**Test Universal Files**

Universal file generation from I-Deas for Test can be split into two categories: export of model file data and export of adf data. It is not possible to write both sets of data to a single file. Written with a model file universal file are the geometry, elements and traceline data. However, just to add confusion, nodes and tracelines can also be written separately in their own file format.

At the top of every Universal File output by I-Deas are two datasets: 151 known cryptically as ‘header’ which describes the model file that the data came from…..

**Universal Dataset Number: 151**

**Name: Header**

**Status: Current**

**Owner: General**

**Revision Date: 25-May-1993**

```
---------------------------------------------------------------------



Record 1:       FORMAT(80A1)
                Field 1      -- model file name
Record 2:       FORMAT(80A1)
                Field 1      -- model file description
Record 3:       FORMAT(80A1)
                Field 1      -- program which created DB
Record 4:       FORMAT(10A1,10A1,3I10)
                Field 1      -- date database created (DD-MMM-YY)
                Field 2      -- time database created (HH:MM:SS)
                Field 3      -- Version from database
                Field 4      -- Version from database
                Field 5      -- File type
                                =0  Universal
                                =1  Archive
                                =2  Other
Record 5:       FORMAT(10A1,10A1)
                Field 1      -- date database last saved (DD-MMM-YY)
                Field 2      -- time database last saved (HH:MM:SS)
Record 6:       FORMAT(80A1)
                Field 1      -- program which created universal file
Record 7:       FORMAT(10A1,10A1)
                Field 1      -- date universal file written (DD-MMM-YY)
                Field 2      -- time universal file written (HH:MM:SS)
```

---

…and 164 which is important because it sets the units for the rest of the file. For functions and time histories you need to do conversions if you’re bringing the data into an SI environment from a British unit system.

**Universal Dataset Number: 164**

**Universal Dataset**

**Number: 164**

**Name: Units**

**Status: Current**

**Owner: General**

**Revision Date: 19-AUG-1987**

```
Record 1:       Record1:        FORMAT(I10,20A1,I10)
                Field 1      -- units code
                                = 1 - SI: Meter (newton)
                                = 2 - BG: Foot (pound f)
                                = 3 - MG: Meter (kilogram f)
                                = 4 - BA: Foot (poundal)
                                = 5 - MM: mm (milli newton)
                                = 6 - CM: cm (centi newton)
                                = 7 - IN: Inch (pound f)
                                = 8 - GM: mm (kilogram f)
                                = 9 - US: USER_DEFINED
                Field 2      -- units description (used for
                                documentation only)
                Field 3      -- temperature mode
                                = 1 - absolute
                                = 2 - relative
Record 2:       FORMAT(3D25.17)
                Unit factors for converting universal file units to SI.
                To convert from universal file units to SI divide by
                the appropriate factor listed below.
                Field 1      -- length
                Field 2      -- force
                Field 3      -- temperature
                Field 4      -- temperature offset
Example:

    -1
   164
         2Foot (pound f)               2
  3.28083989501312334D+00  2.24808943099710480D-01
1.79999999999999999D+00
  4.59670000000000002D+02
    -1
```

Dataset 58 is the one you know best but it is supplemented by Dataset 1858 (which is described at the end of this one). This adds a bunch of functionality that has been added to I-Deas over the last ten years especially octave, order and RPM data. This means you are processing two data sets for every one function now.

**Universal Dataset Number: 58**

**Universal Dataset**

**Number: 58**

**Name: Function at Nodal DOF**

**Status: Current**

**Owner: Test**

**Revision Date: 23-Apr-1993**

---

Record 1: Format(80A1)

Field 1 - ID Line 1

NOTE

ID Line 1 is generally used for the function description.

Record 2: Format(80A1)
Field 1 - ID Line 2

Record 3: Format(80A1)
Field 1 - ID Line 3

NOTE

ID Line 3 is generally used to identify when the function was created. The date is in the form DD-MMM-YY, and the time is in the form HH:MM:SS, with a general Format(9A1,1X,8A1).

Record 4: Format(80A1)
Field 1 - ID Line 4

Record 5: Format(80A1)
Field 1 - ID Line 5

Record 6: Format(2(I5,I10),2(1X,10A1,I10,I4))

DOF Identification

Field 1 - Function Type

0 - General or Unknown
1 - Time Response
2 - Auto Spectrum
3 - Cross Spectrum
4 - Frequency Response Function
5 - Transmissibility
6 - Coherence
7 - Auto Correlation
8 - Cross Correlation
9 - Power Spectral Density (PSD)
10 - Energy Spectral Density (ESD)
11 - Probability Density Function
12 - Spectrum
13 - Cumulative Frequency Distribution
14 - Peaks Valley
15 - Stress/Cycles
16 - Strain/Cycles
17 - Orbit
18 - Mode Indicator Function
19 - Force Pattern
20 - Partial Power
21 - Partial Coherence
22 - Eigenvalue
23 - Eigenvector
24 - Shock Response Spectrum
25 - Finite Impulse Response Filter
26 - Multiple Coherence
27 - Order Function

Field 2 - Function Identification Number

Field 3 - Version Number, or sequence number

Field 4 - Load Case Identification Number

0 - Single Point Excitation

Field 5 - Response Entity Name ("NONE" if unused)

Field 6 - Response Node

Field 7 - Response Direction

| | | | |
|---|---|---|---|
| 0 - Scalar | | | |
| 1 - +X Translation | | 4 - +X Rotation | |
| -1 - -X Translation | | -4 - -X Rotation | |
| 2 - +Y Translation | | 5 - +Y Rotation | |
| -2 - -Y Translation | | -5 - -Y Rotation | |
| 3 - +Z Translation | | 6 - +Z Rotation | |
| -3 - -Z Translation | | -6 - -Z Rotation | |

Field 8 - Reference Entity Name ("NONE" if unused)

Field 9 - Reference Node

Field 10 - Reference Direction (same as field 7)

NOTE

Fields 8, 9, and 10 are only relevant if field 4 is zero.

Record 7: Format(3I10,3E13.5)

Data Form

Field 1 - Ordinate Data Type

2 - real, single precision
4 - real, double precision
5 - complex, single precision
6 - complex, double precision

Field 2 - Number of data pairs for uneven abscissa spacing, or number of data values for even abscissa spacing

Field 3 - Abscissa Spacing
0 - uneven
1 - even (no abscissa values stored)

Field 4 - Abscissa minimum (0.0 if spacing uneven)

Field 5 - Absciissa increment (0.0 if spacing uneven)

Field 6 - Z-axis value (0.0 if unused)

Record 8: Format(I10,3I5,2(1X,20A1))

Abscissa Data Characteristics

Field 1 - Specific Data Type
0 - unknown
1 - general
2 - stress
3 - strain
5 - temperature
6 - heat flux
8 - displacement
9 - reaction force
11 - velocity
12 - acceleration
13 - excitation force
15 - pressure
16 - mass
17 - time
18 - frequency
19 - rpm
20 - order

Field 2 - Length units exponent

Field 3 - Force units exponent

Field 4 - Temperature units exponent

NOTE

Fields 2, 3 and 4 are relevant only if the Specific Data Type is General, or in the case of ordinates, the response/reference direction is a scalar, or the functions are being used for nonlinear connectors in System Dynamics Analysis. See Addendum 'A' for the units exponent table.

Field 5 - Axis label ("NONE" if not used)

Field 6 - Axis units label ("NONE" if not used)

NOTE

If fields 5 and 6 are supplied, they take precedence over program generated labels and units.

Record 9: Format(I10,3I5,2(1X,20A1))

Ordinate (or ordinate numerator) Data Characteristics

Record 10: Format(I10,3I5,2(1X,20A1))
Ordinate Denominator Data Characteristics

Record 11: Format(I10,3I5,2(1X,20A1))
Z-axis Data Characteristics

NOTE

Records 9, 10, and 11 are always included and have fields the same as record 8. If records 10 and 11 are not used, set field 1 to zero.

Record 12:

Data Values

| Case | Ordinate Type | Ordinate Precision | Abscissa Spacing | Format |
|---|---|---|---|---|
| 1 | real | single | even | 6E13.5 |
| 2 | real | single | uneven | 6E13.5 |
| 3 | complex | single | even | 6E13.5 |
| 4 | complex | single | uneven | 6E13.5 |
| 5 | real | double | even | 4E20.12 |
| 6 | real | double | uneven | 2(E13.5,E20.12) |
| 7 | complex | double | even | 4E20.12 |
| 8 | complex | double | uneven | E13.5,2E20.12 |

NOTE

See Addendum 'B' for typical FORTRAN READ/WRITE statements for each case.

General Notes:

1. ID lines may not be blank. If no information is required, the word "NONE" must appear in columns 1 through 4.

2. ID line 1 appears on plots in Finite Element Modeling and is used as the function description in System Dynamics Analysis.

3. Dataloaders use the following ID line conventions
   ID Line 1 - Model Identification
   ID Line 2 - Run Identification
   ID Line 3 - Run Date and Time
   ID Line 4 - Load Case Name

4. Coordinates codes from MODAL-PLUS and MODALX are decoded into node and direction.

5. Entity names used in System Dynamics Analysis prior to I-DEAS Level 5 have a 4 character maximum. Beginning with Level 5, entity names will be ignored if this dataset is preceded by dataset 259. If no dataset 259 precedes this dataset, then the

entity name will be assumed to exist in model bin number 1.

6. Record 10 is ignored by System Dynamics Analysis unless load case = 0. Record 11 is always ignored by System Dynamics Analysis.

7. In record 6, if the response or reference names are "NONE" and are not overridden by a dataset 259, but the corresponding node is non-zero, System Dynamics Analysis adds the node and direction to the function description if space is sufficient

8. ID line 1 appears on XY plots in Test Data Analysis along

   with ID line 5 if it is defined. If defined, the axis units labels also appear on the XY plot instead of the normal labeling based on the data type of the function.

9. For functions used with nonlinear connectors in System Dynamics Analysis, the following requirements must be adhered to:

   a) Record 6: For a displacement-dependent function, the function type must be 0; for a frequency-dependent function, it must be 4. In either case, the load case identification number must be 0.

   b) Record 8: For a displacement-dependent function, the specific data type must be 8 and the length units exponent must be 0 or 1; for a frequency-dependent function, the specific data type must be 18 and the length units exponent must be 0. In either case, the other units exponents must be 0.

   c) Record 9: The specific data type must be 13. The temperature units exponent must be 0. For an ordinate numerator of force, the length and force units exponents must be 0 and 1, respectively. For an ordinate numerator of moment, the length and force units exponents must be 1 and 1, respectively.

   d) Record 10: The specific data type must be 8 for stiffness and hysteretic damping; it must be 11 for viscous damping. For an ordinate denominator of translational displacement, the length units exponent must be 1; for a rotational displacement, it must be 0. The other units exponents must be 0.

   e) Dataset 217 must precede each function in order to define the function's usage (i.e. stiffness, viscous damping, hysteretic damping).

Addendum A

In order to correctly perform units conversion, length, force, and

temperature exponents must be supplied for a specific data type of General; that is, Record 8 Field 1 = 1. For example, if the function has the physical dimensionality of Energy (Force * Length), then the required exponents would be as follows:

```
Length = 1
Force = 1          Energy = L * F
Temperature = 0
```

Units exponents for the remaining specific data types should not be supplied. The following exponents will automatically be used.

Table - Unit Exponents

| Specific Data Type | Direction: Translational Length | Translational Force | Translational Temp | Rotational Length | Rotational Force | Rotational Temp |
|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | (requires input to fields 2,3,4) | | | | | |
| 2 | -2 | 1 | 0 | -1 | 1 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 1 | 0 | 0 | 1 |
| 6 | 1 | 1 | 0 | 1 | 1 | 0 |
| 8 | 1 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 1 | 0 | 1 | 1 | 0 |
| 11 | 1 | 0 | 0 | 0 | 0 | 0 |
| 12 | 1 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 1 | 0 | 1 | 1 | 0 |
| 15 | -2 | 1 | 0 | -1 | 1 | 0 |
| 16 | -1 | 1 | 0 | 1 | 1 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | 0 | 0 | 0 | 0 | 0 |

NOTE

Units exponents for scalar points are defined within System Analysis prior to reading this dataset.

## Addendum B

There are 8 distinct combinations of parameters which affect the details of READ/WRITE operations. The parameters involved are Ordinate Data Type, Ordinate Data Precision, and Abscissa Spacing. Each combination is documented in the examples below. In all cases, the number of data values (for even abscissa spacing) or data pairs (for uneven abscissa spacing) is NVAL. The abscissa is always real single precision. Complex double precision is handled by two real double precision variables (real part followed by imaginary part) because most systems do not directly support complex doubleprecision.

CASE 1

```
REAL
SINGLE PRECISION
EVEN SPACING

  Order of data in file           Y1   Y2   Y3   Y4   Y5   Y6
                                  Y7   Y8   Y9   Y10  Y11  Y12
                                                .
                                                .
                                                .
  Input

           REAL Y(6)
             .
             .
             .
           NPRO=0
        10 READ(LUN,1000,ERR=  ,END=  )(Y(I),I=1,6)
      1000 FORMAT(6E13.5)
           NPRO=NPRO+6
             .
             .    code to process these six values
             .
           IF(NPRO.LT.NVAL)GO TO 10
             .
             .   continued processing
             .

  Output

           REAL Y(6)
             .
             .
             .
           NPRO=0
        10 CONTINUE
             .
             .    code to set up these six values
             .
           WRITE(LUN,1000,ERR=  )(Y(I),I=1,6)
      1000 FORMAT(6E13.5)
           NPRO=NPRO+6

           IF(NPRO.LT.NVAL)GO TO 10
             .
             .   continued processing
             .

CASE 2

REAL
SINGLE PRECISION
UNEVEN SPACING

  Order of data in file          X1   Y1   X2   Y2   X3   Y3
                                 X4   Y4   X5   Y5   X6   Y6
                                  .
```

```
                                  .
                                  .
```

Input

```
           REAL X(3),Y(3)
             .
             .
             .
           NPRO=0
         10 READ(LUN,1000,ERR=  ,END=  )(X(I),Y(I),I=1,3)
       1000 FORMAT(6E13.5)
           NPRO=NPRO+3
             .
             .    code to process these three values
             .
           IF(NPRO.LT.NVAL)GO TO 10
             .
             .   continued processing
             .
```

Output

```
           REAL X(3),Y(3)
             .
             .
             .
           NPRO=0
         10 CONTINUE
             .
             .    code to set up these three values
             .
           WRITE(LUN,1000,ERR=  )(X(I),Y(I),I=1,3)
       1000 FORMAT(6E13.5)
           NPRO=NPRO+3
           IF(NPRO.LT.NVAL)GO TO 10
             .
             .   continued processing
             .
```

CASE 3

COMPLEX
SINGLE PRECISION
EVEN SPACING

```
  Order of data in file          RY1  IY1  RY2  IY2  RY3  IY3
                                 RY4  IY4  RY5  IY5  RY6  IY6
                                  .
                                  .
                                  .
```

Input

```
           COMPLEX Y(3)
             .
```

```
              .
              .
           NPRO=0
         10 READ(LUN,1000,ERR=  ,END=  )(Y(I),I=1,3)
       1000 FORMAT(6E13.5)
           NPRO=NPRO+3
              .
              .    code to process these six values
              .
           IF(NPRO.LT.NVAL)GO TO 10
              .
              .   continued processing
              .
```

Output

```
           COMPLEX Y(3)
              .
              .
              .
           NPRO=0
         10 CONTINUE
              .
              .    code to set up these three values
              .
           WRITE(LUN,1000,ERR=  )(Y(I),I=1,3)
       1000 FORMAT(6E13.5)
           NPRO=NPRO+3
           IF(NPRO.LT.NVAL)GO TO 10
              .
              .   continued processing
              .
```

CASE 4

COMPLEX
SINGLE PRECISION
UNEVEN SPACING

Order of data in file

```
X1   RY1  IY1  X2  RY2  IY2
X3   RY3  IY3  X4  RY4  IY4

 .
 .
 .
```

Input

```
           REAL X(2)
           COMPLEX Y(2)
              .
              .
              .
           NPRO=0
         10 READ(LUN,1000,ERR=  ,END=  )(X(I),Y(I),I=1,2)
       1000 FORMAT(6E13.5)
```

```
            NPRO=NPRO+2
              .
              .    code to process these two values
              .
            IF(NPRO.LT.NVAL)GO TO 10
              .
              .   continued processing
              .
```

Output

```
            REAL X(2)
            COMPLEX Y(2)
              .
              .
              .
            NPRO=0
         10 CONTINUE
              .
              .    code to set up these two values
              .
            WRITE(LUN,1000,ERR=  )(X(I),Y(I),I=1,2)
       1000 FORMAT(6E13.5)
            NPRO=NPRO+2
            IF(NPRO.LT.NVAL)GO TO 10
              .
              .   continued processing
              .
```

CASE 5

REAL
DOUBLE PRECISION
EVEN SPACING

```
  Order of data in file          Y1     Y2     Y3     Y4
                                 Y5     Y6     Y7     Y8
                                  .
                                  .
                                  .
```

Input

```
            DOUBLE PRECISION Y(4)
              .
              .
              .
            NPRO=0
         10 READ(LUN,1000,ERR=  ,END=  )(Y(I),I=1,4)
       1000 FORMAT(4E20.12)
            NPRO=NPRO+4
              .
              .    code to process these four values
              .
            IF(NPRO.LT.NVAL)GO TO 10
              .
              .   continued processing
              .
```

Output

```
           DOUBLE PRECISION Y(4)
             .
             .
             .
           NPRO=0
        10 CONTINUE
             .
             .    code to set up these four values
             .
           WRITE(LUN,1000,ERR=  )(Y(I),I=1,4)
      1000 FORMAT(4E20.12)
           NPRO=NPRO+4
           IF(NPRO.LT.NVAL)GO TO 10
             .
             .   continued processing
             .
```

CASE 6

REAL
DOUBLE PRECISION
UNEVEN SPACING

Order of data in file

```
X1   Y1     X2   Y2
X3   Y3     X4   Y4
 .
 .
 .
```

Input

```
           REAL X(2)
           DOUBLE PRECISION Y(2)
             .
             .
             .
           NPRO=0
        10 READ(LUN,1000,ERR=  ,END=  )(X(I),Y(I),I=1,2)
      1000 FORMAT(2(E13.5,E20.12))
           NPRO=NPRO+2
             .
             .    code to process these two values
             .
           IF(NPRO.LT.NVAL)GO TO 10
             .
             .   continued processing
             .
```

Output

```
           REAL X(2)
           DOUBLE PRECISION Y(2)
             .
             .
```

```
            .
           NPRO=0
         10 CONTINUE
            .
            .    code to set up these two values
            .
           WRITE(LUN,1000,ERR=  )(X(I),Y(I),I=1,2)
       1000 FORMAT(2(E13.5,E20.12))
           NPRO=NPRO+2
           IF(NPRO.LT.NVAL)GO TO 10
            .
            .   continued processing
            .
```

CASE 7

COMPLEX
DOUBLE PRECISION
EVEN SPACING

```
  Order of data in file          RY1    IY1    RY2    IY2
                                 RY3    IY3    RY4    IY4
                                  .
                                  .
                                  .
```

Input

```
           DOUBLE PRECISION Y(2,2)
            .
            .
            .
           NPRO=0
         10 READ(LUN,1000,ERR=  ,END=  )((Y(I,J),I=1,2),J=1,2)
       1000 FORMAT(4E20.12)
           NPRO=NPRO+2
            .
            .    code to process these two values
            .
           IF(NPRO.LT.NVAL)GO TO 10
            .
            .   continued processing
            .
```

Output

```
           DOUBLE PRECISION Y(2,2)
            .
            .
            .
           NPRO=0
         10 CONTINUE
            .
            .    code to set up these two values
            .
           WRITE(LUN,1000,ERR=  )((Y(I,J),I=1,2),J=1,2)
       1000 FORMAT(4E20.12)
```

```
            NPRO=NPRO+2
            IF(NPRO.LT.NVAL)GO TO 10
              .
              .   continued processing
              .
CASE 8

COMPLEX
DOUBLE PRECISION
UNEVEN SPACING

  Order of data in file          X1   RY1    IY1
                                 X2   RY2    IY2
                                  .
                                  .
                                  .
  Input

            REAL X
            DOUBLE PRECISION Y(2)
              .
              .
              .
            NPRO=0
          10 READ(LUN,1000,ERR=  ,END=  )(X,Y(I),I=1,2)
        1000 FORMAT(E13.5,2E20.12)
            NPRO=NPRO+1
              .
              .    code to process this value
              .
            IF(NPRO.LT.NVAL)GO TO 10
              .
              .   continued processing
              .

  Output

            REAL X
            DOUBLE PRECISION Y(2)
              .
              .
              .
            NPRO=0
          10 CONTINUE
              .
              .    code to set up this value
              .
            WRITE(LUN,1000,ERR=  )(X,Y(I),I=1,2)
        1000 FORMAT(E13.5,2E20.12)
            NPRO=NPRO+1
            IF(NPRO.LT.NVAL)GO TO 10
              .
              .   continued processing
              .
```

**Universal Dataset Number: 1858**

**Name: Dataset 58 qualifiers**

**Status: Current**

**Owner: Test**

**Revision Date: 08-Sep-1995**

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-

```
Record 1:     FORMAT(6I12)

              Field 1       - Set record number
              Field 2       - Octave format
                              0 - not in octave format (default)
                              1 - octave
                              3 - one third octave
                              n - 1/n octave
              Field 3       - Measurement run number
              Fields 4-6    - Not used (fill with zeros)

Record 2:     FORMAT(12I6)
              Field 1       - Weighting Type
                              0 - No weighting or Unknown (default)
                              1 - A weighting
                              2 - B weighting
                              3 - C weighting
                              4 - D weighting (not yet implemented)
              Field 2       - Window Type
                              0 - No window or unknown (default)
                              1 - Hanning Narrow
                              2 - Hanning Broad
                              3 - Flattop
                              4 - Exponential
                              5 - Impact
                              6 - Impact and Exponential
              Field 3       - Amplitude units
                              0 - unknown (default)
                              1 - Half-peak scale
                              2 - Peak scale
                              3 - RMS
              Field 4       - Normalization Method
                              0 - unknown (default)
                              1 - Units squared
                              2 - Units squared per Hz (PSD)
                              3 - Units squared seconds per Hz (ESD)
              Field 5       - Abscissa Data Type Qualifier
                              0 - Translation
```

```
                    1 - Rotation
                    2 - Translation Squared
                    3 - Rotation Squared
          Field 6   - Ordinate Numerator Data Type Qualifier
                    0 - Translation
                    1 - Rotation
                    2 - Translation Squared
                    3 - Rotation Squared
          Field 7   - Ordinate Denominator Data Type Qualifier
                    0 - Translation
                    1 - Rotation
                    2 - Translation Squared
                    3 - Rotation Squared
          Field 8   - Z-axis Data Type Qualifier
                    0 - Translation
                    1 - Rotation
                    2 - Translation Squared
                    3 - Rotation Squared

          Field 9   - Sampling Type
                    0 - Dynamic
                    1 - Static
                    2 - RPM from Tach
                    3 - Frequency from tach
          Fields 10-12  - not used (fill with zeros)

Record 3: FORMAT  (1P5E15.7)
          Field 1   - Z RPM value
          Field 2   - Z Time value
          Field 3   - Z Order value
          Field 4   - Number of samples
          Field 5   - not used (fill with zero)

Record 4: FORMAT  (1P5E15.7)
          Field 1   - User value 1
          Field 2   - User value 2
          Field 3   - User value 3
          Field 4   - User value 4
          Field 5   - Exponential window damping factor

Record 5: FORMAT  (1P5E15.7)
          Fields 1-5    - not used (fill with zeros)

Record 6: FORMAT  (2A2,2X,2A2)
          Field 1   - Response direction
          Field 2   - Reference direction

Record 7: FORMAT  (40A2)
          Field 1   - not used
```

When you write out a ‘Test Universal File’ where you are writing the contents of the model file as well as shapes potentially datasets 151 and 164 are written together with a pile of things you have no interest in. The data sets that are potentially useful are:

The model header. Test modal models are treated as parts in the I-Deas environment and this dataset lists all of the part information. It might be useful to lick up the part name and number.

**Universal Dataset Number: 2400**

**Name: Model Header**

**Status: Current**

**Owner: Simulation**

**Revision Date: 10-NOV-1994**

---

```
Record 1: FORMAT(I12,2I6,I12)

                Field 1       -- Model UID

                Field 2       -- Entity type
                Field 3       -- Entity subtype
                Field 4       -- Version number

Record 2: FORMAT(40A2)
                Field 1       -- Entity name

Record 3: FORMAT(40A2)
                Field 1       -- Part number

Record 4: FORMAT(32I2)
                Field 1-32    -- Status mask

Record 5: FORMAT(5I12)
                Field 1-2     -- Date/time short time format
                Field 3       -- IDM item version ID
                Field 4       -- IDM item ID
                Field 5       -- Primary parent UID

Record 6: FORMAT(I12)
                Field 1       -- Optimization switches
                                 =0, BOTH geometry and P analysis switch
                                     off
                                 =1, Geometry sw ON, P analysis sw OFF
                                 =2, Geometry sw OFF, P analysis sw ON
                                 =3, BOTH geometry and P analysis switch
                                     ON
-----------------------------------------------------------------------
```

The coordinate system dataset holds allows arbitrary coordinate systems and determines type of coordinates the model geometry is using.

**Universal Dataset Number: 2420**

**Name: Coordinate Systems**
**Status: Current**
**Owner: Simulation**
**Revision Date: 12-May-1993**

---

```
Record 1:        FORMAT (2I10)
                 Field 1       -- Part UID

Record 2:        FORMAT (40A2)
                 Field 1       -- Part Name

Record 3:        FORMAT (4I10)
                 Field 1       -- Coordinate System Label
                 Field 2       -- Coordinate System Type
                                  = 0, Cartesian
                                  = 1, Cylindrical
                                  = 2, Spherical
                 Field 3       -- Coordinate System Color

Record 4:        FORMAT (40A2)
                 Field 1       -- Coordinate System Name

Record 5:        FORMAT (1P3D25.16)
                 Field 1-3     -- Transformation Matrix Row 1

Record 6:        FORMAT (1P3D25.16)
                 Field 1-3     -- Transformation Matrix Row 2

Record 7:        FORMAT (1P3D25.16)
                 Field 1-3     -- Transformation Matrix Row 3

Record 8:        FORMAT (1P3D25.16)
                 Field 1-3     -- Transformation Matrix Row 4

Records 3 thru 8 are repeated for each Coordinate System in the Part.
```

---

This is the node geometry dataset but geometry can also be defined in the old dataset 15 which is still a pick from within I-Deas and is supported by other code.

**Universal Dataset Number: 2411**

**Name: Nodes - Double Precision**

**Status: Current**

**Owner: Simulation**

**Revision Date: 23-OCT-1992**

---

-

```
Record 1:        FORMAT(4I10)

                 Field 1       -- node label
                 Field 2       -- export coordinate system number
                 Field 3       -- displacement coordinate system number
                 Field 4       -- color
Record 2:        FORMAT(1P3D25.16)
                 Fields 1-3    -- node coordinates in the part coordinate
                                  system

Records 1 and 2 are repeated for each node in the model.

Example:

    -1
  2411
       121         1         1        11
   5.0000000000000000D+00   1.0000000000000000D+00
0.0000000000000000D+00
       122         1         1        11
   6.0000000000000000D+00   1.0000000000000000D+00
0.0000000000000000D+00
    -1
```

---

This is the other node geometry dataset

**Universal Dataset Number: 15**

**Name: Nodes**
**Status: Obsolete**
**Owner: Simulation**

**Revision Date: 30-Aug-1987**
**Additional Comments: This dataset is written by I-DEAS Test.**

---

```
             Record 1: FORMAT(4I10,1P3E13.5)
                       Field 1 -    node label
                       Field 2 -    definition coordinate system number
                       Field 3 -    displacement coordinate system number
                       Field 4 -    color
                       Field 5-7 -  3 - Dimensional coordinates of node
                                    in the definition system

             NOTE:  Repeat record for each node
```

This is the current trace line dataset definition written with the model file universal file. As with the geometry there is an old standard, dataset 82, which is still available from I-Deas.

**Universal Dataset Number: 2431**

**Universal Dataset**

**Number: 2431**

**Name: Trace Lines**

**Status: Current**

**Owner: Simulation**

**Revision Date: 01-AUG-1996**

```
            Record 1: FORMAT(3I10)
                      Field 1 -    trace line number
                      Field 2 -    number of nodes defining trace line
                                   (maximum of 250)
                      Field 3 -    color

            Record 2: FORMAT(20A2)
                      Field 1 -    trace line description text

            Record 3: FORMAT(8I10)
                      Field 1 -    nodes defining trace line
                               =   >0 - draw a line to the node
                               =    0 - move to the node (a break in the
                                        trace line)

    Records 1 thru 3 repeat for each trace line.

Example of record with no traceline descriptor:

    -1
  2431

       100         3        12
       290       292       294
       101         3        12
       291       293       295
       102         3        12
       175       283       286
       103         3        12
       204       284       289
```

```
    -1
```

Example of record with a traceline descriptor:

```
    -1
  2431
This is an example description
       100         3        12
       290       292       294
       101         3        12
       291       293       295
       102         3        12
       175       283       286
       103         3        12
       204       284       289
    -1
```

---

This is the old traceline dataset

**Universal Dataset Number: 82**

**Name: Tracelines**

**Status: Obsolete**
**Owner: Simulation**
**Revision Date: 27-Aug-1987**
**Additional Comments: This dataset is written by I-DEAS Test.**

---

```
Record 1: FORMAT(3I10)
          Field 1 -    trace line number
          Field 2 -    number of nodes defining trace line
                       (maximum of 250)
          Field 3 -    color

Record 2: FORMAT(80A1)
          Field 1 -    Identification line

Record 3: FORMAT(8I10)
          Field 1 -    nodes defining trace line
                  =    > 0 draw line to node
                  =    0 move to node (a move to the first
                       node is implied)
Notes: 1) MODAL-PLUS node numbers must not exceed 8000.
       2) Identification line may not be blank.
       3) Systan only uses the first 60 characters of the
          identification text.
       4) MODAL-PLUS does not support trace lines longer than
          125 nodes.
       5) Supertab only uses the first 40 characters of the
          identification line for a name.
```

6) Repeat Datasets for each Trace_Line

---

Mode Shapes are written from the model file as Dataset 55.

**Universal Dataset Number: 55**

**Name: Data at Nodes**

**Status: Obsolete**

**Owner: Simulation**

**Revision Date: 04-May-1992**

**Additional Comments: This dataset is written and read by I-DEAS Test.**

---

```
RECORD 1:      Format (40A2)
     FIELD 1:          ID Line 1

RECORD 2:      Format (40A2)
     FIELD 1:          ID Line 2

RECORD 3:      Format (40A2)

     FIELD 1:          ID Line 3

RECORD 4:      Format (40A2)
     FIELD 1:          ID Line 4

RECORD 5:      Format (40A2)
     FIELD 1:          ID Line 5

RECORD 6:      Format (6I10)

Data Definition Parameters

     FIELD 1: Model Type
                 0:   Unknown
                 1:   Structural
                 2:   Heat Transfer
                 3:   Fluid Flow

     FIELD 2:  Analysis Type
                 0:   Unknown
                 1:   Static
                 2:   Normal Mode
                 3:   Complex eigenvalue first order
                 4:   Transient
                 5:   Frequency Response
                 6:   Buckling
                 7:   Complex eigenvalue second order
```

FIELD 3: Data Characteristic

0: Unknown
1: Scalar
2: 3 DOF Global Translation Vector
3: 6 DOF Global Translation & Rotation Vector
4: Symmetric Global Tensor
5: General Global Tensor

FIELD 4: Specific Data Type

0: Unknown
1: General
2: Stress
3: Strain
4: Element Force
5: Temperature
6: Heat Flux
7: Strain Energy
8: Displacement
9: Reaction Force
10: Kinetic Energy
11: Velocity
12: Acceleration
13: Strain Energy Density
14: Kinetic Energy Density
15: Hydro-Static Pressure
16: Heat Gradient
17: Code Checking Value
18: Coefficient Of Pressure

FIELD 5: Data Type

2: Real
5: Complex

FIELD 6: Number Of Data Values Per Node (NDV)

Records 7 And 8 Are Analysis Type Specific

General Form

RECORD 7: Format (8I10)

FIELD 1: Number Of Integer Data Values
1 < Or = Nint < Or = 10
FIELD 2: Number Of Real Data Values
1 < Or = Nrval < Or = 12
FIELDS 3-N: Type Specific Integer Parameters

RECORD 8: Format (6E13.5)
FIELDS 1-N: Type Specific Real Parameters

For Analysis Type = 0, Unknown

RECORD 7:

FIELD 1: 1
FIELD 2: 1
FIELD 3: ID Number

RECORD 8:

FIELD 1: 0.0

For Analysis Type = 1, Static

RECORD 7:
FIELD 1: 1
FIELD 2: 1
FIELD 3: Load Case Number

RECORD 8:
FIELD 11: 0.0

For Analysis Type = 2, Normal Mode

RECORD 7:

FIELD 1: 2
FIELD 2: 4
FIELD 3: Load Case Number
FIELD 4: Mode Number

RECORD 8:
FIELD 1: Frequency (Hertz)
FIELD 2: Modal Mass
FIELD 3: Modal Viscous Damping Ratio
FIELD 4: Modal Hysteretic Damping Ratio

For Analysis Type = 3, Complex Eigenvalue

RECORD 7:
FIELD 1: 2
FIELD 2: 6
FIELD 3: Load Case Number
FIELD 4: Mode Number

RECORD 8:

FIELD 1: Real Part Eigenvalue
FIELD 2: Imaginary Part Eigenvalue
FIELD 3: Real Part Of Modal A
FIELD 4: Imaginary Part Of Modal A
FIELD 5: Real Part Of Modal B
FIELD 6: Imaginary Part Of Modal B

For Analysis Type = 4, Transient

RECORD 7:

```
     FIELD 1:    2
     FIELD 2:    1
     FIELD 3:    Load Case Number
     FIELD 4:    Time Step Number

RECORD 8:
     FIELD 1: Time (Seconds)

For Analysis Type = 5, Frequency Response

RECORD 7:

     FIELD 1:    2
     FIELD 2:    1
     FIELD 3:    Load Case Number
     FIELD 4:    Frequency Step Number

RECORD 8:
     FIELD 1:    Frequency (Hertz)

For Analysis Type = 6, Buckling

RECORD 7:

     FIELD 1:    1
     FIELD 2:    1
     FIELD 3:    Load Case Number

RECORD 8:

     FIELD 1: Eigenvalue

RECORD 9:      Format (I10)

     FIELD 1:          Node Number

RECORD 10:     Format (6E13.5)
     FIELDS 1-N:       Data At This Node (NDV Real Or
               Complex Values)

Records 9 And 10 Are Repeated For Each Node.

Notes:
1        Id Lines May Not Be Blank.  If No Information Is
            Required, The Word "None" Must Appear  Columns 1-4.

2        For Complex Data There Will Be 2*Ndv Data Items At Each
            Node. The Order Is Real Part For Value 1,  Imaginary
            Part For Value 1, Etc.
3        The Order Of Values For Various Data  Characteristics
            Is:
                3 DOF Global Vector:
                        X, Y, Z

                6 DOF Global Vector:
                        X, Y, Z,
```

Rx, Ry, Rz

Symmetric Global Tensor:
Sxx, Sxy, Syy,
Sxz, Syz, Szz

General Global Tensor:
Sxx, Syx, Szx,
Sxy, Syy, Szy,
Sxz, Syz, Szz

Shell And Plate Element Load:
Fx, Fy, Fxy,
Mx, My, Mxy,
Vx, Vy

4 Id Line 1 Always Appears On Plots In Output Display.

5 If Specific Data Type Is "Unknown," ID Line 2 Is Displayed As Data Type In Output Display.

6 Typical Fortran I/O Statements For The Data Sections Are:

```
          Read(Lun,1000)Num
          Write
1000 Format (I10)
          Read(Lun,1010) (VAL(I),I=1,NDV)
          Write
1010 format (6e13.5)
```

Where: Num Is Node Number
Val Is Real Or Complex Data Array
Ndv Is Number Of Data Values Per Node

7 Data Characteristic Values Imply The Following Values Of Ndv:

Scalar: 1
3 DOF Global Vector: 3
6 DOF Global Vector: 6
Symmetric Global Tensor: 6
General Global Tensor: 9

8 Data Associated With I-DEAS Test Has The Following Special Forms of Specific Data Type and ID Line 5.

For Record 6 Field 4-Specific Data Type, values 0 through 12 are as defined above. 13 and 15 through 19 are:

13: excitation force
15: pressure
16: mass
17: time
18: frequency
19: rpm

The form of ID Line 5 is:

Format (4I10)
FIELD 1: Reference Coordinate Label

FIELD 2: Reference Coordinate Direction
1: X Direction
-1: -X Direction
2: Y Direction
-2: -Y Direction
3: Z Direction
-3: -Z Direction

FIELD 3: Numerator Signal Code
see Specific Data Type above

FIELD 4: Denominator Signal Code
see Specific Data Type above

Also note that the modal mass in record 8 is calculated from the parameter table by I-DEAS Test.

9 Any Record With All 0.0's Data Entries Need Not (But May) Appear.

10 A Direct Result Of 9 Is That If No Records 9 And 10 Appear, All Data For The Data Set Is 0.0.

11 When New Analysis Types Are Added, Record 7 Fields 1 And 2 Are Always > Or = 1 With Dummy Integer And Real Zero Data If Data Is Not Required. If Complex Data Is Needed, It Is Treated As Two Real Numbers, Real Part Followed By Imaginary Point.

12 Dataloaders Use The Following ID Line Convention:

1. (80A1) Model Identification
2. (80A1) Run Identification
3. (80A1) Run Date/Time
4. (80A1) Load Case Name

For Static:

5. (17h Load Case Number;, I10) For Normal Mode:
5. (10h Mode Same, I10, 10H Frequency, E13.5)

13 No Maximum Value For Ndv .

14 Typical Fortran I/O Statements For Processing Records 7 And 8.

```
                    Read (LUN,1000)NINT,NRVAL,(IPAR(I),I=1,NINT
                1000 Format (8I10)
                    Read (Lun,1010) (RPAV(I),I=1,NRVAL)
                1010 Format (6E13.5)

      15       For Situations With Reduced # Dof's, Use 3 DOF
                  Translations Or 6 DOF Translation And Rotation With
                  Unused Values = 0.
```

---

There are a few other files that have been added recently that allow export of the data acquisition parameters. These probably won't be of much use in the short term but the transducer table is something you would want to add when you get back to data acquisition. It's a neat way of not having to enter in the details of each transducer every time, you just pick them by serial number.

**Universal Dataset Number: 1806**

**Universal Dataset**
**Number: 1806**
**Name: Transducer**
**Status: Current**
**Owner: Test**
**Revision Date: 24-MAY-1993**

---

```
Record 1:  FORMAT (10A2)
           Field 1       - Serial number

Record 2:  FORMAT (10A2,2X,10A2)
           Field 1       - Manufacturer
           Field 2       - Model

Record 3:  FORMAT (10A2,2X,10A2,2X,10A2)
           Field 1       - Calibration by
           Field 2       - Calibration date
           Field 3       - Calibration due date

Record 4:  FORMAT (40A2)
           Field 1       - Transducer description

Record 5:  FORMAT (3I12,3I6,10A2)
           Field 1       - Operating mode
           Field 2       - Data type
           Field 3       - Type qualifier
           Field 4       - Length units exponents
           Field 5       - Force units exponents
           Field 6       - Temperature exponents
           Field 7       - Units label

Record 6:  FORMAT (1P1E15.7)
           Field 1       - Sensitivity (mv/EU)
```

---

**Universal Dataset Number: 1807**

**Name: Virtual Channel Table**

**Status: Current**

**Owner: Test**

**Revision Date: 29-AUG-1995**

---

```
Record 1:  FORMAT (3I12)

           Field 1       - Set number

           Field 2       - Bank

           Field 3       - Subchannel

Record 2:  FORMAT (40A2)
           Field 1       - Virtual Channel description

Record 3:  FORMAT (1I12,2A2,2X,10A2)
           Field 1       - Coordinate node number
           Field 2       - Coordinate direction
           Field 3       - Transducer serial number ( "None" for no
                           transducer )

Record 4:  FORMAT (1I2,1I12,1P2E15.7)
           Field 1       - Autorange switch
           Field 2       - Coupling
           Field 3       - Input range
           Field 4       - Gain

Record 5:  FORMAT (1I2,1P1E15.7)
           Field 1       - Shutdown switch
           Field 2       - Shutdown level

Record 6:  FORMAT (6I12)
           Field 1       - External weighting
                           0 = None
                           1 = A External
                           2 = B External
                           3 = C External
           Field 2       - Channel sampling type
                           0 = Dynamic
                           1 = Front end static
                          10 = static emulated
                          11 = RPM form tach
                          12 = Frequency from tach
```

```
           Field 3       - Sampling divider
           Fields 4-6    - Not used

Record 7:  FORMAT (1P5E15.7)
           Field 1       - Scale offset
           Field 2       - Tach - pulses per revolution
           Field 3       - Tach - level percent
           Fields 4-5    - Not used

All records are repeated for each virtual channel.
```

---

**Universal Dataset Number: 1808**

**Name: Channel Table**

**Status: Current**

**Owner: Test**

**Revision Date: 29-Aug-1995**

---

```
Record 1:  FORMAT (6I12)

           Field 1       - Channel Application Type

                           0 - Measurements

                           1 - Post Processing
           Field 2       - Update channels option
           Field 3       - Update method
           Field 4       - Number of reference channels
           Field 5       - Number of response channels
           Field 6       - Number of parametric channels

Record 2:  FORMAT (40A2)
           Field 1       - Channel description

Record 3:  FORMAT (1I12,2A2,2X,20A2)
           Field 1       - Coordinate node number
           Field 2       - Coordinate direction
           Field 3       - Transducer serial number
                           "None" for no transducer

Record 4:  FORMAT (1I2,1I12,1P2E15.7)
           Field 1       - Autorange switch
           Field 2       - Coupling
           Field 3       - Input range
           Field 4       - Gain
```

```
Record 5:  FORMAT (1I2,1P1E15.7)
           Field 1       - Shutdown switch
           Field 2       - Shutdown level

Record 6:  FORMAT (6I12)
           Field 1       - External weighting
                             0 = None
                             1 = A External
                             2 = B External
                             3 = C External
           Field 2       - Channel sampling type
                             0 = Dynamic
                             1 = Front end static
                            10 = static emulated
                            11 = RPM form tach
                            12 = Frequency from tach
           Field 3       - Sampling divider
           Fields 4-6    - Not used

Record 7:  FORMAT (1P5E15.7)
           Field 1       - Scale offset
           Field 2       - Tach - pulses per revolution
           Field 3       - Tach - level percent
           Fields 4-5    - Not used

Records 2 - 7 would be repeated for each channel.
```

---

**Universal Dataset Number: 1810**

**Name: Measurement Overall Setup**

**Status: Current**

**Owner: Test**

**Revision Date: 08-Sep-1995**

---

```
Record 1:  FORMAT (I12, 10A2)

           Field 1       - Overall setup number

           Field 2       - Overall setup name

Record 2:  FORMAT (2I12)
           Field 1       - Number of spectral lines
           Field 2       - Frame size
```

```
Record 3:  FORMAT (1P4E15.7)
           Field 1       - Maximum frequency
           Field 2       - Delta time
           Field 3       - Tape replay ratio
           Field 4       - Filter cutoff percent

Record 4:  FORMAT (1I12)
           Field 1       - Trigger method
                             0 = Free run
                             1 = first frame
                             2 = every frame
                             3 = source trigger

Record 5:  FORMAT (1I6,1I12)
           Field 1       - Trigger source
                            -2 = manual trigger
                            -1 = external input
                             n = channel
           Field 2       - Trigger channel

Record 6:  FORMAT (1I6,1P1E15.7)
           Field 1       - Trigger slope
                            -1 = negative slope
                             0 = any slope
                             1 = positive slope
           Field 2       - Level percent

Record 7:  FORMAT (1I2,1I6,1I12,1P2E15.7)
           Field 1       - Trigger bell switch
           Field 2       - Trigger delay
                             1 = no delay
                             2 = pre-trigger
                             3 = post-trigger
           Field 3       - Number of samples
           Field 4       - delay time
           Field 5       - delay percent

Record 8:  FORMAT (2I2,1I6,1P4E15.7)
           Field 1       - Autorange before preview switch
           Field 2       - Autorange before acquire switch
           Field 3       - Autorange method
                             1 = overall amplitude
                             2 = frame by frame
           Field 4       - Percent frame
           Field 5       - Percent overhead
           Field 6       - upper limit v
           Field 7       - upper limit pc

Record 9:  FORMAT (1I6,1I2,1P2E15.7)
           Field 1       - Reference / Response window
                             0 = no window
                             1 = hanning narrow
                             2 = hanning broad
                             3 = flat top
                             4 = exponential
           Field 2       - Impact window on reference switch
           Field 3       - Impact width percent
```

```
           Field 4       - decay rate percent

Record 10: FORMAT (2I6,2I12,1P1E15.7)
           Field 1       - Averaging method
                           1 = stable
                           2 = exponential
                           3 = peak hold
           Field 2       - Frame acceptance
                           0 = accept all
                           1 = automatic
                           2 = manual
           Field 3       - Frames per average
           Field 4       - Exponential average constant
           Field 5       - Overlap percent

Record 11: FORMAT (4I6,7I2)
           Field 1       - Acquistion results
                           2 = throughput
                           3 = time to adf
                           5 = spectra
                           6 = spectra to adf
                           7 = auto-spectra
                           8 = spectral matrix
                           9 = auto-correlation
                          10 = correlation matrix
                          11 = frf
                          12 = time average
                          13 = order track spectra
                          14 = acoustic intensity
           Field 2       - Normalization
                           0 = unknown
                           1 = units squared
                           2 = units squared / Hz
                           3 = units squared sec / Hz
           Field 3       - Amplitude units
                           0 = unknown
                           1 = half peak
                           2 = peak
                           3 = rms
           Field 4       - FRF method
                           1 = H1 Gyx/Gxx
                           2 = H2 Gyy/Gxy
                           3 = H3 (H1+H2)/2
                           4 = HV optimal scaling
           Field 5       - Auto write switch
           Field 6       - Cross write switch
           Field 7       - Coherence write switch
           Field 8       - Reference coherence write switch
           Field 9       - FRF write switch
           Field 10      - Test log switch
           Field 11      - Function logging switch

Record 12: FORMAT (10A2)
           Field 1       - Test log name

Record 13: FORMAT (1P2E15.7)
           Field 1       - Clear lower frequency
```

```
           Field 2       - Clear upper frequency

Record 14: FORMAT (40A2)
           Field 1       - Measurement description

Record 15: FORMAT (1I12,3I6,1I2)
           Field 1       - Number of display channels
           Field 2       - Display units
                           1 = volts
                           2 = engineering units
           Field 3       - Background grid
                           0 = none
                           1 = centerline
                           2 = partial grid
                           3 = full grid
           Field 4       - Acquistion monitor
                           0 = none
                           1 = time
                           2 = windowed
                           3 = time and windowed
                           4 = spectra
                           5 = time and spectra
                           6 = time min-max
                           7 = current average
                           8 = spectra waterfall
           Field 5       - Acquistion monitor switch

Record 16: FORMAT (1I6,1P2E15.7)
           Field 1       - Range indicators
           Field 2       - Upper limit %
           Field 3       - Lower Limit %

Record 17: FORMAT (1I2,1I12,1P1E15.7)
           Field 1       - Hidden line switch
           Field 2       - Number of functions
           Field 3       - Start amplitude percent

Record 18: FORMAT (1I2)
           Field 1       - Overall Shutdown switch

Record 19: FORMAT (1I6)
           Field 1       - Sine measurement type
                           1 = step sine
                           2 = sine reduction

Record 20: FORMAT (1P2E15.7)
           Field 1       - Minimum frequency
           Field 2       - Maximum frequency

Record 21: FORMAT (1P2E15.7,2I6)
           Field 1       - Linear sweep increment
           Field 2       - Sweep points per decade
           Field 3       - Sweep direction
                           1 = up
                           2 = down
           Field 4       - Sweep type
                           1 = linear
```

```
                          2 = log

Record 22: FORMAT (1P2E15.7,1I6)
           Field 1       - seconds for settling
           Field 2       - cycles for settling
           Field 3       - setling time option
                           0 = none
                           1 = seconds
                           2 = cycles

Record 23: FORMAT (1P4E15.7,1I6)
           Field 1       - percent overhead
           Field 2       - percent overload
           Field 3       - minimum(V)
           Field 4       - minimum(pC)
           Field 5       - Frame autorange type
                           0 = off
                           1 = up only
                           2 = up or down

Record 24: FORMAT (6I12)
           Fields 1-6    - not used

Record 25: FORMAT (6I12)
           Fields 1-6    - not used

Record 26: FORMAT (1P5E15.7)
           Fields 1-5    - not used

Record 27: FORMAT (1P5E15.7)
           Fields 1-5    - not used
```

---

**Universal Dataset Number: 1815**

**Name: Order Track Overall Setup**
**Status: Current**
**Owner: Test**
**Revision Date: 08-Sep-1995**

---

```
Record 1:  FORMAT (I12, 10A2)
           Field 1       - Overall setup number
           Field 2       - Overall setup name

Record 2:  FORMAT (1P2E15.7)
           Field 1       - Minimum RPM
           Field 2       - Maximum RPM

Record 3:  FORMAT (2(1I2,1I6),1I12)
           Field 1       - Manual arm switch
           Field 2       - Trigger type
                           0 = free run
```

```
                        1 = time trigger
                        2 = rpm trigger
                        3 = channel trigger
            Field 3     - Duplicate RPM switch
            Field 4     - Duplicate RPM option
                        1 = keep first
                        2 = keep last
            Field 5     - RPM channel

Record 4:   FORMAT (1P2E15.7)
            Field 1     - change in time
            Field 2     - change in RPM

Record 5:   FORMAT (1P2E15.7)
            Field 1     - pulses per revolution
            Field 2     - pulse level percent

Record 6:   FORMAT (1P3E15.7,1I12,1I2)
            Field 1     - tracking ratio
            Field 2     - maximum order
            Field 3     - order resolution
            Field 4     - frame size
            Field 5     - order subset switch

Record 7:   FORMAT (1P1E15.7,1I2,1I12,1I6)
            Field 1     - tape replay ratio
            Field 2     - phase reference switch
            Field 3     - phase reference channel
            Field 4     - window
                        0 = none
                        1 = hanning narrow
                        2 = hanning broad
                        3 = flat top

Record 8:   FORMAT (1I12)
            Field 1     - Trigger channel

Record 9:   FORMAT (1I6,1P1E15.7)
            Field 1     - Trigger Slope
                       -1 = negative slope
                        0 = any slope
                        1 = positive slope
            Field 2     - Level percent

Record 10:  FORMAT (1I2,1I6,1I12,1P2E15.7)
            Field 1     - Trigger bell switch
            Field 2     - delay type
                        1 = no delay
                        2 = pre-trigger
                        3 = post-trigger
            Field 3     - delay samples
            Field 4     - delay time
            Field 5     - delay percent

Record 11:  FORMAT (1I2,1I6,1P3E15.7)
            Field 1     - preview autorange switch
            Field 2     - autorange method
```

```
                        1 = overall amplitude
                        2 = frame by frame
            Field 3     - percent overload
            Field 4     - upper limit (V)
            Field 5     - upper limit (pC)

Record 12: FORMAT (3I6,8I2)

            Field 1     - Acquisition results
                        2 = throughput
                        3 = time to adf
                        5 = spectra
                        6 = spectra to adf
                        7 = auto-spectra
                        8 = spectral matrix
                        9 = auto-correlation
                       10 = correlation matrix
                       11 = frf
                       12 = time average
                       13 = order track spectra
                       14 = acoustic intensity
            Field 2     - composite power accumulation
                        0 = off
                        1 = on
                        2 = no DC
            Field 3     - amplitude units
                        0 = unknown
                        1 = half peak
                        2 = peak
                        3 = rms
            Field 4     - spectra write switch
            Field 5     - order write switch
            Field 6     - RPM vs time write switch
            Field 7     - composite power write switch
            Field 8     - phase reference channel write switch
            Field 9     - tach channel write switch
            Field 10    - test log switch
            Field 11    - function logging switch

Record 13: FORMAT (10A2)
            Field 1     - Test log name

Record 14: FORMAT (40A2)
            Field 1     - Measurement description

Record 15: FORMAT (1I12,3I6,1I2)
            Field 1     - Number of display channels
            Field 2     - Display units
                        1 = volts
                        2 = engineering units
            Field 3     - Background grid
                        0 = none
                        1 = centerline
                        2 = partial grid
                        3 = full grid
            Field 4     - Acquistion monitor
                        0 = none
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                              1 = time
                              2 = windowed
                              3 = time and windowed
                              4 = spectra
                              5 = time and spectra
                              6 = time min-max
                              7 = current average
                              8 = spectra waterfall
                              9 = accumulated order
            Field 5       - Acquistion monitor switch

Record 16: FORMAT (1I6,1P2E15.7)
            Field 1       - Range indicators
            Field 2       - Upper limit %
            Field 3       - Lower Limit %

Record 17: FORMAT (1I2,1I12,1P1E15.7)
            Field 1       - Hidden line switch
            Field 2       - Number of functions
            Field 3       - Start amplitude percent

Record 18: FORMAT (1I2)
            Field 1       - Overall Shutdown switch

Record 19: FORMAT (2I2,1I12)
            Field 1       - Composite power display switch
            Field 2       - multiple orders display switch
            Field 3       - orders displayed per channel

Record 20: FORMAT (6I12)
            Fields 1-6    - not used

Record 21: FORMAT (6I12)
            Fields 1-6    - not used

Record 22: FORMAT (1P5E15.7)
            Fields 1-5    - not used

Record 23: FORMAT (1P5E15.7)
            Fields 1-5    - not used

Record 24: FORMAT (2I12)
            Field 1       - number of orders
            Field 2       - number of display orders

Record 25: FORMAT (1P5E15.7)
            Fields 1-n    - orders

Record 26: FORMAT (1P5E15.7)
            Fields 1-n    - display orders

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