

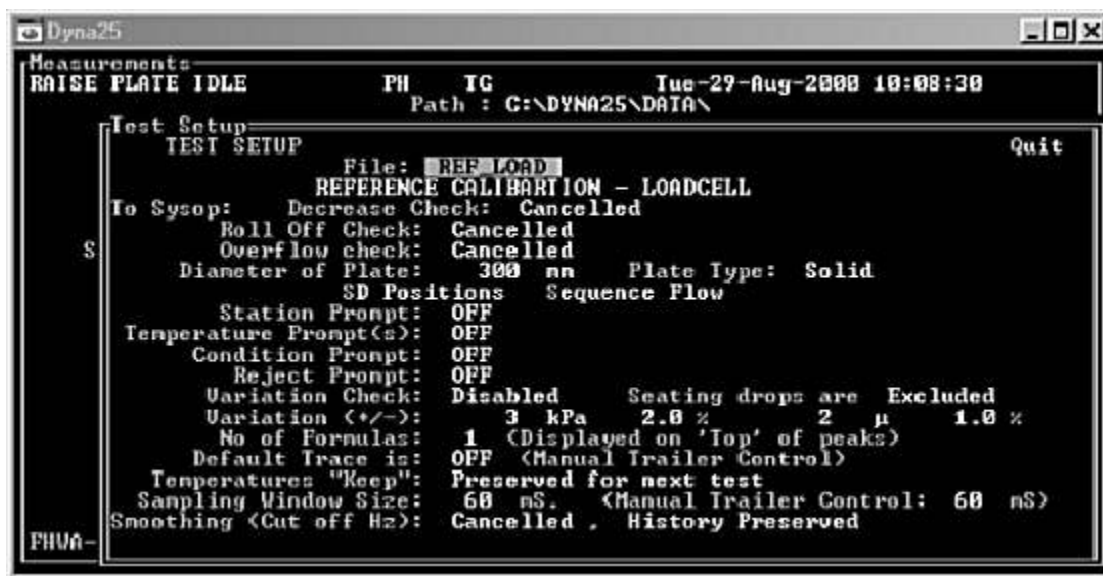


Figure G-1.25 Test Setup - Reference Calibration - Loadcell



Figure G-1.26 Test Setup - SPS3 Flex Basin Test



Figure G-1.27 Test Setup - SPS4 Rigid Test Plan

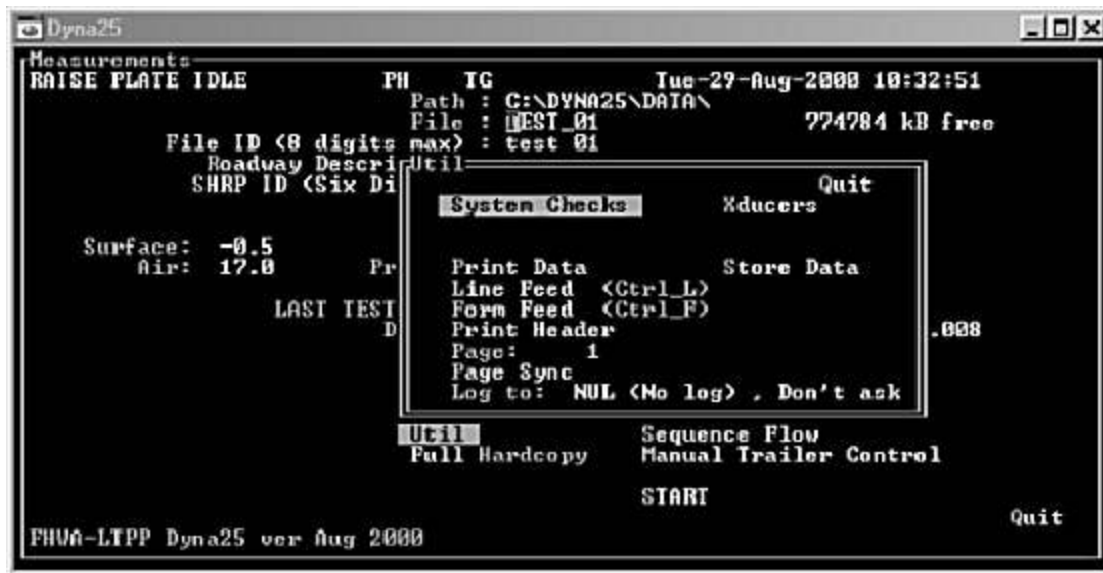


Figure G-1.28 Utilities Options

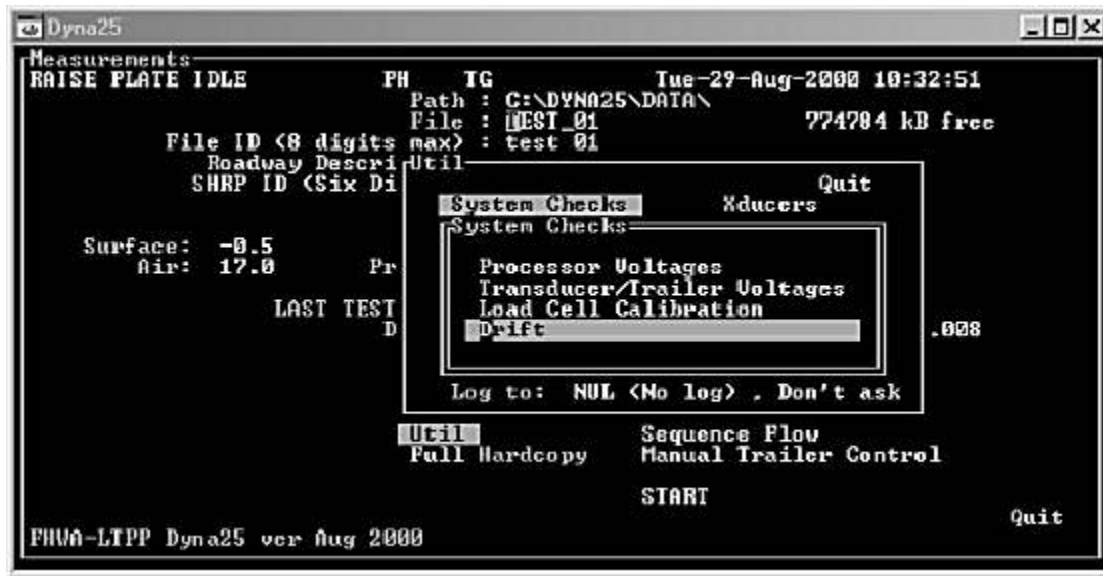


Figure G-1.29 Utilities - System Checks

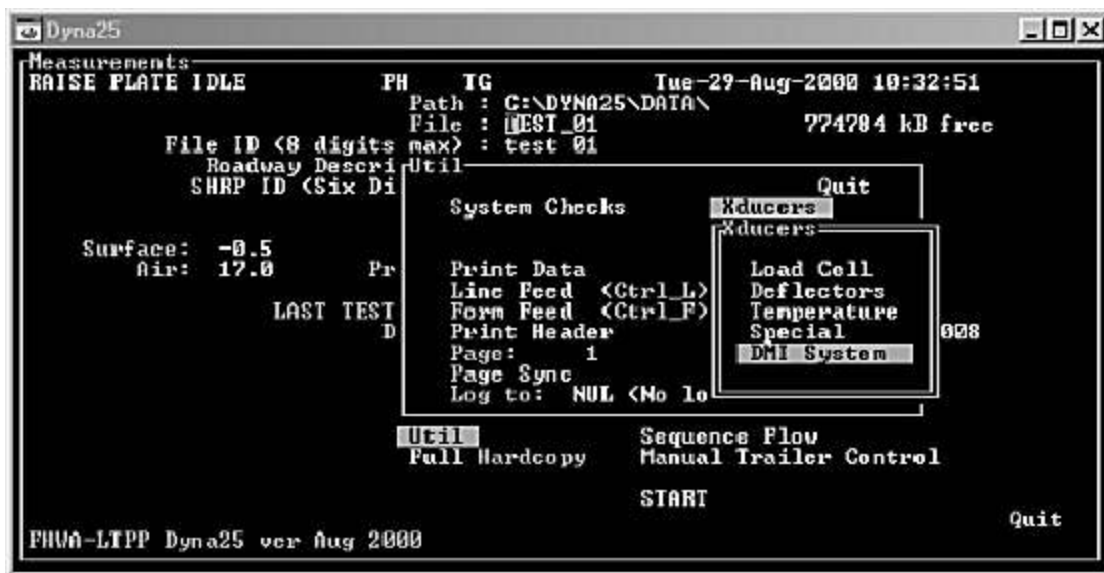


Figure G-1.30 Utilities - Xducers



Figure G-1.31 Trailer - Limits and Timing

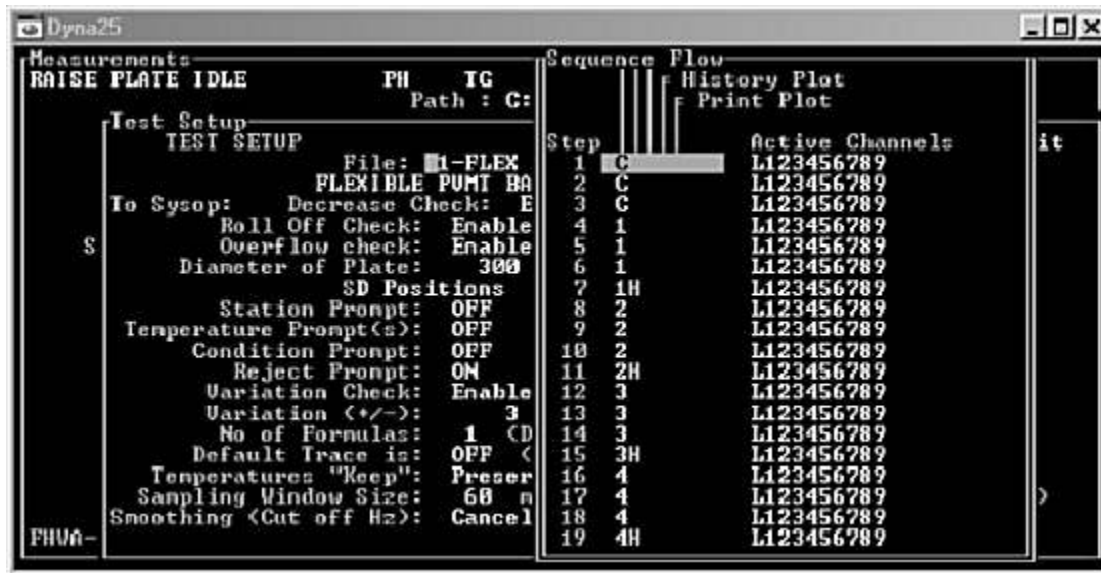


Figure G-1.32 Sequence Flow



Figure G-1.33 Load Cell Calibration



Figure G-1.34 Processor Voltages



Figure G-1.35 Page Format

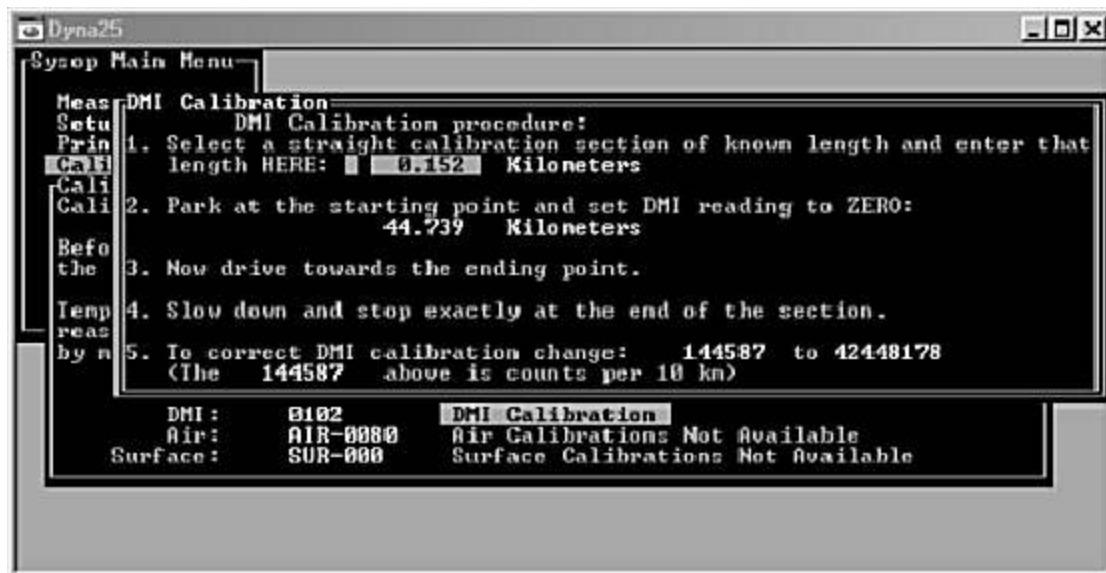


Figure G-1.36 DMI Calibrations



Figure G-1.37 Trailer Information

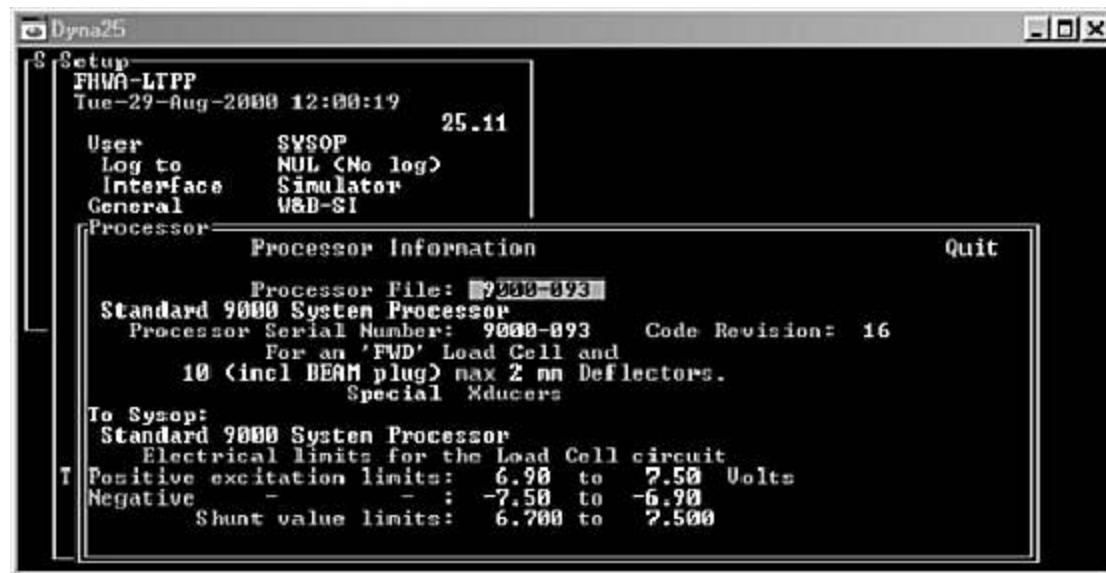


Figure G-1.38 Processor Information

Dyna25

Summary

25.11 Aug 2000

Tue-29-Aug-2000 11:27:01

User file

FWWA-LTPP

General setup

SYSOP

Printer

W&B-SI

Page format

White on Black, Metric units

DJET310

MEASUR11

HP Deskjet 310 Black & White

Measurements, 11 in paper

Test setup

1-FLEX

FLEXIBLE PUMT BASIN TEST

50 Msec, Snoothing:Cancelled

Trailer file

C:\DYNA25\8002-129\8002-129

Load cell

C:\DYNA25\8002-129\ F0183

Deflector#1

C:\DYNA25\8002-129\ 1881

2

1882

3

1883

4

1884

5

1885

6

1892

7

1887

8

1890

9

1891

10

NA

11

NA

Rel

1.010

1.004

1.001

1.003

1.001

0.999

0.998

0.999

1.000

1.001

0.000

0.000

abs

89.9

1.020

1.014

1.020

1.011

1.006

1.049

1.000

1.024

1.011

0.000

0.000

EQ'0! IOU

A1<D!>Q:

APKQA)Z%

A05E!MX3

QZ5@IP2

!QM5!I*!

P.\$ <UN

C00ZAIL

CP2P! I8K

Figure G-1.39 Setup Summary

EXAMPLE F25 UPLOAD FILE FORMATS AND LISTINGS

Introduction

The Edition 25 FWD (LTPP Dyna25 ver Aug 2000) field data collection program produces two output files from field measurements. The output file with the file name extension F25 contains the header information and peak load and deflection data to be uploaded into the IMS in ASCII text format. This file typically contains 46 lines of "header" information followed by test data and/or comments. Each line or record is prefixed by a four digit "Line-ID-Number" (LIN) or object field, which identifies its format and content. Data elements on a line are stored in a fixed column, comma separated, format. Most of the text fields are enclosed in double quotes. This text data is stored as entered by the operator with leading and trailing spaces in some cases. Numbers are right justified. The second output file from the LTPP Dyna25 software contains the time history information in a binary format. The programs HISTORY9.EXE, HIST911F.exe and HIST912F.exe provided by the FWD manufacturer, are used to convert this file from binary to ASCII. The time history data is not loaded into the IMS.

In this appendix, a detailed, annotated, description of the format and contents of the Edition 25 upload file is presented. This is followed by a complete listing of the data file used in the format description. Example data files created using the FWD data file simulator, which generates an example data file which contains a data from a single test point, are also presented for many of the LTPP FWD test plans.

Annotated Description of LTPP Edition 25 FWD Upload File Format

In the following format and content descriptions of the FWD Dyna25 upload file, fields on each data line are specified using an [X, Y] column designation, where X is the begin column and Y the end column, since the data are placed in fixed column width locations. Each line of data in the file is prefixed with a Line ID Number (LIN), which serves as an object field, in columns [1,4]. This LIN is used to describe the contents of each line. Also used in the description of the header portion of file is the sequential line number in which each LIN appears in a typical file.

For values to be loaded into the IMS, the table and field name(s) are shown in the contents description of each items on the data line. Data items not loaded into the IMS are labeled as "Not Loaded" (however, some of these items are used by the filter program).

The remainder of this appendix is presented in a fixed column font to preserve column relationships in the data file formats.

Header Data

Typically, the first 46 lines of data in the Dyna25 FWD data file, as customized by LTPP, contains header data. The number of lines of header data in the file is shown in columns 14 and 15 in the first line of the data file.

```

1.   Program Version - LIN 5001
      5001,25.11,1,46, 4, 1,"Aug 2000      "

      [ 6, 7] 25      Program Edition - MON_DEFL_MASTER.SOFTWARE_VERSION
      [ 8, 10] .11     Program Edition Version - Not loaded
      [ 12, 12] 1      No of Headers (always 1) - Not loaded
      [ 14, 15] 46     No of Lines in Header - Not loaded
      [ 17, 18] 4      Lines per Station Id - Not loaded
      [ 20, 21] 1      Lines per Drop - Not loaded
      [ 24, 39] Aug 2000 Program Comment - Not Loaded

2.   Primary "Files" - LIN 5002
      5002,"25SIN      ","8002-061","9000-323"
      [ 7, 14] 25SIN   Data Format Setup File - 25SIN (SI units with Numeric
                        Stations) LTPP Standard - Not Loaded
      [ 18, 25] 8002-061 Trailer File -DEFL_UNIT_ID in MON_DEFL_MASTER,
                        MON_DEFL_LOC_INFO, MON_DEFL_DROP_DATA
      [ 29, 36] 9000-323 Processor File - Not Loaded

3.   Secondary "Files" - LIN 5003
      5003,"OPERATOR","3-RGD_LT"

      [ 7, 14] OPERATOR Operator File; Not Loaded
      [ 18, 25] 3-RGD_LT TSU - Test Setup File - Used to determine drop number and
                        drop height sequence; Not Loaded

4.   Units & History option - LIN 5010
      5010,0,0,0,0,0,0,0,5,1,0,0,0,0,0,1,0,0,0,0,0,1,"H25"

      [ 6, 6] 0      Temperature - 0=deg C, 1=deg F; Not Loaded
      [ 8, 8] 0      Spare
      [ 10, 10] 0     Weight (Mass) - 0=Kg, 1=lb; Not Loaded
      [ 12, 12] 0     Spare
      [ 14, 14] 0     Deflection - 0=microns, 1=milli-inches; Not Loaded
      [ 16, 16] 0     Distance - 0=mm, 1=inch; Not Loaded
      [ 18, 18] 0     Spare
      [ 20, 20] 5     Location      2=Meters      ; Not Loaded
                                3=km
                                4=km extended
                                5=Feet, LTPP Standard
                                6=Yards
                                7=Miles
                                8=Miles extended
                                9=Miles.feet
      [ 22, 22] 1     Geographic angle; Not Loaded
      [ 24, 24] 0     Force - 0=kN, 1=lb; Not Loaded
      [ 26, 26] 0     Pressure - 0=kPa, 1=psi; Not Loaded
      [ 28, 28] 0     Heavy Pressure; Not Loaded
      [ 30, 30] 0     Spare
      [ 32, 32] 0     Spare
      [ 34, 34] 1     Angle (Rad, Deg); Not Loaded
      [ 36, 36] 0     Spare
      [ 38, 38] 0     Spare
      [ 40, 40] 0     Spare

```

```
[ 42, 42] 0 Spare
[ 44, 44] 0 Spare
[ 46, 46] 1 History Mode, 0=ASCII 1=BINARY (separate file); Not Loaded
[ 49, 51] H25 History File Extension; Not Loaded
```

5. Date and Time

```
5011,0,1,1999,11,08,17,32,1,"Mon",312
```

```
[ 6, 6] 0 Date
[ 8, 8] 1 Time
[ 10, 20] 1999,11,08 Date - TEST_DATE in MON_DEFL_MASTER, MON_DEFL_LOC_INFO, and
MON_DEFL_DROP_DATA
[ 11, 14] 1999 Year
[ 16, 17] 11 Month
[ 19, 20] 08 Day
[ 22, 26] 17,32 Time; Not Loaded
[ 22, 23] 17 Hour; Not Loaded
[ 25, 26] 32 Minute; Not Loaded
[ 28, 28] 1 Day of week (0=Sun); Not Loaded
[ 31, 33] Mon Literal Day of week; Not Loaded
[ 36, 38] 312 Julian Day (1=Jan 1); Not Loaded
```

6. Load Cell - LIN 5200

```
5200,"F0201",2,0.980, 87.6, -0.72, 7.229
```

```
[ 7, 8] F0 First two Characters Load Cell File Name; Not Loaded
[ 9, 11] 201 Load Cell Serial Number -
MON_DEFL_DEV_CONFIG.LOAD_CELL_SERIAL_NO
[ 12, 14] Remaining Characters in Load Cell File Name; Not Loaded
[ 17, 17] 2 Type
[ 19, 23] 0.980 Relative Gain - MON_DEFL_DEV_CONFIG.LOAD_CELL_REL_GAIN
[ 25, 29] 87.6 Absolute Gain - MON_DEFL_DEV_CONFIG.LOAD_CELL_INIT_GAIN
[ 31, 36] -0.72 Unbalanced Zero; Not Loaded
[ 38, 44] 7.229 Shunt Value; Not Loaded
```

7. Deflection Sensors - LIN 5201 - 5218

```
5201,"2181",4,0.998,1.014
```

```
[ 1, 4] 5201 LIN Number - Representing Sensor Number
[ 1, 2] 52 First two Digits of LIN
[ 3, 4] 01 Sensor Number - MON_DEFL_DEV_SENSORS.SENSOR_NO
LTPP Standard Setup 1, 2, 3, ... 9
[ 7, 14] 2181 Deflection Sensor File Name, Deflection Sensor Serial Number
- MON_DEFL_DEV_SENSORS.SENSOR_SERIAL_NO
Equal to NA if Sensor Not Active.
[ 17, 17] 4 Type; Not Loaded
[ 19, 23] 0.998 Relative Gain - MON_DEFL_DEV_SENSORS.RELATIVE_GAIN
[ 25, 29] 1.014 Absolute Gain - MON_DEFL_DEV_SENSORS.INITIAL_GAIN
```

LIN 5202...5218 (lines 8..24) same format as LIN 5201

25. Load Plate Radius and X Positions of Deflection Sensors - LIN 5020

```
5020, 150, 0, 203, 305, 457, 610, 914, 1219, 1524, -305,N0,...
```

```
[ 6, 11] 150 Load Plate Radius- MON_DEFL_DEV_CONFIG.PLATE_RADIUS
[ 13, 18] 0 X-Position Sensor 1 - MON_DEFL_DEV_SENSORS.CENTER_OFFSET for
MON_DEFL_DEV_SENSORS.SENSOR_NO=1
[ 20, 25] 203 X-Position Sensor 2 - MON_DEFL_DEV_SENSORS.CENTER_OFFSET for
MON_DEFL_DEV_SENSORS.SENSOR_NO=2
[ 27, 32] 305 X-Position Sensor 3 - MON_DEFL_DEV_SENSORS.CENTER_OFFSET for
MON_DEFL_DEV_SENSORS.SENSOR_NO=3
[ 34, 39] 457 X-Position Sensor 4 - MON_DEFL_DEV_SENSORS.CENTER_OFFSET for
```

MON_DEFL_DEV_SENSORS.SENSOR_NO=4

- .
- .
- .
- [132,137] NO X-Position Sensor 18 - NO - Not Active; Not Loaded
26. Load Plate Diameter of Plate and Y-Positions of Deflection Sensors - LIN 5021
 5021, 300, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, NO, ...
- [6, 11] 300 Load Plate Diameter; Not Loaded
 [13, 18] 0 Y - Position of Sensor 1; Not Loaded
 [20, 25] 0 Y - Position of Sensor 2; Not Loaded
 [27, 32] 0 Y - Position of Sensor 3; Not Loaded
- .
- .
- [132,137] NO Y - Position of Sensor 18, Not Loaded
27. "Other" Physicals - LIN 5022
 5022,0, 200, 192, 50, 100, 200, 390
- [6, 6] 0 Plate Type: 0=Standard 1=Split Plate; Not Loaded
 [8, 11] 200 Loading Mass; Not Loaded
 [13, 16] 192 Mass (sensed); Not Loaded
 [18, 22] 50 Load Height ONE; Not Loaded
 [24, 28] 100 Load Height TWO; Not Loaded
 [30, 34] 200 Load Height THREE; Not Loaded
 [36, 40] 390 Load Height FOUR; Not Loaded
28. Station and Lane Information - LIN 5023
 5023,1,3,2, 8, 481, 481, 1, 328,1,1
- [6, 6] 1 Station is: 0=Alpha 1=Numeric; Not Loaded
 [8, 8] 3 Numeric Station is: 1=Real, 2=Location, 3=DMI, 4=DMI Rounded; Not Loaded
 [10, 10] 2 Step Mode: 0=None, 1=Fixed, 2=Logical; Not Loaded
 [12, 19] 8 Min Station; Not Loaded
 [21, 28] 481 Max Station; Not Loaded
 [30, 37] 481 Previous Station; Not Loaded
 [39, 46] 1 Station Step; Not Loaded
 [48, 55] 328 DMI Rounding; Not Loaded
 [57, 57] 1 Lane is: 0=Alpha 1=Numeric; Not Loaded
 [59, 59] 1 Numeric Lane is: 1=Real 2=Location; Not Loaded
29. Test Setup Options - LIN 5024
 5024,0,0,0,1,0,1, 3, 2.0, 2, 3.0,0,0,0, 120
- [6, 6] 0 Station Prompt; Not Loaded
 [8, 8] 0 Temperature Prompt(s); Not Loaded
 [10, 10] 0 Condition Prompt; Not Loaded
 [12, 12] 1 Reject Prompt; Not Loaded
 [14, 14] 0 Decrease Check; Not Loaded
 [16, 16] 1 Roll Off Check; Not Loaded
 [18, 23] 3 Pressure Variation; Not Loaded
 [25, 28] 2.0 Pressure Variation %; Not Loaded
 [30, 35] 2 Deflection Variation; Not Loaded
 [37, 40] 3.0 Deflection Variation %; Not Loaded
 [42, 42] 0 Temperatures "Keep"; Not Loaded
 [44, 44] 0 Smoothing, Used to determine **MON_DEFL_MASTER.FILTER_MODE**
 [46, 46] 0 History Smoothing, Used to determine **MON_DEFL_MASTER.FILTER_MODE**
 [48, 51] 120 Cut off (Hz), Used to determine **MON_DEFL_MASTER.FILTER_MODE**
30. No of Sequences, Drops total - LIN 5029

```

5029,      20,      240,      134,      2579
[ 6, 13] 20      Sequences stored in file; Not Loaded
[ 15, 22] 240     Drops stored in file; Not Loaded
[ 24, 31] 134     Total No Sequences Run by Program with this Rig; Not Loaded
[ 33, 40] 2579    Total No Drops Run by Program with this Rig; Not Loaded

```

31. Operator Name - LIN 5030
5030,"Mike Esposito"

```
[ 7, 38] Mike Espos.. Operators Name - MON_DEFL_MASTER.OPERATOR
```

32. LTPP FWD File Name - LIN 5031
5031,"060811C3"

```
[ 7, 14] 060811C3      LTPP FWD Data File Name; Not Loaded
```

33. LTPP STATE_CODE & SHRP_ID - LIN 7924

7924,"060811"

```
[ 7, 8] 06      LTPP STATE_CODE, used in MON_DEFL_MASTER, MON_DEFL_LOC_INFO,
and MON_DEFL_DROP_DATA
[ 9, 12] 0811    LTPP SHRP_ID, used in MON_DEFL_MASTER, MON_DEFL_LOC_INFO,
and MON_DEFL_DROP_DATA
```

34. Subsection Id - LIN 5032
5032,"SYCAMORE,CA SPS-8 KM 103+80.0"

```
[ 7, 51] SYCAMOR... Roadway ID and Description - MON_DEFL_MASTER.ROADWAY_ID
```

35. Operator File Comment - LIN 7920

```

7920,"060811"
[ 7, 51] 060811... Operator File Comment; Not Loaded

```

Lines 36 (LIN 5301), 37 (LIN 5302), and 38 (LIN 5303) present the "Station Information" at the time of file closing. These LIN have the same format as those presented for the test data below. The data from these LIN entries in the header are not loaded into the IMS.

36. Station Id for NUMERIC type Station and Lane - LIN 5301 (This LIN in the header portion of the data file is not loaded)

5301,2,1,3,5, 15,1,1, 0.000,1999,11,08,17,32,"J5","13"

```

[ 6, 6] 2      Side of Road
[ 8, 8] 1      Station
[ 10, 10] 3     Numeric Station
[ 12, 12] 5     Location
[ 14, 21] 15    Station
[ 23, 23] 1     Alpha/Numeric Lane
[ 25, 25] 1     Numeric Lane
[ 27, 34] 0.000 Lane
[ 36, 45] 1999,11,08 Date
[ 36, 39] 1999  Year
[ 41, 42] 11    Month
[ 44, 45] 08    Day
[ 47, 51] 17,32 Time
[ 47, 48] 17    Hour
[ 50, 51] 32    Minute
[ 54, 55] J5    LTPP LANE_NO Code
[ 59, 60] 13    LTPP CRACK_JOINT_OPEN_WIDTH, mm

```

37. Comment Codes - LIN 5302 (This LIN in the header portion of the data file is not loaded)

5302,0,1,8,2,0,0,0,0

[6, 6]	0	Weather
[8, 8]	1	Sunlight
[10, 10]	8	Pavement
[12, 12]	2	Cracks
[14, 14]	0	E
[16, 16]	0	F
[18, 18]	0	G
[20, 20]	0	H

38. Temperatures - LIN 5303 (This LIN in the header portion of the data file is not loaded)

5303,0, 0.0, 16.7, 18.3

[6, 6]	0	Temperature Units Code: 0= Deg C, 1= Deg F
[8, 12]	0.0	Asphalt
[14, 18]	16.7	Pavement Surface
[20, 24]	18.3	Air

Lines 37..40 are the most recently used Comments 1..4.

39. Most Recently Used Comment 1 - LIN 5041

5041," "

[7, 51] Comment 1, Not Loaded

40. Air Temperature Sensor Calibration Voltage at 0 Deg C - LIN 8672

8672,2698

[6, 9]	2698	Air Temperature Sensor Voltage @ 0 Deg C, milli-volts,
		MON_DEFL_DEV_CONFIG.AIR_SENSOR_VOLTAGE_0C

41. Air Temperature Sensor Calibration Voltage at 100 Deg C - LIN 8673

8673,3708

[6, 9]	3708	Air Temperature Sensor Voltage @ 100 Deg C, milli-Volts,
		MON_DEFL_DEV_CONFIG.AIR_SENSOR_VOLTAGE_100C

42. Pavement Surface Temperature Sensor Calibration Voltage at 0 Deg C - LIN 8682

8682,1259

[6, 9]	1259	Pavement Surface Temperature Sensor Voltage @ 0 Deg C, milli-
		volts, MON_DEFL_DEV_CONFIG.PVMT_SENSOR_VOLTAGE_0C

43. Pavement Surface Temperature Sensor Calibration Voltage at 100 Deg C - LIN 8683

8683,4217

[6, 9]	4217	Pavement Surface Temperature Sensor Voltage @ 100 Deg C,
		milli-volts, MON_DEFL_DEV_CONFIG.PVMT_SENSOR_VOLTAGE_100C

44. Most Recently Used Comment 2 - LIN 5042

5042,"NO OBVIOUS DISTRESS AT TEST LOCATIONS. "

[7, 51] NO OBVIOUS... Operator Comment 2, (This LIN in the header potion of the data file is not loaded)

45. Most Recently Used Comment 3 - LIN 5043

5043," "

[7, 82] Operator Comment 3, Not Loaded

46. Most Recently Used Comment 4 - LIN 5044

5044," "

[7, 82] Operator Comment 4, Not Loaded

Test Data

In the test data portion of the file, test data are stored in chronological order in repeating data blocks which contain measurements at each test point or station. The number of data lines in each data group varies depending on the test setup and the operators use of the optional Crack/Joint opening measurement field. The test data are arranged in the following groups:

Optional Crack/Joint Opening Measurement - LIN 7925
 Station Information - LIN 5301, 5302, and 5303
 Operator Comment - LIN 7902
 FWD Peak Load and Deflection Measurements
 Time History Blocks - LIN 5185

Station Information

Unless the LIN 7925 option was used, each block of test data typically begins with three lines of station information. The first line of station information data always has a LIN of 5301.

LIN 5301 Station Id for NUMERIC type Station and Lane -

5301,2,1,3,5, 8,1,1, 0.000,1999,11,08,16,24,"J4","13"

[6, 6] 2 Side of Road; Not Loaded
 [8, 8] 1 Station is: 0=Alpha 1=Numeric; Not Loaded
 [10, 10] 3 Numeric Station is: 1=Real, 2=Location, 3=DMI, 4=DMI Rounded; Not Loaded
 [12, 12] 5 Location 2=Meters ; Not Loaded
 3=km
 4=km extended
 5=Feet, **LTPP Standard**
 6=Yards
 7=Miles
 8=Miles extended
 9=Miles.feet
 [14, 21] 8 Station, converted to meters and loaded as POINT_LOC in **MON_DEFL_LOC_INFO** and **MON_DEFL_DROP_DATA** for all records for this station (POINT_LOC)
 [23, 23] 1 Alpha/Numeric Lane, 0=Alpha 1=Numeric; Not Loaded

```

[ 25, 25] 1      Numeric Lane, 1=Real 2=Location; Not Loaded
[ 27, 34] 0.000  Lane; Not Loaded
[ 36, 45] 1999,11,08 Date, loaded as TEST_DATE in MON_DEFL_LOC_INFO and
MON_DEFL_DROP_DATA for all records for this station
(PPOINT_LOC).

[ 36, 39] 1999  Year
[ 41, 42] 11   Month
[ 44, 45] 08   Day
[ 47, 51] 16,24 Time, loaded as TEST_TIME in MON_DEFL_LOC_INFO and
MON_DEFL_DROP_DATA for all records for this station
(PPOINT_LOC).

[ 47, 48] 16   Hour, 00 - 24
[ 50, 51] 24   Minute, 00-59
[ 54, 55] J4   LTPP LANE_NO Code, Loaded as LANE_NO in MON_DEFL_LOC_INFO and
MON_DEFL_DROP_DATA for all records for this station
(PPOINT_LOC).

[ 59, 60] 13   LTPP CRACK_JOINT_OPEN_WIDTH, mm, loaded as
MON_DEFL_LOC_INFO.CRACK_JOINT_OPEN_WIDTH

```

LIN 5302 Comment Codes - LIN 5302 (Data from this LIN are not loaded)

```
5302,0,1,8,2,0,0,0,0
```

```

[ 6, 6] 0      Weather Code; Not Loaded
[ 8, 8] 1      Sunlight Code; Not Loaded
[10,10] 8      Pavement Code; Not Loaded
[12,12] 2      Cracks Code; Not Loaded
[14,14] 0      E; Not Loaded
[16,16] 0      F; Not Loaded
[18,18] 0      G; Not Loaded
[20,20] 0      H; Not Loaded

```

LIN 5303 Temperatures - LIN 5303

```
5303,0, 0.0, 20.2, 21.7
```

```

[ 6, 6] 0      Temperature Units Code: 0= Deg C, 1= Deg F; Not Loaded
[ 8,12] 0.0    Asphalt; Not Loaded
[14,18] 20.2   Pavement Surface Temperature, loaded as
MON_DEFL_LOC_INFO.PVMT_SURF_TEMP
[20,24] 21.7   Air Temperature, loaded as MON_DEFL_LOC_INFO.AIR_TEMP_TEST

```

LIN 7901 - Pre-Test Operator Comment

```
7901,""
```

```
[ 7, 51] Pre Test Operator Comment, not loaded into IMS
```

LIN 7902 - Post-Test Operator Comment

```
7902,"NO OBVIOUS DISTRESS AT TEST LOCATIONS."
```

```
[ 7, 51] NO OBVIOUS... Operator Comment, Loaded as MON_DEFL_LOC_INFO.COMMENTS_1
```

FWD Peak Load and Deflection Measurements

The lines which contain FWD peak load and deflection values use the LIN object field as a sequence step number. Its value corresponds to the drop number in the load sequence at the test location. (Which is not the same as the value stored as DROP_NO in the IMS.) For most LTPP data, the LIN will start with 4, since 3 seating drops are normally performed prior to recording the deflection and load measurements. (Note, for some LANE_NO codes, only two seating drops are performed.) The following example data are 4 repeat drops from two drop

heights. The number of drop heights, repeat drops, and order of drop height varies depending on the LANE_NO.

4,	572,	209,	194,	179,	159,	140,	109,	85,	68,	169
5,	575,	210,	195,	181,	160,	141,	110,	86,	68,	170
6,	579,	212,	196,	182,	161,	142,	111,	86,	69,	171
7,	575,	211,	195,	181,	160,	141,	110,	86,	68,	170
8,	771,	276,	258,	239,	210,	185,	144,	111,	90,	223
9,	775,	278,	260,	241,	212,	185,	145,	112,	90,	225
10,	775,	279,	259,	241,	212,	186,	145,	113,	90,	225
11,	778,	279,	260,	241,	212,	186,	145,	112,	90,	226
.										
.										
.										
[1, 4]	4	Sequence Step No is LIN, Used to compute values for DROP_NO and DROP_HEIGHT in MON_DEFL_DROP_DATA								
[6, 11]	572	Peak Load (pressure) (kPa), loaded as MON_DEFL_DROP_DATA.DROP_LOAD								
[13, 18]	209	Peak Deflection Sensor 1, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_1								
[20, 25]	194	Peak Deflection Sensor 2, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_2								
[27, 32]	179	Peak Deflection Sensor 3, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_3								
[34, 39]	159	Peak Deflection Sensor 4, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_4								
[41, 46]	140	Peak Deflection Sensor 5, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_5								
[48, 53]	109	Peak Deflection Sensor 6, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_6								
[55, 60]	85	Peak Deflection Sensor 7, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_7								
[62, 67]	68	Peak Deflection Sensor 8, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_8								
[69, 74]	169	Peak Deflection Sensor 9, microns, loaded as MON_DEFL_DROP_DATA.PEAK_DEFL_9								
[75, *]		If more than 9 sensors are used on the FWD, the deflection values are repeated in the same sequence. For LTPP, 9 is the maximum number of sensors used.								

Time History Blocks

```

5185,2,1,3,5,      8,1,1,      0.000,1999,11,08,16,24, 7,1100, 100,      0

[ 6, 6] 2      Side of Road; Not Loaded
[ 8, 8] 1      Station is: 0=Alpha 1=Numeric; Not Loaded
[10,10] 3      Numeric Station is: 1=Real, 2=Location, 3=DMI, 4=DMI Rounded;
                Not Loaded
[12,12] 5      Location      2=Meters      ; Not Loaded
                        3=km
                        4=km extended
                        5=Feet, LTPP Standard
                        6=Yards
                        7=Miles
                        8=Miles extended
                        9=Miles.feet

[14,21] 8      Station, not loaded from this LIN type
[23,23] 1      Alpha/Numeric Lane, 0=Alpha 1=Numeric; Not Loaded
[25,25] 1      Numeric Lane, 1=Real 2=Location; Not Loaded
[27,34] 0.000   Lane; Not Loaded
[36,45] 1999,11,08 Date, not loaded from this LIN type
[36,39] 1999    Year
[41,42] 11      Month
[44,45] 08      Day
[47,51] 16,24   Time, not loaded from this LIN type
[47,48] 16      Hour, 00 - 24
[50,51] 24      Minute, 00-59
[53,54] 7      Sequence Step, used to match sequence step in peak load and
                deflection data lines in order to load value for
MON_DEFL_DROP_DATA.HISTORY_STORED
[56,59] 1100    Line Count (Samples per Channel)constant for all time history
                data contained in the file, loaded once for each data file as
MON_DEFL_MASTER.NO_HISTORY_STEPS
[61,64] 100     Time step (uSec 'per Line'), constant for all time history
                data contained in the file, loaded once for each data file as
MON_DEFL_MASTER.HISTORY_TIME_STEP
[66,75] 0      File Position, -1=time history stored as ASCII in this file,
                ≥ 0 line number in binary history file, Not Loaded

```

Standard LTPP protocol for FWD testing using Dyan25 is to store time history data in a separate binary file. In this case, File Position should be ≥ 0. If the File Position is -1, the time history data is stored in this file, following the reference LIN 5185. The number of lines of time history data correspond to the value specified in Line Count in LIN 5185. The time history data are stored in the same format in the peak load and deflection measurements discussed above, with the exception that the LIN value starts with 1001 and is incremented by one for each successive line. If the time history data are stored in this file, the filter program should not load the values.

Complete Fwd *.F25 File Used in Annotated Format Description

```

5001,25.11,1,46, 4, 1,"Aug 2000      "
5002,"25SIN      ","8002-061","9000-323"
5003,"OPERATOR","3-RGD LT"
5010,0,0,0,0,0,0,0,5,1,0,0,0,0,0,1,0,0,0,0,0,1,"H25"
5011,0,1,1999,11,08,17,32,1,"Mon",312
5200,"F0201      ",2,0.980, 87.6, -0.72,  7.229
5201,"2181      ",4,0.998,1.014
5202,"2182      ",4,0.996,1.032
5203,"2183      ",4,0.997,1.041
5204,"2184      ",4,0.998,1.024
5205,"2185      ",4,0.996,1.009
5206,"2186      ",4,1.001,1.000
5207,"3092      ",4,1.000,1.038
5208,"3458      ",4,0.997,0.987
5209,"3459      ",4,0.999,1.008
5210,"NA        ",0,0.000,0.000
5211,"NA        ",0,0.000,0.000
5212,"NA        ",0,0.000,0.000
5213,"NA        ",0,0.000,0.000
5214,"NA        ",0,0.000,0.000
5215,"NA        ",0,0.000,0.000
5216,"NA        ",0,0.000,0.000
5217,"NA        ",0,0.000,0.000
5218,"NA        ",0,0.000,0.000
5020, 150,      0, 203, 305, 457, 610, 914, 1219, 1524, -305,N0 ,N0 ,N0 ,N0 ,N0
,N0 ,N0 ,N0
5021, 300,      0, 0, 0, 0, 0, 0, 0, 0, 0,N0 ,N0 ,N0 ,N0 ,N0
,N0 ,N0 ,N0
5022,0, 200, 192, 50, 100, 200, 390
5023,1,3,2, 8, 481, 481, 1, 328,1,1
5024,0,0,0,1,0,1, 3, 2.0, 2, 3.0,0,0,0, 120
5029, 20, 240, 134, 2579
5030,"Bill Murray      "
5031,"060811C3"
7924,"060811"
5032,"SYCAMORE,CA SPS-8 KM 103+80.0      "
7920,"060811"
5301,2,1,3,5, 15,1,1, 0.000,1999,11,08,17,32,"J5","13"
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, 16.7, 18.3
5041,"      "
8672,2698
8673,3708
8682,1259
8683,4217
5042,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
5043,"      "
5044,"      "
5301,2,1,3,5, 8,1,1, 0.000,1999,11,08,16,24,"J4","13"
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, 20.2, 21.7
7901,"      "
7902,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
 4, 572, 209, 194, 179, 159, 140, 109, 85, 68, 169
 5, 575, 210, 195, 181, 160, 141, 110, 86, 68, 170
 6, 579, 212, 196, 182, 161, 142, 111, 86, 69, 171
 7, 575, 211, 195, 181, 160, 141, 110, 86, 68, 170
 8, 771, 276, 258, 239, 210, 185, 144, 111, 90, 223
 9, 775, 278, 260, 241, 212, 185, 145, 112, 90, 225
10, 775, 279, 259, 241, 212, 186, 145, 113, 90, 225
11, 778, 279, 260, 241, 212, 186, 145, 112, 90, 226
12, 1010, 355, 331, 307, 271, 237, 184, 142, 115, 286
13, 1011, 355, 334, 309, 269, 236, 184, 142, 114, 291
14, 1014, 358, 334, 310, 272, 238, 185, 143, 115, 290
15, 1012, 357, 332, 308, 273, 238, 185, 143, 115, 287
5185,2,1,3,5, 8,1,1, 0.000,1999,11,08,16,24, 7,1100, 100, 0
5185,2,1,3,5, 8,1,1, 0.000,1999,11,08,16,24,11,1100, 100, 11064
5185,2,1,3,5, 8,1,1, 0.000,1999,11,08,16,24,15,1100, 100, 22128
5301,2,1,3,5, 9,1,1, 0.000,1999,11,08,16,28,"J5","13"

```

The following portion of this appendix contains example data files, generated using the FWD simulator program, which are typical of the different LTPP FWD test patterns. (Note that the section ID numbers are fictitious.) Each data set only contains only one station and the data on LIN's 5020 and 5021 have been truncated for better legibility. (The files also contain intentional misspellings to replicate real-world conditions)

Example data file 1 - Typical output from flexible pavement test setup
Example data file 2 - Typical output from rigid pavement basin/edge test setup
Example data file 3 - Typical output from rigid pavement load transfer test setup
Example data file 4 - Typical output from P059 base test setup
Example data file 5 - Typical output from P059 subgrade test setup
Example data file 6 - Typical output from SPS-3 test setup
Example data file 7 - Typical output from SPS-4 test setup

Example data file 1 - Typical output from flexible pavement test setup

```

5001,25.11,1,46, 4, 1,"Aug 2000      "
5002,"25SIN      ","8002-129","9000-316"
5003,"OPERATOR   ","1-FLEX      "
5010,0,0,0,0,0,0,0,5,1,0,0,0,0,0,1,0,0,0,0,0,1,"H25"
5011,0,1,1999,10,26,16,25,2,"Wed",299
5200,"F0183      ",2,1.010, 89.9,  0.02,  7.133
5201,"1881       ",4,1.004,1.020
5202,"1882       ",4,1.001,1.014
5203,"1883       ",4,1.003,1.020
5204,"1884       ",4,1.001,1.011
5205,"1885       ",4,0.999,1.006
5206,"1892       ",4,0.998,1.049
5207,"1887       ",4,0.999,1.008
5208,"1890       ",4,1.000,1.024
5209,"1891       ",4,1.001,1.011
5210,"NA         ",0,0.000,0.000
5211,"NA         ",0,0.000,0.000
5212,"NA         ",0,0.000,0.000
5213,"NA         ",0,0.000,0.000
5214,"NA         ",0,0.000,0.000
5215,"NA         ",0,0.000,0.000
5216,"NA         ",0,0.000,0.000
5217,"NA         ",0,0.000,0.000
5218,"NA         ",0,0.000,0.000
5020, 150,      0,    203,    305,    457,    610,    914,    1219,    1524,    -305,N0
5021, 300,      0,      0,      0,      0,      0,      0,      0,      0,      0,N0
5022,0, 200, 199,    50, 100, 200, 390
5023,1,3,2,N0      ,N0      ,N0      , 0.100,    328,1,1
5024,0,0,0,0,1,1,1,    3, 2.0,    2, 1.0,0,0,0, 120
5029, 1,      16,    364,    6227
5030,"Bill Murray      "
5031,"991000a2"
7924,"991000"
5032,"I-75, SOUTHBOUND      "
7920,"Testing Filter file format for SAIC      "
5301,2,1,3,5, 181062,1,1,    0.0,1999,10,26,16,25,"C1"," "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.5, 17.3
5041,"      "
8672,2762
8673,3740
8682,1316
8683,4055
5042,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
5043,"      "
5044,"      "
5301,2,1,3,5, 181062,1,1,    0.000,1999,10,26,16,25,"F1"," "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.5, 17.3
7901,"      "
7902,"NO OBVIOUS DISTRESS AT TEST LOCATIONS      "
  4, 595, 458, 403, 380, 339, 292, 209, 127, 42, 378
  5, 595, 463, 409, 381, 336, 295, 212, 127, 42, 381
  6, 606, 464, 408, 374, 335, 293, 208, 127, 42, 381
  7, 605, 458, 409, 381, 336, 295, 210, 126, 42, 380
  8, 846, 655, 575, 540, 472, 420, 294, 179, 59, 535
  9, 851, 658, 576, 539, 475, 416, 300, 177, 59, 534
 10, 852, 657, 569, 536, 478, 415, 295, 179, 59, 540
 11, 854, 658, 574, 529, 473, 416, 299, 177, 59, 539
 12, 1209, 931, 816, 763, 668, 584, 422, 254, 84, 749
 13, 1208, 925, 812, 755, 668, 592, 424, 250, 84, 761
 14, 1194, 924, 811, 756, 675, 591, 419, 250, 84, 753
 15, 1190, 924, 808, 750, 674, 592, 419, 251, 84, 763
 16, 1684, 1288, 1125, 1062, 934, 814, 585, 355, 118, 1055
 17, 1668, 1289, 1131, 1059, 938, 823, 590, 354, 117, 1057
 18, 1680, 1286, 1129, 1054, 943, 824, 583, 355, 116, 1052
 19, 1690, 1290, 1135, 1064, 942, 820, 588, 350, 118, 1055
5185,2,1,3,5, 181062,1,1,    0.000,1999,10,26,16,25, 7,1100, 100, 0
5185,2,1,3,5, 181062,1,1,    0.000,1999,10,26,16,25,11,1100, 100, 11064

```

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5185,2,1,3,5, 181062,1,1, 0.000,1999,10,26,16,25,15,1100, 100, 22128
5185,2,1,3,5, 181062,1,1, 0.000,1999,10,26,16,25,19,1100, 100, 33192

```

Example data file 2 - Typical output from rigid pavement basin/edge test setup

```

5001,25.11,1,46, 4, 1,"Aug 2000      "
5002,"25SIN      ","8002-129","9000-316"
5003,"OPERATOR    ","2-RGD_BE"
5010,0,0,0,0,0,0,0,5,1,0,0,0,0,0,1,0,0,0,0,1,"H25"
5011,0,1,1999,10,26,16,05,2,"Tue",299
5200,"F0183      ",2,1.010, 89.9, 0.02, 7.127
5201,"1881      ",4,1.004,1.020
5202,"1882      ",4,1.001,1.014
5203,"1883      ",4,1.003,1.020
5204,"1884      ",4,1.001,1.011
5205,"1885      ",4,0.999,1.006
5206,"1892      ",4,0.998,1.049
5207,"1887      ",4,0.999,1.008
5208,"1890      ",4,1.000,1.024
5209,"1891      ",4,1.001,1.011
5210,"NA        ",0,0.000,0.000
5211,"NA        ",0,0.000,0.000
5212,"NA        ",0,0.000,0.000
5213,"NA        ",0,0.000,0.000
5214,"NA        ",0,0.000,0.000
5215,"NA        ",0,0.000,0.000
5216,"NA        ",0,0.000,0.000
5217,"NA        ",0,0.000,0.000
5218,"NA        ",0,0.000,0.000
5020, 150, 0, 203, 305, 457, 610, 914, 1219, 1524, -305,N0
5021, 300, 0, 0, 0, 0, 0, 0, 0, 0, 0,N0
5022,0, 200, 196, 50, 100, 200, 390
5023,1,3,2, 176150, 176150, 176150, 0, 328,1,1
5024,0,0,0,1,0,1, 3, 2.0, 2, 1.0,0,0,0, 120
5029, 1, 12, 364, 6227
5030,"Bill Murray      "
5031,"48sa98a2"
7924,"481057"
5032,"I-75, SOUTHBOUND      "
7920,"testing SHRP ID and file naming convention "
5301,2,1,3,5, 176150,1,1, 0.000,1999,10,26,16,05,"C1"," "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.5, 17.6
5041,"CORNER/EDGE      "
8672,2762
8673,3740
8682,1316
8683,4055
5042,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
5043,"      "
5044,"      "
5301,2,1,3,5, 176150,1,1, 0.000,1999,10,26,16,05,"C1"," "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.5, 17.7
7901,"      "
7902,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
4, 848, 659, 577, 534, 471, 418, 296, 177, 59, 539
5, 855, 653, 572, 534, 474, 417, 297, 179, 60, 538
6, 848, 654, 576, 533, 473, 415, 299, 179, 59, 540
7, 841, 651, 579, 534, 476, 419, 298, 178, 59, 531
8, 1212, 924, 807, 753, 674, 592, 420, 250, 84, 751
9, 1196, 927, 818, 762, 668, 584, 422, 251, 84, 752
10, 1189, 932, 815, 750, 675, 582, 421, 253, 84, 752
11, 1210, 930, 815, 756, 676, 591, 418, 252, 85, 757
12, 1689, 1297, 1130, 1058, 932, 818, 585, 352, 117, 1065
13, 1682, 1297, 1146, 1053, 931, 819, 584, 355, 117, 1053
14, 1662, 1291, 1135, 1057, 934, 816, 586, 356, 117, 1058
15, 1672, 1288, 1141, 1065, 942, 822, 587, 355, 117, 1046
5185,2,1,3,5, 176150,1,1, 0.000,1999,10,26,16,05, 7,1100, 100, 132768
5185,2,1,3,5, 176150,1,1, 0.000,1999,10,26,16,05,11,1100, 100, 143832
5185,2,1,3,5, 176150,1,1, 0.000,1999,10,26,16,05,15,1100, 100, 154896

```

Example data file 3 - Typical output from rigid pavement load transfer test setup

```

5001,25.11,1,46, 4, 1,"Aug 2000      "
5002,"25SIN      ", "8002-059", "9000-316"
5003,"OPERATOR", "3-RGD_LT"
5010,0,0,0,0,0,0,0,5,1,0,0,0,0,1,0,0,0,0,1, "H25"
5011,0,1,1999,10,28,16,05,4, "Wed", 301
5200,"F0201      ", 2,1.000, 87.6, 0.03, 7.140
5201,"2181       ", 4,1.001,1.014
5202,"2182       ", 4,1.001,1.032
5203,"2183       ", 4,1.002,1.041
5204,"2184       ", 4,1.000,1.024
5205,"2185       ", 4,0.997,1.009
5206,"2186       ", 4,1.000,1.000
5207,"2187       ", 4,1.001,0.986
5208,"2188       ", 4,0.999,1.012
5209,"0811       ", 4,1.000,1.067
5210,"NA         ", 0,0.000,0.000
5211,"NA         ", 0,0.000,0.000
5212,"NA         ", 0,0.000,0.000
5213,"NA         ", 0,0.000,0.000
5214,"NA         ", 0,0.000,0.000
5215,"NA         ", 0,0.000,0.000
5216,"NA         ", 0,0.000,0.000
5217,"NA         ", 0,0.000,0.000
5218,"NA         ", 0,0.000,0.000
5020, 150,      0, 203, 305, 457, 610, 914, 1219, 1524, -305,NO
5021, 300,      0, 0, 0, 0, 0, 0, 0, 0, 0,NO
5022,0, 200, 205, 50, 100, 200, 390
5023,1,3,2,NO, ,NO, , 0.100, 328,1,1
5024,0,0,0,1,0,1, 3, 2.0, 2, 1.0,0,0,0, 120
5029, 2, 24, 0, 0
5030,"Bill Murray      "
5031,"992000a1"
7924,"481057"
5032,"I-75, SOUTHBOUND      "
7920,"Testing Filter file output test for SAIC      "
5301,2,1,3,5, 44389,1,1, 0.0,1999,10,28,16,05, "F1", "2 "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, 39.3, 20.3
5041,"      "
8672,2730
8673,3730
8682, 800
8683,2080
5042,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
5043,"      "
5044,"      "
5301,2,1,3,5, 44389,1,1, 0.000,1999,10,26,15,56, "J1", "2 "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, 39.2, 20.1
7901,"      "
7902,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
4, 843, 660, 575, 531, 478, 419, 297, 178, 60, 534
5, 850, 656, 573, 538, 475, 412, 298, 179, 60, 531
6, 853, 660, 578, 537, 472, 417, 295, 180, 60, 540
7, 843, 651, 572, 539, 474, 417, 298, 177, 59, 540
8, 1201, 930, 807, 751, 675, 587, 422, 252, 83, 759
9, 1198, 918, 811, 751, 677, 593, 418, 250, 84, 758
10, 1207, 928, 816, 758, 674, 582, 423, 252, 84, 759
11, 1204, 933, 806, 763, 667, 592, 417, 251, 84, 758
12, 1678, 1288, 1126, 1065, 932, 816, 591, 353, 118, 1056
13, 1670, 1287, 1128, 1048, 948, 824, 591, 352, 118, 1055
14, 1672, 1280, 1138, 1052, 930, 825, 591, 355, 118, 1046
15, 1673, 1296, 1129, 1064, 932, 817, 582, 352, 118, 1045
5185,2,1,3,5, 44389,1,1, 0.000,1999,10,26,15,56, 7,1100, 100, 0
5185,2,1,3,5, 44389,1,1, 0.000,1999,10,26,15,56,11,1100, 100, 11064
5185,2,1,3,5, 44389,1,1, 0.000,1999,10,26,15,56,15,1100, 100, 22128

```

Example data file 4 - Typical output from P059 base test setup

```

5001,25.11,1,46, 4, 1,"Aug 2000      "
5002,"25SIN      ","8002-129","9000-316"
5003,"OPERATOR      ","P059_BAS"
5010,0,0,0,0,0,0,0,5,1,0,0,0,0,1,0,0,0,0,0,1,"H25"
5011,0,1,1999,10,26,16,10,2,"Wed",299
5200,"F0183      ",2,1.010, 89.9,  0.02,  7.126
5201,"1881      ",4,1.004,1.020
5202,"1882      ",4,1.001,1.014
5203,"1883      ",4,1.003,1.020
5204,"1884      ",4,1.001,1.011
5205,"1885      ",4,0.999,1.006
5206,"1892      ",4,0.998,1.049
5207,"1887      ",4,0.999,1.008
5208,"1890      ",4,1.000,1.024
5209,"1891      ",4,1.001,1.011
5210,"NA      ",0,0.000,0.000
5211,"NA      ",0,0.000,0.000
5212,"NA      ",0,0.000,0.000
5213,"NA      ",0,0.000,0.000
5214,"NA      ",0,0.000,0.000
5215,"NA      ",0,0.000,0.000
5216,"NA      ",0,0.000,0.000
5217,"NA      ",0,0.000,0.000
5218,"NA      ",0,0.000,0.000
5020, 150,  0,  203,  305,  457,  610,  914, 1219, 1524, -305,NO
5021, 300,  0,  0,  0,  0,  0,  0,  0,  0,  0,NO
5022,0, 200, 204,  50, 100, 200, 390
5023,1,3,2,NO,NO,NO,0.100,328,1,1
5024,0,0,0,1,0,0, 3, 2.0, 2, 1.0,0,0,0, 120
5029, 1, 8, 364, 6227
5030,"Bill Murray      "
5031,"993000a2"
7924,"993000"
5032,"I-75, SOUTHBOUND      "
7920,"Testing Filter file format for SAIC      "
5301,2,1,3,5, 176470,1,1, 0.0,1999,10,26,16,10,"C1"," "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.6, 17.6
5041,"no comment      "
8672,2762
8673,3740
8682,1316
8683,4055
5042,"THE BITTER END-NO OBVIOUS DISTRESS      "
5043,"      "
5044,"      "
5301,2,1,3,5, 176470,1,1, 0.000,1999,10,26,16,10,"S1"," "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.6, 17.6
7901,"      "
7902,"THE BITTER END-NO OBVIOUS DISTRESS      "
2, 604, 464, 402, 380, 336, 293, 208, 127, 42, 374
3, 598, 464, 410, 379, 335, 293, 212, 126, 42, 378
4, 847, 651, 570, 531, 471, 418, 296, 179, 59, 532
5, 843, 649, 577, 539, 476, 412, 296, 180, 59, 536
6, 1212, 916, 814, 760, 671, 592, 419, 253, 84, 749
7, 1199, 924, 817, 749, 667, 592, 421, 253, 85, 762
8, 1666, 1302, 1125, 1059, 941, 821, 582, 355, 117, 1060
9, 1665, 1299, 1136, 1047, 937, 814, 592, 354, 118, 1055
5185,2,1,3,5, 176470,1,1, 0.000,1999,10,26,16,10, 3,1100, 100, 0
5185,2,1,3,5, 176470,1,1, 0.000,1999,10,26,16,10, 5,1100, 100, 11064
5185,2,1,3,5, 176470,1,1, 0.000,1999,10,26,16,10, 7,1100, 100, 22128
5185,2,1,3,5, 176470,1,1, 0.000,1999,10,26,16,10, 9,1100, 100, 33192

```


Example data file 5 - Typical output from P059 subgrade test setup

```

5001,25.11,1,46, 4, 1,"Aug 2000      "
5002,"25SIN      ", "8002-129", "9000-316"
5003,"OPERATOR   ", "P059_SUB"
5010,0,0,0,0,0,0,0,5,1,0,0,0,0,0,1,0,0,0,0,1,"H25"
5011,0,1,1999,10,26,16,13,2,"Wed",299
5200,"F0183      ",2,1.010, 89.9,  0.02,  7.128
5201,"1881       ",4,1.004,1.020
5202,"1882       ",4,1.001,1.014
5203,"1883       ",4,1.003,1.020
5204,"1884       ",4,1.001,1.011
5205,"1885       ",4,0.999,1.006
5206,"1892       ",4,0.998,1.049
5207,"1887       ",4,0.999,1.008
5208,"1890       ",4,1.000,1.024
5209,"1891       ",4,1.001,1.011
5210,"NA         ",0,0.000,0.000
5211,"NA         ",0,0.000,0.000
5212,"NA         ",0,0.000,0.000
5213,"NA         ",0,0.000,0.000
5214,"NA         ",0,0.000,0.000
5215,"NA         ",0,0.000,0.000
5216,"NA         ",0,0.000,0.000
5217,"NA         ",0,0.000,0.000
5218,"NA         ",0,0.000,0.000
5020, 150,      0,  203,  305,  457,  610,  914, 1219, 1524, -305,NO
5021, 300,      0,    0,    0,    0,    0,    0,    0,    0,    0,NO
5022,0, 200, 203,  50, 100, 200,  390
5023,1,3,2,NO, ,NO, ,NO, 0.100, 328,1,1
5024,0,0,0,1,1,0,  3, 2.0,  2, 1.0,0,0,0, 120
5029,  1,      8,    364,  6227
5030,"Bill Murray"
5031,"994000a2"
7924,"994000"
5032,"I-75, SOUTHBOUND      "
7920,"Testing Filter file format for SAIC      "
5301,2,1,3,5, 177734,1,1,  0.0,1999,10,26,16,13,"C1"," "
5302,0,1,8,2,0,0,0,0
5303,0,  0.0, -0.5, 17.4
5041,"no comment      "
8672,2762
8673,3740
8682,1316
8683,4055
5042,"THE BITTER END-NO OBVIOUS DISTRESS      "
5043,"      "
5044,"      "
5301,2,1,3,5, 177734,1,1,  0.000,1999,10,26,16,13,"S1"," "
5302,0,1,8,2,0,0,0,0
5303,0,  0.0, -0.5, 17.4
7901,"
7902,"THE BITTER END-NO OBVIOUS DISTRESS      "
  2,  602,  466,  406,  378,  340,  292,  209,  126,  42,  380
  3,  595,  463,  409,  378,  334,  295,  208,  127,  42,  381
  4,  848,  647,  571,  536,  479,  412,  297,  180,  60,  538
  5,  853,  660,  571,  531,  477,  418,  295,  177,  60,  535
  6, 1200,  923,  807,  761,  677,  583,  421,  254,  84,  756
  7, 1198,  924,  816,  760,  670,  583,  421,  251,  83,  756
  8, 1667, 1280, 1138, 1063,  936,  818,  587,  355, 118, 1054
  9, 1662, 1299, 1129, 1046,  936,  827,  591,  352, 117, 1054
5185,2,1,3,5, 177734,1,1,  0.000,1999,10,26,16,13, 3,1100, 100,  0
5185,2,1,3,5, 177734,1,1,  0.000,1999,10,26,16,13, 5,1100, 100, 11064
5185,2,1,3,5, 177734,1,1,  0.000,1999,10,26,16,13, 7,1100, 100, 22128
5185,2,1,3,5, 177734,1,1,  0.000,1999,10,26,16,13, 9,1100, 100, 33192

```

Example data file 6 - Typical output from SPS-3 test setup

```

5001,25.11,1,46, 4, 1,"Aug 2000      "
5002,"25SIN      ", "8002-129", "9000-316"
5003,"OPERATOR   ", "SPS-3      "
5010,0,0,0,0,0,0,0,5,1,0,0,0,0,0,1,0,0,0,0,0,1, "H25"
5011,0,1,1999,10,26,16,17,2, "Wed", 299
5200,"F0183      ", 2,1.010, 89.9, 0.02, 7.130
5201,"1881       ", 4,1.004,1.020
5202,"1882       ", 4,1.001,1.014
5203,"1883       ", 4,1.003,1.020
5204,"1884       ", 4,1.001,1.011
5205,"1885       ", 4,0.999,1.006
5206,"1892       ", 4,0.998,1.049
5207,"1887       ", 4,0.999,1.008
5208,"1890       ", 4,1.000,1.024
5209,"1891       ", 4,1.001,1.011
5210,"NA         ", 0,0.000,0.000
5211,"NA         ", 0,0.000,0.000
5212,"NA         ", 0,0.000,0.000
5213,"NA         ", 0,0.000,0.000
5214,"NA         ", 0,0.000,0.000
5215,"NA         ", 0,0.000,0.000
5216,"NA         ", 0,0.000,0.000
5217,"NA         ", 0,0.000,0.000
5218,"NA         ", 0,0.000,0.000
5020, 150,      0, 203, 305, 457, 610, 914, 1219, 1524, -305,N0
5021, 300,      0, 0, 0, 0, 0, 0, 0, 0, 0,N0
5022,0, 200, 205, 50, 100, 200, 390
5023,1,3,2,N0, ,N0, ,N0, 0.100, 328,1,1
5024,0,0,0,1,1,1, 3, 2.0, 2, 1.0,0,0,0, 120
5029, 1, 12, 364, 6227
5030,"Bill Murray"
5031,"995000a2"
7924,"995000"
5032,"I-75, SOUTHBOUND      "
7920,"Testing Filter file format for SAIC      "
5301,2,1,3,5, 179142,1,1, 0.0,1999,10,26,16,17, "C1", " "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.5, 17.7
5041,"      "
8672,2762
8673,3740
8682,1316
8683,4055
5042,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
5043,"      "
5044,"      "
5301,2,1,3,5, 179142,1,1, 0.000,1999,10,26,16,17, "F1", " "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.5, 17.7
7901,"      "
7902,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
4, 604, 463, 406, 378, 334, 296, 212, 125, 42, 380
5, 597, 462, 405, 378, 338, 296, 209, 125, 42, 376
6, 595, 462, 404, 375, 337, 296, 210, 126, 42, 381
7, 853, 652, 570, 538, 473, 412, 296, 180, 60, 534
8, 845, 653, 573, 536, 475, 417, 299, 179, 59, 535
9, 851, 651, 572, 534, 478, 417, 295, 180, 59, 533
10, 1210, 924, 813, 762, 675, 587, 421, 250, 85, 756
11, 1192, 921, 814, 761, 672, 584, 420, 250, 84, 759
12, 1208, 931, 807, 751, 676, 585, 419, 251, 83, 762
13, 1683, 1280, 1138, 1046, 941, 822, 590, 350, 118, 1063
14, 1681, 1290, 1141, 1061, 933, 819, 592, 352, 118, 1061
15, 1669, 1293, 1126, 1053, 936, 820, 588, 355, 118, 1061
5185,2,1,3,5, 179142,1,1, 0.000,1999,10,26,16,17, 6,1100, 100, 0
5185,2,1,3,5, 179142,1,1, 0.000,1999,10,26,16,17, 9,1100, 100, 11064
5185,2,1,3,5, 179142,1,1, 0.000,1999,10,26,16,17,12,1100, 100, 22128
5185,2,1,3,5, 179142,1,1, 0.000,1999,10,26,16,17,15,1100, 100, 33192

```

Example data file 7 - Typical output from SPS-4 test setup

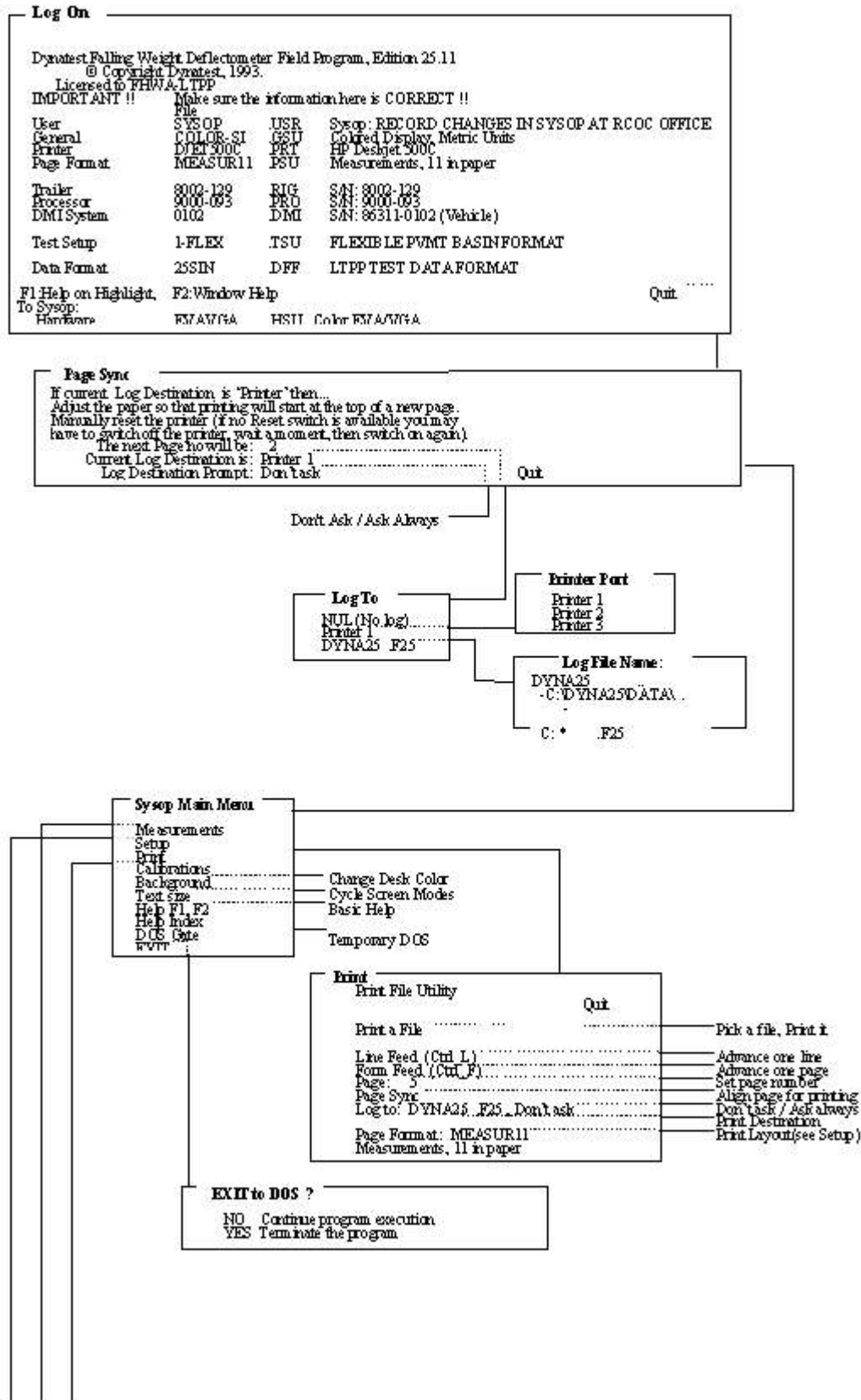
```

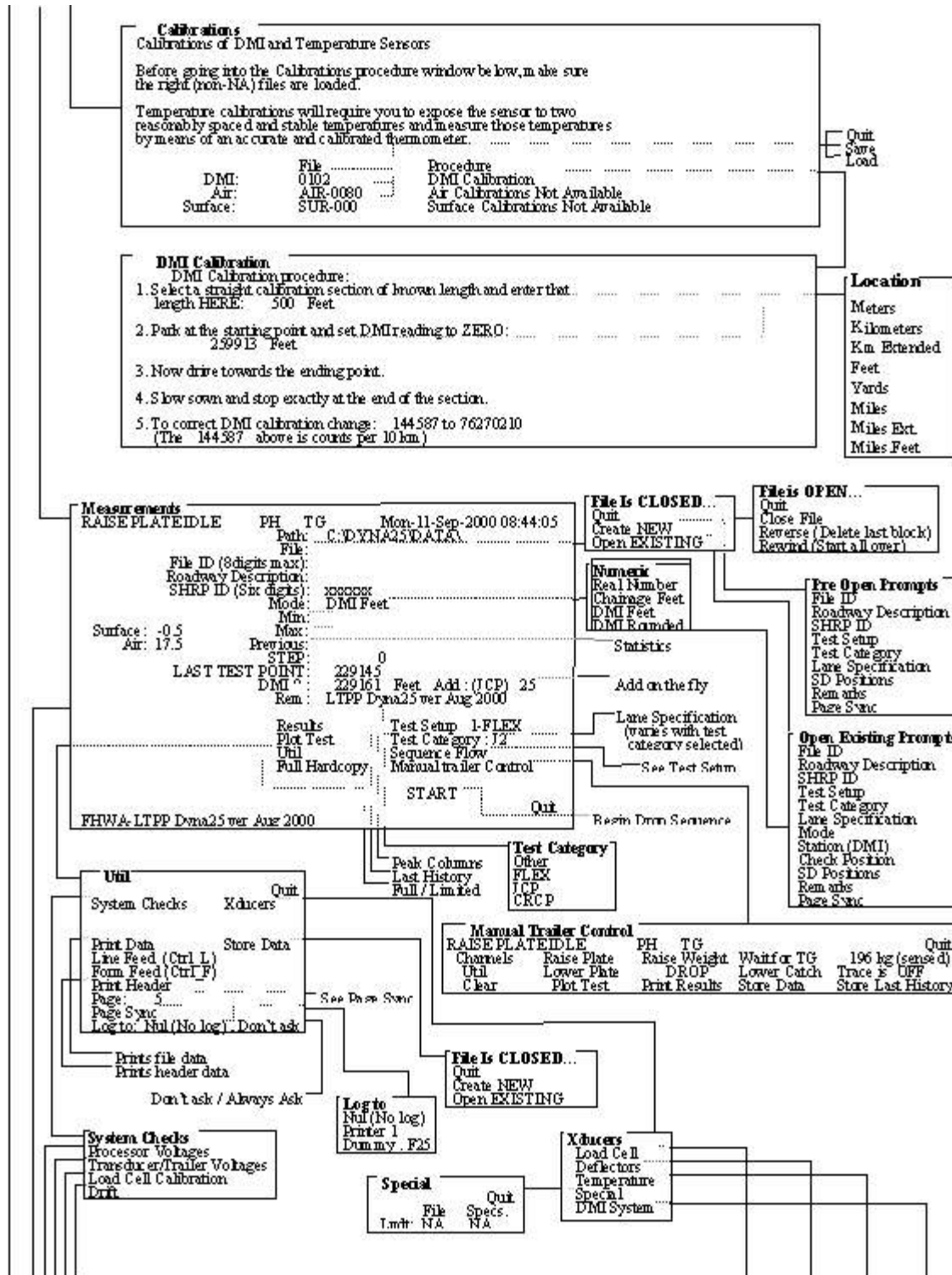
5001,25.11,1,46, 4, 1,"Aug 2000      "
5002,"25SIN      ","8002-129","9000-316"
5003,"OPERATOR      ","SPS-4      "
5010,0,0,0,0,0,0,0,5,1,0,0,0,0,0,1,0,0,0,0,0,1,"H25"
5011,0,1,1999,10,26,16,20,2,"Wed",299
5200,"F0183      ",2,1.010, 89.9, 0.02, 7.128
5201,"1881      ",4,1.004,1.020
5202,"1882      ",4,1.001,1.014
5203,"1883      ",4,1.003,1.020
5204,"1884      ",4,1.001,1.011
5205,"1885      ",4,0.999,1.006
5206,"1892      ",4,0.998,1.049
5207,"1887      ",4,0.999,1.008
5208,"1890      ",4,1.000,1.024
5209,"1891      ",4,1.001,1.011
5210,"NA      ",0,0.000,0.000
5211,"NA      ",0,0.000,0.000
5212,"NA      ",0,0.000,0.000
5213,"NA      ",0,0.000,0.000
5214,"NA      ",0,0.000,0.000
5215,"NA      ",0,0.000,0.000
5216,"NA      ",0,0.000,0.000
5217,"NA      ",0,0.000,0.000
5218,"NA      ",0,0.000,0.000
5020, 150, 0, 203, 305, 457, 610, 914, 1219, 1524, -305,N0
5021, 300, 0, 0, 0, 0, 0, 0, 0, 0, 0,N0
5022,0, 200, 201, 50, 100, 200, 390
5023,1,3,2,N0 ,N0 ,N0 , 0.100, 328,1,1
5024,0,0,0,1,0,1, 3, 2.0, 2, 1.0,0,0,0, 120
5029, 1, 9, 364, 6227
5030,"Bill Murray      "
5031,"996000a2"
7924,"996000"
5032,"I-75, SOUTHBOUND      "
7920,"Testing Filter file format for SAIC      "
5301,2,1,3,5, 180374,1,1, 0.0,1999,10,26,16,20,"C1"," "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.5, 17.7
5041,"      "
8672,2762
8673,3740
8682,1316
8683,4055
5042,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
5043,"      "
5044,"      "
5301,2,1,3,5, 180374,1,1, 0.000,1999,10,26,16,20,"J1"," "
5302,0,1,8,2,0,0,0,0
5303,0, 0.0, -0.5, 17.7
7901,"      "
7902,"NO OBVIOUS DISTRESS AT TEST LOCATIONS.      "
4, 595, 466, 408, 381, 336, 291, 209, 126, 42, 375
5, 600, 466, 409, 381, 338, 297, 209, 125, 42, 381
6, 596, 458, 409, 378, 336, 294, 209, 127, 42, 375
7, 850, 658, 571, 534, 475, 416, 299, 179, 59, 530
8, 851, 651, 569, 534, 473, 412, 298, 180, 59, 533
9, 848, 659, 577, 534, 471, 418, 296, 177, 59, 539
10, 1209, 923, 808, 755, 671, 590, 420, 253, 84, 761
11, 1199, 925, 814, 753, 669, 587, 422, 253, 84, 763
12, 1189, 921, 819, 756, 672, 592, 422, 252, 84, 751

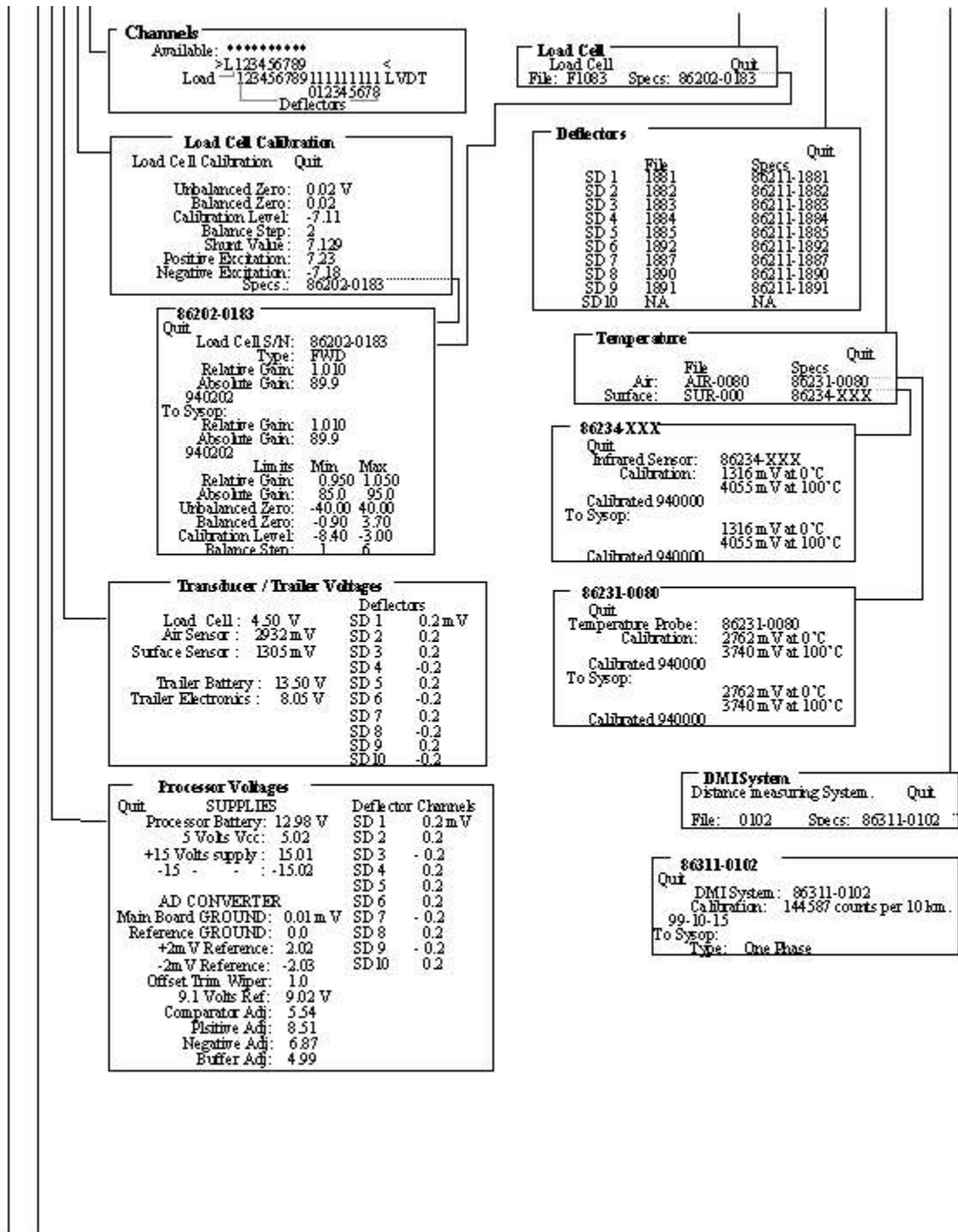
```

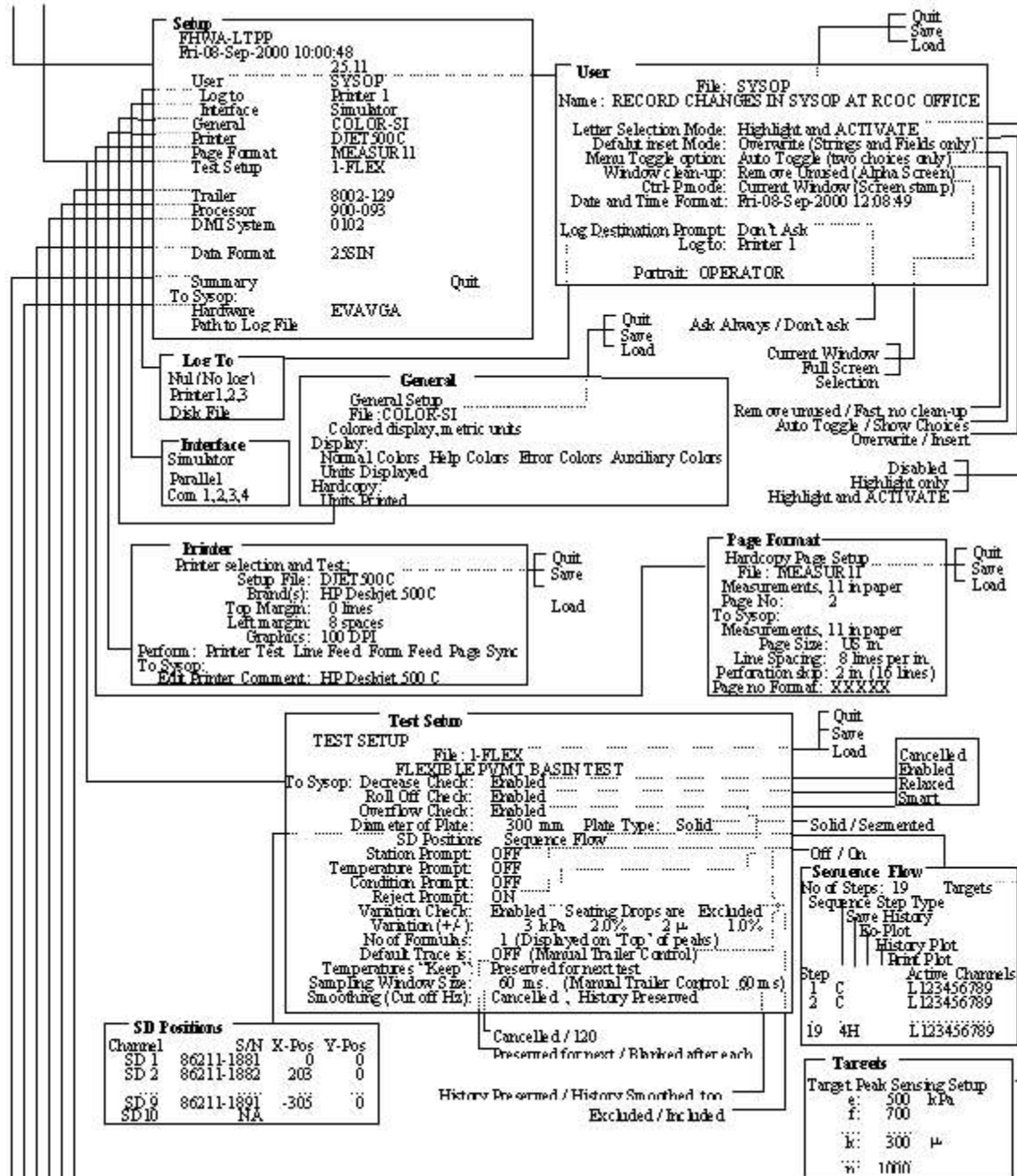
APPENDIX H

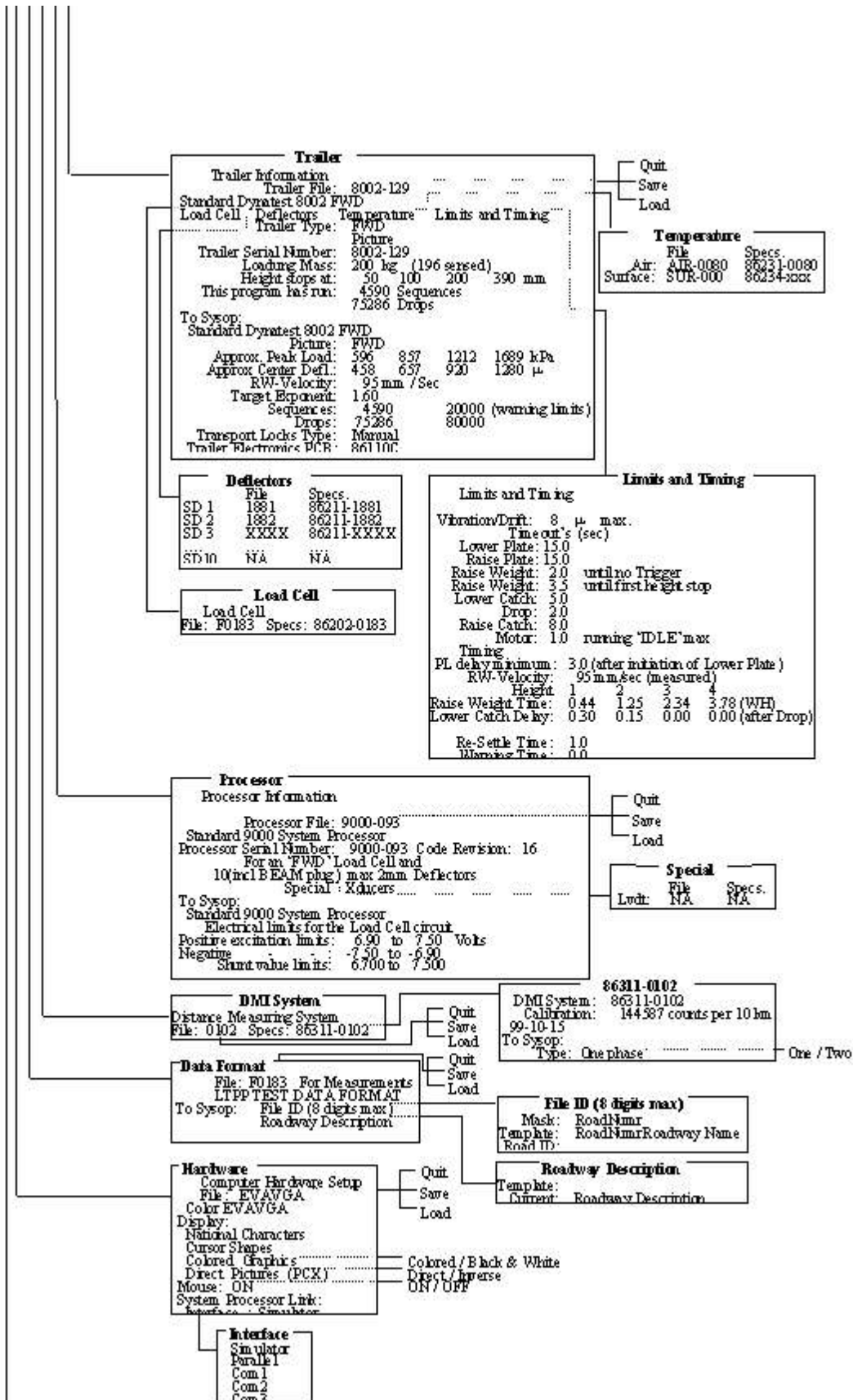
EXAMPLE DYNA25 PROGRAM SCHEMA











Summary			
25.11 Aug 2000	FHWA-LTPP Fri-08-Sep-2000 08:35:49		
User File	SYSOP RECORD CHANGES IN SYSOP AT RCOC OFFICE		
General Setup	COLOR SI Colored Display, Metric Units		
Printer	DJET 500C HP Deskjet 500C		
Page Format	MEASUR11 Measurements, 11 in paper		
Test Setup	1-FLEX FLEXIBLE PVTMT BASIN TEST		
	60 Msec, Smoothing: Cancelled		
Trailer File	C:\DYNA258002-129\8002-129		
Load Cell	C:\DYNA258002-129\	F0183	Rel Abs
Deflector# 1	C:\DYNA258002-129\	1881	1.010 89.9
2		1881	1.004 1.020
3		1882	1.001 1.014
4		1883	1.003 1.020
5		1884	1.001 1.011
6		1885	0.999 1.006
7		1892	0.998 1.049
8		1887	0.999 1.008
9		1890	1.000 1.024
10		1891	1.001 1.011
11		NA	0.000 0.000
12		NA	0.000 0.000
13		NA	0.000 0.000
14		NA	0.000 0.000
15		NA	0.000 0.000
16		NA	0.000 0.000
17		NA	0.000 0.000
18		NA	0.000 0.000
Air temperature	C:\DYNA258002-129\AIR-0080	27623740	
Surface	C:\DYNA258002-129\SUR-000	13164055	
Processor File	C:\DYNA258002-129\9000-093		
DMI system	C:\DYNA258002-129\0102 144587		
Data Format	25 SIN LTPP TEST DATA FORMAT		
Hardware	EVA/VGA Color EGA/VGA		
Application	DYNATEST No extensions to original object base.		

APPENDIX I

STANDARD FWD FORMS

LTPP FWD Monitoring Temperature Measurements - Form F01	Region	[_ _ _]
	State Code	[_ _]
	LTPP Section ID	[_ _ _ _]

AGENCY _____ TESTING _____

LTPP EXPERIMENT CODE _____ ROUTE/HIGHWAY NUMBER _____

TESTING DATE _____ SHEET NUMBER _____ FIELD SET NO. _____

LOCATION		STATION					WEATHER CONDITIONS
DEPTH	D ₁ =	D ₂ =	D ₃ =	D ₄ =	D ₅ =		
TIME	T ₁ (°C)	T ₂ (°C)	T ₃ (°C)	T ₄ (°C)	T ₅ (°C)		

LOCATION		STATION					WEATHER CONDITIONS
DEPTH	D ₁ =	D ₂ =	D ₃ =	D ₄ =	D ₅ =		
TIME	T ₁ (°C)	T ₂ (°C)	T ₃ (°C)	T ₄ (°C)	T ₅ (°C)		

- NOTES: 1) D_i = DEPTH BELOW PAVEMENT SURFACE, MILLIMETER
2) T_i = TEMPERATURE AT DEPTH i, °C
3) D₁ AND D₅ ONLY FOR GPS-7 IN ACCORDANCE WITH FIGURE 6 OF THE FWD MANUAL
4) USE ONLY THESE WEATHER TERMS: SUNNY, PARTLY CLOUDY, CLOUDY, RAIN, NIGHT

TEST COMPLETED

_____	_____/_____/_____ MONTH/DAY/YEAR	_____
FWD OPERATOR		AFFILIATION

FORM F01/ISSUED 15 OCTOBER 1999

LTPP FWD Monitoring Field Activity Report - Form F02	Region []
	State Code []
	LTPP Section ID []

AGENCY _____ TESTING _____

LTPP EXPERIMENT CODE _____ ROUTE/HIGHWAY NUMBER _____

TESTING DATE _____ SHEET NUMBER _____ FIELD SET NO. _____

FWD AND TOW VEHICLE BEFORE OPERATION CHECKS _____ (initial)

	TIME	ODOMETER
START TRAVEL	_____	_____
END TRAVEL	_____	_____
READY TO TEST	_____	
TRAFFIC CONTROL READY	_____	
BEGIN TESTING	_____	
END TESTING	_____	
START TRAVEL	_____	_____
END TRAVEL	_____	_____

DOWN TIME _____ HOURS REASON(S) _____

NUMBER OF TESTS:	BASIN	JT/CRACK
TP	_____	
OWP	_____	_____
PE	_____	
ML	_____	

ADDITIONAL REMARKS REGARDING TESTING _____

FIELD SAMPLING AND TESTING CREW

NAMES: _____

TRAFFIC CONTROL CREW

AGENCY: _____
NAMES: _____

COPIES: RCOC

FORM F02/ISSUED 15 OCTOBER 1999 FORM F03/ISSUED 15 OCTOBER 1999

LTPP FWD Monitoring Load Plate Buffer Shape - Form F04	Region []
---	---------------

Deflection Unit ID: []

Buffer Shape: [] see the following code Assign Date: [/ /] De-assign Date: [/ /]

<u>Code</u>	<u>Description</u>
1	Flat - 100 mm diameter, flat (90°) buffers
2	Fully Rounded - 100 mm diameter, “knife” cut variable cone shaped (45°) buffers
3	Semi-Rounded - 110 mm diameter, tapered (60°) buffers
9	Unknown - buffer shape is unknown

LTPP TEMPERATURE SENSOR CHECK (TSC) FORM

RCO: _____

Date: _____

FWD Operator Name: _____

FWD SN: _____

Air Temperature SN: _____

Assistant's Names: _____

IR SN: _____

Thermometer SN: _____

Check Location: Office / Field

If Field, Where? _____

Initial Air Temp. (C) _____

Initial IR Temperature (C) _____

COLD TEMPERATURE TEST					
Step No. 4 - A	IR Sensor (C)	Mercury Therm. (C)	Diff.	P or F	Acceptable?
Reading 1					Yes No
Reading 2					
Reading 3 (if Necessary)					
Step No. 4 - B	Air Temp Sensor (C)	Mercury Therm. (C)	Diff.	P or F	Acceptable?
Reading 1					Yes No
Reading 2					
Reading 3 (if Necessary)					

AMBIENT TEMPERATURE CHECK					
Step No. 5 - A	IR Sensor (C)	Mercury Therm. (C)	Diff.	P or F	Acceptable?
Reading 1					Yes No
Reading 2					
Reading 3 (if Necessary)					
Step No. 5 - B	Air Temp Sensor (C)	Mercury Therm. (C)	Diff.	P or F	Acceptable?
Reading 1					Yes No
Reading 2					
Reading 3 (if Necessary)					

HOT TEMPERATURE CHECK - IR SENSOR ONLY					
Step No. 6	IR Sensor (C)	Mercury Therm. (C)	Diff.	P or F	Acceptable?
Reading 1					Yes No
Reading 2					
Reading 3 (if Necessary)					

Was IR sensor acceptable for all three checks?

YES or NO

Was air temperature sensor acceptable for checks 1 and 2?

YES or NO

Agency: _____

FWDPR #: _____

**LONG-TERM PAVEMENT PERFORMANCE (LTPP)
FALLING WEIGHT DEFLECTOMETER (FWD) TESTING
FWD PROBLEM REPORT (FWDPR)**

Attention: Cheryl Richter
Gonzalo R. Rada

FAX: (703) 285-2767
FAX: (301) 210-5032

Type of Problem: Guidelines _____ Equipment _____ Software _____ Name: _____ Version: _____ Other: _____	Reported by: _____ Agency: _____ Date: _____ Urgent?(Y/N) _____ Page _____ of _____
Description:	

THIS SECTION FOR USE BY FHWA AND PCS/LAW	
Received by: _____	Date Received: _____
Referred to: _____	Approved by: _____
Date Referred: _____	Date Approved: _____
Resolution:	
Notes:	

LTPP Monitoring Maintenance and Repair Summary - Form F03	Region [_ _]
--	--------------------------------

Date	Odometer	Problem Description ¹	Description of Maintenance/Repair	Performed by ²	Cost		
					Labor	Parts	Total

¹ Enter “routine” for routine maintenance

² Enter “RCOC”, “Dynatest”, or “Other”, as applicable