Table a37 STAGS "soccerball" model of equivalent ellipsoidal shell.
This list is of the file: **soccerball.localpress.usrfab.410.inp, which pertains to one of the cases in which a residual dent is generated by a concentrated load produced by inward-directed pressure applied to a single finite element at Row 1, Column 1 of Shell unit 15.**
Figure a2 is a plot of the STAGS model corresponding to this file (except in Fig. a2 the 480 finite element is used, not the 410 element).
The concentrated load is in the form of inward normal pressure applied uniformly over a **single finite element:** the finite element at (LI,LJ) = (Row 1,Column 1) in Shell unit no. 15.
This input file, when combined with the proper eqellipse.bin file, produces deformation such as that displayed in Fig. 170 (except that Fig. 170 is a “refined” model and has 480 finite elements).

```
=============================================================================
soccerball model of isogrid-stiffened equivalent ellipsoidal shell
  0  0  0  0  0  0  0   $B-1 IGRAV,ICHECK,ILIST,INCBC,NRUNIT,NROTS,KDEV
  50  0  0  85  0,  $B-2 NUNITS,NUNITE,NSTFS,NINTS,NPATS,
  0  0  0  0  0  0  $B-2 NCONST,NIMPFS,INERT,NINSR,NPATX,NSTIFS
  2  0  1  0  0  1  $B-3 NTAM,NTAB,NTAW,NTAP,NTAMT,NGCP
$ F-1 records...
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
 13 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
 13 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
  5 13,             $F-1 NROWS(1),NCOLS(1)
```

```
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13,              $F-1 NROWS(1),NCOLS(1)
  5 13               $F-1 NROWS(1),NCOLS(1)
$ G-1 records...
$ soccerball cap junctions...
  1  2  2  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  1  1  3  3         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  2  1  3 -2         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  2  2  4  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  3  1  6  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  4  1  6  3         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  4  2  5  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  5  1  6 -2         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(2)...
  1  3  7  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  2  3  8  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  4  3  9  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  5  3 10  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  7  2  8  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  8  2  9  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  9  2 10  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(3)...
  7  3 11  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  8  3 12  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
  9  3 13  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 10  3 14  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 11  2 12  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 12  2 13  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 13  2 14  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
```

```
$ junction at xinput(4)...
 11  3 15  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 12  3 16  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 13  3 17  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 14  3 18  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 15  2 16  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 16  2 17  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 17  2 18  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(5)...
 15  3 19  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 16  3 20  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 17  3 21  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 18  3 22  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 19  2 20  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 20  2 21  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 21  2 22  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(6)...
 19  3 23  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 20  3 24  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 21  3 25  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 22  3 26  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 23  2 24  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 24  2 25  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 25  2 26  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(7)...
 23  3 27  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 24  3 28  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 25  3 29  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 26  3 30  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 27  2 28  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 28  2 29  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 29  2 30  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(8)...
 27  3 31  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 28  3 32  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 29  3 33  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 30  3 34  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 31  2 32  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 32  2 33  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 33  2 34  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(9)...
 31  3 35  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 32  3 36  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 33  3 37  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 34  3 38  1         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 35  2 36  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 36  2 37  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 37  2 38  4         $G-1 MUNIT,MBOUND,NUNIT,NBOUND
```

```
$ junction at xinput(10)...
 35  3 39  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 36  3 40  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 37  3 41  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 38  3 42  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 39  2 40  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 40  2 41  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 41  2 42  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(11)...
 39  3 43  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 40  3 44  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 41  3 45  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 42  3 46  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 43  2 44  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 44  2 45  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 45  2 46  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ junction at xinput(12)...
 43  3 47  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 44  3 48  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 45  3 49  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 46  3 50  1        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 47  2 48  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 48  2 49  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
 49  2 50  4        $G-1 MUNIT,MBOUND,NUNIT,NBOUND
$ Materials...
  1  7  1  1  0  0  $I-1 ITAM,NESP,IPLST,ITANST,ICREEP,IPLANE
 16.E+06  0.25  0.0  0.16  0.0  16.E+06  0. $I-2 E1,U12,G,RHO,A1,E2,A2
  .0075 120000.,    $I-3 E(i), S(i)
  .0088 138000.,    $I-3 E(i), S(i)
  .0102 148000.,    $I-3 E(i), S(i)
  .0122 156000.,    $I-3 E(i), S(i)
  .0156 164000.,    $I-3 E(i), S(i)
  .0200 165000.,    $I-3 E(i), S(i)
  .0400 166000.     $I-3 E(i), S(i)
  2  7  1  1  0  0  $I-1 ITAM,NESP,IPLST,ITANST,ICREEP,IPLANE
 496894.4 .333 0. .004969 496894.4 0. $I-2 E1,U12,G,RHO,A1,E2,A2
  .0075 3726.710,    $I-3 E(i), S(i)
  .0088 4285.710,    $I-3 E(i), S(i)
  .0102 4596.270,    $I-3 E(i), S(i)
  .0122 4844.720,    $I-3 E(i), S(i)
  .0156 5093.170,    $I-3 E(i), S(i)
  .0200 5124.220,    $I-3 E(i), S(i)
  .0400 5155.280     $I-3 E(i), S(i)
C
C New section added for GCP records
C
C GCP Material in one or more of shell unit walls
PLASTIC_WB_MATERIAL   1 1 1 2 0  $ I-5a matid,ngroups,nstates.onetwo
```

```
 16.E+06 0.25 0.16 0.0 7 0.     $ I-9a E,GNU,RHO,ALPHA,NSUBS,T
 .0075 120000. .0088 138000.,   $ I-9b strain, stress material 1
 .0102 148000. .0122 156000.,   $ I-9b strain, stress material 1
 .0156 164000. .0200 165000.,   $ I-9b strain, stress material 1
 .0400 166000.                  $ I-9b strain, stress material 1
C
PLASTIC_WB_MATERIAL   2 1 1 2 0  $ I-5a matid,ngroups,nstates.onetwo
 496894.4 0.333 0.004969 0. 7 0. $ I-9a E,GNU,RHO,ALPHA,NSUBS,T
 .0075 3726.71 .0088 4285.71,   $ I-9b strain, stress material 2
 .0102 4596.27 .0122 4844.72,   $ I-9b strain, stress material 2
 .0156 5093.17 .0200 5124.22,   $ I-9b strain, stress material 2
 .0400 5155.28                  $ I-9b strain, stress material 2
C
C shell unit wall props
SHELL_FABRICATION -1 2 1 0 0 $ I-5a fabid,nlayer,ipts,ishr,isym
 2  1  $ I-21a  MATID(j), j = 1,nlayer
 1  5  $ I=21b INTSHL(j), j = 1,nlayer
 1.0E-06 0.4  $ I-21c THKSHL(j), j=1,nlayer
 0.0   0.0    $ I-21d ANGSHL(j), j=1,nlayer
C
END     $ I-5a cease (end of GCP input data, all matl,all walls)
C
C wall properties for the six segments of the soccerball apex...
  1  1  2  5  0     $K-1 ITAW,KWALL,NLAY,NLIP,NSMRS
  2  .000001  0.  0 $K-2 MATL,TL,XETL,LSOL
  1  .4  0.  0 $K-2 MATL,TL,XETL,LSOL
C
$ Soccerball apex follows (2 x three shell units)...
$ First 90-degree (0 - 90 deg) group of 3 units...
$ Unit 1: Right pie segment
  1  0  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  0. 2.958103  0. 45. 49.5  0. 90.
 -1  0  0. 0.  0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
$ Unit 2: Left pie segment
  1  0  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  0. 2.958103  45. 90. 49.5  0. 90.
 -1  0  0. 0.  0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
```

```
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
$ Unit 3: inner square
  1  0  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  0. 2.958103  0. 90. 49.5  0. 90.
 -1  0  0. 0.  0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
$ Second 90-degree (90 - 180 deg) group of 3 units...
$ Unit 1: Right pie segment  (Shell unit 4)
  1  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  0. 2.958103   0. 45. 49.5   0. 90.
 -1  0  0. 0.  0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
$ Unit 2: Left pie segment  (Shell unit 5)
  1  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  0. 2.958103  45. 90. 49.5  0. 90.
 -1  0  0. 0.  0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  4  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
$ Unit 3: inner square      (Shell unit 6)
  1  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  0. 2.958103  0. 90. 49.5  0. 90.
 -1  0  0. 0.  0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  4  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
$ The remainder of the shell follows (2 x 22 shell units)...
C original unit 2 = toroidal, now unit 7  (0 - 45 degrees)
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  2.957441 6.69448 0. 45. .08364234 47.890324 $M-2 PH1,PH2,THET1,
                                              $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
```

```
  410                 $N-1 KELT
  6  6  6  4  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0   0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 2 = toroidal now unit 8  (45 - 90 degrees)
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  2.957441 6.69448 45. 90. .08364234 47.890324 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410                 $N-1 KELT
  6  6  6  6  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0   0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 2 = toroidal, now unit 9  (90 - 135 degrees)
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  2.957441 6.69448 90. 135. .08364234 47.890324 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410                 $N-1 KELT
  6  6  6  6  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0   0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 2 = toroidal now unit 10  (135 - 180 degrees)
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  2.957441 6.69448  135. 180. .08364234 47.890324 $M-2 PH1,PH2,THET1,
                                                   $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410                 $N-1 KELT
  6  4  6  6  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0   0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 3 = toroidal now unit 11
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  6.67782 10.67682 0. 45. .4623073 44.752884 $M-2 PH1,PH2,THET1,
                                             $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410                 $N-1 KELT
  6  6  6  4  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
```

```
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 3 = toroidal now unit 12
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  6.67782 10.67682 45. 90. .4623073 44.752884 $M-2 PH1,PH2,THET1,
                                              $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 3 = toroidal now unit 13
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  6.67782 10.67682 90. 135. .4623073 44.752884 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 3 = toroidal now unit 14
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  6.67782 10.67682  135. 180. .4623073 44.752884 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  4  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 4 = toroidal now unit 15
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  10.65673 15.12016 0. 45. 1.338907 40.095947 $M-2 PH1,PH2,THET1,
                                              $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0     $P-1 IBLN(i), i=1,4, IBOND
  2  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  2  1  0           $Q-2 ISYS,NN,IFLG
 -1.  5  3  1  1  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
```

```
C original unit 4 = toroidal now unit 16
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  10.65673 15.12016 45. 90. 1.338907 40.095947 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 4 = toroidal now unit 17
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  10.65673 15.12016 90. 135. 1.338907 40.095947 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 4 = toroidal now unit 18
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  10.65673 15.12016  135. 180. 1.338907 40.095947 $M-2 PH1,PH2,THET1,
                                                   $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  4  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 5 = toroidal now unit 19
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  15.08829 20.32144 0. 45. 2.895449 34.199043 $M-2 PH1,PH2,THET1,
                                              $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 5 = toroidal now unit 20
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  15.08829 20.32144 45. 90. 2.895449 34.199043 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
```

```
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0    $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 5 = toroidal now unit 21
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  15.08829 20.32144 90. 135. 2.895449 34.199043 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0    $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 5 = toroidal now unit 22
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  15.08829 20.32144  135. 180. 2.895449 34.199043 $M-2 PH1,PH2,THET1,
                                                  $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  4  6  6  0    $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 6 = toroidal now unit 23
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  20.26536 26.78145 0. 45. 5.259145 27.465466 $M-2 PH1,PH2,THET1,
                                              $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0    $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 6 = toroidal now unit 24
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  20.26536 26.78145 45. 90. 5.259145 27.465466 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0    $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
```

```
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 6 = toroidal now unit 25
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  20.26536 26.78145 90. 135. 5.259145 27.465466 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 6 = toroidal now unit 26
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  20.26536 26.78145  135. 180. 5.259145 27.465466 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  4  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 7 = toroidal now unit 27
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  26.79548 32.96853 0. 45. 7.971097 21.436380 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 7 = toroidal now unit 28
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  26.79548 32.96853 45. 90. 7.971097 21.436380 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 7 = toroidal now unit 29
```

```
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  26.79548 32.96853 90. 135. 7.971097 21.436380 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 7 = toroidal now unit 30
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  26.79548 32.96853  135. 180. 7.971097 21.436380 $M-2 PH1,PH2,THET1,
                                                  $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  4  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 8 = toroidal now unit 31
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  32.94721 39.85107 0. 45. 10.52211 16.758169 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 8 = toroidal now unit 32
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  32.94721 39.85107 45. 90. 10.52211 16.758169 $M-2 PH1,PH2,THET1,T
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 8 = toroidal now unit 33
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  32.94721 39.85107 90. 135. 10.52211 16.758169 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
```

```
  410                 $N-1 KELT
  6  6  6  6  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0   0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 8 = toroidal now unit 34
  8  1  0  0  0  0   $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  32.94721 39.85107  135. 180. 10.52211 16.758169 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1   0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410                 $N-1 KELT
  6  4  6  6  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0   0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 9 = toroidal now unit 35
  8  1  0  0  0  0   $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  39.77901 48.82777 0. 45. 13.07984 12.785950 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1   0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410                 $N-1 KELT
  6  6  6  4  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0   0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 9 = toroidal now unit 36
  8  1  0  0  0  0   $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  39.77901 48.82777 45. 90. 13.07984 12.785950 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1   0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410                 $N-1 KELT
  6  6  6  6  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0   0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 9 = toroidal now unit 37
  8  1  0  0  0  0   $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  39.77901 48.82777 90. 135. 13.07984 12.785950 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1   0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410                 $N-1 KELT
  6  6  6  6  0      $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0   0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0            $Q-2 ISYS,NN,IFLG
```

```
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 9 = toroidal now unit 38
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  39.77901 48.82777  135. 180. 13.07984 12.785950 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  4  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 10 = toroidal now unit 39
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  48.74254 60.90592 0. 45. 15.55374 9.5117826 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 10 = toroidal now unit 40
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  48.74254 60.90592 45. 90. 15.55374 9.5117826 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 10 = toroidal now unit 41
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  48.74254 60.90592 90. 135. 15.55374 9.5117826 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 10 = toroidal now unit 42
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
```

```
  48.74254 60.90592  135. 180. 15.55374 9.5117826 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  4  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 11 = toroidal now unit 43
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  60.95361 75.15099 0. 45. 17.45365 7.3341379 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  4  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 11 = toroidal now unit 44
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  60.95361 75.15099 45. 90. 17.45365 7.3341379 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 11 = toroidal now unit 45
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  60.95361 75.15099 0. 45. 17.45365 7.3341379 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
  6  6  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 11 = toroidal now unit 46
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  60.95361 75.15099 45. 90. 17.45365 7.3341379 $M-2 PH1,PH2,THET1,
                                                $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410               $N-1 KELT
```

```
  6  4  6  6  0     $P-1 IBLN(i), i=1,4, IBOND
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 12 = toroidal now unit 47
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  75.3152 89.91051 0. 45. 18.40842 6.3415871 $M-2 PH1,PH2,THET1,
                                             $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410              $N-1 KELT
  6  6  0  4  0     $P-1 IBLN(i), i=1,4, IBOND
 001  000          $P-2 ITRA, IROT (conditions at pole)
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 12 = toroidal now unit 48
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  75.3152 89.91051 45. 90. 18.40842 6.3415871 $M-2 PH1,PH2,THET1,
                                               $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410              $N-1 KELT
  6  6  0  6  0     $P-1 IBLN(i), i=1,4, IBOND
 001  000          $P-2 ITRA, IROT (conditions at pole)
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 12 = toroidal now unit 49
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  75.3152 89.91051 90. 135. 18.40842 6.3415871 $M-2 PH1,PH2,THET1,
                                                 $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410              $N-1 KELT
  6  6  0  6  0     $P-1 IBLN(i), i=1,4, IBOND
 001  000          $P-2 ITRA, IROT (conditions at pole)
  1  0  0  0  0  0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1  1  0           $Q-2 ISYS,NN,IFLG
 -460.  5  3  0  0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0  0  0  0  0     $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
C original unit 12 = toroidal now unit 50
  8  1  0  0  0  0  $M-1 ISHELL,IGLOBE,NROWS,NCOLS,NLAYS,NFABS
  75.3152 89.91051  135. 180. 18.40842 6.3415871 $M-2 PH1,PH2,THET1,
                                                   $    THET2,Ra,Rb
 -1  0  0. 0. 0  1  0 $M-5 IWALL,IWIMP,ZETA,ECZ,ILIN,IPLAS,IRAMP
  410              $N-1 KELT
  6  4  0  6  0     $P-1 IBLN(i), i=1,4, IBOND
```

```
 001  000            $P-2 ITRA, IROT (conditions at pole)
  1   0   0   0   0   0  0 $Q-1 NSYS,NICS,NAMS,NUSS,NHINGE,etc.
  1   1   0            $Q-2 ISYS,NN,IFLG
 -460.   5   3   0   0  0 $Q-3 P,LT,LD,LI,LJ,LAX
  0   0   0   0   0      $R-1 IPRD,IPRR,IPRE,IPRS,IPRP
=============================================================
```