MCM TAPE TAPE-27.TXT

TAPE LABEL/ANNOTATIONS: "TMBERG
LIB/70
1"

DATE CREATED: May 30, 1975

GROUPS:
0 4 5 6 7 8 9

NAMES IN GROUP 0:
ΔPΔ ΔQΔ

ΔPΔ [7 by 7 array of type char; element size 1 byte(s)]
TMBERG
UTILITY
COMPLEX
LTDES
CORES1
CORES2
MORTGAG

ΔQΔ [4 by 7 numeric array; element size 3 byte(s)]
750530 1 750530 0
4 1 750530 13
5 1 750530 13
6 1 750530 13
7 1 750530 13
8 1 750530 13
9 1 750530 13

NAMES IN GROUP 4:
RAD SQU DEG PRI IDX OUT MOV COP VER

```
    ∇R←RAD X
[1]   R←○2|X÷180
    ∇
```

```
    ∇R←SQUISH X;L
[1]   L←' '≠X←X,' '
[2]   R←¯1↓(Lv0,¯1↓L)/X
    ∇
```

```
    ∇R←DEG X
[1]   R←180×X÷○1
[2]   R←R-(R>180)×360
    ∇
```

```
    ∇PRINT;G;N;OU;RN;I;IO;PW;P;L;PL
[1]   OU←1↑⎕OU⍳0◦IO←⎕IO◦PW←⎕PW
[2]   G←⎕XN⍳0◦⎕IO←1◦⎕PW←130◦PL←0
[3]   GR:⎕XS 1↑G◦→DN⌈⍳0=⍴G←1↓G
[4]   RN←1↑⍴N←⎕XN ⎕XV◦⎕OU DEV◦I←0
[5]   NX:P←⍕⍎N[I;]◦→GR⌈⍳RN<I←1+I
[6]   P←((L←×/¯1↓⍴P),¯1↑1,⍴P)⍴P
[7]   →WD⌈⍳⎕PW<¯1↑⍴P
[8]   PR:→LG⌈⍳(SPEC[2]<PL+L)∨(PL≠0)∧'P'=N[I;1]
[9]   →NX◦PL←PL+L◦⎕←P
[10]   WD:→PR◦P←((((L,¯3+⎕PW)↑P),'⊛'),'⊛'),'⊛'
[11]   LG:→LG1⌈⍳PL=0
[12]   ⎕←((SPEC[1]-PL),1)⍴' '
[13]   LG1:→PR⌈⍳SPEC[2]≥L◦PL←0
[14]   ⎕←3 1⍴'⊛'◦⎕←((SPEC[2]-L),0)↓P
[15]   →NX◦⎕←((¯3+-/SPEC),1)⍴' '
[16]   DN:⎕←((SPEC[1]-PL),1)⍴' '
[17]   ◦⎕OU OU◦⎕XS 0◦⎕PW←PW◦⎕IO←IO
[18]   →0×⍳'N'≠1↑1⍞'Y=>SAVE TAPE'
[19]   G←1↓⎕XN⍳0
[20]   CL:N ⎕XD ⎕XN N←1↑G
[21]   ◦⎕XN 2◦⎕XN 1◦→CL⌈⍳0≠⍴G←1↓G
    ∇


    ∇R←A IDX B
[1]   R←(R=B[⎕IO])/⍳⍴R←(1-⍴B)↓A
[2]   A←A[R◦.+(-⎕IO)+⍳⍴B]
[3]   R←(A∧.=B)/R
    ∇


    ∇R←DEV OUT X;OU;P;N
[1]   OU←1↑⎕OU⍳0◦R←X
[2]   →TP⌈⍳(0≠DEV)∧66 241∨.≠1↓⎕OU|DEV
[3]   →0◦⎕OU OU◦⎕←X◦⎕PW←130
[4]   TP:→ER⌈⍳1<8|¯1↑⎕OU 201
[5]   N←1⌈¯1↑⎕XN[1+⎕IO]⍳0
[6]   N←N+100=P←1↑⍴⎕XN[1+⎕IO]N
[7]   P←'LP'[⎕IO+DEV<0],2↓4 2⍕.01×P
[8]   N ⎕XW[1+⎕IO]P◦⍎P,'←X'
[9]   →0◦⎕OU OU◦⎕EX P N
[10]   ER:→TP◦⍞'MOUNT WRITE-ENABLED TAPE ON 2'◦⎕OU OU
    ∇


    ∇MOV N;M;O
[1]   M←256||N←N×6 8
[2]   N←(4×N<0)+4|⌊|N÷256 Δ
[3]   ◦⎕OUT(O←⎕OU⍳0),16+1↑N◦⎕BO 1↑M
[4]   ◦⎕OUT O,32+1↓N◦⎕BO 1↓M
    ∇
```

```
COP   [36 by 12 array of type char; element size 1 byte(s)]
∇Δ5Δ←ΔCΔ Δ1Δ;Δ2Δ;Δ3Δ;Δ4Δ
 →0∘⍞'NO! SUSP FN'∘→2⌈⍳~'*'∈⎕SI
 Δ1Δ←(0≠Δ1Δ)/Δ1Δ←,Δ1Δ∘Δ5Δ←⍳0
 ⎕PT←10∘→0×⍳0=ρΔ1Δ
Δ6Δ:Δ1Δ←1↓Δ1Δ∘Δ2Δ←1↑Δ1Δ
 Δ3Δ←(Δ4Δ←ΔXΔ Δ3Δ)⌿Δ3Δ←⎕XN[1+⎕IO]Δ2Δ
 ⎕EX'Δ4Δ'∘Δ5Δ←Δ5Δ,(0∈Δ4Δ)/Δ2Δ
 Δ2Δ ⎕XC Δ3Δ∘⎕XS 0
 Δ2Δ ⎕XR[1+⎕IO]Δ3Δ∘⎕XS Δ2Δ
 ⎕XS ⎕PT←0∘→Δ6Δ⌈⍳0≠ρΔ1Δ∘⎕←Δ2Δ
 →0×⍳∧/⎕VAv.≠'ΔJΔ '∘⎕XF[⎕IO+1]⍳0
 ΔJΔ[⎕IO]←.1+ΔJΔ[⎕IO]


VER   [36 by 11 array of type char; element size 1 byte(s)]
∇Δ5Δ←ΔVΔ Δ1Δ;Δ2Δ;Δ3Δ;Δ4Δ
 →0∘⍞'NO! SUSP FN'∘→2⌈⍳~'*'∈⎕SI
 Δ1Δ←(0≠Δ1Δ)/Δ1Δ←,Δ1Δ∘Δ5Δ←⍳0
 ⎕PT←10∘→0×⍳0=ρΔ1Δ
Δ6Δ:Δ1Δ←1↓Δ1Δ∘⎕XS Δ2Δ←1↑Δ1Δ
 Δ3Δ←(Δ4Δ←ΔXΔ Δ3Δ)⌿Δ3Δ←⎕XN[1+⎕IO]Δ2Δ
 →Δ7Δ⌈⍳0=×/ρΔ3Δ←(0=⎕NC Δ3Δ)⌿Δ3Δ
 Δ4Δ←(0∈Δ4Δ)∨∧⌿(⎕XN Δ2Δ)∨.≠⍉Δ3Δ
Δ7Δ:Δ5Δ←Δ5Δ,Δ4Δ/Δ2Δ∘⎕XS 0
 →Δ6Δ⌈⍳0≠ρΔ1Δ∘⎕←Δ2Δ,~Δ4Δ
 ⎕PT←0∘⎕←'DONE'∘⎕XF[1+⎕IO]⍳0∘⎕XS 0




NAMES IN GROUP 5:
ADD  ARG  RS   IM   PWR  EXP  RKΔ  CON  ABS  MUL  MTΔ  LOG
RE   POL  EVA  DIV  PJ   XY


    ∇R←X ADD Y
[1]   →RKΔ
[2]   R←X+Y
    ∇


    ∇R←ARG X;A
[1]   →MTΔ
[2]   R←¯2○(A↑X)÷(A←1,1↓ρX)ρ(+⌿X×X)*.5
[3]   R←1 0⍉(○2)|R×¯1*0>(-A)↑X
    ∇


    ∇R←RS X
[1]   →MTΔ
[2]   R←(1↓ρX)ρX
    ∇
```

```
    ∇R←IM X R
[1]   →MTΔ
[2]   R←1 0⍱0 1⌿X
    ∇


    ∇R←X PWR Y;A
[1]   →RKΔ
[2]   R←(A←1,1↓⍴X)⍴(+⌿X×X)*.5
[3]   X←(⍟R+R=0)⍤(○2)⌹(¯1*0>(-A)↑X)×¯2○(A↑X)÷R
[4]   X←(A⍴-⌿X×Y)⍤A⍴+⌿X×⊖Y
[5]   Y←(×/⍴X)⍴(R≠0)∨A⍴∧⌿Y=0
[6]   R←(2,1↓⍴X)⍴Y\Y/(,X×2○R),,(X←*A↑X)×1○R←(-A)↑X
    ∇


    ∇R←EXP X
[1]   →MTΔ
[2]   R←(X×2○R)⍤(X←*1 0⌿X)×1○R←0 1⌿X
    ∇


    ∇R←RKΔ;RX;RY;L
[1]   →ER1⌈⍳1≠×/⍴Y∘→L1⌈⍳2=1↑(⍴Y),0
[2]   →L1∘Y←(,Y),0
[3]   ER1:'CMPLX STRUCTURE ERROR-2ND ARG'
[4]   →R←0
[5]   L1:→ER2⌈⍳1≠×/⍴X∘→L2⌈⍳2=1↑(⍴X),0
[6]   →L2∘X←(,X),0
[7]   ER2:'CMPLX STRUCTURE ERROR-1ST ARG'
[8]   →R←0
[9]   L2:→L3⌈⍳L←(⍴RX←⍴X)≠⍴RY←⍴Y∘R←⍳0
[10]   →0×⍳∧/RX=RY
[11]   L3:→(2=(×/RX),×/RY)/L5,L6
[12]   →L⍴L4
[13]   'COMPLEX LENGTH ERROR'
[14]   →R←0 H
[15]   L4:'COMPLEX RANK ERROR'
[16]   →R←0
[17]   L5:→0∘X←(1⌽⍳⍴RY)⍉(1⌽RY)⍴X
[18]   L6:Y←(1⌽⍳⍴RX)⍉(1⌽RX)⍴Y
    ∇


    ∇R←CONJ X
[1]   →MTΔ
[2]   R←(R↑X)⍤-(-R←1,1↓⍴X)↑X
    ∇


    ∇R←ABS X
[1]   →MTΔ
[2]   R←1 0⍱(1,1↓⍴X)⍴(+⌿X×X)*.5
    ∇
```

```
    ∇R←X MUL Y
[1]   →RKΔ
[2]   R←(Rρ-≠X×Y)⌿(R←1,1↓ρX)ρ+≠X×⊖Y
    ∇


    ∇R←MTΔ
[1]   →ER⌈⍳1≠×/ρX∘→0×⍳2=1↑(ρX),0∘R←⍳0
[2]   →0∘X←(,X),0
[3]   ER:'COMPLEX STRUCTURE ERROR'∘R←0
    ∇


    ∇R←LOG X;A;S
[1]   →MTΔ
[2]   →ER⌈⍳∨/,0=S←(A←1,1↓ρX)ρ(+≠X×X)*.5
[3]   →0∘R←(⊛S)⌿(○2)|(1-2×0>(-A)↑X)×¯2○¯1⌈1⌊(A↑X)÷S
[4]   ER:'COMPLEX DOMAIN ERROR'
    ∇


    ∇R←RE X
[1]   →MTΔ
[2]   R←1 0⍉1 0≠X
    ∇


    ∇R←POLAR X;A
[1]   →MTΔ
[2]   R←(A←1,1↓ρX)ρ(+≠X×X)*.5
[3]   R←R⌿(○2)|(¯1*0>(-A)↑X)×¯2○(A↑X)÷R+0=R
    ∇


    ∇R←Z EVAL H;N
[1]   N←⌽(⍳¯1↑ρH)-⎕IO
[2]   Z←POLAR Z
[3]   Z←XY((1 0≠Z)∘.*N)⌿(0 1≠Z)∘.×N
[4]   Z←Z+.×(1⌽⍳ρρH)⍉H
[5]   R←+/(1 0/Z)DIV 0 1/Z
    ∇


    ∇R←X DIV Y;A
[1]   →RKΔ
[2]   →4⌈⍳∧/,∨≠0≠Y
[3]   →0∘⎕←'COMPLEX DOMAIN ERROR'
[4]   R←(Aρ(+≠X×Y)÷R)⌿(A←1,ρR)ρ(-≠Y×⊖X)÷R←+≠Y*2
    ∇


    ∇R←X PJ Y;RX;RY;L
[1]   →L1⌈⍳L←(ρRX←ρX)≠ρRY←ρY
[2]   →L2⌈⍳∧/RX=RY
[3]   L1:→(1=(×/RX),×/RY)/L3,L4
[4]   →LρL5
```

```
[5]   'COMPLEX LENGTH ERROR'
[6]   →0
[7]   L5:'COMPLEX RANK ERROR'
[8]   →0
[9]   L3:→L2∘X←RYρX
[10]   L4:Y←RXρY
[11]   L2:R←(RρX)⍴(R←1,ρY)ρY
    ∇


    ∇R←XY X
[1]   →MTΔ
[2]   R←(X×2○R)⍴(X←1 0≠X)×1○R←0 1≠X
    ∇



NAMES IN GROUP 6:
DAT  TPV  FRE  WFT  WFL  RNG  CTT  NL   CLO  IND  WDE  RES
TDE  B    TLO  TSH  TRA  FIL  LSH  LDE  GAP  WSZ  ARE  FDE



    ∇DATA X
[1]   →GET⌈⍳0=⎕NC'CT'
[2]   →0×⍳CT=X
[3]   GET:('CORES',1⍕1+X)ΔCΔ⍳0
    ∇


    ∇N←TPV
[1]   N←÷AC×BM×F×4E¯8
    ∇

FRE   [numeric scalar: element size=2 byte(s)]
23838

WFT   [numeric scalar: element size=8 byte(s)]
1B8F721FDFF2C2E

WFL   [numeric scalar: element size=8 byte(s)]
618F7100011

RNG   [numeric scalar: element size=1 byte(s)]
92

CTT   [10 by 2 array of type char; element size 1 byte(s)]
1:3B7    P
2:3E2A   E



    ∇N←L NL IM
[1]   N←.5+⌊.5+L×IM÷AC×BMM×1E¯8
    ∇
```

```
    ∇PC←CLOSS
[1]   PC←CV×(F*1.5)×LF×BM*2.5
    ∇


    ∇L←LG IND N
[1]   LG←2.54E¯3×LG
[2]   L←(N*2)×AC×1E¯8×○.4÷LG+MPL÷MUA
    ∇


    ∇WDES
[1]   NP←EP×TPV
[2]   AWG←WSZ WFT×AW÷NP
[3]   RP←AWG RES NP×MLT
[4]   PC←CLOSS
[5]   IP←(EP÷4×RP)×1-(.2⌈1-8×RP×(PO+PC)÷EP*2)*.5
[6]   PW←2×RP×IP*2
    ∇


    ∇R←AWG RES X
[1]   R←3.281×X×10*¯6+AWG÷10
    ∇


    ∇TDES Y;PW;PC;PO
[1]   PO←+/|ES×IS
[2]   WDES∘BM←BMM∘DATA Y∘F←FREQ
[3]   WDES∘BM←BMM⌊BM×(PW÷PC)*÷3.5
[4]   WDES∘BM←BMM⌊BM×(PW÷PC)*÷3.5 Z
[5]   BM←EP B NP←.5×⌊.5+2×NP
[6]   NS←|ES∘.×NP÷EP÷1+PW÷PO
[7]   NS←.5×⌊.5+2×NS
[8]   AS←WSZ WFT÷NS÷(ρNS)ρAW
[9]   RS←AS RES NS×(ρNS)ρMLT
[10]   ESA←(NS÷(ρNS)ρNP÷EP-IP×RP)-RS×IS∘.+NP×0
[11]   LOSS←100×(PW+PC)÷PO+PW+PC←CLOSS SZ
[12]   REG←200×RP×IP÷EP
    ∇


    ∇BM←E B N
[1]   BM←E÷AC×F×4E¯8×N
    ∇


    ∇TLOSS
[1]   BM←EP B NP
[2]   AWG←WSZ WFT×AW÷NP
[3]   RP←AWG RES NP×MLT
[4]   PW←2×RP×IP*2
[5]   PC←CLOSS
[6]   PT←PW+PC
    ∇
```

```
    ∇TSHOW KK;HD;K;PP
[1]   ⎕PP←3∘PP←⎕PP∘KK←(,KK∈⍳⍴SIZE)/,KK
[2]   LP:K←1↑KK∘→0×⍳0=⍴KK
[3]   ⎕←(⍕SIZE[K]),' MM ',(2 4⍴'POT   E-')[CT+⎕IO;],'CORE TRANSFORMER'
[4]   ⎕←(⍕F÷1E3),' KHZ ',(⍕EP×IP[K]),' W IN ',(0 1 0⍕LOSS[K]),' PCNT LOSS'
[5]   ⎕←'BM=',(5 0 0⍕BM[K]),', REG=',(5 1 0⍕REG[K]),' PCNT'
[6]   ⎕←'      VOLTS  AMPS'∘⎕←''
[7]   HD←((1+⍴ES),5)⍴'PRI: SEC: ',(5×⍴ES)⍴' '
[8]   ⎕←HD,(6 1 0⍕(EP,,ESA[;K])∘.+,0),⍕(IP[K],IS)∘.+,0
[9]   ⎕←'      TURNS  AWG'∘⎕←''
[10]   ⎕←HD,(2 3⍴6 1 0 5 0 0)⍕(NP[K]⍪NS[;K]),AWG[K]⍪AS[;K]
[11]   →LP∘KK←1↓KK∘⎕←3 1⍴' '
[12]   DN:⎕PP←PP
    ∇


    ∇TRANS
[1]    EP←⍞13↓⍨'PRI. VOLTAGE: '
[2]    ES←,⍞14↓⍨'SEC. VOLTAGES: '
[3]    IS←,⍞14↓⍨'SEC. CURRENTS: '
[4]   FREQ←⍞10↓12⍴'FREQUENCY: 20E3'
[5]   TDES 'E'∈14↓⍨'E OR POT CORE? '
[6]   TSHOW RNG+K←1↑⍋|LOSS-3
[7]   FREQ←20E3
    ∇


    ∇FILTER
[1]   EF←,⍞8↓⍨'VOLTAGE: '
[2]   →1⌈⍳(⍴EF)≠⍴IF←,⍞8↓⍨'CURRENT: '
[3]   EF FDES IF
    ∇


    ∇LSHOW KK;K;PP
[1]   ⎕PP←3∘PP←⎕PP∘KK←(,KK∈⍳⍴SIZE)/,KK
[2]   LP:K←1↑KK∘→DN⌈⍳0=⍴KK
[3]   ⎕←'FILTER FOR: ',(⍕E),'V, ',(⍕IC),' TO ',(⍕I),' A, ',(⍕F÷1E3),' KHZ' :
[4]   ⎕←(⍕L×1E3),' MHY, ',(⍕C×1E6),' UFD'
[5]   ⎕←'LOSS: ',(0 1 0⍕LOSS[K]),' PCNT, (',(0 2 0⍕V[K]),' V)'
[6]   ⎕←(⍕N[K]),' T NO. ',(⍕AWG[K]),' ON ',(⍕SIZE[K]),' MM CORE'
[7]   ⎕←'WITH ',(0 2 0⍕5×LG[K]),' MM SHIM'
[8]   →LP∘KK←1↓KK∘⎕←3 1⍴' '
[9]   DN:⎕PP←PP
    ∇


    ∇LDES;ΔT;ΔE
[1]   IC←.1×I∘ΔT←÷F∘ΔE←.01×E
[2]   L←E×ΔT÷IC×2
[3]   N←L NL I+IC
[4]   AWG←WSZ WFL×AW÷N
[5]   R←AWG RES N×MLT
[6]   LOSS←100×V÷E+V←I×R
```

```
[7]   LG←N GAP I+IC
[8]   C←IC÷2×F×ΔE
    ∇


    ∇LG←N GAP IM
[1]   LG←(○.4×N×IM÷BMM)-MPL÷MUA
[2]   ⍝TOTAL GAP IN CM
    ∇


    ∇AWG←WSZ WA
[1]   AWG←2×⌈5×10⍟.516÷WA
[2]   ⍝WA IN CM*2
    ∇


    ∇A←AREA AWG
[1]   A←.516×10*-AWG÷10∘'CM*2'
    ∇


    ∇EF FDES IF
[1]    F←2×FREQ
[2]    DATA 0∘VF←⍳0∘EF←|,EF
[3]   NX:E←1↑EF∘I←1↑IF∘→0×⍳0=⍴EF
[4]    VF←VF,V[K←1↑⍋|LOSS-2]∘LDES
[5]    LSHOW RNG+K
[6]    →NX∘EF←1↓EF∘IF←1↓IF
    ∇



NAMES IN GROUP 7:
MLT  CT   MPL  CV   AW   AC   SIZ  LF   LFB  MUA  BMM

MLT   [numeric vector of length 7; element size 8 byte(s)]
0701412E66666666 6668413B33333333 3334414666666666 66684154CCCCCCCC
CCD0416333333333 333441AB33333333 3334421233333333

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

MPL   [numeric vector of length 7; element size 8 byte(s)]
0701411FAE147AE1 47AE412947AE147A E148413266666666 6668413C28F5C28F
5C28414851EB851E B85041551EB851EB 8520416CF5C28F5C

CV    [numeric vector of length 7; element size 8 byte(s)]
0701407EB851EB85 1EC04111EB851EB8 51EC4E0000000000 000241387AE147AE
148041630A3D70A3 D70841AB33333333 3334421233333333

AW    [numeric vector of length 7; element size 8 byte(s)]
07014018D4FDF3B6 45A2402FDF3B645A 1CAC404C083126E9 78E04067EF9DB22D
0E60409645A1CAC0 831040BF7CED9168 72C0411666666666
```

```
AC    [numeric vector of length 7; element size 8 byte(s)]
070140404189374B C6A8406ED916872B 020040A28F5C28F5 C29040F2B020C49B
A5F04116147AE147 AE15412051EB851E B852412A8F5C28F5

SIZ   [numeric vector of length 7; element size 8 byte(s)]
07014E0000000000 000E4E0000000000 00124E0000000000 00164E0000000000
001A4E0000000000 001E4E0000000000 00244E0000000000

LF    [numeric scalar: element size=8 byte(s)]
382765811716

LFB   [numeric scalar: element size=8 byte(s)]
3850804E00

MUA   [numeric scalar: element size=8 byte(s)]
C42895A11716

BMM   [numeric scalar: element size=8 byte(s)]
C422985B11716



NAMES IN GROUP 8:
MLT  CT   BMM  MUA  AW   LF   SIZ  AC   LFE  CV   MPL

MLT   [numeric vector of length 3; element size 8 byte(s)]
0301413800000000 0000415999999999 999C4194CCCCCCCC

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

BMM   [numeric scalar: element size=8 byte(s)]
D67B0804E00

MUA   [numeric scalar: element size=8 byte(s)]
AC44585411716

AW    [numeric vector of length 3; element size 8 byte(s)]
030140547AE147AE 148040FC28F5C28F 5C20411C7AE147AE

LF    [numeric scalar: element size=8 byte(s)]
78245611716

SIZ   [numeric vector of length 3; element size 8 byte(s)]
03014E0000000000 00144E0000000000 001E4E0000000000

AC    [numeric vector of length 3; element size 8 byte(s)]
0301404000000000 00004092F1A9FBE7 6C80411CF5C28F5C

LFE   [numeric scalar: element size=8 byte(s)]
78755911716

CV    [numeric vector of length 3; element size 8 byte(s)]
03014114CCCCCCCC CCCD413CA3D70A3D 70A04211B5C28F5C
```

```
MPL   [numeric vector of length 3; element size 8 byte(s)]
03014E0000000000 0004416999999999 999C419BAE147AE1



NAMES IN GROUP 9:
BAL  AMO  MI   P    NCY  INT  DUR  MP   PB   EQ   TER  PO
RAT  PAY  MAX  MOR  MON  MIN


    ∇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
    ∇


    ∇AT←AMORTIZATION N;R;PP;PB;TP;IP
[1]   R←⌽1,⍴PB←BAL N
[2]   PP←.01×⌊.5+100×(P,¯1↓PB)-PB
[3]   IP←(TP-0,¯1↓TP←MP×N⌊DUR)-PP
[4]   AT←(R⍴N),(R⍴PP),(R⍴IP),R⍴PB
    ∇

MI    [numeric vector of length 1; element size 8 byte(s)]
01013F27F8D65D91

P     [numeric scalar: element size=2 byte(s)]
12

NCY   [numeric vector of length 1; element size 1 byte(s)]
2

INT   [numeric scalar: element size=1 byte(s)]
22

DUR   [numeric scalar: element size=2 byte(s)]
22814

MP    [numeric vector of length 1; element size 8 byte(s)]
01014313591EB851

PB    [numeric vector of length 1; element size 8 byte(s)]
0101446FDE0A3D70

EQ    [numeric vector of length 1; element size 8 byte(s)]
010143551F5C28F5

TER   [numeric scalar: element size=1 byte(s)]
19

PO    [numeric vector of length 1; element size 8 byte(s)]
01014471139C28F5
```

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


    ∇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
    ∇


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


    ∇MORTGAGE;L;PP
[1]   ⎕PP←10∘PP←⎕PP
[2]   P←⍎12↓⍞'PRINCIPAL: $'
[3]   INT←⍎19↓⍞'INTEREST (PERCENT): ' 0
[4]   DUR←12×⍎26↓⍞'AMORTIZATION PERIOD (YRS): '
[5]   NCY←('123L'∊24↓⍞'1ST; 2ND; 3RD (OR LOAN)? ')/2 4 12 12
[6]   TERM←⍎14↓⍞'TERM (MONTHS): '  4
[7]   MP←P MONTHLY DUR 0
[8]   EQ←P-PB←BAL TERM
[9]   ⍞←'MONTHLY PAYMENT: $',⍕MP
[10]   ⍞←'PRINCIPAL BALANCE: $',⍕PB
[11]   ⍞←'EQUITY: $',⍕EQ
[12]   ⍞←'PAYOUT :$',⍕PO←MP+PB
[13]   ⍞←''
[14]   ⍞←' MO. INT.PMNT. PR. REDN. PR. BAL.'
[15]   ⍞←(4 3⍴3 0 0 0,9⍴10 2 0)⍕AMOR 12×⍳⌊TERM÷12 0
[16]   ⎕PP←PP
    ∇


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


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