mode {
1 → P2·1
2 → P2·2
3 → P1·3
}

cancel 4 → P2·4
beacon 5 → P1·5
Gen canal 6 → P1·6
The Preset 7 → P1·7
talk 8 → P1·8

req & cancel 9 → P2·14
Xmit data 10 → P1·15

faster 11 → P2·1
slower 12 → P2·2
STBD 13 → P2·3
PORT 14 → P2·4
slew 15 → P2·5
pedal 16 → P2·6
time 0 17 → P2·7
time K 18 → P2·8

Gnd 19 → P2·14
Switch bus 20 → P2·16

21
22
23
24
25

26 → P1·1
27 → P1·2
28 → P1·3
29 → P1·4
30 → P1·5
31 → P1·6
32 → P1·7
33 → P1·8
34 → P1·14
35 → P1·15

36 → P2·1
37 → P2·2
38 → P2·3
39 → P2·4
40 → P2·5
41 → P2·6
42 → P2·7
43 → P2·8

44 → P2·14
45 → P2·16

46
47
48
49
50

P3·1
lites P3·2
P3·3
P3·4
lites { P3·5
gnd { P3·6
P3·7
P3·8
P3·9

cigar
lighter {
P3·10
P3·11
P3·12
P3·13
P3·14
}

P3·15
P3·16

XXX CBG PTR XFS RLB
                100   10
                200
PØK

```
        TITLE WAR 44
        RELOCATABLE
        P"=1
        A"=2
        B=3
        C=4
        D=5
        T=6
        TT=7
        MP1=10
        MP2=11
        XFLAG=13
        Q=14

        DISCHN==7
        FLGCHN==6
        APRCHN==5

        ZZZ=.
        LOC APRCHN*2+40
                        JSR APRBRK
        LOC FLGCHN*2+40
                        JSR RECYC
        LOC DISCHN*2+40
                        BLKO DIS,DISPNR'
                        JSR BKWRAP
        LOC 41
                        JSR 60
        LOC 61
                        JRST 4,34000
        LOC ZZZ

        IF1 DPP=0
        IF2 DPP=SDISTB
        NSHIPS==2

        DEFINE SSFIX A,B
                        MULI A,400
                        TSC A,A
                        ASH A+1,-243+19.!B(A)
                        TERMIN
        ;WORKS ONLY FOR + NUMBERS
        DEFINE SFIX A,B
                        MULI A,400
                        ASH A+1,-243+19.!B(A)
                        TERMIN

        DEFINE INST IN,CO,ADR
        IFSE CO,X,[IN D,ADR
                        TLO D,2000
                        HLRM D,DPP(T)
        ]
        IFSE CO,Y,[IN C,ADR
                        DPB A,[341000,,C]
                        HLLM C,DPP(T)
                        DPP=DPP+1
        ]
        TERMIN

        DEFINE CONC A,B
        A!B!TERMIN
```

```
        DEFINE BACKGROUND
                MOVE T,BKGTSP
                FADRB T,BKTMF'
                SFIX T,-19.
                MOVEM TT,BKTIME'
        TERMIN


        ;VECTOR OF MYSTERIES

        EGT:        120.                    ;DLY AT END OF GAME
        TNO:        40                      ;# OF TORPS
        TVL:        4.0          35         ;TORP VEL
        RLT:        MOVEI T,35              ;TORP RELOAD TIME IN 30THS
        TLF:        MOVEI T,110.            ;TORP LIFE IN 30THS          110.
        NFU:        7.0                     ;FUEL SUPPLY
        MAA:        .0005                   ;ANGULAR ACCEL
        SAC:        .0001                   ;SPACESHIP ACCEL
        SVL:        1.0                     ;CONST BETWEEN DX AND X
        STR:        12.5                    ;STAR CAPTURE RADIUS
        ME1:        12.5                    ;MAX COLL RADIUS
        GRV:        300.0                   ;GRAV CONST
        RAN:        (105*105)105+105                              4
        TXTM:       MOVEI T,4               ;TORP EXPLODE TIME IN 30THS
        EXSCL:      0                       ;EXPLOSION SCALE
        GRVMX:      5.0                     ;MAX ACCEL BY GRAVITY
        BKGTSP:     0.05                    ;RATE OF STAR FLOW
        SSBRI:      21034                   ;SS BRIGHTNESS (RT 3 BITS)
        TORBRI:     21037                   ;TORP BRIGHTNESS (")
        HYPT1:      120.                    ;TIME INVISIBLE IN HYPERSPACE
        HYPT2:      110.                    ;TIME AS HYPERSPACE STAR
        HYPT3:      120.                    ;HYPERSPACE RELOAD TIME
        HYPBO:      10                      ;HYPERSPACE LOSE RATE (FRACTION OF 100)
        GSSBX:      1                       ;CONTROL SELECTION: 0=DS, 1=CONSOLES
        SERL:       5                       ;SCOREKEEPER SERIES LENGTH (0=NO SCORING)

        SEXPL:      40                      ;EXPLOSION OF SS
        FATAL:      JRST 4,34000
```

```
APRBRK:         0
                CONSO 1000
                JRST 4,34000
                SETCMM APRTM'
                SKIPL APRTM
                SETOM CLKSNK'
                PUSH P,A
                MOVE A,DISPNR
                EXCH A,DISPNS
                CAMN A,DISPNS'
                CONO PI,4002
APRB2:          POP P,A
                CONO 3000+APRCHN
                JRST 12,@APRBRK

DEFINE LIMIT X,Y
                FADR X,Y(MP1)
                SKIPGE X
                FADR X,[1024.0]
                CAML X,[1024.0]
                FSBR X,[1024.0]
                MOVEM X,Y(MP1)
TERMIN
```

```
        DEFINE SHIP A,B
                DPPI=DPP
                D!A=DPP
A:              IRPC C,,[B]
                IFSE [C]1,[INST SUB,X,XCOS
                INST SUB,Y,XSIN
]
                IFSE [C]2,[INST ADD,X,SXSIN
                INST SUB,Y,SXCOS
]
                IFSE [C]3,[INST SUB,X,XCOS45
                INST SUB,Y,SXSIN45
]
                IFSE [C]4,[INST SUB,X,SXSIN
                INST ADD,Y,SXCOS
]
                IFSE [C]5,[INST SUB,X,XSIN45
                INST ADD,Y,SXCOS45
]
                IFSE [C]6,[INST ADD,X,XCOS
                INST ADD,Y,XSIN
]
                IFSE [C]7,[INST ADD,X,XCOS45
                INST ADD,Y,SXSIN45
]
                IFSE [C]8,[INST ADD,X,XSIN45
                INST SUB,Y,SXCOS45
]
                IFSE [C]S,[       PUSH P,D
                PUSH P,.QUOTE ?.QUOTE /C/?
]
                IFSE [C]U,[       POP P,.QUOTE ?.QUOTE /C/?
                POP P,D
]
TERMIN
                JUMPN T,CPOPJ
                MOVNS SXSIN
                MOVNS SXCOS
                MOVE TT,XCOS45
                EXCH TT,XSIN45
                MOVEM TT,XCOS45
                MOVN TT,SXCOS45
                EXCH TT,SXSIN45
                MOVNM TT,SXCOS45
                MOVEI T,DPP-DPPI
                L!A=-2*<DPP-DPPI>
                DPP=DPP*2-DPPI
                MOVE C,SYCOR
                MOVE D,SXCOR
                JRST A
TERMIN
```

```
NOB=50.

GO:             MOVEI P,PDL
                CONO 633550+APRCHN
              ⌐ CONO PI,12207          ── CONO 760,1000 ──
                SETZM BKTMF'
                SETZM BKTIME'
                SETZM BKTS'
                SETZM BKX'
                MOVE A,BKSTP
               ·MOVEM A,BKSTRT'
                SETZM RE1'
                SETOM SCNDF'
                CLEARM SCOREF'
                MOVEI A,SDISE-1
                MOVEM A,DISPNR
                MOVE A,SSBRI
                MOVEM A,SDIS
                CONO DIS,100+FLGCHN←3+DISCHN

GO0:            MOVSI A,-NSHIPS
                SETZM SCORE(A)
                AOBJN A,.-1

GO1:            MOVE A,SERL
                MOVEM A,SERIES'

GAME:           CLEARM GEFLG'
                MOVE A,TORBRI
                MOVEM A,TORB1
                CLEARM SCOREF'
                MOVE T,[20000,,20000
                MOVSI A,SDISTB-SDISE
                MOVEM T,SDISTB(A)
                AOBJN A,.-1
                MOVSI A,-NOB
                CLEARM MTB(A)
                AOBJN A,.-1
                MOVEI D,SSS
                MOVSI A,-NSHIPS
                MOVE T,TNO
                MOVN TT,NFU
                MOVEI XFLAG,100
                MOVE C,SEXPL
```

```
GLP1:           MOVE B,ITAB(A)
                MOVEM B,MX1(A)
                MOVE B,ITAB+NSHIPS(A)
                MOVEM B,MY1(A)
                MOVEM T,MTR(A)
                MOVEM TT,MFU(A)
                MOVE B,ITAB+2*NSHIPS(A)
                MOVEM B,MTH(A)
                MOVEM C,MB1(A)
                MOVEM D,MTB(A)
                CLEARM MDX(A)
                CLEARM MDY(A)
                CLEARM MTBS(A)
                CLEARM MA1(A)
                CLEARM MTOR(A)
                CLEARM MHYP(A)
                CLEARM GSSSAC(A)
                CLEARM GSSSTS(A)
                MOVEM XFLAG,MHYPP(A)
                AOBJN A,GLP1
```

```
GLP1A:          MOVEI A,NSHIPS-1
                HRRZM A,SSING'    ;SHIPS IN GAME - 1
                MOVE A,EGT
                MOVEM A,GECNT'    ;END GAME DLY
                MOVE A,ME1
                FMPR A,A
                MOVEM A,ME12'
                JRST ML0B


ML0:            MOVE A,DPYP'
                MOVEI B,3000
                MOVEM B,(A)
                MOVEI C,VDIS2-1
                MOVEI B,VDIS1
                CAIGE A,VDIS2
                MOVEI C,VDIS1-1
                MOVEM C,VDPP'
                CLEARM SCNDF'
                CAIGE A,VDIS2
ML0B:           MOVEI B,VDIS2
                MOVE A,SSBRI
                MOVEM A,(B)
                AOS B
                MOVEM B,DPYP
                AOSE CLKSNK       ;WAIT FOR CLOCK SYNC
                JRST .-1
                CLEARB MP1,B
                MOVSI A,-NSHIPS
ML0C:           SKIPN MTB(A)
                JRST MDN1         ;FLUSH A SHIP
                SKIPL MTOR(A)
ML0AA:          SETOM B
ML0A:           AOBJN A,ML0C
                SKIPN B
                SETOM GEFLG       ;ALL SHIPS OUT OF TORP
                SKIPE GEFLG
                JRST GEC1


ML1:            SKIPN MTB(MP1)
                JRST MQ1          ;OBJ NOT ACTIVE
                SKIPG MTB(MP1)
                JRST MQ4          ;OBJECT NOT COLLIDEABLE
                MOVEI MP2,1(MP1)
ML2:            SKIPG MTB(MP2)
                JRST MQ2          ;OBJ CANNOT COLLIDE
                MOVE A,MX1(MP1)
                FSBR A,MX1(MP2)
                FMPR A,A
                MOVE B,MY1(MP1)
                FSBR B,MY1(MP2)
                FMPR B,B
                FADR A,B
                CAMLE A,ME12
                JRST MQ2
```

```
ML9:        LDB A,[(270600)MTB(MP1)
            JUMPE A,ML9A
            LDB B,[(270600)MTB(MP2)
            CAMN A,B
            JRST MQ2
            JRST ML10

ML9A:       LDB A,[(350600)MTB(MP1)
            JUMPE A,ML9C
            MOVEI B,1(MP2)
            CAMN A,B
            JRST ML10
            JRST MQ2

ML9C:       LDB A,[(350600)MTB(MP2)
            JUMPE A,ML10
            MOVEI B,1(MP1)
            CAME A,B
            JRST MQ2
ML10:       MOVE A,[SETZ MEX ;EXPLODE
            MOVEM A,MTB(MP1)
            MOVEM A,MTB(MP2)
            MOVE A,MB1(MP1)
            MOVEM A,MA1(MP1)
            MOVE A,MB1(MP2)
            MOVEM A,MA1(MP2) ;STORE LENGTH OF EXPLOSION
            MOVE T,[20000,,20000
            MOVSI TT,+(.5)
            CAIL MP1,NSHIPS
            JRST EXPTP
            MOVE B,CLRTB(MP1)
            MOVEM T,(B)
            AOBJN B,.-1
            FMPRM TT,MDX(MP1)
            FMPRM TT,MDY(MP1)
MQ2A:       CAIL MP2,NSHIPS
            JRST EXPTP1
            MOVE B,CLRTB(MP2)
            MOVEM T,(B)
            AOBJN B,.-1
            FMPRM TT,MDX(MP2)
            FMPRM TT,MDY(MP2)
MQ2:        CAIGE MP2,NOB-1
            AOJA MP2,ML2

MQ4:        PUSHJ P,@MTB(MP1)                    ;UPDATE DISPLAY FOR OBJ
MQ1:        CAIGE MP1,NOB-2
            AOJA MP1,ML1
            AOS MP1
            SKIPE MTB+NOB-1
            PUSHJ P,@MTB+NOB-1

MQ3:        BACKGROUND          ;UPDATE
            PUSHJ P,TWINKLE
            JRST ML0

EXPTP:      MOVEM T,TORDIS-NSHIPS(MP1)
            JRST MQ2A

EXPTP1:     MOVEM T,TORDIS-NSHIPS(MP2)
            JRST MQ2
```

```
MDN1:          MOVE T,[SETZ CPOPJ
               MOVEM T,MTB(A)
               SOSG SSING
               SETOM GEFLG
               SKIPE SSING
               JRST ML0A
               MOVE B,HYPT1
               ADD B,HYPT2
               MOVSI T,-NSHIPS
               HRRZ TT,MTB(T)
               CAIE TT,HYPI
               CAIN TT,HYPO
               MOVEM B,GECNT
               AOBJN T,.-4
               JRST ML0A
```

```
PIE=3.14159263694

SSS:        PUSHJ P,@GETAB(MP1)                    ;UPDATE SPACE SHIP
            MOVEM B,GSSSAC(MP1)
            AND T,[(4000)
            MOVEM T,GSSSTS(MP1)
            SOS MHYP(MP1)
            TLNE C,200000
            JRST HYPGO
            TLNE C,100000
            JRST SEXP

SSNHYP:     TLC B,232000
            FAD B,B
            FMPR B,SAC
            MOVEM B,SACL'
            MOVEM C,SFLGS'
            TLC A,232000     ;A ANG CHANGE
            FAD A,A          ;B ACCEL
            FMPR A,MAA       ;C 4.9=TORPS 4.8=HYPER 4.7=DESTRUCT
                             ; 4.6=BEACON 4.5=TIME 0 4.6=TIME K
            FADR A,MTH(MP1)
            PUSHJ P,SSANGL
            PUSHJ P,CGRAV
            JUMPN XFLAG,FALL
            SKIPE T,SACL
            SKIPLE MFU(MP1)
            JRST SSNACL      ;NOT ACCEL

            FADRM T,MFU(MP1)
            MOVE T,SACL
            FMPR T,FSIN
            FADR B,T
            MOVE T,SACL
            FMPR T,FCOS
            FADR C,T
```

```
SSNACL:        FADRB C,MDX(MP1)
               FADRB B,MDY(MP1)
               FMPR B,SVL
               FMPR C,SVL
               LIMIT B,MY1
               LIMIT C,MX1
               SKIPE T,SACL
               SKIPLE MFU(MP1)
               JRST FELL
               PUSH P,C
               PUSH P,B
               PUSHJ P,RANDOM
               SSFIX T,-17.
               ANDI A,17
               ADD A,TT
               MOVN B,SLTBL(MP1)
               MOVE C,B
               FMPR B,FCOS
               FMPR C,FSIN
               FADR B,MX1(MP1)
               FADR C,MY1(MP1)
               SSFIX C,-1
               SSFIX B,-1
               PUSHJ P,DPY
               SUB D,XSIN
               SUB C,XCOS
               SOJG A,.-3
               POP P,B
               POP P,C
FELL:          PUSHJ P,SSDIS        ;Y IN B, X IN C
               SOSG MA1(MP1)
               SKIPL SFLGS
               JRST SNOTORP
               SOSGE MTR(MP1)
               JRST SNOT1
```

```
            MOVE C,TVL
            MOVE B,C
            FMPR C,FCOS
            FADR C,MDX(MP1)
            FMPR B,FSIN
            FADR B,MDY(MP1)
            MOVSI D,-NOB
            SKIPE MTB(D)
            AOBJN D,.-1
            JUMPGE D,FATAL      ;TOO MANY OBJECTS
            MOVEI T,TORPCL      ;TORP CALC ROUTINE
            MOVEM T,MTB(D)
            MOVE T,SLTBL1(MP1)
            FMPR T,FCOS
            FADR T,MX1(MP1)
            MOVEM T,MX1(D)
            MOVE T,SLTBL1(MP1)
            FMPR T,FSIN
            FADR T,MY1(MP1)
            MOVEM T,MY1(D)
            MOVEM B,MDY(D)
            MOVEM C,MDX(D)
            XCT TLF                          ——— MOVE T,TLF ———
            MOVEM T,MA1(D)
            XCT RLT                          ——— MOVE T,RLT ———
            MOVEM T,MA1(MP1)
            XCT TXTM                         ——— MOVE T,TXTM ———
            MOVEM T,MB1(D)
SNOTORP:    MOVE T,SFLGS'
            TLNN T,40000
            JRST SNOBEA
            MOVEI TT,20         ;BEACON/HYPERSPACE DISCHARGE RATIO
            ADDM TT,MHYP(MP1)
            MOVE B,XSIN
            IMULI B,3
            MOVEM B,BXSIN'
            MOVE B,XCOS
            IMULI B,3
            MOVEM B,BXCOS'
            MOVE B,SLTBL1(MP1)
            MOVE C,B
            FMPR B,FCOS
            FADR B,MX1(MP1)
            FMPR C,FSIN
            FADR C,MY1(MP1)
            SSFIX C,-1
            SSFIX B,-1
            MOVEI A,114         ;LENGTH OF BEACON BEAM
            PUSHJ P,DPY
            ADD D,BXSIN
            ADD C,BXCOS
            SOJG A,.-3

SNOBEA:     POPJ P,

SNOT1:      SETOM MTOR(MP1)
            JRST SNOTORP
```

```
GEC1:           SOSLE GECNT
                JRST ML1

MDN:            SETOM SCNDF'        ;END OF GAME
                SKIPN SERIES
                JRST GO0
                MOVSI A,-NSHIPS
                MOVEI B,0

MDN11:          HRRZ C,MTB(A)
                CAIE C,SSS
                ADDI B,1
                AOBJN A,MDN11
                MOVSI A,-NSHIPS

MDN2:           HRRZ C,MTB(A)
                CAIN C,SSS
                ADDM B,SCORE(A)
                AOBJN A,MDN2
                SOSLE SERIES
                JRST GAME
                MOVEI B,2
                CAMN B,RE1'
                JRST .-1
                MOVE B,[1150.0
                MOVEM B,MDN3Y'
                MOVSI MP1,-NSHIPS

MDN3:           MOVE A,[.OP FDVR PIE 2.0
                PUSHJ P,SSANGL
                MOVEI A,4
                IRP V,,[XSIN,SXSIN,XCOS,SXCOS,XSIN45,SXSIN45,XCOS45,SXCOS45]
                IMULM A,V
                TERMIN

MDN4:           MOVE B,[-200.0
                FADRB B,MDN3Y
                MOVE C,[100.0
                PUSHJ P,SSDIS
                AOBJN MP1,MDN4
                MOVEI B,900.        ;Y
                MOVSI MP1,-NSHIPS
                MOVEI D,TORB1
                MOVEI C,20140
                MOVEM C,TORB1
```

```
MDN5:        MOVE C,[(220000)60300          ;PT MODE TO CHARAC.
             DPB B,[(221200)C
             PUSH D,C
             HRLI D,600
             PUSHJ P,MDNN
             SUBI B,200.
             MOVEI TT,37
             IDPB TT,D
             AOBJP MP1,MDN6
             MOVEI TT,20000
             MOVEM TT,1(D)
             AOJA D,MDN5

MDN6:        MOVSI TT,3000
             MOVEM TT,1(D)
             SETOM SCOREF'

MDN8:        SETOB MP2,Q
             MOVSI MP1,-NSHIPS

MDN7:        PUSHJ P,@GETAB(MP1)
             TLNN C,20000
             MOVEI MP2,0
             TLNN C,10000
             MOVEI Q,0
             AOBJN MP1,MDN7
             JUMPN Q,.+2
             JUMPE MP2,MDN8
             MOVEI A,120.     ;FADEOUT DELAY IN 30THS
             SETZM SCOREF

MDN9:        AOSE CLKSNK
             JRST .-1
             SOJG A,MDN9
             JUMPN Q,GO1
             JRST GO0
```

```
FALL:          CLEARB B,C
               CLEARM MX1(MP1)
               CLEARM MY1(MP1)
               CLEARM MDX(MP1)
               CLEARM MDY(MP1)
               JRST FELL


HYPGO:         SKIPLE MHYP(MP1) ;ENTER HYPERSPACE
               JRST SSNHYP
               MOVE T,[20000,,20000
               MOVE A,CLRTB(MP1)
               MOVEM T,(A)
               AOBJN A,.-1
               MOVE A,[SETZ HYPI
               MOVEM A,MTB(MP1)
               MOVE A,HYPT1
               MOVEM A,MHYP(MP1)
               POPJ P,


HYPI:          SOSLE MHYP(MP1)   ;INVISIBLY IN HYPERSPACE
               POPJ P,
               IRP XORY,,[X,Y]
               PUSHJ P,RANDOM
               ANDI A,1777
               TLC A,232000
               FAD A,A
               MOVEM A,M!XORY!1(MP1)
               TERMIN
               MOVEI A,HYPO
               MOVEM A,MTB(MP1)
               MOVE A,HYPT2
               MOVEM A,MHYP(MP1)
               POPJ P,

HYPO:          SOSG MHYP(MP1)    ;VISIBLY IN HYPERSPACE
               JRST HYPO1
               MOVE C,MY1(MP1)
               FADR C,[1.0
               SFIX C,-1.
               MOVE B,MX1(MP1)
               SFIX B,-1.
               PUSHJ P,DPY
               SUB D,[(2)
               SUB C,[(1)
               PUSHJ P,DPY
               ADD C,[(2)
               JRST DPY
```

```
HYPO1:          MOVN B,HYPBO        ;BREAK OUT
                ADDB B,MHYPP(MP1)
                PUSHJ P,RANDOM
                ANDI A,77
                CAMG B,A
                JRST SEXP           ;LOSE
                MOVEI A,SSS
                MOVEM A,MTB(MP1)
                MOVE A,HYPT3
                MOVEM A,MHYP(MP1)
                PUSHJ P,RANDOM
                HRLI A,232000
                FAD A,A
                FMPR A,[.OP FDVR PIE 131072.0
                MOVEM A,MTH(MP1)
                IRP XORY,,[X,Y]
                PUSHJ P,RANDOM
                HRLI A,232000
                FAD A,A
                FSBR A,[131072.0
                FMPR A,[.OP FDVR 0.14142 262144.0
                FMPR A,NFU
                MOVEM A,MD!XORY(MP1)
                TERMIN
                JRST SSS


SEXP:           MOVE T,[SETZ MEX
                MOVEM T,MTB(MP1)
                MOVE T,MB1(MP1)
                MOVEM T,MA1(MP1)
                MOVE T,[20000,,20000
                MOVE A,CLRTB(MP1)
                MOVEM T,(A)
                AOBJN A,.-1
                POPJ P,
```

```
CGRAV:          MOVEI XFLAG,0
                MOVE T,MX1(MP1)
                FSBR T,[512.0
                MOVEM T,T1'
                FMPR T,T
                MOVE TT,MY1(MP1)
                FSBR TT,[512.0
                MOVEM TT,T2'
                FMPR TT,TT
                FADR T,TT
                MOVE A,T
                PUSHJ P,SQRT"
                CAMG A,STR
                SETOM XFLAG
                FMPR T,A
                FDVR T,GRV
                MQVN B,T2
                FDVR B,T
                MOVN C,T1
                FDVR C,T
                POPJ P,


SSANGL:         CAML A,[.OP FMPR PIE 2.0
                FSBR A,[.OP FMPR PIE 2.0
                SKIPGE A
                FADR A,[.OP FMPR PIE 2.0
                MOVEM A,MTH(MP1)
                PUSHJ P,SIN"
                MOVEM A,FSIN'
                MOVEM A,MPFSIN(MP1)
                SSFIX A,-1
                MOVEM B,XSIN'
                MOVEM B,SXSIN'
                MOVE A,MTH(MP1)
                PUSHJ P,COS"
                MOVEM A,FCOS'
                MOVEM A,MPFCOS(MP1)
                SSFIX A,-1
                MOVEM B,XCOS'
                MOVEM B,SXCOS'
                MOVE A,MTH(MP1)
                FADR A,[.OP FDVR PIE 4.0
                PUSHJ P,SIN"
                MOVEM A,FSIN45'
                SSFIX A,-1
                MOVEM B,XSIN45'
                MOVEM B,SXSIN45'
                MOVE A,MTH(MP1)
                FADR A,[.OP FDVR PIE 4.0
                PUSHJ P,COS
                MOVEM A,FCOS45'
                SSFIX A,-1
                MOVEM B,XCOS45'
                MOVEM B,SXCOS45'
                POPJ P,
```

```
SSDIS:          MOVE T,SLTBL(MP1)
                FMPR T,FCOS
                FADR C,T
                MOVE T,SLTBL(MP1)
                FMPR T,FSIN
                FADR B,T
                SSFIX C,-1
                SSFIX B,-1
                MOVEI A,220←-1
                TLZ C,776000
                TLZ D,776000
                TLO D,22000
                MOVEM C,SYCOR'
                MOVEM D,SXCOR'
                MOVEI T,0
                JRST @DISTAB(MP1)                ;UPDATE DISPLAY LIST


MDNN:           MOVE T,SCORE(MP1)
                IDIVI T,10.
                PUSH P,TT
                SKIPE T
                PUSHJ P,MDNN+1
                POP P,TT
                ADDI TT,60
                IDPB TT,D
                POPJ P,
```

```
TORPCL:     SOSGE MA1(MP1)
            JRST TEXP
            PUSHJ P,CGRAV
            JUMPN XFLAG,TEXP
            FADRB B,MDY(MP1)
            FADRB C,MDX(MP1)
            LIMIT B,MY1
            LIMIT C,MX1
            SFIX C,-1
            SFIX B,-1
            TLO C,220000
            TLO D,22000
            HLLM C,TORDIS-NSHIPS(MP1)
            HLRM D,TORDIS-NSHIPS(MP1)
            POPJ P,

TEXP:       MOVE T,[SETZ MEX
            MOVEM T,MTB(MP1)
            MOVE T,[20000,,20000
            MOVEM T,TORDIS-NSHIPS(MP1)          —— MOVE T,TXTM —
            XCT TXTM                ;LENGTH OF EXPLOSION
            MOVEM T,MA1(MP1)
CPOPJ:      POPJ P,

DPY:        HLL MP2,D            ;X IN C Y IN D
            HLR MP2,C
            ANDCM MP2,[776000,,776000
            IOR MP2,[220000,,22000
DPY1:       AOS Q,DPYP
            MOVEM MP2,-1(Q)
            CAIE Q,VDIS2
            CAIN Q,VDIS3
            SOS DPYP
            POPJ P,

TWINKLE:    MOVSI T,1
            MOVSI D,512.
            MOVSI C,512.
            IRP Z,,[AX,AY,SX,SY,[AX,AY],[AX,SY],[SX,AY],[I,SX,SY]]
            PUSHJ P,RANDOM
            ANDI A,7
LTWNK=.
            IRP W,,[Z]
            IFSE W,AX,ADD D,T
            IFSE W,SX,SUB D,T
            IFSE W,AY,ADD C,T
            IFSE W,SY,SUB C,T
            TERMIN
            PUSHJ P,DPY
            SOJGE A,LTWNK
            IRPC W,,[Z]
            IFSE [W]I,..ISTOP
            IFSE [W]X,MOVSI D,512.
            IFSE [W]Y,MOVSI C,512.
            TERMIN
            TERMIN
            POPJ P,
```

```
MEX:        SOSGE MA1(MP1)
            JRST MEXNO
            MOVEI T,200
            IMUL T,MA1(MP1)
            IDIV T,MB1(MP1)
            MOVEI B,1400
            IDIV B,MB1(MP1)
            CAMG T,B
            MOVE T,B
            MOVEM T,EXSIZE'
            MOVE T,MA1(MP1)
            ASH T,@EXSCL
            MOVE B,MDX(MP1)
            MOVE C,MDY(MP1)
            LIMIT B,MX1
            LIMIT C,MY1
            SFIX C,-1
            SFIX B,-1
            MOVEM C,EXX'
            MOVEM D,EXY'
MEX2:       IRPS CORD,,D C
            PUSHJ P,RANDOM
            TLZ A,776000
            IDIV A,EXSIZE
            TRNN B,2
            LSH A,1
            TRNN B,1
            MOVNS A
            ADD CORD,A
            TERMIN
            PUSHJ P,DPY
            HRLS MP2
            PUSHJ P,DPY1
            PUSHJ P,DPY1
            MOVE D,EXY
            MOVE C,EXX
            SOJGE T,MEX2
            POPJ P,
MEXNO:      CLEARM MTB(MP1)
            POPJ P,

RANDOM:     MOVE A,RAN
            FMPB A,RAN
            TSC A,A
            POPJ P,
```

```
GSS1:        DATAI T
             MOVSS T
             SKIPN GSSBX
             JRST GSS20
             DATAI 724,T
             MOVSS T
             JRST GSS21

GSS2:        DATAI T
             SKIPN GSSBX
             JRST GSS20
             DATAI 724,T

GSS21:       SETZB A,B
             MOVEI C,0
             TLNE T,20000         ;BEACON
             TLO C,40000
             TLNE T,2             ;TIME 0
             TLO C,20000
             TLNE T,1             ;TIME K
             TLO C,10000
             TLNE T,200000
             JRST GSS29
             TLNE T,100           ;SLOWER
             MOVEI B,40
             TLNE T,200           ;FASTER
GSS297:      MOVEI B,200
GSS39:       JUMPL T,GSS10
             TLNE T,40            ;STBD, CW
GSS10A:      MOVNI A,105          ;ROTATION CONST.
             TLNE T,20            ;PORT, CCW
             MOVEI A,@GSS10A
GSS11:       TLNE T,10000         ;GENERAL CANCEL
             TLO C,100000         ;DESTRUCT
             TLNE T,400           ;XMIT DATA
             TLO C,400000         ;TORPS
             TLNE T,100000
             JRST GSS21A
             TLNE T,10            ;BUTTON: TORPS
             TLO C,400000
             TLNE T,4             ;PEDAL: HYPERSPACE
             TLO C,200000
             POPJ P,

GSS21A:      TLNE T,10            ;BUTTON: HYPERSPACE
             TLO C,200000
             TLNE T,4             ;PEDAL: TORPS
             TLO C,400000
             POPJ P,
```

```
GSS20:        CLEARB A,B
              MOVSI C,200000
              SKIPGE T
              TLO C,400000
              TLNE T,200000
              MOVEI A,105
              TLNE T,100000
              MOVNI A,@.-2
              TLNE T,40000
              MOVEI B,105
              TLNE T,20000
              TLNN T,10000
              TLZ C,200000
              TLNE T,40000
              TLO C,20000
              TLNE T,20000
              TLO C,10000
              POPJ P,

GSS10:        TLNE T,20          ;PORT, CW
              MOVNI A,@GSS10A
              TLNE T,40          ;STBD, CCW
              MOVEI A,@GSS10A
              JRST GSS11

GSS29:        MOVE B,GSSSAC(MP1)
              SKIPN GSSSTS(MP1)
              TLNN T,4000
              JRST GSS39
              JUMPE B,GSS297
              MOVEI B,0
              JRST GSS39


RECYC:        0
              PUSH P,A
              SKIPE SCOREF'
              JRST RE3
              SKIPE SCNDF'
              JRST BK3
              SOSL RE1'
              JRST RECYC1
              MOVEI A,2
              MOVEM A,RE1
RE3:          MOVEI A,SDIS-1
RE2:          MOVEM A,DISPNR
              CONO DIS,100+FLGCHN←3+DISCHN
              POP P,A
              JRST 12,@RECYC

RECYC1:       SKIPE RE1
              JRST BK
              MOVE A,VDPP
              JRST RE2
```

```
BK3:        SETZM RE1
BK:         MOVE A,BKTIME'
            EXCH A,BKTS'
            SUB A,BKTS

BK0:        ADDB A,BKX'
            JUMPGE A,BK1
            IBP BKSTRT'
            AOS A,BKSTRT
            HRRZS A
            CAIGE A,BKEND
            JRST BK2
            MOVE A,BKSTP
            MOVEM A,BKSTRT

BK2:        LDB A,BKSTRT
            ANDI A,177
            JRST BK0

BK1:        CONO DIS,100
            HRLI A,20100      ;PARAM TO PT, SCALE 0
            DATAO DIS,A       ;PT TO PARAM, X UNLIT
            MOVE A,BKSTRT
            SKIPL @BKSTRT
            ADDI A,1
            SUBI A,BKEND"
            MOVSS A
            HRR A,BKSTRT
            SKIPGE @BKSTRT
            SUBI A,1
            CONSO DIS,200
            JRST .-1
            JRST RE2

BKWRAP:     0
            PUSH P,A
            MOVE A,[(,BKBEG"-BKEND"+1)BKBEG"-1
            MOVEM A,DISPNR
            POP P,A
            JRST 12,@BKWRAP

BKSTP:      (222200)BKBEG"
```

```
;L=30
SHIP SHIP1,[111131              111111
111111         1111S3          311111
14U111         111114]

;L=22

SHIP SHIP2,[113113             113111
11S313         131111          1U1151
111S33         3U5114]
SDIS:          20135
               221000,,23000   ;SUN
SDISTB:        IF1 LOC .+DPP
               IF2 REPEAT DPP-.,20000,,20000
SDISTE:

TORB1:         0                ;TORP BRI
TORDIS:        REPEAT NOB-NSHIPS,20000,,20000
SDISE:         3000

DISTAB:        REPEAT NSHIPS,[CONC SHIP,\.RPCNT+1
]
CLRTB:         REPEAT NSHIPS,[CONC LSHIP,\.RPCNT+1,,,CONC DSHIP,\.RPCNT+1
]
GETAB:         REPEAT NSHIPS,[CONC GSS,\.RPCNT+1
]
SLTBL:         15.0
               11.0
SLTBL1:        .OP FMPR 15.0 1.1415
               .OP FMPR 15.0 1.1415
PDL:           BLOCK 20
VDIS1:         BLOCK 6000
VDIS2:         BLOCK 6000
VDIS3:

CONSTANTS
VARIABLES

ITAB:          768.0            ;INITIAL X SS1
               256.0            ;SS2
               768.0            ;INIT Y
               256.0
               .OP FDVR -PIE 2.0              ;INIT ANGLE
               .OP FDVR PIE 2.0
```

```
;TABLE OF OBJECTS AND THEIR PROPS.

MTB:            BLOCK NOB          ;ROUTINE ADR 4.9>NON-COLLIDABLE
                                   ;  1-6 SELECT TARGET IF NON0 7-12 EXCLUSI
MX1:            BLOCK NOB          ;X POS
MY1:            BLOCK NOB          ;Y POS
MA1:            BLOCK NOB          ;COUNTER FOR LENGTH OF EXPLOSION
MB1:            BLOCK NOB          ;LENGTH OF EXPLOSION
MDX:            BLOCK NOB          ;XVEL
MDY:            BLOCK NOB          ;YVEL
MTBS:           BLOCK NSHIPS       ;ANGULAR VEL
MTH:            BLOCK NSHIPS       ;ANGLE
MFU:            BLOCK NSHIPS       ;FUEL
MTR:            BLOCK NSHIPS       ;TORPS
MPFCOS:         BLOCK NSHIPS       ;COS MTH
MPFSIN:         BLOCK NSHIPS       ;SIN MTH
MTOR:           BLOCK NSHIPS       ;OUT OF TORPS FLAG
MHYP:           BLOCK NSHIPS       ;HYPERSPACE COUNTER
MHYPP:          BLOCK NSHIPS       ;HYPERSPACE SURVIVAL CHANCES
GSSSAC:         BLOCK NSHIPS       ;SAVED ACCEL STATUS
GSSSTS:         BLOCK NSHIPS       ;SAVED ACCEL FLIPFLOP
SCORE:          BLOCK NSHIPS       ;WINS TO CREDIT

END GO
```

```
        RELOCA
        TITLE STARS

                RADIX 10.

DEFINE ZIP X,Y,B/
                IFGE X-.X+..X-200',[PRINTX /LOSE BIG AT .QUOTE/X/=X
/]
                ZOTZ X-.X+..X+400000'

.X==X
.B==B

                ZOTZ 20110'+.B
                ZOTZ Y+302777'
..X==0
TERMIN

DEFINE ZOTZ A
                IFE .S,.V==(A)
                IFN .S,A+.V
.S==1-.S
TERMIN


.S==0
.X==0
..X==0

BKBEG":         ZIP 1,-143,2            ;33 PISC
                ZIP 46,333,3           ;88 PEGS,ALGENIB
                ZIP 54,447,2           ;89 PEGS
                ZIP 54,-443,2          ; 7 CETI
                ZIP 82,-214,2          ; 8 CETI
                ZIP 150,0,0            ;
                ZIP 223,-254,2         ;17 CETI
                ZIP 248,160,2          ;63 PISC
                ZIP 273,-38,2          ;20 CETI
                ZIP 329,167,2          ;71 PISC
                ZIP 362,-244,3         ;31 CETI
                ZIP 376,467,2          ;84 PISC
                ZIP 450,-198,2         ;45 CETI
                ZIP 490,338,3          ;99 PISC
                ZIP 548,113,2          ;106 PISC
                ZIP 566,-375,3         ;52 CETI
                ZIP 570,197,2          ;110 PISC
                ZIP 595,-255,2         ;53 CETI
                ZIP 606,-247,2         ;55 CETI
                ZIP 615,428,2          ; 5 ARIE
                ZIP 617,61,2           ;14 PISC
                ZIP 621,462,3          ; 6 ARIE
                ZIP 656,-491,2         ;59 CETI
                ZIP 665,52,2           ;113 PISC
                ZIP 727,191,2          ;65 CETI
                ZIP 764,-78,3          ;68 CETI,MIRA
                ZIP 803,-290,2         ;72 CETI
                ZIP 813,182,2          ;73 CETI
                ZIP 838,-357,2         ;76 CETI
                ZIP 878,-2,2           ;82 CETI
                ZIP 900,64,3           ;86 CETI
                ZIP 907,-340,2         ;89 CETI
                ZIP 908,221,2          ;87 CETI
                ZIP 913,-432,2         ; 1 ERID
                ZIP 947,-487,2         ; 2 ERID
                ZIP 976,-212,2         ; 3 ERID
```

IF1 {..X==0

change 5→ to 6→; then
4→ to 5→

```
ZIP 992,194,2        ;91 CETI
ZIP 1007,84,3        ;92 CETI
ZIP 1058,440,2       ;57 ARIE
ZIP 1076,470,2       ;58 ARIE
ZIP 1087,-209,2      ;13 ERID
ZIP 1104,68,2        ;96 CETI
ZIP 1110,-503,2      ;16 ERID
ZIP 1135,198,2       ; 1 TAUR
ZIP 1148,214,2       ; 2 TAUR
ZIP 1168,287,2       ; 5 TAUR
ZIP 1170,-123,2      ;17 ERID
ZIP 1185,-223,2      ;18 ERID
ZIP 1191,-500,2      ;19 ERID
ZIP 1205,2,2         ;10 TAUR
ZIP 1243,-230,3      ;23 ERID
ZIP 1260,-283,2      ;26 ERID
ZIP 1304,-74,2       ;32 ERID
ZIP 1328,-314,3      ;34 ERID
ZIP 1338,278,2       ;35 TAUR
ZIP 1353,130,2       ;38 TAUR
ZIP 1358,497,2       ;37 TAUR
ZIP 1405,-162,2      ;38 ERID
ZIP 1414,205,2       ;47 TAUR
ZIP 1423,197,2       ;49 TAUR
ZIP 1426,-178,2      ;40 ERID
ZIP 1430,463,2       ;50 TAUR
ZIP 1446,350,2       ;54 TAUR
ZIP 1463,394,2       ;61 TAUR
ZIP 1470,392,2       ;64 TAUR
ZIP 1476,502,2       ;65 TAUR
ZIP 1477,403,2       ;68 TAUR

ZIP 1483,350,2       ;71 TAUR
ZIP 1485,330,2       ;73 TAUR
ZIP 1495,432,3       ;74 TAUR
ZIP 1495,358,2       ;77 TAUR
ZIP 1496,356,3       ;78 TAUR
ZIP 1507,364,2       ;
ZIP 1518,-6,2        ;45 ERID
ZIP 1526,333,2       ;86 TAUR
ZIP 1537,371,5       ;87 TAUR,ALDEBARAN
ZIP 1537,226,2       ;88 TAUR
ZIP 1544,-81,2       ;48 ERID
ZIP 1551,280,2       ;90 TAUR
ZIP 1556,358,2       ;92 TAUR
ZIP 1557,-330,2      ;53 ERID
ZIP 1571,-452,2      ;54 ERID
ZIP 1596,-78,2       ;57 ERID
ZIP 1618,154,3       ; 1 ORIO
ZIP 1622,199,2       ; 2 ORIO
ZIP 1626,124,2       ; 3 ORIO
ZIP 1638,-128,2      ;61 ERID
ZIP 1644,52,3        ; 8 ORIO
ZIP 1646,228,2       ; 7 ORIO
ZIP 1654,304,2       ; 9 ORIO
ZIP 1669,36,2        ;10 ORIO
ZIP 1680,-289,2      ;64 ERID
ZIP 1687,-167,2      ;65 ERID
ZIP 1690,-460,2      ;
ZIP 1690,488,2       ;102 TAUR
ZIP 1700,347,2       ;11 ORIO
ZIP 1723,-119,3      ;67 ERID
ZIP 1729,352,2       ;15 ORIO
ZIP 1732,-202,2      ;69 ERID
ZIP 1750,-273,2      ; 3 LEPS
ZIP 1753,63,2        ;17 ORIO
```

```
ZIP 1755,-371,3    ; 5 LEPS
ZIP 1756,-297,2    ; 4 LEPS
ZIP 1762,-189,5    ;19 ORIO,RIGEL
ZIP 1779,-158,3    ;20 ORIO
ZIP 1792,-302,2    ; 6 LEPS
ZIP 1799,-486,2    ;
ZIP 1801,-11,2     ;22 ORIO
ZIP 1807,79,2      ;23 ORIO
ZIP 1816,-180,2    ;29 ORIO
ZIP 1817,-57,3     ;28 ORIO
ZIP 1818,40,2      ;25 ORIO
ZIP 1819,143,4     ;24 ORIO,BELLATRIX
ZIP 1830,497,2     ;114 TAUR
ZIP 1830,69,2      ;30 ORIO
ZIP 1843,-474,3    ; 9 LEPS
ZIP 1851,134,2     ;32 ORIO
ZIP 1857,421,2     ;119 TAUR
ZIP 1860,-8,3      ;34 ORIO
ZIP 1861,-168,2    ;36 ORIO
ZIP 1868,-407,3    ;11 LEPS
ZIP 1874,214,2     ;37 ORIO
ZIP 1875,225,3     ;39 ORIO
ZIP 1878,-138,2    ;
ZIP 1880,-136,3    ;44 ORIO
ZIP 1880,-112,2    ;42 ORIO
ZIP 1884,-29,4     ;46 ORIO
ZIP 1885,210,2     ;40 ORIO
ZIP 1887,480,3     ;123 TAUR
ZIP 1899,-60,2     ;48 ORIO
ZIP 1900,93,2      ;47 ORIO
ZIP 1900,-165,2    ;49 ORIO
ZIP 1909,375,2     ;126 TAUR
ZIP 1910,-46,4     ;50 ORIO
ZIP 1936,-511,2    ;13 LEPS
ZIP 1948,-338,3    ;14 LEPS
ZIP 1951,-221,4    ;53 ORIO
ZIP 1957,287,2     ;134 TAUR
ZIP 1974,-475,2    ;15 LEPS
ZIP 1982,461,2     ;54 ORIO
ZIP 1990,168,5     ;58 ORIO,BETELGEUZE
ZIP 2002,-323,2    ;16 LEPS
ZIP 2020,-70,2     ;
ZIP 2030,220,2     ;61 ORIO
ZIP 2032,-241,2    ; 3 MONO
ZIP 2037,458,2     ;62 ORIO
ZIP 2057,-340,2    ;18 LEPS
ZIP 2059,336,2     ;67 ORIO
ZIP 2084,368,2     ;69 ORIO
ZIP 2084,324,2     ;70 ORIO
ZIP 2105,-142,2    ; 5 MONO
ZIP 2112,-311,2    ;
ZIP 2152,-407,4    ; 2 CMAJ
ZIP 2153,106,2     ; 8 MONO
ZIP 2179,462,2     ;18 GEMI
ZIP 2179,-107,2    ;10 MONO
ZIP 2184,-159,2    ;11 MONO
ZIP 2204,168,2     ;13 MONO
ZIP 2230,375,4     ;24 GEMI
ZIP 2232,-436,2    ; 7 CMAJ
ZIP 2239,-413,2    ; 8 CMAJ
ZIP 2245,-320,2    ;
ZIP 2250,227,2     ;15 MONO
ZIP 2266,303,2     ;30 GEMI
ZIP 2274,296,3     ;31 GEMI
ZIP 2280,-377,5    ; 9 CMAJ,SIRIUS
ZIP 2291,57,2      ;18 MONO
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7

```
ZIP 2327,303,2      ;38 GEMI
ZIP 2328,-457,2     ;15 CMAJ
ZIP 2330,-271,2     ;14 CMAJ
ZIP 2340,-456,2     ;19 CMAJ
ZIP 2342,-385,2     ;20 CMAJ
ZIP 2378,-93,2      ;19 MONO
ZIP 2379,471,2      ;43 GEMI
ZIP 2385,-352,2     ;23 CMAJ
ZIP 2428,-8,2       ;22 MONO
ZIP 2460,380,3      ;54 GEMI
ZIP 2470,504,3      ;55 GEMI
ZIP 2491,-429,2     ;
ZIP 2513,193,3      ; 3 CMIN
ZIP 2519,208,2      ; 4 CMIN
ZIP 2527,278,2      ; 6 CMIN
ZIP 2559,-503,2     ;
ZIP 2583,125,5      ;10 CMIN,PROCYON
ZIP 2597,-212,2     ;26 MONO
ZIP 2704,-412,2     ;
ZIP 2709,-25,2      ;28 MONO
ZIP 2714,60,2       ;
ZIP 2751,-61,2      ;29 MONO
ZIP 2757,-431,2     ;16 PUPP
ZIP 2768,-288,2     ;19 PUPP
ZIP 2794,216,2      ;17 CANC
ZIP 2848,-82,2      ;
ZIP 2915,138,2      ; 4 HYDA
ZIP 2921,84,2       ; 5 HYDA
ZIP 2942,-355,2     ; 9 HYDA
ZIP 2944,497,2      ;43 CANC
ZIP 2947,85,2       ; 7 HYDA
ZIP 2951,-156,2     ;
ZIP 2953,421,2      ;47 CANC
ZIP 2967,154,3      ;11 HYDA
ZIP 2968,-300,2     ;12 HYDA
ZIP 2976,141,2      ;13 HYDA
ZIP 3016,144,3      ;16 HYDA
ZIP 3032,279,2      ;65 CANC
ZIP 3124,62,2       ;22 HYDA
ZIP 3157,-263,2     ;26 HYDA
ZIP 3161,-208,2     ;27 HYDA
ZIP 3201,-187,4     ;30 HYDA,ALPHARD
ZIP 3209,-53,2      ;31 HYDA
ZIP 3225,-17,2      ;32 HYDA
ZIP 3261,116,2      ;
ZIP 3270,-16,2      ;35 HYDA
ZIP 3274,-316,2     ;38 HYDA
ZIP 3276,236,2      ;14 LEON
ZIP 3338,-327,2     ;39 HYDA
ZIP 3385,194,2      ;29 LEON
ZIP 3415,-286,2     ;40 HYDA
ZIP 3424,393,3      ;30 LEON
ZIP 3428,239,2      ;31 LEON
ZIP 3429,3,2        ;15 SEXT
ZIP 3431,283,5      ;32 LEON,REGULUS
ZIP 3446,-270,2     ;41 HYDA
ZIP 3495,455,2      ;40 LEON
ZIP 3496,463,3      ;41 LEON,ALGIEBA
ZIP 3534,-372,2     ;42 HYDA
ZIP 3557,-3,2       ;30 SEXT
ZIP 3570,223,2      ;47 LEON
ZIP 3668,-357,3     ;NU HYDA
ZIP 3726,-404,2     ;AL CRAT
ZIP 3736,-44,2      ;61 LEON
ZIP 3738,471,2      ;60 LEON
ZIP 3754,179,2      ;63 LEON
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```
        ZIP 3793,-507,2    ;11 CRAT
        ZIP 3805,479,3     ;68 LEON
        ZIP 3806,364,3     ;10 LEON
        ZIP 3821,-71,2     ;74 LEON
        ZIP 3836,-324,2    ;12 CRAT
        ZIP 3846,150,2     ;77 LEON
        ZIP 3861,252,2     ;78 LEON
        ZIP 3868,-390,2    ;15 CRAT
        ZIP 3935,-211,2    ;21 CRAT
        ZIP 3936,-6,2      ;91 LEON
        ZIP 3981,-405,2    ;27 CRAT
        ZIP 3986,161,2     ; 3 VIRG
        ZIP 3998,473,2     ;93 LEON
        ZIP 4005,344,4     ;94 LEON,DENEBOLA
        ZIP 4013,53,2      ; 5 VIRG
        ZIP 4072,163,2     ; 8 VIRG
        ZIP 4097,211,2     ; 9 VIRG
        ZIP 4124,-502,3    ; 2 CORV
        ZIP 4157,-387,3    ; 4 CORV
        ZIP 4180,-3,2      ;15 VIRG
        ZIP 4185,418,2     ;11 COMA
        ZIP 4236,-363,3    ; 7 CORV
        ZIP 4249,-356,2    ; 8 CORV
        ZIP 4290,-170,2    ;26 VIRG
        ZIP 4304,-21,3     ;29 VIRG
        ZIP 4305,245,2     ;30 VIRG
        ZIP 4376,-205,2    ;40 VIRG
        ZIP 4384,90,3      ;43 VIRG
        ZIP 4403,409,2     ;36 COMA
        ZIP 4421,262,3     ;47 VIRG
        ZIP 4465,-114,2    ;51 VIRG
        ZIP 4466,411,2     ;42 COMA
        ZIP 4512,-404,2    ;61 VIRG
        ZIP 4551,-242,5    ;67 VIRG,SPICA
        ZIP 4563,-352,2    ;69 VIRG
        ZIP 4590,-131,2    ;74 VIRG
        ZIP 4603,95,2      ;78 VIRG
        ZIP 4606,-2,3      ;79 VIRG
        ZIP 4679,409,2     ; 4 BOOT
        ZIP 4691,371,2     ; 5 BOOT
        ZIP 4721,430,3     ; 8 BOOT
        ZIP 4759,46,2      ;93 VIRG
        ZIP 4820,66,2      ;
        ZIP 4822,-223,2    ;98 VIRG
        ZIP 4840,-126,2    ;99 VIRG
        ZIP 4842,448,5     ;16 BOOT,ARCTURUS
        ZIP 4857,-294,2    ;100 VIRG
        ZIP 4864,382,2     ;20 BOOT
        ZIP 4910,-41,2     ;105 VIRG
        ZIP 4984,383,2     ;29 BOOT
        ZIP 4986,322,2     ;30 BOOT
        ZIP 4994,-119,2    ;107 VIRG
        ZIP 5009,396,2     ;35 BOOT
        ZIP 5013,53,2      ;109 VIRG
        ZIP 5037,-356,3    ; 9 LIBR
        ZIP 5045,444,2     ;37 BOOT
        ZIP 5074,-90,2     ;16 LIBR
        ZIP 5108,57,2      ;110 VIRG
        ZIP 5157,-442,2    ;24 LIBR
        ZIP 5186,-205,3    ;27 LIBR
        ZIP 5283,-221,2    ;37 LIBR
        ZIP 5290,-329,2    ;38 LIBR
        ZIP 5291,247,2     ;13 SERP
        ZIP 5326,-440,2    ;43 LIBR
        ZIP 5331,455,2     ;21 SERP
        ZIP 5344,153,3     ;24 SERP
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ZIP 5357,358,3    ;28 SERP
ZIP 5357,175,2    ;27 SERP
ZIP 5372,420,2    ;35 SERP
ZIP 5373,-71,3    ;32 SERP
ZIP 5381,109,2    ;37 SERP
ZIP 5387,484,2    ;38 SERP
ZIP 5394,-374,2   ;46 LIBR
ZIP 5415,364,2    ;41 SERP
ZIP 5419,-318,2   ;48 LIBR
ZIP 5430,-508,3   ; 7 SCOR
ZIP 5455,-253,2   ;XI SCOR
ZIP 5459,-445,3   ; 8 SCOR
ZIP 5467,-464,2   ; 9 SCOR
ZIP 5470,-469,2   ;10 SCOR
ZIP 5497,-437,2   ;14 SCOR
ZIP 5499,-223,2   ;15 SCOR
ZIP 5513,-78,3    ; 1 OPHI
ZIP 5536,-101,3   ; 2 OPHI
ZIP 5558,29,2     ;50 SERP
ZIP 5561,441,2    ;20 HERC
ZIP 5565,-451,2   ; 4 OPHI
ZIP 5580,325,2    ;24 HERC
ZIP 5582,-415,2   ; 7 OPHI
ZIP 5589,-186,2   ; 3 OPHI
ZIP 5606,-373,2   ; 8 OPHI
ZIP 5609,494,3    ;27 HERC
ZIP 5609,50,2     ;10 OPHI
ZIP 5610,-484,2   ; 9 OPHI
ZIP 5620,266,2    ;29 HERC
ZIP 5641,-236,3   ;13 OPHI
ZIP 5713,-241,2   ;20 OPHI
ZIP 5742,235,2    ;25 OPHI
ZIP 5763,217,2    ;27 OPHI
ZIP 5807,293,2    ;60 HERC
ZIP 5828,-355,3   ;35 OPHI
ZIP 5860,330,3    ;64 HERC
ZIP 5868,-8,2     ;41 OPHI
ZIP 5888,-478,2   ;40 OPHI
ZIP 5889,-290,2   ;53 SERP
ZIP 5924,-114,2   ;
ZIP 5925,96,2     ;49 OPHI
ZIP 5975,288,4    ;55 OPHI
ZIP 5984,-349,3   ;55 SERP
ZIP 5987,-183,2   ;57 OPHI
ZIP 6006,-292,2   ;56 SERP
ZIP 6016,-492,2   ;58 OPHI
ZIP 6047,63,3     ;62 OPHI
ZIP 6107,-222,3   ;64 OPHI
ZIP 6117,-84,2    ;57 SERP
ZIP 6117,99,2     ;66 OPHI
ZIP 6119,381,2    ;93 HERC
ZIP 6119,67,2     ;67 OPHI
ZIP 6125,30,2     ;68 OPHI
ZIP 6146,57,2     ;70 OPHI
ZIP 6158,198,2    ;71 OPHI
ZIP 6159,217,3    ;72 OPHI
ZIP 6170,473,2    ;102 HERC
ZIP 6188,-480,2   ;13 SGTR
ZIP 6234,76,2     ;74 OPHI
ZIP 6235,499,2    ;106 HERC
ZIP 6236,-66,3    ;58 SERP
ZIP 6247,-204,2   ;XI SCUT
ZIP 6254,-469,2   ;21 SGTR
ZIP 6255,494,2    ;109 HERC
ZIP 6278,-333,2   ;GA SCUT
ZIP 6313,-189,2   ;A1 SCUT
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        ZIP 6379,465,2     ;110 HERC
        ZIP 6382,-110,2    ;BE SCUT
        ZIP 6386,411,2     ;111 HERC
        ZIP 6436,93,2      ;63 SERP
        ZIP 6439,-483,3    ;37 SGTR
        ZIP 6457,340,2     ;13 AQIL
        ZIP 6465,-134,2    ;12 AQIL
        ZIP 6478,-498,2    ;39 SGTR
        ZIP 6490,312,3     ;17 AQIL
        ZIP 6491,-115,3    ;16 AQIL
        ZIP 6507,-482,3    ;41 SGTR
        ZIP 6553,483,2     ; 1 VULP
        ZIP 6576,-410,2    ;44 SGTR
        ZIP 6576,-368,2    ;46 SGTR
        ZIP 6602,66,3      ;30 AQIL
        ZIP 6607,3,2       ;32 AQIL
        ZIP 6651,163,2     ;38 AQIL
        ZIP 6657,445,2     ; 9 VULP
        ZIP 6665,-35,2     ;41 AQIL
        ZIP 6688,405,2     ; 5 SGTE
        ZIP 6693,393,2     ; 6 SGTE
        ZIP 6721,236,3     ;50 AQIL
        ZIP 6730,416,2     ; 7 SGTE
        ZIP 6739,430,2     ; 8 SGTE
        ZIP 6747,196,5     ;53 AQIL,ALTAIR
        ZIP 6755,17,2      ;55 AQIL
        ZIP 6766,187,2     ;59 AQIL
        ZIP 6772,140,2     ;60 AQIL
        ZIP 6794,437,3     ;12 SGTE
        ZIP 6862,-25,3     ;65 AQIL
        ZIP 6882,339,2     ;67 AQIL
        ZIP 6896,-292,2    ; 5 CAPR
        ZIP 6898,-292,2    ; 6 CAPR
        ZIP 6913,-297,2    ; 8 CAPR
        ZIP 6914,-344,3    ; 9 CAPR
        ZIP 6958,-413,2    ;11 CAPR
        ZIP 6988,250,2     ; 2 DLPH
        ZIP 7001,326,2     ; 4 DLPH
        ZIP 7014,324,3     ; 6 DLPH
        ZIP 7015,-33,2     ;71 AQIL
        ZIP 7020,475,2     ;29 VULP
        ZIP 7026,354,2     ; 9 DLPH
        ZIP 7047,335,2     ;11 DLPH
        ZIP 7066,359,2     ;12 DLPH
        ZIP 7067,-225,2    ; 2 AQAR
        ZIP 7068,-123,2    ; 3 AQAR
        ZIP 7096,-213,2    ; 6 AQAR
        ZIP 7161,-461,2    ;22 CAPR
        ZIP 7170,-401,2    ;23 CAPR
        ZIP 7192,-268,2    ;13 AQAR
        ZIP 7199,222,2     ; 5 EQUL
        ZIP 7223,219,2     ; 7 EQUL
        ZIP 7230,110,2     ; 8 EQUL
        ZIP 7263,-393,2    ;32 CAPR
        ZIP 7267,441,2     ; 1 PEGS
        ZIP 7299,-506,2    ;36 CAPR
        ZIP 7318,-137,3    ;22 AQAR
        ZIP 7347,-453,2    ;39 CAPR
        ZIP 7353,-189,2    ;23 AQAR
        ZIP 7365,-390,2    ;40 CAPR
        ZIP 7379,-440,2    ;43 CAPR
        ZIP 7391,214,3     ; 8 PEGS
        ZIP 7394,384,2     ; 9 PEGS
        ZIP 7404,-377,3    ;49 CAPR
        ZIP 7499,-60,2     ;31 AQAR
        ZIP 7513,-18,3     ;34 AQAR
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        ZIP 7513,104,2      ;22 PEGS
        ZIP 7515,-327,2     ;33 AQAR
        ZIP 7539,130,3      ;26 PEGS
        ZIP 7575,-189,2     ;43 AQAR
        ZIP 7603,-43,2      ;48 AQAR
        ZIP 7604,266,2      ;31 PEGS
        ZIP 7624,20,2       ;52 AQAR
        ZIP 7639,96,2       ;35 PEGS
        ZIP 7644,-12,3      ;55 AQAR
        ZIP 7654,-255,2     ;57 AQAR
        ZIP 7681,-14,2      ;62 AQAR
        ZIP 7717,235,3      ;42 PEGS
        ZIP 7727,-440,2     ;66 AQAR
        ZIP 7747,266,2      ;46 PEGS
        ZIP 7761,-321,2     ;71 AQAR
        ZIP 7779,-185,2     ;73 AQAR
        ZIP 7790,-372,3     ;76 AQAR
        ZIP 7795,189,2      ;50 PEGS
        ZIP 7844,75,2       ; 4 PISC
        ZIP 7849,334,3      ;54 PEGS,MARKAB
        ZIP 7862,202,2      ;55 PEGS
        ZIP 7874,-494,2     ;88 AQAR
        ZIP 7903,-150,2     ;90 AQAR
        ZIP 7911,-219,2     ;91 AQAR
        ZIP 7919,62,2       ; 6 PISC
        ZIP 7923,-222,2     ;93 AQAR
        ZIP 7952,-470,2     ;98 AQAR
        ZIP 7969,-482,2     ;99 AQAR
        ZIP 7975,16,2       ; 8 PISC
        ZIP 7981,133,2      ;10 PISC
        ZIP 7988,278,2      ;70 PEGS
        ZIP 8010,-489,2     ;101 AQAR
        ZIP 8049,116,2      ;17 PISC
        ZIP 8059,-418,2     ;104 AQAR
        ZIP 8061,28,2       ;18 PISC
        ZIP 8064,-344,2     ;105 AQAR
        ZIP 8159,144,2      ;28 PISC
        ZIP 8174,-149,2     ;30 PISC
        ZIP 8188,-407,2     ; 2 CETI

        IFN .S,.V
BKEND":
..X==8192-.X

        RADIX 8.

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39
65
330
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