



**Validyne**  
ENGINEERING CORPORATION

**REVISIONS**

LTR	ECO	DESCRIPTION	DATE	APPROVED

841120041B 841105  
PDR ADOCK 05000280  
F PDR

SIGNATURE		DATE	TITLE	
PROD TEST	<i>[Signature]</i>	2/26/81	ATP PS294-Q2	
ENGINEERING	<i>[Signature]</i> DYS	2/26/81	NUMBER	REV
QUAL CONTROL	<i>[Signature]</i> Hammerman	2/26/81	ATP 451	A
			SHEET 1 OF 5	



ACCEPTANCE TEST PROCEDURE NO. 451

PS294-Q2

1.0 SCOPE

This document defines the Acceptance Test Procedure (ATP) for the PS294-Q2 power supply board assembly. Either the end item ATP or a special test procedure appropriate to a particular contract will define any additional requirements.

2.0 EQUIPMENT REQUIRED

Table One lists the test equipment required to perform the ATP.

TABLE ONE - EQUIPMENT REQUIRED FOR ATP

<u>Description</u>	<u>Manufacturer</u>	<u>Part or Model #</u>	<u>Alternate</u>
PS294 Tester	Validyne	T-1095	None
Variac	The Superior Electric Co.	116	Commercial Equiv.
2 Digital Multimeters	Data Precision	DP248	Commercial Equiv.
Oscilloscope	B & K	1470	Commercial Equiv.

3.0 PRELIMINARY PROCEDURE

Record test results as indicated in Appendix A.

- 3.1 Refer to Assembly Drawing No. Q9854 and inspect assembly for completeness and accuracy. Inspect the heat sinks to ensure that they are flush mounted on the transistors Q1, Q3, and Q4.

4.0 INITIAL TEST SET-UP

- 4.1 Connect PS294-Q2, digital voltmeters (DVM) and oscilloscope to the tester as shown in Figure 1. Set the output of the variac to the lowest dial setting and connect to the tester. Make sure S1 and S2 are in "OFF" position, S3 in "OPERATE" position and S4, S5 and S6 are in "OUT" position.
- 4.2 Plug in the variac to 115V AC. Set S7 switch to "AC" position. Slowly increase the variac output to 115V AC. The "POWER AVAILABLE" light emitting diode (LED) on tester should be "ON", if not then tester fuse is open.

NUMBER	REV
ATP 451	A
SHEET 2	OF 5



**Validyne**  
ENGINEERING CORPORATION

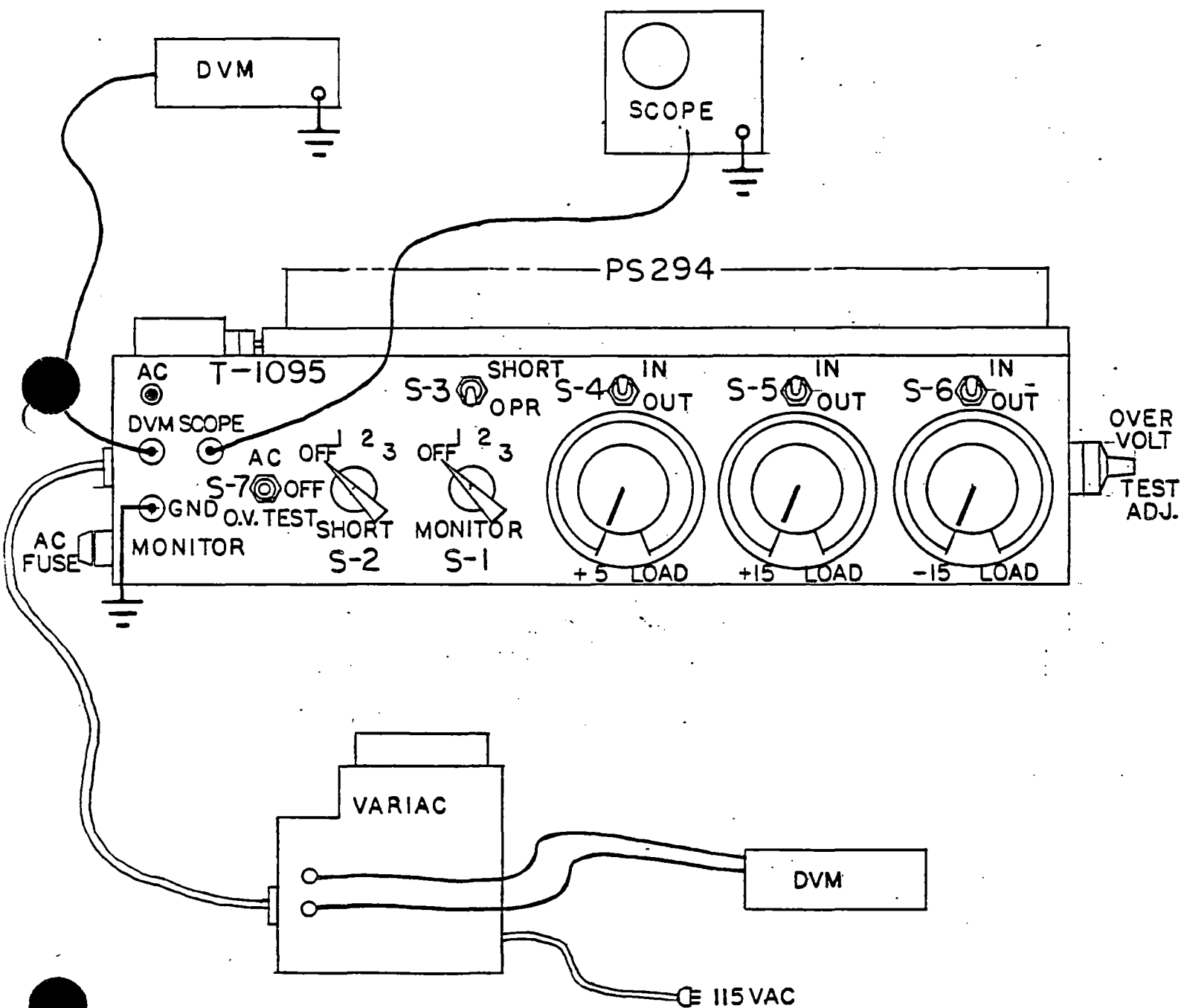


FIGURE 1

ACCEPTANCE TEST PROCEDURE NO. 451

PS924-Q2

4.3 Check the green LED on the PS924-Q2 for ON or OFF, it should be "ON".

5.0 FUNCTIONAL TESTS

5.1 LOAD REGULATION

Set switch S1 to Position 1. The DVM should read  $5.00 \pm 0.25$  VDC (no load regulated voltage). Adjust the +5 load to 8.5 ohm. Set switch S4 to "IN" position. Note the DVM reading (full load regulated voltage). The difference between the full load and no load voltage should be less than or equal to 50mV. Turn switch S4 to "OUT" position.

5.2 Set switch S1 to Position 2. DVM should read  $15.00 \pm 0.75$  VDC (no load regulated voltage). Adjust +15 load to 85 ohm. Set switch S5 to "IN" position. Note the DVM reading again (full load regulated voltage). The difference between full load and no load voltage should be less than or equal to 150mV. Set switch, S5 to "OUT" position.

5.3 Set switch S1 to position 3. DVM should read  $-15.00 \pm .75$  VDC (no load regulated voltage). Adjust -15 load to 85 ohm. Set switch, S6 to "IN" position. Note the DVM reading (full load regulated voltage). The difference between no load and full load voltage should be less than or equal to 150mV. Set switch, S6 to "OUT" position.

6.0 OUTPUT FAULT

6.1 Set switches S4, S5 and S6 to "IN" position. Set switch, S2 to position 2. Green LED will flash periodically. Set switch, S2 to "OFF" position. Green LED will remain on.

6.2 Leave S4, S5 and S6 on "IN" position. Set switch, S2 to position 3, Green LED will be flashing. Set switch, S2 to "OFF" position Green LED will remain on.

7.0 OUTPUT SHORT

7.1 Set switch S2 to "OFF" position, S4, S5 and S6 to "OUT" position. S1 to "OFF", S3 to Short. Set scope for D.C. coupling. S1 to position 1. Output voltage pulse should be  $80 \pm 20$  mSec,  $0.80 \pm .2$  VP-P. (Volts peak to peak).

7.2 Set S1 to position 2. Output voltage pulse should be  $60 \pm 20$  mSec &  $.25 \pm .05$  VP-P.

7.3 Set S1 to position 3. Output voltage pulse should be  $80 \pm 20$  mSec and  $-.25 \pm .05$  VP-P. Set S3 to operate.

NUMBER  ATP 451	REV  A
SHEET 4	OF 5



ACCEPTANCE TEST PROCEDURE NO. 451

PS924-Q2

8.0 LINE REGULATION

- 8.1 Set S1 to position 1. S4, S5 and S6 to "IN" position. Set +5V load to 8.5 ohm, +15V load to 85 ohm and -15V load to 85 ohm..
- 8.2 Decrease AC voltage down to 103.5V and increase up to 126.5V. +5V output change should be less than or equal to 25mV DC.
- 8.3 Set S1 to position 2. Decrease AC voltage down to 103.5 VAC. +15V output change should be less than or equal to 75mV DC.
- 8.4 Set S1 to position 3. Increase AC voltage to 126.5. -15V output change should be less than or equal to 75mV DC. Return to AC voltage to 115 VAC.

9.0 OUTPUT RIPPLE

- 9.1 Set DVM to ACV. Set S1 to position 1. Output should be less than or equal to 10mV RMS.
- 9.2 Set S1 to position 2. Output should be less than or equal to 10mV RMS.
- 9.3 Set S1 to position 3. Output should be less than or equal to 10mV RMS. Set DVM to DCV. Set S7 to "OFF".

10.0 OVERVOLTAGE (O.V.) PROTECTION CIRCUIT TEST

- 10.1 Set switch S1 to position 1.  
Set switch S2 in "OFF" position.  
Set switch S3 to "OPERATE".  
Set switches S4, S5 and S6 in "OUT" position.  
Set O.V. test adjust potentiometer (located on right hand side of tester) to zero.
- 10.2 Refer to PS294-Q2 Assembly Drawing No. Q9854 and connect a jumper between TPI and junction of R1 and F2, and add a jumper across F2.
- 10.3 Set switch S7 to "O.V. Test" position. Adjust O.V. test potentiometer slowly to increase the test voltage (as indicated by DVM) until the voltage goes to less than or equal to 1.00 VDC. Observe green LED on PS294-Q2 goes off. This should occur at  $6.5 \pm 0.5$  VDC.
- 10.4 Set switch S7 to "OFF". Remove jumper from TPI and junction of R1 and F2.

NUMBER		REV
ATP 451		A
SHEET	5 OF 5	

APPENDIX A  
TEST REPORT

NUMBER	APPENDIX A ATP 451
--------	-----------------------

REV A
----------



**Validyne**  
ENGINEERING CORPORATION

# TEST REPORT

ASSY PS294-Q2 POWER SUPPLY

S/O \_\_\_\_\_

CUSTOMER \_\_\_\_\_

W/O \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

TESTED BY \_\_\_\_\_

DATE \_\_\_\_\_

<u>Paragraph/Step</u>	<u>Accepted</u>	<u>Specification</u>
3.1 Visual Inspection	_____	Assembly Complete
4.3 Green LED on/off	_____	ON
5.1 Regulated +5VDC (S4 out) A	_____	+5.00 $\pm$ .25 VDC
Regulated +5VDC (S4 in) B	_____	+5.00 $\pm$ .25 VDC
Regulated +5VDC (A-B)	_____	less than/equal to $\pm$ 0.05 VDC
2 Regulated +15 VDC (S5 out) C	_____	+15.00 $\pm$ .75 VDC
Regulated +15 VDC (S5 in) D	_____	+15.00 $\pm$ .75 VDC
Regulated +15 VDC (C-D)	_____	less than/equal to $\pm$ .150 VDC
5.3 Regulated -15VDC (S6 out) E	_____	-15.00 $\pm$ .75 VDC
Regulated -15VDC (S6 in) F	_____	-15.00 $\pm$ .75 VDC
Regulated -15VDC (E-F)	_____	less than/equal to $\pm$ .150 VDC
6.1 S2 at Position 2 $\longrightarrow$ OFF	_____	Green LED recovers
6.2 S2 at position 3 $\longrightarrow$ OFF	_____	Green LED recovers
7.0 <u>VOLTAGE PULSE</u>		
7.1 Voltage Pulse and On Time (+5V)	_____	.80 $\pm$ .20V & 80 $\pm$ 20msec
7.2 Voltage Pulse and On Time (+15V)	_____	.25 $\pm$ .05V & 60 $\pm$ 20msec
7.3 Voltage Pulse and On Time (-15V)	_____	.25 $\pm$ .05V & 80 $\pm$ 20msec
8.0 <u>LINE REGULATION</u>		
8.2 +5V DC Output Change	_____	.025V max.
8.3 +15V DC Output Change	_____	.075V max.
8.4 -15V DC Output Change	_____	.075V max.

QC \_\_\_\_\_

NUMBER APPENDIX A  
ATP 451

REV  
A

SHEET 2 OF 3

# TEST REPORT

ASSY PS 294-Q2 POWER SUPPLY

S/O \_\_\_\_\_

CUSTOMER \_\_\_\_\_

W/O \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

TESTED BY \_\_\_\_\_

DATE \_\_\_\_\_

<u>Paragraph/Step</u>	<u>Accepted</u>	<u>Specification</u>
9.0 <u>RIPPLE</u>		
9.1 +5V Ripple	_____	Less than/equal to 10mV RMS
9.2 +15V Ripple	_____	Less than/equal to 10mV RMS
9.3 -15V Ripple	_____	Less than/equal to 10mV RMS
10.3 Peak Over Voltage	_____	6.5 $\pm$ 0.5VDC

QC \_\_\_\_\_

NUMBER

APPENDIX A  
ATP 451REV  
A

SHEET 3 OF 3