DECUS

PROGRAM LIBRARY

DECUS NO.	8-81
TITLE	A BIN or RIM Format Data or Program Tape Generator
AUTHOR	R. F. Templeman
COMPANY	University of Manchester, England
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FORMAT	

A BIN OR RIM FORMAT DATA OR PROGRAM TAPE GENERATOR

Program Library Write-up   DECUS No. 8-81

ABSTRACT

This program enables the PDP-8 operator to generate tapes under Teletype control in RIM or PAL BIN format without formal assembly, assuming the operator knows the octal codes corresponding to each instruction. This is particularly useful when dealing with small programs for testing interface equipment or making small modifications to large programs when one does not wish to spend time reassembling the whole program. Often during program debugging, changes are repeatedly toggled into core manually which leaves no permanent record of the changes made and is prone to error. Tapes generated using this program can be appended to existing BIN or RIM tapes and can then be loaded with the original tape into core with the appropriate loader. Another use of this program is in the preparation of data tapes in RIM or BIN format so that data can be loaded straight into PDP-8 core via the usual loaders. The program also generates leader/trailer code and a checksum under program control.

REQUIREMENTS

Storage: Program occupies locations 6000_8 - 6077_8.

Equipment: PDP-8 with ASR-33

USAGE

Loading: The program is loaded with the Binary Loader (Digital-8-2-U)

Switch settings: None

    1. Start up/Entry
    2. Load binary tape
    3. Set C (SR) = 6000_8
    4. Press Load address
    5. Turn on punch with ASR-33 on line
    6. Press Start

Program will cycle awaiting first character from ASR-33.

RESTRICTIONS

Program is not relocatable. There is no recovery from typing incorrect characters on the keyboard.

DESCRIPTION

The tape generator uses a fixed algorithm which is explained in the flow diagram. Typing
a B on the Teletype causes a leader to be punched. Typing a C is used to punch the checksum
on binary tapes and a trailer. A is typed to specify origin setting. Numbers 0 through 7
are used to punch the corresponding numbers on tape. No returns or line feeds are required.

For example, to generate a program tape of this program from the listing for:

    1.   a BIN format tape one would type

        BA600060323277-------------0000C

    2.   a RIM format tape one would type

        BA60006032A60013277A6002 ------------A60770000B

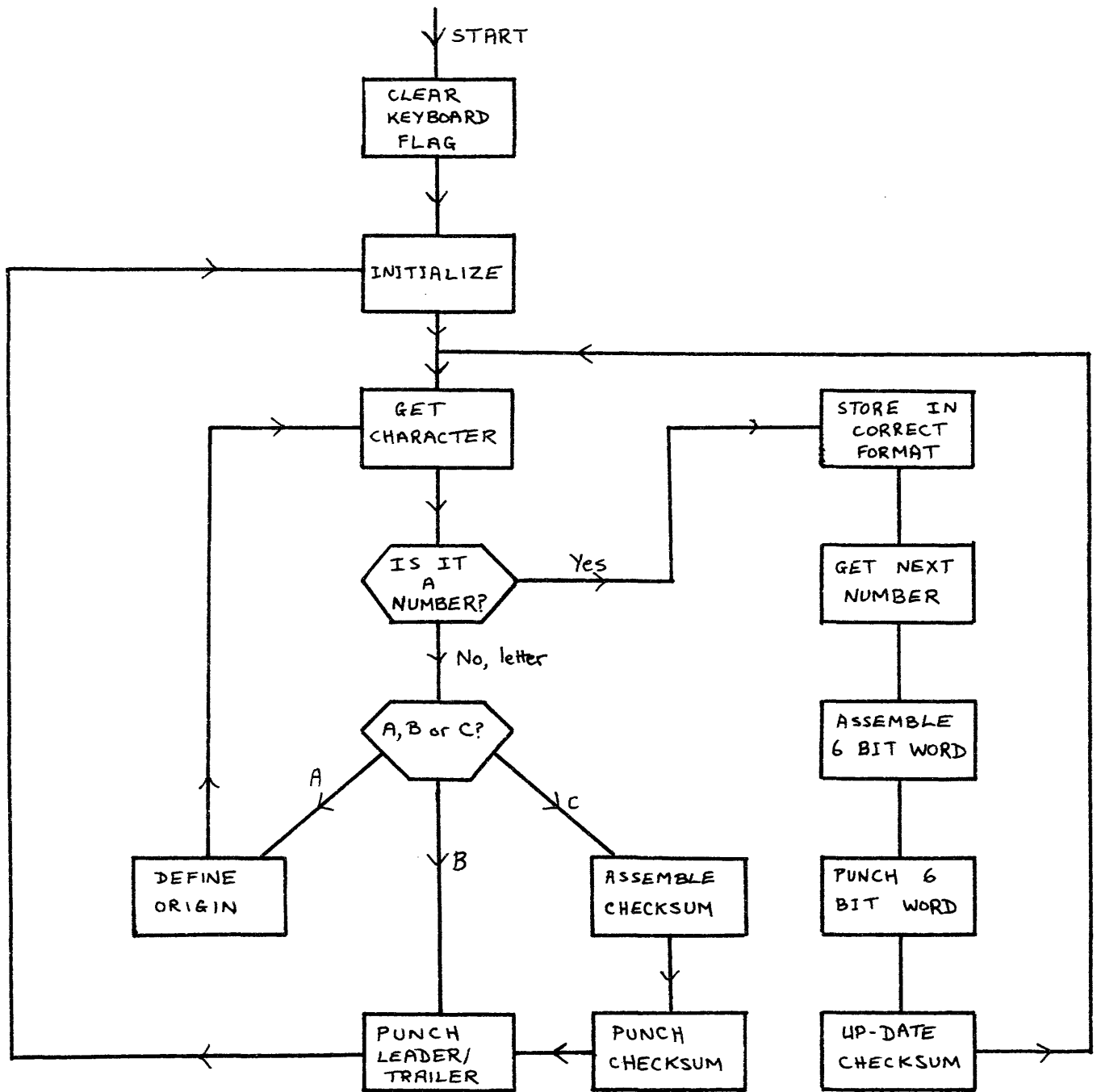No checksum is required when preparing RIM format tapes.

FORMAT

Input format is given in above example.

Output format is RIM or BIN as required.

EXECUTION TIME

Limited by input/output time.

FLOW DIAGRAM

```
                    *6000
6000  6032          KCC                    /INITIALISATION
6001  3277          DCA CHKSUM
6002  1274          TAD K100
6003  7040          CMA
6004  3275          DCA P
6005  3276  BEGIN,  DCA DMP
6006  6031          KSF                    / GET CHARACTER
6007  5206          JMP .-1
6010  6036          KRB
6011  1272          TAD M272
6012  7500          SMA                    /IS IT LETTER OR NUMBER?
6013  5232          JMP INST               /LETTER
6014  1271          TAD K12                /NUMBER
6015  7104          RAL CLL
6016  7006          RTL
6017  1276          TAD DMP
6020  3276          DCA DMP                /STORE MOST SIG. HALF
6021  6031          KSF
6022  5221          JMP .-1
6023  6036          KRB
6024  0273          AND M7
6025  1276          TAD DMP                /ASSEMBLE WORD
6026  6046          TLS
6027  1277          TAD CHKSUM             /UPDATE CHECKSUM
6030  3277          DCA CHKSUM
6031  5205          JMP BEGIN
6032  1267  INST,   TAD KON                /WHICH LETTER?
6033  3234          DCA .+1
6034  0000          0
6035  5251          JMP ORIGIN             /A
6036  5253          JMP LEADER             /B
6037  1277          TAD CHKSUM             /C
6040  7112          CLL RTR                /OUTPUT CHECKSUM
6041  7012          RTR
6042  7012          RTR
6043  0270          AND M77
6044  4261          JMS PUNCH
6045  1277          TAD CHKSUM
6046  0270          AND M77
```

```
6047   4261              JMS PUNCH
6050   5253              JMP LEADER          / PUNCH TRAILER
6051   1274   ORIGIN,    TAD K100            /DEFINE ORIGIN
6052   5205              JMP BEGIN
6053   1274   LEADER,    TAD K100            /PUNCH LEADER
6054   1274              TAD K100
6055   4261              JMS PUNCH
6056   2275              ISZ P
6057   5253              JMP LEADER
6060   5201              JMP BEGIN-4
6061   0000   PUNCH,     0
6062   6046              TLS
6063   6041              TSF
6064   5263              JMP .-1
6065   7200              CLA
6066   5661              JMP I PUNCH
6067   5226   KON,       5226
6070   0077   M77,       77
6071   0012   K12,       12
6072   7506   M272,      7506
6073   0007   M7,        7
6074   0100   K100,      100
6075   0000   P,         0
6076   0000   DMP,       0
6077   0000   CHKSUM,    0

BEGIN    6005
CHKSUM   6077
DMP      6076
INST     6032
KON      6067
K100     6074
K12      6071
LEADER   6053
M272     6072
M7       6073
M77      6070
ORIGIN   6051
P        6075
PUNCH    6061
```