MCM TAPE TAPE-20.TXT

TAPE LABEL/ANNOTATIONS: "Y com
                         From X, July 3
                         8 Math
                         9 Mortgage
                         PRM -203"

DATE CREATED: 1976

GROUPS:
    0   3   8   9 201 202 210 212 214 215 216
  217 220 221 222 223 224 225 240 241 242 255

NAMES IN GROUP 0:
ANΔ BAU CHK DAT DES DIR DXΔ FNΔ GPΔ NPG PAG SET
SOR SYI SYO VOL WID XFE YAI YAO YCI YCO YEI YEO
ΔCP ΔCR ΔLD

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    ∇ZΔ←ANΔ XΔ;JΔ
[1]   ⍝     ZΔ←ANΔ XΔ           APR 30/76
[2]   ⍝SUBFUNCTION TO ΔCR
[3]   JΔ←0∘ZΔ←0 4ρ''∘→(2=ρρZΔ←XΔ)/0
[4]   L:→0×ι0=ρXΔ←(((XΔ=' ')ι0)-⎕IO)↓XΔ←JΔ↓XΔ
[5]   →L∘ZΔ←ZΔ,1 4ρ((JΔ←(XΔι' ')-⎕IO)↑XΔ),'   '
    ∇

    ∇BAUD X;R;Z
[1]   ⍝     BAUD X              APR 30/76
[2]   ⍝CHANGE BAUD RATE TO X IF ⎕IN OR ⎕OU ARE
[3]   ⍝POINTING TO A COMMUNICATIONS INTERFACE
[4]   ⍝X IS BAUD RATE IN BITS PER SECOND
[5]   R←¯1+⌊+.5+25000÷X
[6]   →(~v/225 193=0 1 0/⎕OUι0)/IN
[7]   ((3↑⎕YO[ι1]0),R)⎕YO[ι1]0
[8]   IN:→(~v/225 193=0 1 0/⎕INι0)/0
[9]   ((3↑⎕YI[ι1]0),R)⎕YI[ι1]0
    ∇
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CHK   [3 by 1 by 42 array of type char; element size 3 byte(s)]

DAT   [vector of type char of length 10; element size 1 byte(s)]
JULY 12/76

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    ∇DESCRIBE XΔ;FΔ;TΔ;SΔ;UL;IΔ
[1]   ⍝     DESCRIBE X          MAY 05/76 ⍝
[2]   ⍝DESCRIBE FUNCTIONS IN GROUP(S) X
[3]   ∘0 9 0 0 ⎕YO[ι1]2∘PAGE 60 66∘⎕OU(⎕YA 66),16∘UL←70ρ'_'
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[4]   DNG:→(0=×/ρFΔ←(3=⎕NC FΔ)⌿FΔ←⎕XN ⎕XV∘⎕XS 1↑XΔ)/NON
[5]   NPG∘→(10<60-1↓⎕PC⍳0)/GNP
[6]   GNP:⎕←2 0ρ''∘⎕←UL∘⎕←'GROUP',(5⍕1↑XΔ),'  ',GPΔ∘⎕←''∘⎕←UL
[7]   DNF:SΔ←1 4↑FΔ∘IΔ←⎕IO
[8]   DFN:→DFN∘⎕←7↓TΔ∘→('⍝'≠TΔ[6+⎕IO])/NXT∘→(5=ρTΔ←SΔ ⎕ZZ[IΔ←IΔ+1]FNΔ)/NXT
[9]   NXT:→(0≠×/ρFΔ←1 0↓FΔ)/DNF∘⎕←''
[10]   NON:→(0≠ρXΔ←1↓XΔ)/DNG∘⎕←''
[11]   NPG∘⎕←UL
    ∇


    ∇DIRECTORY
[1]   ⍝     DIRECTORY           JUNE 01/76
[2]   ⍝LIST TAPE DIRECTORY ON PRINTER .
[3]   ∘0 9 0 0 ⎕YO[⍳1]2∘PAGE 60 66∘⎕OU(⎕YA 66),16 +
[4]   ⎕←'                COMMUNICATIONS SUBSYSTEM'
[5]   ⎕←'                SOFTWARE SUPPORT PACKAGE'
[6]   ⎕←(45ρ' '),DATE N
[7]   ⎕←''
[8]   ⎕←'SECTION 1: FILE DIRECTORY.'
[9]   ⎕←''
[10]   ⎕←'   GROUP   0: DIRECTORY AND UTILITY FUNCTIONS.'
[11]   ⎕←'   GROUP   3: DIAGNOSTICS AND TAPE UTILITIES.'
[12]   ⎕←''
[13]   ⎕←'SECTION 2: MCM PERIPHERAL SUPPORT.'
[14]   ⎕←''
[15]   ⎕←'   GROUP 201: MCP-132 PRINTING/PLOTING/DRAWING SUPPORT.' ⍲
[16]   ⎕←'   GROUP 202: PMR-400 CARD READER SUPPORT'
[17]   ⎕←''
[18]   ⎕←'SECTION 3: RS-232C COMPATABLE PRINTERS AND TERMINALS.'
[19]   ⎕←''
[20]   ⎕←'   GROUP 210: MCM/700 TO IBM 2741,3767 AND DATEL'
[21]   ⎕←'   GROUP 212: MCM/700 TO TEKTRONICS 4013.'
[22]   ⎕←'   GROUP 214: MCM/700 TO CDI 1030.'
[23]   ⎕←'   GROUP 215: MCM/700 TO TELETYPE MODEL 33.'
[24]   ⎕←'   GROUP 216: MCM/700 TO VOLKER CRAIG MODEL VC103.'
[25]   ⎕←'   GROUP 217: MCM/700 TO DATAMEDIA MODEL 1520.'
[26]   ⎕←''
[27]   ⎕←'SECTION 4: COMPUTER TO COMPUTER COMMUNICATIONS.'
[28]   ⎕←''
[29]   ⎕←'   GROUP 220: MCM/700 TO MCM/700.'
[30]   ⎕←'   GROUP 221: MCM/700 TO COMSHARE.'
[31]   ⎕←'   GROUP 222: MCM/700 TO I.P. SHARPE.'
[32]   ⎕←'   GROUP 223: MCM/700 TO SCIENTIFIC TIME SHARING.'
[33]   ⎕←'   GROUP 224: MCM/700 TO BOEING.'
[34]   ⎕←''
[35]   ⎕←'SECTION 5: APPLICATION PACKAGES.'
[36]   ⎕←''
[37]   ⎕←'   GROUP 240: DATA TRANSFER PACKAGE -MCM TO MCM'
[38]   ⎕←'   GROUP 241: DATA TRANSFER PACKAGE MCM TO APLSV.'
[39]   ⎕←'   GROUP 242: DATA TRANSFER PACKAGE - MCM AND 360/APL.' ~
[40]   NPG
    ∇
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```
    ∇DXΔ XΔ;DΔ;NΔ;NMΔ;HΔ
[1]   ⍝     DXΔ XΔ              JUNE 14/76
[2]   ⍝SUBFUNCTION TO ΔCR
[3]   →(VΔΔ,VΔ,VΔ,FΔΔ,VΔ,A2Δ)[⎕IO+⎕NC XΔ]
[4]   FΔΔ:NΔ←⎕IO-1
[5]   FΔ:→EΔ∘→(5≠ρ⎕←XΔ ⎕ZZ[NΔ←NΔ+1]FNΔ)/FΔ
[6]   VΔ:NMΔ←'(',(⍕ρDΔ),')',((6ρ0)≠0\0ρDΔ←⍎XΔ)/' ALPHA'
[7]   NMΔ[(' '=NMΔ)/ιρNMΔ]←','
[8]   →EΔ∘⎕←⍎XΔ∘⎕←XΔ,':  ',NMΔ
[9]   A2Δ:→EΔ∘⎕←XΔ,'- SYSTEM VARIABLE'
[10]   VΔΔ:⎕←XΔ,' NO VALUE'
[11]   EΔ:⎕←''
    ∇

FNΔ   [3 by 1 by 38 array of type char; element size 3 byte(s)]


GPΔ   [vector of type char of length 30; element size 1 byte(s)]
DIRECTORY AND COMMON FUNCTIONS


    ∇NPG
[1]   ⍝     NPG                 APR 30/76
[2]   ⍝FORCE NEW PAGE ON PRINTER. NOTE PAGEING MUST BE ON.
[3]   ⎕←((0⌈(1↑⎕YO[ι1]6)-1↓⎕PCι0),0)ρ''
    ∇


    ∇ZΔ←PAGE MΔ
[1]   ⍝     ZΔ←PAGE MΔ          APR 6/76
[2]   ⍝SET PAGEING TO PRINT 1↑MΔ LINES ON
[3]   ⍝A PAGE WHICH IS 1↓MΔ LINES LONG
[4]   ⍝RESULT (ZΔ) IS THE PREVIOUS SETTING
[5]   →(⩽/MΔ)/L8∘→(0=ρ,MΔ)/L8
[6]   'RANGE ERROR'
[7]   →
[8]   L8:((⌽-\⌽MΔ),(ρ,MΔ)↓ZΔ←⎕YO[ι1]6)⎕YO[ι1]6
[9]   ZΔ←⌽+\⌽2↑ZΔ∘⎕PC 0 0
    ∇


    ∇SETUP T
[1]   ⍝     SETUP T             JULY 06/76
[2]   ⍝SET UP COMMUNICATIONS INTERFACE
[3]   ⍝USING TABLES YYI, YYO FOR CORRESPONDANCE
[4]   ⍝YEI YEO FOR EBCDIC, AND YAI YAO FOR ASCII
[5]   ⍝ACCORDING TO T (CEA).
[6]   ⍝NOTE: PROMPT SWITCH MUST CORRESPOND TO TABLE SETTING
[7]   →SUO⌈ι0≠1↑⎕IN ⎕YA('I'⎕YW 'Y',T,'I'),255-64
[8]   'NO SUCH INPUT DEVICE'
[9]   →
[10]   SUO:→0×ι0≠1↑⎕OU ⎕YA('O'⎕YW 'Y',T,'O'),255-128+32
[11]   'NO SUCH OUTPUT DEVICE'
[12]   →
    ∇
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    ∇RΔ_←SORT AΔ_
[1]   ⍝     RΔ_←SORT NΔ_        JULY 09/76
[2]   ⍝SORT THE ALAPA ARRAY NΔ_ INTO ASCENDING SEQUENCE
[3]   ⍝NOTE: BLANKS SORT HIGH
[4]   RΔ_←AΔ_[⍋39⊥⍉□Y AΔ_;]
    ∇


    ∇SYI
[1]   ⍝     SYI
[2]   ⍝SET INPUT TO EIA INTERFACE S
[3]   ⍝USING YYI TO GENERATE INPUT TABLES
[4]   →0×⍳0≠ 1↑□IN □YA ('I'□YW'YYI'),255-64
[5]   'NO SUCH INPUT DEVICE'
[6]   →
    ∇


    ∇SYO
[1]   ⍝     SYO
[2]   ⍝SET OUTPUT TO EIA INTERFACE
[3]   ⍝USING YYO TO GENERATE OUTPUT TABLES
[4]   →0×⍳0≠1↑□OU □YA ('O'□YW'YYO'),255-128+32
[5]   'NO SUCH OUTPUT DEVICE'
[6]   →
    ∇

VOL   [vector of type char of length 34; element size 1 byte(s)]
COMMUNICATIONS AND MCP-132 SUPPORT


    ∇R←WIDTH X;Y
[1]   ⍝     R←WIDTH X
[2]   ⍝CHANGE PRINT WIDTH TO X (30⩽X⩽132)
[3]   ⍝RESULT R IS THE PREVIOUS WIDTH
[4]   ⍝WIDTH IS UNCHANGED IF X IS EMPTY.
[5]   →((30⩽X)∧X⩽132)/L8∘→(0=⍴X)/L8
[6]   'RANGE ERROR'
[7]   →
[8]   L8:R←1↑Y←□YO[⍳1]1
[9]   (X,(⍴,X)↓Y)□YO[⍳1]1
    ∇


    ∇R←XFER X
[1]   ⍝     R←XFER X            APR 30/76
[2]   ⍝TRANSFER DATA X TO AND FROM EIA INTERFACE
[3]   ∘□IN 1↑□OU □YA 1 31
[4]   R←⍞''∘□←X
[5]   ⍝IN CASE ATTENTION
    ∇

YAI   [34 by 1 array of type char; element size 8 byte(s)]
8100000007304652 8482060000808008 00000000000A0080 80800D8080846C6C
6C896C6C82836C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C276458
```

2A2B2C2E5630312F 374B342842000102 0304050607080957 5551365C43295E47
603A490A5D254A59 5B263C483E38404C 3B3F46615F624563 506C522D356C0B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 6C6C6C6A84000000
026900FF00200079 80B902FF96FD06F5 82FD82FD02FD82FD 027D00FF86FD00FD
02FD00FD007D00FD 006900FF0040007D 0060007B8040007B 006900FF026D00F9
00F900FF82FF0279 86B800FD80FF82FD 86FF80FD00FC007D A6FD02FF00FD00FD
02FD00FD00FD007D 0000007900F90079

YAO   [18 by 1 array of type char; element size 8 byte(s)]
4100000007304652 8482060000808008 00000000000A0080 80800D8080303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E4023 24255E262A282982 822D5F3D2B508244 534D824F5451822F
3F825955424E4549 2C528282825B3C5D 82823B273A224A82 4B3E474157435658
5A21828282827F7E 8282000000000000

YCI   [34 by 1 array of type char; element size 8 byte(s)]
8100000007410152 78820600002D1F1D 3D003D00032E3D1F 1C2D3C341F27501E
140419164205560F 1A6C6C6C6C022818 36246C6C6C061315 1B88836C87011722
11001D1223071C0E 556C6C6C6C03201F 1009210C34080B0D 4B82846C8427523F
592B3E26432C5849 386C6C6C6C295C48 37636C6C6C2D4A5B 4088836C87643C62
5D313B25452E4C3A 576C6C6C6C2A6146 0A305F47352F5E60 5182846C84000000
08CFC8C708C308CF C84300DFE0C700CF D88248CF0843004B 444788C328533023
2853000338030043 3A03387338422003 3803205B3803301B 2803202BC84300DF
584B08CFF8C788FF E84308CF68C7ECCF FCCFC8FFEC4308DF FC47CCDF00030003
0001200300032003 2001204300010003

YCO   [18 by 1 array of type char; element size 8 byte(s)]
4100000007410152 8282060000801F1D 3D003D00032E3D1F 1C80808080242010
3004081828383473 39363A2A0A332326 19031A062112050B 1B29250232313522
2714664600115070 4448586878746482 82377713534B826A 65618245425B8207
4782677276524A59 3B69828282017B41 82822B096B494382 5A516379757A7162
5460828282827F82 8282000000000000

YEI   [34 by 1 array of type char; element size 8 byte(s)]
8100000007410152 78820600002D1F1D 3D003D00032E3D1F 1C2D3C341F273450
36081B231204171F 0E6C6C6C6C02151D 0C006C6C6C061921 1088836C87011442
0B091C2413051820 0F6C6C6C6C03161E 0D56554B28071A22 1182846C6C273552
372F4045252B3C46 3A6C6C6C6C295B3B 47316C6C6C2D3E5F 0A88836C87645943
5E304C634A2C4861 496C6C6C6C2A263F 605857515C2E3862 5D82846C6C000000
08CFC8C708C308CF C84300DFE0C700CF D88248CF0843004B 444788C328533023
2853000338030043 3A03387338422003 3803205B3803301B 2803202BC84300DF
584B08CFF8C788FF E84308CF68C7ECCF FCCFC8FFEC4308DF FC47CCDF00030003
0001200300032003 2001204300010003

YEO   [18 by 1 array of type char; element size 8 byte(s)]
4100000007410152 7882060000801F1D 3D003D00032E3D1F 1C80808080142010
300828183804245B 2313330B2B1B3B07 2721113109291939 052512320A2A1A3A
0626477100375070 4868587844645482 820141034379824B 5249825972458222
6282464A53696B67 3665828282027642 8282353475746182 51777B635A736A7A
6660828282827F82 8282000000000000

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    ∇ΔN ΔCP ΔG;ΔGC;ΔGN;ΔT
[1]   ⍝     ΔN ΔCP ΔG           JUNE 25/76
[2]   ⍝COPY GROUP(S) ΔG TO DRIVE ΔN
[3]   ⍝IF ΔG IS EMPTY,COPY ALL GROUPS
[4]   ΔG←⎕XNι0∘→(0≠ρ,ΔG)/ΔNA∘⎕PT←10
[5]   ΔNA:'GROUP ';ΔGC∘⎕XS ΔGC∘ΔGN←SORT ⎕XN ΔGC←1↑ΔG
[6]   ΔGC ⎕XC[ΔN]ΔGN
[7]   L5:ΔGC ⎕XW[ΔN]ΔT∘→(0=⎕NC ΔT←1 4↑ΔGN)/L6
[8]   L6:→(0≠ρΔGN←1 0↓ΔGN)/L5,L7
[9]   L7:→(0<ρΔG←1↓ΔG)/ΔNA
[10]   ⎕PT←0∘⎕XS 0∘⎕XF[ΔN]ι0
    ∇


    ∇ΔCR GNΔ;IΔ;GΔ;NMΔ
[1]   ⍝     ΔCR X              APR 30/76
[2]   ⍝DISPLAY FUNCTION X (FORMATTED WITH LINE NUMBERS)
[3]   ⍝IF X IS NUMERIC, DISPLAY ALL FUNCTIONS IN THE GROUP(S) X
[4]   ∘0 9 0 0 ⎕YO[ι1]2∘PAGE 48 51∘⎕OU(⎕YA 66),16
[5]   →L3Δ∘GNΔ←1∘NMΔ←ANΔ GNΔ∘→(0=0\0ρGNΔ)/L0Δ
[6]   L0Δ:GNΔ←GNΔ[⍋GNΔ←((GNΔιGNΔ)=ιρGNΔ)/GNΔ←,GNΔ]
[7]   L1Δ:→EΔ⌈ι0=ρGNΔ
[8]   ⎕XS GΔ∘NMΔ←SORT ⎕XN GΔ←''ρGNΔ
[9]   ⎕←''∘⎕←'GROUP: ',(⍕GΔ),'    ',(46ρGPΔ,46ρ' '),DATE
[10]   ⎕←''∘⎕←(((⌈(×/ρNMΔ)÷80),80)ρNMΔ⍪20 4ρ' '
[11]   L3Δ:IΔ←⎕IO-1
[12]   L2Δ:→(IΔ=⎕IO+¯1+1↑ρNMΔ)/E1Δ
[13]   →L2Δ∘DXΔ NMΔ[IΔ←IΔ+1;]
[14]   E1Δ:→L1Δ∘GNΔ←1↓GNΔ∘NPG
[15]   EΔ:→0
    ∇


    ∇ΔLD;ΔG;ΔI;ΔX;XΔ;ΔRX
[1]   ⍝     ΔLD                JUNE 14/76
[2]   ⍝LIST GROUP TITLES AND NAMES ON PRINTER ES
[3]   ⎕←'FILE:  ',(50↑VOL,50ρ' '),DATE∘PAGE 48 51∘⎕OU(⎕YA 66),16
[4]   ⎕←'ACTIVE GROUPS ARE: ',⍕ΔG←⎕XNι0×ΔI←⎕IO∘⎕←''
[5]   ΔL:⎕←'GROUP',(7⍕ΔG[ΔI]),'    ',GPΔ∘⎕XS ΔG[ΔI]∘⎕←''
[6]   ⎕←XΔ←((ΔRX∘→(0=ΔRX←⌊(×/ρΔX)÷80)/ΔN),80)ρ(ΔX←⎕XN ΔG[ΔI])∘⎕←''∘0 6 0 0 ⎕YO[ι1]2
[7]   ΔN:⎕←,ΔRX↑ΔX∘→(0=×/ΔRX←¯1 1×(ρΔX)-20 0×ΔRX)/ΔM
[8]   ΔM:→((ΔI←ΔI+1)≤ρΔG)/ΔL∘0 0 0 0 ⎕YO[ι1]2
[9]   NPG
    ∇



NAMES IN GROUP 3:
FSΔ  F    GPΔ  ISI  QQX  RAM  RCS  RDS  REC  ROM  SPA  STA


FSΔ   [3 by 1 by 23 array of type char; element size 3 byte(s)]
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    ∇F;T;A;Y;YCO;YO;AL
[1]   ⍝     F                    JUNE 14/76
[2]   ⍝PRINT CURRENT COMM TABLES ON MCP-132
[3]   YCO←⎕YO[⍳1]Y←(-⍳1)+⍳11
[4]   YO←⎕YO[2+⍳1]AL←⎕Y(-⍳1)+⍳109
[5]   A←⎕OU⍳0∘'O'⎕YR'T'∘'SAVE OUTPUT TABLE'
[6]   ∘PAGE 48 51∘⎕OU(⎕YA 66),16∘'O'⎕YX⍳0
[7]   ⎕←''∘⎕←'COMM CONTROL TABLES FOR: ',GPΔ,'   ',DATE
[8]   ⎕←''∘⎕←'    OUTPUT             INPUT'
[9]   ⎕←(⍕YCO),(11 4ρ' '),⍕⎕YI[⍳1]Y
[10]   ⎕←''∘⎕←'OUTPUT TRANSLATE TABLE'∘⎕←''
[11]   ⎕←1↓4⍕¯13↑YO∘⎕←6 16ρYO
[12]   ⎕←''∘⎕←'INPUT TRANSLATE TABLE'∘⎕←''
[13]   ⎕←8 16ρ⎕YI[1+⍳1](-⍳1)+⍳128
[14]   →(~''ρ(6ρ2)⊤''ρ⎕YI[⍳1]0)/NP∘'PROMPT?'
[15]   ⎕←''∘⎕←'INPUT PROMPT TABLE'∘⎕←''
[16]   ⎕←1↓4⍕¯13↑YO∘⎕←6 16ρYO←⎕YI[2+⍳1]AL
[17]   NP:∘'O'⎕YW'T'∘⎕OU 1↑A∘NPG
    ∇

GPΔ   [vector of type char of length 30; element size 1 byte(s)]
TAPE UTILITIES AND DIAGNOSTICS


    ∇R←ISIZE M
[1]   ⍝     R←ISIZE M ⍝
[2]   ⍝R IS SIZE IN BYTES OF INTEGER DATA M
[3]   R←2+(ρρM)+(×/ρM)×1+⌊.125+256⍟1⌈⌈/,⌈/|M
    ∇

QQX   [3 by 1 by 26 array of type char; element size 3 byte(s)]



    ∇RAM X
[1]   ⍝     RAM  X               APR 30/76
[2]   ⍝CHECK RANDOM ACCESS MEMORY
[3]   ⍝X IS MEMORY SIZE, IE. 2 4 OR 8
[4]   →(0=⎕_0 X)/OK
[5]   'RAM MEMORY ERROR'
[6]   →0
[7]   OK:'RAM MEMORY OK'
    ∇


RCS   [numeric vector of length 19; element size 3 byte(s)]
179798 173599 165295 175999 221948 163253 219896 166212 172482 175298 171720
160806 250427 171199 168887 155953 522240 522240 522240


RDS   [numeric vector of length 19; element size 3 byte(s)]
179798 173599 165295 175999 156500 163119 219896 166212 172482 175298 171720
160806 250427 171199 168887 155953 160904 522240 522240
```

```
    ∇REC;IΔ_;NΔ_
[1]   ⍝     RECOVER             APR 30/76
[2]   ⍝RECOVER INFORMATION FROM A TAPE WHERE THE DIRECTORY
[3]   ⍝HAS BEEN DESTROYED. MOUNT DEAD TAPE ON LEFT DRIVE,
[4]   ⍝INITIALIZED TAPE ON RIGHT DRIVE.
[5]   NΔ_←''∘IΔ_←2
[6]   JΔ_:IΔ_←(1↑IΔ_)⎕ZZ QQX
[7]   (1↓IΔ_)⎕XW[2]NΔ_←(1 0↓⎕FN),4 0↓⎕VA
[8]   →JΔ_∘⎕EX NΔ_
    ∇


    ∇ROM ;C
[1]   ⍝     ROM                 APR 30/76
[2]   ⍝CHECK ROM MEMORY.
[3]   ⍝RDS IS CHECK SUMS FOR DISK SYSTEM AS OF FEB 18/76
[4]   ⍝RCS IS CHECK SUMS FOR COMMUNICATIONS SUBSYSTEM
[5]   →(∧/RDS=C←⎕_1⍳19)/OK
[6]   →(∧/RCS=C)/OK
[7]   'ROM MEMORY ERROR'
[8]   →0
[9]   OK:⎕←'ROM MEMORY IS GOOD'
    ∇


    ∇ZΔ←SPACE XΔ
[1]   ⍝     ZΔ←SPACE XΔ         MAY 03/76
[2]   ⍝1↑ZΔ IS THE NUMBER OF BLOCKS USED ON FILE XΔ
[3]   ⍝1↓ZΔ IS 1+LAST BLOCK USED ON FILE XΔ
[4]   ⍝IF 1↓ZΔ IS MUCH LARGER THAN 1↑Z, THE FILE
[5]   ⍝SHOULD BE COPIED TO COMPRESS UNUSED SPACE
[6]   ⍝A DISK CONTAINS 1023 - 256 BYTE BLOCKS, AND A 300
[7]   ⍝FOOT TAPE APPROXIMATELY 800 - 128 BYTE BLOCKS.
[8]   ZΔ←⎕ZZ[XΔ]FSΔ
    ∇


    ∇STATUS X;S;AS
[1]   ⍝     STATUS X            APR 30/76
[2]   ⍝RETURN STATUS OF OMNIPORT DEVICE
[3]   ⍝DISPLAY STATUS OF DEVICE X (IE. STATUS 2) OR
[4]   ⍝DISPLAY STATUS FROM ANSWER-BACK (IE STATUS ⎕OU⍳0)
[5]   ∘⎕OU S∘X←⎕OU X∘S←1↑⎕OU⍳0∘→(3=ρ,X)/S1
[6]   S1:AS←8 3ρ'NO YES'[,(S×3)∘.+⍳3]∘S←(8ρ2)⊤X[3]
[7]   →(0 66 193 196 197 225=X[2])/NO,HY,ROF,TAP,DSK,RON
[8]   'DEVICE TYPE UNKNOWN'
[9]   'STATUS : ',⍕S
[10]   →0
[11]   NO:'NO DEVICE AT THIS ADDRESS'
[12]   →0
[13]   HY:'DEVICE : MCP-132'
[14]   'PAPER FEED READY?      ',AS[1;]
[15]   'CARRIAGE READY?        ',AS[2;]
[16]   'CHARACTER PRINT READY? ',AS[3;]
[17]   'RIBBON UP?             ',AS[4;]
[18]   'RIBBON RED?            ',AS[5;]
```

```
[19]   'PAPER OUT?             ',AS[6;]
[20]   'PRINTER CHECK?         ',AS[7;]
[21]   'PRINTER READY?         ',AS[8;]
[22]   →0
[23]   ROF:'RS-232C (PROMPT OFF)'
[24]   →R
[25]   RON:'RS-232C (PROMPT ON)'
[26]   R:'READ OVERRUN?          ',AS[1;]
[27]   'READ PARITY ERROR?     ',AS[2;]
[28]   'READ FRAMING ERROR?    ',AS[3;]
[29]   'DEVICE READY?          ',AS[4;]
[30]   'RECEIVE CARRIER OFF?   ',AS[5;]
[31]   'BREAK RECEIVED?        ',AS[6;]
[32]   'TRANSMIT BUFFER EMPTY? ',AS[7;]
[33]   'RECEIVE DATA READY?    ',AS[8;]
[34]   →0
[35]   TAP:'DEVICE : CASSETTE TAPE'
[36]   'RECEIVE DATA READY?    ',AS[1;]
[37]   'TRANSMIT BUFFER EMPTY? ',AS[2;]
[38]   'PARITY ERROR?          ',AS[3;]
[39]   Δ
[86]   'READ OVERRUN?
[40]   'END OF TAPE?           ',AS[5;]
[41]   'CASSETTE NOT MOUNTED?  ',AS[6;]
[42]   'FILE WRITE PROTECTED?  ',AS[7;]
[43]   'INTER-RECORD GAP?      ',AS[8;]
[44]   →0
[45]   DSK:'DEVICE : FLOPPY DISK'
[46]   'UNIT BUSY?             ',AS[1;]
[47]   'TRACK ZERO?            ',AS[2;]
[48]   'NOT INDEX MARK?        ',AS[3;]
[49]   'POWER ON?              ',AS[4;]
[50]   'HEAD DOWN?             ',AS[5;]
[51]   'MOTOR ON?              ',AS[6;]
[52]   'UNIT ERROR?            ',AS[7;]
[53]   'FILE PROTECTED?        ',AS[8;]
[54]   →0
    ∇
```

```
NAMES IN GROUP 8:
CMD  DAY  DMD  ERR  EVA  FAC  GPΔ  I_1  I_2  I_3  IF   INT
IVP  MMD  PCF  POL
```

```
    ∇R←CMD A
[1]   A←FAC A
[2]   R←A[⎕IO;]×.*⌊≠1 0↓A
[3]   R←R,A[⎕IO;]×.*⌈≠1 0↓A
    ∇
```

```
    ∇Z←D DAYOF M;Y
[1]   →((0 12⊥1752 9)≥0 12⊥⍉M)/ERR
[2]   Y←100|(M←1 0+⍉0 12⍴¯3+0 12⊥⍉M)[2]
```

```
[3]   Y←1+7|D+Y+(⌊¯.2+2.6×M[1])+(⌊Y÷4)-⌈1.75×⌊M[2]÷100
[4]   →0∘Z←(7 3ρ'SUNMONTUEWEDTHUFRISAT')[Y;]
[5]   ⍝ZELLER'S CONGRUENCE
[6]   ERR:'THIS MO YR ⩽ ADOPTION OF GREGORIAN CALENDAR'
    ∇


    ∇Z←A DMD B;IO;FUZZ;P;LA2;LB2;F;I;J;M2;I2;M1;I1;SIGMA;ALFA;U;T
[1]   ⎕IO←1∘IO←⎕IO
[2]   'DOMAIN' ERROR 0≠0\0ρA
[3]   'DOMAIN' ERROR 0≠0\0ρB
[4]   'RANK' ERROR 2≠ρρB
[5]   'RANK' ERROR~(ρρA)∈ 1 2
[6]   'LENGTH' ERROR(1↑ρA)≠1↑ρB
[7]   'LENGTH' ERROR(1↑ρB)<1↓ρB
[8]   FUZZ←2*-56-⎕CT
[9]   LA2←((ρA),1)[2]
[10]   ON:LB2←1↓ρB
[11]   →AHEAD IF (0≠LA2)∧0≠LB2
[12]   Z←(LB2,LA2)ρ0
[13]   →FIN
[14]   AHEAD:P←⍳1↑ρB
[15]   F←÷⌈/[1]B÷⍉(⌽ρB)ρ⌈/|B
[16]   B←B×(ρB)ρF
[17]   B←B,(2↑(ρA),1)ρA
[18]   I←0
[19]   LOOP:J←I
[20]   I←I+1
[21]   →END IF LB2<I
[22]   M2←⌈/[⎕IO]|(0,-LA2)↓(J,J)↓B
[23]   'DOMAIN' ERROR FUZZ≥⌈/M2
[24]   I2←J+M2⍳⌈/M2 A
[25]   P[I,I2]←P[I2,I]
[26]   B[;I,I2]←B[;I2,I]
[27]   M1←|J↓B[;I]
[28]   I1←J+M1⍳⌈/M1
[29]   B[I,I1;]←B[I1,I;]
[30]   SIGMA←+/(J↓B[;I])*2
[31]   ALFA←(¯1*0⩽B[I;I])×SIGMA*0.5
[32]   U←B[I;I]-ALFA
[33]   T←(U,I↓B[;I])+.×(J,I)↓B
[34]   T←T×÷SIGMA-B[I;I]×ALFA
[35]   B[J↓⍳1↑ρB;I↓⍳1↓ρB]←((J,I)↓B)-(U,I↓B[;I])∘.×T
[36]   B[I;I]←ALFA
[37]   →LOOP
[38]   END:Z←(LB2,LA2)ρ0
[39]   I←(⍳0)ρ1+LB2 ⎕RG
[40]   QBACK:I←I-1
[41]   →RE IF 0=I
[42]   Z[I;]←((LB2↓B[I;])-(LB2↑B[I;])+.×Z)÷B[I;I]
[43]   →QBACK
[44]   RE:Z←Z[⍋P;]×⍉(⌽ρZ)ρF
[45]   FIN:→EXIT IF 1≠ρρA
[46]   Z←,Z
[47]   EXIT:⎕IO←IO
    ∇
```

```
    ∇A ERROR B
[1]   A,' ERROR'∘→0×⍳~⍴/B R
[2]   ⎕IO←IO
[3]   →
    ∇


    ∇R←P EVAL X
[1]   R←⍎⍕((⍴P),⍴X)⍴X)⊥⍎⍕P
    ∇


    ∇F←FAC A;N;R;I;J
[1]   N←0∘F←0 1↓(R←(1+⍴A←,A),1)⍴0
[2]   →0×⍳A∨.≠2⌈⌊A
[3]   S1:N←N+2-N=2∘J←0
[4]   S2:→S3⌈⍳∧/~I←0=⌊.5+N|A
[5]   →S2∘A←⌊.5+A÷N*I∘J←J+I
[6]   S3:F←F,(J∨.≠0)/R⍴N,J
[7]   →S1⌈⍳(N*2)⩽⌈/A
[8]   F←F,((1,⍴N)⍴N)⌿A∘.=N←(A≠1)/A
    ∇

GPΔ   [vector of type char of length 17; element size 1 byte(s)]
MISCELANEOUS MATH

I_1   [numeric scalar: element size=1 byte(s)]
0

I_2   [numeric vector of length 6; element size 8 byte(s)]
0601C0EEB6527401 8990C0A94504B2D3 62A0C03D1625A07F 6532403D1625A07F
653240A94504B2D3 62A040EEB6527401

I_3   [numeric vector of length 6; element size 8 byte(s)]
0601402BDBEC03DC 9EF7405C5ADED5B0 429E4077C9352673 1E804077C9352673
1E80405C5ADED5B0 429E402BDBEC03DC


    ∇R←A IF B
[1]   R←B/A
    ∇


    ∇R←I INTEGRAL I_F;A;H;N;M;X;O
[1]   ⍝LEBESQUE INTEGRAL
[2]   M←×\(⌈÷/M),¯1↑M←2⍴1⌈I_1∘O←⎕IO
[3]   A←I_3×H←¯.5×-/I÷M[⎕IO←1]
[4]   R←N←0
[5]   L:X←I[1]+H×I_2∘.+¯1+2×N+⍳M[2]
[6]   R←R++⌿A+.×⍎I_F,' X'
[7]   →L⌈⍳M[1]>N←N+M[2]
[8]   ⎕IO←O
    ∇
```

```
    ∇Z←IVP M;I;J;K;P
[1]   M←⌽(1 0+⍴M)⍴(,⌽M),~J←1<P←⍳I←1↑⍴M
[2]   M[K,1;⍳⍴P]←M[1,K←(|M[⍳I;1])⍳⌈/|M[⍳I;1];⍳⍴P] ON
[3]   P←1⌽P,0⍴P[K,1]←P[1,K]
[4]   M←1⌽(J,1)⌽[1]M-(J×M[;1])∘.×M[1;]←M[1;]÷M[1;1]
[5]   →2×⍳0≠I←I-1
[6]   Z←M[;⍋P]
    ∇


    ∇Z←MMD B
[1]   Z←((⍳1↑⍴B)∘.=⍳1↑⍴B)DMD B
    ∇


    ∇R←N PCF X;A
[1]   N←N⌊¯1+¯1↑⍴X
[2]   A←(X[⎕IO;]∘.*⌽(⍳N)+1-⎕IO),1
[3]   R←(IVP(⌽A)+.×A)+.×X[1+⎕IO;]+.×A
[4]   A←X[1+⎕IO;]-A+.×R
[5]   DEV←((A+.*2)÷¯1↑⍴X)*.5
[6]   DEV←DEV,A[X⍳⌈/X←|A]
    ∇


    ∇POL P;X;X1;X2;RX;IX;D
[1]   ⍝SOLVE 2ND DEGREE EQUATIONS VE
[2]   →(P≠0)/S1,S2,S3
[3]   'NO EQUATION'
[4]   →0
[5]   S3:'CONTRADICTION'
[6]   →0
[7]   S2:X←-P[3]÷P[2]
[8]   'LINEAR EQUATION X=';X
[9]   →0
[10]   S1:→(0>D←(P[2]*2)-4×P[1]×P[3])/S4
[11]   X1←((-P[2])+(D*0.5))÷2×P[1]
[12]   X2←((-P[2])-(D*0.5))÷2×P[1]
[13]   'QUAD EQ X1=';X1;' X2=';X2
[14]   →0
[15]   S4:RX←-P[2]÷2×P[1]
[16]   IX←((|D)*0.5)÷2×P[1]
[17]   'QUAD EQ X1=',(⍕RX),'+J',(⍕IX),'  X2=',(⍕RX),'-J',⍕IX
    ∇



NAMES IN GROUP 9:
AMO  BAL  GP∆  MAX  MIN  MON  MOR  PAY  RAT


    ∇AMORTIZATION N;F;R;PP;PB;TP;IP OR
[1]   →L1⌈⍳0=1↑⎕OU⍳0
[2]   ⎕←'PRINCIPAL: $',0 2 0⍕P
[3]   ⎕←'INTEREST: ',(⍕INT),' PERCENT'
```

```
[4]   ⎕←'COMPOUNDED ',(⍕NCY),' TIMES PER YEAR'
[5]   ⎕←'AMORTIZED OVER ',(⍕DUR÷12),' YEARS'
[6]   ⎕←'TERM: ',(⍕TERM÷12),' YEARS'
[7]    ⎕←''
[8]   L1:⎕←'MO. INT.PMNT  PR.REDN  PR.BAL'
[9]    F←4 3⍴3 0 0,(6⍴9 2 0),10 2 0
[10]    R←⍳1,⍴PB←BAL N
[11]    PP←.01×⌊.5+100×(P,¯1↓PB)-PB
[12]    IP←(TP-0,¯1↓TP←MP×N⌊DUR)-PP
[13]    ⎕←F⍕(R⍴N),(R⍴IP),(R⍴PP),R⍴PB
    ∇


    ∇PB←BAL N;II
[1]   MI←NCY MINT INT
[2]   II←(1+MI)*N⌊DUR
[3]   PB←(II×P)-(¯1+II)×MP÷MI
[4]   PB←.01×⌊.5+100×PB
    ∇

GPΔ   [vector of type char of length 23; element size 1 byte(s)]
MORTGAGE / AMORTIZATION


    ∇P←M MAXLOAN N
[1]   MI←NCY MINT INT
[2]   P←.01×⌊100×(M÷MI)×1-(1+MI)*-N
    ∇


    ∇MI←NCY MINT INT
[1]   MI←¯1+(1+INT÷100×NCY)*NCY÷12
    ∇


    ∇MP←P MONTHLY D
[1]   MI←NCY MINT INT
[2]   MP←.01×⌈100×P×MI÷1-(1+MI)*-D
    ∇


    ∇MORTGAGE
[1]   P←⍎12↓⍞'PRINCIPAL: $'
[2]   INT←⍎19↓⍞'INTEREST (PERCENT): ' ST
[3]   DUR←12×⍎26↓⍞'AMORTIZATION PERIOD (YRS): '
[4]   NCY←('123L'∈24↓⍞'1ST; 2ND; 3RD (OR LOAN)? ')/2 4 12 12
[5]   TERM←12×⍎14↓⍞'TERM (YEARS): '
[6]   MP←P MONTHLY DUR∘⎕NC'MON'
[7]   MP←⍎18↓⍞'MONTHLY PAYMENT: $',0 2 0⍕MP
[8]   EQ←P-PB←BAL TERM
[9]   ⎕←'PRINCIPAL BALANCE: $',0 2 0⍕PB
[10]   ⎕←'EQUITY: $',0 2 0⍕EQ
[11]   ⎕←'PAYOUT :$',0 2 0⍕PO←MP+PB
[12]   →0×⍳'N'=1↑⎕IO⍞'TABLE?'
[13]   AMOR 12×⍳⌊TERM÷12
    ∇
```

```
    ∇N←P PAYMENTS M;L
[1]   MI←NCY MINT INT
[2]   →4⌈⍳∧/1>L←MI×P÷M
[3]   →0∘⍞←'INSUF. MONTHLY PAYMENT'
[4]   N←-(1+MI)⍟1-L
[5]   N←⌈N+(¯1=N)×P÷M
    ∇


    ∇INT←NCY RATE MI
[1]   INT←100×NCY×¯1+(1+MI)*12÷NCY
    ∇



NAMES IN GROUP 201:
BIG  BOX  CEN  EQU  GPΔ  HLI  HS   LIN  NPG  PAG  PIT  PLO
PLT  POS  PRT  PΔ   ROL  TIT  VLI  VS   WID

BIG   [1 by 59 array of type char; element size 3 byte(s)]
2423C4
2368C0
0B3D46
DB0A16
060E00
46840A
0950BB
0B46AD
00069D
2DFA15
15153D
46AD07
1D3D46
C8003C
1148AC
0B46DB
0AD006
605135
153D11
333525
35CF25
F92515
3DEBF4
3D46FF
09C814
0125C1
CF7077
23F825
2E1836
00C12D
3DCF46
A4001D
1D1DEF
250640
```

```
02B1E0
CFC41A
E0409C
23B068
A523F9
449E23
3E27C3
2DA844
8E23C0
357059
230640
02A7B5
E850B4
230E27
066C2D
253515
F93D25
447E23
111207
027423
922396
239A23
A223A7
23B023
BEA300
```

```
    ∇S BOX C;H;V
[1]   ⍝     S BOX C               DRAW A BOX WHERE
[2]   ⍝S IS START POINT - HOR. AND VER. DISTANCE
[3]   ⍝FROM CURRENT LOCATION IN INCHES.
[4]   ⍝C IS WIDTH, HEIGHT OF BOX IN INCHES.
[5]   H←((-1+⌈20×1↑C),2)↑HS◦V←((-1+⌈12×1↓C),2)↑VS
[6]   POS S
[7]   POS 1 ¯1×C◦'-'PΔ H◦POS 0 1×C◦'-'PΔ H◦'|'PΔ V
[8]   POS -S+1 0×C◦'|'PΔ V
    ∇
```

```
    ∇R←L CENTRE X;N
[1]   ⍝     R←L CENTRE X        MAY 04/76 L
[2]   ⍝SUBFUNCTION TO PLOT
[3]   R←N⍴X⍴N←((ρρX)↑(⌊((L×(1 2=ρρX)/10 6)-⌈/ρX)÷2),1)ρ' '
    ∇
```

```
    ∇ΔR←EQU;ΔI
[1]   ⍝     ΔR←EQU
[2]   ⍝EVALUATE EQUATION FOR PLOTTING
[3]   ⍝RESULT ΔR IS FORMATTED TO BE THE ARGUMENT FOR PLOT.
[4]   ΔX←9↓⍞'EQUATION: '
[5]   ΔR←⍎29↓⍞'DEFINE INDEPENDENT VARIABLE: '
[6]   ΔR←(ΔIρΔR),(ΔI←(ρΔR),1)ρ⍎ΔX
    ∇
```

```
GPΔ   [vector of type char of length 32; element size 1 byte(s)]
MCP-132 PRINTING/PLOTING/DRAWING


    ∇S HLINE L;ΔPI;ΔPO
[1]   ⍝     S HLINE L
[2]   ⍝DRAW A HORIZONTAL LINE OF LENGTH L STARTING AT POSTION S
[3]   ⍝S IS THE X AND Y DISPLACEMENT FROM THE CURRENT POSITION
[4]   POS S+0 .06
[5]   ΔPI ⎕YO[⍳1]0∘ΔPI[2+⍳1]←8∘ΔPO←(ΔPI←⎕YO[⍳1]0)[2+⍳1]
[6]   ⎕←(⌊15×L)⍴'_'
[7]   ∘ΔPI ⎕YO[⍳1]0∘ΔPI[2+⍳1]←ΔPO
[8]   POS -S+0 ¯.1
    ∇

HS    [2 by 121 numeric array; element size 2 byte(s)]
718 0
712 0
706 0
700 0
694 0
688 0
682 0
676 0
670 0
664 0
658 0
652 0
646 0
640 0
634 0
628 0
622 0
616 0
610 0
604 0
598 0
592 0
586 0
580 0
574 0
568 0
562 0
556 0
550 0
544 0
538 0
532 0
526 0
520 0
514 0
508 0
502 0
496 0
490 0
484 0
```

478 0
472 0
466 0
460 0
454 0
448 0
442 0
436 0
430 0
424 0
418 0
412 0
406 0
400 0
394 0
388 0
382 0
376 0
370 0
364 0
358 0
352 0
346 0
340 0
334 0
328 0
322 0
316 0
310 0
304 0
298 0
292 0
286 0
280 0
274 0
268 0
262 0
256 0
250 0
244 0
238 0
232 0
226 0
220 0
214 0
208 0
202 0
196 0
190 0
184 0
178 0
172 0
166 0
160 0
154 0
148 0

```
142 0
136 0
130 0
124 0
118 0
112 0
106 0
100 0
94 0
88 0
82 0
76 0
70 0
64 0
58 0
52 0
46 0
40 0
34 0
28 0
22 0
16 0
10 0
4 0
0 0



    ∇S LINE X;Y;Z;R
[1]   ⍝      S LINE X
[2]   ⍝DRAW A LINE L INCHES LONG AT ANY ANGLE
[3]   ⍝X IS LENGTH(INCHES), ANGLE(RADIANS)
[4]   ⍝S IS X AND Y DISPLACEMENT FROM THE CURRENT LOCATION
[5]   Y←⌈(2 1○¯1↑X)×120 96×1↑X
[6]   R←((1+R,1)⍴Y÷R)×(⌽R←⌈⌈/|Y÷3 4)∘.+0 0
[7]   R←⌈R-(⍴R)⍴Y∘→(0≤⌊/Y←⌊⍲R)/9
[8]   POS S+Y÷120 96
[9]   '.'PΔ R
[10]   POS -S  Δ
    ∇


    ∇NPG
[1]   ⍝     NPG                 APR 30/76
[2]   ⍝FORCE NEW PAGE ON PRINTER. NOTE PAGEING MUST BE ON.
[3]   □←((0⌈(1↑□YO[⎕IO]6)-1↓□PC⎕IO),0)⍴''
    ∇


    ∇ZΔ←PAGE MΔ
[1]   ⍝     ZΔ←PAGE MΔ          APR 6/76
[2]   ⍝SET PAGEING TO PRINT 1↑MΔ LINES ON
[3]   ⍝A PAGE WHICH IS ¯1↑MΔ LINES LONG
[4]   ⍝RESULT (ZΔ) IS THE PREVIOUS SETTING
[5]   →(≤/MΔ)/L8∘→(0=⍴,MΔ)/L8
[6]   'RANGE ERROR'
```

```
[7]   →
[8]   L8:((⌽-\⌽MΔ),(⍴,MΔ)↓ZΔ←⍞YO[⍳1]6)⍞YO[⍳1]6
[9]   ZΔ←⌽+\⌽2↑ZΔ∘⍞PC 0 0
    ∇


    ∇R←PITCH X;Y
[1]   ⍝     R←PITCH X
[2]   ⍝CHANGE NUMBER OF CHARACTERS PER INCH TO X (1≤X≤60)
[3]   ⍝RESULT R IS THE PREVIOUS SETTING
[4]   ⍝PITCH REMAINS UNCHANGED IF X ISEMPTY.
[5]   →((1≤X)∧X≤60)/L8∘→(0=⍴,X)/L8
[6]   'RANGE ERROR'
[7]   →
[8]   L8:R←120÷(Y←⍞YO[⍳1]0)[2+⍳1]
[9]   Y[2+⍳1]←X+2|X←⌈120÷X∘→(0=⍴,X)/0
[10]   Y ⍞YO[⍳1]0
    ∇


    ∇PLOT W;C;S;TX;TY
[1]   ⍝     PLOT W
[2]   ⍝PLOT W ON THE MCP-132. W IS AN N BY 2
[3]   ⍝ARRAY OF CO-ORDINATES.  PLOT SCALES THESE POINTS
[4]   ⍝TO CORRESPOND TO THE WIDTH AND HEIGHT SPECIFIED.
[5]   C←18↓19⍞'PLOT CHARACTER(S):∘'
[6]   S←⌽22↓⍞'WIDTH,HEIGHT (INCHES): '
[7]   TX←14↓⍞'X AXIS TITLE: '
[8]   TY←((⍴TY),1)⍴TY←14↓⍞'Y AXIS TITLE: '
[9]   W←W-(⍴W)⍴⌊⌿W←W+W←⌊W×(⍴W)⍴S×60 48÷(⌈⌿W)-⌊⌿W
[10]   POS .2 0∘⍞←(1↓S)CENTRE TY∘⍞OU ⍞YA 66
[11]   0 0 HLINE 1↑S∘0 0 VLINE 1↓S
[12]   ' 'PΔ-¯1 2↑W∘C PΔ W
[13]   ⍞←(1↑S)CENTRE TX∘⍞←' '
[14]   POS ¯.2 0
    ∇

PLT   [4 by 66 array of type char; element size 2 byte(s)]
F4EB 0668 2D06 4E84
F815 0600 8BF8 46C8
003C 0340 AC0B 46AD
0028 063C 2D1E 2026
210E 3F46 5300 2E21
3633 C753 453C 4248
5720 4621 2046 AD00
0688 2D1E 2026 210E
B446 5300 46E0 07B0
2B2E 00F5 3D3D 4657
0868 A120 1640 4659
2046 5708 1688 6859
2046 5920 4621 2044
D22A 071A 1C13 181E
0F1C 1513 1820 0B16
130E 2719 1F1E 1A1F
1E27 0E0F 2013 0D0F
2E20 3614 C73C 6C60
```

```
2D20 0627 D046 AD00
2806 7B2D C22D C7B0
504E 20D0 46AD 0028
06E7 2DC2 247F 2DC7
464E 2015 C7D0 46AD
20C2 0257 0620 5507
3525 3525 3D46 8B20
3DC6 94F0 C59B E840
7620 C22C 08D0 A896
F006 009D E846 AD20
C657 C524 07B2 5507
C0C0 C0C0 C0C0 C0C0
C0C0 2E20 3600 C70A
0A0A 0A24 08AA D036
08C7 24FE 31EF F007
06E0 5544 BB0B 06E0
5544 BB0B 45C8 2403
2C01 44BD 20C0 C0C0
C0C0 C0C0 48C9 20C1
24E0 3CE0 2B44 AD20
06E0 5546 AD00 066A
2D44 C40B 45C8 2403
2C01 484E 20C1 24E0
3CE0 4821 2046 FF09
2E20 3614 D048 4020
3E59 0725 2E21 362C
C7B0 484B 2011 25FA
0746 AD00 066A 2D44
C40B 46AD 0006 722D
44C4 0B30 3132 3334
3536 3738 3946 6162
6364 6566 6768 696A
6B6C 6D6E 6F70 7172
7374 7576 7778 797A
484C 202E 4023 2425
5E26 2A28 2900 822D
5F3D 2B50 8444 534D
864F 5451 882F 3F8A
5955 424E 4549 2C52
8C8E 905B 3C5D 9294
3B27 3A22 4A96 4B3E
4741 5743 5658 5A21
989A 9C9E 3EB0 A028
5429 5450 4F2E 4B2F
5F3F 5F4F 4D4F 5F4F
3F48 4D47 4D43 4A42
4A2C 5F4C 2B4C 4B4E
4AC3 12D8 4633 2724

    ∇POSITION S
[1]   ⍝     POSITION S          MAY 04/76
[2]   ⍝POSITION THE CARRIAGE ON THE MCP-132 TO LOCATION S E
[3]   ⍝S IS THE X AND Y COORDINATES IN INCHES Y
[4]   ⍝POSITIVE DIRECTIONS ARE ↑ AND →
[5]   ' 'PΔ⌈120 96×S
    ∇
```

```
    ∇PRT X;T;A
[1]   ⍝     PRT X
[2]   ⍝PRINT X ON MCP-132 WITHOUT DISTROYING EIA TABLES'
[3]   ∘'O'⎕YW'T'∘⎕OU 1↑A∘⎕←X∘⎕OU ⎕YA 66∘'O'⎕YX⍳0∘'O'⎕YR'T'∘A←⎕OU⍳0
    ∇


    ∇C PΔ A
[1]   ⍝     C PΔ A              MAY 01/76
[2]   ⍝SUBFUNCTION TO CALL PLOTER PLT
[3]   A ⎕ZZ[C]PLT
    ∇


    ∇R←ROLL X;Y
[1]   ⍝     R←ROLL X
[2]   ⍝CHANGE NUMBER OF LINES PER INCH TO X (1⩽X⩽48)
[3]   ⍝RESULT R IS THE PREVIOUS SETTING
[4]   ⍝ROLL IS UNCHANGED IF X IS EMPTY.
[5]   →((1⩽X)∧X⩽48)/L8∘→(0=⍴,X)/L8
[6]   'RANGE ERROR'
[7]   →
[8]   L8:R←96÷(Y←⎕YO[⍳1]0)[3+⍳1]
[9]   Y ⎕YO[⍳1]0∘Y[3+⍳1]←⌈1↑96÷X,R
    ∇


    ∇S TITLE X;P;R;HEI;CPI
[1]   ⍝     S TITLE X
[2]   ⍝X IS ALPHA VECTOR TO BE PRINTED X
[3]   ⍝S IS THE X AND Y DISPLACEMENT FROM THE CURRENT LOCATION
[4]   ⍝CHARACTER HEIGHT IS SET BY HEI AND
[5]   ⍝CHARACTERS PER INCH IS SET BY CPI IN LINE 6
[6]   ∘'DEFAULT SETTING IS:'∘HEI←.25∘CPI←5
[7]   POS S
[8]   P←PITCH ⌈6×CPI∘R←ROLL 7×÷HEI
[9]   ⎕←X ⎕ZZ['.']BIG
[10]   ∘PITCH P∘' 'PΔ⌈0 96×7÷ROLL R
[11]   POS -S
    ∇


    ∇S VLINE L
[1]   ⍝     S VLINE L -S
[2]   ⍝DRAW VERTICAL LINE OF LENGTH L STARTING AT POSTION S
[3]   ⍝S IS THE X AND Y DISPLACEMENT FROM THE CURRENT LOCATION.
[4]   POS S
[5]   '|'PΔ((-1+⌈12×L),2)↑VS
[6]   POS -S
    ∇

VS    [2 by 97 numeric array; element size 2 byte(s)]
0 762
0 754
```

0 746
0 738
0 730
0 722
0 714
0 706
0 698
0 690
0 682
0 674
0 666
0 658
0 650
0 642
0 634
0 626
0 618
0 610
0 602
0 594
0 586
0 578
0 570
0 562
0 554
0 546
0 538
0 530
0 522
0 514
0 506
0 498
0 490
0 482
0 474
0 466
0 458
0 450
0 442
0 434
0 426
0 418
0 410
0 402
0 394
0 386
0 378
0 370
0 362
0 354
0 346
0 338
0 330
0 322
0 314
0 306

```
0 298
0 290
0 282
0 274
0 266
0 258
0 250
0 242
0 234
0 226
0 218
0 210
0 202
0 194
0 186
0 178
0 170
0 162
0 154
0 146
0 138
0 130
0 122
0 114
0 106
0 98
0 90
0 82
0 74
0 66
0 58
0 50
0 42
0 34
0 26
0 18
0 10
0 6
0 0
```

```
    ∇R←WIDTH X;Y
[1]   ⍝     R←WIDTH X
[2]   ⍝CHANGE PRINT WIDTH TO X (30⩽X⩽132)
[3]   ⍝RESULT R IS THE PREVIOUS WIDTH
[4]   ⍝WIDTH IS UNCHANGED IF X IS EMPTY.
[5]   →((30⩽X)∧X⩽132)/L8∘→(0=⍴X)/L8
[6]   'RANGE ERROR'
[7]   →
[8]   L8:R←1↑Y←⎕YO[⍳1]1
[9]   (X,(⍴,X)↓Y)⎕YO[⍳1]1
    ∇
```

```
NAMES IN GROUP 202:
GPΔ  LIS  RDR  SET  STA

GPΔ   [vector of type char of length 43; element size 1 byte(s)]
PMR-400 CARD READER SUPPORT - JUN 08/76:GMS


    ∇LIST;A
[1]   ⍝     LIST            GMS:JUN 08/76
[2]   ⍝TEST FUNCTION TO READ CARDS
[3]   ⍝AND LIST THEM ON THE MCP-132
[4]   →L1⌈⍳131=1↑1↓□IN⍳0∘□OU □YA 66
[5]   →0×⍳0=1↑□IN⍳0∘SETUP
[6]   L1:□←A←⍞''
[7]   →(4>8|¯1↑□IN⍳0)/L1
[8]   ⍝PREVIOUS LINE CHECKS FOR END OF FILE
    ∇

RDR   [67 by 1 array of type char; element size 8 byte(s)]
8380000000030000 0000000000000000 0000000000000000 0000000000000102
030405060708090A 0B0C0D0E0F101112 1314151617181 91A 1B1C1D1E1F202122
232425262728292A 2B2C2D2E2F303132 333435363738393A 3B3C3D3E3F404142
434445464748494A 4B4C4D4E4F505152 535455565758595A 5B5C5D5E5F606162
636465666768696A 6B6C6C6C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C000000
042855292E183600 C724F03C10480118 C20E03023C014803 18466A18C70E023C
83480318464C2906 2B2DCDC6442F18C2 3C6D6097283C762B 3C7568AF28440118
1727272727272727 271719200F271E12 0F27120F0B0E2701 271E1C0B0D152713
18270B180E27191F 1E270B1E27010027 171D2713181E0F1C 200B161D286E2727
2727272727272727 2727272727272727 6E0000464C290611 2D166EC33C502B18
2DC7D03C6E2B4672 18D007F43D464C29 06112DA855473D0E 0146AE18240268CB
2806025506045546 3002452C40247168 CB283C01489D0B06 0855463002452C40
C8243048B60BC13C 4148DE28351E5046 372948BB0BF81519 48F3284637293C40
48C00B0E0146AE18 2402681429060255 C72401683029464C 2906612D1E500627
1D19682D29BF6824 29153E6E35E61E00 44972816007D1145 24F0683929247F0B
47B8070E02440318 2E20361DC715EFF0 07292837283F2898 28B228C328D428EE
28F428FD2800290F 2918291B2927292B 2935293FA9000000



    ∇SETUP;A;X
[1]   ⍝     SETUP           GMS:JUN 04/76
[2]   ⍝SETUP INPUT TABLES FOR CARD READER =
[3]   →TOK⌈⍳0≠A←□YA 131
[4]   'NO CARD READER CONNECTED!' Z
[5]   →0
[6]   TOK:∘□IN 0∘'I'□YW'RDR'∘□IN A
[7]   X←0 0 0 0
[8]   X[⍳1]←1∘→CSP⌈⍳~'Y'∈⍞'PROCESS MNEMONICS? :'
[9]   CSP:X[1+⍳1]←1∘→COF⌈⍳~'Y'∈⍞'SUPRESS TRAILING SPACES? :'
[10]   COF:X[1+⍳1]←X[1+⍳1]+2∘→SSS⌈⍳~'Y'∈⍞'STOP READER BETWEEN CARDS? :' R
[11]   SSS:X □YI[⍳1]0∘□IN A
    ∇
```

```
    ∇STATUS;X;S;AS
[1]   ⍝     STATUS X        GMS:JUN 03/76
[2]   ⍝RETURN STATUS OF CARD READER
[3]   ∘⎕IN S∘X←⎕IN ⎕YA 131∘S←1↑⎕INι0
[4]   AS←8 3ρ'NO YES'[,(3×⌽S)∘.+ι3]∘S←(8ρ2)⊤X[3]
[5]   →(0 131=X[2])/NO,RDR
[6]   NO:'NO CARD READER ON THE SYSTEM'
[7]   →0
[8]   RDR:'DEVICE : PMR-400'
[9]   'READER RUNNING?        ',AS[1;]
[10]   'STACKER FULL?          ',AS[2;]
[11]   'HOPPER EMPTY?          ',AS[3;]
[12]   'READ OVERRUN?          ',AS[4;]
[13]   'READ ERROR?            ',AS[5;]
[14]   'CARDS JAMMED?          ',AS[6;]
[15]   'CARD NOT BEING READ?   ',AS[7;]
[16]   'READ DATA AVAILABLE?   ',AS[8;]
    ∇
```

```
NAMES IN GROUP 210:
COM  GP∆  SIM  YEI  YEO  YYI  YYO
```

```
    ∇COMMENTS
[1]   ⍝     COMMENTS            MAY 04/76
[2]   ⍝TURN ON PROMPT SWITCH ON THE SCI-1200.
[3]   ⍝DATEL TERMINALS USE CORRESPONDENCE CODE
[4]   ⍝IBM 3767 GENERALLY ARE EBCDIC
[5]   ⍝IBM 2741 TERMINALS ARE EITHER CORR. OR EBCDIC.
[6]   ⍝EXECUTE THE FUNCTION SETUP'X' TO POINT ⎕IN AND ⎕OUT
[7]   ⍝TO A 2741 TYPE DEVICE. (X←C FOR CORRESPONDENCE, X←E FOR EBCDIC)
[8]   ⍝THE FUNCTION 'BAUD' IN GROUP 0 WILL CHANGE
[9]   ⍝TRANSFER RATE IF A SPEED OTHER THAN
[10]   ⍝134.5 BAUD IS REQUIRED
    ∇
```

```
GP∆   [vector of type char of length 35; element size 1 byte(s)]
MCM/700 TO IBM 2741, 3767 AND DATEL
```

```
    ∇SIM ;X;Y
[1]   ⍝     SIMULATE            MAY 03/76
[2]   ⍝USE THE 2741 AS INPUT AND OUTPUT DEVICE FOR MCM/700
[3]   Y←⍞X←6↓⎕'      '
[4]   →2∘⎕←Y∘→2⌈ι'←'∈X
    ∇
```

```
YEI   [34 by 1 array of type char; element size 8 byte(s)]
A1000000274101B9 78820600082D1F1D 3D003D30032E3D1F 1C3C803480273450
36081B231204171F 0E6C6C6C6C02151D 0C006C6C6C061921 1088836C87011442
0B091C2413051820 0F6C826C6C03161E 0D56554B28071A22 1189846C6C273552
372F4045252B3C46 3A6C6C6C6C295B3B 47316C6C6C2D3E5F 0A88836C87645943
5E304C634A2C4861 496C826C6C2A263F 605857515C2E3862 5D89846C6C142010
300828183804245B 2313330B2B1B3B07 2721113109291939 052512320A2A1A3A
```

```
0626477100375070 4868587844645482 8201410343798 24B 5249825972458222
6282464A53696B67 3665828282027642 8282353475746182 51777B635A736A7A
6660828282827F82 8282000000000000


YEO   [18 by 1 array of type char; element size 8 byte(s)]
41000000274101B9 78820600082D1F1D 3D003D30032E3D1F 1C3C803480142010
300828183804245B 2313330B2B1B3B07 2721113109291939 052512320A2A1A3A
0626477100375070 4868587844645482 8201410343798 24B 5249825972458222
6282464A53696B67 3665828282027642 8282353475746182 51777B635A736A7A
6660828282827F82 8282000000000000


YYI   [34 by 1 array of type char; element size 8 byte(s)]
A1000000274101B9 78820600082D1F1D 3D003D30032E3D1F 1C3C80348027501E
140419164205560F 1A6C6C6C6C022818 36246C6C6C061315 1B88836C87011722
11001D1223071C0E 556C826C6C03201F 1009210C34080B0D 4B89846C6C27523F
592B3E26432C5849 386C6C6C6C295C48 37636C6C6C2D4A5B 4088836C87643C62
5D313B25452E4C3A 576C826C6C2A6146 0A305F47352F5E60 5189846C6C242010
3004081828383473 39363A2A0A332326 19031A062112050B 1B29250232313522
2714664600115070 4448586878746482 82377713534B826A 65618245425B8207
4782677276524A59 3B69828282017B41 82822B096B494382 5A516379757A7162
5460828282827F82 8282000000000000


YYO   [18 by 1 array of type char; element size 8 byte(s)]
41000000274101B9 78820600082D1F1D 3D003D30032E3D1F 1C3C803480242010
3004081828383473 39363A2A0A332326 19031A062112050B 1B29250232313522
2714664600115070 4448586878746482 82377713534B826A 65618245425B8207
4782677276524A59 3B69828282017B41 82822B096B494382 5A516379757A7162
5460828282827F82 8282000000000000




NAMES IN GROUP 212:
COM  GPΔ  SET  SIM


    ∇COM
[1]   ⍝     COMMENTS
[2]   ⍝THE MCM/700 COMMUNICATIONS SUBSYSTEM DEFAULTS TO
[3]   ⍝TEKTRONICS 4013 TERMINAL SUPPORT. THE SETUP FUNCTION IN
[4]   ⍝THIS CASE JUST SELECTS THE DEVICE, THE COMMUNICATIONS
[5]   ⍝TABLES ARE LOADED FROM READ ONLY MEMORY.
    ∇

GPΔ   [vector of type char of length 27; element size 1 byte(s)]
MCM/700 TO TEKTRONICS 4013.


    ∇SETUP;A
[1]   ⍝     SETUP               JUNE 01/76
[2]   ⍝SET UP COMMUNICATIONS TABLES TO RECEIVE INPUT
[3]   ⍝AND PRINT OUTPUT ON A TERMINAL
[4]   ⍝NOTE:  PROMPT SWITCH MUST BE ON.
```

```
[5]   →OK⌈⍳0≠1↑⍞OU A←⍞YA 193,255-32
[6]   'NO EIA INTERFACE CONNECTED'
[7]   →
[8]   OK:∘⍞IN A
    ∇


    ∇SIM ;X;Y
[1]   ⍝     SIM                 JUNE 01/76
[2]   ⍝USE THE TEK-4013 AS INPUT AND OUTPUT DEVICE FOR MCM/700
[3]   Y←⍮X←6↓⍞'      '
[4]   →2∘⍞←Y∘→2⌈⍳'←'∈X
    ∇



NAMES IN GROUP 214:
GPΔ  SET  SIM  YYI  YYO

GPΔ   [vector of type char of length 14; element size 1 byte(s)]
CDI MODEL 1030


    ∇SETUP;A
[1]   ⍝     SETUP J
[2]   ⍝SET UP COMMUNICATIONS TABLES TO RECEIVE INPUT
[3]   ⍝AND PRINT OUTPUT ON A TERMINAL
[4]   ⍝NOTE:  PROMPT SWITCH MUST BE ON.
[5]   →OK⌈⍳0≠1↑⍞OU A←⍞YA 193,255-32
[6]   'NO EIA INTERFACE CONNECTED'
[7]   →
[8]   OK:∘'O'⍞YW'YYO'∘'I'⍞YW'YYI'∘⍞IN A
    ∇


    ∇SIM ;X;Y
[1]   ⍝     SIM                 MAY 03/76
[2]   ⍝USE THE CDI-1030 AS INPUT AND OUTPUT DEVICE FOR MCM/700
[3]   Y←⍮X←6↓⍞'      '
[4]   →2∘⍞←Y∘→2⌈⍳'←'∈X
    ∇


YYI   [34 by 1 array of type char; element size 8 byte(s)]
A100000027B04652 48820600080D0A08 00000000000A0080 8000070000846C6C
6C896C6C6C836C6C 6C6C826C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C276429
2A2B2C2D2E2F3058 574B342842000102 0304050607080956 5551355C43505E47
603A490A5D254A59 5B263C483E38404C 3B3F46615F624563 6C6C6C3631520B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 6C6A6C3784303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E2223 2425262728295F82 822D3D5E7E508244 534D824F5451822F
3F825955424E4549 2C52828282403C60 82823B3A2B2A4A82 4B3E474157435658
5A21828282827F7C 8282000000000000
```

```
YYO   [18 by 1 array of type char; element size 8 byte(s)]
4100000027B04652 48820600080A0D08 00000000000A0080 8000070000303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E2223 2425262728295F82 822D3D5E7E508244 534D824F5451822F
3F825955424E4549 2C52828282403C60 82823B3A2B2A4A82 4B3E474157435658
5A21828282827F7C 8282000000000000



NAMES IN GROUP 215:
GPΔ  SET  SIM  YYI  YYO

GPΔ   [vector of type char of length 19; element size 1 byte(s)]
TELETYPE (MODEL 33)


    ∇SETUP;A
[1]   ⍝     SETUP J
[2]   ⍝SET UP COMMUNICATIONS TABLES TO RECEIVE INPUT
[3]   ⍝AND PRINT OUTPUT ON A TERMINAL
[4]   ⍝NOTE:  PROMPT SWITCH MUST BE ON.
[5]   →OK⌈⍳0≠1↑⎕OU A←⎕YA 193,255-32
[6]   'NO EIA INTERFACE CONNECTED'
[7]   →
[8]   OK:∘'O'⎕YW'YYO'∘'I'⎕YW'YYI'∘⎕IN A
    ∇


    ∇SIM ;X;Y
[1]   ⍝     SIM                  MAY 03/76
[2]   ⍝USE THE TELETYPE-33 AS INPUT AND OUTPUT DEVICE FOR MCM/700 PΔ
[3]   Y←⍞X←6↓⍞'      '
[4]   →2∘⎕←Y∘→2⌈⍳'←'∈X
    ∇

YYI   [34 by 1 array of type char; element size 8 byte(s)]
A100000027B046E2 48810600000D0A08 00000000000A0080 8000070000846C6C
6C896C6C6C836C6C 6C6C826C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C273D64
2F6A6C495B575838 344B352842000102 030405060708095C 512A2C2E406C0B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 55435645356C6C6C
6C6C6C6C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C84303132
3334353637383981 4142434445464748 494A4B4C4D4E4F50 5152535455565758
595A8181202E813C 813D813E81818181 812B2D81812A8181 81812181813F812F
5C81818181818181 2C81818181813B81 81815B5D28298181 273A818181818181
8122818181817F24 8181000000000000


YYO   [18 by 1 array of type char; element size 8 byte(s)]
4100000027B046E2 48810600000D0A08 00000000000A0080 8000070000303132
3334353637383981 4142434445464748 494A4B4C4D4E4F50 5152535455565758
595A8181202E813C 813D813E81818181 812B2D81812A8181 81812181813F812F
5C81818181818181 2C81818181813B81 81815B5D28298181 273A818181818181
8122818181817F24 8181000000000000
```

```
NAMES IN GROUP 216:
CLE  CPS  CUR  GPΔ  HOM  SET  SIM  YYI  YYO


    ∇CLEAR
[1]   ⍝     CLEAR               MAY 04/76
[2]   ⍝CLEAR THE SCREEN
[3]   □BO 12
    ∇


    ∇X CPS Y N
[1]   ⍝     X CPS Y             MAY 04/76
[2]   ⍝SUBFUNCTION TO CURSOR
[3]   □BO 15
[4]   □BO 16⊥1 10 10⊤X
[5]   □BO Y
    ∇


    ∇X CURSOR Y
[1]   ⍝     X CURSOR Y          MAY 04/76
[2]   ⍝POSITION THE CURSOR TO LINE X, COLUMN Y
[3]   □BO X∘(1↑Y) CPS 1↓Y←12 5+24 7×(¯1+Y)
    ∇

GPΔ   [vector of type char of length 26; element size 1 byte(s)]
VOLKER CRAIG (MODEL VC103)


    ∇HOME
[1]   ⍝     HOME                MAY 04/76
[2]   ⍝MOVE THE CURSOR TO THE HOME POSITION.
[3]   □BO 11
    ∇


    ∇SETUP;A
[1]   ⍝     SETUP J
[2]   ⍝SET UP COMMUNICATIONS TABLES TO RECEIVE INPUT
[3]   ⍝AND PRINT OUTPUT ON A TERMINAL
[4]   ⍝NOTE:  PROMPT SWITCH MUST BE ON.
[5]   →OK⌈⍳0≠1↑□OU A←□YA 193,255-32
[6]   'NO EIA INTERFACE CONNECTED'
[7]   →
[8]   OK:∘'O'□YW'YYO'∘'I'□YW'YYI'∘□IN A
    ∇


    ∇SIM ;X;Y
[1]   ⍝     SIM                 MAY 03/76'
[2]   ⍝USE THE TERMINAL AS INPUT AND OUTPUT DEVICE FOR MCM/700
[3]   Y←⌽X←6↓⍞'      '
[4]   →2∘□←Y∘→2⌈⍳'←'∈X
    ∇
```

```
YYI   [34 by 1 array of type char; element size 8 byte(s)]
A100000027B04609 50800600000D0A08 00000000000A0080 8000070000846C6C
6C896C6C6C836C6C 6C6C826C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C276429
2A2B2C2D2E2F3058 574B342842000102 0304050607080956 5551355C43505E47
603A490A5D254A59 5B263C483E38404C 3B3F46615F624563 6C6C6C3631520B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 6C6A6C3784303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E2223 2425262728295F81 812D3D5E7E508144 534D814F5451812F
3F815955424E4549 2C52818181403C60 81813B3A2B2A4A81 4B3E474157435658
5A21818181817F7C 8181000000000000


YYO   [18 by 1 array of type char; element size 8 byte(s)]
4100000027B04609 50800600000D0A08 00000000000A0080 8000070000303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E2223 2425262728295F81 812D3D5E7E508144 534D814F5451812F
3F815955424E4549 2C52818181403C60 81813B3A2B2A4A81 4B3E474157435658
5A21818181817F7C 8181000000000000




NAMES IN GROUP 217:
A    BEL  CH   CLE  CUR  CV   C    EOL  EOS  GP∆  HOM  O70
ORD  PRI  RET  SET  V    YYI  YYO

A     [39 by 23 array of type char; element size 1 byte(s)]
          MCM/700 CONFIGURATOR
MCM/700 SYSTEM:           CONFIGURATION
      MEMORY REQUIRED :         K BYTES
      TAPES REQUIRED  :
      TEXT/700 SYSTEM :

PERIPHERALS:              NUMBER
      PRINTER MCP-132 :
      CRT VDU-24      :
      DISK DDS-500    :
      EIA SCI-1200    :

SUPPLIES:                 NUMBER
      CASSETTE TAPES  :
      FLOPPY CARTRIGES:
      USERS GUIDE     :
      TEXT/700 MANUAL :

SOFTWARE PACKAGES         NUMBER
      FINANCE         :
      MATHEMATICS     :
      STATISTICS      :
      COMPLEX MATH    :



    ∇BELL
[1]   ⍝     BELL               MAY 03/76
```

```
[2]   ⍝RING THE BELL(KEYBOARD CONNECTED)
[3]   ⎕BO 7
    ∇


    ∇CH X;I
[1]   ⍝     CH X                MAY 03/76 IS
[2]   ⍝MOVE CURSOR IN HORIZONTAL DIRECTION
[3]   ⍝POSITIVE DIRECTION IS RIGHT
[4]   X←⌈|X∘I←28 8[(⍳1)+X<0]
[5]   ⎕BO I
[6]   →(0≠X←X-1)/2
    ∇


    ∇CLEAR
[1]   ⍝     CLEAR              MAY 03/76
[2]   ⍝CLEAR THE SCREEN
[3]   ⎕BO 12
    ∇


    ∇CURSOR X
[1]   ⍝     CURSOR X           MAY 03/76 E
[2]   ⍝MOVE CURSOR TO COLUMN 1↑X,LINE 1↓X.
[3]   ⎕BO (1↓X)-⍳1∘⎕BO 32+(1↑X)-⍳1∘⎕BO 30
    ∇


    ∇CV X;I
[1]   ⍝     CV X               MAY 03/76
[2]   ⍝MOVE CURSOR IN VERTICAL DIRECTION
[3]   ⍝POSITIVE DIRESTION IS UP
[4]   X←⌈|X∘I←10 31[(⍳1)+0<X]
[5]   ⎕BO I
[6]   →(0<X←X-1)/2
    ∇

C     [numeric vector of length 16; element size 1 byte(s)]
3 4 5 8 9 10 11 14 15 16 17 20 21 22 23 100


    ∇EOL E
[1]   ⍝     EOL                MAY 03/76
[2]   ⍝ERASE FROM CURSOR TO END OF LINE
[3]   ⎕BO 29
    ∇


    ∇EOS
[1]   ⍝     EOS                MAY 03/76
[2]   ⍝ERASE SCREEN TO END OF PAGE
[3]   ⎕BO 11
    ∇

GPΔ   [vector of type char of length 22; element size 1 byte(s)]
```

DATAMEDIA (MODEL 1520)

```
    ∇HOME
[1]   ⍝     HOME                MAY 03/76
[2]   ⍝MOVE THE CURSOR TO THE HOME POSITION.
[3]   □BO 25
    ∇


    ∇O70
[1]   '          MCM/700 CONFIGURATOR 00
[2]   'MCM/700 SYSTEM:           CONFIGURATION
[3]   '      MEMORY REQUIRED :         K BYTES
[4]   '      TAPES REQUIRED  :
[5]   '      TEXT/700 SYSTEM :
[6]   '
[7]   'PERIPHERALS:              NUMBER
[8]   '      PRINTER MCP-132 :
[9]   '      CRT VDU-24      :
[10]   '      DISK DDS-500    :
[11]   '      EIA SCI-1200    :
[12]   '
[13]   'SUPPLIES:                 NUMBER
[14]   '      CASSETTE TAPES  :
[15]   '      FLOPPY CARTRIGES:
[16]   '      USERS GUIDE     :
[17]   '      TEXT/700 MANUAL :
[18]   '
[19]   'SOFTWARE PACKAGES         NUMBER
[20]   '      FINANCE         :
[21]   '      MATHEMATICS     :
[22]   '      STATISTICS      :
[23]   '      COMPLEX MATH    :
    ∇


    ∇ORDER;ANS;I;ST;T
[1]   ⍝     ORDER               MAY 03/76
[2]   ⍝DEMONSTRATION PROGRAMME
[3]   □←A∘I←''⍴⍳1+ST←T←0∘CLEAR
[4]   →AGN∘□←'PRICE     SUBTOTAL   TOTAL'∘CUR 52 2∘□←DATE∘CUR 60 1
[5]   ERR:∘EOL∘CUR 30,C[I]∘□DL 3∘□←'ERROR'
[6]   AGN:CUR 50,C[I]∘ANS←⍞''∘CUR 30,C[I]
[7]   →(~∧/ANS∈'0123456789 ')/ERR∘→(0=⍴ANS)/TST
[8]   →(V[I;2]<ANS←⍎ANS)/ERR
[9]   →(~v/V[I;]=ANS)/ERR∘→(10≤V[I;2])/OK
[10]   OK:ST←ST+⍎□←9 2 0⍕+/PRI[I;]×ANS,1
[11]   TST:→(¯1=-/C[I+0 1])/NST
[12]   ST←0×T←T+ST∘□←10 2 0⍕ST∘CUR 60,C[I]
[13]   →(¯1≠I-⍴C)/NST
[14]   □←10 2 0⍕T∘CUR 70,C[I]
[15]   NST:→((⍴C)>I←I+1)/AGN
    ∇
```

```
PRI   [2 by 15 numeric array; element size 2 byte(s)]
400 4600
1400 0
500 0
4500 0
2500 0
4000 0
1100 0
12 0
15 0
10 0
5 0
150 0
400 0
300 0
100 0



    ∇RETURN
[1]   ⍝     RETURN              MAY 03/76
[2]   ⍝RETURN CURSOR TO LEFT MARGIN
[3]   ⎕BO 13
    ∇


    ∇SETUP;A
[1]   ⍝     SETUP
[2]   ⍝SET UP COMMUNICATIONS TABLES TO RECEIVE INPUT
[3]   ⍝AND PRINT OUTPUT ON A TERMINAL T
[4]   ⍝NOTE:  PROMPT SWITCH MUST BE ON.
[5]   →OK⌈⍳0≠1↑⎕OU A←⎕YA 193,255-32
[6]   'NO EIA INTERFACE CONNECTED'
[7]   →
[8]   OK:∘'O'⎕YW'YYO'∘'I'⎕YW'YYI'∘⎕IN A
[9]   'FULL DUPLEX DATA RATE AND EIA'
[10]   'MUST BE PRESSED IN.'
    ∇

V     [2 by 15 numeric array; element size 2 byte(s)]
4 8
1 2
0 1
0 10
0 10
0 10
0 10
0 1000
0 1000
0 1000
0 1000
0 1000
0 1000
0 1000
```

```
YYI   [34 by 1 array of type char; element size 8 byte(s)]
A100000027B04614 50820600000D0A08 00000000000A0080 8000070000846C6C
6C896C6C6C836C6C 6C6C826C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C276429
2A2B2C2D2E2F3058 574B342842000102 0304050607080956 5551355C43505E47
603A490A5D254A59 5B263C483E38404C 3B3F46615F624563 6C6C6C3631520B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 6C6A6C3784303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E2223 2425262728295F82 822D3D5E7E508244 534D824F5451822F
3F825955424E4549 2C52828282403C60 82823B3A2B2A4A82 4B3E474157435658
5A21828282827F7C 8282000000000000


YYO   [18 by 1 array of type char; element size 8 byte(s)]
4100000027B04614 50820600000D0A08 00000000000A0080 8000070000303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E2223 2425262728295F82 822D3D5E7E508244 534D824F5451822F
3F825955424E4549 2C52828282403C60 82823B3A2B2A4A82 4B3E474157435658
5A21828282827F7C 8282000000000000




NAMES IN GROUP 220:
COM  GPΔ  SET  YYI  YYO


    ∇COM
[1]   ⍝     COMMENTS            JUNE 01/76
[2]   ⍝GROUP 240 CONTAINS FUNCTIONS TO TRANSFER DATA BETWEEN MCM/700'S.
[3]   ⍝TO START THE SYSTEMS, EXECUTE THE FUNCTION SETUP
[4]   ⍝ON THE MASTER COMPUTER AND RUN ON THE SLAVE COMPUTER.
    ∇

GPΔ   [vector of type char of length 19; element size 1 byte(s)]
MCM/700 TO MCM/700.


    ∇SETUP;A
[1]   ⍝     SETUP               JUNE 01/76
[2]   ⍝SET UP COMMUNICATIONS TABLES TO RECEIVE INPUT
[3]   ⍝AND SEND OUTPUT TO ANOTHER MCM/700.
[4]   ⍝NOTE:  PROMPT SWITCH MUST BE OFF.
[5]   →OK⌈⍳0≠1↑⎕OU A←⎕YA 1 31
[6]   'NO EIA INTERFACE CONNECTED'
[7]   →
[8]   OK:⍬⎕IN A⍬'I'⎕YW'YYI'⍬'O'⎕YW'YYO'
    ∇

YYI   [34 by 1 array of type char; element size 8 byte(s)]
8100000003304652 84820600080D0A08 00000000000A0080 8000070000846C6C
6C896C6C6C836C6C 6C6C826C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C276458
2A2B2C2E5630312F 374B342842000102 0304050607080957 5551365C43295E47
603A490A5D254A59 5B263C483E38404C 3B3F46615F624563 506C522D356C0B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 6C6C6C6A84000000
026900FF00200079 80B902FF96FD06F5 82FD82FD02FD82FD 027D00FF86FD00FD
```

```
02FD00FD007D00FD 006900FF0040007D 0060007B8040007B 006900FF026D00F9
00F900FF82FF0279 86B800FD80FF82FD 86FF80FD00FC007D A6FD02FF00FD00FD
02FD00FD00FD007D 0000007900F90079


YYO   [18 by 1 array of type char; element size 8 byte(s)]
4100000003304652 84820600080D0A08 00000000000A0080 8000070000303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E4023 24255E262A282982 822D5F3D2B508244 534D824F5451822F
3F825955424E4549 2C528282825B3C5D 82823B273A224A82 4B3E474157435658
5A21828282827F7E 8282000000000000




NAMES IN GROUP 221:
GPΔ  SIG  TER

GPΔ   [vector of type char of length 27; element size 1 byte(s)]
COMSHARE SIGN-ON PROCEDURE.


    ∇SIGNON;P;T
[1]   ⍝     SIGNON              JULY 06/76
[2]   ⍝SIGN ON PROCEDURE FOR COMSHARE
[3]   ∘SETUP'C'∘⎕NC'XFER'
[4]   ∘⎕IN 1↑⎕OU⍳0∘P←1↓'ACOUNT:LOCK'∘⎕IN 0
[5]   T ⎕YI[⍳1]0∘T[1+⍳1]←67∘T←⎕YI[⍳1]0
[6]   WAIT:'PHONE 1-416-678-6900'∘⎕PT←10
[7]   →WAIT⌈⍳2>4|¯1↑⎕OU⍳0 N
[8]   XFER'*'∘⎕DL 2
[9]   XFER(N←(P⍳':')-⎕IO)↑P
[10]   XFER(N+1)↓P
[11]   XFER P←''
[12]   XFER'APL'∘⎕PT←0
    ∇



    ∇TERMINAL;L;L1;N;BC
[1]   ⍝     TERMINAL            MAY 03/76
[2]   ⍝MCM/700 OPERATES AS A TERMINAL TO HOST COMPUTER
[3]   ⍝NOTE:TRANSMISSION IS LIMITED TO 128 CHARACTERS AT A TIME.
[4]   ⍝TO EXIT FROM THIS FUNCTION TYPE ω RETURN
[5]   L←'       '∘BC←⎕Y 108
[6]   IN:∘⎕IN 1↑⎕OU⍳0∘L1←(⍴L)↓'L∘⎕IN 0
[7]   L←XFER L1∘→('ω'=(1⌊⍴L1)↑L1)/0
[8]   DLP:→((¯1+⍴L)≤N←(L⍳BC)-⎕IO)/IN
[9]   N↑L
[10]   →(0=N←((BC≠L←(1+N)↓L)⍳1)-⎕IO)/DLP
[11]   →DLP∘L←N↓L
    ∇
```

```
NAMES IN GROUP 222:
GPΔ  SIG  TER

GPΔ   [vector of type char of length 29; element size 1 byte(s)]
I.P. SHARP SIGN-ON PROCEDURE.


    ∇SIGNON;P
[1]   ⍝     SIGNON              JULY 06/76
[2]   ⍝SIGN ON PROCEDURE TO 360/APL WITH 3705 FRONT END PROCESSOR
[3]   ⍝300 BAUD - CORRESPONDENCE
[4]   SETUP'C'∘.□NC'XFER'
[5]   P←13↓(14+⍳1)⌷'ACCOUNT:LOCK )       :'∘.□IN 0
[6]   WAIT:'PHONE 1-416-360-1200'∘.□PT←10
[7]   →WAIT⌈⍳2>4|¯1↑□IN 1↑□OU⍳0
[8]   XFER')'∘.□DL 1∘.□BO 52∘.□DL 1
[9]   P←XFER P
[10]   P∘.□PT←0 F
    ∇


    ∇TERMINAL;L;L1;N;BC
[1]   ⍝     TERMINAL            MAY 03/76
[2]   ⍝MCM/700 OPERATES AS A TERMINAL TO HOST COMPUTER
[3]   ⍝NOTE:TRANSMISSION IS LIMITED TO 128 CHARACTERS AT A TIME.
[4]   ⍝TO EXIT FROM THIS FUNCTION TYPE ω RETURN
[5]   L←'       '∘.BC←□Y 108
[6]   IN:∘.□IN 1↑□OU⍳0∘.L1←(⍴L)↓⌷L∘.□IN 0
[7]   L←XFER L1∘.→('ω'=(1⌊⍴L1)↑L1)/0
[8]   DLP:→((¯1+⍴L)≤N←(L⍳BC)-□IO)/IN
[9]   N↑L
[10]   →(0=N←((BC≠L←(1+N)↓L)⍳1)-□IO)/DLP
[11]   →DLP∘.L←N↓L
    ∇




NAMES IN GROUP 223:
A    COM  GPΔ  SET  SIG  TER  YAI  YAO

A     [4 by 11 numeric array; element size 2 byte(s)]
7 48 70 82
132 130 6 0
0 0 128 128
8 0 0 0
0 0 0 0
0 0 0 0
0 0 10 0
128 0 0 0
128 0 0 0
128 13 0 0
128 128 0 0
```

```
    ∇COMMENTS;Y
[1]   ⍝     COMMENTS            JUNE 16/76
[2]   ⍝THIS PROCEDURE IS FOR STSC 30 CPS ASCII HALF DUPLEX
[3]   ⍝FOR A DIRECT LINE INTO STSC.  TO ENTER STSC
[4]   ⍝VIA TYMNET OR TELENET, OR AT A DIFFERENT SPEED, OR SIMULATING
[5]   ⍝SELECTRIC, THIS PROCEDURE MUST BE CHANGED.
[6]   ⍝     TO GENERATE ASCII TABLES YAI AND YAO EXECUTE
[7]   ⍝THIS FUNCTION AFTER CONNECTING THE SCI1200 TO THE SYSTEM.
[8]   ⍝SAVE THE VARIABLES YAI AND YAO ON TAPE.
[9]   ⍞←⎕OU 1↑ ⎕IN ⎕YA 1 31
[10]   ⍞←A ⎕YI[1]Y⍞←A ⎕YO[1]Y←¯1+⍳11⍞←'A IS FROM GROUP 223'
[11]   ⍞←¯2 108 ⎕YI[2]7 13
[12]   ⍞←'I'⎕YR'YAI'⍞←'O'⎕YR'YAO'
    ∇

GPΔ   [vector of type char of length 29; element size 1 byte(s)]
SCIENTIFIC SIGN-ON PROCEDURE.


    ∇SETUP T
[1]   ⍝     SETUP T             JUNE 16/76
[2]   ⍝SET UP COMMUNICATIONS INTERFACE
[3]   ⍝USING TABLES YYI, YYO FOR CORRESPONDANCE
[4]   ⍝YEI YEO FOR EBCDIC, AND YAI YAO FOR ASCII
[5]   ⍝ACCORDING TO T (CEA).
[6]   ⍝NOTE: PROMPT SWITCH MUST CORRESPOND TO TABLE SETTING
[7]   T←2 3⍴'Y',T,'IY',T,'O'⍞←⎕IN 0
[8]   →SUO⌈⍳0≠1↑⎕IN ⎕YA('I'⎕YW T[⍳1;]),255-64
[9]   'NO SUCH INPUT DEVICE'
[10]   →
[11]   SUO:→0×⍳0≠1↑⎕OU ⎕YA('O'⎕YW T[1+⍳1;]),255-128+32
[12]   'NO SUCH OUTPUT DEVICE'
[13]   →
    ∇


    ∇SIGNON;P;Q
[1]   ⍝     SIGNON              JULY 06/76
[2]   ⍝SCIENTIFIC TIME SHARING SIGN ON PROCEDURE
[3]   ⍝FOR A DIRECT LINE, 300 BAUD, ASCII, HALF DUPLEX.
[4]   Q←⎕YI[⍳1]0⍞←SETUP'A'⍞←⎕NC'XFER'
[5]   ⍞←⎕IN 1↑⎕OU⍳0⍞←P←13↓15⍕'ACCOUNT:LOCK ):'⍞←⎕IN 0
[6]   WAIT:'PHONE 1-914-428-8821'⍞←⎕PT←10
[7]   →(~∧/1 0=2↑,(5⍴2)⊤¯1↑⎕OU⍳0)/WAIT
[8]   XFER')'⍞←⎕DL 3⍞←⎕←'2'⍞←⎕DL 3⍞←⎕←'○'⍞←⎕DL 2
[9]   ,P←XFER P⍞←⎕PT←0
[10]   Q ⎕YI[⍳1]0⍞←Q[1+⎕IO]←50
    ∇


    ∇TERMINAL;L;L1;N;BC
[1]   ⍝     TERMINAL            MAY 03/76
[2]   ⍝MCM/700 OPERATES AS A TERMINAL TO HOST COMPUTER
[3]   ⍝NOTE:TRANSMISSION IS LIMITED TO 128 CHARACTERS AT A TIME.
[4]   ⍝TO EXIT FROM THIS FUNCTION TYPE ω RETURN
[5]   L←'       '⍞←BC←⎕Y 108
```

```
[6]   IN:⍞←⎕IN 1↑⎕OUι0⍞←L1←(ρL)↓⍞←L⍞←⎕IN 0
[7]   L←XFER L1⍞→('ω'=(1⌊ρL1)↑L1)/0
[8]   DLP:→((¯1+ρL)≤N←(LιBC)-⎕IO)/IN
[9]   N↑L
[10]   →(0=N←((BC≠L←(1+N)↓L)ι1)-⎕IO)/DLP
[11]   →DLP⍞←L←N↓L
    ∇

YAI   [34 by 1 array of type char; element size 8 byte(s)]
8100000007304652 8482060000808008 00000000000A0080 80800D8080846C6C
6C896C6C82836C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C276458
2A2B2C2E5630312F 374B342842000102 0304050607080957 5551365C43295E47
603A490A5D254A59 5B263C483E38404C 3B3F46615F624563 506C522D356C0B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 6C6C6C6A84000000
026900FF00200079 80B902FF96FD06F5 82FD82FD02FD82FD 027D00FF86FD00FD
02FD00FD007D00FD 006900FF0040007D 0060007B8040007B 006900FF026D00F9
00F900FF82FF0279 86B800FD80FF82FD 86FF80FD00FC007D A6FD02FF00FD00FD
02FD00FD00FD007D 0000007900F90079


YAO   [18 by 1 array of type char; element size 8 byte(s)]
4100000007304652 8482060000808008 00000000000A0080 80800D8080303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E4023 24255E262A282982 822D5F3D2B508244 534D824F5451822F
3F825955424E4549 2C528282825B3C5D 82823B273A224A82 4B3E474157435658
5A21828282827F7E 8282000000000000




NAMES IN GROUP 224:
GPΔ  SIG  TER

GPΔ   [vector of type char of length 17; element size 1 byte(s)]
MCM/700 TO BOEING


    ∇SIGNON;P;Q
[1]   ⍝     SIGNON              JULY 06/76
[2]   ⍝BOEING SIGN ON PROCEDURE
[3]   ⍝FOR A DIRECT LINE, 300 BAUD, ASCII, HALF DUPLEX.
[4]   Q←⎕YI[ι1]0⍞SETUP'A'⍞←⎕NC'XFER'
[5]   ⍞←⎕IN 1↑⎕OUι0⍞←P←(4+ι1)⍞←'LOG 10522 10522 450K APL NOM'⍞←⎕IN 0
[6]   WAIT:'PHONE 1-212-935-9370'⍞←⎕PT←10
[7]   →(~∧/1 0=2↑,(5ρ2)⊤¯1↑⎕OUι0)/WAIT
[8]   XFER''⍞←⎕DL 3⍞←⎕←'2'⍞←⎕DL 3⍞←⎕←'○'⍞←⎕DL 2
[9]   XFER 'CTS'
[10]   ,P←XFER P⍞←⎕PT←0
[11]   Q ⎕YI[ι1]0⍞←Q[1+⎕IO]←50
    ∇


    ∇TERMINAL;L;L1;N;BC O
[1]   ⍝     TERMINAL            MAY 04/76
[2]   ⍝MCM/700 OPERATES AS A TERMINAL TO HOST COMPUTER A
[3]   ⍝NOTE:TRANSMISSION IS LIMITED TO 128 CHARACTERS AT A TIME.
```

```
[4]   ⍝TO EXIT FROM THIS FUNCTION TYPE ω RETURN
[5]   L←'       '∘BC←⎕Y 108
[6]   IN:∘⎕IN 1↑⎕OUι0∘L1←(ρL)↓⍞L∘⎕IN 0
[7]   L←XFER L1∘→('ω'=(1⌊ρL1)↑L1)/0
[8]   DLP:→((¯1+ρL)≤N←(LιBC)-⎕IO)/IN
[9]   N↑L
[10]   →(0=N←((BC≠L←(1+N)↓L)ι1)-⎕IO)/DLP
[11]   →DLP∘L←N↓L
    ∇
```

NAMES IN GROUP 225:
GPΔ SIG TER

GPΔ   [vector of type char of length 23; element size 1 byte(s)]
MCM/700 TO QUEENS B6700

```
    ∇SIGNON;P;T
[1]   ⍝     SIGNON              JULY 06/76
[2]   ⍝SIGN ON PROCEDURE FOR QUEENS UNIVERSITY
[3]   ⍝BURROUGHS B6700 COMPUTER
[4]   ∘BAUD 137∘SETUP'C'
[5]   P←12⍞')ON ACOUNT[LOCK  ]'∘⎕IN 0
[6]   T ⎕YI[⎕IO]0∘T[1+⎕IO]←67∘T←⎕YI[⎕IO]0
[7]   WAIT:'PHONE 1-613-547-6550'∘⎕PT←10
[8]   →WAIT⌈ι2>4|¯1↑⎕OUι0
[9]   XFER'\APL'∘⎕DL 3
[10]   XFER P∘⎕PT←0
    ∇
```

```
    ∇TERMINAL;L;L1;N;BC
[1]   ⍝     TERMINAL            MAY 03/76
[2]   ⍝MCM/700 OPERATES AS A TERMINAL TO HOST COMPUTER
[3]   ⍝NOTE:TRANSMISSION IS LIMITED TO 128 CHARACTERS AT A TIME.
[4]   ⍝TO EXIT FROM THIS FUNCTION TYPE ω RETURN
[5]   L←'       '∘BC←⎕Y 108
[6]   IN:∘⎕IN 1↑⎕OUι0∘L1←(ρL)↓⍞L∘⎕IN 0
[7]   L←XFER L1∘→('ω'=(1⌊ρL1)↑L1)/0
[8]   DLP:→((¯1+ρL)≤N←(LιBC)-⎕IO)/IN
[9]   N↑L
[10]   →(0=N←((BC≠L←(1+N)↓L)ι1)-⎕IO)/DLP
[11]   →DLP∘L←N↓L
    ∇
```

NAMES IN GROUP 240:
COM DWR GET GPΔ PUT REA RUN SET SRE SWR TRA WRI
XFE XTY YYI YYO

```
    ∇COMMENTS
[1]   ⍝     COMMENTS            JUNE 02/76
[2]   ⍝TO RUN THE DATA TRANSFER PACKAGE ONE COMPUTER
[3]   ⍝ACTS AS MASTER, THE OTHER AS SLAVE.
[4]   ⍝1. TURN ON BOTH COMPUTERS AND SELECT GROUP 240.
[5]   ⍝2. CONNECT THE COUPLERS TO THE PHONE LINE. NOTE THAT ONE
[6]   ⍝   OF THE COUPLERS MUST BE IN ANSWER MODE.
[7]   ⍝3. RUN THE FUNCTION SETUP ON THE MASTER COMPUTER.
[8]   ⍝4. EXECUTE THE FUNCTION RUN ON THE SLAVE COMPUTER.
[9]   ⍝5. THE COMPUTERS ARE NOW READY TO SEND OF RECEIVE DATA.
[10]   ⍝   BY EXECUTING THE FUNCTIONS READ, WRITE OR DWRITE FROM THE
[11]   ⍝   MASTER COMPUTER.
[12]   ⍝6. AVOID TRANSMITTING ITEMS WITH TWO CHARACTER NAMES
[13]   ⍝   ENDING IN Δ SINCE LOCAL VARIABLES USE THESE NAMES.
    ∇


    ∇DΔ DWRITE XΔ;IΔ;JΔ;IOΔ
[1]   ⍝     DΔ DWRITE XΔ        JULY 07/76
[2]   ⍝WRITE PREFORMATTED ALPHA DATA TO 360/APL
[3]   ⍝DΔ IS DESIRED DIMENSIONS OF DATE
[4]   ⍝XΔ IS TO BE THE DATA NAME IN THE 360
[5]   ⍝VECTORS A00,A01,--- ,AXX CONTAIN THE ALPHA DATA
[6]   ⍝NOTE:       128≥ρAXX
[7]   IΔ←TRA(⍎2,DΔ),' SWRITE''',XΔ,''''
[8]   JΔ←⎕IO←0×IOΔ←⎕IO∘→(0=×/DΔ)/0
[9]   LPΔ:→(0=⎕NC NΔ←'A',¯2↑⍎100+JΔ)/ERΔ
[10]   →LPΔ∘JΔ←JΔ+1∘→(0=IΔ←⍎TRA⍎NΔ)/DNΔ
[11]   DNΔ:→0∘⎕IO←IOΔ
[12]   ERΔ:'NOT ENOUGH DATA'
    ∇


    ∇ZΔ←RΔ GET IΔ;EΔ
[1]   ⍝     ZΔ←RΔ GET IΔ        JUNE 02/76
[2]   ⍝GET FROM RΔ(ANY SHAPE) THE ROW STARTING AT ELEMENT IΔ(⎕IO←0)
[3]   ZΔ←⍎'RΔ',(0≠ρ3↓EΔ)/EΔ∘EΔ[(' '=EΔ)/⍳ρEΔ←'[',(⍎¯1↓(ρRΔ)⊤IΔ),';]']←';'
    ∇

GPΔ   [vector of type char of length 42; element size 1 byte(s)]
DATA TRANSFER PACKAGE - MCM/700 TO MCM/700


    ∇ZΔ←RΔ PUT IΔ;EΔ
[1]   ⍝     ZΔ←RΔ PUT IΔ        JUNE 02/76
[2]   ⍝PUT INTO RΔ(ANY SHAPE) THE ROW STARTING AT ELEMENT IΔ(⎕IO←0) FROM LΔ
[3]   ZΔ←RΔ∘⍎'RΔ',((0≠ρ3↓EΔ)/EΔ∘EΔ[(' '=EΔ)/⍳ρEΔ←'[',
(⍎¯1↓(ρRΔ)⊤IΔ),';]']←';'),'←LΔ'
    ∇


    ∇READ XΔ;IΔ;JΔ;NΔ;MΔ;LΔ;RΔ;IOΔ;TΔ
[1]   ⍝     READ XΔ             JUNE 02/76
[2]   ⍝READ DATA OR FUNCTION XΔ FROM ANOTHER MCM
[3]   MΔ←×/NΔ←1↓NΔ∘→(0>TΔ←1↑NΔ←TRA'SREAD ''',XΔ,''''')/NVΔ
[4]   IΔ←⎕IO←0×IOΔ←⎕IO
```

```
[5]   →(0=×/ρRΔ←NΔρ((TΔ=20)/0),(TΔ=2)/' ')/DNΔ
[6]   LPΔ:LΔ←XTYP⍧IΔ
[7]   LDΔ:→LDΔ∘LΔ←LΔ,XTYP⍧ρLΔ∘→(v/(ρLΔ)=MΔ,¯1↑NΔ)/ADΔ,NCΔ
[8]   ADΔ:→DNΔ∘RΔ←NΔρLΔ
[9]   NCΔ:→((IΔ←IΔ+''ρρLΔ)<MΔ)/LPΔ∘RΔ←RΔ PUT IΔ
[10]   DNΔ:→XTΔ∘⍋XΔ,'←RΔ'∘→(TΔ=3)/FNΔ
[11]   FNΔ:∘⍞FX RΔ
[12]   XTΔ:→0∘⍞IO←IOΔ∘⍞←'0'
[13]   NVΔ:'NO VALUE'
[14]   →
    ∇


    ∇RUN
[1]   ⍝     RUN                 JUNE 01/76
[2]   ⍝EXECUTE STATEMENTS RECEIVED FROM ANOTHER SYSTEM
[3]   SETUP
[4]   RΔ:⍞←''
[5]   →RΔ∘⍋⍞''
    ∇


    ∇SETUP;A
[1]   ⍝     SETUP               JUNE 01/76
[2]   ⍝SET UP COMMUNICATIONS TABLES TO RECEIVE INPUT
[3]   ⍝AND SEND OUTPUT TO ANOTHER MCM/700.
[4]   ⍝NOTE:  PROMPT SWITCH MUST BE OFF.
[5]   →OK⌈⍳0≠1↑⍞OU A←⍞YA 1 31
[6]   'NO EIA INTERFACE CONNECTED'
[7]   →
[8]   OK:∘⍞IN A∘'I'⍞YW'YYI'∘'O'⍞YW'YYO'
    ∇


    ∇SREAD XΔ;IΔ;LΔ;IOΔ;RΔ;TΔ;ROΔ
[1]   ⍝     SREAD XΔ            JUNE 02/76
[2]   ⍝SLAVE READ TO TRANSFER DATA OR FUNCTION XΔ
[3]   →(0 2 3=TΔ←⍞NC XΔ)/NVΔ,DAΔ,FNΔ
[4]   →0∘⍞←'¯2'∘'INVALID TYPE'
[5]   NVΔ:→0∘⍞←'¯1'∘'NO VALUE'
[6]   DAΔ:→OKΔ∘TΔ←TΔ+18×0=0\0ρRΔ←⍋XΔ
[7]   FNΔ:RΔ←⍞CR XΔ
[8]   OKΔ:IΔ←TRAN⍧TΔ,ρRΔ
[9]   ⍞IO←0×IOΔ←⍞IO∘→(0=×/ρRΔ)/0
[10]   RΔ←,RΔ∘→(255<×/ρRΔ)/LPΔ
[11]   LPΔ:LΔ←RΔ GET IΔ
[12]   EDΔ:IΔ←TRAN(ROΔ←((TΔ=2 20)/128 10)⌊ρLΔ)↑LΔ
[13]   →(0≠ρLΔ←ROΔ↓LΔ)/EDΔ
[14]   ⍞IO←IOΔ∘→(0<IΔ)/LPΔ
    ∇


    ∇DΔ SWRITE XΔ;IΔ;MΔ;LΔ;RΔ;IOΔ;TΔ;JΔ
[1]   ⍝     DΔ SWRITE XΔ        JUNE 01/76
[2]   ⍝SLAVE WRITE TO RECEIVE DATA OR
[3]   ⍝FUNCTION XΔ FROM ANOTHER SYSTEM
```

```
[4]   IΔ←⎕IO←0×IOΔ←⎕IO
[5]   MΔ←×/DΔ←1↓DΔ∘TΔ←1↑DΔ
[6]   →DNΔ×⍳0=×/ρRΔ←DΔρ((TΔ=20)/0),(TΔ=2)/' '
[7]   LPΔ:LΔ←''
[8]   LDΔ:→(((ρLΔ←LΔ,XTYP ρLΔ)=MΔ,¯1↑DΔ)/ADΔ,NCΔ),LDΔ
[9]   ADΔ:→DNΔ∘RΔ←DΔρLΔ
[10]   NCΔ:→((IΔ←IΔ+''ρρLΔ)<MΔ)/LPΔ∘RΔ←RΔ PUT IΔ
[11]   DNΔ:→XTΔ∘⍋XΔ,'←RΔ'∘→(TΔ=3)/FNΔ∘⍎←'0'
[12]   FNΔ:∘⍎FX RΔ
[13]   XTΔ:⎕IO←IOΔ .
    ∇
```

```
    ∇RΔ←TRANSFER XΔ
[1]   ⍝     RΔ←TRANSFER XΔ      JULY 07/76
[2]   ⍝TRANSFER DATA FOR READ AND WRITE
[3]   ⍝RECEIVED DATA IS CHECKED FOR NUMERIC AND EXECUTED
[4]   S1:→0∘RΔ←⍋RΔ∘→((RΔ←⍞''∘⍎←XΔ)⎕ZZ CHK)/ERΔ
[5]   ERΔ:'ERROR IN TRANSMITTING'
[6]   RΔ
[7]   FΔ:RΔ←('AR'=1↑17↓(17+⍳1)⍴⎕'ABORT OR RETRY? :R')/AB,S1∘⎕IN 0
[8]   →RΔ,FΔ∘⎕IN 1↑⎕OU⍳0
[9]   AB:→
    ∇
```

```
    ∇WRITE XΔ;IΔ;LΔ;IOΔ;RΔ;TΔ;ROΔ
[1]   ⍝     WRITE XΔ            JUNE 02/76
[2]   ⍝WRITE DATA OR FUNCTION XΔ TO ANOTHER MCM
[3]   →(0 2 3=TΔ←⎕NC XΔ)/NVΔ,DAΔ,FNΔ
[4]   'INVALID TYPE'
[5]   →
[6]   NVΔ:'NO VALUE'
[7]   →
[8]   DAΔ:→OKΔ∘TΔ←TΔ+18×0=0\0ρRΔ←⍋XΔ
[9]   FNΔ:RΔ←⎕CR XΔ
[10]   OKΔ:IΔ←TRAN(⍒TΔ,ρRΔ),' SWRITE''',XΔ,''''
[11]   ⎕IO←0×IOΔ←⎕IO∘→(0=×/ρRΔ)/0
[12]   RΔ←,RΔ∘→(255<×/ρRΔ)/LPΔ
[13]   LPΔ:LΔ←RΔ GET IΔ
[14]   EDΔ:IΔ←TRAN(ROΔ←((TΔ=2 20)/128 10)⌊ρLΔ)↑LΔ
[15]   →(0≠ρLΔ←ROΔ↓LΔ)/EDΔ
[16]   ⎕IO←IOΔ∘→(0<IΔ)/LPΔ
    ∇
```

```
    ∇RΔ←XFER XΔ
[1]   ⍝     RΔ←XFER XΔ          JUNE 02/76
[2]   ⍝TRANSFER DATA BETWEEN SYSTEMS
[3]   RΔ←⍞''∘⍎←XΔ
    ∇
```

```
    ∇ZΔ←XTYPE XΔ
[1]   ⍝     ZΔ←TYPE XΔ          JUNE 01/76
[2]   ⍝TRANSMITT XΔ, FIX TYPE (GLOBAL VARIABLE TΔ) OF RESULT
```

```
[3]   ⍝EXECUTE IF NUMERIC, RETURN IF CHARACTER
[4]   →0∘ZΔ←⍕''∘→(TΔ=20)/NUM∘⍞←XΔ
[5]   NUM:ZΔ←⍎⍕''
    ∇

YYI   [34 by 1 array of type char; element size 8 byte(s)]
8100000003304652 84820600080D0A08 00000000000A0080 8000070000846C6C
6C896C6C6C836C6C 6C6C826C6C6C6C6C 6C6C6C6C6C6C6C6C 6C6C6C6C6C276458
2A2B2C2E5630312F 374B342842000102 0304050607080957 5551365C43295E47
603A490A5D254A59 5B263C483E38404C 3B3F46615F624563 506C522D356C0B0C
0D0E0F1011121314 15161718191A1B1C 1D1E1F2021222324 6C6C6C6A84000000
026900FF00200079 80B902FF96FD06F5 82FD82FD02FD82FD 027D00FF86FD00FD
02FD00FD007D00FD 006900FF0040007D 0060007B8040007B 006900FF026D00F9
00F900FF82FF0279 86B800FD80FF82FD 86FF80FD00FC007D A6FD02FF00FD00FD
02FD00FD00FD007D 0000007900F90079


YYO   [18 by 1 array of type char; element size 8 byte(s)]
4100000003304652 84820600080D0A08 00000000000A0080 8000070000303132
3334353637383946 6162636465666768 696A6B6C6D6E6F70 7172737475767778
797A484C202E4023 24255E262A282982 822D5F3D2B508244 534D824F5451822F
3F825955424E4549 2C528282825B3C5D 82823B273A224A82 4B3E474157435658
5A21828282827F7E 8282000000000000




NAMES IN GROUP 241:
COM  DWR  GET  GPΔ  OUT  PUT  REA  RTY  SEN  SIG  SRE  SWR
TER  TRA  WRI  XTY  ΔPU


    ∇COMMENTS
[1]   ⍝     COMMENTS            JULY 13/76
[2]   ⍝DATA TRANSFER PACKAGE TO APLSV AT U OF T
[3]   ⍝TO RUN THIS SYSTEM:
[4]   ⍝  1. SELECT GROUP 241 (⍞XS 241)
[5]   ⍝  2. EXECUTE THE FUNCTION SIGNON.
[6]   ⍝  3. EXECUTE THE FUNCTION SEND (SEND'') TO MOVE THE
[7]   ⍝     APPROPRIATE FUNCTIONS TO THE U OF T SYSTEM.
[8]   ⍝  4. TO READ DATA FROM APLSV, EXECUTE READ FUNCTION.
[9]   ⍝     (READ'NAME') WHERE NAME IS THE DATA NAME IN THE APLSV SYSTEM.
[10]  ⍝  5. TO WRITE DATA TO THE APLSV SYSTEM, EXECUTE THE FUNCTION WRITE
[11]  ⍝     (WRITE'NAME') WHERE NAME IS THE DATA NAME IN THE MCM SYSTEM.
[12]  ⍝  6. A FUNCTION DWRITE IS SUPPLIED TO WRITE LARGER DATA ITEMS TO APLSV
[13]  ⍝  NOTE THAT DATA AND FUNCTIONS READ FROM APLSV MUST CONFORM TO MCM SIZE
RESTRICTIONS
    ∇


    ∇DΔ DWRITE XΔ;IΔ;JΔ;IOΔ
[1]   ⍝     DΔ DWRITE XΔ        JULY 07/76
[2]   ⍝WRITE PREFORMATTED ALPHA DATA TO APLSV
[3]   ⍝DΔ IS DESIRED DIMENSIONS OF DATE
[4]   ⍝XΔ IS TO BE THE DATA NAME IN THE APLSV SYSTEM
[5]   ⍝VECTORS A00,A01,--- ,AXX CONTAIN THE ALPHA DATA
```

```
[6]   ⍝NOTE:       128≥ρAXX
[7]   IΔ←TRA(⍎2,DΔ),' SWRITE''',XΔ,''''
[8]   JΔ←⎕IO←0×IOΔ←⎕IO∘→(0=×/DΔ)/0
[9]   LPΔ:→(0=⎕NC NΔ←'A',¯2↑⍎100+JΔ)/ERΔ
[10]   →LPΔ∘JΔ←JΔ+1∘→(0=IΔ←⍎TRA⍎NΔ)/DNΔ
[11]   DNΔ:→0×⎕IO←IOΔ
[12]   ERΔ:'NOT ENOUGH DATA'
    ∇


    ∇ZΔ←YΔ GET IΔ;EΔ
[1]   ⍝     ZΔ←YΔ GET IΔ        JULY 07/76
[2]   ⍝GET FROM YΔ(ANY SHAPE) THE ROW STARTING AT ELEMENT IΔ(⎕IO←0)
[3]   →(0=ρEΔ←⍎¯1↓(ρ⍎YΔ)⍴IΔ)/G1Δ
[4]   EΔ[(' '=EΔ)/ιρEΔ←'[',EΔ,' ']←';'
[5]   G1Δ:ZΔ←⍎YΔ,EΔ
    ∇

GPΔ   [vector of type char of length 35; element size 1 byte(s)]
TRANSFER PACKAGE - MCM/700 TO APLSV


    ∇OUT;O;BS
[1]   ⍝     OUT                 APR 05/76
[2]   ⍝ISSUE O BACKSPACE U BACKSPACE T  TO 360/APL
[3]   →(128=BS←⎕YO[ι1]3)/0
[4]   O←⎕YO[2+ι1]'OUT'
[5]   ⎕BO ¯1↑O∘⎕BO BS∘⎕BO 1↑1↓O∘⎕BO BS∘⎕BO 1↑O∘⎕BO 95 BO
    ∇


    ∇ZΔ PUT IΔ;EΔ
[1]   ⍝     ZΔ PUT IΔ           JULY 07/76
[2]   ⍝PUT INTO ZΔ(ANY SHAPE) THE ROW STARTING AT ELEMENT IΔ(⎕IO←0) FROM LΔ
[3]   →(0=ρEΔ←⍎¯1↓(ρ⍎ZΔ)⍴IΔ)/P1Δ
[4]   EΔ[(' '=EΔ)/ιρEΔ←'[',EΔ,' ']←';'
[5]   P1Δ:∘⍎ZΔ,EΔ,'←LΔ'
    ∇


    ∇READ XΔ;IΔ;JΔ;NΔ;MΔ;LΔ;RΔ;IOΔ;TΔ
[1]   ⍝     READ XΔ             JULY 12/76
[2]   ⍝READ DATA OR FUNCTION XΔ FROM APLSV R
[3]   MΔ←(2⌊ρMΔ)↑MΔ←⌽NΔ,×/NΔ←1↓NΔ∘→(0>TΔ←1↑NΔ←TRA'SREAD ''',XΔ,''''')/NVΔ
[4]   IΔ←⎕IO←0×IOΔ←⎕IO
[5]   →(0=×/ρRΔ←NΔρ((TΔ=20)/0),(TΔ≠20)/' ')/DNΔ
[6]   LPΔ:LΔ←''
[7]   LDΔ:→((MΔ=ρLΔ←LΔ,XTYP IΔ+ρLΔ)/ADΔ,NCΔ),LDΔ
[8]   ADΔ:→DNΔ∘RΔ←NΔρLΔ
[9]   NCΔ:→((IΔ←IΔ+''ρρLΔ)<MΔ)/LPΔ∘'RΔ'PUT IΔ
[10]   DNΔ:→XTΔ∘⍎XΔ,'←RΔ'∘→(TΔ=3)/FNΔ
[11]   FNΔ:∘⎕FX RΔ
[12]   XTΔ:→0∘⍞''∘⎕←0×⎕IO←IOΔ
[13]   NVΔ:'NO VALUE'
[14]   →
    ∇
```

```
    ∇YΔ←RTYPE XΔ
[1]   ⍝     YΔ←RTYPE XΔ         JULY 07/76
[2]   ⍝TRANSMITT XΔ, FIX TYPE (GLOBAL VARIABLE ZΔ) OF RESULT
[3]   ⍝EXECUTE IF NUMERIC, RETURN IF CHARACTER
[4]   ⍝THIS FUNCTION MUST RESIDE IN APLSV SYSTEM
[5]   →(ZΔ=20)/NUΔ,0ρ⎕←XΔ
[6]   →0,0ρYΔ←⍞
[7]   NUΔ:YΔ←⍎⍞
    ∇

    ∇SEND XΔ;YΔ;IΔ
[1]   ⍝     SEND  XΔ            JULY 07/76
[2]   ⍝SEND FUNCTIONS XΔ TO APLSV.(0=4|ρ,XΔ)
[3]   ⍝IF XΔ IS EMPTY SEND GENERATES REQUIRED NAME LIST
[4]   ⍝THE RESPONSE FROM APLSV IS DISPLAYED BRIEFLY FOR EACH FUNCTION Y
[5]   ⍝LINE TRANSMITTED. NO CHECKING IS PERFORMED ON THIS RESPONSE
[6]   XΔ←'SREASWRIRTYPGET ΔPUT'∘→(0≠ρ,XΔ)/OKΔ
[7]   OKΔ:⎕PT←10∘→(0≠4|ρ,XΔ)/LEΔ
[8]   NXΔ:YΔ←⎕CR 4↑XΔ∘IΔ←⎕IO
[9]   S1Δ:⍞''∘⎕←YΔ[IΔ;]
[10]   →((IΔ←IΔ+1)<⎕IO+1↑ρYΔ)/S1Δ
[11]   ⍞''∘⎕←'∇'
[12]   →⎕PT←0∘→(0≠ρXΔ←4↓XΔ)/NXΔ)
[13]   LEΔ:'LENGTH ERROR'
[14]   →
    ∇

    ∇SIGNON;P
[1]   ⍝     SIGNON              JULY 06/76
[2]   ⍝SIGN ON PROCEDURE TO APLSV AT U OF T
[3]   ⍝300 BAUD - CORRESPONDENCE
[4]   SETUP'C'
[5]   P←13↓(14+⍳1)⍞'ACCOUNT:LOCK )      :'∘⎕IN 0
[6]   WAIT:'PHONE 1-416-978-7447'∘⎕PT←10
[7]   →WAIT⌈⍳2>4|¯1↑⎕IN 1↑⎕OU⍳0
[8]   ∘⎕DL 1∘⎕BO 52∘⎕DL 1
[9]   P←⍞''∘⎕←P∘⎕PT←0
[10]   P
    ∇

    ∇SREAD XΔ;IΔ;LΔ;IOΔ;RΔ;ZΔ;ROΔ
[1]   ⍝     SREAD XΔ            JULY 07/76
[2]   ⍝SLAVE READ TO TRANSFER DATA OR FUNCTION XΔ
[3]   ⍝THIS FUNCTION MUST RESIDE IN APLSV SYSTEM
[4]   →(0 2 3=ZΔ←⎕NC XΔ)/NVΔ,DAΔ,FNΔ
[5]   →0×⎕←¯2
[6]   NVΔ:→0×⎕←¯1
[7]   DAΔ:→OKΔ,ZΔ←ZΔ+18×0=0\0ρRΔ←⍎XΔ
[8]   FNΔ:RΔ←⎕CR XΔ
[9]   OKΔ:IΔ←⍎⍞,0ρ⎕←ZΔ,ρRΔ
[10]   →(0=×/ρRΔ)/0
```

```
[11]   ⎕IO←0×IOΔ←⎕IO
[12]   →(255<×/ρRΔ)/LPΔ
[13]   →EDΔ,0ρLΔ←,RΔ
[14]   LPΔ:LΔ←'RΔ'GET IΔ
[15]   EDΔ:→(ZΔ=20)/NUΔ
[16]   →GTΔ,0ρ⎕←((ROΔ←128⌊ρLΔ)↑LΔ),'.'
[17]   NUΔ:⎕←(ROΔ←10⌊ρLΔ)↑LΔ
[18]   GTΔ:IΔ←⍞
[19]   →(0≠ρLΔ←ROΔ↓LΔ)/EDΔ
[20]   →(0<IΔ)/LPΔ
[21]   ⎕IO←IOΔ
    ∇


    ∇DΔ SWRITE XΔ;IΔ;MΔ;LΔ;RΔ;IOΔ;ZΔ;JΔ
[1]    ⍝     DΔ SWRITE XΔ        JULY 07/76
[2]    ⍝SLAVE WRITE TO RECEIVE DATA OR FUNCTION XΔ
[3]    ⍝THIS FUNCTION MUST RESIDE IN APLSV SYSTEM
[4]    IΔ←⎕IO←0×IOΔ←⎕IO
[5]    MΔ←(2⌊ρMΔ)↑MΔ←⌽DΔ,×/DΔ←1↓DΔ,0ρZΔ←1↑DΔ
[6]    →DNΔ×⍳0=×/ρRΔ←DΔρ((ZΔ=20)/0),(ZΔ≠20)/' '
[7]    LPΔ:LΔ←''
[8]    LDΔ:→((MΔ=ρLΔ←LΔ,RTYPE IΔ+ρLΔ)/ADΔ,NCΔ),LDΔ
[9]    ADΔ:→DNΔ,0ρRΔ←DΔρLΔ
[10]    NCΔ:'RΔ'ΔPUT IΔ
[11]    →((IΔ←IΔ+''ρρLΔ)<MΔ)/LPΔ
[12]    DNΔ:→(ZΔ=3)/FNΔ,⎕←0
[13]    ⍞XΔ,'←RΔ'
[14]    →XTΔ
[15]    FNΔ:IΔ←⎕FX RΔ
[16]    XTΔ:⎕IO←IOΔ
    ∇


    ∇TERMINAL;L;L1;N;BC
[1]    ⍝     TERMINAL            MAY 04/76
[2]    ⍝MCM/700 OPERATES AS A TERMINAL TO HOST COMPUTER
[3]    ⍝NOTE:TRANSMISSION IS LIMITED TO 128 CHARACTERS AT A TIME.
[4]    ⍝TO EXIT FROM THIS FUNCTION TYPE ω RETURN
[5]    L←'       '∘BC←⎕Y 108
[6]    IN:∘⎕IN 1↑⎕OU⍳0∘L1←(ρL)↓⍞L∘⎕IN 0
[7]    L←⍞''∘⎕←L1∘→('ω'=(1⌊ρL1)↑L1)/0
[8]    DLP:→((¯1+ρL)≤N←(L⍳BC)-⎕IO)/IN
[9]    N↑L
[10]    →(0=N←((BC≠L←(1+N)↓L)⍳1)-⎕IO)/DLP
[11]    →DLP∘L←N↓L
    ∇


    ∇RΔ←TRANSFER XΔ
[1]    ⍝     RΔ←TRANSFER XΔ      JULY 07/76
[2]    ⍝TRANSFER DATA FOR READ AND WRITE
[3]    ⍝RECEIVED DATA IS CHECKED FOR NUMERIC AND EXECUTED
[4]    S1:→0∘RΔ←⍞RΔ∘→((RΔ←¯1↓⍞''∘⎕←XΔ)⎕ZZ CHK)/ERΔ
[5]    ERΔ:→RΔ←0∘→('0'≠1↑RΔ)/E1Δ
[6]    E1Δ:'ERROR IN TRANSMITTING'
```

```
[7]   RΔ
[8]   FΔ:RΔ←('AR'=1↑17↓(17+⍳1)⍞'ABORT OR RETRY? :R')/AB,S1∘⎕IN 0
[9]   →RΔ,FΔ∘⎕IN 1↑⎕OU⍳0
[10]   AB:→
    ∇


    ∇WRITE XΔ;IΔ;LΔ;IOΔ;RΔ;TΔ;ROΔ
[1]   ⍝     WRITE XΔ            JULY 12/76 T
[2]   ⍝WRITE DATA OR FUNCTION XΔ TO APLAV
[3]   →(0 2 3=TΔ←⎕NC XΔ)/NVΔ,DAΔ,FNΔ
[4]   'INVALID TYPE'
[5]   →
[6]   NVΔ:'NO VALUE'
[7]   →
[8]   DAΔ:→OKΔ∘TΔ←TΔ+18×0=0\0ρRΔ←⍎XΔ
[9]   FNΔ:RΔ←⎕CR XΔ
[10]   OKΔ:(2,1↓⎕YO[⍳1]0)⎕YO[⍳1]0
[11]   IΔ←TRAN(⍕TΔ,ρRΔ),' SWRITE''',XΔ,''''
[12]   ⎕IO←0×IOΔ←⎕IO∘→(0=×/ρRΔ)/0
[13]   →EDΔ∘LΔ←,RΔ∘→(255<×/ρRΔ)/LPΔ
[14]   LPΔ:LΔ←'RΔ'GET IΔ
[15]   EDΔ:IΔ←TRAN(ROΔ←((TΔ=2 3 20)/128 128 10)⌊ρLΔ)↑LΔ
[16]   →(0≠ρLΔ←ROΔ↓LΔ)/EDΔ
[17]   ⎕IO←IOΔ∘→(0<IΔ)/LPΔ
[18]   (7,1↓⎕YO[⍳1]0)⎕YO[⍳1]0
    ∇


    ∇ZΔ←XTYPE XΔ
[1]   ⍝     ZΔ←TYPE XΔ          JULY 07/76
[2]   ⍝TRANSMITT XΔ, FIX TYPE (GLOBAL VARIABLE TΔ) OF RESULT
[3]   ⍝EXECUTE IF NUMERIC, RETURN IF CHARACTER
[4]   →0∘ZΔ←¯2↓⍞''∘→(TΔ=20)/NUM∘⎕←XΔ
[5]   NUM:ZΔ←⍎¯1↓⍞''
    ∇


    ∇ZΔ ΔPUT IΔ;EΔ
[1]   ⍝     ZΔ ΔPUT IΔ          JULY 07/76
[2]   ⍝PUT INTO ZΔ(ANY SHAPE) THE ROW STARTING AT ELEMENT IΔ(⎕IO←0) FROM LΔ
[3]   ⍝THIS FUNCTION MUST RESIDE IN APLSV SYSTEM
[4]   →(0=ρEΔ←⍕¯1↓(ρ⍎ZΔ)⍴IΔ)/P1Δ
[5]   EΔ[(' '=EΔ)/⍳ρEΔ←'[',EΔ,' ']←';'
[6]   P1Δ:⍎ZΔ,EΔ,'←LΔ'
    ∇




NAMES IN GROUP 242:
AN   DWR  GET  GPΔ  OUT  PUT  REA  SEN  SIG  SRE  SWR  TER
TRA  TYP  WRI  XFE  XFR  ΔBU  ΔGE  ΔPU
```

```
    ∇Z←AN X
[1]   ⍝     Z←AN X              MAY 04/76
[2]   ⍝CHECK TYPE - EXECUTE IF NUMERIC
[3]   ⍝THIS FUNCTION MUST RESIDE IN THE 360
[4]   →(T=20)/NUM
[5]   Z←X
[6]   →0
[7]   NUM:Z←⍎X
    ∇


    ∇D DWRITE X;I;J;IO;YO
[1]   ⍝     D DWRITE X          JUNE 01/76
[2]   ⍝WRITE PREFORMATTED DATA TO 360/APL
[3]   ⍝D IS DESIRED DIMENSIONS OF DATE
[4]   ⍝X IS TO BE THE DATA NAME IN THE 360
[5]   ⍝VECTORS A00,A01,--- ,AXX CONTAIN THE ALPHA DATA
[6]   ⍝NOTE:        60≥ρAXX
[7]   (3,1↓YO←⎕YO[⍳1]0)⎕YO[⍳1]0
[8]   ∘TRA⍕2,D∘TRA' SWRITE''',X,''''
[9]   I←⎕IO←0×IO←⎕IO∘→(0=×/D)/0
[10]   J←0
[11]   LPΔ:→(0=⎕NC N←'A',¯2↑⍕100+J)/ERR
[12]   →(0=I←⍎TRA⍎N)/DONE
[13]   →LPΔ∘J←J+1
[14]   DONE:⎕IO←IO∘TRA 0
[15]   →0∘YO ⎕YO[⍳1]0
[16]   ERR:'NOT ENOUGH DATA'
[17]   OUT
    ∇


    ∇Z←R GET I;E
[1]   ⍝     Z←R GET I          MAY 04/76
[2]   ⍝GET FROM R(ANY SHAPE) THE ROW STARTING AT ELEMENT I(⎕IO←0)
[3]   E[(' '=E)/⍳ρE←'[',(⍕¯1↓(ρR)⊤I),';]']←';'
[4]   Z←⍎'R',(0≠ρ3↓E)/E
    ∇

GPΔ   [vector of type char of length 37; element size 1 byte(s)]
TRANSFER PACKAGE - MCM/700 TO 360/APL


    ∇OUT;O;BS
[1]   ⍝     OUT                APR 05/76
[2]   ⍝ISSUE O BACKSPACE U BACKSPACE T  TO 360/APL
[3]   →(128=BS←⎕YO[⍳1]3)/0
[4]   O←⎕YO[2+⍳1]'OUT'
[5]   ⎕BO ¯1↑O∘⎕BO BS∘⎕BO 1↑1↓O∘⎕BO BS∘⎕BO 1↑O∘⎕BO 95 BO
    ∇


    ∇Z←R PUT I;E
[1]   ⍝     Z←R PUT I          MAY 04/76
[2]   ⍝PUT INTO R(ANY SHAPE) THE ROW STARTING AT
[3]   ⍝ELEMENT I(⎕IO←0) FROM GLOBAL VARIABLE L
```

```
[4]   ⍝E[(' '=E)/⍳⍴E←'[',(⍕¯1↓(⍴R)⊤I),';]']←';'
[5]   ⍝⍎'R',((0≠⍴3↓E)/E),'←L'
[6]   ∘⍎'R[',(⍕¯1↓(⍴R)⊤I),';]←L'
[7]   Z←R
    ∇


    ∇READ X;I;J;N;M;L;R;IO;T
[1]   ⍝     READ X              MAY 06/76
[2]   ⍝READ DATA X FROM 360/APL
[3]   N←1↓N∘→(0>T←1↑N←⍎TRA' SREAD ''',X,''''')/NV∆
[4]   I←⎕IO←0×IO←⎕IO
[5]   →DN∆×⍳0=M←×/⍴R←N⍴((T=20)/0),(T=2)/' '
[6]   LP∆:L←TYP⍕I
[7]   LD∆:→LD∆∘L←L,TYP⍕⍴L∘→((⍴L)=M,¯1↑N)/AD∆,NX∆
[8]   NX∆:→(M>I←I+⍴L)/LP∆∘R←R PUT ''⍴I
[9]   DN∆:→0×⎕IO←IO∘⍎X,'←R'∘TRA'0'
[10]   AD∆:→DN∆∘R←N⍴L
[11]   NV∆:'NO VALUE'
[12]   →
    ∇


    ∇SEND X;Y;I
[1]   ⍝     SEND  X             MAY 04/76
[2]   ⍝SEND FUNCTIONS X TO 360/APL. 0=4|⍴,X
[3]   ⍝IF X IS EMPTY SEND GENERATES REQUIRED NAME LIST
[4]   X←'SREASWRIAN  XFR ∆GET∆PUT∆BUI'∘→(0≠⍴,X)/XOK
[5]   XOK:→(0≠4|⍴,X)/LE∆
[6]   NEXT:Y←⎕CR 4↑X∘I←⎕IO
[7]   S1:∘TRA Y[I;]
[8]   →((I←I+1)<⎕IO+1↑⍴Y)/S1
[9]   ∘TRA'∇'
[10]   →((0≠⍴X←4↓X)/NEXT),0
[11]   LE∆:'LENGTH ERROR'
[12]   →
    ∇


    ∇SIGNON;P
[1]   ⍝     SIGNON              JULY 06/76
[2]   ⍝SIGN ON PROCEDURE TO 360/APL WITH 3705 FRONT END PROCESSOR T
[3]   ⍝300 BAUD - CORRESPONDENCE
[4]   SETUP'E'∘⎕NC'XFER'
[5]   P←13↓(14+⍳1)⍕'ACCOUNT:LOCK )       :'∘⎕IN 0
[6]   WAIT:'PHONE 1-416-360-1200'∘⎕PT←10
[7]   →WAIT⌈⍳2>4|¯1↑⎕IN 1↑⎕OU⍳0
[8]   ∘⎕DL 1∘⎕BO 52∘⎕DL 1
[9]   ,P←XFER P∘⎕PT←0
    ∇


    ∇SREAD X;I;L;IO;R;T;RO
[1]   ⍝     SREAD X             MAY 04/76
[2]   ⍝SLAVE READ TO TRANSFER DATA X FROM 360 TO MCM/700.
[3]   ⍝THIS FUNCTION MUST BE RESIDENT IN THE 360
```

```
[4]   T←2+18×0=0\0ρR←⍎X
[5]   ⍝NOTE LINE EDΔ
[6]   ⍝1. Z STOPS TRAILING BLANK SUPRESSION FOR CHARACTER DATA
[7]   ⍝2. MAX OF 10 NUMBERS ARE TRANSMITTED PER LINE. THIS
[8]   ⍝   MAY BE INCREASED IF 120>ρ⍤10↑L.
[9]   I←⍎XFR T,ρR
[10]   →(0=×/ρR)/0
[11]   I←⎕IO←0×IO←⎕IO
[12]   →(255<×/ρR)/LPΔ
[13]   R←,R
[14]   LPΔ:L←R ΔGET I
[15]   EDΔ:I←⍎XFR((RO←((T=2 20)/120 10)⌊ρL)↑L),(T=2)↑'Z'
[16]   →(0≠ρL←RO↓L)/EDΔ
[17]   →(0≠I)/LPΔ
[18]   ⎕IO←IO
    ∇


    ∇SWRITE X;I;N;M;L;R;IO;T;J
[1]   ⍝     SWRITE X            JUNE 01/76
[2]   ⍝SLAVE WRITE TO RECEIVE DATA X FROM MCM/700
[3]   ⍝THIS FUNCTION MUST RESIDE IN THE 360
[4]   I←⎕IO←0×IO←⎕IO
[5]   T←1↑N←⍎XFR 0ρ'GET TYPE AND RHO'
[6]   N←1↓N
[7]   →DNΔ×⍳0=M←×/ρR←Nρ((T=20)/0),(T=2)/' '
[8]   LPΔ:L←AN XFR I
[9]   LDΔ:→((ρ,L)=M,¯1↑N)/ADΔ,NXΔ
[10]   →LDΔ,0ρL←L,AN XFR ρ,L
[11]   NXΔ:R←R ΔPUT''ρI
[12]   →(M>I←I+ρL)/LPΔ
[13]   DNΔ:⍎X,'←R' J
[14]   →0×⎕IO←IO
[15]   ADΔ:R←NρL
[16]   →DNΔ
    ∇


    ∇TERMINAL;L;L1;N;BC
[1]   ⍝     TERMINAL            MAY 04/76
[2]   ⍝MCM/700 OPERATES AS A TERMINAL TO HOST COMPUTER
[3]   ⍝NOTE:TRANSMISSION IS LIMITED TO 128 CHARACTERS AT A TIME.
[4]   ⍝TO EXIT FROM THIS FUNCTION TYPE ω RETURN
[5]   L←'       '∘BC←⎕Y 108
[6]   IN:∘⎕IN 1↑⎕OU⍳0∘L1←(ρL)↓⎕L∘⎕IN 0
[7]   L←XFER L1∘→('ω'=(1⌊ρL1)↑L1)/0
[8]   DLP:→((¯1+ρL)≤N←(L⍳BC)-⎕IO)/IN
[9]   N↑L
[10]   →(0=N←((BC≠L←(1+N)↓L)⍳1)-⎕IO)/DLP
[11]   →DLP∘L←N↓L
    ∇


    ∇R←TRANSFER X
[1]   ⍝     R←TRANSFER X        JUNE 01/76
[2]   ⍝TRANSFER DATA FOR READ AND WRITE
```

```
[3]   ⍝RECEIVED DATA IS CHECKED FOR NUMERIC
[4]   S1:→(∧/(R←⍕1↓⍞''∘⎕←X)∈' 0123456789[]')/0
[5]   ERR:'ERROR IN TRANSMITTING'
[6]   R
[7]   R←('AR'=1↑17↓⍞'ABORT OR RETRY? :')/AB,S1∘⎕IN 0
[8]   →R,ERR∘⎕IN 1↑⎕OU⍳0
[9]   AB:OUT
[10]   →
    ∇


    ∇Z←TYPE X
[1]   ⍝     Z←TYPE X            MAY 06/76
[2]   ⍝TRANSMITT X, FIX TYPE (GLOBAL VARIABLE T) OF RESULT
[3]   ⍝EXECUTE IF NUMERIC, DROP LAST BYTE IF CHARACTER
[4]   →0∘Z←⍕2↓⍞''∘→(T=20)/NUM∘⎕←X
[5]   NUM:Z←⌹⍕1↓⍞''
    ∇


    ∇WRITE X;I;L;IO;R;T;RO;YO
[1]   ⍝     WRITE X             JUNE 01/76
[2]   ⍝WRITE DATA X TO 360/APL
[3]   →(0 2 3=T←⎕NC X)/NVΔ,DAΔ,FNΔ
[4]   'INVALID TYPE'
[5]   →
[6]   FNΔ:→0∘SEND 4↑X,'   '
[7]   NVΔ:'NO VALUE'
[8]   →
[9]   DAΔ:(3,1↓YO←⎕YO[⍳1]0)⎕YO[⍳1]0
[10]   T←T+18×0=0\0ρR←⌹X
[11]   ∘TRA⍒T,ρR∘TRA' SWRITE''',X,''''
[12]   I←⎕IO←0×IO←⎕IO∘→(0=×/ρR)/0
[13]   R←,R∘→(255<×/ρR)/LPΔ
[14]   LPΔ:L←R GET I
[15]   EDΔ:I←⌹TRA(RO←((T=2 20)/60 10)⌊ρL)↑L
[16]   ⍝NOTE:TRANSMISSION IS LIMITED TO 60 CHAR. PER LINE
[17]   →(0≠ρL←RO↓L)/EDΔ
[18]   ⎕IO←IO∘→(0<I)/LPΔ
[19]   YO ⎕YO[⍳1]0
    ∇


    ∇R←XFER X
[1]   ⍝     R←XFER X            APR 30/76
[2]   ⍝TRANSFER DATA X TO AND FROM EIA INTERFACE
[3]   ∘⎕IN 1↑⎕OU ⎕YA 1 31
[4]   R←⍞''∘⎕←X
[5]   ⍝IN CASE ATTENTION
    ∇


    ∇Z←XFR X
[1]   ⍝     Z←XFR X             MAY 04/76
[2]   ⍝TRANSFER DATA BETWEEN 360 AND MCM
```

```
[3]   ⍝THIS FUNCTION MUST RESIDE IN 360
[4]   Z←'',0ρ□←X
    ∇


    ∇Z←ΔBUILD
[1]   ⍝     Z←BUILD             MAY 04/76
[2]   ⍝BUILD INDEX FOR R (ANY SHAPE)
[3]   ⍝SPECIAL VERSION FOR 360 WITH ΔFMT
[4]   Z←'R'
[5]   →(0=ρ,¯1↓ρR)/0
[6]   Z←'R[',(,('I3'ΔFMT ¯1↓(ρR)⊤I),';'),']'
    ∇


    ∇Z←R ΔGET I
[1]   ⍝     Z←R ΔGET I          MAY 04/76
[2]   ⍝GET FROM R(ANY SHAPE) THE ROW STARTING AT ELEMENT I(□IO←0)
[3]   Z←⍎ΔBUILD
    ∇


    ∇Z←R ΔPUT I
[1]   ⍝     Z←R ΔPUT I          MAY 04/76
[2]   ⍝PUT INTO R(ANY SHAPE) THE ROW STARTING AT
[3]   ⍝ELEMENT I(□IO←0) FROM GLOBAL VARIABLE L M
[4]   ⍎ΔBUILD,'←L'
[5]   Z←R
    ∇



NAMES IN GROUP 255:
AAA  CKS  CON  CR   DRO  EB   GET  G    LTD  OD   PRM  SPA
ST   TIM  UNM

AAA   [numeric vector of length 18; element size 2 byte(s)]
0 3 201 202 210 212 214 215 216 217 220 221 222 223 224 240 241 242

CKS   [vector of type char of length 39; element size 2 byte(s)]
2506 2D2D 1E20 2621 0E64 4653 0046 E007 B068 C00B 46C8 003C 0148 A20B 1602 463D
073D 46DB 0AD0 469B 00A8 4424 2087 1511 1110 4821 20D0 35C2 24F0 0A0A 0A0A 4638
20C2 240F 3C0A 603F 2004 01F8 1507


    ∇CONFIGURATION;A
[1]   ⍝     CONFIGURATION       MAY 07/76
[2]   ⍝PRINT MCM/700 SYSTEM CONFIGURATION
[3]   0 0 128 16 □YO[⍳1]6∘WID 132∘□OU(□YA 66),16
[4]   2 0 TITLE'MCM/700 CONFIGURATION'
[5]   □←(90ρ' '),DATE∘□←2 0ρ''
[6]   POS 3 ¯1.5
[7]   0 0 BOX 2.5 .75
[8]   .6 .6 TITLE'MCM/700'
[9]   POS 1.4,1.5+÷3∘□←'OMNIPORT'∘POS 0 ¯1∘□←2 8ρ'INTERNALBUSS    '∘POS 2.6 .5
[10]   0 0 BOX A←1.5 .4
```

```
[11]   0 ¯1.5 BOX A∘0 ¯1 BOX A∘ 0 ¯.5 BOX A
[12]   POS ¯6.8 ¯1.5∘□←1 0↓□CR'ST'∘ROLL 2∘POS .2 .2
[13]   0 0 BOX A←1.3 .75
[14]   7.5 0 BOX A∘6 0 BOX A∘4.5 0 BOX A∘3 0 BOX A∘1.5 0 BOX A
[15]   □←3 0ρ''∘□←OD∘POS 0 .5∘ROLL 6
[16]   □←'NOTES  1:THE MAXIMUM COMBINATION OF TAPE AND DISK UNITS ON A SYSTEM IS 16.'
[17]   □←'         FOR EXAMPLE A UNIT WITH 2 TAPES CAN ACCEPT 7 DDS-500 DSKS.'  A
[18]   □←'       2:THE MAXIMUM NUMBER OF NON TAPE AND DISK DEVICES ON A SYSTEM IS
199.' F
    ∇
```

```
CR    [vector of type char of length 90; element size 1 byte(s)]
 123576840Z9TXNUEDKCLHB←M.V]RIAOSWJG×FP[Q,/Y+
"¯<=>⩾≠⩽∧⊂∨~⊃⊤↓∈⌊'∩□Δ⊥→|:∪)ρ⍳α○⌈ω∘∇÷_∗(?;\↑-
```

```
    ∇DROM RM;CKV;IO;EXP;CKX;ADR;MAX;TRA;CC;AGX;ARG;VAL;HEX
[1]   ⍝'ROM RM'    DUMP THE ROM RM ON THE PRINTER
[2]   →0⌈⍳RM=.⩾1 20
[3]   ⍝PAGE 46 51∘□OU(□YA 66),16
[4]   □←' '∘□←'ROM ',(⍕RM),((RM>3)/', BANK '),((RM⩽3)/', COMM '),⍕RM-4×RM>3∘□IO←0⌊IO←□IO
[5]   EXP←(8ρ0),(EXP,0,EXP←36ρ(8ρ1),0),4ρ0
[6]   CKX←0 2 3 4 5,(ρEXP)-2 1
[7]   TRA←4ρ16∘MAX←2048+ADR←2048×3⌊RM-1
[8]   AGX←'200',CC←(HEX←'0123456789ABCDEF')[0⌈RM-4]
[9]   NXT:VAL←(AGX,ARG←HEX[TRA⊤ADR])□ZZ GET
[10]   CKV←VAL □ZZ CKS
[11]   VAL←EXP\VAL □ZZ UNM
[12]   □←VAL∘VAL[CKX]←CC,ARG,CKV
[13]   →NXT⌈⍳0≠128|ADR←ADR+32
[14]   □←' '
[15]   →NXT⌈⍳MAX≠ADR
[16]   NPG∘□IO←IO
    ∇
```

```
EB    [vector of type char of length 90; element size 1 byte(s)]
 1234567890]←/STUVWXYZ,+JKLMNOPQR[×ABCDEFGHI. "¯<⩽=⩾>≠∨∧)→\⌈~↓∪⍵⊃↑⊂;-∘'□|
⊤○∗?ρ(÷α⊥∩⌊∈_∇Δ⍳:
```

```
GET   [vector of type char of length 59; element size 2 byte(s)]
2506 582D 1E20 2621 0E64 4653 0046 9B00 68C0 0B46 C800 3C11 48AC 0B46 DB0A 3C08
48BB 0B46 9B00 4621 20E8 3DD5 1E01 4644 073D 469B 0015 1546 2120 0A0A 0A0A 5124
0F48 A20B 4621 20D8 4621 20E0 35CD D635 2BE9 F2C8 2544 5300 462E 2002 0202 02C8
462E 20B1 07C7 153C 0A23 68AC 0B3C 1140 AC0B 1401 0700
```

```
    ∇G
[1]   ⍝MAKE COPIES OF THIS TAPE
[2]   ⍝GROUP NOS. ARE IN AAA
[3]   'MOUNT TAPE'
[4]   (⍳0)□XI[2]0
[5]   ΔCP AAA
[6]   →1
    ∇
```

```
    ∇T LTD X;G;I;Z;Z1;Z2;Z3 ]0
[1]   ⍝     T LTD X             MAY 07/76
[2]   ⍝LIST GROUP NAMES IN FILE T ON PRINTER
[3]   ⍝PRINT TITLE X ON LISTING
[4]   Z2←2 4ρ4 119 12 16 0 9 0 0∘Z3←2 4ρ4 119 12 0 0 0 0 0
[5]   ⎕←'FILE:  ',(⍕T),'  ',X,(50ρ' '),DATE∘PAGE 60 66∘⎕OU(⎕YA 66),16
[6]   ⎕←'ACTIVE GROUPS ARE: ',⍕G←⎕XN[T]⍳0×I←1∘⎕←''
[7]   ⎕←'GROUP     NAMES'∘⎕←''
[8]   L5:Z2 ⎕YO[⍳1]0 2∘⎕←4 0 0⍕G[I]∘ Z3 ⎕YO[⍳1]0 2∘⎕←''
[9]   ⎕←Z1←(⌊(×/ρX)÷Z),Z←80⌊×/ρX)ρ(X←⎕XN[T]G[I])
[10]   ⎕←,(-0 4+4 4⊤Z)↑X∘→(0=Z←(×/ρX)-×/ρZ1)/NXT
[11]   NXT:→((I←I+1)≤ρG)/L5 0
[12]   ⎕XF[T]⍳0∘NPG∘0 0 0 0 ⎕YO[⍳1]2
    ∇

OD    [90 by 3 array of type char; element size 1 byte(s)]
    MCP-132        MPR-400        XXX-012      SCI-1200(A)      DDS-500
DTS-200
                                                                SDS-250
EXTERNAL
    PRINTER      CARD READER    CARD PUNCH      INTERFACE        DISK
TAPE


PRM   [3 by 1 by 35 array of type char; element size 3 byte(s)]



    ∇ZΔ←SPACE XΔ
[1]   ⍝     ZΔ←SPACE XΔ         MAY 03/76
[2]   ⍝1↑ZΔ IS THE NUMBER OF BLOCKS USED ON FILE XΔ
[3]   ⍝¯1↑ZΔ IS 1+LAST BLOCK USED ON FILE XΔ
[4]   ⍝IF ¯1↑ZΔ IS MUCH LARGER THAN 1↑Z, THE FILE
[5]   ⍝SHOULD BE COPIED TO COMPRESS UNUSED SPACE
[6]   ⍝A DISK CONTAINS 1023 - 256 BYTE BLOCKS, AND
[7]   ⍝ A 300 FOOT TAPE APPROXIMATELY 800 - 128 BYTE BLOCKS.
[8]   ZΔ←⎕ZZ[XΔ]FSΔ
    ∇


    ∇ST
[1]   KEYBOARD         STANDARD
[2]   DISPLAY          STANDARD
[3]   TAPE NO.1        STANDARD/OPTIONAL?
[4]   TAPE NO.2        OPTIONAL
    ∇


    ∇TIME X
[1]   ⍝     TIME X
[2]   ⍝X IS TIME OF DAY (HH MM SS)
[3]   ⎕PT←2∘X←24 60 60⊥X
[4]   24 60 60⊤X←X+002
[5]   →4
    ∇
```

```
UNM   [vector of type char of length 43; element size 2 byte(s)]
2506 322D 1E20 2621 0E64 4653 0046 E007 B068 C00B 46C8 003C 0148 A20B 46DB 0AE8
3D70 BB0B 02D0 463D 0735 2BD0 469B 0044 2120 CF15 25C1 24F0 0A0A 0A0A 463A 20C1
240F 463A 2025 1148 2120 073C 0A60 4120 0401 F815 0700
```