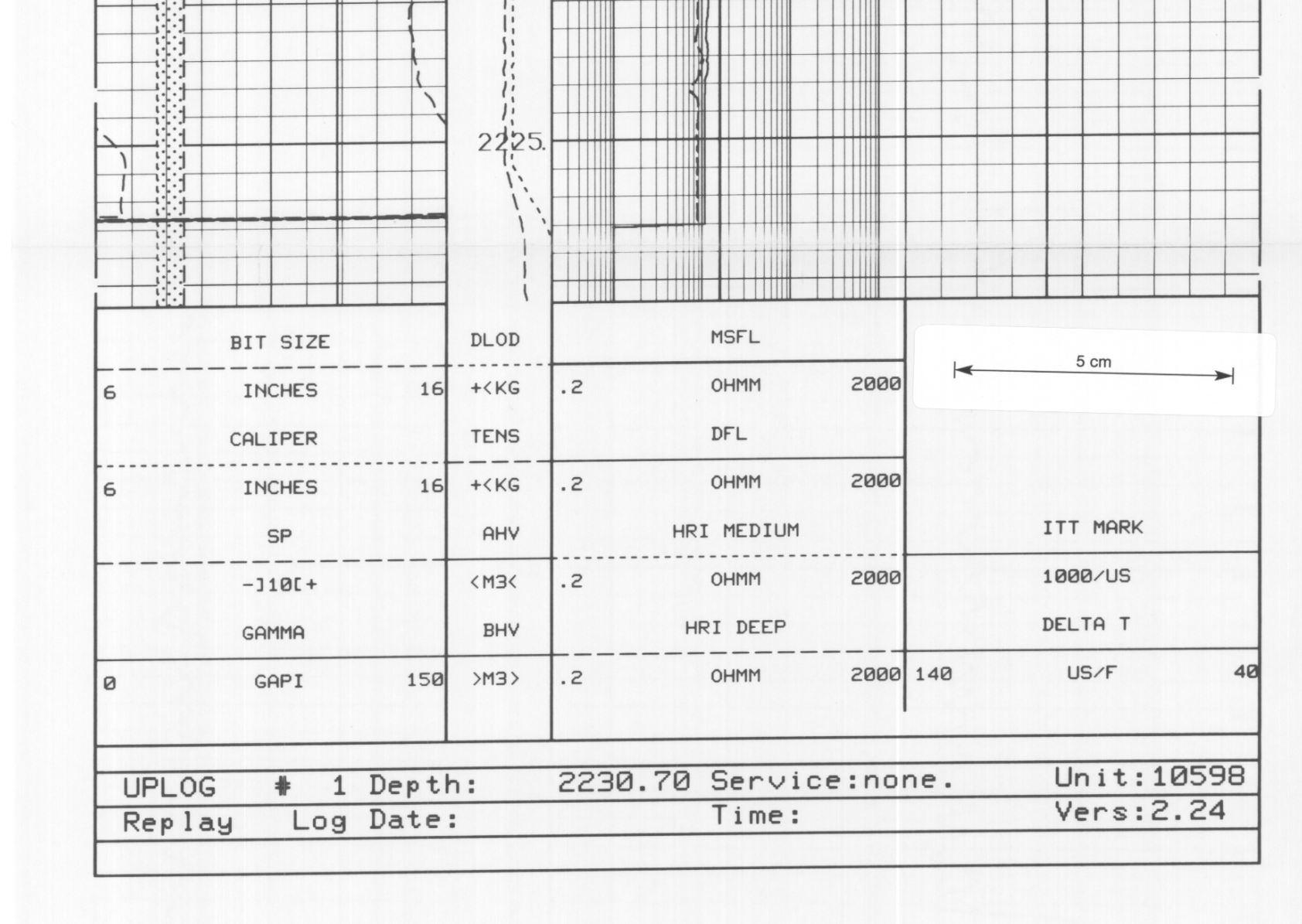
BIT SIZE	DLOD	MSFL	5 cm
6 INCHES 16	+<KG	.2 OHMM 2000	
CALIPER	TENS	DFL	
6 INCHES 16	+<KG	.2 OHMM 2000	
SP	AHV	HRI MEDIUM	ITT MARK
-]10[+	<M3<	.2 OHMM 2000	1000/US
GAMMA	BHV	HRI DEEP	DELTA T
0 GAPI 150	>M3>	.2 OHMM 2000	140 US/F 40

UPLOG # 2 Depth:	2230.50 Service:none.	Unit:10598
Replay Log Date:	Time:	Vers:2.24

5 cm

1:200 REPEAT SECTION

GAMMA	BHV	HRI DEEP	DELTA T
0 GAPI 150	>M3>	.2 OHMM 2000	140 US/F 40
SP	AHV	HRI MEDIUM	ITT MARK
-]10[+	<M3<	.2 OHMM 2000	1000/US
CALIPER	TENS	DFL	
6 INCHES 16	+<KG	.2 OHMM 2000	
BIT SIZE	DLOD	MSFL	
6 INCHES 16	+<KG	.2 OHMM 2000	



BIT SIZE	DLOD	MSFL	5 cm
6 INCHES 16	+<KG	.2 OHMM 2000	
CALIPER	TENS	DFL	
6 INCHES 16	+<KG	.2 OHMM 2000	
SP	AHV	HRI MEDIUM	ITT MARK
-]10[+	<M3<	.2 OHMM 2000	1000/US
GAMMA	BHV	HRI DEEP	DELTA T
0 GAPI 150	>M3>	.2 OHMM 2000	140 US/F 40

UPLOG # 1 Depth:	2230.70 Service:none.	Unit:10598
Replay Log Date:	Time:	Vers:2.24

```
*****************************************************************************

              GAMMA RAY TOOL SHOP CALIBRATION SUMMARY
PERFORMED:  22:22:30  11/ 3/92     LAST SHOP CALIBRATION:   17:37:39  08/ 8/92
SERIAL NUMBER: 114401              MODEL: NGRT-A
TRUCK UNIT NUMBER: 10598           PROGRAM VERSION: 2.24
PERFORMED BY: L. JONES

                        MEASURED        CALIBRATED          UNITS
                        --------        ----------          -----
BACKGROUND                  5               5                GAPI
BACKGROUND+CALIBRATOR     229             226                GAPI
CALIBRATOR                223             221                GAPI

          GAMMA RAY TOOL BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  14:22:31  11/17/92     LAST SHOP CALIBRATION:   22:22:30  11/ 3/92

                          SHOP            FIELD             UNITS
                        --------        ----------          -----
BACKGROUND                  5               5                GAPI
BACKGROUND+CALIBRATOR     226             222                GAPI
CALIBRATOR                221             217                GAPI


          GAMMA RAY TOOL AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  14:16:02  11/19/92     LAST SHOP CALIBRATION:   22:22:30  11/ 3/92

                         BEFORE           AFTER             UNITS
                        --------        ----------          -----
BACKGROUND                  5               7                GAPI
BACKGROUND+CALIBRATOR     222             231                GAPI
CALIBRATOR                217             223                GAPI


*****************************************************************************

       DITS MICRO SPHERICALLY FOCUSED SHOP CALIBRATION SUMMARY
PERFORMED:  21:59:29  11/ 3/92     LAST SHOP CALIBRATION:   21:57:05  11/ 3/92
SERIAL NUMBER: A006                MODEL: DMSFL
TRUCK UNIT NUMBER: 10598           PROGRAM VERSION: 2.24
PERFORMED BY: L. JONES

                    MEASURED   CALIBRATED    UNITS
                    --------   ----------    -----
EXT. CAL. POINT #1     0.20       0.20       OHM-M
EXT. CAL. POINT #2    20.00      20.00       OHM-M
EXT. CAL. POINT #3 1999.05    2000.00       OHM-M
INTERNAL REFERENCE    21.85      21.85       OHM-M

    DITS MICRO SPHERICALLY FOCUSED BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  13:51:30  11/17/92     LAST SHOP CALIBRATION:   21:59:29  11/ 3/92

                         SHOP           FIELD   UNITS
                         ----           -----   -----
INT REF                  21.85          21.83   OHM-M

    DITS MICRO SPHERICALLY FOCUSED AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  13:52:50  11/18/92     LAST SHOP CALIBRATION:   21:59:29  11/ 3/92

                         BEFORE         AFTER    UNITS
                         ------         -----    -----
INT REF.                 21.83          21.83    OHM-M


*****************************************************************************

                 MSFL CALIPER SHOP CALIBRATION SUMMARY
PERFORMED:  22:16:01  11/ 3/92     LAST SHOP CALIBRATION:   22:14:14  11/ 3/92
SERIAL NUMBER: A006                MODEL:
TRUCK UNIT NUMBER: 10598           PROGRAM VERSION: 2.24
PERFORMED BY: L. JONES

                        MEASURED        CALIBRATED          UNITS
                        --------        ----------          -----
VALUE 1                   7.866           8.000              INCH
VALUE 2                  14.998          15.000              INCH

            MSFL CALIPER BEFORE SURVEY FIELD CHECK SUMMARY
PERFORMED:  14:02:33  11/17/92     LAST SHOP CALIBRATION:   22:16:01  11/ 3/92

                          SHOP           FIELD              UNITS
                        -------         -------             -----
VALUE  1                  8.000           8.001              INCH

            MSFL CALIPER AFTER SURVEY FIELD CHECK SUMMARY
PERFORMED:  13:47:35  11/18/92     LAST SHOP CALIBRATION:   22:16:01  11/ 3/92

                         BEFORE          AFTER              UNITS
                        -------         -------             -----
VALUE  1                  8.001           7.668              INCH


*****************************************************************************

                  HRI SONDE SHOP CALIBRATION SUMMARY
PERFORMED:  16:25:19  11/11/92     LAST SHOP CALIBRATION:   16:13:30  11/11/92
SERIAL NUMBER: A015                MODEL: HRI
TRUCK UNIT NUMBER: 10598           PROGRAM VERSION: 2.24
PERFORMED BY: L. JONES

                        HRI MASTER CALIBRATION SUMMARY

        TEST LOOP RESPONSE:

             1 - TEST LOOP CLOSED
                     MEASURED SIGNAL          NOMINAL
                         R          X         R          X
             HRD       1976       1972      1976       1972       MMHOS
             HRM       2838       2832      2838       2832       MMHOS

             2 - TEST LOOP OFF(SONDE ERROR)
                     MEASURED SIGNAL          NOMINAL
                         R          X         R          X
             HRD         -6         13      +/-15      +/-100     MMHOS
             HRM         -8        -23      +/-15      +/-100     MMHOS

        ELECTRONICS RELATIVE GAIN:

                            SET               NOMINAL
                     MAGNITUDE   PHASE   MAGNITUDE   PHASE
             HRD       1.00      -1.31   1. +/-0.1   0. +/-5
             HRM       1.00      -1.13   1. +/-0.1   0. +/-5

        Temperature at time of calibration was      69.1    DEG F

                     PLS-II CALIBRATION SUMMARY TABLE
                    ---------------------------------

  SERVICE or SIGNAL        SHOP       BEFORE      AFTER     CHANGE   TOLERANCE
-----------------------  ----------  ---------  ---------  --------  ---------
GAMMA                       221        217        223        -5      +/- 9.0
CALIPER VALUE 1            8.000      8.001      7.668      0.333    +/-0.5
```

PLS-II FILTER & DELAY SUMMARY

```
                       FILTER & DELAY SUMMARY

                   DATE: 21-NOV-1992 18:55:37

              FILTER LENGTH AND DELAY ARE IN METERS

                                                      FILTER             FILTER
  MNEM    TOOL          DESCRIPTION                   LENGTH    DELAY     TYPE
 ------  ------  ------------------------------     --------  -------  --------
 TENS    DITSHD  CABLE TENSION                        0.000     0.000  BLOCK
 MAGMRK  DITSHD  DEPTH PANEL MAGNETIC MARK            0.000     0.000  NONE
 DLOD    CH_TEN  CABLE HEAD TENSION                   0.000     0.000  BLOCK
 BHTEMP  CH_TEN  CH BORE HOLE TEMPERATURE             0.000     0.000  BLOCK
 PLOC    CH_TEN  CABLE HEAD PAD LOCATOR               0.000     0.000  BLOCK
 W2_V    DSTU    AUXILLARY POWER VOLTAGE              0.000     0.000  NONE
 W5_V    DSTU    INSTRUMENT POWER VOLTAGE             0.000     0.000  NONE
 DSTEMP  DSTU    DSTU TEMPERATURE (F)                 1.200    32.069  BLOCK
 RGR     GAMMA   NATURAL GAMMA RAY                    0.500    28.209  BLOCK
 NNOISE  FWST2S  NEAR RECEIVER NOISE                  0.000    19.436  NONE
 FNOISE  FWST2S  FAR RECEIVER NOISE                   0.000    19.436  NONE
 TT_N    FWST2S  NEAR TRAVEL TIME                     0.000    21.189  NONE
 TT_F    FWST2S  FAR TRAVEL TIME                      0.000    21.036  NONE
 GAIN_N  FWST2S  NEAR RECEIVER GAIN                   0.000    19.055  NONE
 GAIN_F  FWST2S  FAR RECEIVER GAIN                    0.000    19.055  NONE
 DT      FWST2S  DELTA T COMPRESSIVE                  0.400    19.055  TRIANGLE
 DT_UNF  FWST2S  DELTA T UNFILTERED                   0.000    19.055  NONE
 DT_2FT  FWST2S  DELTA T SIM 2 FT SPACING             0.400    19.055  TRIANGLE
 DT_RCV  FWST2S  DELTA T AT RECEIVER                  0.000    19.512  NONE
 DT_XMT  FWST2S  DELTA T AT TRANSMITTER               0.000    19.512  NONE
 DT_Q    FWST2S  DELTA T QUALITY                      0.000    19.436  NONE
 PKCODE  FWST2S  PICK CODE                            0.000    19.436  NONE
 ALPHA   FWST2S  ALPHA                                0.000    19.436  NONE
 ERROR   FWST2S  ERROR                                0.000    19.436  NONE
 DTS     FWST2S  DELTA T SHEAR                        0.400    19.055  TRIANGLE
 MSG_SG  FWST2S  MSG SHEAR GAIN                       0.000    17.568  NONE
 MSGGAI  FWST2S  MSG GAIN                             0.000    19.055  NONE
 MSGRCV  FWST2S  MSG RECEIVER                         0.000    19.055  NONE
 AMPL    FWST2S  AMPLITUDE                            0.000    19.055  NONE
 WF1A    FWST2S  FWST RECEIVER 1 WAVEFORM             0.000    19.320  NONE
 WF2A    FWST2S  FWST RECEIVER 2 WAVEFORM             0.000    19.320  NONE
 MSVE    DMSFL   MSFL VE                              0.200    10.908  BLOCK
 MSVEUF  DMSFL   MSFL VE UNFILTERED                   0.000    10.908  NONE
 MSIA    DMSFL   MSFL IA                              0.200    10.908  BLOCK
 MSIAUF  DMSFL   MSFL IA UNFILTERED                   0.000    10.908  NONE
 CALIP   MSFCAL  MSFL CALIPER                         0.300    10.908  BLOCK
 DEEPR   HRI     HRI DEEP CONDUCTIVITY R              0.000   -14.104  BLOCK
 DEEPX   HRI     HRI DEEP CONDUCTIVITY X              0.000   -14.104  BLOCK
 DQZER   HRI     HRI DEEP QUALITY ZERO                0.000     2.660  BLOCK
 DQCAL   HRI     HRI DEEP QUALITY CAL                 0.000     2.660  BLOCK
 MEDR    HRI     HRI MEDIUM CONDUCTIVITY R            0.000   -14.104  BLOCK
 MEDX    HRI     HRI MEDIUM CONDUCTIVITY X            0.000   -14.104  BLOCK
 MQZER   HRI     HRI MEDIUM QUALITY ZERO              0.000     2.660  BLOCK
 MQCAL   HRI     HRI MEDIUM QUALITY CAL               0.000     2.660  BLOCK
 ZB      HRI     DFL BUCK Z                           0.000     1.136  NONE
 DZB     HRI     DFL BUCK DELTA Z                     0.000     1.136  NONE
 ZM      HRI     DFL MEASURE Z                        0.000     1.136  NONE
 DZM     HRI     DFL MEASURE DELTA Z                  0.000     1.136  NONE
 STEM    HRI     HRI TEMPERATURE                      0.000     2.660  BLOCK
 GND     HRI     HRI GROUND REFERENCE                 0.000     2.660  BLOCK
 P5V     HRI     HRI +5V MONITOR                      0.000     2.660  BLOCK
 M15V    HRI     HRI -15V MONITOR                     0.000     2.660  BLOCK
 P15V    HRI     HRI +15V MONITOR                     0.000     2.660  BLOCK
 M60V    HRI     HRI -60V MONITOR                     0.000     2.660  BLOCK
 P60V    HRI     HRI +60V MONITOR                     0.000     2.660  BLOCK
 SPE     HRI     SP ELECTRODE                         0.381     2.660  BLOCK
 FISH    HRI     SP FISH                              0.686     2.660  BLOCK
 RSP     HRI     RAW SP                               0.686     2.660  BLOCK
 DELDR   HRI     HRI DEEP CONDUCTIVITY R DELAY        0.000     1.136  BLOCK
 DELDX   HRI     HRI DEEP CONDUCTIVITY X DELAY        0.000     1.136  BLOCK
 DELMR   HRI     HRI MEDIUM CONDUCTIVITY R DEL        0.000     1.136  BLOCK
 DELMX   HRI     HRI MEDIUM CONDUCTIVITY X DEL        0.000     1.136  BLOCK
```

HLS

PLS-II TOOL STRING DIAGRAM

21-NOV-1992 18:54:11

```
      :
     /=\  <----  33.7601 = DITS CABLE HEAD LOAD CELL
    /   \
    :   :
    +===+ <----  32.2201 = TELEMETRY SUB
    :   :
    :   :
    :   :
    :   :
    :   :
    +===+ <----  30.2389 = GAMMA SUB
    :   :
    :   :
    :   :
    :   :
    :   : <----  28.2089 = GAMMA RAY
    :   :
    +===+  <---  27.7989 = IN-LINE CENTRALIZER
   / : : \
  /  : :  \
  \  : :  /
   \ : : /
    +===+ <----  26.2789 = ACOUSTIC VELOCITY SUB
    :   :
    :   :
    :   :
    :   :
```