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TITLE	RENUM, V2 - RENUMBERING (RESEQUENCING) PROGRAM FOR BASIC LANGUAGE PAPER TAPES
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SOURCE LANGUAGE	PAL III

"RENUM", version 2

Renumbering (Resequencing) Program for BASIC Language Paper Tapes

Hardware: 8-K PDP-8 series processor with high or low-speed paper tape reader and punch. With one patch, should run (with reduced storage capacity) on a 4-K machine. It ought to run also on the PDP-12; users of the PDP-8/S, however, will have to change some coding.

Function: RENUM reads in a BASIC language program on the paper tape reader, stores it in somewhat condensed form in core, and then outputs a resequenced copy. When the program is started at 00200, the output begins with line 100 and goes up by 10's to a maximum value of 2040; a start at 01000 does the same, except that output lines start at 50 and go up by 5's. RENUM remains in the "50 & 5" mode unless patched (locations NINETY and TEN) or reloaded.

Input characters are looked up in a translation table, locations 1200-1377, allowing the user to null out characters, or to cause (e.g.) backslashes to become colons. The table is very easy to alter: address 1000 + the 8-bit character found usually on coding cards or in the manuals (e.g., space = 240, giving address 1240) contains the translation of that character. Only the lowest 7 bits are read, thus 1240 = 240 = 40 to the program.

Syntax: Backslash and colon terminate commands; apostrophe and ! are recognized as introducing "tag" comments. IF X=5 THEN PRINT Y is legal, as are the 3-letter abbreviations of Edu-20/25.

Length: line numbers, 195 max.; if started at 1000, then 400 max. text, 6172 characters (8-K) or 2304 characters (4-K).
Note: Initial line numbers with any preceding or following spaces or tabs count as one character; carriage return/line feeds as zero characters (they aren't stored in core).

Format: The output tape begins and ends with CR/LF. Initial line numbers get no leading space (Edu-30 would null such lines) and are followed by one trailing space. Otherwise, spaces and horizontal tabs are preserved and cause the program no difficulty. Line feeds are followed by null frames (000) for timing purposes -- helpful when the paper tape is read in "live", with echo on, to BASIC.

Locations 17600-17777 are now protected and will not be overwritten.

Error Halts: On input, locations 244 or 246: too many line numbers. Locations 1030 or 1034: too much text (fatal). On output, a halt at 534 indicates a branch in the original program to a non-existent line. Normal halt (no errors) is at 177.

Use: Load with a binary loader. If you have only 4K of core, deposit 7402 into location "FIELD1" (1030). Load address 0200 or 1000 (see above); if you are using the high-speed punch, set (raise) switch register bit #11. Load your input BASIC program tape into either paper tape reader (both are scanned) and turn on the punch. Now start the processor.