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# Communication

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# Objectives

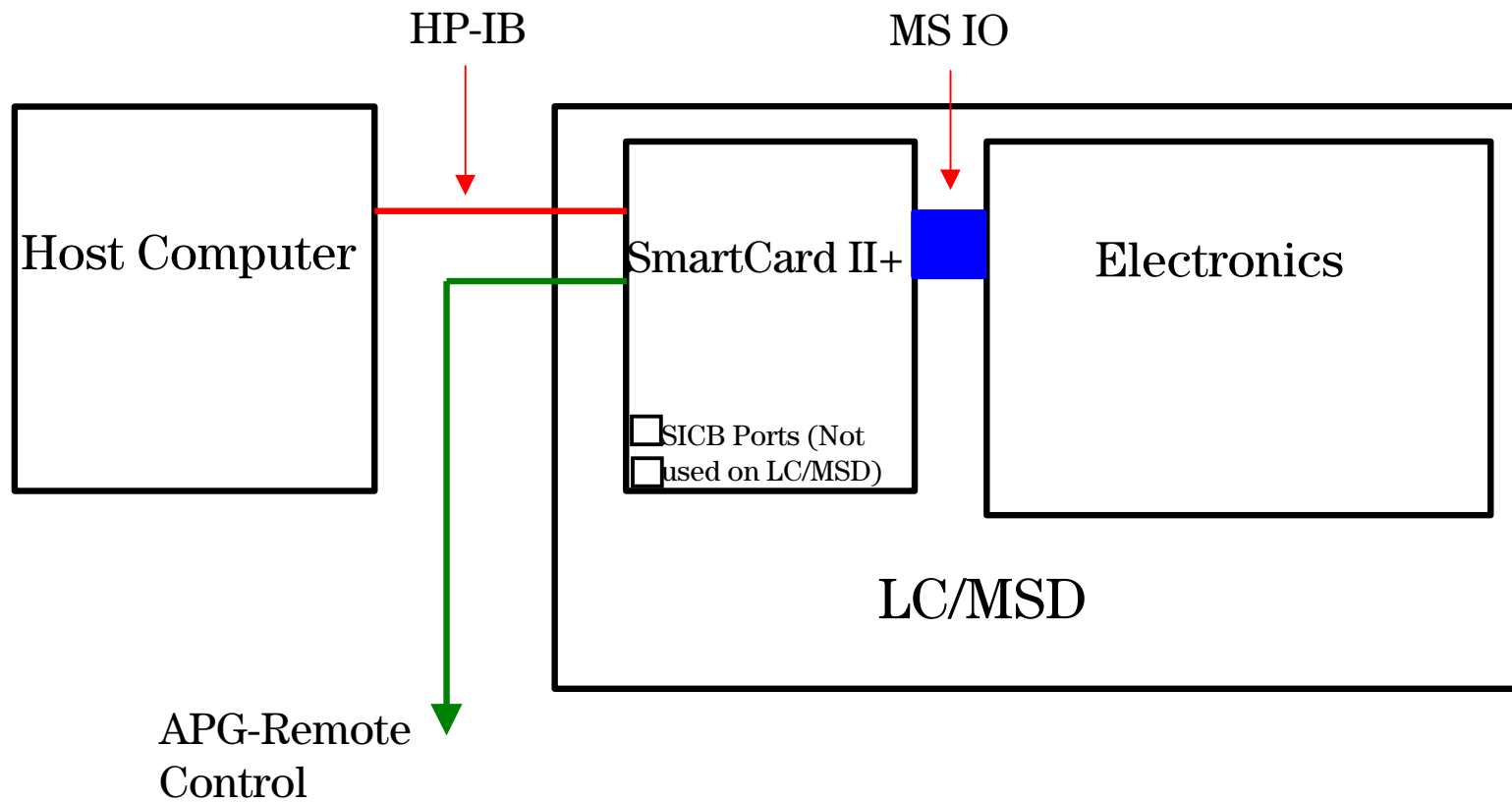
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- Describe LC/MSD HP-IB, LON, and Parallel Bus communication.
- Describe operation of SmartCard II+
- Discuss use of MSSCINIT 1 and MSSCTRACE 1 commands.
- Discuss diagnostic value of SCState.txt and SCTrace.txt files
- Develop troubleshooting strategy for communication problems.
- Diagram cabling options for the LC/MSD to interface with various LC models.

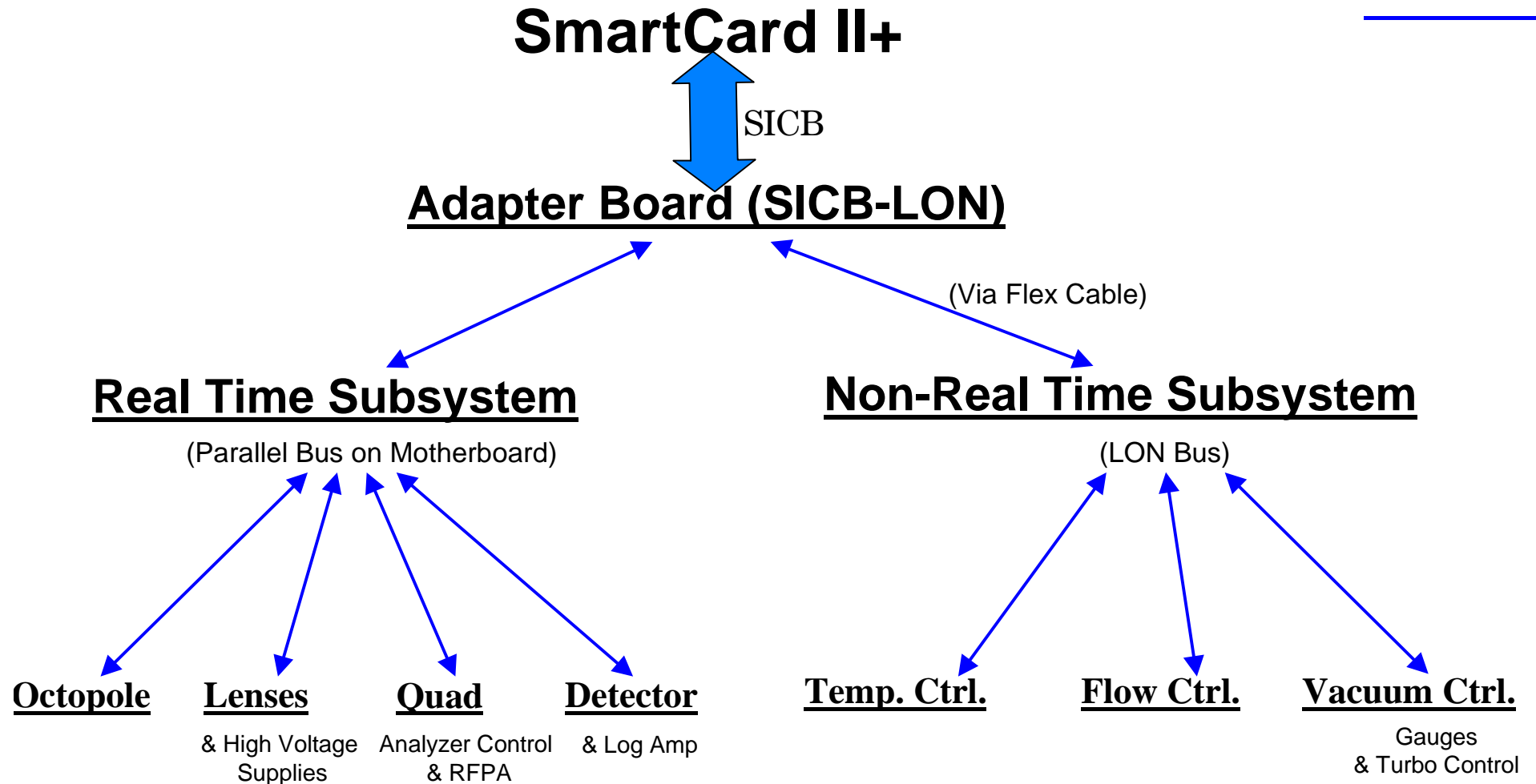
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# HP-IB Communication

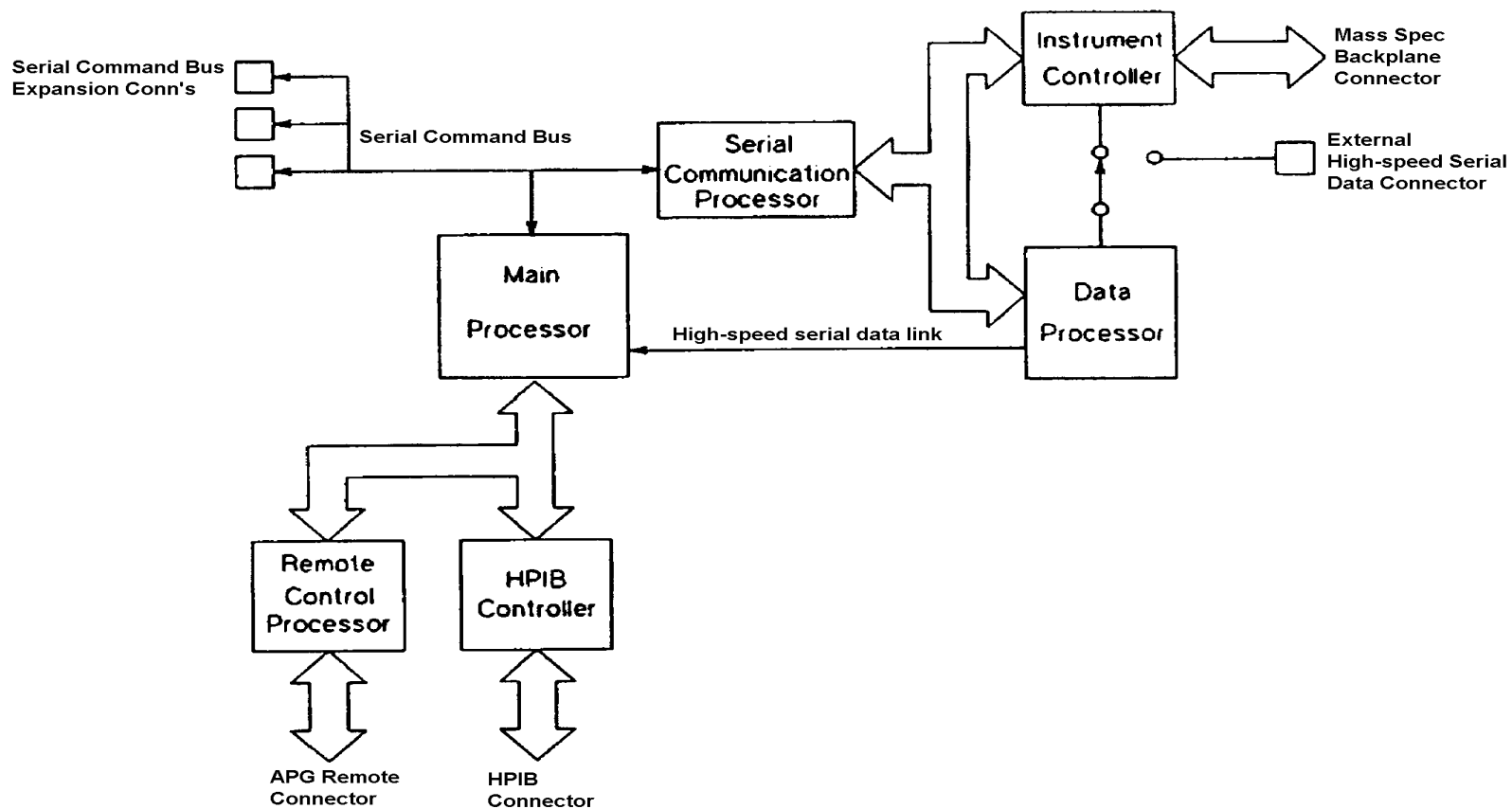
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# Communication Architecture



# SmartCard II+ Functional Diagram



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# HP-IB/MS Control Card SmartCard II+

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- **Instrument Controller**
  - Scanning of the mass filter
  - Collects signal data
  - Dynamically ramps the lens voltages
- **Data Processor**
  - Filters data
  - Formats data for the data system
- **Main Processor**
  - Receives data from the data processor
  - Controls real-time events

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# HP-IB/MS Control Card SmartCard II+

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- **Serial Communication Processor**
  - Controls communication between the main proc./data proc./instr. controller
  - Communicates with main processor via serial bus
  - Communicates with data processor/instrument controller via parallel bus
- **HP-IB Controller**
  - Manages communication between the main processor and data system
- **Remote Control Processor**
  - Interface with the remote control bus

---

# SmartCard II+ Switch Settings

|\_\_\_\_\_|  
| |\_\_\_\_\_| | -> switch 8, "0" = 4, 8, 16 MBytes, "1" = 1, 2 MBytes  
| |\_\_\_\_\_| | -> switch 7, [not used]  
| |\_\_\_\_\_| | -> switch 6, "0" = 10 MHz, "1" = 12.5 MHz  
| |\_\_\_\_\_| | -> switch 5, Adds "16" to the HP-IB address  
| |\_\_\_\_\_| | -> switch 4, Adds "8" to the HP-IB address  
| |\_\_\_\_\_| | -> switch 3, Adds "4" to the HP-IB address  
| |\_\_\_\_\_| | -> switch 2, Adds "2" to the HP-IB address  
| |\_\_\_\_\_| | -> switch 1, Adds "1" to the HP-IB address  
|\_\_\_\_\_|  
^ ^  
| |\_\_\_\_\_| setting for active or "1"  
|\_\_\_\_\_| setting for inactive or "0"

Default HP-IB address is 0

Default Memory is 8 MBytes, switch 8 = 0

Default Speed is 10 MHz, switch 6 = 0



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# Using MSSCInit and MSSCInit 1 Commands

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- **Description**

- ▶ MSSCInit initializes MS interface by downloading the control program, if necessary (or requested, see below). This is also a way to verify communication between the computer and the MS interface. There is a 10 - 20 second delay before the download happens.

- **Group**

- ▶ LC/MS Tune Commands

- **Syntax**

- ▶ MSSCinit [1/0] !With a space, not a comma. Follow with <Enter>.

- **Parameter Type/Description**

- ▶ 1/0 0 = Default. Download occurs only if needed (i.e. powerfail).  
1 = Download forced. Used also to load new firmware revisions without turning power-cycling LC/MSD.

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# Using MSSCTrace 1 and SCTrace.txt Files

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- **Definition**

- ▶ Gets a log trace from the SmartCard instrument controller interface buffer and places it into the tune directory:  
c:\hpchem\1\1946tune\sctrace.txt".

- **Group**

- ▶ LC/MS Acquisition Commands

- **Syntax**

- ▶ MSSCTrace [0/1]

- **Parameter Type/Description**

- 1/0 0 = Default. Appends to existing file, if present. Otherwise, sctrace.txt file is created. Appended file can get quite long.  
1 = Overwrites existing file, if present. Otherwise, sctrace.txt file is created. Stores 128K bytes of data.

- **Discussion**

- ▶ See MSEExternalOpCall and SCState file.



# SCTrace.txt, System OK

(Generated by typing: **MSSCTRACE 1** on the command line)

**Time Stamp** → Thu Feb 13 10:24:26 1997

**High Vac Pressure** →

```
[ 10135.10] :RUN:STAT? <--- 0
[ 10136.02] :RUN:TIME?; <--- 10136.014648
[ 10136.03] :MSC:SENS? HIGHPRES <--- ,8.37e-06
{OLVL}6.04> ZMON: 'nebpres' value 20.0 within 0.050000 of 20.0
[ 10136.22] :RUN:STAT? <--- 0
[ 10136.64] :MSC:PARM? QUADFREQ <--- 999400.0013
[ 10137.11] :RUN:TIME?; <--- 10137.108398
[ 10137.12] :MSC:SENS? HIGHPRES <--- ,8.38e-06
[ 10137.36] :RUN:STAT? <--- 0
```

**Drying Gas Flow** →

```
...
[ 10142.52] :RUN:TIME?; <--- 10142.520508
[ 10142.53] :MSC:SENS? HIGHPRES <--- ,8.37e-06
{OLVL}2.56> ZMON: 'dgasflow' value 3.966 within 0.050000 of 4.000
[ 10142.72] :RUN:STAT? <--- 0
[ 10143.55] :RUN:TIME?; <--- 10143.550781
[ 10143.57] :MSC:SENS? HIGHPRES <--- ,8.37e-06
[ 10143.74] :RUN:STAT? <--- 0
```

**Drying Gas Temp.** →

```
...
[ 10148.72] :SYS:STAT? <--- on,zonewait,equilibrating,0
[ 10148.75] :ZONE:NAME DGAS;
[ 10148.75] CTL ON;
[ 10148.79] SET 300.000000;
[ 10148.82] setLONValue: {c=11[ 10148.89] *ESR? <--- 0
```

**S.C. Code Rev. #** →

```
...
[ 10199.67] :RUN:STAT? <--- 0
[ 10199.74] :RUN:TIME?; <--- 10199.738281
[ 10199.75] :MSC:SENS? HIGHPRES <--- ,8.25e-06
[ 10200.27] *IDN? <--- HEWLETT-PACKARD,G1946A,US78912345,2.06.81
[ 10200.29] :TRCE:BLCK:FIRST? 4086 <--- #44080 {MAR}27.03> marEngine: Resettin
[ 10200.33] :TRCE:BLCK:NEXT? 4086 <--- #44080 {MAR}27.03> marEngine: Resettin
[ 10146.63] :RUN:TIME?; <--- 101
```



# SCTrace.txt, Error Condition

**Time Stamp** → Thu Feb 13 10:27:16 1997

```
[ 10298.30] :MSC:SENS? HIGHPRES <--- ,8.08e-06
[ 10299.12] :RUN:STAT? <--- 0
...
[ 10342.65] :MSC:SENS? HIGHPRES <--- ,8.04e-06
Fault Detected → {MON}43.07> setStatusLight: STEADY RED
{MON}43.09> hMSS: Posting run event for fault = 0x8004 . . .
Shutting down MSD → {MON}43.11> hMSS: Shutting down MS after fault 0x00008004 . . .
{SNSM}3.27> lSID: Setting dgas[1] zone to 0.000000.
{SNSM}3.30> lSID: Setting vapor[2] zone to 0.000000.
{SNSM}3.33> lSID: Setting dgasflow[4] zone to 3.000000.
{SNSM}3.37> setLONValue: {c=113, v[16]=0x00,00,00,00,00,00,00,35}
Fault Summary (Binary) → ...
[ 10361.22] :MSC:FLT:STAT? <--- 32772
10361.26> getLONValue: c=111, v[23]=0x04,00,00,00,00,00,04,00,00
Full Fault Status (Hex) → 10361.38> faultStatus: returning 0x8004
10361.39> 0x80010000000000000000000000000000000000000000000000000004de00000000
10361.40> ^15 ^14 ^13 ^12 ^11 ^10 ^09 ^08 ^07 ^06 ^05 ^04 ^03 ^02 ^01 ^00
[ 10361.42] :MSC:FLT:STAT:FULL? <--- 0x8001000000000000000000000000000000000000000000000000000000000000
10361.46> getLONValue: c=111, v[23]=0x04,00,00,00,00,00,04,00,00
10361.50> faultStatus: clearing hostFaultLatch . . .
S.C. Code Rev. # → 10361.51> faultStatus: returning 0x8004
...
[ 10369.49] :MSC:SENS? HIGHPRES <--- ,8.11e-06
[ 10370.10] *IDN? <--- HEWLETT-PACKARD,G1946A,US78912345,2.06.81
[ 10370.13] :TRCE:BLCK:FIRST? 4086 <--- #44080[ 10298.30] :MSC:SENS? HIGHPRES
[ 10370.17] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 10315.78] :MSC:SENS? HIGHPRES
```



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# Using the SCState.txt File, 1 of 2

- The MSD SmartCard State file is generated automatically whenever an error occurs in Method and Run Control view. It can also be generated by selecting the menu item MSD SmartCard State from the Instrument menu in the Diagnosis view, or with the command MSLogSCState 1.
- The file, SCSTATE.TXT, is stored in the current data directory and contains the following detailed information:
  - **Instrument configuration** - MSD model number, serial number, mass range
  - **SmartCard configuration** - SmartCard model, processor speed, memory configuration, and firmware revision.
  - **Options** - Note that these are firmware options, not hardware options.
  - **Run table for the last run** - This is recorded in SmartCard command syntax.
  - **Events during the last run** - Any error events are recorded here, time stamped with run time. Errors must be decoded manually - See Decoding MS Faults manually.
  - **Instrument parameters** - This complete list of operating parameters is recorded using SmartCard parameter naming conventions.



SC State Report (Rev. 2.01)  
Thu Aug 05 15:20:13 1999

## Instrument Configuration:

Instrument Model = G1946A  
Serial Number = US78912345  
Mass Range Low/High[Res] = 3.00 / 3276.00 [0.050]

## Smartcard Configuration:

Smartcard Model = SC2B  
Main Processor Speed = 10.0 MHz  
Main Processor Memory = 8M  
Inst. Controller Memory = 64K  
Data Processor Memory = 8M  
Firmware Revision Number = 2.07.19

## Options:

1: PR2  
2: LR2  
3: FS3  
4: CDS2

## Run Table for Last Run:

[ 0.000 min.] :SCN:GRP:ACT 0  
[ 0.000 min.] :MSC:PARM EMULG,3.000000  
[ 0.000 min.] :MSC:PARM CAPEXL,120.000000

## Events During Last Run:

<none>

## Instrument Parameters:

| Mnem.    | Cur. Val.   | Mnem.    | Cur. Val.    | Mnem.    | Cur. Val.    |
|----------|-------------|----------|--------------|----------|--------------|
| amug     | -25         | realtime | 0            | osgn     | 0            |
| amuo     | 15          | cds      | 0            | quadpolp | 0            |
| masg     | 12.90       | msstream | 1            | quadpoln | 0            |
| maso     | 0.526       | capexl   | 120.00       | maxcmfw  | 11           |
| quaddc   | 0.00        | ess2l    | 9.800        | maxctfw  | 9            |
| quadfreq | 998399.9983 | fslgain  | 0.225        | masgs    | 0            |
| quadf    | 998.400     | msvalvep | 1            | amuowso  | -10          |
| sgtst    | 0           | mssdae   | 2            | masos    | 0            |
| octpk    | 265.000     | mssdau   | 2            | abung    | 1            |
| octkn    | 280.0       | cdslos   | 2            | burst    | 31           |
| octo     | 5.000       | cdsdofrs | 10           | tburst   | 31           |
| capex    | 120.00      | cdsdofp1 | 75           | mist     | 0            |
| iris     | 400.00      | cdsdofp2 | 60           | msto     | 120.0        |
| ess1     | 36.75       | cdsdonps | 30           | esto     | 0.0          |
| ess2     | 9.800       | cdsdoncd | 30           | csto     | 120.0        |
| esl1     | 0.700       | emf_ceba | 8e+08        | mato     | 60.0         |
| esl2     | 78.00       | emf_cexa | 0            | mald0    | -0.0277849   |
| esv1     | 3999.023    | emf_cebb | 8e+08        | mald1    | 0.000137444  |
| esi3     | 0.000       | emf_cexb | 0            | mald2    | 5.86929e-09  |
| hedr     | 7500.5      | emf_poil | 0            | malu0    | 0.0277849    |
| hedv     | 10000.5     | emf_gasc | 0            | malu1    | -0.000137444 |
| emul     | 2079.853    | emf_iono | 0            | malu2    | -5.86929e-09 |
| emulg    | 3.0003111   | emf_ssv  | 0            | base0    | 47.6433      |
| octen    | 1           | emf_emul | 0            | base1    | 0            |
| quadpol  | 0           | emvgain0 | -15.649971   | base2    | 0            |
| masscal  | 0           | emvgain1 | 0.011457     | base3    | 0            |
| s3gauge  | 4           | emvgain2 | -1.63674e-06 |          |              |

Mass Filter = 1.000000

Time Filter = 0.109357,0.110666,0.111610,0.112181,0.112372,0.112181,0.111610,0.110666,0.109357

## Instrument Sensors:

| Mnem.     | Cur. Val. | Setpoint | Mnem.     | Cur. Val. | Setpoint |
|-----------|-----------|----------|-----------|-----------|----------|
| coroncur  | 0.00      |          | dgas      | 300       | 350      |
| capilvol  | 0         |          | vapor     | 28        | (325)    |
| rfdrive   | 0.0       |          | dgaspres  | 5.2       | 34.4     |
| rfdrive_  | 0         |          | dgaspres_ | 52        |          |
| capilcur  | 0         |          | dgasflow  | 2.919     | 10.000   |
| capilcur_ | 0         |          | dgasflow_ | 52        | 344      |
| chambcur  | 0.00      |          | nebpres   | 19.9      | 40.0     |
| chambcur_ | 0         |          | nebpres_  | 199       |          |
| coronvol  | 5137      |          | nebflow   | 19.900    | 40.000   |
| coronvol_ | 5137      |          | nebflow_  | 200       | 400      |
| rfpowerf  | 0.00      |          | qtmpduty  | 8.821     |          |
| rfpowerf_ | 0         |          | dtmpduty  | 13.251    |          |
| rfpowerr  | 0.00      |          | vtmpduty  | 0.000     |          |
| rfpowerr_ | 0         |          | dprsduty  | 47.761    |          |
| mainboard | 57351     |          | nprsduty  | 45.272    |          |
| srctype   | 3         |          | elecfansp | 96        |          |
| forepres  | 2         |          | trbofansp | 93        |          |
| forpres   | 2000      |          | psupfansp | 120       |          |
| highpres  | 6.54e-06  |          | pwrlnfreq | 58        |          |
| highpres_ | 66        |          | pll0level | 116       |          |
| s2pres    | 0         |          | rfpatemp  | 152       |          |
| s3pres    | 0         |          | roughpump | 1         |          |
| turbo1sp  | 101.0     |          | msvalve   | 0         |          |
| turbo2sp  | 98.5      |          | cdsvstate | 0         |          |
| turbo1pw  | 82.4      |          | ssvstate  | 2         |          |
| turbo2pw  | 18.4      |          | realtime  | 933891650 |          |
| quad      | 99        | 100      |           |           |          |

## Acquisition Parameters:

Last Acquisition Mode = SCN

## Last SCN Parameters:

FNORM 50.00 - 3000.00 AMU Step -0.100 Smp= 5 Avg= 1 Thr=10  
(ISCI = 0,0.00,0.00,0.00,0.00,0.00,0.00)

## Last PSCN Parameters:

SCAN 3.00 - 3276.00 AMU Step -0.100 Smp= 4 Avg= 1 Thr=0

## Last SIM Parameters:

NORM Wide=NO Cycle=ITER(1.000000)

| Ion    | Dwell | Ion | Dwell | Ion | Dwell |
|--------|-------|-----|-------|-----|-------|
| <none> |       |     |       |     |       |

Thu Aug 05 15:20:12 1999

```
[ 66880.31] :RUN:STAT? <--- 0
[ 66880.43] :MSC:MON? RUNTIME,S_DGAS... <--- 66880.441225,300,2.961,19.9
[ 66881.43] :RUN:STAT? <--- 0
[ 66881.56] :MSC:MON? RUNTIME,S_DGAS... <--- 66881.566354,300,2.919,20.0
[ 66882.49] :RUN:STAT? <--- 0
[ 66882.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66882.628790,300,2.919,20.0
[ 66883.55] :RUN:STAT? <--- 0
[ 66883.75] :MSC:MON? RUNTIME,S_DGAS... <--- 66883.753877,300,2.919,20.0
[ 66884.62] :RUN:STAT? <--- 0
[ 66884.93] :MSC:MON? RUNTIME,S_DGAS... <--- 66884.941387,300,2.919,19.9
[ 66885.69] :RUN:STAT? <--- 0
[ 66886.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66886.003880,300,2.919,20.0
[ 66886.89] :RUN:STAT? <--- 0
```

```
[ 66887.14] :MSC:MON? RUNTIME,S_DGAS... <--- 66887.145352,300,2.919,20.0
[ 66887.99] :RUN:STAT? <--- 0
[ 66888.19] :MSC:MON? RUNTIME,S_DGAS... <--- 66888.200077,300,2.919,20.0
[ 66889.14] :RUN:STAT? <--- 0
[ 66889.34] :MSC:MON? RUNTIME,S_DGAS... <--- 66889.352339,300,2.919,20.0
[ 66890.18] :RUN:STAT? <--- 0
[ 66890.44] :MSC:MON? RUNTIME,S_DGAS... <--- 66890.447811,300,2.961,20.0
[ 66891.25] :RUN:STAT? <--- 0
[ 66891.50] :MSC:MON? RUNTIME,S_DGAS... <--- 66891.504500,300,2.919,19.9
[ 66892.37] :RUN:STAT? <--- 0
[ 66892.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66892.628857,300,2.919,19.9
[ 66893.44] :RUN:STAT? <--- 0
[ 66893.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66893.691367,300,2.961,19.9
[ 66894.58] :RUN:STAT? <--- 0
[ 66894.92] :MSC:MON? RUNTIME,S_DGAS... <--- 66894.923218,300,2.919,20.1
[ 66895.62] :RUN:STAT? <--- 0
[ 66896.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66896.003973,300,2.919,20.0
[ 66896.68] :RUN:STAT? <--- 0
[ 66897.17] :MSC:MON? RUNTIME,S_DGAS... <--- 66897.180418,300,2.919,19.9
[ 66897.82] :RUN:STAT? <--- 0
[ 66898.25] :MSC:MON? RUNTIME,S_DGAS... <--- 66898.253899,300,2.919,19.9
[ 66898.93] :RUN:STAT? <--- 0
[ 66899.32] :MSC:MON? RUNTIME,S_DGAS... <--- 66899.322976,300,2.961,20.0
[ 66899.99] :RUN:STAT? <--- 0
[ 66900.50] :MSC:MON? RUNTIME,S_DGAS... <--- 66900.503889,300,2.919,19.9
[ 66901.06] :RUN:STAT? <--- 0
[ 66901.56] :MSC:MON? RUNTIME,S_DGAS... <--- 66901.569722,300,2.961,20.0
[ 66902.12] :RUN:STAT? <--- 0
[ 66902.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66902.691443,300,2.961,20.0
[ 66903.25] :RUN:STAT? <--- 0
[ 66903.75] :MSC:MON? RUNTIME,S_DGAS... <--- 66903.754923,300,2.919,20.0
[ 66904.31] :RUN:STAT? <--- 0
[ 66904.83] :MSC:MON? RUNTIME,S_DGAS... <--- 66904.837164,300,2.919,20.0
[ 66905.43] :RUN:STAT? <--- 0
[ 66906.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66906.012182,300,2.919,20.0
[ 66906.53] :RUN:STAT? <--- 0
[ 66907.07] :MSC:MON? RUNTIME,S_DGAS... <--- 66907.073088,300,2.919,20.0
[ 66907.56] :RUN:STAT? <--- 0
[ 66908.21] :MSC:MON? RUNTIME,S_DGAS... <--- 66908.217340,300,2.919,20.0
[ 66908.62] :RUN:STAT? <--- 0
[ 66909.32] :MSC:MON? RUNTIME,S_DGAS... <--- 66909.325060,300,2.919,20.0
[ 66909.68] :RUN:STAT? <--- 0
[ 66910.43] :MSC:MON? RUNTIME,S_DGAS... <--- 66910.441397,300,2.961,20.0
[ 66910.82] :RUN:STAT? <--- 0
[ 66911.50] :MSC:MON? RUNTIME,S_DGAS... <--- 66911.503949,300,2.919,20.0
[ 66911.97] :RUN:STAT? <--- 0
[ 66912.57] :MSC:MON? RUNTIME,S_DGAS... <--- 66912.579719,300,2.919,20.0
[ 66913.07] :RUN:STAT? <--- 0
[ 66913.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66913.691814,300,2.961,19.9
[ 66914.12] :RUN:STAT? <--- 0
[ 66914.75] :MSC:MON? RUNTIME,S_DGAS... <--- 66914.753949,300,2.919,20.0
[ 66915.23] :RUN:STAT? <--- 0
[ 66915.99] :MSC:MON? RUNTIME,S_DGAS... <--- 66915.999829,300,2.919,20.0
[ 66916.31] :RUN:STAT? <--- 0
[ 66917.07] :MSC:MON? RUNTIME,S_DGAS... <--- 66917.080102,300,2.919,20.0
[ 66917.37] :RUN:STAT? <--- 0
[ 66918.14] :MSC:MON? RUNTIME,S_DGAS... <--- 66918.143543,300,2.919,20.0
[ 66918.49] :RUN:STAT? <--- 0
[ 66919.25] :MSC:MON? RUNTIME,S_DGAS... <--- 66919.261912,300,2.919,20.0
[ 66919.56] :RUN:STAT? <--- 0
[ 66920.31] :MSC:MON? RUNTIME,S_DGAS... <--- 66920.316704,300,2.919,19.8
[ 66920.62] :RUN:STAT? <--- 0
[ 66921.46] :MSC:MON? RUNTIME,S_DGAS... <--- 66921.464880,300,2.919,20.0
{BBRU}1.57> rBM: Rewriting bbram image . . .
{BBRU}1.58> pBM: Sending bbram image [0:24] . . .
[ 66921.74] :RUN:STAT? <--- 0
[ 66922.51] :MSC:MON? RUNTIME,S_DGAS... <--- 66922.514144,300,2.919,20.0
{BBRU}2.81> pBM: Sending bbram image [46:49] . . .
```



```
[ 66922.86] :RUN:STAT? <--- 0
[ 66923.94] :RUN:STAT? <--- 0
[ 66924.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66924.012140,300,2.961,19.9
[ 66925.01] :RUN:STAT? <--- 0
[ 66925.12] :MSC:MON? RUNTIME,S_DGAS... <--- 66925.129230,300,2.961,20.0
[ 66926.06] :RUN:STAT? <--- 0
[ 66926.18] :MSC:MON? RUNTIME,S_DGAS... <--- 66926.191437,300,2.919,19.9
[ 66927.19] :RUN:STAT? <--- 0
[ 66927.32] :MSC:MON? RUNTIME,S_DGAS... <--- 66927.325630,300,2.919,19.9
[ 66928.28] :RUN:STAT? <--- 0
[ 66928.50] :MSC:MON? RUNTIME,S_DGAS... <--- 66928.507188,300,2.919,20.0
[ 66929.43] :RUN:STAT? <--- 0
[ 66929.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66929.629023,300,2.919,20.0
[ 66930.49] :RUN:STAT? <--- 0
[ 66930.69] :MSC:MON? RUNTIME,S_DGAS... <--- 66930.692599,300,2.961,20.0
[ 66931.56] :RUN:STAT? <--- 0
[ 66931.82] :MSC:MON? RUNTIME,S_DGAS... <--- 66931.826002,300,2.919,19.9
[ 66932.63] :RUN:STAT? <--- 0
[ 66932.95] :MSC:MON? RUNTIME,S_DGAS... <--- 66932.961369,300,2.919,20.0
[ 66933.68] :RUN:STAT? <--- 0
[ 66934.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66934.004040,300,2.919,20.0
[ 66934.82] :RUN:STAT? <--- 0
[ 66935.12] :MSC:MON? RUNTIME,S_DGAS... <--- 66935.131122,300,2.919,19.9
[ 66935.93] :RUN:STAT? <--- 0
[ 66936.19] :MSC:MON? RUNTIME,S_DGAS... <--- 66936.200108,300,2.961,19.8
[ 66937.07] :RUN:STAT? <--- 0
[ 66937.31] :MSC:MON? RUNTIME,S_DGAS... <--- 66937.321308,300,2.919,20.0
[ 66938.12] :RUN:STAT? <--- 0
[ 66938.47] :MSC:MON? RUNTIME,S_DGAS... <--- 66938.476389,300,2.919,20.0
[ 66939.20] :RUN:STAT? <--- 0
[ 66939.57] :MSC:MON? RUNTIME,S_DGAS... <--- 66939.573882,300,2.919,20.0
[ 66940.32] :RUN:STAT? <--- 0
[ 66940.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66940.629098,300,2.919,20.0
[ 66941.37] :RUN:STAT? <--- 0
[ 66941.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66941.691872,300,2.919,20.0
[ 66942.49] :RUN:STAT? <--- 0
[ 66942.85] :MSC:MON? RUNTIME,S_DGAS... <--- 66942.853119,300,2.919,20.0
[ 66943.62] :RUN:STAT? <--- 0
[ 66944.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66944.004233,300,2.919,20.0
[ 66944.68] :RUN:STAT? <--- 0
[ 66945.13] :MSC:MON? RUNTIME,S_DGAS... <--- 66945.139100,300,2.919,20.0
[ 66945.83] :RUN:STAT? <--- 0
[ 66946.19] :MSC:MON? RUNTIME,S_DGAS... <--- 66946.198680,300,2.961,19.9
[ 66946.89] :RUN:STAT? <--- 0
[ 66947.25] :MSC:MON? RUNTIME,S_DGAS... <--- 66947.260545,300,3.003,19.9
[ 66947.99] :RUN:STAT? <--- 0
[ 66948.38] :MSC:MON? RUNTIME,S_DGAS... <--- 66948.388099,300,2.961,19.9
[ 66949.06] :RUN:STAT? <--- 0
[ 66949.56] :MSC:MON? RUNTIME,S_DGAS... <--- 66949.566590,300,2.961,19.9
[ 66950.12] :RUN:STAT? <--- 0
[ 66950.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66950.691775,300,2.919,20.0
[ 66951.25] :RUN:STAT? <--- 0
[ 66951.75] :MSC:MON? RUNTIME,S_DGAS... <--- 66951.760698,300,2.919,20.0
[ 66952.31] :RUN:STAT? <--- 0
[ 66952.84] :MSC:MON? RUNTIME,S_DGAS... <--- 66952.848369,300,2.919,20.0
[ 66953.52] :RUN:STAT? <--- 0
[ 66954.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66954.004171,300,2.919,20.0
[ 66954.58] :RUN:STAT? <--- 0
[ 66955.07] :MSC:MON? RUNTIME,S_DGAS... <--- 66955.081045,300,2.919,20.0
[ 66955.68] :RUN:STAT? <--- 0
[ 66956.18] :MSC:MON? RUNTIME,S_DGAS... <--- 66956.191612,300,2.961,20.0
[ 66956.74] :RUN:STAT? <--- 0
[ 66957.26] :MSC:MON? RUNTIME,S_DGAS... <--- 66957.268895,300,2.919,20.0
[ 66957.81] :RUN:STAT? <--- 0
[ 66958.39] :MSC:MON? RUNTIME,S_DGAS... <--- 66958.393153,300,2.961,19.9
[ 66958.94] :RUN:STAT? <--- 0
[ 66959.42] :MSC:MON? RUNTIME,S_DGAS... <--- 66959.426036,300,2.961,19.9
[ 66960.24] :RUN:STAT? <--- 0
```

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[ 66960.67] :MSC:MON? RUNTIME,S_DGAS... <--- 66960.675994,300,2.961,20.0
[ 66961.29] :RUN:STAT? <--- 0
[ 66961.73] :MSC:MON? RUNTIME,S_DGAS... <--- 66961.738518,300,2.919,19.9
[ 66962.40] :RUN:STAT? <--- 0
[ 66962.79] :MSC:MON? RUNTIME,S_DGAS... <--- 66962.801050,300,2.961,20.0
[ 66963.56] :RUN:STAT? <--- 0
[ 66963.92] :MSC:MON? RUNTIME,S_DGAS... <--- 66963.926082,300,2.961,19.9
[ 66964.66] :RUN:STAT? <--- 0
[ 66965.01] :MSC:MON? RUNTIME,S_DGAS... <--- 66965.017460,300,2.919,19.9
[ 66965.80] :RUN:STAT? <--- 0
[ 66966.11] :MSC:MON? RUNTIME,S_DGAS... <--- 66966.119098,300,2.919,20.0
[ 66966.90] :RUN:STAT? <--- 0
[ 66967.23] :MSC:MON? RUNTIME,S_DGAS... <--- 66967.238622,300,2.961,19.9
[ 66967.91] :RUN:STAT? <--- 0
[ 66968.14] :SYS:STAT? <--- stby,,stable,0
[ 66968.36] :MSC:MON? RUNTIME,S_DGAS... <--- 66968.363584,300,2.919,20.0
[ 66969.06] :RUN:STAT? <--- 0
[ 66969.58] :MSC:MON? RUNTIME,S_DGAS... <--- 66969.587220,300,2.919,20.0
[ 66970.16] :RUN:STAT? <--- 0
[ 66970.67] :MSC:MON? RUNTIME,S_DGAS... <--- 66970.676089,300,2.919,20.0
[ 66971.29] :RUN:STAT? <--- 0
[ 66971.43] :SENS? SRCTYPE <--- 3
[ 66971.79] :MSC:MON? RUNTIME,S_DGAS... <--- 66971.800469,300,2.919,20.0
[ 66972.36] :RUN:STAT? <--- 0
[ 66972.48] :MSC:SENS? DGASFLOW <--- 2.919
[ 66972.61] :MSC:SENS? NEBPRES <--- 19.9
[ 66972.67] :MSC:SENS? DGAS <--- 300
[ 66972.87] :MSC:MON? RUNTIME,S_DGAS... <--- 66972.882039,300,2.919,19.9
[ 66973.44] :RUN:STAT? <--- 0
[ 66973.79] :MSC:SENS? DGASFLOW <--- 2.961
[ 66973.98] :MSC:MON? RUNTIME,S_DGAS... <--- 66973.988614,300,2.961,20.0
[ 66974.59] :RUN:STAT? <--- 0
[ 66975.11] :MSC:MON? RUNTIME,S_DGAS... <--- 66975.119094,300,2.961,19.9
[ 66975.60] :RUN:STAT? <--- 0
[ 66976.17] :MSC:MON? RUNTIME,S_DGAS... <--- 66976.176095,300,2.961,20.0
[ 66976.73] :RUN:STAT? <--- 0
[ 66977.29] :MSC:MON? RUNTIME,S_DGAS... <--- 66977.301065,300,2.961,20.0
[ 66977.79] :RUN:STAT? <--- 0
[ 66978.37] :MSC:MON? RUNTIME,S_DGAS... <--- 66978.380628,300,2.919,20.0
[ 66978.88] :RUN:STAT? <--- 0
[ 66979.48] :MSC:MON? RUNTIME,S_DGAS... <--- 66979.488649,300,2.919,20.0
[ 66979.98] :RUN:STAT? <--- 0
[ 66980.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66980.624035,300,2.919,20.0
[ 66981.06] :RUN:STAT? <--- 0
[ 66981.73] :MSC:MON? RUNTIME,S_DGAS... <--- 66981.738669,300,2.919,20.0
[ 66982.17] :RUN:STAT? <--- 0
[ 66982.81] :MSC:MON? RUNTIME,S_DGAS... <--- 66982.817201,300,2.919,20.0
[ 66983.23] :RUN:STAT? <--- 0
[ 66983.86] :MSC:MON? RUNTIME,S_DGAS... <--- 66983.863653,300,2.961,20.0
[ 66984.36] :RUN:STAT? <--- 0
[ 66985.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66985.004451,300,2.961,20.0
[ 66985.41] :RUN:STAT? <--- 0
{BBRU}5.80> rBM: Rewriting bbram image . . .
{BBRU}5.80> pBM: Sending bbram image [0:24] . . .
[ 66986.09] :MSC:MON? RUNTIME,S_DGAS... <--- 66986.093728,300,2.919,19.9
[ 66986.48] :RUN:STAT? <--- 0
{BBRU}7.00> pBM: Sending bbram image [46:49] . . .
[ 66987.53] :MSC:MON? RUNTIME,S_DGAS... <--- 66987.542500,300,2.919,20.0
[ 66987.61] :RUN:STAT? <--- 0
[ 66988.61] :MSC:MON? RUNTIME,S_DGAS... <--- 66988.613785,300,2.919,19.9
[ 66988.67] :RUN:STAT? <--- 0
[ 66989.73] :MSC:MON? RUNTIME,S_DGAS... <--- 66989.738723,300,2.919,19.9
[ 66989.80] :RUN:STAT? <--- 0
[ 66990.80] :MSC:MON? RUNTIME,S_DGAS... <--- 66990.810590,300,2.919,20.0
[ 66990.93] :RUN:STAT? <--- 0
[ 66993.18] :MSC:MON? RUNTIME,S_DGAS... <--- 66993.188874,300,2.961,19.9
[ 66994.21] :RUN:STAT? <--- 0
[ 66995.26] :RUN:STAT? <--- 0

```

```
[ 66995.32] :MSC:MON? RUNTIME,S_DGAS... <--- 66995.325842,300,2.961,20.0
[ 66995.89] :SENS? SRCTYPE <--- 3
[ 66995.93] :SENS? SRCTYPE <--- 3
[ 66996.36] :MSC:MON? RUNTIME,S_DGAS... <--- 66996.369428,300,2.919,19.9
[ 66996.43] :MSC:AVC:REV? <---
[ 66996.57] :MSC:CIVC:REV? <---
[ 66997.42] :MSC:PARM? QUADFREQ <--- 998399.9983
[ 66997.57] :MSC:MON? RUNTIME,S_DGAS... <--- 66997.579151,300,2.961,20.0
[ 66997.67] :SYS:STAT? <--- stby,,stable,0
[ 67000.25] :RUN:STAT? <--- 0
[ 67000.32] :MSC:MON? RUNTIME,S_DGAS... <--- 67000.331419,300,2.961,20.0
[ 67001.82] :RUN:STAT? <--- 0
[ 67002.91] :MSC:MON? RUNTIME,S_DGAS... <--- 67002.915292,300,2.919,20.0
[ 67003.93] :RUN:STAT? <--- 0
[ 67004.67] :MSC:MON? RUNTIME,S_DGAS... <--- 67004.679148,300,2.919,19.9
[ 67004.99] :RUN:STAT? <--- 0
[ 67005.75] :MSC:MON? RUNTIME,S_DGAS... <--- 67005.756485,300,2.919,20.0
[ 67006.10] :RUN:STAT? <--- 0
[ 67006.80] :MSC:MON? RUNTIME,S_DGAS... <--- 67006.806442,300,2.919,20.0
[ 67007.16] :RUN:STAT? <--- 0
[ 67007.86] :MSC:MON? RUNTIME,S_DGAS... <--- 67007.863102,300,2.919,20.0
[ 67008.23] :RUN:STAT? <--- 0
[ 67008.95] :MSC:MON? RUNTIME,S_DGAS... <--- 67008.952760,300,2.919,20.0
[ 67009.29] :RUN:STAT? <--- 0
[ 67010.12] :MSC:MON? RUNTIME,S_DGAS... <--- 67010.130439,300,2.919,19.9
[ 67010.35] :RUN:STAT? <--- 0
[ 67011.24] :MSC:MON? RUNTIME,S_DGAS... <--- 67011.244249,300,2.961,19.9
[ 67011.48] :RUN:STAT? <--- 0
[ 67012.36] :MSC:MON? RUNTIME,S_DGAS... <--- 67012.363813,300,2.919,20.0
[ 67012.62] :RUN:STAT? <--- 0
[ 67013.42] :MSC:MON? RUNTIME,S_DGAS... <--- 67013.426335,300,2.919,20.0
[ 67013.73] :RUN:STAT? <--- 0
[ 67014.63] :MSC:MON? RUNTIME,S_DGAS... <--- 67014.636136,300,2.961,20.0
[ 67014.80] :RUN:STAT? <--- 0
[ 67015.67] :MSC:MON? RUNTIME,S_DGAS... <--- 67015.681320,300,2.919,20.0
[ 67015.86] :RUN:STAT? <--- 0
[ 67016.63] *IDN? <--- HEWLETT-PACKARD,G1946A,US78912345,2.07.19
[ 67016.67] :TRCE:BLCK:FIRST? 4086 <--- #44080[ 66880.31] :RUN:STAT? <--- ...
[ 67016.75] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 66908.21] :MSC:MON? RUNTIME,S_
[ 67016.82] :MSC:MON? RUNTIME,S_DGAS... <--- 67016.831444,300,2.919,20.0
[ 67016.93] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 66934.82] :RUN:STAT? <--- 0...
[ 67017.00] :RUN:STAT? <--- 0
[ 67017.15] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 66962.79] :MSC:MON? RUNTIME,S_
[ 67017.22] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 66986.48] :RUN:STAT? <--- 0...
[ 67017.31] :TRCE:BLCK:NEXT? 4086 <--- #3560[ 67016.75] :TRCE:BLCK:NEXT? 4086
```

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## Using the SCState.txt File, 2 of 2

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- SCSTATE.TXT information, continued...
  - ▶ **Instrument sensors** - This complete list of all sensor readings at the end of the run is recorded using SmartCard parameter naming conventions.
  - ▶ **Acquisition parameters** - The last scan, SIM and profile scan parameters used are listed here. Note that if the data file is a scan file, the SIM parameters will be from a previous run or the default parameters. The reverse is also true. The last profile scan parameters will be from the last Profile operation in tune, or the default Profile parameters.
  - ▶ **SmartCard Trace** - This is the SmartCard command buffer, which displays the most recent internal commands executed by SmartCard. This is generally useful only for investigating software or firmware defects.



SC State Report (Rev. 2.01)  
 Fri Jul 23 16:59:22 1999

## Instrument Configuration:

Instrument Model = G1946A  
 Serial Number = US78912345  
 Mass Range Low/High[Res] = 3.00 / 3276.00 [0.050]

## Smartcard Configuration:

Smartcard Model = SC2B  
 Main Processor Speed = 10.0 MHz  
 Main Processor Memory = 8M  
 Inst. Controller Memory = 64K  
 Data Processor Memory = 8M  
 Firmware Revision Number = 2.07.19

## Options:

1: PR2  
 2: LR2  
 3: FS3  
 4: CDS2

## Run Table for Last Run:

[ 0.000 min.] :SCN:GRP:ACT 0  
 [ 0.000 min.] :MSC:PARM EMULG,3.000000  
 [ 0.000 min.] :MSC:PARM CAPEXL,120.000000  
 [ 0.000 min.] :MSC:ES 1  
 [ 0.000 min.] :MSC:PARM MSSTREAM,2  
 [ 0.000 min.] :MSC:RDY ON  
 [ 0.000 min.] :REP:PROG #18SCN:STRT

## Events During Last Run:

[ 19.082 min.] -302, "( :RUN:RDY OFF; ): Timeout waiting 1286000 usec for DP to process 1 scan(s)."  
 [ 19.085 min.] -302, "( :RUN:RDY OFF; ): Error executing Acquisition Engine recipe = -1"  
 [ 19.554 min.] -212, "(ZONE:NAME coroncur;): Unrecognized mass spec zone 'CORONCUR'"  
 [ 19.554 min.] -222, "(ZONE:NAME coroncur;): Data out of range"  
 [ 19.565 min.] -212, "(ZONE:NAME capilvol;): Unrecognized mass spec zone 'CAPILVOL'"  
 [ 19.565 min.] -222, "(ZONE:NAME capilvol;): Data out of range"  
 [ 19.577 min.] -212, "(ZONE:NAME rfdrive;): Unrecognized mass spec zone 'RFDRIVE'"  
 [ 19.577 min.] -222, "(ZONE:NAME rfdrive;): Data out of range"  
 [ 19.588 min.] -212, "(ZONE:NAME rfdrive\_;): Unrecognized mass spec zone 'RFDRIVE\_'"  
 [ 19.588 min.] -222, "(ZONE:NAME rfdrive\_;): Data out of range"  
 [ 19.592 min.] -212, "(ZONE:NAME dgaspres;): Unrecognized mass spec zone 'DGASPRES\_'"  
 [ 19.593 min.] -222, "(ZONE:NAME dgaspres;): Data out of range"  
 [ 19.598 min.] -212, "(ZONE:NAME capilcur;): Unrecognized mass spec zone 'CAPILCUR'"  
 [ 19.598 min.] -222, "(ZONE:NAME capilcur;): Data out of range"  
 [ 19.608 min.] -212, "(ZONE:NAME capilcur\_;): Unrecognized mass spec zone 'CAPILCUR\_'"  
 [ 19.608 min.] -222, "(ZONE:NAME capilcur\_;): Data out of range"  
 [ 19.621 min.] -212, "(ZONE:NAME chambcur;): Unrecognized mass spec zone 'CHAMBCUR'"  
 [ 19.621 min.] -222, "(ZONE:NAME chambcur;): Data out of range"  
 [ 19.632 min.] -212, "(ZONE:NAME chambcur\_;): Unrecognized mass spec zone 'CHAMBCUR\_'"  
 [ 19.632 min.] -222, "(ZONE:NAME chambcur\_;): Data out of range"  
 [ 19.636 min.] -212, "(ZONE:NAME nebpres;): Unrecognized mass spec zone 'NEBPRES\_'"  
 [ 19.636 min.] -222, "(ZONE:NAME nebpres;): Data out of range"  
 [ 19.640 min.] -212, "(ZONE:NAME coronvol;): Unrecognized mass spec zone 'CORONVOL'"  
 [ 19.640 min.] -222, "(ZONE:NAME coronvol;): Data out of range"  
 [ 19.651 min.] -212, "(ZONE:NAME coronvol\_;): Unrecognized mass spec zone 'CORONVOL\_'"  
 [ 19.651 min.] -222, "(ZONE:NAME coronvol\_;): Data out of range"  
 [ 19.662 min.] -212, "(ZONE:NAME rfpowerf;): Unrecognized mass spec zone 'RFPOWERF'"  
 [ 19.662 min.] -222, "(ZONE:NAME rfpowerf;): Data out of range"  
 [ 19.667 min.] -212, "(ZONE:NAME qttmpduty;): Unrecognized mass spec zone 'QTMPDUTY'"  
 [ 19.668 min.] -222, "(ZONE:NAME qttmpduty;): Data out of range"  
 [ 19.672 min.] -212, "(ZONE:NAME rfpowerf\_;): Unrecognized mass spec zone 'RFPOWERF\_'"

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[ 19.672 min.] -222, "(ZONE:NAME rfpowerf_); Data out of range"
[ 19.676 min.] -212, "(ZONE:NAME dtmpduty); Unrecognized mass spec zone 'DTMPDUTY'"
[ 19.676 min.] -222, "(ZONE:NAME dtmpduty); Data out of range"
[ 19.682 min.] -212, "(ZONE:NAME rfpowerr); Unrecognized mass spec zone 'RFPOWERERR'"
[ 19.682 min.] -222, "(ZONE:NAME rfpowerr); Data out of range"
[ 19.686 min.] -212, "(ZONE:NAME vttmpduty); Unrecognized mass spec zone 'VTMPDUTY'"
[ 19.686 min.] -222, "(ZONE:NAME vttmpduty); Data out of range"
[ 19.692 min.] -212, "(ZONE:NAME rfpowerr_); Unrecognized mass spec zone 'RFPOWERERR_'"
[ 19.692 min.] -222, "(ZONE:NAME rfpowerr_); Data out of range"
[ 19.699 min.] -212, "(ZONE:NAME dprsduty); Unrecognized mass spec zone 'DPRSDUTY'"
[ 19.699 min.] -222, "(ZONE:NAME dprsduty); Data out of range"
[ 19.704 min.] -212, "(ZONE:NAME mainboard); Unrecognized mass spec zone 'MAINBOARD'"
[ 19.704 min.] -222, "(ZONE:NAME mainboard); Data out of range"
[ 19.709 min.] -212, "(ZONE:NAME nprsduty); Unrecognized mass spec zone 'NPRSDUTY'"
[ 19.709 min.] -222, "(ZONE:NAME nprsduty); Data out of range"
[ 19.715 min.] -212, "(ZONE:NAME srctype); Unrecognized mass spec zone 'SRCTYPE'"
[ 19.715 min.] -222, "(ZONE:NAME srctype); Data out of range"
[ 19.720 min.] -212, "(ZONE:NAME elecfansp); Unrecognized mass spec zone 'ELECTFANSP'"
[ 19.720 min.] -222, "(ZONE:NAME elecfansp); Data out of range"
[ 19.726 min.] -212, "(ZONE:NAME forepres); Unrecognized mass spec zone 'FOREPRES'"
[ 19.726 min.] -222, "(ZONE:NAME forepres); Data out of range"
[ 19.732 min.] -212, "(ZONE:NAME trbofansp); Unrecognized mass spec zone 'TRBOFANSP'"
[ 19.732 min.] -222, "(ZONE:NAME trbofansp); Data out of range"
[ 19.738 min.] -212, "(ZONE:NAME forpres); Unrecognized mass spec zone 'FORPRES'"
[ 19.738 min.] -222, "(ZONE:NAME forpres); Data out of range"
[ 19.742 min.] -212, "(ZONE:NAME psupfansp); Unrecognized mass spec zone 'PSUPFANSP'"
[ 19.743 min.] -222, "(ZONE:NAME psupfansp); Data out of range"
[ 19.749 min.] -212, "(ZONE:NAME highpres); Unrecognized mass spec zone 'HIGHPRES'"
[ 19.749 min.] -222, "(ZONE:NAME highpres); Data out of range"
[ 19.757 min.] -212, "(ZONE:NAME pwrlnfreq); Unrecognized mass spec zone 'PWRLNFREQ'"
[ 19.757 min.] -222, "(ZONE:NAME pwrlnfreq); Data out of range"
[ 19.767 min.] -212, "(ZONE:NAME highpres_); Unrecognized mass spec zone 'HIGHPRES_'"
[ 19.767 min.] -222, "(ZONE:NAME highpres_); Data out of range"
[ 19.771 min.] -212, "(ZONE:NAME pl10level); Unrecognized mass spec zone 'P110LEVEL'"
[ 19.771 min.] -222, "(ZONE:NAME pl10level); Data out of range"
[ 19.777 min.] -212, "(ZONE:NAME s2pres); Unrecognized mass spec zone 'S2PRES'"
[ 19.777 min.] -222, "(ZONE:NAME s2pres); Data out of range"
[ 19.782 min.] -212, "(ZONE:NAME rfpatemp); Unrecognized mass spec zone 'RFPATEMP'"
[ 19.782 min.] -222, "(ZONE:NAME rfpatemp); Data out of range"
[ 19.788 min.] -212, "(ZONE:NAME s3pres); Unrecognized mass spec zone 'S3PRES'"
[ 19.788 min.] -222, "(ZONE:NAME s3pres); Data out of range"
[ 19.794 min.] -212, "(ZONE:NAME roughpump); Unrecognized mass spec zone 'ROUGHPUMP'"
[ 19.794 min.] -222, "(ZONE:NAME roughpump); Data out of range"
[ 19.799 min.] -212, "(ZONE:NAME turbosp); Unrecognized mass spec zone 'TURBO1SP'"
[ 19.799 min.] -222, "(ZONE:NAME turbosp); Data out of range"
[ 19.803 min.] -212, "(ZONE:NAME msvalve); Unrecognized mass spec zone 'MSVALVE'"
[ 19.803 min.] -222, "(ZONE:NAME msvalve); Data out of range"
[ 19.808 min.] -212, "(ZONE:NAME turbo2sp); Unrecognized mass spec zone 'TURBO2SP'"
[ 19.808 min.] -222, "(ZONE:NAME turbo2sp); Data out of range"
[ 19.815 min.] -212, "(ZONE:NAME cdsvstate); Unrecognized mass spec zone 'CDSVSTATE'"
[ 19.816 min.] -222, "(ZONE:NAME cdsvstate); Data out of range"
[ 19.821 min.] -212, "(ZONE:NAME turbolpw); Unrecognized mass spec zone 'TURBO1PW'"
[ 19.821 min.] -222, "(ZONE:NAME turbolpw); Data out of range"
[ 19.827 min.] -212, "(ZONE:NAME ssvstate); Unrecognized mass spec zone 'SSVSTATE'"
[ 19.827 min.] -222, "(ZONE:NAME ssvstate); Data out of range"
[ 19.833 min.] -212, "(ZONE:NAME turbo2pw); Unrecognized mass spec zone 'TURBO2PW'"
[ 19.833 min.] -222, "(ZONE:NAME turbo2pw); Data out of range"
[ 19.837 min.] -212, "(ZONE:NAME realtime); Unrecognized mass spec zone 'REALTIME'"
[ 19.837 min.] -222, "(ZONE:NAME realtime); Data out of range"

```

## Instrument Parameters:

| Mnem. | Cur. Val. | Mnem.    | Cur. Val. | Mnem.    | Cur. Val. |
|-------|-----------|----------|-----------|----------|-----------|
| amug  | -25       | realtime | 0         | osgn     | 0         |
| amu0  | 15        | cds      | 0         | quadpolp | 0         |
| masg  | 12.90     | msstream | 2         | quadpoln | 0         |
| maso  | 0.526     | capexl   | 120.00    | maxcmfw  | 11        |

|          |             |           |              |         |              |
|----------|-------------|-----------|--------------|---------|--------------|
| quaddc   | 0.00        | ess2l     | 9.800        | maxctfw | 9            |
| quadfreq | 998399.9983 | fslgain   | 0.225        | masgs   | 0            |
| quadf    | 998.400     | mssvalvep | 1            | amuowso | -10          |
| sytst    | 0           | mssdae    | 2            | masos   | 0            |
| octpk    | 265.000     | mssdau    | 2            | abung   | 1            |
| octkn    | 280.0       | cdslos    | 2            | burst   | 31           |
| octo     | 5.000       | cdsdofrs  | 10           | tburst  | 31           |
| capex    | 120.00      | cdsdofp1  | 75           | mist    | 0            |
| iris     | 400.00      | cdsdofp2  | 60           | msto    | 600.0        |
| ess1     | 36.75       | cdsdonps  | 30           | esto    | 0.0          |
| ess2     | 9.800       | cdsdoncd  | 30           | csto    | 120.0        |
| esl1     | 0.700       | emf_ceba  | 8e+08        | mato    | 60.0         |
| esl2     | 78.00       | emf_cexa  | 0            | mald0   | -0.0277849   |
| esv1     | 3999.023    | emf_cebb  | 8e+08        | mald1   | 0.000137444  |
| esi3     | 19.995      | emf_cexb  | 0            | mald2   | 5.86929e-09  |
| hedr     | 7500.5      | emf_poil  | 0            | malu0   | 0.0277849    |
| hedv     | 10000.5     | emf_gasc  | 0            | malu1   | -0.000137444 |
| emul     | 2079.853    | emf_iono  | 0            | malu2   | -5.86929e-09 |
| emulg    | 3.0003111   | emf_ssv   | 0            | base0   | 0            |
| octen    | 1           | emf_emul  | 0            | base1   | 0            |
| quadpol  | 0           | emvgain0  | -15.649971   | base2   | 0            |
| masscal  | 0           | emvgain1  | 0.011457     | base3   | 0            |
| s3gauge  | 4           | emvgain2  | -1.63674e-06 |         |              |

Mass Filter = 0.032929,0.071570,0.124610,0.173799,0.194184,0.173799,0.124610,0.071570,0.032929  
Time Filter = 0.085720,0.242652,0.343256,0.242652,0.085720

## Instrument Sensors:

| Mnem.     | Cur. Val. | Setpoint | Mnem.     | Cur. Val. | Setpoint |
|-----------|-----------|----------|-----------|-----------|----------|
| coroncur  | 0.00      |          | dgas      | 350       | 350      |
| capilvol  | 0         |          | vapor     | 28        | (0)      |
| rfdrive   | 0.0       |          | dgaspres  | 34.2      | 34.4     |
| rfdrive_  | 0         |          | dgaspres_ | 342       |          |
| capilcur  | 0         |          | dgasflow  | 9.957     | 10.000   |
| capilcur_ | 0         |          | dgasflow_ | 342       | 344      |
| chambcur  | 0.00      |          | nebpres   | 40.0      | 40.0     |
| chambcur_ | 0         |          | nebpres_  | 399       |          |
| coronvol  | 5137      |          | nebflow   | 40.000    | 40.000   |
| coronvol_ | 5137      |          | nebflow_  | 400       | 400      |
| rfpowerf  | 0.00      |          | qtmpduty  | 8.975     |          |
| rfpowerf_ | 0         |          | dtmpduty  | 37.374    |          |
| rfpowerr  | 0.00      |          | vtmpduty  | 0.000     |          |
| rfpowerr_ | 0         |          | dprsduty  | 53.074    |          |
| mainboard | 57351     |          | nprsduty  | 44.323    |          |
| srctype   | 3         |          | elecfansp | 96        |          |
| forepres  | 1.73      |          | trbofansp | 93        |          |
| forpres   | 1738      |          | psupfansp | 121       |          |
| highpres  | 5.43e-06  |          | pwrlnfreq | 58        |          |
| highpres_ | 54        |          | pl10level | 116       |          |
| s2pres    | 0         |          | rfpatemp  | 152       |          |
| s3pres    | 0         |          | roughpump | 1         |          |
| turbo1sp  | 101.0     |          | mssvalve  | 0         |          |
| turbo2sp  | 98.5      |          | cdsvstate | 0         |          |
| turbo1pw  | 80.7      |          | ssvstate  | 5         |          |
| turbo2pw  | 17.8      |          | realtime  | 932774415 |          |
| quad      | 99        | 100      |           |           |          |

## Acquisition Parameters:

Last Acquisition Mode = SCN

## Last SCN Parameters:

FNORM 50.00 - 3000.00 AMU Step -0.100 Smp= 5 Avg= 1 Thr=10  
(ISOI = 0,0.00,0.00,0.00,0.00,0.00,0.00)

## Last PSCN Parameters:

SCAN 597.00 - 607.00 AMU Step -0.100 Smp= 8 Avg= 7 Thr=0

Last SIM Parameters:

NORM Wide=NO Cycle=ITER(1.000000)

| Ion    | Dwell | Ion | Dwell | Ion | Dwell |
|--------|-------|-----|-------|-----|-------|
| -----  |       |     |       |     |       |
| <none> |       |     |       |     |       |

Fri Jul 23 16:59:17 1999

```
[ 109.02] :OCW:ALL? <--- -302,": SICB(A=1,C=17,B=0/0): Timeout writing to D
[ 110.68] :MSC:MON? RUNTIME,S_QUAD... <--- 110.701746,99,350,1.74,5.43e-06,7
[ 110.95] :MSC:MON? RUNTIME,S_DGAS... <--- 110.953493,350,9.979,39.9
[ 111.04] :RUN:STOP;
[ 111.05] *ESR? <--- 0
[ 111.47] :MSC:FLT:RVR OFF;
[ 111.47] *ESR? <--- 0
[ 111.52] :MSC:RDY OFF;
[ 111.69] *ESR? <--- 0
[ 111.92] :BUF:NREC? <--- 4
[ 113.10] :MSC:MON? RUNTIME,S_DGAS... <--- 113.106086,350,9.979,39.8
[ 113.14] :DAT:READ? <--- #44086...
[ 113.37] :DAT:READ? <--- #44086...
[ 113.42] :DAT:READ? <--- #44086...
[ 113.47] :DAT:READ? <--- #44086...
[ 113.53] :DAT:READ? <--- #44086...
[ 113.59] :DAT:READ? <--- #44086...
[ 113.77] :DAT:READ? <--- #44086...
[ 113.87] :DAT:READ? <--- #44086...
[ 114.08] :DAT:READ? <--- #44086...
[ 114.12] :DAT:READ? <--- #44086...
[ 114.22] :DAT:READ? <--- #44086...
[ 114.26] :DAT:READ? <--- #44086...
[ 114.30] :DAT:READ? <--- #44086...
[ 114.35] :DAT:READ? <--- #44086...
[ 114.39] :DAT:READ? <--- #44086...
[ 114.43] :DAT:READ? <--- #44086r...
[ 115.90] :DAT:READ? <--- #44086...
[ 115.97] :DAT:READ? <--- #44086b...
[ 116.02] :DAT:READ? <--- #44086...
[ 116.06] :DAT:READ? <--- #44086R...
[ 116.11] :DAT:READ? <--- #44086...
[ 116.16] :DAT:READ? <--- #44086B...
[ 116.31] :DAT:READ? <--- #44086...
[ 116.86] :DAT:READ? <--- #440862...
[ 116.99] :DAT:READ? <--- #44086...
[ 117.31] :DAT:READ? <--- #44086"...
[ 118.79] :DAT:READ? <--- #44086...
[ 118.86] :DAT:READ? <--- #44086...
[ 119.09] :DAT:READ? <--- #43624...
[ 119.17] :MSC:MON? RUNTIME,S_DGAS... <--- 119.179104,351,9.957,39.9
[ 119.26] :BUF:NREC? <--- 3
[ 119.32] :DAT:READ? <--- #44086...
[ 119.41] :DAT:READ? <--- #44086...
[ 119.51] :DAT:READ? <--- #44086...
[ 119.59] :DAT:READ? <--- #44086...
[ 119.73] :DAT:READ? <--- #44086...
[ 119.82] :DAT:READ? <--- #44086...
[ 119.92] :DAT:READ? <--- #44086...
[ 119.99] :DAT:READ? <--- #44086...
[ 120.03] :DAT:READ? <--- #44086...
[ 120.10] :DAT:READ? <--- #44086...
[ 120.16] :DAT:READ? <--- #44086...
[ 120.21] :DAT:READ? <--- #44086...
[ 120.28] :DAT:READ? <--- #44086...
[ 120.36] :DAT:READ? <--- #44086...
```



```
[ 120.40] :DAT:READ? <--- #44086...
[ 120.51] :DAT:READ? <--- #44086r...
[ 120.59] :DAT:READ? <--- #44086...
[ 120.65] :DAT:READ? <--- #44086b...
[ 120.82] :DAT:READ? <--- #44086...
[ 120.90] :DAT:READ? <--- #44086R...
[ 120.99] :DAT:READ? <--- #44086...
[ 121.03] :DAT:READ? <--- #44086B...
[ 121.09] :DAT:READ? <--- #44086...
[ 121.15] :DAT:READ? <--- #440862...
[ 121.22] :DAT:READ? <--- #44086...
[ 121.28] :DAT:READ? <--- #44086"...
[ 121.34] :DAT:READ? <--- #44086...
[ 121.41] :DAT:READ? <--- #44086...
[ 121.51] :DAT:READ? <--- #43624...
[ 121.55] :MSC:MON? RUNTIME,S_DGAS... <--- 121.554096,350,9.979,39.9
[ 121.65] :BUF:NREC? <--- 2
[ 121.74] :DAT:READ? <--- #44086...
[ 121.82] :DAT:READ? <--- #44086...
[ 121.91] :DAT:READ? <--- #44086...
[ 122.00] :DAT:READ? <--- #44086...
[ 122.09] :DAT:READ? <--- #44086...
[ 122.15] :DAT:READ? <--- #44086...
[ 122.22] :DAT:READ? <--- #44086...
[ 122.28] :DAT:READ? <--- #44086...
[ 122.34] :DAT:READ? <--- #44086...
[ 122.41] :DAT:READ? <--- #44086...
[ 122.51] :DAT:READ? <--- #44086...
[ 122.59] :DAT:READ? <--- #44086...
[ 122.65] :DAT:READ? <--- #44086...
[ 122.75] :DAT:READ? <--- #44086...
[ 122.86] :DAT:READ? <--- #44086...
[ 122.90] :DAT:READ? <--- #44086r...
[ 122.99] :DAT:READ? <--- #44086...
[ 123.03] :DAT:READ? <--- #44086b...
[ 123.10] :DAT:READ? <--- #44086...
[ 123.15] :DAT:READ? <--- #44086R...
[ 123.22] :DAT:READ? <--- #44086...
[ 123.28] :DAT:READ? <--- #44086B...
[ 123.34] :DAT:READ? <--- #44086...
[ 123.41] :DAT:READ? <--- #440862...
[ 123.51] :DAT:READ? <--- #44086...
[ 123.59] :DAT:READ? <--- #44086"...
[ 123.65] :DAT:READ? <--- #44086...
[ 123.76] :DAT:READ? <--- #44086...
[ 123.84] :DAT:READ? <--- #43624...
[ 123.91] :MSC:MON? RUNTIME,S_DGAS... <--- 123.916783,350,9.957,40.0
[ 123.95] :BUF:NREC? <--- 1
[ 124.01] :DAT:READ? <--- #44086...
[ 124.09] :DAT:READ? <--- #44086...
[ 124.16] :DAT:READ? <--- #44086...
[ 124.22] :DAT:READ? <--- #44086...
[ 124.28] :DAT:READ? <--- #44086...
[ 124.36] :DAT:READ? <--- #44086...
[ 124.42] :DAT:READ? <--- #44086...
[ 124.51] :DAT:READ? <--- #44086...
[ 124.60] :DAT:READ? <--- #44086...
[ 124.66] :DAT:READ? <--- #44086...
[ 124.75] :DAT:READ? <--- #44086...
[ 124.88] :DAT:READ? <--- #44086...
[ 124.97] :DAT:READ? <--- #44086...
[ 125.03] :DAT:READ? <--- #44086...
[ 125.09] :DAT:READ? <--- #44086...
[ 125.16] :DAT:READ? <--- #44086r...
[ 125.22] :DAT:READ? <--- #44086...
[ 125.28] :DAT:READ? <--- #44086b...
[ 125.34] :DAT:READ? <--- #44086...
[ 125.41] :DAT:READ? <--- #44086R...
```

```

[ 125.52] :DAT:READ? <--- #44086...
[ 125.59] :DAT:READ? <--- #44086B...
[ 125.65] :DAT:READ? <--- #44086...
[ 125.76] :DAT:READ? <--- #440862...
[ 125.85] :DAT:READ? <--- #44086...
[ 125.93] :DAT:READ? <--- #44086"...
[ 125.97] :DAT:READ? <--- #44086...
[ 126.03] :DAT:READ? <--- #44086...
[ 126.09] :DAT:READ? <--- #43624...
[ 126.15] :MSC:MON? RUNTIME,S_DGAS... <--- 126.161696,350,9.957,39.9
[ 126.20] :BUF:NREC? <--- 0
[ 126.29] :MSC:FLT:RVR OFF;
[ 126.29] *ESR? <--- 0
[ 126.33] :RUN:STAT? <--- 81
[ 126.39] :AER? <--- 0
[ 126.45] :RUN:STOP;
[ 126.45] *ESR? <--- 0
[ 126.52] :CONFIG:INST:MSTO 600;
[ 126.53] *ESR? <--- 0
[ 126.57] :MSC:PARM MSSTREAM,2;
126.61> getLONValue: c=111, v[23]=0x04,00,00,00,00,04,00,00
126.62> curMSStreamSetting: mss=2.000000
126.62> updateMSStreamVal: Leaving msstream as 'lc' . . .
[ 126.63] *ESR? <--- 0
[ 126.75] :MSC:FLT:STAT? <--- 0
126.84> getLONValue: c=111, v[23]=0x04,00,00,00,00,04,00,00
126.88> faultStatus: returning 0x0000
[ 126.95] :RUN:EVNT:NUM? <--- 90
[ 127.01] :RUN:EVNT:DESC? 1 <--- [ 19.082 min.] -302,":RUN:RDY OFF;): Time
[ 127.09] :RUN:EVNT:DESC? 2 <--- [ 19.085 min.] -302,":RUN:RDY OFF;): Erro
[ 127.15] :RUN:EVNT:DESC? 3 <--- [ 19.554 min.] -212,":(ZONE:NAME coroncur;):
[ 127.21] :MSC:MON? RUNTIME,S_DGAS... <--- 127.220729,350,9.957,39.9
[ 127.26] :RUN:EVNT:DESC? 4 <--- [ 19.554 min.] -222,":(ZONE:NAME coroncur;):
[ 127.35] :RUN:EVNT:DESC? 5 <--- [ 19.565 min.] -212,":(ZONE:NAME capilvol;):
[ 127.40] :RUN:EVNT:DESC? 6 <--- [ 19.565 min.] -222,":(ZONE:NAME capilvol;):
[ 127.44] :RUN:EVNT:DESC? 7 <--- [ 19.577 min.] -212,":(ZONE:NAME rfdrive;):
[ 127.54] :RUN:EVNT:DESC? 8 <--- [ 19.577 min.] -222,":(ZONE:NAME rfdrive;):
[ 127.59] :RUN:EVNT:DESC? 9 <--- [ 19.588 min.] -212,":(ZONE:NAME rfdrive;):
[ 127.66] :RUN:EVNT:DESC? 10 <--- [ 19.588 min.] -222,":(ZONE:NAME rfdrive;):
[ 127.76] :RUN:EVNT:DESC? 11 <--- [ 19.592 min.] -212,":(ZONE:NAME dgaspres;):
[ 127.84] :RUN:EVNT:DESC? 12 <--- [ 19.593 min.] -222,":(ZONE:NAME dgaspres;):
[ 127.90] :RUN:EVNT:DESC? 13 <--- [ 19.598 min.] -212,":(ZONE:NAME capilcur;):
[ 127.96] :RUN:EVNT:DESC? 14 <--- [ 19.598 min.] -222,":(ZONE:NAME capilcur;):
[ 128.03] :RUN:EVNT:DESC? 15 <--- [ 19.608 min.] -212,":(ZONE:NAME capilcur;):
[ 128.09] :RUN:EVNT:DESC? 16 <--- [ 19.608 min.] -222,":(ZONE:NAME capilcur;):
[ 128.15] :RUN:EVNT:DESC? 17 <--- [ 19.621 min.] -212,":(ZONE:NAME chambcur;):
[ 128.21] :RUN:EVNT:DESC? 18 <--- [ 19.621 min.] -222,":(ZONE:NAME chambcur;):
[ 128.30] :RUN:EVNT:DESC? 19 <--- [ 19.632 min.] -212,":(ZONE:NAME chambcur;):
[ 128.33] :MSC:MON? RUNTIME,S_DGAS... <--- 128.332633,350,9.979,40.0
[ 128.39] :RUN:EVNT:DESC? 20 <--- [ 19.632 min.] -222,":(ZONE:NAME chambcur;):
[ 128.46] :RUN:EVNT:DESC? 21 <--- [ 19.636 min.] -212,":(ZONE:NAME nebpres;):
[ 128.53] :RUN:EVNT:DESC? 22 <--- [ 19.636 min.] -222,":(ZONE:NAME nebpres;):
[ 128.59] :RUN:EVNT:DESC? 23 <--- [ 19.640 min.] -212,":(ZONE:NAME coronvol;):
[ 128.65] :RUN:EVNT:DESC? 24 <--- [ 19.640 min.] -222,":(ZONE:NAME coronvol;):
[ 128.76] :RUN:EVNT:DESC? 25 <--- [ 19.651 min.] -212,":(ZONE:NAME coronvol;):
[ 128.86] :RUN:EVNT:DESC? 26 <--- [ 19.651 min.] -222,":(ZONE:NAME coronvol;):
[ 128.90] :RUN:EVNT:DESC? 27 <--- [ 19.662 min.] -212,":(ZONE:NAME rfpowerf;):
[ 128.97] :RUN:EVNT:DESC? 28 <--- [ 19.662 min.] -222,":(ZONE:NAME rfpowerf;):
[ 129.02] :RUN:EVNT:DESC? 29 <--- [ 19.667 min.] -212,":(ZONE:NAME qttmpduty;):
[ 129.09] :RUN:EVNT:DESC? 30 <--- [ 19.668 min.] -222,":(ZONE:NAME qttmpduty;):
[ 129.15] :RUN:EVNT:DESC? 31 <--- [ 19.672 min.] -212,":(ZONE:NAME rfpowerf;):
[ 129.23] :RUN:EVNT:DESC? 32 <--- [ 19.672 min.] -222,":(ZONE:NAME rfpowerf;):
[ 129.27] :RUN:EVNT:DESC? 33 <--- [ 19.676 min.] -212,":(ZONE:NAME dttmpduty;):
[ 129.35] :RUN:EVNT:DESC? 34 <--- [ 19.676 min.] -222,":(ZONE:NAME dttmpduty;):
[ 129.40] :MSC:MON? RUNTIME,S_DGAS... <--- 129.403306,350,9.979,40.0
[ 129.45] :RUN:EVNT:DESC? 35 <--- [ 19.682 min.] -212,":(ZONE:NAME rfpowerr;):
[ 129.53] :RUN:EVNT:DESC? 36 <--- [ 19.682 min.] -222,":(ZONE:NAME rfpowerr;):
[ 129.59] :RUN:EVNT:DESC? 37 <--- [ 19.686 min.] -212,":(ZONE:NAME vttmpduty;):

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[ 129.66] :RUN:EVNT:DESC? 38 <--- [ 19.686 min.] -222,"(ZONE:NAME vtmpduty);
[ 129.76] :RUN:EVNT:DESC? 39 <--- [ 19.692 min.] -212,"(ZONE:NAME rfpowerr_;
[ 129.84] :RUN:EVNT:DESC? 40 <--- [ 19.692 min.] -222,"(ZONE:NAME rfpowerr_;
[ 129.92] :RUN:EVNT:DESC? 41 <--- [ 19.699 min.] -212,"(ZONE:NAME dprsduty);
[ 129.97] :RUN:EVNT:DESC? 42 <--- [ 19.699 min.] -222,"(ZONE:NAME dprsduty);
[ 130.03] :RUN:EVNT:DESC? 43 <--- [ 19.704 min.] -212,"(ZONE:NAME mainboard;
[ 130.09] :RUN:EVNT:DESC? 44 <--- [ 19.704 min.] -222,"(ZONE:NAME mainboard;
[ 130.15] :RUN:EVNT:DESC? 45 <--- [ 19.709 min.] -212,"(ZONE:NAME nprsduty);
[ 130.21] :RUN:EVNT:DESC? 46 <--- [ 19.709 min.] -222,"(ZONE:NAME nprsduty);
[ 130.28] :RUN:EVNT:DESC? 47 <--- [ 19.715 min.] -212,"(ZONE:NAME srctype);
[ 130.33] :RUN:EVNT:DESC? 48 <--- [ 19.715 min.] -222,"(ZONE:NAME srctype);
[ 130.41] :RUN:EVNT:DESC? 49 <--- [ 19.720 min.] -212,"(ZONE:NAME elecfansp;
[ 130.46] :RUN:EVNT:DESC? 50 <--- [ 19.720 min.] -222,"(ZONE:NAME elecfansp;
[ 130.54] :MSC:MON? RUNTIME,S_DGAS... <--- 130.543966,350,9.957,39.8
[ 130.58] :RUN:EVNT:DESC? 51 <--- [ 19.726 min.] -212,"(ZONE:NAME forepres;);
[ 130.66] :RUN:EVNT:DESC? 52 <--- [ 19.726 min.] -222,"(ZONE:NAME forepres;);
[ 130.77] :RUN:EVNT:DESC? 53 <--- [ 19.732 min.] -212,"(ZONE:NAME trbofansp;);
[ 130.88] :RUN:EVNT:DESC? 54 <--- [ 19.732 min.] -222,"(ZONE:NAME trbofansp;);
[ 130.97] :RUN:EVNT:DESC? 55 <--- [ 19.738 min.] -212,"(ZONE:NAME forpres;);
[ 131.03] :RUN:EVNT:DESC? 56 <--- [ 19.738 min.] -222,"(ZONE:NAME forpres;);
[ 131.09] :RUN:EVNT:DESC? 57 <--- [ 19.742 min.] -212,"(ZONE:NAME psupfansp;);
[ 131.15] :RUN:EVNT:DESC? 58 <--- [ 19.743 min.] -222,"(ZONE:NAME psupfansp;);
[ 131.23] :RUN:EVNT:DESC? 59 <--- [ 19.749 min.] -212,"(ZONE:NAME highpres;);
[ 131.28] :RUN:EVNT:DESC? 60 <--- [ 19.749 min.] -222,"(ZONE:NAME highpres;);
[ 131.34] :RUN:EVNT:DESC? 61 <--- [ 19.757 min.] -212,"(ZONE:NAME pwrlnfreq;);
[ 131.41] :RUN:EVNT:DESC? 62 <--- [ 19.757 min.] -222,"(ZONE:NAME pwrlnfreq;);
[ 131.46] :RUN:EVNT:DESC? 63 <--- [ 19.767 min.] -212,"(ZONE:NAME highpres_;);
[ 131.54] :RUN:EVNT:DESC? 64 <--- [ 19.767 min.] -222,"(ZONE:NAME highpres_;);
[ 131.58] :MSC:MON? RUNTIME,S_DGAS... <--- 131.583226,350,9.957,39.8
[ 131.64] :RUN:EVNT:DESC? 65 <--- [ 19.771 min.] -212,"(ZONE:NAME pl10level;);
[ 131.77] :RUN:EVNT:DESC? 66 <--- [ 19.771 min.] -222,"(ZONE:NAME pl10level;);
[ 131.84] :RUN:EVNT:DESC? 67 <--- [ 19.777 min.] -212,"(ZONE:NAME s2pres;););
[ 131.91] :RUN:EVNT:DESC? 68 <--- [ 19.777 min.] -222,"(ZONE:NAME s2pres;););
[ 131.97] :RUN:EVNT:DESC? 69 <--- [ 19.782 min.] -212,"(ZONE:NAME rfpatemp;);
[ 132.03] :RUN:EVNT:DESC? 70 <--- [ 19.782 min.] -222,"(ZONE:NAME rfpatemp;);
[ 132.09] :RUN:EVNT:DESC? 71 <--- [ 19.788 min.] -212,"(ZONE:NAME s3pres;););
[ 132.15] :RUN:EVNT:DESC? 72 <--- [ 19.788 min.] -222,"(ZONE:NAME s3pres;););
[ 132.21] :RUN:EVNT:DESC? 73 <--- [ 19.794 min.] -212,"(ZONE:NAME roughpump;);
[ 132.30] :RUN:EVNT:DESC? 74 <--- [ 19.794 min.] -222,"(ZONE:NAME roughpump;);
[ 132.34] :RUN:EVNT:DESC? 75 <--- [ 19.799 min.] -212,"(ZONE:NAME turbosp;););
[ 132.41] :RUN:EVNT:DESC? 76 <--- [ 19.799 min.] -222,"(ZONE:NAME turbosp;););
[ 132.47] :RUN:EVNT:DESC? 77 <--- [ 19.803 min.] -212,"(ZONE:NAME msvalve;););
[ 132.54] :RUN:EVNT:DESC? 78 <--- [ 19.803 min.] -222,"(ZONE:NAME msvalve;););
[ 132.59] :RUN:EVNT:DESC? 79 <--- [ 19.808 min.] -212,"(ZONE:NAME turbo2sp;););
[ 132.66] :RUN:EVNT:DESC? 80 <--- [ 19.808 min.] -222,"(ZONE:NAME turbo2sp;););
[ 132.78] :MSC:MON? RUNTIME,S_DGAS... <--- 132.783730,350,9.957,39.8
[ 132.89] :RUN:EVNT:DESC? 81 <--- [ 19.815 min.] -212,"(ZONE:NAME cdsvstate;);
[ 132.97] :RUN:EVNT:DESC? 82 <--- [ 19.816 min.] -222,"(ZONE:NAME cdsvstate;);
[ 133.03] :RUN:EVNT:DESC? 83 <--- [ 19.821 min.] -212,"(ZONE:NAME turbolpw;););
[ 133.10] :RUN:EVNT:DESC? 84 <--- [ 19.821 min.] -222,"(ZONE:NAME turbolpw;););
[ 133.15] :RUN:EVNT:DESC? 85 <--- [ 19.827 min.] -212,"(ZONE:NAME ssvstate;););
[ 133.21] :RUN:EVNT:DESC? 86 <--- [ 19.827 min.] -222,"(ZONE:NAME ssvstate;););
[ 133.28] :RUN:EVNT:DESC? 87 <--- [ 19.833 min.] -212,"(ZONE:NAME turbo2pw;););
[ 133.34] :RUN:EVNT:DESC? 88 <--- [ 19.833 min.] -222,"(ZONE:NAME turbo2pw;););
[ 133.41] :RUN:EVNT:DESC? 89 <--- [ 19.837 min.] -212,"(ZONE:NAME realtime;););
[ 133.46] :RUN:EVNT:DESC? 90 <--- [ 19.837 min.] -222,"(ZONE:NAME realtime;););
[ 133.55] :MSC:SENS? REALTIME <--- 932774356
[ 133.63] :RUN:RDY ON;
[ 133.63] readyRunExec: ON & runState = INACTIVE, ignored.
[ 133.64] *ESR? <--- 0
[ 133.80] *IDN? <--- HEWLETT-PACKARD,G1946A,US78912345,2.07.19
[ 133.93] :MSC:MON? RUNTIME,S_DGAS... <--- 133.933226,350,9.979,39.8
[ 134.03] :TRCE:BLCK:FIRST? 4086 <--- #44080[ 109.02] :OCW:ALL? <--- -302
[ 134.10] :RUN:STAT? <--- 0
[ 134.16] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 120.10] :DAT:READ? <--- #440
[ 135.03] :MSC:MON? RUNTIME,S_DGAS... <--- 135.039318,350,9.957,39.9
[ 135.13] :RUN:STAT? <--- 0
[ 136.14] :MSC:MON? RUNTIME,S_DGAS... <--- 136.149443,350,9.957,39.8

```

```
[ 136.27] :RUN:STAT? <--- 0
[ 136.33] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 123.91] :MSC:MON? RUNTIME,S_
[ 136.43] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 127.09] :RUN:EVNT:DESC? 2 <-
[ 136.57] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 130.46] :RUN:EVNT:DESC? 50 <
[ 136.67] :TRCE:BLCK:NEXT? 4086 <--- #3800[ 134.10] :RUN:STAT? <--- 0...
```

---

# Communication Troubleshooting, 1 of 2

---

- Are all LC modules red? Disconnect Remote Start Cable and try a “System On” from Software. This may clear Shutdown status.
- Verify communication with SmartCard: Execute “msscinit 1” from command line. This downloads SC firmware & initializes SC.
- SmartCard won’t initialize? Type “msscpoll” on command line:
  - ▶ A returned value of "0" verifies communication between the PC and the SmartCard
  - ▶ A value other than "0" indicates a problem.
- Check LC/MSD status light. Verifies +5 V is present in LC/MSD when on or flashing (+5 V is used by SmartCard).
- Use Reset button on SmartCard (soft boot of LC/MSD).
- Check HP-IB cables at PC, LC and LC/MSD.
- Shut down ChemStation software. Check HP-IB switch setting on SmartCard and compare with ChemStation configuration editor.
  - ▶ Also check [PCS] sections in WIN.INI for proper configuration.

---

## Communication Troubleshooting, 2 of 2

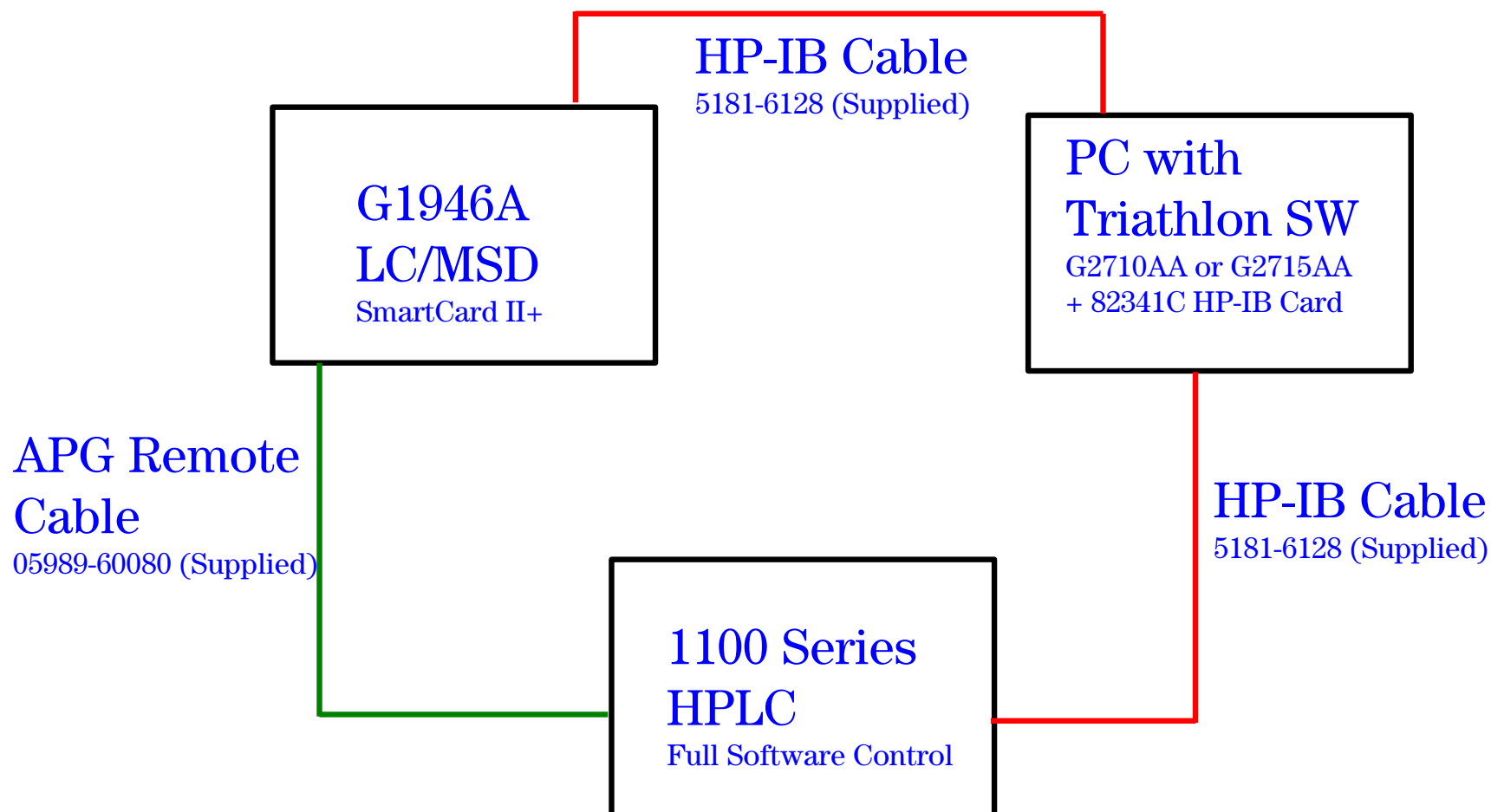
---

- Use “Visa Assistant” to check for active HP-IB devices.
- Verify proper HP-IB board (82341C) configuration with I/O config program.
- Interrupts using Windows NT Diagnostics (under Administrative Tools). Sound drivers & boards are often culprits!
- Check switch settings on 82341C board (in PC).
- If you have communication with SC, but aborting sequence:
- Check for LC/MSD instrument faults: type “mson” on command line. This energizes Real Time lens & HV settings.
- Fault message? Capture SCTrace.txt report (MSSCTRACE 1):
  - ▲ Report may indicate activity at time of fault.
- Check for SCState.txt report(s) in Data directory.

---

# HP G1946A + HP 1100 LC Configuration & Cabling

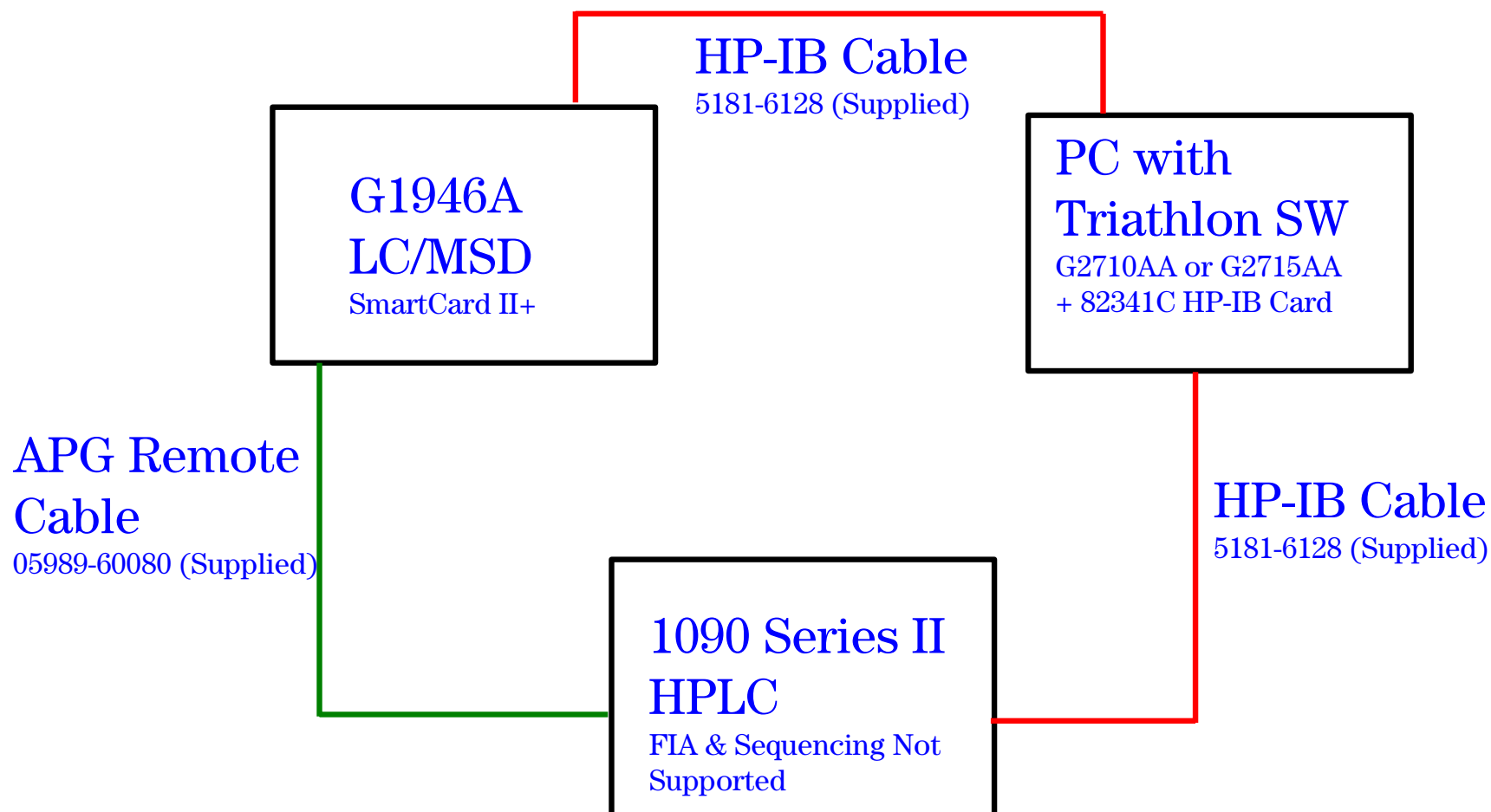
---



---

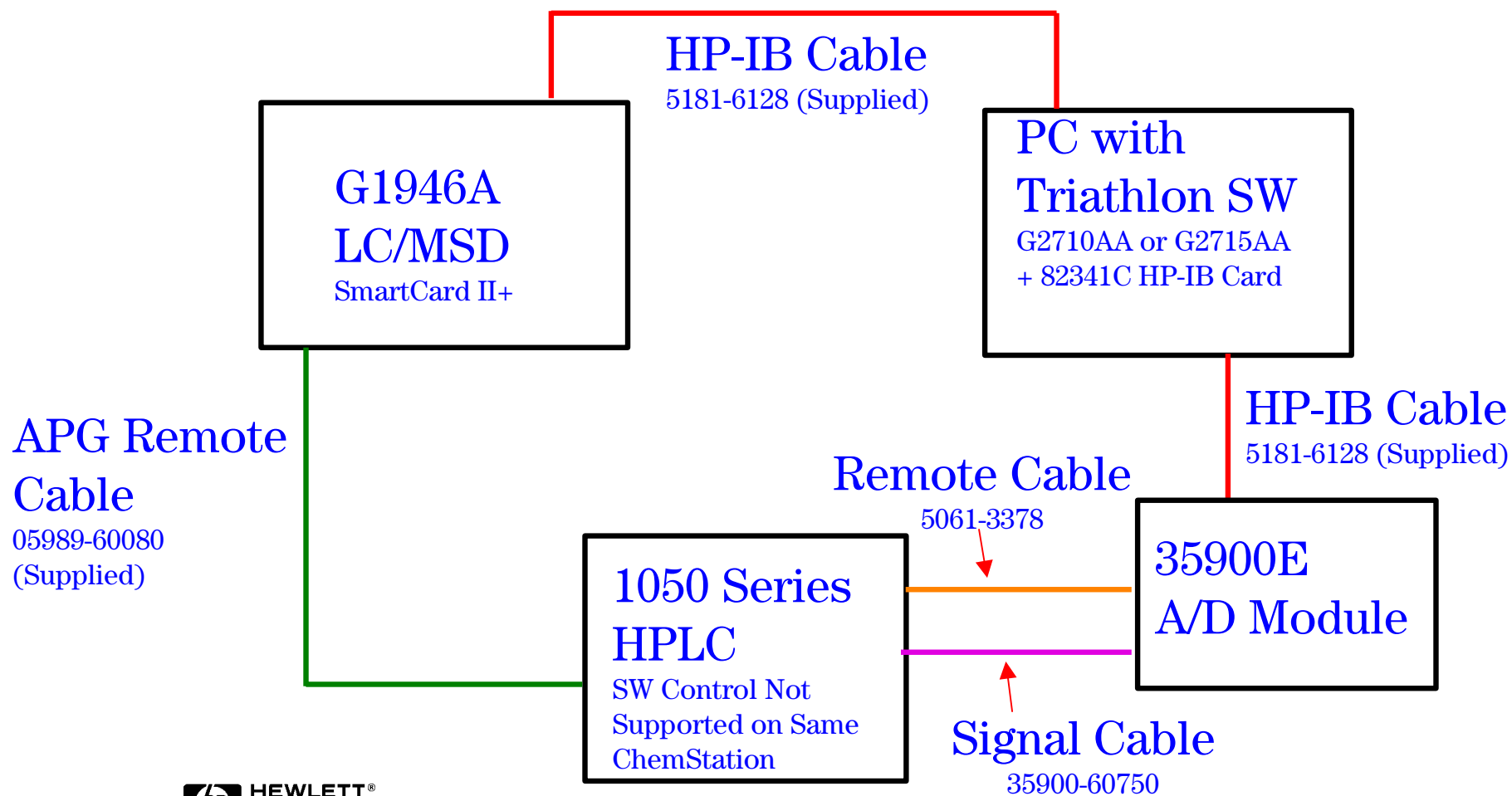
# HP G1946A + HP 1090 Series II LC Configuration & Cabling

---

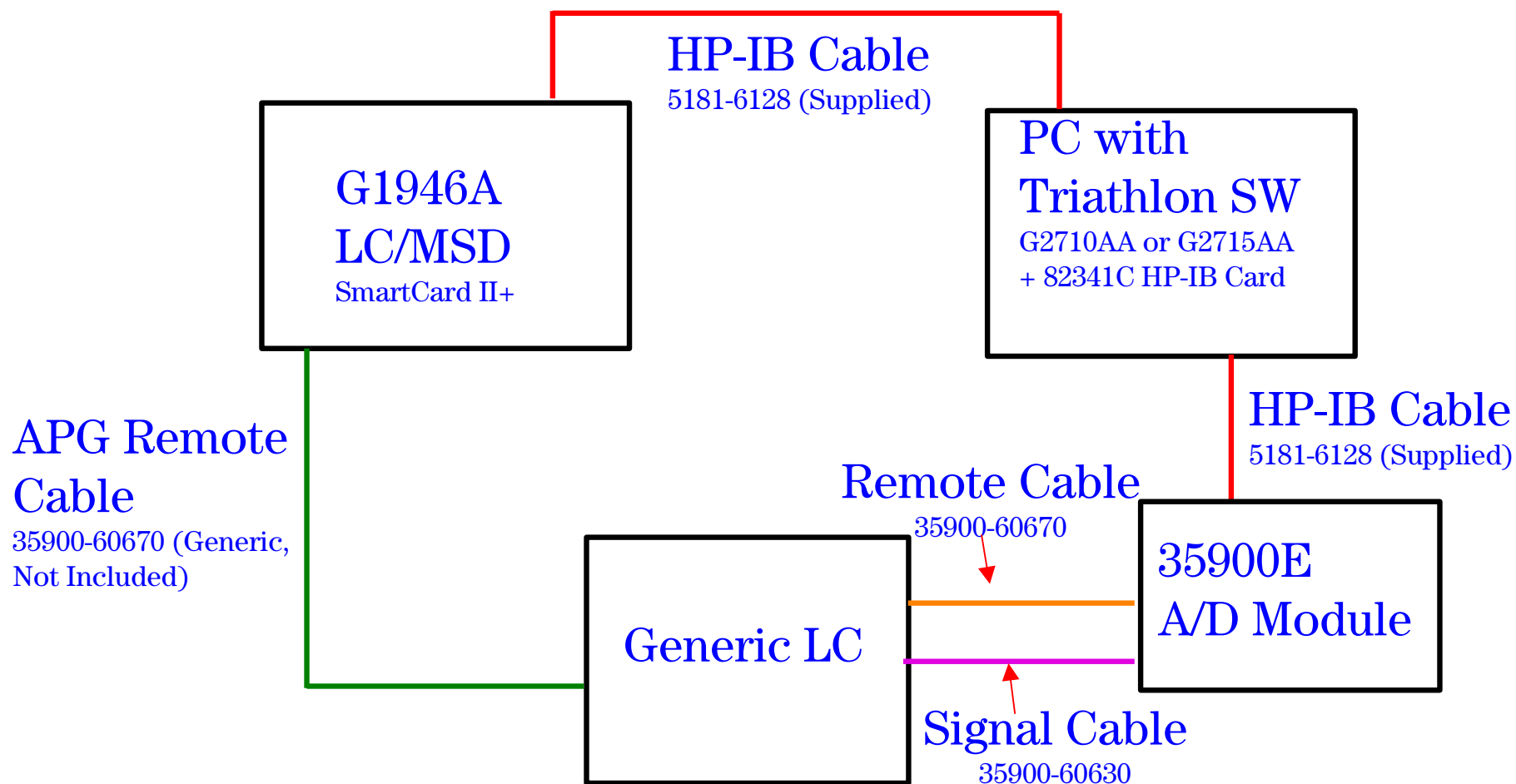




# HP G1946A + HP 1050 or Generic LC Configuration & Cabling



# HP G1946A + Generic LC Configuration & Cabling



SC State Report (Rev. 2.01)  
 Fri Jul 23 16:59:22 1999

## Instrument Configuration:

Instrument Model = G1946A  
 Serial Number = US78912345  
 Mass Range Low/High[Res] = 3.00 / 3276.00 [0.050]

## Smartcard Configuration:

Smartcard Model = SC2B  
 Main Processor Speed = 10.0 MHz  
 Main Processor Memory = 8M  
 Inst. Controller Memory = 64K  
 Data Processor Memory = 8M  
 Firmware Revision Number = 2.07.19

## Options:

1: PR2  
 2: LR2  
 3: FS3  
 4: CDS2

## Run Table for Last Run:

[ 0.000 min.] :SCN:GRP:ACT 0  
 [ 0.000 min.] :MSC:PARM EMULG,3.000000  
 [ 0.000 min.] :MSC:PARM CAPEXL,120.000000  
 [ 0.000 min.] :MSC:ES 1  
 [ 0.000 min.] :MSC:PARM MSSTREAM,2  
 [ 0.000 min.] :MSC:RDY ON  
 [ 0.000 min.] :REP:PROG #18SCN:STRT

## Events During Last Run:

[ 19.082 min.] -302, "( :RUN:RDY OFF; ): Timeout waiting 1286000 usec for DP to process 1 scan(s)."  
 [ 19.085 min.] -302, "( :RUN:RDY OFF; ): Error executing Acquisition Engine recipe = -1"  
 [ 19.554 min.] -212, "(ZONE:NAME coroncur;): Unrecognized mass spec zone 'CORONCUR'"  
 [ 19.554 min.] -222, "(ZONE:NAME coroncur;): Data out of range"  
 [ 19.565 min.] -212, "(ZONE:NAME capilvol;): Unrecognized mass spec zone 'CAPILVOL'"  
 [ 19.565 min.] -222, "(ZONE:NAME capilvol;): Data out of range"  
 [ 19.577 min.] -212, "(ZONE:NAME rfdrive;): Unrecognized mass spec zone 'RFDRIVE'"  
 [ 19.577 min.] -222, "(ZONE:NAME rfdrive;): Data out of range"  
 [ 19.588 min.] -212, "(ZONE:NAME rfdrive\_;): Unrecognized mass spec zone 'RFDRIVE\_'"  
 [ 19.588 min.] -222, "(ZONE:NAME rfdrive\_;): Data out of range"  
 [ 19.592 min.] -212, "(ZONE:NAME dgaspres\_;): Unrecognized mass spec zone 'DGASPRES\_'"  
 [ 19.593 min.] -222, "(ZONE:NAME dgaspres\_;): Data out of range"  
 [ 19.598 min.] -212, "(ZONE:NAME capilcur;): Unrecognized mass spec zone 'CAPILCUR'"  
 [ 19.598 min.] -222, "(ZONE:NAME capilcur;): Data out of range"  
 [ 19.608 min.] -212, "(ZONE:NAME capilcur\_;): Unrecognized mass spec zone 'CAPILCUR\_'"  
 [ 19.608 min.] -222, "(ZONE:NAME capilcur\_;): Data out of range"  
 [ 19.621 min.] -212, "(ZONE:NAME chambcur;): Unrecognized mass spec zone 'CHAMBCUR'"  
 [ 19.621 min.] -222, "(ZONE:NAME chambcur;): Data out of range"  
 [ 19.632 min.] -212, "(ZONE:NAME chambcur\_;): Unrecognized mass spec zone 'CHAMBCUR\_'"  
 [ 19.632 min.] -222, "(ZONE:NAME chambcur\_;): Data out of range"  
 [ 19.636 min.] -212, "(ZONE:NAME nebpres\_;): Unrecognized mass spec zone 'NEBPRES\_'"  
 [ 19.636 min.] -222, "(ZONE:NAME nebpres\_;): Data out of range"  
 [ 19.640 min.] -212, "(ZONE:NAME coronvol;): Unrecognized mass spec zone 'CORONVOL'"  
 [ 19.640 min.] -222, "(ZONE:NAME coronvol;): Data out of range"  
 [ 19.651 min.] -212, "(ZONE:NAME coronvol\_;): Unrecognized mass spec zone 'CORONVOL\_'"  
 [ 19.651 min.] -222, "(ZONE:NAME coronvol\_;): Data out of range"  
 [ 19.662 min.] -212, "(ZONE:NAME rfpowerf;): Unrecognized mass spec zone 'RFPOWERF'"  
 [ 19.662 min.] -222, "(ZONE:NAME rfpowerf;): Data out of range"  
 [ 19.667 min.] -212, "(ZONE:NAME qttmpduty;): Unrecognized mass spec zone 'QTMPDUTY'"  
 [ 19.668 min.] -222, "(ZONE:NAME qttmpduty;): Data out of range"  
 [ 19.672 min.] -212, "(ZONE:NAME rfpowerf\_;): Unrecognized mass spec zone 'RFPOWERF\_'"

```

[ 19.672 min.] -222, "(ZONE:NAME rfpowerf_); Data out of range"
[ 19.676 min.] -212, "(ZONE:NAME dtmpduty); Unrecognized mass spec zone 'DTMPDUTY'"
[ 19.676 min.] -222, "(ZONE:NAME dtmpduty); Data out of range"
[ 19.682 min.] -212, "(ZONE:NAME rfpowerr); Unrecognized mass spec zone 'RFPOWER'"
[ 19.682 min.] -222, "(ZONE:NAME rfpowerr); Data out of range"
[ 19.686 min.] -212, "(ZONE:NAME vttmpduty); Unrecognized mass spec zone 'VTMPDUTY'"
[ 19.686 min.] -222, "(ZONE:NAME vttmpduty); Data out of range"
[ 19.692 min.] -212, "(ZONE:NAME rfpowerr_); Unrecognized mass spec zone 'RFPOWER_'"
[ 19.692 min.] -222, "(ZONE:NAME rfpowerr_); Data out of range"
[ 19.699 min.] -212, "(ZONE:NAME dprsduty); Unrecognized mass spec zone 'DPRSDUTY'"
[ 19.699 min.] -222, "(ZONE:NAME dprsduty); Data out of range"
[ 19.704 min.] -212, "(ZONE:NAME mainboard); Unrecognized mass spec zone 'MAINBOARD'"
[ 19.704 min.] -222, "(ZONE:NAME mainboard); Data out of range"
[ 19.709 min.] -212, "(ZONE:NAME nprsduty); Unrecognized mass spec zone 'NPRSDUTY'"
[ 19.709 min.] -222, "(ZONE:NAME nprsduty); Data out of range"
[ 19.715 min.] -212, "(ZONE:NAME srctype); Unrecognized mass spec zone 'SRCTYPE'"
[ 19.715 min.] -222, "(ZONE:NAME srctype); Data out of range"
[ 19.720 min.] -212, "(ZONE:NAME elecfansp); Unrecognized mass spec zone 'ELECTFANSP'"
[ 19.720 min.] -222, "(ZONE:NAME elecfansp); Data out of range"
[ 19.726 min.] -212, "(ZONE:NAME forepres); Unrecognized mass spec zone 'FOREPRES'"
[ 19.726 min.] -222, "(ZONE:NAME forepres); Data out of range"
[ 19.732 min.] -212, "(ZONE:NAME trbofansp); Unrecognized mass spec zone 'TRBOFANSP'"
[ 19.732 min.] -222, "(ZONE:NAME trbofansp); Data out of range"
[ 19.738 min.] -212, "(ZONE:NAME forpres); Unrecognized mass spec zone 'FORPRES'"
[ 19.738 min.] -222, "(ZONE:NAME forpres); Data out of range"
[ 19.742 min.] -212, "(ZONE:NAME psupfansp); Unrecognized mass spec zone 'PSUPFANSP'"
[ 19.743 min.] -222, "(ZONE:NAME psupfansp); Data out of range"
[ 19.749 min.] -212, "(ZONE:NAME highpres); Unrecognized mass spec zone 'HIGHPRES'"
[ 19.749 min.] -222, "(ZONE:NAME highpres); Data out of range"
[ 19.757 min.] -212, "(ZONE:NAME pwrlnfreq); Unrecognized mass spec zone 'PWRLNFREQ'"
[ 19.757 min.] -222, "(ZONE:NAME pwrlnfreq); Data out of range"
[ 19.767 min.] -212, "(ZONE:NAME highpres_); Unrecognized mass spec zone 'HIGHPRES_'"
[ 19.767 min.] -222, "(ZONE:NAME highpres_); Data out of range"
[ 19.771 min.] -212, "(ZONE:NAME pl10level); Unrecognized mass spec zone 'P110LEVEL'"
[ 19.771 min.] -222, "(ZONE:NAME pl10level); Data out of range"
[ 19.777 min.] -212, "(ZONE:NAME s2pres); Unrecognized mass spec zone 'S2PRES'"
[ 19.777 min.] -222, "(ZONE:NAME s2pres); Data out of range"
[ 19.782 min.] -212, "(ZONE:NAME rfpatemp); Unrecognized mass spec zone 'RFPATEMP'"
[ 19.782 min.] -222, "(ZONE:NAME rfpatemp); Data out of range"
[ 19.788 min.] -212, "(ZONE:NAME s3pres); Unrecognized mass spec zone 'S3PRES'"
[ 19.788 min.] -222, "(ZONE:NAME s3pres); Data out of range"
[ 19.794 min.] -212, "(ZONE:NAME roughpump); Unrecognized mass spec zone 'ROUGH PUMP'"
[ 19.794 min.] -222, "(ZONE:NAME roughpump); Data out of range"
[ 19.799 min.] -212, "(ZONE:NAME turbosp); Unrecognized mass spec zone 'TURBO1SP'"
[ 19.799 min.] -222, "(ZONE:NAME turbosp); Data out of range"
[ 19.803 min.] -212, "(ZONE:NAME msvalve); Unrecognized mass spec zone 'MSVALVE'"
[ 19.803 min.] -222, "(ZONE:NAME msvalve); Data out of range"
[ 19.808 min.] -212, "(ZONE:NAME turbo2sp); Unrecognized mass spec zone 'TURBO2SP'"
[ 19.808 min.] -222, "(ZONE:NAME turbo2sp); Data out of range"
[ 19.815 min.] -212, "(ZONE:NAME cdsvstate); Unrecognized mass spec zone 'CDSVSTATE'"
[ 19.816 min.] -222, "(ZONE:NAME cdsvstate); Data out of range"
[ 19.821 min.] -212, "(ZONE:NAME turbo1pw); Unrecognized mass spec zone 'TURBO1PW'"
[ 19.821 min.] -222, "(ZONE:NAME turbo1pw); Data out of range"
[ 19.827 min.] -212, "(ZONE:NAME ssvstate); Unrecognized mass spec zone 'SSVSTATE'"
[ 19.827 min.] -222, "(ZONE:NAME ssvstate); Data out of range"
[ 19.833 min.] -212, "(ZONE:NAME turbo2pw); Unrecognized mass spec zone 'TURBO2PW'"
[ 19.833 min.] -222, "(ZONE:NAME turbo2pw); Data out of range"
[ 19.837 min.] -212, "(ZONE:NAME realtime); Unrecognized mass spec zone 'REALTIME'"
[ 19.837 min.] -222, "(ZONE:NAME realtime); Data out of range"

```

## Instrument Parameters:

| Mnem. | Cur. Val. | Mnem.    | Cur. Val. | Mnem.    | Cur. Val. |
|-------|-----------|----------|-----------|----------|-----------|
| amug  | -25       | realtime | 0         | osgn     | 0         |
| amu0  | 15        | cds      | 0         | quadpolp | 0         |
| masg  | 12.90     | msstream | 2         | quadpoln | 0         |
| maso  | 0.526     | capexl   | 120.00    | maxcmfw  | 11        |

|          |             |           |              |         |              |
|----------|-------------|-----------|--------------|---------|--------------|
| quaddc   | 0.00        | ess2l     | 9.800        | maxctfw | 9            |
| quadfreq | 998399.9983 | fslgain   | 0.225        | masgs   | 0            |
| quadf    | 998.400     | mssvalvep | 1            | amuowso | -10          |
| sytst    | 0           | mssdae    | 2            | masos   | 0            |
| octpk    | 265.000     | mssdau    | 2            | abung   | 1            |
| octkn    | 280.0       | cdslos    | 2            | burst   | 31           |
| octo     | 5.000       | cdsdofrs  | 10           | tburst  | 31           |
| capex    | 120.00      | cdsdofp1  | 75           | mist    | 0            |
| iris     | 400.00      | cdsdofp2  | 60           | msto    | 600.0        |
| ess1     | 36.75       | cdsdonps  | 30           | esto    | 0.0          |
| ess2     | 9.800       | cdsdoncd  | 30           | csto    | 120.0        |
| esl1     | 0.700       | emf_ceba  | 8e+08        | mato    | 60.0         |
| esl2     | 78.00       | emf_cexa  | 0            | mald0   | -0.0277849   |
| esv1     | 3999.023    | emf_cebb  | 8e+08        | mald1   | 0.000137444  |
| esi3     | 19.995      | emf_cexb  | 0            | mald2   | 5.86929e-09  |
| hedr     | 7500.5      | emf_poil  | 0            | malu0   | 0.0277849    |
| hedv     | 10000.5     | emf_gasc  | 0            | malu1   | -0.000137444 |
| emul     | 2079.853    | emf_iono  | 0            | malu2   | -5.86929e-09 |
| emulg    | 3.0003111   | emf_ssv   | 0            | base0   | 0            |
| octen    | 1           | emf_emul  | 0            | base1   | 0            |
| quadpol  | 0           | emvgain0  | -15.649971   | base2   | 0            |
| masscal  | 0           | emvgain1  | 0.011457     | base3   | 0            |
| s3gauge  | 4           | emvgain2  | -1.63674e-06 |         |              |

Mass Filter = 0.032929,0.071570,0.124610,0.173799,0.194184,0.173799,0.124610,0.071570,0.032929  
Time Filter = 0.085720,0.242652,0.343256,0.242652,0.085720

## Instrument Sensors:

| Mnem.     | Cur. Val. | Setpoint | Mnem.     | Cur. Val. | Setpoint |
|-----------|-----------|----------|-----------|-----------|----------|
| coroncur  | 0.00      |          | dgas      | 350       | 350      |
| capilvol  | 0         |          | vapor     | 28        | (0)      |
| rfdrive   | 0.0       |          | dgaspres  | 34.2      | 34.4     |
| rfdrive_  | 0         |          | dgaspres_ | 342       |          |
| capilcur  | 0         |          | dgasflow  | 9.957     | 10.000   |
| capilcur_ | 0         |          | dgasflow_ | 342       | 344      |
| chambcur  | 0.00      |          | nebpres   | 40.0      | 40.0     |
| chambcur_ | 0         |          | nebpres_  | 399       |          |
| coronvol  | 5137      |          | nebflow   | 40.000    | 40.000   |
| coronvol_ | 5137      |          | nebflow_  | 400       | 400      |
| rfpowerf  | 0.00      |          | qtmpduty  | 8.975     |          |
| rfpowerf_ | 0         |          | dtmpduty  | 37.374    |          |
| rfpowerr  | 0.00      |          | vtmpduty  | 0.000     |          |
| rfpowerr_ | 0         |          | dprsduty  | 53.074    |          |
| mainboard | 57351     |          | nprsduty  | 44.323    |          |
| srctype   | 3         |          | elecfansp | 96        |          |
| forepres  | 1.73      |          | trbofansp | 93        |          |
| forpres   | 1738      |          | psupfansp | 121       |          |
| highpres  | 5.43e-06  |          | pwrlnfreq | 58        |          |
| highpres_ | 54        |          | pl10level | 116       |          |
| s2pres    | 0         |          | rfpatemp  | 152       |          |
| s3pres    | 0         |          | roughpump | 1         |          |
| turbo1sp  | 101.0     |          | mssvalve  | 0         |          |
| turbo2sp  | 98.5      |          | cdsvstate | 0         |          |
| turbo1pw  | 80.7      |          | ssvstate  | 5         |          |
| turbo2pw  | 17.8      |          | realtime  | 932774415 |          |
| quad      | 99        | 100      |           |           |          |

## Acquisition Parameters:

Last Acquisition Mode = SCN

## Last SCN Parameters:

FNORM 50.00 - 3000.00 AMU Step -0.100 Smp= 5 Avg= 1 Thr=10  
(ISOI = 0,0.00,0.00,0.00,0.00,0.00,0.00)

## Last PSCN Parameters:

SCAN 597.00 - 607.00 AMU Step -0.100 Smp= 8 Avg= 7 Thr=0

Last SIM Parameters:

NORM Wide=NO Cycle=ITER(1.000000)

| Ion    | Dwell | Ion   | Dwell | Ion   | Dwell |
|--------|-------|-------|-------|-------|-------|
| -----  | ----- | ----- | ----- | ----- | ----- |
| <none> |       |       |       |       |       |

Fri Jul 23 16:59:17 1999

```
[ 109.02] :OCW:ALL? <--- -302,": SICB(A=1,C=17,B=0/0): Timeout writing to D
[ 110.68] :MSC:MON? RUNTIME,S_QUAD... <--- 110.701746,99,350,1.74,5.43e-06,7
[ 110.95] :MSC:MON? RUNTIME,S_DGAS... <--- 110.953493,350,9.979,39.9
[ 111.04] :RUN:STOP;
[ 111.05] *ESR? <--- 0
[ 111.47] :MSC:FLT:RVR OFF;
[ 111.47] *ESR? <--- 0
[ 111.52] :MSC:RDY OFF;
[ 111.69] *ESR? <--- 0
[ 111.92] :BUF:NREC? <--- 4
[ 113.10] :MSC:MON? RUNTIME,S_DGAS... <--- 113.106086,350,9.979,39.8
[ 113.14] :DAT:READ? <--- #44086...
[ 113.37] :DAT:READ? <--- #44086...
[ 113.42] :DAT:READ? <--- #44086...
[ 113.47] :DAT:READ? <--- #44086...
[ 113.53] :DAT:READ? <--- #44086...
[ 113.59] :DAT:READ? <--- #44086...
[ 113.77] :DAT:READ? <--- #44086...
[ 113.87] :DAT:READ? <--- #44086...
[ 114.08] :DAT:READ? <--- #44086...
[ 114.12] :DAT:READ? <--- #44086...
[ 114.22] :DAT:READ? <--- #44086...
[ 114.26] :DAT:READ? <--- #44086...
[ 114.30] :DAT:READ? <--- #44086...
[ 114.35] :DAT:READ? <--- #44086...
[ 114.39] :DAT:READ? <--- #44086...
[ 114.43] :DAT:READ? <--- #44086r...
[ 115.90] :DAT:READ? <--- #44086...
[ 115.97] :DAT:READ? <--- #44086b...
[ 116.02] :DAT:READ? <--- #44086...
[ 116.06] :DAT:READ? <--- #44086R...
[ 116.11] :DAT:READ? <--- #44086...
[ 116.16] :DAT:READ? <--- #44086B...
[ 116.31] :DAT:READ? <--- #44086...
[ 116.86] :DAT:READ? <--- #440862...
[ 116.99] :DAT:READ? <--- #44086...
[ 117.31] :DAT:READ? <--- #44086"...
[ 118.79] :DAT:READ? <--- #44086...
[ 118.86] :DAT:READ? <--- #44086...
[ 119.09] :DAT:READ? <--- #43624...
[ 119.17] :MSC:MON? RUNTIME,S_DGAS... <--- 119.179104,351,9.957,39.9
[ 119.26] :BUF:NREC? <--- 3
[ 119.32] :DAT:READ? <--- #44086...
[ 119.41] :DAT:READ? <--- #44086...
[ 119.51] :DAT:READ? <--- #44086...
[ 119.59] :DAT:READ? <--- #44086...
[ 119.73] :DAT:READ? <--- #44086...
[ 119.82] :DAT:READ? <--- #44086...
[ 119.92] :DAT:READ? <--- #44086...
[ 119.99] :DAT:READ? <--- #44086...
[ 120.03] :DAT:READ? <--- #44086...
[ 120.10] :DAT:READ? <--- #44086...
[ 120.16] :DAT:READ? <--- #44086...
[ 120.21] :DAT:READ? <--- #44086...
[ 120.28] :DAT:READ? <--- #44086...
[ 120.36] :DAT:READ? <--- #44086...
```

```
[ 120.40] :DAT:READ? <--- #44086...
[ 120.51] :DAT:READ? <--- #44086r...
[ 120.59] :DAT:READ? <--- #44086...
[ 120.65] :DAT:READ? <--- #44086b...
[ 120.82] :DAT:READ? <--- #44086...
[ 120.90] :DAT:READ? <--- #44086R...
[ 120.99] :DAT:READ? <--- #44086...
[ 121.03] :DAT:READ? <--- #44086B...
[ 121.09] :DAT:READ? <--- #44086...
[ 121.15] :DAT:READ? <--- #440862...
[ 121.22] :DAT:READ? <--- #44086...
[ 121.28] :DAT:READ? <--- #44086"...
[ 121.34] :DAT:READ? <--- #44086...
[ 121.41] :DAT:READ? <--- #44086...
[ 121.51] :DAT:READ? <--- #43624...
[ 121.55] :MSC:MON? RUNTIME,S_DGAS... <--- 121.554096,350,9.979,39.9
[ 121.65] :BUF:NREC? <--- 2
[ 121.74] :DAT:READ? <--- #44086...
[ 121.82] :DAT:READ? <--- #44086...
[ 121.91] :DAT:READ? <--- #44086...
[ 122.00] :DAT:READ? <--- #44086...
[ 122.09] :DAT:READ? <--- #44086...
[ 122.15] :DAT:READ? <--- #44086...
[ 122.22] :DAT:READ? <--- #44086...
[ 122.28] :DAT:READ? <--- #44086...
[ 122.34] :DAT:READ? <--- #44086...
[ 122.41] :DAT:READ? <--- #44086...
[ 122.51] :DAT:READ? <--- #44086...
[ 122.59] :DAT:READ? <--- #44086...
[ 122.65] :DAT:READ? <--- #44086...
[ 122.75] :DAT:READ? <--- #44086...
[ 122.86] :DAT:READ? <--- #44086...
[ 122.90] :DAT:READ? <--- #44086r...
[ 122.99] :DAT:READ? <--- #44086...
[ 123.03] :DAT:READ? <--- #44086b...
[ 123.10] :DAT:READ? <--- #44086...
[ 123.15] :DAT:READ? <--- #44086R...
[ 123.22] :DAT:READ? <--- #44086...
[ 123.28] :DAT:READ? <--- #44086B...
[ 123.34] :DAT:READ? <--- #44086...
[ 123.41] :DAT:READ? <--- #440862...
[ 123.51] :DAT:READ? <--- #44086...
[ 123.59] :DAT:READ? <--- #44086"...
[ 123.65] :DAT:READ? <--- #44086...
[ 123.76] :DAT:READ? <--- #44086...
[ 123.84] :DAT:READ? <--- #43624...
[ 123.91] :MSC:MON? RUNTIME,S_DGAS... <--- 123.916783,350,9.957,40.0
[ 123.95] :BUF:NREC? <--- 1
[ 124.01] :DAT:READ? <--- #44086...
[ 124.09] :DAT:READ? <--- #44086...
[ 124.16] :DAT:READ? <--- #44086...
[ 124.22] :DAT:READ? <--- #44086...
[ 124.28] :DAT:READ? <--- #44086...
[ 124.36] :DAT:READ? <--- #44086...
[ 124.42] :DAT:READ? <--- #44086...
[ 124.51] :DAT:READ? <--- #44086...
[ 124.60] :DAT:READ? <--- #44086...
[ 124.66] :DAT:READ? <--- #44086...
[ 124.75] :DAT:READ? <--- #44086...
[ 124.88] :DAT:READ? <--- #44086...
[ 124.97] :DAT:READ? <--- #44086...
[ 125.03] :DAT:READ? <--- #44086...
[ 125.09] :DAT:READ? <--- #44086...
[ 125.16] :DAT:READ? <--- #44086r...
[ 125.22] :DAT:READ? <--- #44086...
[ 125.28] :DAT:READ? <--- #44086b...
[ 125.34] :DAT:READ? <--- #44086...
[ 125.41] :DAT:READ? <--- #44086R...
```

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[ 125.52] :DAT:READ? <--- #44086...
[ 125.59] :DAT:READ? <--- #44086B...
[ 125.65] :DAT:READ? <--- #44086...
[ 125.76] :DAT:READ? <--- #440862...
[ 125.85] :DAT:READ? <--- #44086...
[ 125.93] :DAT:READ? <--- #44086"...
[ 125.97] :DAT:READ? <--- #44086...
[ 126.03] :DAT:READ? <--- #44086...
[ 126.09] :DAT:READ? <--- #43624...
[ 126.15] :MSC:MON? RUNTIME,S_DGAS... <--- 126.161696,350,9.957,39.9
[ 126.20] :BUF:NREC? <--- 0
[ 126.29] :MSC:FLT:RVR OFF;
[ 126.29] *ESR? <--- 0
[ 126.33] :RUN:STAT? <--- 81
[ 126.39] :AER? <--- 0
[ 126.45] :RUN:STOP;
[ 126.45] *ESR? <--- 0
[ 126.52] :CONFIG:INST:MSTO 600;
[ 126.53] *ESR? <--- 0
[ 126.57] :MSC:PARM MSSTREAM,2;
126.61> getLONValue: c=111, v[23]=0x04,00,00,00,00,04,00,00
126.62> curMSStreamSetting: mss=2.000000
126.62> updateMSStreamVal: Leaving msstream as 'lc' . . .
[ 126.63] *ESR? <--- 0
[ 126.75] :MSC:FLT:STAT? <--- 0
126.84> getLONValue: c=111, v[23]=0x04,00,00,00,00,04,00,00
126.88> faultStatus: returning 0x0000
[ 126.95] :RUN:EVNT:NUM? <--- 90
[ 127.01] :RUN:EVNT:DESC? 1 <--- [ 19.082 min.] -302,":RUN:RDY OFF;): Time
[ 127.09] :RUN:EVNT:DESC? 2 <--- [ 19.085 min.] -302,":RUN:RDY OFF;): Erro
[ 127.15] :RUN:EVNT:DESC? 3 <--- [ 19.554 min.] -212,":(ZONE:NAME coroncur;):
[ 127.21] :MSC:MON? RUNTIME,S_DGAS... <--- 127.220729,350,9.957,39.9
[ 127.26] :RUN:EVNT:DESC? 4 <--- [ 19.554 min.] -222,":(ZONE:NAME coroncur;):
[ 127.35] :RUN:EVNT:DESC? 5 <--- [ 19.565 min.] -212,":(ZONE:NAME capilvol;):
[ 127.40] :RUN:EVNT:DESC? 6 <--- [ 19.565 min.] -222,":(ZONE:NAME capilvol;):
[ 127.44] :RUN:EVNT:DESC? 7 <--- [ 19.577 min.] -212,":(ZONE:NAME rfdrive;):
[ 127.54] :RUN:EVNT:DESC? 8 <--- [ 19.577 min.] -222,":(ZONE:NAME rfdrive;):
[ 127.59] :RUN:EVNT:DESC? 9 <--- [ 19.588 min.] -212,":(ZONE:NAME rfdrive;):
[ 127.66] :RUN:EVNT:DESC? 10 <--- [ 19.588 min.] -222,":(ZONE:NAME rfdrive;):
[ 127.76] :RUN:EVNT:DESC? 11 <--- [ 19.592 min.] -212,":(ZONE:NAME dgaspres;):
[ 127.84] :RUN:EVNT:DESC? 12 <--- [ 19.593 min.] -222,":(ZONE:NAME dgaspres;):
[ 127.90] :RUN:EVNT:DESC? 13 <--- [ 19.598 min.] -212,":(ZONE:NAME capilcur;):
[ 127.96] :RUN:EVNT:DESC? 14 <--- [ 19.598 min.] -222,":(ZONE:NAME capilcur;):
[ 128.03] :RUN:EVNT:DESC? 15 <--- [ 19.608 min.] -212,":(ZONE:NAME capilcur;):
[ 128.09] :RUN:EVNT:DESC? 16 <--- [ 19.608 min.] -222,":(ZONE:NAME capilcur;):
[ 128.15] :RUN:EVNT:DESC? 17 <--- [ 19.621 min.] -212,":(ZONE:NAME chambcur;):
[ 128.21] :RUN:EVNT:DESC? 18 <--- [ 19.621 min.] -222,":(ZONE:NAME chambcur;):
[ 128.30] :RUN:EVNT:DESC? 19 <--- [ 19.632 min.] -212,":(ZONE:NAME chambcur;):
[ 128.33] :MSC:MON? RUNTIME,S_DGAS... <--- 128.332633,350,9.979,40.0
[ 128.39] :RUN:EVNT:DESC? 20 <--- [ 19.632 min.] -222,":(ZONE:NAME chambcur;):
[ 128.46] :RUN:EVNT:DESC? 21 <--- [ 19.636 min.] -212,":(ZONE:NAME nebpres;):
[ 128.53] :RUN:EVNT:DESC? 22 <--- [ 19.636 min.] -222,":(ZONE:NAME nebpres;):
[ 128.59] :RUN:EVNT:DESC? 23 <--- [ 19.640 min.] -212,":(ZONE:NAME coronvol;):
[ 128.65] :RUN:EVNT:DESC? 24 <--- [ 19.640 min.] -222,":(ZONE:NAME coronvol;):
[ 128.76] :RUN:EVNT:DESC? 25 <--- [ 19.651 min.] -212,":(ZONE:NAME coronvol;):
[ 128.86] :RUN:EVNT:DESC? 26 <--- [ 19.651 min.] -222,":(ZONE:NAME coronvol;):
[ 128.90] :RUN:EVNT:DESC? 27 <--- [ 19.662 min.] -212,":(ZONE:NAME rfpowerf;):
[ 128.97] :RUN:EVNT:DESC? 28 <--- [ 19.662 min.] -222,":(ZONE:NAME rfpowerf;):
[ 129.02] :RUN:EVNT:DESC? 29 <--- [ 19.667 min.] -212,":(ZONE:NAME qttmpduty;):
[ 129.09] :RUN:EVNT:DESC? 30 <--- [ 19.668 min.] -222,":(ZONE:NAME qttmpduty;):
[ 129.15] :RUN:EVNT:DESC? 31 <--- [ 19.672 min.] -212,":(ZONE:NAME rfpowerf;):
[ 129.23] :RUN:EVNT:DESC? 32 <--- [ 19.672 min.] -222,":(ZONE:NAME rfpowerf;):
[ 129.27] :RUN:EVNT:DESC? 33 <--- [ 19.676 min.] -212,":(ZONE:NAME dttmpduty;):
[ 129.35] :RUN:EVNT:DESC? 34 <--- [ 19.676 min.] -222,":(ZONE:NAME dttmpduty;):
[ 129.40] :MSC:MON? RUNTIME,S_DGAS... <--- 129.403306,350,9.979,40.0
[ 129.45] :RUN:EVNT:DESC? 35 <--- [ 19.682 min.] -212,":(ZONE:NAME rfpowerr;):
[ 129.53] :RUN:EVNT:DESC? 36 <--- [ 19.682 min.] -222,":(ZONE:NAME rfpowerr;):
[ 129.59] :RUN:EVNT:DESC? 37 <--- [ 19.686 min.] -212,":(ZONE:NAME vttmpduty;):

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[ 129.66] :RUN:EVNT:DESC? 38 <--- [ 19.686 min.] -222,"(ZONE:NAME vtmpduty);
[ 129.76] :RUN:EVNT:DESC? 39 <--- [ 19.692 min.] -212,"(ZONE:NAME rfpowerr_;
[ 129.84] :RUN:EVNT:DESC? 40 <--- [ 19.692 min.] -222,"(ZONE:NAME rfpowerr_;
[ 129.92] :RUN:EVNT:DESC? 41 <--- [ 19.699 min.] -212,"(ZONE:NAME dprsduty);
[ 129.97] :RUN:EVNT:DESC? 42 <--- [ 19.699 min.] -222,"(ZONE:NAME dprsduty);
[ 130.03] :RUN:EVNT:DESC? 43 <--- [ 19.704 min.] -212,"(ZONE:NAME mainboard;
[ 130.09] :RUN:EVNT:DESC? 44 <--- [ 19.704 min.] -222,"(ZONE:NAME mainboard;
[ 130.15] :RUN:EVNT:DESC? 45 <--- [ 19.709 min.] -212,"(ZONE:NAME nprsduty);
[ 130.21] :RUN:EVNT:DESC? 46 <--- [ 19.709 min.] -222,"(ZONE:NAME nprsduty);
[ 130.28] :RUN:EVNT:DESC? 47 <--- [ 19.715 min.] -212,"(ZONE:NAME srctype);
[ 130.33] :RUN:EVNT:DESC? 48 <--- [ 19.715 min.] -222,"(ZONE:NAME srctype);
[ 130.41] :RUN:EVNT:DESC? 49 <--- [ 19.720 min.] -212,"(ZONE:NAME elecfansp;
[ 130.46] :RUN:EVNT:DESC? 50 <--- [ 19.720 min.] -222,"(ZONE:NAME elecfansp;
[ 130.54] :MSC:MON? RUNTIME,S_DGAS... <--- 130.543966,350,9.957,39.8
[ 130.58] :RUN:EVNT:DESC? 51 <--- [ 19.726 min.] -212,"(ZONE:NAME forepres);
[ 130.66] :RUN:EVNT:DESC? 52 <--- [ 19.726 min.] -222,"(ZONE:NAME forepres);
[ 130.77] :RUN:EVNT:DESC? 53 <--- [ 19.732 min.] -212,"(ZONE:NAME trbofansp;
[ 130.88] :RUN:EVNT:DESC? 54 <--- [ 19.732 min.] -222,"(ZONE:NAME trbofansp;
[ 130.97] :RUN:EVNT:DESC? 55 <--- [ 19.738 min.] -212,"(ZONE:NAME forpres);
[ 131.03] :RUN:EVNT:DESC? 56 <--- [ 19.738 min.] -222,"(ZONE:NAME forpres);
[ 131.09] :RUN:EVNT:DESC? 57 <--- [ 19.742 min.] -212,"(ZONE:NAME psupfansp;
[ 131.15] :RUN:EVNT:DESC? 58 <--- [ 19.743 min.] -222,"(ZONE:NAME psupfansp;
[ 131.23] :RUN:EVNT:DESC? 59 <--- [ 19.749 min.] -212,"(ZONE:NAME highpres);
[ 131.28] :RUN:EVNT:DESC? 60 <--- [ 19.749 min.] -222,"(ZONE:NAME highpres);
[ 131.34] :RUN:EVNT:DESC? 61 <--- [ 19.757 min.] -212,"(ZONE:NAME pwrlnfreq;
[ 131.41] :RUN:EVNT:DESC? 62 <--- [ 19.757 min.] -222,"(ZONE:NAME pwrlnfreq;
[ 131.46] :RUN:EVNT:DESC? 63 <--- [ 19.767 min.] -212,"(ZONE:NAME highpres_;
[ 131.54] :RUN:EVNT:DESC? 64 <--- [ 19.767 min.] -222,"(ZONE:NAME highpres_;
[ 131.58] :MSC:MON? RUNTIME,S_DGAS... <--- 131.583226,350,9.957,39.8
[ 131.64] :RUN:EVNT:DESC? 65 <--- [ 19.771 min.] -212,"(ZONE:NAME pl10level;
[ 131.77] :RUN:EVNT:DESC? 66 <--- [ 19.771 min.] -222,"(ZONE:NAME pl10level;
[ 131.84] :RUN:EVNT:DESC? 67 <--- [ 19.777 min.] -212,"(ZONE:NAME s2pres);
[ 131.91] :RUN:EVNT:DESC? 68 <--- [ 19.777 min.] -222,"(ZONE:NAME s2pres);
[ 131.97] :RUN:EVNT:DESC? 69 <--- [ 19.782 min.] -212,"(ZONE:NAME rfpatemp);
[ 132.03] :RUN:EVNT:DESC? 70 <--- [ 19.782 min.] -222,"(ZONE:NAME rfpatemp);
[ 132.09] :RUN:EVNT:DESC? 71 <--- [ 19.788 min.] -212,"(ZONE:NAME s3pres);
[ 132.15] :RUN:EVNT:DESC? 72 <--- [ 19.788 min.] -222,"(ZONE:NAME s3pres);
[ 132.21] :RUN:EVNT:DESC? 73 <--- [ 19.794 min.] -212,"(ZONE:NAME roughpump;
[ 132.30] :RUN:EVNT:DESC? 74 <--- [ 19.794 min.] -222,"(ZONE:NAME roughpump;
[ 132.34] :RUN:EVNT:DESC? 75 <--- [ 19.799 min.] -212,"(ZONE:NAME turbosp);
[ 132.41] :RUN:EVNT:DESC? 76 <--- [ 19.799 min.] -222,"(ZONE:NAME turbosp);
[ 132.47] :RUN:EVNT:DESC? 77 <--- [ 19.803 min.] -212,"(ZONE:NAME msvalve);
[ 132.54] :RUN:EVNT:DESC? 78 <--- [ 19.803 min.] -222,"(ZONE:NAME msvalve);
[ 132.59] :RUN:EVNT:DESC? 79 <--- [ 19.808 min.] -212,"(ZONE:NAME turbo2sp);
[ 132.66] :RUN:EVNT:DESC? 80 <--- [ 19.808 min.] -222,"(ZONE:NAME turbo2sp);
[ 132.78] :MSC:MON? RUNTIME,S_DGAS... <--- 132.783730,350,9.957,39.8
[ 132.89] :RUN:EVNT:DESC? 81 <--- [ 19.815 min.] -212,"(ZONE:NAME cdsvstate;
[ 132.97] :RUN:EVNT:DESC? 82 <--- [ 19.816 min.] -222,"(ZONE:NAME cdsvstate;
[ 133.03] :RUN:EVNT:DESC? 83 <--- [ 19.821 min.] -212,"(ZONE:NAME turbolpw);
[ 133.10] :RUN:EVNT:DESC? 84 <--- [ 19.821 min.] -222,"(ZONE:NAME turbolpw);
[ 133.15] :RUN:EVNT:DESC? 85 <--- [ 19.827 min.] -212,"(ZONE:NAME ssvstate);
[ 133.21] :RUN:EVNT:DESC? 86 <--- [ 19.827 min.] -222,"(ZONE:NAME ssvstate);
[ 133.28] :RUN:EVNT:DESC? 87 <--- [ 19.833 min.] -212,"(ZONE:NAME turbo2pw);
[ 133.34] :RUN:EVNT:DESC? 88 <--- [ 19.833 min.] -222,"(ZONE:NAME turbo2pw);
[ 133.41] :RUN:EVNT:DESC? 89 <--- [ 19.837 min.] -212,"(ZONE:NAME realtime);
[ 133.46] :RUN:EVNT:DESC? 90 <--- [ 19.837 min.] -222,"(ZONE:NAME realtime);
[ 133.55] :MSC:SENS? REALTIME <--- 932774356
[ 133.63] :RUN:RDY ON;
133.63> readyRunExec: ON & runState = INACTIVE, ignored.
[ 133.64] *ESR? <--- 0
[ 133.80] *IDN? <--- HEWLETT-PACKARD,G1946A,US78912345,2.07.19
[ 133.93] :MSC:MON? RUNTIME,S_DGAS... <--- 133.933226,350,9.979,39.8
[ 134.03] :TRCE:BLCK:FIRST? 4086 <--- #44080[ 109.02] :OCW:ALL? <--- -302
[ 134.10] :RUN:STAT? <--- 0
[ 134.16] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 120.10] :DAT:READ? <--- #440
[ 135.03] :MSC:MON? RUNTIME,S_DGAS... <--- 135.039318,350,9.957,39.9
[ 135.13] :RUN:STAT? <--- 0
[ 136.14] :MSC:MON? RUNTIME,S_DGAS... <--- 136.149443,350,9.957,39.8

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[ 136.27] :RUN:STAT? <--- 0
[ 136.33] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 123.91] :MSC:MON? RUNTIME,S_
[ 136.43] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 127.09] :RUN:EVNT:DESC? 2 <-
[ 136.57] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 130.46] :RUN:EVNT:DESC? 50 <
[ 136.67] :TRCE:BLCK:NEXT? 4086 <--- #3800[ 134.10] :RUN:STAT? <--- 0...
```

SC State Report (Rev. 2.01)  
Thu Aug 05 15:20:13 1999

## Instrument Configuration:

Instrument Model = G1946A  
Serial Number = US78912345  
Mass Range Low/High[Res] = 3.00 / 3276.00 [0.050]

## Smartcard Configuration:

Smartcard Model = SC2B  
Main Processor Speed = 10.0 MHz  
Main Processor Memory = 8M  
Inst. Controller Memory = 64K  
Data Processor Memory = 8M  
Firmware Revision Number = 2.07.19

## Options:

1: PR2  
2: LR2  
3: FS3  
4: CDS2

## Run Table for Last Run:

[ 0.000 min.] :SCN:GRP:ACT 0  
[ 0.000 min.] :MSC:PARM EMULG,3.000000  
[ 0.000 min.] :MSC:PARM CAPEXL,120.000000

## Events During Last Run:

<none>

## Instrument Parameters:

| Mnem.    | Cur. Val.   | Mnem.    | Cur. Val.    | Mnem.    | Cur. Val.    |
|----------|-------------|----------|--------------|----------|--------------|
| amug     | -25         | realtime | 0            | osgn     | 0            |
| amuo     | 15          | cds      | 0            | quadpolp | 0            |
| masg     | 12.90       | msstream | 1            | quadpoln | 0            |
| maso     | 0.526       | capexl   | 120.00       | maxcmfw  | 11           |
| quaddc   | 0.00        | ess2l    | 9.800        | maxctfw  | 9            |
| quadfreq | 998399.9983 | fslgain  | 0.225        | masgs    | 0            |
| quadf    | 998.400     | msvalvep | 1            | amuowso  | -10          |
| sgtst    | 0           | mssdae   | 2            | masos    | 0            |
| octpk    | 265.000     | mssdau   | 2            | abung    | 1            |
| octkn    | 280.0       | cdslos   | 2            | burst    | 31           |
| octo     | 5.000       | cdsdofrs | 10           | tburst   | 31           |
| capex    | 120.00      | cdsdofp1 | 75           | mist     | 0            |
| iris     | 400.00      | cdsdofp2 | 60           | msto     | 120.0        |
| ess1     | 36.75       | cdsdonps | 30           | esto     | 0.0          |
| ess2     | 9.800       | cdsdoncd | 30           | csto     | 120.0        |
| esl1     | 0.700       | emf_ceba | 8e+08        | mato     | 60.0         |
| esl2     | 78.00       | emf_cexa | 0            | mald0    | -0.0277849   |
| esv1     | 3999.023    | emf_cebb | 8e+08        | mald1    | 0.000137444  |
| esi3     | 0.000       | emf_cexb | 0            | mald2    | 5.86929e-09  |
| hedr     | 7500.5      | emf_poil | 0            | malu0    | 0.0277849    |
| hedv     | 10000.5     | emf_gasc | 0            | malu1    | -0.000137444 |
| emul     | 2079.853    | emf_iono | 0            | malu2    | -5.86929e-09 |
| emulg    | 3.0003111   | emf_ssv  | 0            | base0    | 47.6433      |
| octen    | 1           | emf_emul | 0            | base1    | 0            |
| quadpol  | 0           | emvgain0 | -15.649971   | base2    | 0            |
| masscal  | 0           | emvgain1 | 0.011457     | base3    | 0            |
| s3gauge  | 4           | emvgain2 | -1.63674e-06 |          |              |

Mass Filter = 1.000000

Time Filter = 0.109357,0.110666,0.111610,0.112181,0.112372,0.112181,0.111610,0.110666,0.109357

## Instrument Sensors:

| Mnem.     | Cur. Val. | Setpoint | Mnem.     | Cur. Val. | Setpoint |
|-----------|-----------|----------|-----------|-----------|----------|
| coroncur  | 0.00      |          | dgas      | 300       | 350      |
| capilvol  | 0         |          | vapor     | 28        | (325)    |
| rfdrive   | 0.0       |          | dgaspres  | 5.2       | 34.4     |
| rfdrive_  | 0         |          | dgaspres_ | 52        |          |
| capilcur  | 0         |          | dgasflow  | 2.919     | 10.000   |
| capilcur_ | 0         |          | dgasflow_ | 52        | 344      |
| chambcur  | 0.00      |          | nebpres   | 19.9      | 40.0     |
| chambcur_ | 0         |          | nebpres_  | 199       |          |
| coronvol  | 5137      |          | nebflow   | 19.900    | 40.000   |
| coronvol_ | 5137      |          | nebflow_  | 200       | 400      |
| rfpowerf  | 0.00      |          | qtmpduty  | 8.821     |          |
| rfpowerf_ | 0         |          | dtmpduty  | 13.251    |          |
| rfpowerr  | 0.00      |          | vtmpduty  | 0.000     |          |
| rfpowerr_ | 0         |          | dprsduty  | 47.761    |          |
| mainboard | 57351     |          | nprsduty  | 45.272    |          |
| srctype   | 3         |          | elecfansp | 96        |          |
| forepres  | 2         |          | trbofansp | 93        |          |
| forpres   | 2000      |          | psupfansp | 120       |          |
| highpres  | 6.54e-06  |          | pwrlnfreq | 58        |          |
| highpres_ | 66        |          | pll0level | 116       |          |
| s2pres    | 0         |          | rfpatemp  | 152       |          |
| s3pres    | 0         |          | roughpump | 1         |          |
| turbo1sp  | 101.0     |          | msvalve   | 0         |          |
| turbo2sp  | 98.5      |          | cdsvstate | 0         |          |
| turbo1pw  | 82.4      |          | ssvstate  | 2         |          |
| turbo2pw  | 18.4      |          | realtime  | 933891650 |          |
| quad      | 99        | 100      |           |           |          |

## Acquisition Parameters:

Last Acquisition Mode = SCN

## Last SCN Parameters:

FNORM 50.00 - 3000.00 AMU Step -0.100 Smp= 5 Avg= 1 Thr=10  
(ISCI = 0,0.00,0.00,0.00,0.00,0.00,0.00)

## Last PSCN Parameters:

SCAN 3.00 - 3276.00 AMU Step -0.100 Smp= 4 Avg= 1 Thr=0

## Last SIM Parameters:

NORM Wide=NO Cycle=ITER(1.000000)

| Ion    | Dwell | Ion | Dwell | Ion | Dwell |
|--------|-------|-----|-------|-----|-------|
| <none> |       |     |       |     |       |

Thu Aug 05 15:20:12 1999

```
[ 66880.31] :RUN:STAT? <--- 0
[ 66880.43] :MSC:MON? RUNTIME,S_DGAS... <--- 66880.441225,300,2.961,19.9
[ 66881.43] :RUN:STAT? <--- 0
[ 66881.56] :MSC:MON? RUNTIME,S_DGAS... <--- 66881.566354,300,2.919,20.0
[ 66882.49] :RUN:STAT? <--- 0
[ 66882.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66882.628790,300,2.919,20.0
[ 66883.55] :RUN:STAT? <--- 0
[ 66883.75] :MSC:MON? RUNTIME,S_DGAS... <--- 66883.753877,300,2.919,20.0
[ 66884.62] :RUN:STAT? <--- 0
[ 66884.93] :MSC:MON? RUNTIME,S_DGAS... <--- 66884.941387,300,2.919,19.9
[ 66885.69] :RUN:STAT? <--- 0
[ 66886.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66886.003880,300,2.919,20.0
[ 66886.89] :RUN:STAT? <--- 0
```

```
[ 66887.14] :MSC:MON? RUNTIME,S_DGAS... <--- 66887.145352,300,2.919,20.0
[ 66887.99] :RUN:STAT? <--- 0
[ 66888.19] :MSC:MON? RUNTIME,S_DGAS... <--- 66888.200077,300,2.919,20.0
[ 66889.14] :RUN:STAT? <--- 0
[ 66889.34] :MSC:MON? RUNTIME,S_DGAS... <--- 66889.352339,300,2.919,20.0
[ 66890.18] :RUN:STAT? <--- 0
[ 66890.44] :MSC:MON? RUNTIME,S_DGAS... <--- 66890.447811,300,2.961,20.0
[ 66891.25] :RUN:STAT? <--- 0
[ 66891.50] :MSC:MON? RUNTIME,S_DGAS... <--- 66891.504500,300,2.919,19.9
[ 66892.37] :RUN:STAT? <--- 0
[ 66892.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66892.628857,300,2.919,19.9
[ 66893.44] :RUN:STAT? <--- 0
[ 66893.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66893.691367,300,2.961,19.9
[ 66894.58] :RUN:STAT? <--- 0
[ 66894.92] :MSC:MON? RUNTIME,S_DGAS... <--- 66894.923218,300,2.919,20.1
[ 66895.62] :RUN:STAT? <--- 0
[ 66896.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66896.003973,300,2.919,20.0
[ 66896.68] :RUN:STAT? <--- 0
[ 66897.17] :MSC:MON? RUNTIME,S_DGAS... <--- 66897.180418,300,2.919,19.9
[ 66897.82] :RUN:STAT? <--- 0
[ 66898.25] :MSC:MON? RUNTIME,S_DGAS... <--- 66898.253899,300,2.919,19.9
[ 66898.93] :RUN:STAT? <--- 0
[ 66899.32] :MSC:MON? RUNTIME,S_DGAS... <--- 66899.322976,300,2.961,20.0
[ 66899.99] :RUN:STAT? <--- 0
[ 66900.50] :MSC:MON? RUNTIME,S_DGAS... <--- 66900.503889,300,2.919,19.9
[ 66901.06] :RUN:STAT? <--- 0
[ 66901.56] :MSC:MON? RUNTIME,S_DGAS... <--- 66901.569722,300,2.961,20.0
[ 66902.12] :RUN:STAT? <--- 0
[ 66902.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66902.691443,300,2.961,20.0
[ 66903.25] :RUN:STAT? <--- 0
[ 66903.75] :MSC:MON? RUNTIME,S_DGAS... <--- 66903.754923,300,2.919,20.0
[ 66904.31] :RUN:STAT? <--- 0
[ 66904.83] :MSC:MON? RUNTIME,S_DGAS... <--- 66904.837164,300,2.919,20.0
[ 66905.43] :RUN:STAT? <--- 0
[ 66906.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66906.012182,300,2.919,20.0
[ 66906.53] :RUN:STAT? <--- 0
[ 66907.07] :MSC:MON? RUNTIME,S_DGAS... <--- 66907.073088,300,2.919,20.0
[ 66907.56] :RUN:STAT? <--- 0
[ 66908.21] :MSC:MON? RUNTIME,S_DGAS... <--- 66908.217340,300,2.919,20.0
[ 66908.62] :RUN:STAT? <--- 0
[ 66909.32] :MSC:MON? RUNTIME,S_DGAS... <--- 66909.325060,300,2.919,20.0
[ 66909.68] :RUN:STAT? <--- 0
[ 66910.43] :MSC:MON? RUNTIME,S_DGAS... <--- 66910.441397,300,2.961,20.0
[ 66910.82] :RUN:STAT? <--- 0
[ 66911.50] :MSC:MON? RUNTIME,S_DGAS... <--- 66911.503949,300,2.919,20.0
[ 66911.97] :RUN:STAT? <--- 0
[ 66912.57] :MSC:MON? RUNTIME,S_DGAS... <--- 66912.579719,300,2.919,20.0
[ 66913.07] :RUN:STAT? <--- 0
[ 66913.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66913.691814,300,2.961,19.9
[ 66914.12] :RUN:STAT? <--- 0
[ 66914.75] :MSC:MON? RUNTIME,S_DGAS... <--- 66914.753949,300,2.919,20.0
[ 66915.23] :RUN:STAT? <--- 0
[ 66915.99] :MSC:MON? RUNTIME,S_DGAS... <--- 66915.999829,300,2.919,20.0
[ 66916.31] :RUN:STAT? <--- 0
[ 66917.07] :MSC:MON? RUNTIME,S_DGAS... <--- 66917.080102,300,2.919,20.0
[ 66917.37] :RUN:STAT? <--- 0
[ 66918.14] :MSC:MON? RUNTIME,S_DGAS... <--- 66918.143543,300,2.919,20.0
[ 66918.49] :RUN:STAT? <--- 0
[ 66919.25] :MSC:MON? RUNTIME,S_DGAS... <--- 66919.261912,300,2.919,20.0
[ 66919.56] :RUN:STAT? <--- 0
[ 66920.31] :MSC:MON? RUNTIME,S_DGAS... <--- 66920.316704,300,2.919,19.8
[ 66920.62] :RUN:STAT? <--- 0
[ 66921.46] :MSC:MON? RUNTIME,S_DGAS... <--- 66921.464880,300,2.919,20.0
{BBRU}1.57> rBM: Rewriting bbram image . . .
{BBRU}1.58> pBM: Sending bbram image [0:24] . . .
[ 66921.74] :RUN:STAT? <--- 0
[ 66922.51] :MSC:MON? RUNTIME,S_DGAS... <--- 66922.514144,300,2.919,20.0
{BBRU}2.81> pBM: Sending bbram image [46:49] . . .
```

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[ 66922.86] :RUN:STAT? <--- 0
[ 66923.94] :RUN:STAT? <--- 0
[ 66924.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66924.012140,300,2.961,19.9
[ 66925.01] :RUN:STAT? <--- 0
[ 66925.12] :MSC:MON? RUNTIME,S_DGAS... <--- 66925.129230,300,2.961,20.0
[ 66926.06] :RUN:STAT? <--- 0
[ 66926.18] :MSC:MON? RUNTIME,S_DGAS... <--- 66926.191437,300,2.919,19.9
[ 66927.19] :RUN:STAT? <--- 0
[ 66927.32] :MSC:MON? RUNTIME,S_DGAS... <--- 66927.325630,300,2.919,19.9
[ 66928.28] :RUN:STAT? <--- 0
[ 66928.50] :MSC:MON? RUNTIME,S_DGAS... <--- 66928.507188,300,2.919,20.0
[ 66929.43] :RUN:STAT? <--- 0
[ 66929.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66929.629023,300,2.919,20.0
[ 66930.49] :RUN:STAT? <--- 0
[ 66930.69] :MSC:MON? RUNTIME,S_DGAS... <--- 66930.692599,300,2.961,20.0
[ 66931.56] :RUN:STAT? <--- 0
[ 66931.82] :MSC:MON? RUNTIME,S_DGAS... <--- 66931.826002,300,2.919,19.9
[ 66932.63] :RUN:STAT? <--- 0
[ 66932.95] :MSC:MON? RUNTIME,S_DGAS... <--- 66932.961369,300,2.919,20.0
[ 66933.68] :RUN:STAT? <--- 0
[ 66934.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66934.004040,300,2.919,20.0
[ 66934.82] :RUN:STAT? <--- 0
[ 66935.12] :MSC:MON? RUNTIME,S_DGAS... <--- 66935.131122,300,2.919,19.9
[ 66935.93] :RUN:STAT? <--- 0
[ 66936.19] :MSC:MON? RUNTIME,S_DGAS... <--- 66936.200108,300,2.961,19.8
[ 66937.07] :RUN:STAT? <--- 0
[ 66937.31] :MSC:MON? RUNTIME,S_DGAS... <--- 66937.321308,300,2.919,20.0
[ 66938.12] :RUN:STAT? <--- 0
[ 66938.47] :MSC:MON? RUNTIME,S_DGAS... <--- 66938.476389,300,2.919,20.0
[ 66939.20] :RUN:STAT? <--- 0
[ 66939.57] :MSC:MON? RUNTIME,S_DGAS... <--- 66939.573882,300,2.919,20.0
[ 66940.32] :RUN:STAT? <--- 0
[ 66940.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66940.629098,300,2.919,20.0
[ 66941.37] :RUN:STAT? <--- 0
[ 66941.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66941.691872,300,2.919,20.0
[ 66942.49] :RUN:STAT? <--- 0
[ 66942.85] :MSC:MON? RUNTIME,S_DGAS... <--- 66942.853119,300,2.919,20.0
[ 66943.62] :RUN:STAT? <--- 0
[ 66944.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66944.004233,300,2.919,20.0
[ 66944.68] :RUN:STAT? <--- 0
[ 66945.13] :MSC:MON? RUNTIME,S_DGAS... <--- 66945.139100,300,2.919,20.0
[ 66945.83] :RUN:STAT? <--- 0
[ 66946.19] :MSC:MON? RUNTIME,S_DGAS... <--- 66946.198680,300,2.961,19.9
[ 66946.89] :RUN:STAT? <--- 0
[ 66947.25] :MSC:MON? RUNTIME,S_DGAS... <--- 66947.260545,300,3.003,19.9
[ 66947.99] :RUN:STAT? <--- 0
[ 66948.38] :MSC:MON? RUNTIME,S_DGAS... <--- 66948.388099,300,2.961,19.9
[ 66949.06] :RUN:STAT? <--- 0
[ 66949.56] :MSC:MON? RUNTIME,S_DGAS... <--- 66949.566590,300,2.961,19.9
[ 66950.12] :RUN:STAT? <--- 0
[ 66950.68] :MSC:MON? RUNTIME,S_DGAS... <--- 66950.691775,300,2.919,20.0
[ 66951.25] :RUN:STAT? <--- 0
[ 66951.75] :MSC:MON? RUNTIME,S_DGAS... <--- 66951.760698,300,2.919,20.0
[ 66952.31] :RUN:STAT? <--- 0
[ 66952.84] :MSC:MON? RUNTIME,S_DGAS... <--- 66952.848369,300,2.919,20.0
[ 66953.52] :RUN:STAT? <--- 0
[ 66954.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66954.004171,300,2.919,20.0
[ 66954.58] :RUN:STAT? <--- 0
[ 66955.07] :MSC:MON? RUNTIME,S_DGAS... <--- 66955.081045,300,2.919,20.0
[ 66955.68] :RUN:STAT? <--- 0
[ 66956.18] :MSC:MON? RUNTIME,S_DGAS... <--- 66956.191612,300,2.961,20.0
[ 66956.74] :RUN:STAT? <--- 0
[ 66957.26] :MSC:MON? RUNTIME,S_DGAS... <--- 66957.268895,300,2.919,20.0
[ 66957.81] :RUN:STAT? <--- 0
[ 66958.39] :MSC:MON? RUNTIME,S_DGAS... <--- 66958.393153,300,2.961,19.9
[ 66958.94] :RUN:STAT? <--- 0
[ 66959.42] :MSC:MON? RUNTIME,S_DGAS... <--- 66959.426036,300,2.961,19.9
[ 66960.24] :RUN:STAT? <--- 0
```

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[ 66960.67] :MSC:MON? RUNTIME,S_DGAS... <--- 66960.675994,300,2.961,20.0
[ 66961.29] :RUN:STAT? <--- 0
[ 66961.73] :MSC:MON? RUNTIME,S_DGAS... <--- 66961.738518,300,2.919,19.9
[ 66962.40] :RUN:STAT? <--- 0
[ 66962.79] :MSC:MON? RUNTIME,S_DGAS... <--- 66962.801050,300,2.961,20.0
[ 66963.56] :RUN:STAT? <--- 0
[ 66963.92] :MSC:MON? RUNTIME,S_DGAS... <--- 66963.926082,300,2.961,19.9
[ 66964.66] :RUN:STAT? <--- 0
[ 66965.01] :MSC:MON? RUNTIME,S_DGAS... <--- 66965.017460,300,2.919,19.9
[ 66965.80] :RUN:STAT? <--- 0
[ 66966.11] :MSC:MON? RUNTIME,S_DGAS... <--- 66966.119098,300,2.919,20.0
[ 66966.90] :RUN:STAT? <--- 0
[ 66967.23] :MSC:MON? RUNTIME,S_DGAS... <--- 66967.238622,300,2.961,19.9
[ 66967.91] :RUN:STAT? <--- 0
[ 66968.14] :SYS:STAT? <--- stby,,stable,0
[ 66968.36] :MSC:MON? RUNTIME,S_DGAS... <--- 66968.363584,300,2.919,20.0
[ 66969.06] :RUN:STAT? <--- 0
[ 66969.58] :MSC:MON? RUNTIME,S_DGAS... <--- 66969.587220,300,2.919,20.0
[ 66970.16] :RUN:STAT? <--- 0
[ 66970.67] :MSC:MON? RUNTIME,S_DGAS... <--- 66970.676089,300,2.919,20.0
[ 66971.29] :RUN:STAT? <--- 0
[ 66971.43] :SENS? SRCTYPE <--- 3
[ 66971.79] :MSC:MON? RUNTIME,S_DGAS... <--- 66971.800469,300,2.919,20.0
[ 66972.36] :RUN:STAT? <--- 0
[ 66972.48] :MSC:SENS? DGASFLOW <--- 2.919
[ 66972.61] :MSC:SENS? NEBPRES <--- 19.9
[ 66972.67] :MSC:SENS? DGAS <--- 300
[ 66972.87] :MSC:MON? RUNTIME,S_DGAS... <--- 66972.882039,300,2.919,19.9
[ 66973.44] :RUN:STAT? <--- 0
[ 66973.79] :MSC:SENS? DGASFLOW <--- 2.961
[ 66973.98] :MSC:MON? RUNTIME,S_DGAS... <--- 66973.988614,300,2.961,20.0
[ 66974.59] :RUN:STAT? <--- 0
[ 66975.11] :MSC:MON? RUNTIME,S_DGAS... <--- 66975.119094,300,2.961,19.9
[ 66975.60] :RUN:STAT? <--- 0
[ 66976.17] :MSC:MON? RUNTIME,S_DGAS... <--- 66976.176095,300,2.961,20.0
[ 66976.73] :RUN:STAT? <--- 0
[ 66977.29] :MSC:MON? RUNTIME,S_DGAS... <--- 66977.301065,300,2.961,20.0
[ 66977.79] :RUN:STAT? <--- 0
[ 66978.37] :MSC:MON? RUNTIME,S_DGAS... <--- 66978.380628,300,2.919,20.0
[ 66978.88] :RUN:STAT? <--- 0
[ 66979.48] :MSC:MON? RUNTIME,S_DGAS... <--- 66979.488649,300,2.919,20.0
[ 66979.98] :RUN:STAT? <--- 0
[ 66980.62] :MSC:MON? RUNTIME,S_DGAS... <--- 66980.624035,300,2.919,20.0
[ 66981.06] :RUN:STAT? <--- 0
[ 66981.73] :MSC:MON? RUNTIME,S_DGAS... <--- 66981.738669,300,2.919,20.0
[ 66982.17] :RUN:STAT? <--- 0
[ 66982.81] :MSC:MON? RUNTIME,S_DGAS... <--- 66982.817201,300,2.919,20.0
[ 66983.23] :RUN:STAT? <--- 0
[ 66983.86] :MSC:MON? RUNTIME,S_DGAS... <--- 66983.863653,300,2.961,20.0
[ 66984.36] :RUN:STAT? <--- 0
[ 66985.00] :MSC:MON? RUNTIME,S_DGAS... <--- 66985.004451,300,2.961,20.0
[ 66985.41] :RUN:STAT? <--- 0
{BBRU}5.80> rBM: Rewriting bbram image . . .
{BBRU}5.80> pBM: Sending bbram image [0:24] . . .
[ 66986.09] :MSC:MON? RUNTIME,S_DGAS... <--- 66986.093728,300,2.919,19.9
[ 66986.48] :RUN:STAT? <--- 0
{BBRU}7.00> pBM: Sending bbram image [46:49] . . .
[ 66987.53] :MSC:MON? RUNTIME,S_DGAS... <--- 66987.542500,300,2.919,20.0
[ 66987.61] :RUN:STAT? <--- 0
[ 66988.61] :MSC:MON? RUNTIME,S_DGAS... <--- 66988.613785,300,2.919,19.9
[ 66988.67] :RUN:STAT? <--- 0
[ 66989.73] :MSC:MON? RUNTIME,S_DGAS... <--- 66989.738723,300,2.919,19.9
[ 66989.80] :RUN:STAT? <--- 0
[ 66990.80] :MSC:MON? RUNTIME,S_DGAS... <--- 66990.810590,300,2.919,20.0
[ 66990.93] :RUN:STAT? <--- 0
[ 66993.18] :MSC:MON? RUNTIME,S_DGAS... <--- 66993.188874,300,2.961,19.9
[ 66994.21] :RUN:STAT? <--- 0
[ 66995.26] :RUN:STAT? <--- 0

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[ 66995.32] :MSC:MON? RUNTIME,S_DGAS... <--- 66995.325842,300,2.961,20.0
[ 66995.89] :SENS? SRCTYPE <--- 3
[ 66995.93] :SENS? SRCTYPE <--- 3
[ 66996.36] :MSC:MON? RUNTIME,S_DGAS... <--- 66996.369428,300,2.919,19.9
[ 66996.43] :MSC:AVC:REV? <---
[ 66996.57] :MSC:CIVC:REV? <---
[ 66997.42] :MSC:PARM? QUADFREQ <--- 998399.9983
[ 66997.57] :MSC:MON? RUNTIME,S_DGAS... <--- 66997.579151,300,2.961,20.0
[ 66997.67] :SYS:STAT? <--- stby,,stable,0
[ 67000.25] :RUN:STAT? <--- 0
[ 67000.32] :MSC:MON? RUNTIME,S_DGAS... <--- 67000.331419,300,2.961,20.0
[ 67001.82] :RUN:STAT? <--- 0
[ 67002.91] :MSC:MON? RUNTIME,S_DGAS... <--- 67002.915292,300,2.919,20.0
[ 67003.93] :RUN:STAT? <--- 0
[ 67004.67] :MSC:MON? RUNTIME,S_DGAS... <--- 67004.679148,300,2.919,19.9
[ 67004.99] :RUN:STAT? <--- 0
[ 67005.75] :MSC:MON? RUNTIME,S_DGAS... <--- 67005.756485,300,2.919,20.0
[ 67006.10] :RUN:STAT? <--- 0
[ 67006.80] :MSC:MON? RUNTIME,S_DGAS... <--- 67006.806442,300,2.919,20.0
[ 67007.16] :RUN:STAT? <--- 0
[ 67007.86] :MSC:MON? RUNTIME,S_DGAS... <--- 67007.863102,300,2.919,20.0
[ 67008.23] :RUN:STAT? <--- 0
[ 67008.95] :MSC:MON? RUNTIME,S_DGAS... <--- 67008.952760,300,2.919,20.0
[ 67009.29] :RUN:STAT? <--- 0
[ 67010.12] :MSC:MON? RUNTIME,S_DGAS... <--- 67010.130439,300,2.919,19.9
[ 67010.35] :RUN:STAT? <--- 0
[ 67011.24] :MSC:MON? RUNTIME,S_DGAS... <--- 67011.244249,300,2.961,19.9
[ 67011.48] :RUN:STAT? <--- 0
[ 67012.36] :MSC:MON? RUNTIME,S_DGAS... <--- 67012.363813,300,2.919,20.0
[ 67012.62] :RUN:STAT? <--- 0
[ 67013.42] :MSC:MON? RUNTIME,S_DGAS... <--- 67013.426335,300,2.919,20.0
[ 67013.73] :RUN:STAT? <--- 0
[ 67014.63] :MSC:MON? RUNTIME,S_DGAS... <--- 67014.636136,300,2.961,20.0
[ 67014.80] :RUN:STAT? <--- 0
[ 67015.67] :MSC:MON? RUNTIME,S_DGAS... <--- 67015.681320,300,2.919,20.0
[ 67015.86] :RUN:STAT? <--- 0
[ 67016.63] *IDN? <--- HEWLETT-PACKARD,G1946A,US78912345,2.07.19
[ 67016.67] :TRCE:BLCK:FIRST? 4086 <--- #44080[ 66880.31] :RUN:STAT? <--- ...
[ 67016.75] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 66908.21] :MSC:MON? RUNTIME,S_
[ 67016.82] :MSC:MON? RUNTIME,S_DGAS... <--- 67016.831444,300,2.919,20.0
[ 67016.93] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 66934.82] :RUN:STAT? <--- 0...
[ 67017.00] :RUN:STAT? <--- 0
[ 67017.15] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 66962.79] :MSC:MON? RUNTIME,S_
[ 67017.22] :TRCE:BLCK:NEXT? 4086 <--- #44080[ 66986.48] :RUN:STAT? <--- 0...
[ 67017.31] :TRCE:BLCK:NEXT? 4086 <--- #3560[ 67016.75] :TRCE:BLCK:NEXT? 4086
```