

00657C PROGRAM DESCRIPTION I

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Program Title RAD 50

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Program Description, Equations, Variables This program converts 3 Alpha characters in the RAD 50 character set (A-Z, 0-9, \$, ') to a number (RAD 1 X 50). The unassigned character is assigned to R. The converted number is displayed in octal. The reverse conversion (octal-Alpha text) is also available.

RAD 50 is defined as: Char 1* (40**2) + Char 2* (40) = Char 3. Here 40 decimal = 50 Octal.

The only unobvious program section is the use of the ARCL and ASHF instructions to break up a text string into characters. The ARCL adds the text in the storage register to that in the A register. Thus, if the A register contained four blanks and the storage contained 'ABC', the ARCL operation would yield 'bbbbABC'. The ASHF instruction shifts left by 6 places leaving 'C' in the A register. This is then put in the Y register and checked against the character set.

Necessary Accessories 1 memory module

Operating Limits and Warnings _____

Reference(s) Fortran IV and User's Guide for PDP-11's published by Digital Equipment Corporation.

This program has been verified only with respect to the numerical example given in Program Description II. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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Sample Problem (Sketch if Desired)

[illegible]

006570

[illegible]

☐ 67 ☐ 97 ☒ 41C

STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
01	PRP "RAD50"			39	INT		
	01+LBL "RAD			40	YTX		
	50"		STORE RAD 50 CHAR	41	RCL 42		CHAR INDEX INTO
02	XEQ 07		SET IN REG 0-39	42	INT		RAD 50 ARRAY
03	"READY"			43	*		
04	AVIEW			44	ST+ 43		ADD TO RAD-50 NUMBER
05	FIX 0			45	ISG 40		DONE ALL 3 CHARS
06	STOP			46	GTO 03		NO
				47	RCL 43		YES CONVERT TO
				48	OCT		OCTAL AND QUIT
				49	STOP		
07+LBL A			NUMBER DATA?	50+LBL 06			CONVERT NUMBER
08 FS?C 22				51 SF 23			TO ALPHA CHAR.
09 CF 23			ALPHA DATA?	52 DEC			
10 FC?C 23				53 64000			CHECK IF IN
11 GTO 06			ALPHA DATA	54 X<Y?			LIMIT FOR 3 RAD 50
12 ASTO 41			ENTER 3 BLANKS	55 GTO 09			CHARS.
13 " "			ADD ALPHA TEXT	56 41.043			COUNT OVER 3 CHARS
14 ARCL 41			AND STORE 6 CHARS	57 STO 40			ALSO USED AS INDEX
15 ASTO 41			THIS LIMITS CONVERT	58 RCL Z			FOR STORING CHARS
16 0			TO 3 CHARS.				
17 STO 43			LOOP COUNT	59+LBL 10			START OF CONVERSION
18 .002			(3 CHARS')	60 40			LOOP
19 STO 40				61 /			
START OF CONVERSION LOOP			FORM 'AAAA ABC'	62 ENTER↑			FORM
20+LBL 03			FIRST TIME THRU	63 FRC			
21 " "			LOOP	64 40			
22 ARCL 41			CHAR SET LOOP COUNT	65 *			N MOD 40 WHERE
23 ASTO 41			SHIFT OFF 6	66 40			N IS INPUT NUMBER
24 .039			CHARS. LEAVES	67 X>Y?			USE MODULUS
25 STO 42			'C' FIRST TIME	68 GTO 08			AS INDEX INTO
26 ASHF			THROUGH				CHAR ARRAY
27 ASTO X				69+LBL 09			
28+LBL 04			GET RAD 50 CHAR	70 "ERROR"			
29 RCL IND				71 AVIEW			
42				72 STOP			
30 X=Y?			ENTERED CHAR?				
31 GTO 05			NO LOOP	73+LBL 08			
32 RDN				74 RDN			
33 ISG 42				75 CLA			GET CHAR
34 GTO 04				76 ARCL IND			
35 GTO 09				X			STORE IN
36+LBL 05			FOUND CHAR	77 ASTO IND			REG 41-43
37 40			FORM 40**N	40			
38 RCL 40			WHERE N=CHAR	78 RDN			
			POSITION	79 INT			CHECK IF DONE
				80 ISG 40			3

00657C

PROGRAM LISTING

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STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
81	GTO	10	NO - LOOP YES FORM CHAR IN AREG.	128	ASTO	19	
82	CLA			129	"T"		
83	ARCL	43		130	ASTO	20	
84	ARCL	42		131	"U"		
85	ARCL	41		132	ASTO	21	
86	AVIEW			133	"V"		
87	STOP			134	ASTO	22	
88	LBL	07		135	"W"		
89	" "			136	ASTO	23	
90	ASTO	00		137	"X"		
91	"A"			138	ASTO	24	
92	ASTO	01		139	"Y"		
93	"B"			140	ASTO	25	
94	ASTO	02		141	"Z"		
95	"C"			142	ASTO	26	
96	ASTO	03		143	"\$"		
97	"D"			144	ASTO	27	
98	ASTO	04		145	"."		
99	"E"			146	ASTO	28	
100	ASTO	05		147	"?"		
101	"F"			148	ASTO	29	
102	ASTO	06		149	"0"		
103	"G"			150	ASTO	30	
104	ASTO	07		151	"1"		
105	"H"			152	ASTO	31	
106	ASTO	08		153	"2"		
107	"I"			154	ASTO	32	
108	ASTO	09		155	"3"		
109	"J"			156	ASTO	33	
110	ASTO	10		157	"4"		
111	"K"			158	ASTO	34	
112	ASTO	11		159	"5"		
113	"L"			160	ASTO	35	
114	ASTO	12		161	"6"		
115	"M"			162	ASTO	36	
116	ASTO	13		163	"7"		
117	"N"			164	ASTO	37	
118	ASTO	14		165	"8"		
119	"O"			166	ASTO	38	
120	ASTO	15		167	"9"		
121	"P"			168	ASTO	39	
122	ASTO	16		169	SF	27	
123	"Q"			170	END		
124	ASTO	17					
125	"R"						
126	ASTO	18					
127	"S"						

Note: Refer to "HP-41C OWNER'S HANDBOOK AND PROGRAMMING GUIDE" for specific information on keystrokes. The Function Index is found at the very back of the Handbook. Refer to Appendix E in 87 or 97 "OWNER'S HANDBOOK AND PROGRAMMING GUIDE" for exact keystrokes.

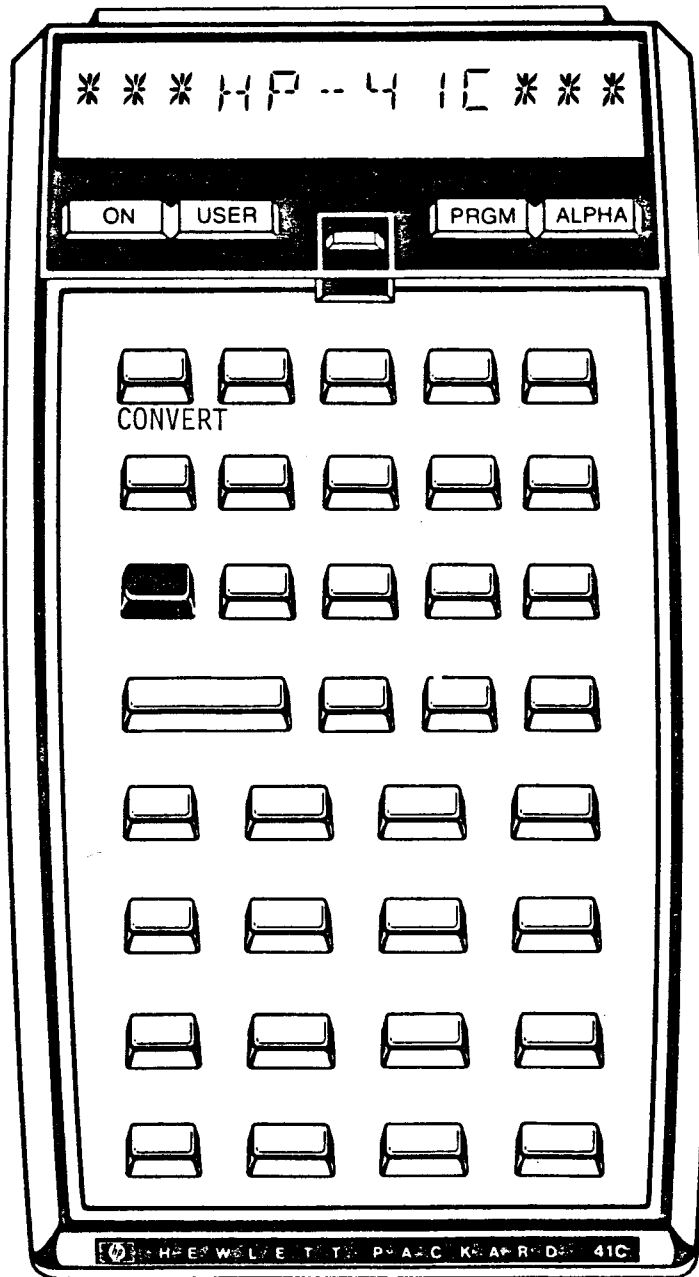
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REGISTERS, STATUS, FLAGS, ASSIGNMENTS

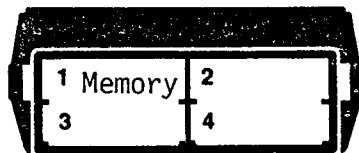
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KEYBOARD CARD LABELING

KEYBOARD



SYSTEM
CONFIGURATION



CARD



PROGRAM REGISTERS NEEDED: 48

ROW 1 (1 : 3)



ROW 2 (3 : 8)



ROW 3 (9 : 14)



ROW 4 (14 : 20)



ROW 5 (21 : 26)



ROW 6 (27 : 34)



ROW 7 (35 : 43)



ROW 8 (44 : 51)



ROW 9 (52 : 56)



ROW 10 (56 : 64)



ROW 11 (64 : 70)



ROW 12 (70 : 80)



ROW 13 (80 : 88)



ROW 14 (89 : 95)



ROW 15 (95 : 101)



ROW 16 (102 : 108)



ROW 17 (108 : 114)



ROW 18 (115 : 121)



ROW 19 (121 : 127)



ROW 20 (128 : 134)



ROW 21 (134 : 140)



ROW 22 (141 : 147)



ROW 23 (147 : 153)



ROW 24 (154 : 160)



ROW 25 (160 : 166)



ROW 26 (167 : 170)



