APPENDIX II

TRNSED INFORMATION FILES

As discussed in the main body of this manual, the *Make TRNSED File* utility converts a standard TRNSYS input file to a TRNSED input file from the information contained in the TYPEn.INF information files. These information files are kept in the *\trnwin\Info* subdirectory and contain a complete listing of all the PARAMETERS and INPUTS for most of the components described in the main TRNSYS reference manual. Users who create their own TRNSYS component subroutines, AND wish to make them known to the *Make TRNSED File* utility, must create a *.inf* file for the subroutine. To create a *.inf* file, follow the specialized format described below.

The format is best explained by a simple example. The information file for the TYPE 6 On/Off Auxiliary Heater is a relatively simple example:

```
TYPE 6 On/Off Auxiliary Heater
PARAMETERS 5
QMAX
   Maximum heating rate
   kJ/hr Btu/hr 0 0.948 0 10000000.00
TSET
   Set temperature
   C F 17.78 1.8 -100 300.00
CPF
   Specific heat of fluid
   kJ/kg-C Btu/lbm-F 0 .239 0 15.00
UA
   Loss coefficient for auxiliary heater
   kJ/hr-C Btu/hr-F 0 .5266 0 100000.00
NHTR
   Efficiency of auxiliary heater
   none 0 1.000
INPUTS 4
TI
   Inlet temperature
   C F 17.78 1.8 -100 200.00
MI
   Fluid mass flow rate
   kg/hr lbm/hr 0 2.205 0 100000.00
```

```
GAMMA
   On/Off control function
   none 0 1
TENV
   Temperature of surroundings
   C F 17.78 1.8 -50 100.00
```

The first line of the information file must contain the TYPE number followed by a short description of the TYPE. The second line should contain the number of PARAMETERS for the TYPE. The third line should contain the EQUATION/CONSTANT name that will be used in the TRNSED input file for the first PARAMETER. The fourth line should contain a short description of the PARAMETER that will be displayed in the TRNSED input window. The fifth line should contain in order:

- Units required by this TYPE (the primary unit system)
- A secondary set of units
- Addition factor for the conversion of units
- Multiplication factor for the conversion of units
- Minimum value that can be specified for this PARAMETER (primary unit system)
- Maximum value for this PARAMETER and associated format

Refer to Appendix I for more information about how TRNSED statements appear in the input file. If no units are desired for the PARAMETER, the keyword NONE may be given followed by the minimum and maximum values.

Lines three through five should be repeated for each PARAMETER in this TYPE. The INPUTS to this TYPE should follow the PARAMETERS and have exactly the same format. If the TYPEn.INF information is inconsistent with that in the TRNSYS input file, the label 'INFORMATION ISN'T AVAILABLE' will appear for this UNIT-TYPE combination when the *Make TRNSED File* utility is executed. If this message appears, check to make sure that the information supplied in the input file and the information specified in the information file are compatible.

Some TRNSYS component TYPES contain PARAMETERS which are *modes* that affect the order of the required PARAMETERS and INPUTS. The information file must indicate which PARAMETERS are modes and provide the required PARAMETERS and INPUTS for each of the mode combinations. Consider the following simple example with two PARAMETER modes:

Parameter 1 - Storage Tank configuration
1 - Vertical Cylinder
2 - Rectangular Parallelepiped

If Parameter 1 = 1
Par 2 - Diameter of Tank
Par 3 - Height of Tank

If Parameter 1 = 2
Par 2 - Height of Tank
Par 3 - Cross-sectional Area

Parameter 4 - A mode indicating the storage tank mixing algorithm
1 - Storage Tank with no conduction or plume entrainment effects
2 - Storage Tank with conduction effects but no plume entrainment effects
3 - Storage Tank with plume entrainment effects, but not conduction effects
4 - Storage Tank with both plume entrainment and conduction effects

If Parameter 4 = 1 no additional parameters

If Parameter 4 = 2
Par 5 - Conductivity of storage tank fluid

If Parameter 4 = 3
Par 5 - Density of storage tank fluid

If Parameter 4 = 4
Par 5 - Conductivity of storage tank fluid
Par 6 - Density of storage tank fluid

The TRNSYS information file for the preceding example would be of the following form:

```
TYPE 77 Storage Tank   :TYPE number and information
PARMOD 1    :Number of 1st parameter mode
MODE 1-1    :Indicates mode one equal to one
PARMOD 4    :Number of second parameter mode
MODE 4-1    :Indicates mode four equal to one
PARAMETERS 4    :# of PARS for parmod 1=1 and parmod 4=1
    MODE1 :Equation name for PAR 1 of parmod 1 = 1
     Vertical Cylinder :Descriptive name for PAR 1
     none  1  1 :No units, min and max equal to one
    DIA     :Equation name for PAR 2 of parmod 1=1
     Diameter of Storage Tank
     m   ft   0   3.281   0   100.0
    HEIGHT
      Height of Storage Tank
      m   ft   0   3.281   0   100.0
```

```
    MIX1     :Equation name for parmod 4 = 1
      No Conduction or Plume Entrainment  :Descriptive name for parmod 4 = 1
      none  1  1
INPUTS 0
MODE 4-2     :Indicates parmod four equal to two
PARAMETERS 5   :# of PARS for parmod 1=1 and parmod 4=2
    MODE1 :Equation name for parmod 1 = 1
     Vertical Cylinder :Descriptive name for parmod 1 = 1
     none  1  1 :No units, min and max equal to one
    DIA     :Equation name for PAR 2 of parmod 1=1
     Diameter of Storage Tank
     m   ft   0   3.281   0   100.0
    HEIGHT
      Height of Storage Tank
      m   ft   0   3.281   0   100.0
    MIX2     :Equation name for parmod 4 = 2
      Conduction Effects Included     :Descriptive name for parmod 4 = 2
      none  2  2
    K
      Conductivity of Fluid
      kJ/hr m K   BTU/hr ft F   0   0.0489   0   100.0
INPUTS 0
MODE 4-3     :Indicates parmod four equal to three
PARAMETERS 5   :# of PARS for parmod 1=1 and parmod 4=3
    MODE1 :Equation name for parmod 1 = 1
     Vertical Cylinder :Descriptive name for parmod 1 = 1
     none  1  1 :No units, min and max equal to one
    DIA     :Equation name for PAR 2 of parmod 1=1
     Diameter of Storage Tank
     m   ft   0   3.281   0   100.0
    HEIGHT
      Height of Storage Tank
      m   ft   0   3.281   0   100.0
    MIX3     :Equation name for parmod 4 = 3
      Plume Entrainment Effects Included     :Descriptive name for parmod 4 = 3
      none  3  3
    RHO
      Density of Fluid
      kg/m3   lbm/ft3   0   0.0624   0   100.0
INPUTS 0
MODE 4-4     :Indicates parmod four equal to four
PARAMETERS 6   :# of PARS for parmod 1=1 and parmod 4=4
```

```
    MODE1 :Equation name for parmod 1 = 1
      Vertical Cylinder :Descriptive name for parmod 1 = 1
      none  1  1 :No units, min and max equal to one
    DIA     :Equation name for PAR 2 of parmod 1=1
      Diameter of Storage Tank
      m   ft   0   3.281   0   100.0
    HEIGHT
      Height of Storage Tank
      m   ft   0   3.281   0   100.0
    MIX4     :Equation name for parmod 4 = 4
      Plume Entrainment and Conduction      :Descriptive name for parmod 4 = 4
      none   4   4
    K
      Conductivity of Fluid
      kJ/hr m K   BTU/hr ft F   0   0.0489   0   100.0
    RHO
      Density of Fluid
      kg/m3   lbm/ft3   0   0.0624   0   100.0
MODE 1-2      :Indicates parmod one equal to two
PARMOD 4    :Number of second parameter parmod
MODE 4-1      :Indicates parmod four equal to one
PARAMETERS 4    :# of PARS for parmod 1=2 and parmod 4=1
    MODE2 :Equation name for parmod 1 = 2
      Rectangular Parallelepiped         :Descriptive name for parmod 1 = 2
      none  2  2 :No units, min and max equal to two
    HEIGHT   :Equation name for PAR 2 of parmod 1=2
      Height of Storage Tank
      m   ft   0   3.281   0   100.0
    XAREA
      Cross-Sectional Area of Storage Tank
      m2   ft2   0   10.76   0   100.0
    MIX1     :Equation name for parmod 4 = 1
      No Conduction or Plume Entrainment  :Descriptive name for parmod 4 = 1
      none   1   1
INPUTS 0
MODE 4-2      :Indicates parmod four equal to two
PARAMETERS 5    :# of PARS for parmod 1=2 and parmod 4=2
    MODE2 :Equation name for parmod 1 = 2
      Rectangular Parallelepiped         :Descriptive name for parmod 1 = 2
      none  2  2 :No units, min and max equal to two
    HEIGHT   :Equation name for PAR 2 of parmod 1=2
      Height of Storage Tank
```

```
      m   ft   0   3.281   0   100.0
    XAREA
      Cross-Sectional Area of Storage Tank
      m2   ft2   0   10.76   0   100.0
    MIX2     :Equation name for parmod 4 = 2
      Conduction Effects Included     :Descriptive name for parmod 4 = 2
      none   2   2
    K
      Conductivity of Fluid
      kJ/hr m K   BTU/hr ft F   0   0.0489   0   100.0
INPUTS 0
MODE 4-3     :Indicates parmod four equal to three
PARAMETERS 5   :# of PARS for parmod 1=2 and parmod 4=3
    MODE2 :Equation name for parmod 1 = 2
     Rectangular Parallelepiped         :Descriptive name for parmod 1 = 2
     none  2  2 :No units, min and max equal to two
    HEIGHT   :Equation name for PAR 2 of parmod 1=2
     Height of Storage Tank
     m   ft   0   3.281   0   100.0
    XAREA
      Cross-Sectional Area of Storage Tank
      m2   ft2   0   10.76   0   100.0
    MIX3     :Equation name for parmod 4 = 3
      Plume Entrainment Effects Included     :Descriptive name for parmod 4 = 3
      none   3   3
    RHO
      Density of Fluid
      kg/m3   lbm/ft3   0   0.0624   0   100.0
INPUTS 0
MODE 4-4     :Indicates parmod four equal to four
PARAMETERS 6   :# of PARS for parmod 1=2 and parmod 4=4
    MODE2 :Equation name for parmod 1 = 2
     Rectangular Parallelepiped         :Descriptive name for parmod 1 = 2
     none  2  2 :No units, min and max equal to two
    HEIGHT   :Equation name for PAR 2 of parmod 1=2
     Height of Storage Tank
     m   ft   0   3.281   0   100.0
    XAREA
      Cross-Sectional Area of Storage Tank
      m2   ft2   0   10.76   0   100.0
    MIX4     :Equation name for parmod 4 = 4
      Plume Entrainment and Conduction      :Descriptive name for parmod 4 = 4
```

```
   none   4   4
K
   Conductivity of Fluid
   kJ/hr m K   BTU/hr ft F   0   0.0489   0   100.0
RHO
   Density of Fluid
   kg/m3   lbm/ft3   0   0.0624   0   100.0
```

Unfortunately, modes within a TRNSYS component often complicate the information file and make it difficult to write. To alleviate this problem and avoid costly exclusions, it is recommended that all the parameter modes be written to the information file first. With all the modes listed, the PARAMETERS and INPUTS for each of the modes can be entered. In this manner, the copy/paste algorithms are most effective and none of the modes are forgotten. In some cases, modes are determined by PARAMETERS having a value less than or greater than zero. Refer to the TYPE 2 information file (*Type2.inf*) for details on handling this situation.