

## **PURPOSE:**

To provide instructions for the setup and testing of PSRG5 boards.

## **SCOPE:**

This QSI applies to the setup and testing of PSRG5 boards.

## **RESPONSIBILITY:**

It is the responsibility of the operator to carry out these instructions.

## **EQUIPMENT REQUIRED:**

1. PWM Test Console
2. PSRG 5 Patchboard Fixture
3. Multimeter
4. Oscilloscope

## **REFERENCE DOCUMENTS:**

### **DRAWINGS:**

Elementary Diagram 44C717813  
Assembly drawing 44B717708  
Test Instructions 44A288997

## **GENERAL:**

The PSRG5 board supplies an unregulated +20V DC, -20V DC, and regulated +15V and -15V DC for up to six PWM MOD III axes. Also contained on this board is an MVR relay and control circuits for the Power Dump Option.

## **PROCEDURE:**

The PSRG1 board is to be tested in accordance with the following procedure using the test circuitry shown in figure 1.

1. Thoroughly examine the board to ensure that:
  - a. The proper circuit components have been employed. It is possible that a circuit will show satisfactory test results with incorrect components employed; however, that circuit's reliability may be degraded.

- b. That components are correctly connected as to orientation and polarity.
  - c. Connections are proper. As examples, components are properly soldered and no short circuits exist (solder bridging, uncut component leads).
2. Connect the PSRG5 board into a test circuit as shown in figure 1. The DC supplies will be tested in steps 3 and 4, the MVR relay circuit in step 5, and the dump circuit in steps 6 and 7.
  3. Apply AC power to transformer T1 and check components for excessive heating or discoloration. Adjust the AC voltage so that 18V RMS is measured from PL201-2 to PL201-1 and PL201-3. Using the DC voltmeter, verify that the voltages on the following terminals are within the specified limits.

SSA	Test Point	Min Volts	Max Volts		SSA	Test Point	Min Volts	Max Volts
2	PL201-A	20	24.5		9	TB201-H	-20	-24.5
3	PL201-B	20	24.5		10	TB202-A	-20	-24.5
4	PL201-C	20	24.5		11	TB202-B	-20	-24.5
5	PL201-D	20	24.5		12	TB202-C	20	24.5
6	PL201-E	-20	-24.5		13	TB202-D	20	24.5
7	TB201-F	-20	-24.5					
8	TB201-G	-20	-24.5					

SSA	TB201	MIN S1 & S2 CLOSED	MAX S1 & S2 OPEN
14	M	+14.25V	+15.75V
15	J	-14.25V	-15.75V

4. Using the oscilloscope (select AC input), monitor the 120 Hz ripple voltage on the following terminals and ensure that they do not exceed maximum limits.

SSA		ACR	
16	TB201-A	.40V (.60V)	P-P Max.
17	TB201-M	.05V (.02V)	P-P Max.
18	TB201-J	.05V (.02V)	P-P Max.

ADVANCE SSA TO POS. 19

5. Test the MVR relay by closing switch S3 while monitoring LEDs 1 and 2. The LEDs will light when the switch is open and be off when the switch is closed. When the switch is open you should see from +6.7V to +7.8V on the TB201-R per the R23, R24 divider. RETURN S3 TO 'OFF' POS.

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*ADVANCE SSA TO POS. 20. PLACE TS4 AND TS5 UP*

6. Test the power dump circuit by setting pot P104 fully clockwise, then slowly increasing the +150V supply to +150V. Again check the components for excessive heating or discoloration. Using the DC voltmeter, verify that the following test points are within specified limits. Reference meter to 0V at PL202-1.

SSA	TEST POINT	MIN.	MAX.
20	TPD (see Note1)	+ 17.75	+ 19.64
21	PL202-6	+142	+157
22	PL202-7	+142	+157
23	PL202-2	+ 0.135	+ 0.165
24	PL202-3	+ 0.135	+ 0.165

*12/14/20*  
*.293 TO .300*  
*.293 TO .300*

*ADVANCE SSA TO POS. 25 - 193V MAX. AVAILABLE*

7. Adjust the +150V supply to +195V, then adjust pot P104 to obtain an oscilloscope display as shown in figure 2. Decrease the +150V supply to +185V, then adjust P104 counterclockwise until a pulse appears on PL202-6/7. Carefully adjust P104 clockwise until the pulse just disappears. Adjust the +150V supply to +187V; the pulse should reappear on PL202-6/7. The pulse width will be approximately 1.0 msec. and the period will vary. Reduce the +150V supply to +180V. The pulse on PL202-6/7 will disappear. Continue to reduce the +150V supply until it reaches +150V. PL202-6/7 will be at approximately +150V. Connect TPA to TPB, then check for a pulse on PL202-6/7. The pulse width will be approximately 1.0 msec. Wide and the period will vary from approximately 10 to 25 msec. Apply Glyptol paint to potentiometer P104.
8. This completes testing of the PSRG5 board. Turn off the +150V supply and the AC supply, then remove the jumper from TPA to TPB.