MCM TAPE TAPE-21.TXT

TAPE LABEL/ANNOTATIONS: "TMBERG
                         LIB/70
                         1001"

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 1001 750530 0
4 1 750530 9
5 1 750530 9
6 1 750530 9
7 1 750530 9
8 1 750530 9
9 1 750530 9

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↑⎕OUι0∘IO←⎕IO∘PW←⎕PW
[2]    G←⎕XNι0∘⎕IO←1∘⎕PW←130∘PL←0
[3]    GR:⎕XS 1↑G∘→DN⌈ι0=ρG←1↓G
[4]    RN←1↑ρN←⎕XN ⎕XV∘⎕OU DEV∘I←0
[5]    NX:P←⍕⍒N[I;]∘→GR⌈ιRN<I←1+I
[6]    P←((L←×/¯1↓ρP),¯1↑1,ρP)ρP
[7]    →WD⌈ι⎕PW<¯1↑ρP
[8]    PR:→LG⌈ι(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⌈ιPL=0
[12]   ⎕←((SPEC[1]-PL),1)ρ' '
[13]   LG1:→PR⌈ιSPEC[2]≥L∘PL←0
[14]   ⎕←3 1ρ'⊕'∘⎕←((SPEC[2]-L),0)↓P
[15]   →NX∘⎕←((¯3+-/SPEC),1)ρ' '
[16]   DN:⎕←((SPEC[1]-PL),1)ρ' '
[17]   ∘⎕OU OU∘⎕XS 0∘⎕PW←PW∘⎕IO←IO
[18]   →0×ι'N'≠1↑1⎕'Y=>SAVE TAPE'
[19]   G←1↓⎕XNι0
[20]   CL:N ⎕XD ⎕XN N←1↑G
[21]   ∘⎕XN 2∘⎕XN 1∘→CL⌈ι0≠ρG←1↓G
    ∇


      ∇R←A IDX B
[1]    R←(R=B[⎕IO])/ιρR←(1-ρB)↓A
[2]    A←A[R∘.+(-⎕IO)+ιρB]
[3]    R←(A∧.=B)/R
    ∇


      ∇R←DEV OUT X;OU;P;N
[1]    OU←1↑⎕OUι0∘R←X
[2]    →TP⌈ι(0≠DEV)∧66 241∨.≠1↓⎕OU|DEV
[3]    →0∘⎕OU OU∘⎕←X∘⎕PW←130
[4]    TP:→ER⌈ι1<8|¯1↑⎕OU 201
[5]    N←1⌈¯1↑⎕XN[1+⎕IO]ι0
[6]    N←N+100=P←1↑ρ⎕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←⎕OUι0),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⌈ι~'*'∈⎕SI
 Δ1Δ←(0≠Δ1Δ)/Δ1Δ←,Δ1Δ∘Δ5Δ←ι0
 ⎕PT←10∘→0×ι0=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⌈ι0≠ρΔ1Δ∘⎕←Δ2Δ
 →0×ι∧/⎕VAv.≠'ΔJΔ '∘⎕XF[⎕IO+1]ι0
 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⌈ι~'*'∈⎕SI
 Δ1Δ←(0≠Δ1Δ)/Δ1Δ←,Δ1Δ∘Δ5Δ←ι0
 ⎕PT←10∘→0×ι0=ρΔ1Δ
Δ6Δ:Δ1Δ←1↓Δ1Δ∘⎕XS Δ2Δ←1↑Δ1Δ
 Δ3Δ←(Δ4Δ←ΔXΔ Δ3Δ)≠Δ3Δ←⎕XN[1+⎕IO]Δ2Δ
 →Δ7Δ⌈ι0=×/ρΔ3Δ←(0=⎕NC Δ3Δ)≠Δ3Δ
 Δ4Δ←(0∈Δ4Δ)v∧≠(⎕XN Δ2Δ)v.≠⍒Δ3Δ
Δ7Δ:Δ5Δ←Δ5Δ,Δ4Δ/Δ2Δ∘⎕XS 0
 →Δ6Δ⌈ι0≠ρΔ1Δ∘⎕←Δ2Δ,~Δ4Δ
 ⎕PT←0∘⎕←'DONE'∘⎕XF[1+⎕IO]ι0∘⎕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]    →MT∆
[2]    R←1 0⍉0 1≠X
      ∇



      ∇R←X PWR Y;A
[1]    →RK∆
[2]    R←(A←1,1↓ρX)ρ(+⌿X×X)∗.5
[3]    X←(⍟R+R=0)⌹(○2)|(¯1∗0>(-A)↑X)×¯2○(A↑X)÷R
[4]    X←(Aρ-⌿X×Y)⌹Aρ+⌿X×⊖Y
[5]    Y←(×/ρX)ρ(R≠0)∨Aρ∧⌿Y=0
[6]    R←(2,1↓ρX)ρY\Y/(,X×2○R),,(X←∗A↑X)×1○R←(-A)↑X
      ∇



      ∇R←EXP X
[1]    →MT∆
[2]    R←(X×2○R)⌹(X←∗1 0≠X)×1○R←0 1≠X
      ∇



      ∇R←RK∆;RX;RY;L
[1]    →ER1⌈ι1≠×/ρY∘→L1⌈ι2=1↑(ρY),0
[2]    →L1∘Y←(,Y),0
[3]    ER1:'CMPLX STRUCTURE ERROR-2ND ARG'
[4]    →R←0
[5]    L1:→ER2⌈ι1≠×/ρX∘→L2⌈ι2=1↑(ρX),0
[6]    →L2∘X←(,X),0
[7]    ER2:'CMPLX STRUCTURE ERROR-1ST ARG'
[8]    →R←0
[9]    L2:→L3⌈ιL←(ρRX←ρX)≠ρRY←ρY∘R←ι0
[10]    →0×ι∧/RX=RY
[11]    L3:→(2=(×/RX),×/RY)/L5,L6
[12]    →LρL4
[13]    'COMPLEX LENGTH ERROR'
[14]    →R←0 H
[15]    L4:'COMPLEX RANK ERROR'
[16]    →R←0
[17]    L5:→0∘X←(1ϕιρRY)⍉(1ϕRY)ρX
[18]    L6:Y←(1ϕιρRX)⍉(1ϕRX)ρY
      ∇



      ∇R←CONJ X
[1]    →MT∆
[2]    R←(R↑X)⌹-(-R←1,1↓ρX)↑X
      ∇



      ∇R←ABS X
[1]    →MT∆
[2]    R←1 0⍉(1,1↓ρX)ρ(+⌿X×X)∗.5
      ∇
```

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



      ∇R←MTΔ
[1]     →ER⌈ι1≠×/ρX∘→0×ι2=1↑(ρX),0∘R←ι0
[2]     →0∘X←(,X),0
[3]     ER:'COMPLEX STRUCTURE ERROR'∘R←0
      ∇



      ∇R←LOG X;A;S
[1]     →MTΔ
[2]     →ER⌈ι∨/,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←⌽(ι¯1↑ρH)-⎕IO
[2]     Z←POLAR Z
[3]     Z←XY((1 0≠Z)∘.*N)⊤(0 1≠Z)∘.×N
[4]     Z←Z+.×(1⌽ιρρH)⍉H
[5]     R←+/(1 0/Z)DIV 0 1/Z
      ∇



      ∇R←X DIV Y;A
[1]     →RKΔ
[2]     →4⌈ι∧/,∨≠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⌈ιL←(ρRX←ρX)≠ρRY←ρY
[2]     →L2⌈ι∧/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[ι0=⎕NC'CT'
[2]    →0×ιCT=X
[3]    GET:('CORES',1⌽1+X)ΔCΔι0
      ∇


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

FRE    [numeric scalar: element size=2 byte(s)]
0

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
      ∇
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```
     ∇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
     ∇
```

```apl
      ∇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
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[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←ι0∘EF←|,EF
[3]    NX:E←1↑EF∘I←1↑IF∘→0×ι0=ρEF
[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,ρPB←BAL N
[2]   PP←.01×⌊.5+100×(P,¯1↓PB)-PB
[3]   IP←(TP-0,¯1↓TP←MP×N⌊DUR)-PP
[4]   AT←(RρN),(RρPP),(RρIP),RρPB
     ∇

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⌈ι∧/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): ' O
[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 O
[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 0,9⍴10 2 0)⍕AMOR 12×ι⌊TERM÷12 O
[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
      ∇
```