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PROGRAM LIBRARY

DECUS NO.	8-565
TITLE	RENUM - RENUMBERING PROGRAM FOR BASIC TAPES
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SOURCE LANGUAGE	PAL III

DECLUS

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"RENUM"

Renumbering (Resequencing) Program for BASIC Language Tapes

Hardware: 8-K PDP-8/E (F,M) with high or low-speed paper tape reader and punch.

Function: Reads a BASIC program from a paper tape, and outputs a copy whose first line number is 100, second line number 110, etc. All transfers of control in the original program are readdressed to conform to the new line numbering. Syntax is compatible with both the old and the newer versions of Edu-20 and Edu-25, and thus with many other (but not all) dialects of BASIC.

Restrictions: (a) The original program may contain at most 195 lines.
(b) The original program length must not exceed what can be stored in unpacked form in Field 1. Most programs which satisfy (a) above should meet this requirement.
(c) Line numbers, if any, in the original program which exceed 4095 in value are non-unique and will cause confusion.
(d) Line numbers within comments (' or REM) or double quotes are left unchanged. It is hard to second-guess the writer's intent in such a case.
(e) No check is made on program logic. It is presumed the original program makes sense.
(f) Line numbers are resequenced according to their physical order on the source tape. Normally this is the same as the numerical order.

Features: (a) Input is stripped to 7 bits, compatible with TTY or Dec-writer; output is punched in 8 bits (parity channel always punched), which is standard DEC format for PDP-8's.
(b) Both high and low-speed readers are scanned (turn off the console TTY if using the HSR). The high-speed punch is selected by setting S.R. bit 11.
(c) Line feeds on the output tape are followed by a blank frame, for identification and timing purposes.
(d) Output line numbers are limited to the range 100 to 2040, which is compatible with PDP-8 BASICS.

Use: (a) Load Renum with a binary loader. The program loads into Field 0; Field 1 is used for storage.
(b) Place original BASIC program tape into the appropriate reader and turn the reader on. Also turn on the paper tape punch.
(c) Load address = 0200. Set (raise) S.R. bit 11 if the high-speed paper tape punch is in use. Start the computer.

Halts: (a) Normal halt is at address 177 (M.A. lights show 0200).
(b) Program halts during the read cycle are due to too many lines or to too much text (see listing at address of halt).
(c) A halt during punching (address 533) indicates reference in the original program to a non-existent line number.

/RENUMBERING PROGRAM FOR BASIC

/PAGE 0: CONSTANTS, POINTERS, SUBROUTINES

FIELD 0 /FIELD 1 STORES THE PROGRAM PRO TEM

*20

0020	0000	READ,	0	
0021	6031		KSF	
0022	5030		JMP HI	
0023	6036		KRB	
0024	0036	OUT,	AND K177	/READ 7 BITS ONLY-FORGET PARI TY
0025	7421		MQL	
0026	7701	M77,	MQA CLA	
0027	5420		JMP I READ	
0030	6011	HI,	RSF	/CHECK BOTH READERS
0031	5021		JMP READ+1	
0032	7200		CLA	
0033	6016		RRB RFC	
0034	5024		JMP OUT	
0035	0720	PCK STO,	CKSTOR	
0036	0177	K177,	177	
0037	0000	PUNCH,	0	
0040	1052		TAD OUTPUTN	
0041	3020		DCA SAV	/CHAR.+200
0042	7604		LAS	/BIT 11 SELECTS H. S. P.
0043	7110		CLL RAR	
0044	7630		SZL CLA	
0045	5060		JMP HSP	
0046	1020		TAD SAV	
0047	6041		TSF	
0050	5047		JMP .-1	
0051	6046		TL S	
0052	7200	OUTPUTN,	CLA	
0053	1020		TAD SAV	
0054	1065		TAD M212	/LIVE FEED? IF SO, ADD A BLANK
0055	7650		SVA CLA	
0056	5041		JMP PUNCH+2	
0057	5437		JMP I PUNCH	
0060	1020	HSP,	TAD SAV	
0061	6021		PSF	
0062	5061		JMP .-1	
0063	6026		PL S	
0064	5052		JMP OUTPUTN	
0065	0566	M212,	-7212	

SAV=READ

0066	0000	LDR,	0	
0067	1026		TAD M77	/63 FRAMES
0070	3075		DCA CTR	
0071	4037		JMS PUNCH	
0072	2075		ISZ CTR	
0073	5071		JMP .-2	
0074	5466		JMP I LDR	
0075	0000	CTR,	0	
0076	0000	SPNOR2,	0	/FETCH CHAR. FOR OUTPUT
0077	4117		JMS XSPC	
0100	5476		JMP I SPNOR2	/NOT A SPACE. EXIT
0101	4037		JMS PUNCH	
0102	5077		JMP SPNOR2+1	
0103	0000	SPNOR3,	0	
0104	4020		JMS READ	
0105	1152		TAD M40	
0106	7650		SVA CLA	
0107	5104		JMP .-3	/DISREGARD SPACES
0110	7501		MQA	
0111	5503		JMP I SPNOR3	
0112	0000	SPNOR4,	0	
0113	4117		JMS XSPC	
0114	5512		JMP I SPNOR4	/NOT A SPACE
0115	7200		CLA	
0116	5113		JMP .-3	
0117	0000	XSPC,	0	
0120	1010		TAD 10	
0121	7041		CIA	
0122	1011		TAD 11	
0123	7650		SVA CLA	
0124	5176		JMP 176	/ALL STORED TEXT HAS BEEN PUNCHED. EXIT.
0125	6211		CDF 10	
0126	1411		TAD I 11	
0127	6201		CDF	
0130	7421		SQL	
0131	7501		MQA	
0132	1152		TAD M40	
0133	7650		SVA CLA	
0134	2117		INC XSPC	/SPACE? RETURN TO CALL+2
0135	7501		MQA	
0136	5517		JMP I XSPC	

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0137 0000 CRTEST, 0
0140 1154 TAD M15
0141 7640 SZA CLA
0142 5146 JMP .+4
0143 7501 MQA
0144 4037 JMS PUNCH
0145 5556 JMP I PLIVE /C.R.=NEW LINE
0146 7501 MQA
0147 5537 JMP I CRTEST

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0150 0077 K77, 77
0151 7767 M11, -11
0152 7740 M40, -40
0153 7720 M60, -60
0154 7763 M15, -15
0155 0730 TWOMRP, TWOMOR
0156 0335 PLINE, LIVE
0157 0345 PTXT, TXT
0160 0304 PCKNUM, CKNUM

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0161 0705 PGETC, GETC
0162 0315 PDECPK, DECPAK
0163 7736 MIN42, -42 / - DBL. QUOTE MARK
0164 0600 DECIML, 600 /TO DECTP
0165 0000 TEMP10, 0 /DECIMAL #, DURING PACKING
VEX2,
0166 0000 SAVE, 0
0167 0132 VINETY, 132 /=90

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*176

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0176 4066 JMS LDR
0177 7402 HLT /RESTART BY "CONTINUE"

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/**** START AT 00200 ****
/PASS1: READ TAPE, CHANGE & STORE LINE NUMBERS

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0200 6026 FLS
0201 6040 SPF
0202 6032 KCC
0203 6014 RFC
0204 3010 DCA 10 /TEXT STORAGE
0205 7130 CLL CML RAR /4000
0206 3012 DCA 12 /LIST OF LINE NOS.
0207 3165 DCA TEMP10
0210 1167 TAD NINETY
0211 3300 DCA TENX /10*X (LINE #S. 100-2040)

0212 4103 JMS SPNOR3 /READ 7 BITS, IGNORING SPACES
0213 7650 SVA CLA
0214 5212 JMP .-2 /IGNORE 0 OR 200 LEADER
0215 5227 JMP CHAR

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0216	1303	LYNE,	TAD M30	
0217	3302		DCA TRAILC	/MORE THAN 24 BLANKS=END OF TAPE
			/	(CODE 200 COUNTS AS A BLANK)
0220	3165		DCA TEMP10	/CLEAR IT
0221	4103		JMS SPNOR3	/READ; DISCARD SPACES, IF ANY
0222	7640		SZA CLA	/BLANK?
0223	5227		JMP CHAR	/NO
0224	2302		ISZ TRAILC	/ 24 YET?
0225	5221		JMP LYNE+3	/ NO
0226	5332		JMP PASS2	/ 2ND PHASE: READ BUFFER, PUNCH
0227	7501	CHAR,	MQA	
0230	4304		JMS CKNUM	/IS IT A NUMERAL?
0231	5235		JMP NUMBER	/YES
		/.....		
0232	7501		MQA	/NO
0233	4435		JMS I PCKSTOR	/STORE IN FIELD 1
0234	5221		JMP LYNE+3	
		/.....		
0235	4315	NUMBER,	JMS DECPAK	/MERGE EACH DECIM. DIGIT
			/	INTO 1-WD. BINARY NO.
0236	4103		JMS SPNOR3	/GET NEW DIGITS
0237	4304		JMS CKNUM	
0240	5235		JMP NUMBER	/IF A NUMBER
				/AFTER READING A NON-NUMBER:
0241	1165		TAD TEMP10	
0242	3412		DCA I 12	/STORE OLD LINE NO. IN TABLE
0243	1300		TAD TENX	/LAST MULTIPLE-OF-TEN NO.
0244	1301		TAD TEN	
0245	7510		SPA	
0246	7402		HLT	/TOO MANY LINES (>195)
0247	3300		DCA TENX	/ADD 10 DEC.
0250	1300		TAD TENX	
0251	3412		DCA I 12	/STORE NEW LINE NO. IN TABLE
0252	1300		TAD TENX	
0253	7041		CIA	
0254	4435		JMS I PCKSTOR	/STORE -NEW LINE NO. IN TEXT
0255	7501		MQA	
0256	7410		SKP	
0257	4266	RESTLN,	JMS SPNOR1	/NOW GET REST OF THE LINE
0260	4435		JMS I PCKSTOR	
0261	7501		MQA	/TEST FOR C. R.
0262	1154		TAD M15	
0263	7640		SZA CLA	
0264	5257		JMP RESTLN	/NOT FOUND
0265	5216		JMP LYNE	/FOUND, BEGIN NEW LINE

/-----
 /SUBROUTINES, PAGE 1:

0266	0000	SPVOR1, 0	
0267	4020	JMS READ	
0270	1152	TAD M40	
0271	7640	SZA CLA	
0272	5276	JMP .+4	/NOT A SPACE
0273	7501	MQA	
0274	4435	JMS I PCKSTOR	
0275	5267	JMP SPVOR1+1	/STORE, IGNORE, GET MORE
0276	7501	MQA	/ NOV-SPACE CHARS.
0277	5666	JMP I SPVOR1	
0300	0000	TEVX, 0	
0301	0012	TEV, 12	
0302	0000	TRAILC, 0	
0303	7750	M30, -30	
0304	0000	CKNUM, 0	/CHAR. IN AC WHEN CALLED
0305	1153	TAD M60	
0306	7510	SPA	
0307	5312	JMP NOTNUM	
0310	1151	TAD M11	
0311	7540	SMA SZA	
0312	2304	NOTNUM, INC CKNUM	/NOV-NUMBER: RETURN TO CALL+2
0313	7200	CLA	
0314	5704	JMP I CKNUM	/EXITS WITH AC=0
0315	0000	DECPAK, 0	/AC=0 WHEN ENTERED
0316	1165	TAD TEMP10	/PREVIOUS PACKED DECIMALS, IF ANY
0317	7104	CLL RAL	
0320	3165	DCA TEMP10	/N*2
0321	1165	TAD TEMP10	
0322	7106	CLL RTL	
0323	1165	TAD TEMP10	/N*2+N*8=N*10
0324	3165	DCA TEMP10	
0325	7501	MQA	/RETRIEVE NEW DIGIT
0326	1153	TAD M60	/STRIP IT
0327	1165	TAD TEMP10	/ADD PREV. DIGITS (ROTATED)
0330	3165	DCA TEMP10	
0331	5715	JMP I DECPAK	/AC=0

PAUSE

/PASS 2: READ BUFFER, READDRESS THEN, GOTO, GO SUB,
/PUNCH OUTPUT TAPE

0332	3011	PASS2,	DCA 11	/CLEAR OUT PTR. TO FIELD 1
0333	3412		DCA I 12	/END LINE NO. LIST WITH 0
0334	4066		JMS LDR	
0335	4561	LINE,	JMS I PGETC	/GET CHAR.: EXIT IF C.R., BKSL SH.
0336	7510		SPA	/LINE NO. AT START OF LINE
			/	IS STORED AS A NEG. NO.
0337	5342		JMP .+3	
0340	4037		JMS PUNCH	/ NOT A LINE NO.
0341	5335		JMP LINE	/ TRY AGAIN
0342	7041		CIA	/FOUND. MAKE NO. POSITIVE...
0343	4564		JMS I DECIML	/...AND PUNCH IT IN DECIMAL FORM
0344	0040		40	/ARGUMENT (LEADING SPACES)
0345	7200	TX T,	CLA	
0346	4561		JMS I PGETC	
0347	4037		JMS PUNCH	
0350	7501		MQA	/RETRIEVE CHAR.
0351	3166		DCA SAVE	/FOR ADDITION
0352	1372		TAD KLIST1	/BOTTOM OF LIST1
0353	3075		DCA PTR	

PTR=CTR

0354	1475	LOOPLS,	TAD I PTR	/LOOP THROUGH LIST1.
0355	7500		SMA	
0356	5345		JMP TXT	/POS. NO. ENDS THE LIST
0357	1166		TAD SAVE	
0360	7650		SNA CLA	
0361	5364		JMP .+3	
0362	2075		INC PTR	/ NOT FOUND SO FAR
0363	5354		JMP LOOPLS	/ ...SO TRY AGAIN
0364	1075		TAD PTR	/FOUND. NOW GET TO PROPER
			/	ROUTINE FOR THIS CHAR.
0365	1373		TAD AUGMNT	
0366	3075		DCA PTR	
0367	1475		TAD I PTR	/ADDRESS OF ROUTINE
0370	3075		DCA PTR	
0371	5475		JMP I PTR	/BON VOYAGE!
0372	0374	KLIST1,	LIST1	
0373	0005	AUGMNT,	LIST2-LIST1	
0374	7736	LIST1,	-42	/"
0375	7731		-47	/'
0376	7671		-107	/G
0377	7656		-122	/R
0400	7654		-124	/T

0401	0406	LIST2,	QUOTES	
0402	0421		APOSTR	
0403	0446		G	
0404	0416		R	
0405	0424		T	
0406	4076	QUOTES,	JMS SPNOR2	
0407	4137		JMS CRTEST	/C.R. AND " END THE QUOTE;
			/	BACKSLASH DOES NOT.
0410	4037		JMS PUNCH	
0411	7501		MQA	
0412	1163		TAD MIN42	
0413	7640		SZA CLA	
0414	5206		JMP QUOTES	
0415	5557		JMP I PTXT	/"
0416	1302	R,	TAD MINEM	
0417	4555		JMS I TWOMRP	/READ & ECHO NEXT 2 FRAMES;
			/	EXIT IF C.R. OR BACKSLASH
0420	5557		JMP I PTXT	/NO, NOT A "REM" COMMAND
0421	4561	APOSTR,	JMS I PGETC	/GET CHAR.; EXIT IF C.R. OR \
0422	4037		JMS PUNCH	
0423	5221		JMP .-2	
0424	1303	T,	TAD MINHE	
0425	4555		JMS I TWOMRP	
0426	5557		JMP I PTXT	/NO, NOT A "THE(N)" COMMAND
0427	4561		JMS I PGETC	/YES; WHAT FOLLOWS?
0430	4560		JMS I PCKNUM	/IS IT A NUMERAL?
0431	5243		JMP .+12	/YES
			/-----	
0432	7501		MQA	/NO. PERHAPS IT'S "N"?
0433	1304		TAD MINN	
0434	7650		SVA CLA	
0435	5240		JMP .+3	
0436	4351		JMS BACKUP	/NOT N. EXIT.
0437	5557		JMP I PTXT	
0440	7501		MQA	
0441	4037		JMS PUNCH	
0442	7410		SKP	/IT IS N. DOES A NUMERAL FOLLOW?
			/-----	
0443	4351		JMS BACKUP	/COUNT BACK PTR.=11 BY 1
0444	4312		JMS GETNUM	/GET, UPDATE, PUNCH LINE NO.
			/	(IF NO LINE NO., EXIT)
0445	5557		JMP I PTXT	/...AND EXIT TO "TXT"
0446	1300	G,	TAD MINOS	
0447	4555		JMS I TWOMRP	
0450	5255		JMP GO TO	

0451	1301	GO SUB,	TAD MINUB	
0452	4555		JMS I TWOMRP	
0453	7000		NOP	
0454	5273		JMP COMMA	
0455	1305	GO TO,	TAD MINOT	
0456	4555		JMS I TWOMRP	
0457	5557		JMP I PTXT	/NO 1 "GO T"
0460	4561		JMS I PGETC	
0461	4560		JMS I PCKNUM	/NUMERAL?
0462	5272		JMP .+10	/YES
/-----				
0463	7501		MQA	/NO
0464	4037		JMS PUNCH	
0465	7501		MQA	
0466	1310		TAD MINO	/"0"?
0467	7640		SZ A CLA	
0470	5557		JMP I PTXT	/NO, EXIT.
0471	7410		SKP	/YES, HUNT FOR LINE NO.
/-----				
0472	4351		JMS BACKUP	/BACK UP PTR.=11
0473	4312	COMMA,	JMS GETNUM	
0474	1311		TAD MCOMMA	/"", "?" (AS IN ON... GO TO)
0475	7650		SNA CLA	
0476	5273		JMP .-3	/IT IS A COMMA, LOOK FOR MORE
			/	LINE NUMBERS
0477	5557		JMP I PTXT	/NOT A COMMA, EXIT
0500	6055	MINO S,	-1723	
0501	5276	MINUB,	-2502	
0502	7263	MINEM,	-0515	
0503	6773	MINHE,	-1005	
0504	7662	MINN,	-116	
0505	6054	MINOT,	-1724	
0506	7653	MINU,	-125	
0507	7676	MINB,	-102	
0510	7661	MINO,	-117	
0511	7724	MCOMMA,	-54	
/PAGE 2 SUBROUTINE:				
0512	0000	GETNUM,	0	/AC=0. SUBR. LOOKS FOR A LINE NUMBER;
		/		IF FOUND, CHANGES IT TO NEW LINE NO.
		/		VIA TABLE; IF NOT FOUND, EXITS.
0513	7330		CLA CLL CML RAR / 4000	
0514	3012		DCA 12	
0515	3165		DCA TEMP10	/CLEAR IT OUT
0516	4076		JMS SPNOR2	
0517	4560		JMS I PCKNUM	/A NUMERAL?
0520	5325		JMP .+5	/YES

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/.....
0521 7501 MQA /NO
0522 4137 JMS CRTEST /C.R.? IF SO, JMP TO "LINE"
0523 4351 JMS BACKUP /BACK UP PTR.=11; WE MIGHT HAVE
/ AN "IF... THEN GOTO" ON OUR HANDS.
0524 5557 JMP I PTXT

/.....
0525 4562 JMS I PDECPK /STRIP NEW DIGIT, ADD TO PREV.
/ TOTAL * 10
0526 4112 JMS SPNOR4 /IGNORE SPCS. ENTIRELY
0527 4560 JMS I PCKNUM /NUMERAL?
0530 5325 JMP --3 /YES, KEEP ON PACKING

0531 1412 SEARCH, TAD I 12 /NO. NOW LOOK UP OLD LINE NO.
0532 7450 SNA
0533 7402 HLT /THERE AIN'T NO SICH LINE NO.
0534 7041 CIA
0535 1165 TAD TEMP10
0536 7640 SZA CLA
0537 5347 JMP NOTYET /NOT YET FOUND IN TABLE

/::::::::::
0540 1412 TAD I 12 /NEW LINE NO. FOLLOWS OLD IN TABLE
0541 4564 JMS I DECIML /TYPE IT, IN DECIMAL FORM
0542 4351 JMS BACKUP /BACK UP PTR.=11
0543 4561 JMS I PGETC /THIS RETRIEVES STOP CHAR. (1ST
/ NON-NUMERAL)
0544 4037 JMS PUNCH
0545 7501 MQA /RETRIEVE CHAR. AGAIN
0546 5712 JMP I GETNUM /...AND RETURN

/::::::::::
0547 2012 NOTYET, INC 12 /OLD LINE NOS. ARE ODD LOCNS.
0550 5331 JMP SEARCH

0551 0000 BACKUP, 0
0552 7240 CLA CMA
0553 1011 TAD 11
0554 3011 DCA 11
0555 5751 JMP I BACKUP

/DECIMAL PUNCH FOR LINE NOS.

*600

0600 0000 DECTP, 0
0601 3266 DCA TEMPO /NUMBER (& LATER, REMAINDERS)
/ IN TEMPO
0602 1267 TAD PDIG1
0603 3301 DCA PTRDIG /WHICH POINTS TO DIGITS OF
/ OUTPUT NUMBER
0604 1273 TAD PTEVS
0605 3302 DCA PTR10 /WHICH POINTS TO 10* N LIST
0606 7346 CLA CLL CMA RTL /-3
0607 3277 DCA COUNTR

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0610	3701	LOOPD1,	DCA I PTRDIG	/CLEAR OUTPUT DIGIT
0611	1266		TAD TEMPO	
0612	1702		TAD I PTR10	/ - (POWER OF 10)
0613	7510		SPA	
0614	5217		JMP .+3	
0615	2701		INC I PTRDIG	/DIGIT=DIGIT+1
0616	5212		JMP .-4	/SUBTRACT ONCE MORE
0617	7041		CIA	
0620	1702		TAD I PTR10	
0621	7041		CIA	/THIS RESTORES THE 10 ^N ,
			/	WHICH WAS SUBTR. ONCE TOO OFTEN
0622	3266		DCA TEMPO	/STORE RMNDR. AS NEW MINUEND
0623	2301		INC PTRDIG	/POINT TO NEXT DIGIT
0624	2302		INC PTR10	/POINT TO NEXT LOWER 10 ^N
0625	2277		ISZ COUNTR	/DONE 3 DIGITS YET?
0626	5210		JMP LOOPD1	/NO, DO MORE
0627	7346		CLA CLL CMA RTL	/-3
0630	3277		DCA COUNTR	/COUNT DIGITS #1-#3
0631	1267		TAD PDIG1	
0632	3301		DCA PTRDIG	
0633	3300		DCA NON0	/0 UNTIL NON-0 DIGIT
0634	1701	LOOPD2,	TAD I PTRDIG	
0635	7450		SVA	
0636	1300		TAD NON0	
0637	3300		DCA NON0	
0640	1300		TAD NON0	
0641	7650		SVA CLA	
0642	5247		JMP .+5	
		/-----		
0643	1701		TAD I PTRDIG	/NOT A LEADING 0; PUNCH IT.
0644	1304		TAD K60	
0645	4037		JMS PUNCH	
0646	5253		JMP .+5	
		/-----		
0647	1600		TAD I DECTP	/ARGUMENT, IF ANY
0650	7500		SMA	
0651	4037		JMS PUNCH	/IT WAS 40, LEADING SPCS. WANTED
0652	7200		CLA	
0653	2301		INC PTRDIG	
0654	2277		ISZ COUNTR	/DONE ALL 3?
0655	5234		JMP LOOPD2	/NO, GET NEXT
0656	1266		TAD TEMPO	/THE LAST OF THE MCHNS.
0657	1304		TAD K60	
0660	4037		JMS PUNCH	
0661	1600		TAD I DECTP	
0662	7500		SMA	
0663	4037		JMS PUNCH	/ARG.=40, PRINT TRAILING SPACE
0664	7200		CLA	
0665	5600		JMP I DECTP	

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/
0666 0000 TEMPO, 0
0667 0670 PDI G1, .+1
0670 0000 DI G1, 0
0671 0000 DI G2, 0
0672 0000 DI G3, 0
0673 0674 PTENS, .+1

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DECIMAL

```

0674 6030 -1000
0675 7634 -100
0676 7766 -10

```

OCTAL

```

0677 0000 COUNTR, 0
0700 0000 NON0, 0
0701 0000 PTRDI G, 0
0702 0000 PTR10, 0
0703 0040 K40, 40 /SPACE
0704 0060 K60, 60 /NUMERAL CODE

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/PAGE 3 SUBROUTINES:

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0705 0000 GETC, 0 /THIS SUBR. GETS NEXT CHAR. FROM STORAGE.
/ IF A C.R., PUNCH & EXIT TO "LINE"; IF
/ A BACKSLASH, PUNCH & EXIT TO "TXT";
/ OTHERWISE, RETURN TO CALL+1 WITH CHAR.

0706 4076 JMS SPNOR2
0707 4137 JMS CRTEST
0710 1367 TAD MBSLSH
0711 7650 SVA CLA
0712 5315 JMP .+3
0713 7501 MQA /RETRIEVE CHAR.
0714 5705 JMP I GETC /...AND EXIT
0715 7501 MQA
0716 4037 JMS PUNCH
0717 5557 JMP I PTXT /IT WAS A BACKSLASH

0720 0000 CKSTOR, 0 /STORES CHAR., CHECKS FOR OVERFLOW
0721 6211 CDF 10
0722 3410 DCA I 10
0723 6201 CDF
0724 1010 TAD 10
0725 7650 SVA CLA
0726 7402 HLT /OVERFLOW OF FLD 1. TOO MUCH TEXT.
0727 5720 JMP I CKSTOR

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SAV2=LDR

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0730 0000 TWOMOR, 0 /READS 2 MORE CHAR.'S AFTER A "G",
/ "R", OR "T" HAS BEEN FOUND

0731 3066 DCA SAV2 /((STORE -HE, -OT, ETC.)
0732 1011 TAD 11
0733 3075 DCA PTR /SAVE CURRENT POINTER
/+++++++
0734 7200 CLA
0735 4117 JMS XSPC /GET CHAR.
0736 7410 SKP
0737 5334 JMP .-3 /IT WAS A SPACE, IGNORE IT!
/+++++++
0740 3165 DCA TEMP10
0741 7501 MQA /RETRIEVE CHAR.
0742 0150 AND K77 /[SHV. & HRCUT.]
0743 7002 BSW
0744 3166 DCA NEX2
/-----
0745 7200 CLA
0746 4117 JMS XSPC
0747 7410 SKP
0750 5345 JMP .-3 /IGNORE SPACES AGAIN
/-----
0751 0150 AND K77
0752 1166 TAD NEX2 /THUS PACKING 2 CHAR.'S
0753 1066 TAD SAV2 /THE RIGHT TWO?
0754 7650 SVA CLA
0755 5361 JMP TWO FND /YES
0756 1075 TAD PTR /NO GOOD, SO...
0757 3011 DCA 11 /...RESTORE 11
0760 5730 JMP I TWOMOR /AND SAY GOODBYE
0761 1165 TWO FND, TAD TEMP10
0762 4037 JMS PUNCH
0763 7501 MQA
0764 4037 JMS PUNCH
0765 2330 INC TWOMOR
0766 5730 JMP I TWOMOR
0767 7644 MBSL SH, -134
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APO STR	0421
AUGNT	0373
BACKUP	0551
CHAR	0227
CKNUM	0304
CKSTOR	0720
COMMA	0473
COUNTR	0677
CRTEST	0137
CTR	0075
DECIML	0164
DECPAK	0315
DECTP	0600
DIG1	0670
DIG2	0671
DIG3	0672
G	0446
GETC	0705
GETNUM	0512
GO SUB	0451
GO TO	0455
HI	0030
HSP	0060
KLIST1	0372
K177	0036
K40	0703
K60	0704
K77	0150
LDR	0066
LINE	0335
LIST1	0374
LIST2	0401
LOOPD1	0610
LOOPD2	0634
LOOPLS	0354
LYNE	0216
MBSL SH	0767
MCOMMA	0511
MINB	0507
MINEM	0502
MINHE	0503
MINN	0504
MINO	0510
MINOS	0500
MINOT	0505
MINU	0506
MINUB	0501
MIN42	0163
M11	0151
M15	0154
M212	0065
M30	0303
M40	0152
M60	0153
M77	0026
NEX2	0166
NINETY	0167

NON 0	0700
NO TNUM	0312
NO TY ET	0547
NUMBER	0235
OUT	0024
OUTPUN	0052
PASS2	0332
PCKNUM	0160
PCK STO	0035
PDECFK	0162
PDI G1	0667
PGETC	0161
PLINE	0156
PTEN S	0673
PTR	0075
PTRDI G	0701
PTR10	0702
PTX T	0157
PUNCH	0037
QUOTES	0406
R	0416
READ	0020
RESTLN	0257
SAV	0020
SAVE	0166
SAV2	0066
SEARCH	0531
SPNOR1	0266
SPNOR2	0076
SPNOR3	0103
SPNOR4	0112
T	0424
TEMPO	0666
TEMP10	0165
TEN	0301
TENX	0300
TRAIL C	0302
TWO FND	0761
TWOMOR	0730
TWOMRP	0155
TX T	0345
XSPC	0117

