

# TEST PROCEDURE FOR THE BOOSTER POWER SUPPLY CORRECTOR CONTROLLER

1. Hook up monitor to CPU to check if your getting all the timing pulses.
2. Set address switches to 4 (switch 3 open all others closed).
3. See if you are getting X's & 1's to check if Apollo is scanning the controller.
4. Log in to the Apollo.

A. Start spreadsheet:  
\$/users/operations/com/ss

b. Start configure:  
\$/users/operations/com/configure

5. Using spread sheet check statuses.

6. A/D Testing using the dial-a-volt:

1. Adjust all offsets & gains ( see instructions ).
2. Ask for immediate sld report (using configure) for PSC.AVG\_RB take data for each volt -10 to +10V.

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7. D/A testing:

1. Adjust the gain: Send a command to a CLD set global +10V=2047  
-- Send command to SLD-ASSOC.SLD  
Put scope on pins 1 & 2 adjust rcvr/buffer card so scope reads 10V.  
Send commands for each voltage level (-10,-5,0,5,10)

8. 519 testing:

1. Hookup the 519 board test fixture to the DB25's on the back panel of the Power Supply Corrector Controller one power supply connector @ a time. Start spreadsheet on Apollo and select 'CONTROLLERS', then press the F2 key. Press the F8 key to change to the unprotected mode. You should be on the power supply status & readback page (see below).

| SLD | CON        | NAME | ROBK_VAL | UNIT | REF_VAL | C1  | C2 | C3 | C4 | FG | BUF_REF | BC1 | BC2 | BC3 |
|-----|------------|------|----------|------|---------|-----|----|----|----|----|---------|-----|-----|-----|
|     | PS1_STATUS | #    |          |      |         | OFF |    |    |    |    |         | OFF |     |     |
|     | PS1.AVG_RB | #    | -2048    | CNT  |         |     |    |    |    |    |         |     |     |     |
|     | PS2_STATUS | #    |          |      |         | OFF |    |    |    |    |         | OFF |     |     |
|     | PS2.AVG_RB | #    | -2048    | CNT  |         |     |    |    |    |    |         |     |     |     |
|     | PS3_STATUS | #    |          |      |         | OFF |    |    |    |    |         | OFF |     |     |
|     | PS3.AVG_RB | #    | -2048    | CNT  |         |     |    |    |    |    |         |     |     |     |
|     | PS4_STATUS | #    |          |      |         | OFF |    |    |    |    |         | OFF |     |     |
|     | PS4.AVG_RB | #    | -2048    | CNT  |         |     |    |    |    |    |         |     |     |     |
|     | PS5_STATUS | #    |          |      |         | OFF |    |    |    |    |         | OFF |     |     |
|     | PS5.AVG_RB | #    | -2048    | CNT  |         |     |    |    |    |    |         |     |     |     |
|     | PS6_STATUS | #    |          |      |         | OFF |    |    |    |    |         | OFF |     |     |
|     | PS6.AVG_RB | #    | -2048    | CNT  |         |     |    |    |    |    |         |     |     |     |

F0 HOME F1 BACK F2 DOWN F3 UP F4 F5 RIGHT F6 NEW BUF F7 GLOBALS F8 MODE F9 PRINT

2. Move the mouse so it is on the column under C1. For each power supply the status of the commands can be changed turning the corresponding power supply to go from the OFF status to the supply you want to change turns yellow. Then press the left mouse button to select what mode you want the power supply to be in and supply is in the OFF state the command lights on the test box should be both off. When it is in the ON state both command lights should be on. When it is in the STA mode only command 1 should be on (the command 2 light flashes on for a moment before command 1 comes on).

Test the other power supplies in the same fashion. Press the F2 key again to get to PS7 to PS12. Now the check the fault readbacks press F5 three times and the page should look like below.

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SLD          0000.00  N/A      N/A      BOOSTER_CORR_PSI  BST.CORR_DHX
CON  NAME
PS1_STATUS  # MAL  COO  ACF  DCF  CIR  OVT  ELE  WAR  INP  ITL  LOC  LOA
PS1_AVG_RB  # NOR
PS2_STATUS  # MAL  COO  ACF  DCF  CIR  OVT  ELE  WAR  INP  ITL  LOC  LOA
PS2_AVG_RB  # NOR
PS3_STATUS  # MAL  COO  ACF  DCF  CIR  OVT  ELE  WAR  INP  ITL  LOC  LOA
PS3_AVG_RB  # NOR
PS4_STATUS  # STA  NOR  NOR
PS4_AVG_RB  # NOR
PS5_STATUS  # MAL  COO  ACF  DCF  CIR  OVT  ELE  WAR  INP  ITL  LOC  LOA
PS5_AVG_RB  # NOR
PS6_STATUS  # MAL  COO  ACF  DCF  CIR  OVT  ELE  WAR  INP  ITL  LOC  LOA
PS6_AVG_RB  # NOR

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3. Now change the switches on the test box one at a time to the open position, refer to the table below. This test should be done for all the power supplies being used. Only 12 of the 16 are being defined at this time.

| SWITCH# | S/B |
|---------|-----|
| SW1-1   | OFF |
| 2       | STA |
| 3       | ON  |
| 4       | INP |
| 5       | ITL |
| 6       | LOC |
| 7       | LOA |
| 8       | SEC |
| SW2-1   | COO |
| 2       | ACF |
| 3       | DCF |
| 4       | CIR |
| 5       | OVT |
| 6       | ELE |
| 7       | WAR |
| 8       | N/C |

1. Put sample & hold card on extender card.
2. Put voltage source in pins 4 & 5 of the DB9 connector of the power supply being adjusted. Red – pin 4, Black – pin 5.
3. On sample & hold card:

Using a DVM put a black lead on E5 (gnd) and the red lead no pin 8 of X where X= the number for the P.S. below.

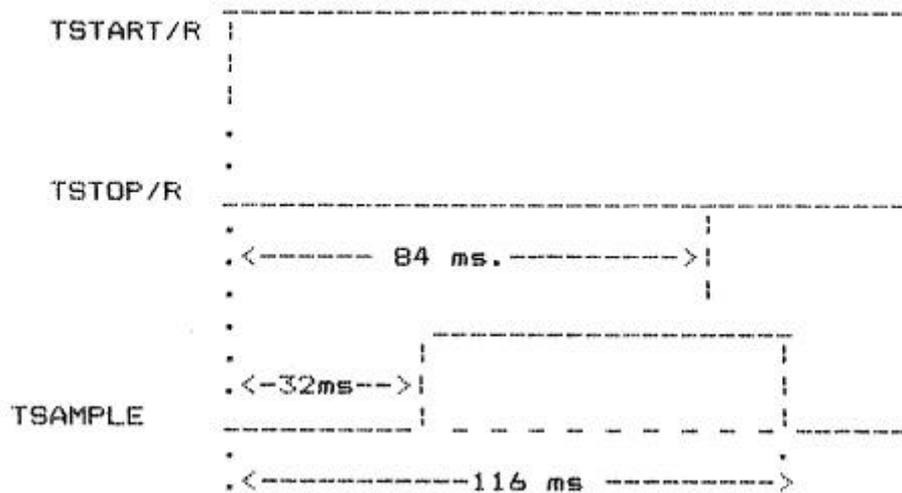
|     |   |    |    |    |    |    |    |    |
|-----|---|----|----|----|----|----|----|----|
| PS# | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
| X   | 2 | 4  | 6  | 8  | 10 | 12 | 14 | 18 |
| PS# | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| X   | 1 | 3  | 5  | 7  | 9  | 15 | 13 | 17 |

4. Put the voltage source on 0 volts and adjust the proper pot until the meter reads 0 volts.
5. Now put the voltage source on +10 volts. Adjust the gain through the proper Receiver/Buffer card.
6. Power supplies 1-8 slot #2, 9-16 slot #3 on receiver buffer card adjust Rx where x= number in table below.

|     |   |    |    |    |     |    |    |    |
|-----|---|----|----|----|-----|----|----|----|
| PS# | 1 | 2  | 3  | 4  | 5   | 6  | 7  | 8  |
| PS# | 9 | 10 | 11 | 12 | 13  | 14 | 15 | 16 |
| X   | 9 | 39 | 69 | 99 | 114 | 84 | 54 | 24 |

7. Adjust until DVM reads +10 volts.
8. Adjust voltage source to 0 volts and adjust Sample & Hold card until meter reads 25 mv to adjust for loss.

This is for testing the timing pulses with a scope. Connect a scope to the booster controller kludge card (put the card on an extender card) to U3 pin #3 and look at the TSTART/R signal & trigger off it. Connect a second probe to U# pin 13 (TSTOP/R) and measure the delay between these signals there should be about 84 ms. between them. Now check the timing between TSTART/R and TSAMPLE (on U5 pin 8). It should be about as shown below.



Now set up the Corrector Power Supply Interface cables (2 DB25's) from the connector marked "From the A/D card, J18" to (on the interface) "TO DC1 (or 2)".

Also on one channel, say power supply one, (the DB9's on the interface chassis) connect pins 1 to 4 and 2 to 5 so the output of the DMA card feeds into the A/D card in the controller. Now on the configure program on Apollo, select 'COMMANDS', then select 'COMPLEX LOGICAL DEVICES', then find and select 'FUNC.GEN 1'. Select 'INCREMENTAL SET', type in '1 400 1' and return. Then type in '1 1' and return. Then select 'SIMPLE LOGICAL DEVICES', then 'CONTROLLERS', then 'BOOSTER\_CORR\_PS', then 'BST.CORR\_DHX' then 'ASSOC\_SLD', then 'EXE' then finally 'NO' & 'NO'.

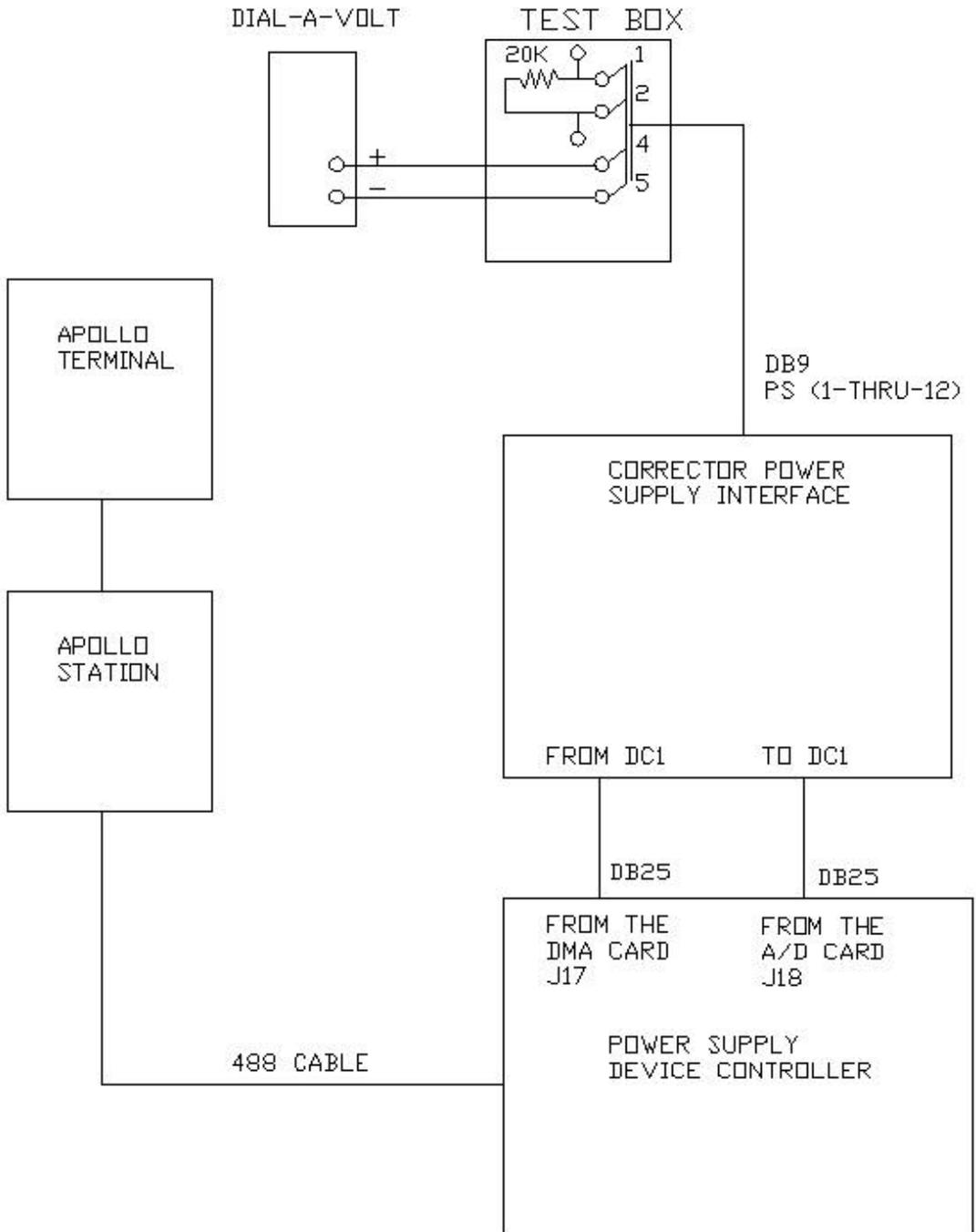
Now run the spreadsheet program on Apollo and select the F2 key then read on the spreadsheet the 'AVG\_RB' of the power supply you are using to check the timing (I've been using Power Supply one but it doesn't matter which. It's only necessary to check one of the power supplies for this test). The read back should be about 37 counts. That finishes the timing test.

## MCO Calls

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|    |                                 |
|----|---------------------------------|
| 1  | Report Routine                  |
| 2  | Special Report Routine          |
| 3  | Controller Command Routine      |
| 4  | Special Report Command          |
| 5  | PSCLD Command Routine           |
| 6  | DMACLD Command Routine          |
| 7  | Queue RB Routine                |
| 8  | Associated Command Routine      |
| 9  | Sample Setup Routine            |
| 0  | Incoming Setpoints Routine      |
|    |                                 |
| p  | PS Command Routine              |
| c  | Clock Command Routine           |
| r  | RBREPGEN                        |
| e  | End of Group Task Starting      |
| ]  | End of Group Task Before RQWAIT |
| E[ | End of Group Task After RQWAIT  |
| t  | TStop Task Starting             |
| )  | TStop Task Before RQWAIT        |
| T( | TStop Task After RQWAIT         |
| u  | Prepulse Task Starting          |
| }  | Prepulse Task Before RQWAIT     |
| P{ | Prepulse Task After RQWAIT      |
| d  | Userreset Task Starting         |
| \  | Userreset Task Before RQWAIT    |
| D/ | Userreset Task After RQWAIT     |
| s  | Scan Task Starting              |
| >  | Scan Task Before RQWAIT         |
| S< | Scan Task After RQWAIT          |
| x  | Before Waiting to XMT           |
| X  | XMTd Standard Report            |
| !  | XMTd Special Report             |
| w  | Waiting to Receive              |
| R  | Received Packet/Command         |

# SETUP FOR A/D TESTING



# SETUP FOR D/A TESTING

