```
[]
[     Results are being logged to garys workhorse.txt]

[]
[Sending BREAK to wake WORK HORSE...]

[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.28
RD Instruments (c) 1996-2005
All Rights Reserved.
>TS?
TS = 00/09/21,05:28:37 --- Time Set (yr/mon/day,hour:min:sec)
>
[Sending PS0]
PS0
  Instrument S/N:  1855
       Frequency:  307200 HZ
   Configuration:  4 BEAM, JANUS
     Match Layer:  10
      Beam Angle:  20 DEGREES
    Beam Pattern:  CONVEX
     Orientation:  DOWN
       Sensor(s):  HEADING  TILT 1  TILT 2  TEMPERATURE
Temp Sens Offset:  -0.30 degrees C

    CPU Firmware:  16.28 [0]
   Boot Code Ver:  Required:  1.13   Actual:  1.13
    DEMOD #1 Ver:  ad48, Type:  1f
    DEMOD #2 Ver:  ad48, Type:  1f
    PWRTIMG  Ver:  85d3, Type:   5

Board Serial Number Data:
   31  00 00 02 48 A4 68  09 DSP727-2001-04F
   16  00 00 02 48 7A DC  09 REC727-1000-04A
   13  00 00 02 48 77 CA  09 CPU727-2000-00H
   C0  00 00 02 48 A3 E5  09 PIO727-3000-04C
>ap?
ERR: No pressure sensor detected.

>
[Getting tilt and flux gate matrices...]
AD
Display factory calibration data or active calibration data [f or a]?a


              ACTIVE FLUXGATE CALIBRATION MATRICES in NVRAM
               Calibration date and time: 2/2/2001  10:27:13
                              S inverse
          Ú                                                  ¿
     Bx   ³   2.8766e-01 -2.7251e-01 -2.5294e-02  1.1860e-02 ³
     By   ³   1.8305e-03  2.2406e-03 -4.3914e-01  1.4254e-02 ³
     Bz   ³  -1.4885e-01 -1.6922e-01  1.3511e-02 -2.5359e-01 ³
     Err  ³   3.6023e-01  3.6158e-01 -1.1368e-02 -4.5333e-01 ³
          À                                                  Ù
                              Coil Offset
                         Ú                 ¿
                         ³   3.4334e+04    ³
                         ³   3.5442e+04    ³
                         ³   3.4740e+04    ³
                         ³   3.4183e+04    ³
                         À                 Ù
                              Electrical Null
```

```
                                 2865947 final test.txt
                                Ú       ¿
                                ³ 34303 ³
                                À       Ù     press any key to continue...

[Getting beam correction matrices...]

[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.28
RD Instruments (c) 1996-2005
All Rights Reserved.
>PS3
Beam Width:   3.7 degrees

Beam     Elevation     Azimuth
  1         -70.00      270.00
  2         -70.00       90.00
  3         -70.00        0.01
  4         -70.00      180.00

Beam Directional Matrix (Down):
  0.3420    0.0000    0.9397    0.2419
 -0.3420    0.0000    0.9397    0.2419
  0.0000   -0.3420    0.9397   -0.2419
  0.0000    0.3420    0.9397   -0.2419

Instrument Transformation Matrix (Down):    Q14:
  1.4619   -1.4619    0.0000    0.0000      23952  -23952       0       0
  0.0000    0.0000   -1.4619    1.4619          0       0  -23952   23952
  0.2661    0.2661    0.2661    0.2661       4359    4359    4359    4359
  1.0337    1.0337   -1.0337   -1.0337      16936   16936  -16936  -16936
Beam Angle Corrections Are Loaded.
>
[Getting Error Status Word]

[Getting Fault Log]
FD
Total Unique Faults   =     0
Overf[Getting Deployment settings...]
low Count        =     0
Time of first fault:     0/00/00,00:00:00.00
Time of last fault:      0/00/00,00:00:00.00

Fault Log:
The fault log is empty.

>C?
CB = 411 ----------------- Serial Port Control (Baud [4=9600]; Par; Stop)
CC = 000 000 000 --------- Choose External Devices (x;x;x  x;x;x  x;x;SBMC)
CF = 11010 --------------- Flow Ctrl (EnsCyc;PngCyc;Binry;Ser;Rec)
CK ----------------------- Keep Parameters as USER Defaults
CP = 0 ------------------- PolledMode (1=ON, 0=OFF;  BREAK resets)
CR # --------------------- Retrieve Parameters (0 = USER, 1 = FACTORY)
CS ----------------------- Go (Start Pinging)
CZ ----------------------- Power Down Instrument
>E?
EA = +00000 -----[Getting Recorder Info...]
--------- Heading Alignment (1/100 deg)
EB = +00000 -------------- Heading Bias (1/100 deg)
ED = 00000 --------------- Transducer Depth (0 - 65535 dm)
ES = 35 ------------------ Salinity (0-40 pp thousand)
EX = 11111 --------------- Coord Transform (Xform:Type; Tilts; 3Bm; Map)
EZ = 1111101 ------------- Sensor Source (C;D;H;P;R;S;T)
```

```
>T?
TE = 01:00:00.00 --------- Time per Ensemble (hrs:min:sec.sec/100)
TF = **/**/**,**:**:** --- Time of First Ping (yr/mon/day,hour:min:sec)
TG = ****/**/**,**:**:** - Time of First Ping (CCYY/MM/DD,hh:mm:ss)
TP = 01:20.00 ------------ Time per Ping (min:sec.sec/100)
TS = 00/09/21,05:28:55 --- Time Set (yr/mon/day,hour:min:sec)
TT = 2000/09/21,05:28:55 - Time Set (CCYY/MM/DD,hh:mm:ss)
>W?  ERR 010:  UNRECOGNIZED COMMAND
>RN?

Current deployment name = _RDI_

>RR
Recorder Directory:
Volume serial n
[]
[CF command telling ADCP to be in ASCII output mode...]
umber for device #1 is 0c70-19d4

  No files found.

  Bytes used on device #1 = 0
Total capacity   =  255541248 bytes
Total bytes used =          0 bytes in 0 files
Total bytes free =  255541248 bytes

>CF11010
>
>
[]
[Running WORK HORSE Self-tests using the PA command...look for PASS]
[(!NOTE: SOME TESTS MAY FAIL IF WORK HORSE TRANSDUCER IS NOT IN WATER)]
PA

PRE-DEPLOYMENT TESTS

CPU TESTS:
  RTC.....................................PASS
  RAM.....................................PASS
  ROM.....................................PASS
RECORDER TESTS:
  PC Card #0..............................NOT DETECTED
  PC Card #1..............................DETECTED
    Card Detect...........................PASS
    Communication.........................PASS
    DOS Structure.........................PASS
    Sector Test (short)...................PASS
DSP TESTS:
  Timing RAM..............................PASS
  Demod  RAM..............................PASS
  Demod  REG..............................PASS
  FIFOs...................................PASS
SYSTEM TESTS:
  XILINX Interrupts... IRQ3  IRQ3  IRQ3 ...PASS
  Wide Bandwidth..........................PASS
  Narrow Bandwidth........................PASS
  RSSI Filter.............................PASS
  Transmit................................PASS
SENSOR TESTS:
  H/W Operation...........................PASS
>
[Running WORK HORSE Performance Tests...]
PT200
```

```
   Ambient  Temperature =    23.12 Degrees C
   Attitude Temperature =    28.74 Degrees C
   Internal Moisture    = 8BA0h

 Correlation Magnitude: Wide Bandwidth

                 Lag  Bm1  Bm2  Bm3  Bm4
                   0  255  255  255  255
                   1  176  180  175  182
                   2   66   67   64   70
                   3   35   42   44   41
                   4   33   43   42   43
                   5   29   35   38   32
                   6   15   19   23   19
                   7   12   14   16   11

   High Gain RSSI:    40   38   44   38
    Low Gain RSSI:    17   16   20   12

   SIN Duty Cycle:    48   49   48   49
   COS Duty Cycle:    50   49   49   49

 Receive Test Results = $00000000 ... PASS

 IXMT    =      1.3 Amps rms  [Data=6fh]
 VXMT    =     36.7 Volts rms [Data=3eh]
    Z    =     28.9 Ohms
 Transmit Test Results = $0 ... PASS

     0    8    0    0
     0    8    0    0
     0    8    0    0
     0    8    0    0
   255  255  255  255
     0    8    0    0
     0    8    0    0
   255  255  255  255
     0    8    0    0
     0    8    0    0
     0    8    0    0
   255  255  255  255
 Electronics Test Results = $00000000
 Receive Bandwidth:
     Sample      bw    bw    bw    bw    bw
       rate  expect   Bm1   Bm2   Bm3   Bm4
        307     120    76    73    76    74 Khz
    results          PASS  PASS  PASS  PASS
 RSSI Time Constant:

 RSSI Filter Strobe 1 =   38400 Hz
   time   Bm1   Bm2   Bm3   Bm4
   msec  cnts  cnts  cnts  cnts
      1     7     7     8     7
      2    13    13    15    13
      3    18    19    20    19
      4    22    23    24    23
      5    26    26    28    26
      6    29    29    31    29
      7    31    31    33    31
      8    33    33    35    33
      9    34    34    37    35
     10    36    36    38    36
```

```
   nom     41     40     43     41
result     PASS   PASS   PASS   PASS
>PC1


BEAM CONTINUITY TEST

When prompted to do so, vigorously rub the selected
beam's face.

If a beam does not PASS the test, send any character to
the ADCP to automatically select the next beam.

Collecting Statistical Data...
  41  38  44  38

  40  38  44  38

  40  38  44  38

  40  38  44  38

  40  38  44  38

  40  38  44  38

  40  38  44  38

Rub Beam 1 = PASS
Rub Beam 2 = PASS
Rub Beam 3 = PASS
Rub Beam 4 = PASS

>OL                                FEATURES
-----------------------------------------------------------------------
Feature                                                       Installed
-----------------------------------------------------------------------
Bottom Track                                                       No
Water Profile                                                     Yes
High Resolution Water Modes                                        No
Lowered ADCP                                                      Yes
Wave Gauge Acquisition                                             No
Shallow Bottom Mode                                                No
High Rate Pinging                                                  No

See your technical manual or contact RDI for information on how to
install additional capability in your WorkHorse.

>PC2

Press any key to quit sensor display ...

All Sensors are Internal Only.
Heading   Pitch    Roll   Up/Down    Attitude Temp   Ambient Temp   PRESSURE
 84.69ø   0.13ø  -0.77ø    Down          28.70øC         23.11øC        0.0 kPa

 84.65ø   0.16ø  -0.75ø    Down          28.70øC         23.11øC        0.0 kPa

 84.61ø   0.18ø  -0.75ø    Down          28.70øC         23.12øC        0.0 kPa

 75.75ø  -0.67ø  -0.63ø    Down          28.69øC         23.10øC        0.0 kPa
```

```
 31.81ø  -0.76ø  -0.64ø    Down          28.69øC        23.12øC          0.0 kPa

357.70ø   0.99ø   0.97ø    Down          28.71øC        23.11øC          0.0 kPa

310.63ø  -0.32ø   0.27ø    Down          28.65øC        23.15øC          0.0 kPa

268.90ø   0.35ø   0.56ø    Down          28.67øC        23.15øC          0.0 kPa

234.50ø   0.91ø   0.35ø    Down          28.64øC        23.17øC          0.0 kPa

200.89ø   0.94ø   0.04ø    Down          28.65øC        23.16øC          0.0 kPa

176.95ø   0.75ø  -0.03ø    Down          28.70øC        23.12øC          0.0 kPa

[                Results are being logged to WORKHORSE.LOG...]

>
>
[]
[                        Sending BREAK to wake ADCP...]

[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.28
RD Instruments (c) 1996-2005
All Rights Reserved.
>
[                              Sending PS0...]
PS0
  Instrument S/N:  1855
       Frequency:  307200 HZ
   Configuration:  4 BEAM, JANUS
     Match Layer:  10
      Beam Angle:  20 DEGREES
    Beam Pattern:  CONVEX
     Orientation:  DOWN
       Sensor(s):  HEADING  TILT 1  TILT 2  TEMPERATURE
Temp Sens Offset:  -0.30 degrees C

    CPU Firmware:  16.28 [0]
   Boot Code Ver:  Required:  1.13   Actual:  1.13
    DEMOD #1 Ver:  ad48, Type:  1f
    DEMOD #2 Ver:  ad48, Type:  1f
    PWRTIMG  Ver:  85d3, Type:   5

Board Serial Number Data:
   31  00 00 02 48 A4 68  09 DSP727-2001-04F
   16  00 00 02 48 7A DC  09 REC727-1000-04A
   13  00 00 02 48 77 CA  09 CPU727-2000-00H
   C0  00 00 02 48 A3 E5  09 PIO727-3000-04C
>
[                         CHANGING TO 1200 BAUD...]
cb111
>
[                            RUNNING PT5 TEST...]
pt5

    0    8    0    0
    0    8    0    0
    0    8    8    0
    0    8    8    0
  255  255  255  255
    0    8    8    0
    0    8    8    0
```

```
  255  255  255  255
    0    8    0    0
    0    8    0    0
    0    8    0    0
  255  255  255  255
Electronics Test Results = $00000000
>
[                        CHANGING TO 2400 BAUD...]
cb211
>
[                           RUNNING PT5 TEST...]
pt5

    0    8    0    0
    0    8    8    0
    0    8    0    0
    0    8    8    0
  255  255  255  255
    0    8    8    0
    0    8    8    0
  255  255  255  255
    0    8    8    0
    0    8    0    0
    0    8    8    0
  255  255  255  255
Electronics Test Results = $00000000
>
[                        CHANGING TO 4800 BAUD...]
cb311
>
[                           RUNNING PT5 TEST...]
pt5

    0    8    8    0
    0    8    8    0
    0    8    0    0
    0    8    8    0
  255  255  255  255
    0    8    8    0
    0    8    8    0
  255  255  255  255
    0    8    8    0
    0    8    8    0
    0    8    0    0
  255  255  255  255
Electronics Test Results = $00000000
>
[                        CHANGING TO 19200 BAUD...]
cb511
>
[                           RUNNING PT5 TEST...]
pt5

    0    8    0    0
    0    8    8    0
    0    8    8    0
    0    8    8    0
  255  255  255  255
    0    8    0    0
    0    8    0    0
  255  255  255  255
    0    8    0    0
    0    8    0    0
```

```
     0     8     0     0
   255   255   255   255
Electronics Test Results = $00000000
>
[                          CHANGING TO 38400 BAUD...]
cb611
>
[                             RUNNING PT5 TEST...]
pt5

     0     8     0     0
     0     8     0     0
     0     8     0     0
     0     8     0     0
   255   255   255   255
     0     8     8     0
     0     8     8     0
   255   255   255   255
     0     8     0     0
     0     8     0     0
     0     8     0     0
   255   255   255   255
Electronics Test Results = $00000000
>
[                          CHANGING TO 57600 BAUD...]
cb711
>
[                             RUNNING PT5 TEST...]
pt5

     0     8     8     0
     0     8     8     0
     0     8     0     0
     0     8     0     0
   255   255   255   255
     0     8     0     0
     0     8     8     0
   255   255   255   255
     0     8     8     0
     0     8     0     0
     0     8     0     0
   255   255   255   255
Electronics Test Results = $00000000
>
[                          CHANGING TO 115200 BAUD...]
cb811
>
[                             RUNNING PT5 TEST...]
pt5

     0     8     0     0
     0     8     0     0
     0     8     8     0
     0     8     0     0
   255   255   255   255
     0     8     8     0
     0     8     0     0
   255   255   255   255
     0     8     0     0
     0     8     0     0
     0     8     0     0
   255   255   255   255
Electronics Test Results = $00000000
```

```
>
[                          CHANGING BACK TO 9600 BAUD...]
cb411
>
[                            RUNNING PT5 TEST...]
pt5

     0    8    8    0
     0    8    8    0
     0    8    8    0
     0    8    8    0
   255  255  255  255
     0    8    8    0
     0    8    8    0
   255  255  255  255
     0    8    8    0
     0    8    0    0
     0    8    0    0
   255  255  255  255
Electronics Test Results = $00000000
>
[]
[                           PUTTING ADCP TO SLEEP...]
cz

Powering Down

[]
[                 Results are being logged to WORKHORS.LOG...]

[]
[                          Sending BREAK to wake ADCP...]

[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.28
RD Instruments (c) 1996-2005
All Rights Reserved.
>
[                                Sending PS0...]
PS0
  Instrument S/N:  1855
       Frequency:  307200 HZ
   Configuration:  4 BEAM, JANUS
     Match Layer:  10
      Beam Angle:  20 DEGREES
    Beam Pattern:  CONVEX
     Orientation:  DOWN
       Sensor(s):  HEADING  TILT 1  TILT 2  TEMPERATURE
Temp Sens Offset:  -0.30 degrees C

    CPU Firmware:  16.28 [0]
   Boot Code Ver:  Required:  1.13   Actual:  1.13
    DEMOD #1 Ver:  ad48, Type:  1f
    DEMOD #2 Ver:  ad48, Type:  1f
    PWRTIMG  Ver:  85d3, Type:   5

Board Serial Number Data:
   31  00 00 02 48 A4 68  09 DSP727-2001-04F
   16  00 00 02 48 7A DC  09 REC727-1000-04A
   13  00 00 02 48 77 CA  09 CPU727-2000-00H
   C0  00 00 02 48 A3 E5  09 PIO727-3000-04C
>RR
Recorder Directory:
```

```
Volume serial number for device #1 is 0c70-19d4

  No files found.

  Bytes used on device #1 = 0
Total capacity   =  255541248 bytes
Total bytes used =          0 bytes in 0 files
Total bytes free =  255541248 bytes

>
[      ]
[                        RUNNING QUICK TEST ON THE RCDR...]
[]
RB
RECORDER TESTS:
  PC Card #0.............................NOT DETECTED
  PC Card #1.............................DETECTED
    Card Detect..........................PASS
    Communication........................PASS
    DOS Structure........................PASS
    Sector Test (Short)..................PASS

Recorder tests complete.

>
[                                ERASING RECORDER...]
RE ERASE  erasing...
Recorder erased.

>
[                SENDING COMMANDS TO START TEST DEPLOYMENT...]
CR1
[Parameters set to FACTORY defaults]
>RN TESTS
>TP000000
>TE00000100
>WP1  ERR 010:  UNRECOGNIZED COMMAND
>WN5  ERR 010:  UNRECOGNIZED COMMAND
>WS100  ERR 010:  UNRECOGNIZED COMMAND
>CK
[Parameters saved as USER defaults]
>CS
[]
[                        WAITING FOR EXACTLY 25 ENSEMBLES...]

[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.28
RD Instruments (c) 1996-2005
All Rights Reserved.
>
[]
[                                    IT'S DONE...]
[]
[]
[]
[                         PUT THE CARD IN THE OTHER SLOT...]
[                         IF THE HOUSING IS OFF THE UNIT]
[]
[]
[                          HIT THE ESCAPE KEY WHEN READY...]
[]

>CS
```

```
[]
[                    WAITING FOR EXACTLY 25 ENSEMBLES...]
[]
[                              IT'S DONE...]

[BREAK Wakeup A]
WorkHorse Broadband ADCP Version 16.28
RD Instruments (c) 1996-2005
All Rights Reserved.
>RR
Recorder Directory:
Volume serial number for device #1 is 0c70-19d4

  TESTS000 000            754 09-21-00   5:33:16a r  a [    2]
  TESTS001 000            754 09-21-00   5:33:48a r  a [    3]

  Bytes used on device #1 = 1508
Total capacity    =  255541248
[              BOTH FILES SHOULD BE EXACTLY THE SAME SIZE]
 bytes
Total bytes used =       1508 bytes in 2 files
Total bytes free =  255533056 bytes

>
[                          ERASING RECORDER...]
RE ErASE  erasing...
Recorder erased.

>
[      ]
[                     RUNNING QUICK TEST ON THE RCDR...]
[]
RB
RECORDER TESTS:
  PC Card #0.............................NOT DETECTED
  PC Card #1.............................DETECTED
    Card Detect..........................PASS
    Communication........................PASS
    DOS Structure........................PASS
    Sector Test (Short)..................PASS

Recorder tests complete.

>RN _RDI_
>
[                         PUTTING ADCP TO SLEEP...]
cz

Powering Down

[                             EXITING PROGRAM]
[                                 SEEYA!!!]
>ax

--------------------------------------------------------------------------------
                    RDI Compass Error Estimating Algorithm

   Press any key to start taking data after the instrument is setup.


Rotate the unit in a plane until all data samples are acquired...
```

```
  rotate less than 5ø/sec.  Press Q to quit.

N        NE        E         SE        S        SW        W         NW        N
^                  ^                   ^                  ^                   ^
********************<*************************************************
Calculating compass performance ...

                    >>> Total error:   1.1ø <<<
```