

# **SMAP Version 5.3 Update Note**

Feb. 1, 2002

COMTEC RESEARCH

## General

1. SMAP programs can be installed under a single directory (Ex. C:\SMAP ).
2. SMAP Setup Menu consists of General, PLTDS, and PLTXY. Different settings for PLTDS and PLTXY are allowed. Users can specify drawing sizes in terms of legend box width, horizontal and vertical lengths. For drawing layout units, either Centimeter or Inch can be selected.
3. Color-filled contours are supported for PLTDS plots.  
Refer to Card 11.7.6.
4. Row and column numbers are included in section maps of two-dimensional meshes.
5. Manual procedures are provided to execute SMAP programs under MS-DOS or command prompt.
6. Input files for SMAP-S2 / 2D / 3D can be broken into three separate parts: Mesh, Main, and Post Files. A Project File contains the full directory path of Mesh, Main, and Post Files.
7. Program ADDRGN supports the change of material number (IEDIT = 3).
8. Program PRESMAP-GP allows triangular zones at corners of surface and volume element blocks (IBTYPE = 2 and 3). Blocks in spherical and cylindrical coordinates can reside in any where.
9. Following options for PLTXY plot are not supported:
  - NOEL = 0 in Card 12.2.2
  - NODE = 0 in Card 12.3.2
  - NOTM = 0 in Card 12.4.2
  - NOTM = 0 in Card 12.5.2

## TUNA Plus

1. Color-filled contour plots for safety factor is supported.  
Refer to IGEN = 1 in Card 1.2.
2. Program takes absolute value of tensile strength. For positive value of tensile strength, only tensile stresses are limited when exceeding tensile strength. For negative value of tensile stress, stiffnesses associated with tensile crack are reduced as well as tension cut-off. Refer to Cards 3.2, 3.3.2.1, 3.4 and 3.4.4.
3. For ISPLIT = 1 in file C:\SMAP\CT\CTDATA\SetTUNP.dat, program generates four files:

TUNAPLUS.MES	for Mesh File
TUNAPLUS.MAN	for Main File
TUNAPLUS.POS	for Post File
TUNAPLUS.INP	for Project File

The Project File can be used as input file for program SMAP-S2.

## SMAP-S2

1. For  $NSPTB = 2$  in Card 6.2, beam elements compute section forces and stresses at member ends as well as 3 Gauss points.
2. For user-defined cross section ( $NBLT = 1$ ), beam cross sections can be composed of three parts: bottom, middle, and top. Refer to Card 6.4.2.2.2. This could be a useful feature for the plastic analysis of I beam.
3. “Frames with hinge connection” is included as verification problem 13 (VP13.dat).

## SMAP-2D

1. Input data for Card 3.3.2 consists of two lines.
2. MODELNO = 5 in Card 5.3.2.4.5 includes elliptic failure surface ( $A_1 = 3.0$ ).
3. Corrected input data format for MODELNO = 10.  
Refer to Card 5.3.2.4.10.
4. Thin layer element (NM = 4) for joint element model is added.  
Refer to Card 5.3.2.4.11
5. Corrected input data format for MODELNO = 12.  
Refer to Card 5.3.2.4.12.
6. For NSPTB = 2 in Card 6.2, beam elements compute section forces and stresses at member ends as well as 3 Gauss points.
7. For user-defined cross section (NBLT = 1), beam cross sections can be composed of three parts: bottom, middle, and top. Refer to Card 6.4.2.2.2. This could be a useful feature for the plastic analysis of I beam.
8. For negative value of NGSTEP in Card 9.1.1, printed output times are relative to the time at NGSTEP.
9. “Seismic tunnel analysis” is included as verification problem 20 (VP20.dat).
10. “Frames with hinge connection” is included as verification problem 21 (VP21.dat).

## SMAP-3D

1. Input data for Card 3.3.2 consists of two lines.
2. MODELNO = 5 in Card 5.3.2.4.5 includes elliptic failure surface ( $A_1 = 3.0$ ).
3. Corrected input data format for MODELNO = 10.  
Refer to Card 5.3.2.4.10.
4. Thin layer element (NM = 4) for joint element model is added.  
Refer to Card 5.3.2.4.11
5. Corrected input data format for MODELNO = 12.  
Refer to Card 5.3.2.4.12.
6. Moment release option for shell element is added.  
Refer to Card 5.3.2.4.13.
7. Moment release option for beam element is added.  
Refer to Card 6.4.1.
8. For negative value of NGSTEP in Card 9.1.1, printed output times are relative to the time at NGSTEP.
9. “Seismic tunnel analysis” is included as verification problem 20 (VP20.dat).
10. “Frames with hinge connection” is included as verification problem 21 (VP21.dat).
11. 3-D pipe example problem using over 40,000 nodes is provided in the directory C:\SMAP\SMAP3D\VP-INPUT\3DPIPE.