WORKSHOP PROBLEM 1

Printing of Matrices

Objectives:

- Print matrices in SOL 101.

Procedure:

1. Run the model input file on page 1-2 in SOL 101 and print out the g-size and f-size stiffness matrices.

Hints:

- The g- size matrix is called kjjz and is located in the SEMG subdmap.
- The f - size martix is called kff and is located in the SEKR subdmap.
- Use the MATPRN module to print the matrices.

Model Input File for Modification:

wkshp1.dat

```
SOL 101
TIME 20
DIAG 8
$
$      (INSERT DMAP HERE)
$
CEND
TITLE=
SUBTITLE=
SUBCASE 1
LOAD = 1
SPC = 1
DISP = ALL
STRESS = ALL
BEGIN BULK
$
GRID,1,,0.,0.,0.
GRID,2,,5.,0.,0.
GRID,3,,10.,0.,0.
CROD,1,1,1,2
CROD,2,1,2,3
PROD,1,1,.2
MAT1,1,1.+7,,.32
FORCE,1,2,,1000.,1.,0.,0.
SPC1,1,123456,1
ENDDATA
```

Solution Input File:

soln1.dat

```
SOL 101
TIME 20
DIAG 8
$
compile semg
alter 'kjjz.*stiffness' $
matprn kjjz// $
$
compile sekr $
alter 'upartn.*kff' $
matprn kff $
$
CEND
TITLE=
SUBTITLE=
SUBCASE 1
LOAD = 1
SPC = 1
DISP = ALL
STRESS = ALL
BEGIN BULK
$
GRID,1,,0.,0.,0.
GRID,2,,5.,0.,0.
GRID,3,,10.,0.,0.
CROD,1,1,1,2
CROD,2,1,2,3
PROD,1,1,.2
MAT1,1,1.+7,,.32
FORCE,1,2,,1000.,1.,0.,0.
SPC1,1,123456,1
ENDDATA
```

Comparison of Results:

Compare the results obtained in the **.f06** file with the results below:

```
1

0
0      MATRIX KJJZ     (GINO NAME 101 ) IS A DB  PREC          18 COLUMN X          18 ROW SYMMETRC
MATRIX.
0COLUMN      1      ROWS      1 THRU      7     ------------------------------------------------
    ROW
      1)    4.0000D+05  0.0000D+00  0.0000D+00  0.0000D+00  0.0000D+00  0.0000D+00 -4.0000D+05
0COLUMNS       2 THRU       6 ARE NULL.
0COLUMN      7      ROWS      1 THRU     13     ------------------------------------------------
    ROW
      1)   -4.0000D+05  0.0000D+00  0.0000D+00  0.0000D+00  0.0000D+00  0.0000D+00  8.0000D+05
0.0000D+00  0.0000D+00  0.0000D+00
     11)    0.0000D+00  0.0000D+00 -4.0000D+05
0COLUMNS       8 THRU      12 ARE NULL.
0COLUMN     13      ROWS      7 THRU     13     ------------------------------------------------
    ROW
      7)   -4.0000D+05  0.0000D+00  0.0000D+00  0.0000D+00  0.0000D+00  0.0000D+00  4.0000D+05
0COLUMNS      14 THRU      18 ARE NULL.
0THE NUMBER OF NON-ZERO TERMS IN THE DENSEST COLUMN =       3
0THE DENSITY OF THIS MATRIX IS   2.16 PERCENT.

...
                                    .
0
SUBCASE 1
0      MATRIX KFF      (GINO NAME 101 ) IS A DB  PREC           2 COLUMN X           2 ROW SYMMETRC
MATRIX.
0COLUMN      1      ROWS      1 THRU      2     ------------------------------------------------
    ROW
      1)    8.0000D+05 -4.0000D+05
0COLUMN      2      ROWS      1 THRU      2     ------------------------------------------------
    ROW
      1)   -4.0000D+05  4.0000D+05
0THE NUMBER OF NON-ZERO TERMS IN THE DENSEST COLUMN =       2
0THE DENSITY OF THIS MATRIX IS 100.00 PERCENT.
```