CF2	220445	40
41	JUMP	0531	Write Control 2 (TARD).	020531	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			TARD INTERNAL MODE bit 7/1776	017776	57
60			New HASH VALUE	-	60
61			→ HASH TOTAL in HRDMP Mem	-	61
62			3/0377	006377	62
63			PROGRAM NO. TO BE WRITTEN	-	63
64	* ENTRY		WRITE 8K TARD	← BA →	64
65	LDA	0476	7/1600	210476	65
66	LDB	0477	408	220477	66
67	DATORA			014570	67
70	DATORA/IOPLS			013470	70
71	NOT BUSY			011770	71
72	JUMP	0571		020571	72
73	DATORA/STOP			016370	73
74	AND			007500	74
75	JUMP	I 0564	Return.	024564	75
76	HALT		STATUS	000001	76
77	JUMP	0565	Retry	020565	77



# OS - "OP" STAND-ALONE VERSION.

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Step	Instruction	Address	Comment	Octal	Step	
00	INT OFF			000005	00	
01	JORST			000017	01	
02	CLA		↓ GET "OP?"	007002	02	
03	STA	1076	Clear Octal Word	251076	03	
04	STA	1077	Indicate Octal Mode	251077	04	
05	JSBR	0743	GET "OP?"	030743	05	
06	P=11/12454			115	06	
07	CMPA	1457	"NUM A"	231457	07	
10	JUMP	1300	Manual / Interrupt core.	021300	10	
11	CMPA	1456	"NUM R"	231456	11	
12	JUMP	0643	Read Program.	020643	12	
13	CMPA	1455	"NUM W"	231455	13	
14	JUMP	0645	Write Program	020645	14	
15	CMPA	1454	"NUM H"	231454	15	
16	JUMP	0633	Headcount	020633	16	
17	CMPA	1453	"NUM L"	231453	17	
20	JUMP	0651	665-load	020651	20	
21	CMPA	1452	"NUM D"	231452	21	
22	JUMP	0654	665-Dump	020654	22	
23	CMPA	1451	"NUM V"	231451	23	
24	JUMP	0657	665-Verify	020657	24	
25	JUMP	1041	Error	021041	25	
26					26	
27					27	
30					30	
31	CLA				31	
32	JUMP	I 0627			32	
33			↓ HANDOVER		33	
34	JUMP	0631			34	
35	JUMP	I2 B			35	
36			At 16	100000	36	
37			→ INITIATOR	11/0000 I	37	
40			→ READ PGM Rtn.	11/0100	40	
41			→ WRITE PGM Rtn.	11/0140	41	
42			LOW VALUE / MEMORY ADDRESS	-	42	
43	JSBR	I 0640	READ	* READ PGM	034640	43
44	JUMP	0600			020600	44
45	JSBR	I 0641	WRITE	* WRITE PGM	034641	45
46	JUMP	0600			020600	46
47					47	
50			NUM LF	000012	50	
51	LDA	Z B	* 665-load	212001	51	
52	JSBR	1500	load	031500	52	
53	JUMP	0600		020600	53	
54	JSBR	0664	"UP TO?"	* 665-DUMP	030664	54
55	JSBR	1600	Dump	031600	55	
56	JUMP	0600		020600	56	
57	JSBR	1756		* 665-VERIFY	031756	57
60	JUMP	0600		020600	60	
61					61	
62					62	
63					63	
64	* ENTRY		GET "UP TO?"	LA	64	
65	STB	0642	low Address	260642	65	
66	CLA			007002	66	
67	STA	1076	Clear Octal Word	251076	67	
70	STA	1077	Indicate Octal Mode	251077	70	
71	JSBR	0743	GET "UP TO?"	030743	71	
72	P=11/1372				72	
73	CMPA	1071	"NUM GS" (Entry+)	231071	73	
74	SKIP			004020	74	
75	JUMP	0602	Return to "OP?" - linked to initiator	020602	75	
76	LDA	0642	low Address	210642	76	
77	JUMP	I 0664	Return	024664	77	



OS - "OP"

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Step	Instruction	Address	Comment	Octal	Step
00	*ENTRY		Scalp character output	← PA →	00
01	DAT01A/START		015400	-	01
02	NOT BUSY		011700	-	02
03	JUMP	0702		020702	03
04	STOP		012000	-	04
05	JUMP	I 0700	Return.	024700	05
06	*ENTRY		Scalp character input & echo	← PA →	06
07	START		011000	-	07
10	NOT BUSY		011700	-	10
11	JUMP	0710		020710	11
12	DAT01A/STOP		016100	-	12
13	JSBR	1460	Upper Case chr.	031460	13
14	JSBR	0700	Echo.	030700	14
15	JUMP	I 0706	Return.	024706	15
16	*ENTRY		PUT string	← PA →	16
17	LDA	I 0716		214716	17
20	INSZ	0716		040716	20
21	LRA			003240	21
22	STA	0736	Source x2	250736	22
23	LDB	0736	Source x2 * next character	220736	23
24	INSZ	0736	"	040736	24
25	CAC/RSB			002500	25
26	LDA	I2 B		216001	26
27	SKC/CHB			006442	27
30	SWAPA			005010	30
31	ANDH	1075	Bottom Byte	061075	31
32	AND			007500	32
33	JUMP	I 0716	Return.	024716	33
34	JSBR	0700	Output	030700	34
35	JUMP	0723	Output char.	020723	35
36			Wait (Source x2)	-	36
37	JSBR	0716	PUT "Error" *ERROR HANDLER	030716	37
40	R=111350			111350	40
41	DESZ	0743	Reset back address * RESTART	050743	41
42	SKIP			004020	42
43	*ENTRY		GET	← PA →	43
44	LDA	I 0743		214743	44
45	STA	0750		250750	45
46	INSZ	0743		040743	46
47	JSBR	0716	PUT string	030716	47
50	R=0			-	50
51	JSBR	0706	Input * next character	030706	51
52	CMPB	1077	Octal Mode? (B=φ)	241077	52
53	JUMP	0773	Yes.	020773	53
54	CMPH	1074	"NUL ESC" * LITERAL MODE	231074	54
55	JUMP	I 0743	Complete. (return.)	024743	55
56	LDB	1077	In x2	221077	56
57	CAC/RSB			002500	57
60	SKC			007440	60
61	SWAPA			005010	61
62	STA	1076	W/S.	251076	62
63	LDA	1075	Bottom Byte	211075	63
64	SKNC			007040	64
65	SWAPH		Top Byte	005010	65
66	ANDH	I2 B		066001	66
67	JORH	1076	W/S	071076	67
70	STA	I2 B		256001	70
71	INSZ	1077	In x2	041077	71
72	JUMP	0751	Next char.	020751	72
73	CMPA	1073	Cancel? * OCTAL MODE	231073	73
74	JUMP	1044	Yes - last octal word to re-output prompt.	021044	74
75	CMPA	1065	"NUL /"	231065	75
76	JUMP	1030		021030	76
77	LDB	1076	Output word as hex	221076	77



OS - "OP"

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Step	Instruction	Address	Comment	Octal	Step
00	SHGT			006410	00
01	JUMP	1033	Test for "Enter -"	021033	01
02	CMPA	1066	"NUL 7"	231066	02
03	NOOP			000000	03
04	SHNGT			006010	04
05	JUMP	I 0743	Not octal - return.	024743	05
06	SFA	1067	"NUL 0"	131067	06
07	DESZ	1072	"1" input provided:	051072	07
10	JUMP	1016	No.	021016	10
11	AND/CAC			007520	11
12	JUMP	1020	0 input	021020	12
13	CMPA	1064	CFI	231064	13
14	JUMP	1020	1 input	021020	14
15	JUMP	1041	Not 0 or 1 (free error)	021041	15
16	CAC/LSB			002700	16
17	LSB			002300	17
20	BPOS/SHNC			006240	20
21	JUMP	1041	Overflow! (free error)	021041	21
22	LSB			002300	22
23	ADB	Z *		122000	23
24	SHNC			006040	24
25	CASB/COMSB			004006	25
26	STB	1076	Octal Word	261076	26
27	JUMP	0751	Octal word input character.	020751	27
30	LDA	1064	CFI * "/" input	211064	30
31	STA	1072	Set indicator	251072	31
32	JUMP	0751	Octal word input	020751	32
33	CMPA	1070	"NUL FS" * "Enter -"	231070	33
34	CASB/COMSB/SXSA			004026	34
35	JUMP	1046	Test for "."	021046	35
36	STB	1076	Octal Word	261076	36
37	LDA	1071	"NUL GS" ("Enter +")	211071	37
40	JUMP	I 0743	Not octal - return.	024743	40
41	CLA		* fetch "error"	007002	41
42	STA	1076	Clear Octal Word for re-start	251076	42
43	JUMP	0737	to "Err"	020737	43
44	STB	1076	Clear Octal Word * re-start	261076	44
45	JUMP	0741	Re-start	020741	45
46	CMPA	1053	"NUL 0"	231053	46
47	SKIP			004020	47
50	JUMP	I 0743	Not Octal - return.	024743	50
51	ADB	0636	Bit 16	120636	51
52	JUMP	I 1026		021026	52
53					53
54	*ENTRY		Display Octal		54
55	TSBR	1360	Setup keys	031360	55
56	TSBR	0716	PUT	020716	56
57	Pi=11/0052				57
60	JUMP	I 1054	Enter.	025054	60
61			Return Switch	NUL SUB	61
62			Backward Space	NUL BS	62
63			Forward Space	NUL NLF	63
64				CFI 000001	64
65				NUL /	65
66				NUL 7	66
67				NUL 0	67
70			Prod -	NUL FS	70
71			Prod +	NUL GS	71
72			"1" word indicator		72
73			"Cancellation" EOF	NUL ETX 000002	73
74			"Escape" EOF	NUL ESC 000033	74
75			Return Byte NAST	000377	75
76			OCTAL WORD / 0 all space		76
77			Octal Mode Indicator (if = 0) is Jux2		77



OS - "OP"      Award / Tulanejate

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Step	Instruction	Address	Comment	Octal	Step
00	STB	0642	Set MA	260642	00
01	JSBR	1360	Set up ASCII	031360	01
02	CHA			007002	02
03	STA	1076	Clear Octal Word	251076	03
04	STA	1077	Judicial Octal Word.	251077	04
05	JSBR	0743	Get Octal request	030743	05
06	R=11/0052			110052	06
07	CMPA	1074	"NUL ESC"	231074	07
10	JUMP	0602	Escape to "OP!"	020602	10
11	CMPA	1457	"NUL A"	231457	11
12	JUMP	1300	Reset MA.	021300	12
13	CMPA	1071	"NUL GS"	231071	13
14	JUMP	1375	Manual Word	021375	14
15	CMPA	1063	"NUL NAK"	231063	15
16	JUMP	1403	Forward Space	021403	16
17	CMPA	1062	"NUL BS"	231062	17
20	JUMP	1413	Backward Space	021413	20
21	CMPA	1061	"NUL SUB"	231061	21
22	JUMP	1423	Delayed Mode	021423	22
23	CMPA	1475	"NUL SP"	231475	23
24	JUMP	1434	Text output	021434	24
25	CMPA	1447	"NUL I"	231447	25
26	JUMP	1442	Text input	021442	26
27	CMPA	0650	"NUL LF"	230650	27
30	JUMP	1375	Manual word	021375	30
31	JUMP	1041	Error	021041	31
32					32
33					33
34					34
35					35
36					36
37					37
40					40
41					41
42				SP U	42
43				P T	43
44				O ?	44
45				Min DEL	45
46			(R) *M416lin	(CR) O	46
47				P ?	47
50				NUL DEL	50
51				SP SP	51
52				E R	52
53				R O	53
54				R NUL	54
55				(LF) L	55
56				I T	56
57				: NUL	57
60	*ENTRY		Set up ASCII	← BA →	60
61	LDA	0642	MA	210642	61
62	JSBR	I 1373	Address → ASCII	031373	62
63	R=11/0053				63
64	LDA	I 0642	Current	210642	64
65	JSBR	0300	Octal → ASCII	030300	65
66	R=11/0057				66
67	LDA	I 0642	Current	210642	67
70	JSBR	I 1374	Decode	031374	70
71	R=11/0063				71
72	JUMP	I 1360	Return.	021360	72
73			→ Address 16u	11 -	73
74			→ Decode 16u.	11 -	74
75	STB	I 0642	Output	260642	75
76	JSBR	1360	Set up ASCII	031360	76
77	INSZ	0642	MA	260642	77



OS - "OP"

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Step	Instruction	Address	Comment	Octal	Step
00	JSBR	0716	PUT Mem BSCR	030716	00
01	R=11/0057				01
02	JUMP	1301	Out next	021301	02
03	BND		*FORWARDS	006500	03
04	JNSZ	1076	Counter = 1	041076	04
05	SHIP			004020	05
06	JSBR	1054	Display	031054	06
07	JNSZ	0642	MA	040642	07
10	DESZ	1076	Counter	051076	10
11	JUMP	1406		021406	11
12	JUMP	1301		021301	12
13	BND		*BACKWARDS	006500	13
14	JNSZ	1076	Counter = 1	041076	14
15	SHIP			004020	15
16	JSBR	1054	Display	031054	16
17	DESZ	0642	MA	050642	17
20	DESZ	1076	Counter	051076	20
21	JUMP	1416		021416	21
22	JUMP	1301		021301	22
23	BND		*INTERP	006500	23
24	LDB	0642	MA	220642	24
25	LRB			002240	25
26	STB	1077	= In x 2	261077	26
27	JSBR	0743	GET Interp	030743	27
30	R=11/1355				30
31	LDB	1077	In x 2	221077	31
32	ASB		(ignore odd byte)	002100	32
33	JUMP	1300		021300	33
34	BND		*TEXT	006500	34
35	LDB	0642	MA	220642	35
36	STB	1440		261440	36
37	JSBR	0716	PUT Text	030716	37
40	R=0				40
41	JUMP	1301	Re-verify addr.	021301	41
42	BND		*INDIRECT	006500	42
43	LDB	0642	MA	220642	43
44	LDB	B		226001	44
45	JUMP	1300	Next MA	021300	45
46			NUL F		46
47			NUL I		47
50			NUL P		50
51			NUL V		51
52			NUL D		52
53			NUL L		53
54			NUL H		54
55			NUL W		55
56			NUL R		56
57			NUL A		57
60	*ENTRY		UPPER CASE ROUTINE	← BA →	60
61	ANDA	1474	Remove Parity bit	061474	61
62	CMPH	1476	NUL \	231476	62
63	NOOP			000000	63
64	SKGT/CHB			006412	64
65	JUMP	I 1460	Return	025460	65
66	CMPA	1477	NUL &	231477	66
67	JUMP	I 1460	Return.	025460	67
70	SKGT			006010	70
71	JUMP	I 1460	Return.	025460	71
72	XORA	1475		101475	72
73	JUMP	I 1460	Return.	025460	73
74			MASK	000177	74
75			" NUL SP + MASK	000040	75
76			NUL \	000140	76
77			NUL &	000173	77



OS - "OP" 665 Tape routines

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Step	PAG 16 COL 15	Step
00	00 <del>JSPB</del> 0453 *ENTRY ←034653→ 00 665-10A)	00
01	01	01
02	02 LDB 1743 221743 02	02
03	03 STB 1745 261745 03	03
04	04 STA 1746 251746 04	04
05	05 CLB TAB NUL 004400 05	05
06	06 STB 1755 261755 06	06
07	07 JSBR 1543 031543 07	07
10	10 CMPA 1740 231740 10	10
11	11 JUMP 1563 021563 11	11
12	12 DECA, A01=0 003011 12	12
13	13 HALT 000001 13	13
14	14 LDB Z A 222000 14	14
15	15 JSBR 1543 031543 15	15
16	16 LSB 002300 16	16
17	17 LSB 002300 17	17
20	20 CLC, LSB 002700 20	20
21	21 DECA, A01=0 003011 21	21
22	22 HALT 000001 22	22
23	23 ADB Z A 122000 23	23
24	24 JSBR 1543 031543 24	24
25	25 LSB 002300 25	25
26	26 SKNC F/F SPC 006040 26	26
27	27 COMSB 004002 27	27
30	30 BEL B 003470 30	30
31	31 RSA 003100 31	31
32	32 SKNC, CLC F/F 0 006060 32	32
33	33 HALT 000001 33	33
34	34 ADB Z A 122000 34	34
35	35 LDA Z B 212001 35	35
36	36 JUMP 1745 021745 36	36
37	37 STA I 1746 255746 37	37
40	40 JSBR 1706 031706 40	40
41	41 INSZ 1746 041746 41	41
42	42 JUMP 1507 E G 021507 42	42
43	43 JSBR I 1567 035567 43	43
44	44 NOT Busy 011715 44	44
45	45 JUMP 1544 021544 45	45
46	46 DATA 014215 46	46
47	47 AN=0 007500 47	47
50	50 JUMP 1553 021553 50	50
51	51 HALT 000001 51	51
52	52 IOPS 013015 52	52
53	53 DATA/START 015115 53	53
54	54 AN=0 007500 54	54
55	55 JUMP 1544 021544 55	55
56	56 LSB 002300 56	56
57	57 CLC, LSB 002700 57	57
60	60 LSB 002300 60	60
61	61 ANDA 1754 061754 61	61
62	62 JUMP I 1543 025543 62	62
63	63 LDA 1742 211742 63	63
64	64 STA 1751 251751 64	64
65	65 CLB, CLC TAB 0 004500 65	65
66	66 JSBR 1543 031543 66	66
67	67 ANDA 1737 061737 67	67
70	70 SKNC F/F SPC 006040 70	70
71	71 CLC, COMSB B/S B 004102 71	71
72	72 ADB Z A 122000 72	72
73	73 DEBZ 1751 051751 73	73
74	74 JUMP 1566 021566 74	74
75	75 CMPE 1755 241755 75	75
76	76 JUMP I 1500 + 0 025500 76	76
77	77 HALT 000001 77	77



OS - "OP" 665 (continued)

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Step	PAG 16	COL 16				Step
00	00	<del>JSBR I</del> 1347	* ENTRY	← 035347 →	00	00
01	01					01
02	02	STA	1746	251746	02	02
03	03	STA	1747	251747	03	03
04	04	STB	1750	261750	04	04
05	05	JSBR	1606	031606	05	05
06	06	JSBR I	1606	035606	06	06
07	07	LDA	1606	211606	07	07
10	10	XORA	1736	101736	10	10
11	11	CLC		B/S @ 004100	11	11
12	12	SFB	Z A	142000	12	12
13	13	ADB	Z A	122000	13	13
14	14	SKC		C/R SFC 006440	14	14
15	15					15
16	16	JSBR	1725	031725	16	16
17	17	STA	1755	251755	17	17
20	20	LDA I	1746	215746	20	20
21	21	JSBR	1706	031706	21	21
22	22	LDA I	1746	215746	22	22
23	23	ANDA	1753	061753	23	23
24	24	RSA		003100	24	24
25	25	RSA		003100	25	25
26	26	SWAPA		L/F B/S- 005010	26	26
27	27	A+VE		007200	27	27
30	30	ADA	1752	111752	30	30
31	31	INCA		003004	31	31
32	32	JSBR	1713	031713	32	32
33	33	LDA I	1746	215746	33	33
34	34	RSA		003100	34	34
35	35	RSA		003100	35	35
36	36	RSA		003100	36	36
37	37	RSA		003100	37	37
40	40	ANDA	1734	061734	40	40
41	41	INCA		003004	41	41
42	42	JSBR	1713	031713	42	42
43	43	LDA I	1746	215746	43	43
44	44	ANDA	1735	061735	44	44
45	45	LSA, INCA		003304	45	45
46	46	LSA		003300	46	46
47	47	JSBR	1713	031713	47	47
50	50	LDA	1746	211746	50	50
51	51	OMPA	1750	231750	51	51
52	52	JUMP	1655	021655	52	52
53	53	INSZ	1746	041746	53	53
54	54	JUMP	1620	021620	54	54
55	55	LDA	1740	211740	55	55
56	56	JSBR	1713	031713	56	56
57	57	LDB	1742	221742	57	57
60	60	STB	1751	261751	60	60
61	61	LDB	1755	221755	61	61
62	62	B+VE		006200	62	62
63	63	INCA		003004	63	63
64	64	JUMP	1672	021672	64	64
65	65	LSA		003300	65	65
66	66	CLC, LSB		002700	66	66
67	67	LRAC		003260	67	67
70	70	CLC, LSB		002700	70	70
71	71	LRAC		003260	71	71
72	72	CLC, LSB		002700	72	72
73	73	LRAC		003260	73	73
74	74	ADA	1741	111741	74	74
75	75	JSBR	1713	031713	75	75
76	76	DESZ	1751	051751	76	76
77	77	JUMP	1665	021665	77	77



OS - "CP" 665 (continued)

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Step							Step
00	70	JSBR	1725		031725	00	00
01	01	JUMP I	1600		025600	01	01
02	02	LDA	1744		211744	02	02
03	03	STA	1745		251745	03	03
04	04	LDA	1747		211747	04	04
05	05	JUMP	1504	F D	021504	05	05
06	06	JSBR I	1541		035541	06	06
07	07						07
10	10	ADA	1755		111755	10	10
11	11	STA	1755		251755	11	11
12	12	JUMP I	1706		025706	12	12
13	13	JSBR I	1603		035603	13	13
14	14	DATA1/START			015433	14	14
15	15	DONE			012733	15	15
16	16	JUMP	1715		021715	16	16
17	17	DATA2A			014233	17	17
20	20	AN=0			007500	20	20
21	21	JUMP I	1713		025713	21	21
22	22	HALT			000001	22	22
23	23	JOPAS			013033	23	23
24	24	JUMP I	1713		025713	24	24
25	25	JSBR I	1617		035617	25	25
26	26	LDB	1736		221736	26	26
27	27	CLA		V/T NUL	005400	27	27
30	30	JSBR	1713		031713	30	30
31	31	DESZ Z B			052001	31	31
32	32	JUMP	1730		021730	32	32
33	33	JUMP I	1725		025725	33	33
34	34				000176	34	34
35	35				000037	35	35
36	36				000306	36	36
37	37			NUL BEL	000007	37	37
40	40	INT ON			000004	40	40
41	41			NUL @	000060	41	41
42	42				000006	42	42
43	43	JUMP	1537	F -	021537	43	43
44	44	JUMP	1540		021540	44	44
45	45	JUMP	1537	F -	021537	45	45
46	46				015500	46	46
47	47	JSBR I	1100	I @	035100	47	47
50	50	JSBR I	1777		035777	50	50
51	51					51	51
52	52			NUL @	000100	52	52
53	53				374000	53	53
54	54				000177	54	54
55	55	ADEC	0111		160111	55	55
56	56	*ENTRY				56	56
57	57	CLA			007002	57	57
60	60	STA	1747		251747	60	60
61	61	LDA	1756		211756	61	61
62	62	STA	1500		251500	62	62
63	63	JUMP	1702		021702	63	63
64	64					64	64
65	65					65	65
66	66					66	66
67	67					67	67
70	70					70	70
71	71					71	71
72	72					72	72
73	73					73	73
74	74			NUL C/R	000015	74	74
75	75			NUL ?	000077	75	75
76	76			NUL BEL	000007	76	76
77	77			NUL @	000060	77	77

665-VERIFY