A

Addendum A – Service Manual

Agilent Model E4356A Telecommunications DC Power Supply

p/n 5964-8170

Applies to units with serial numbers US39290101 and up.

Foreword

This addendum contains information for troubleshooting and repairing the Agilent E4356A Telecommunications DC Power Supply. The standard service manual for the Agilent Series 667xA DC Power Supplies (p/n 5959-2583) used together with this service addendum is shipped with the Agilent E4356A when ordered with Option 0BN.

NOTE: This addendum is to be used along with the standard service manual for the Agilent Series 667xA DC Power Supplies. When troubleshooting, follow the procedures outlined for Agilent Model 6674A. This addendum documents only the differences between the standard troubleshooting procedures for Agilent Model 6674A and the Agilent E4356A Telecommunications DC Power Supply.

Areas of Difference

- Voltage and Current Values (Table 2-2).
- Performance Test Record (Table 2-19).
- Initialization Program listing (Figure 3-18).
- Parts list (Tables 5-3, 5-4, 5-6, 5-9, 5-10 and 5-11).

Chapter 2 Differences

Voltage and Current Values – page 2-4

Table 2-2. Programming Voltage and Current Values

Agilent Model	Full-Scale Voltage	Max. Prog. Voltage	Full-Scale Current	Max. Prog. Current	Max. Prog. OverVoltage
Agilent E4356A	80	81.9	30	30.71	96

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Verification Test Record – page 2-19

Table 2-12. Verification Test Record for Agilent Model E4356A

Model: Agilent E4356A		**Report No._____Date_____**		
Test Description	**Minimum Specification**	**Recorded Results***	**Maximum Specification**	**Measurement Uncertainty**
Constant Voltage Tests				
Voltage Programming and Readback				
Low Voltage (0 V) V_{out}	–80 mV	_____mV	+80 mV	2.2 µV
Front Panel Display Readback	V_{out} –120 mV	_____mV	V_{out} +120 mV	2.2 µV
High Voltage (80 V) V_{out}	79.888 V	_____V	80.112 V	0.8 mV
Front Panel Display Readback	V_{out} –160 mV	_____mV	V_{out} +160 mV	0.8 mV
Load Effect	V_{out} –4.6 mV	_____mV	V_{out} +4.6 mV	40 µV
Source Effect	V_{out} –4.6 mV	_____mV	V_{out} +4.6 mV	40 µV
PARD (Ripple and Noise)				
peak-to-peak	0	_____mV	16 mV	904 µV
rms	0	_____mV	1.9 mV	150 µV
Transient Response Time (@900 µs)	0	_____mV	100 mV	12 mV
Constant Current Tests				
Current Programming and Readback				
Low Current (0 A) I_{out}	–25 mA	_____mA	+25 mA	153 µA
Front Panel Display Readback	I_{out} –30 mA	_____mA	I_{out} +30 mA	153 µA
High Current (30 A) I_{out}	29.945 A	_____A	30.055 A	5.7 mA
Front Panel Display Readback	I_{out} –65 mA	_____mA	I_{out} +65 mA	5.7 mA
Load Effect	I_{out} –3.75 mA	_____mA	I_{out} +3.75 mA	21 µA
Source Effect	I_{out} –3.75 mA	_____mA	I_{out} +3.75 mA	21 µA
PARD (Ripple and Noise)				
rms	0	_____mA	25 mA	5 mA
Current Sink (4A) Display Readback	I_{out} –34 mA	_____mA	I_{out} +34 mA	0.6 mA

* Enter your test results in this column.

Chapter 3 Differences

Initialization Program Listing - page 3-38

In Figure 3-18, change line 160 to read:

```
160 DATA 169,170,171,172,174,176,180
```

Change line 230 to read:

```
230 DATA 1,1,1,2,1,4,4
```

Add the following lines to Figure 3-18 after line 590:

```
591 Eprom_data_4356: !                      ! EEPROM data for E4356A
592   DATA 458.923,70,81.9,0,82,0,80,70,26.6175,0
593   DATA 99,1,50,0,96,0,82,255,20,10
594   DATA 4356,55,500,90,500,1765,5,255,0,0
595   DATA 1296,4356,0,20,180,20,174,175,33,98
596   DATA 115,30,20,1,58,71.6625,30.7125
597   !
```

Add the following lines after line 980:

```
981 CASE "4356A"
982   RESTORE Eprom_data_4356
```

Change line 1030 to read:

```
1030 PRINT "6671A, 6672A, 6673A, 6674A, 6675A and E4356A"
```

Change lines 660, 720, 1070, and 1600 to read:

```
FOR I=1 TO 47
```

Chapter 5 Differences

Table 5-3. Main Chassis

Ref. Des.	Agilent Part No.	Description
	ELECTRICAL PARTS	
A1	E4356-61023	Front panel pc assembly, tested
A2	5063-4851	GPIB pc assembly, tested
A3	5060-3338	FET pc assembly, tested
A5	E4356-61020	Control pc assembly, tested
A6	E4356-61022	Output pc assembly, tested
A7	E4356-61026	Snubber pc assembly, tested (mounted on heatsink)
D900	1906-0451	Diode, rectifier UTF12780 (mounted on heatsink)
L900	06674-80005	1st stage output choke
T900	9100-4976	Transformer, power output
C999	E4356-60026	Capacitor assembly 220 pF, 1.6kV (mounted on D900)
	MECHANICAL PARTS	
E4356A	E4356-80001	Nameplate

Table 5-4. A1 Front Panel Board

Ref. Des.	Agilent Part No.	Description
U4	5080-2278	Programmed ROM (installed in socket)

Table 5-6. A2 GPIB Board

Ref. Des.	Agilent Part No.	Description
U106	5080-2243	Programmed ROM (installed in socket)

Table 5-9. A5 Control Board

Ref. Des.	Agilent Part No.	Description
		ELECTRICAL PARTS
C683	0160-5468	Capacitor 0.47 µF, 50 V
C716	0160-4835	Capacitor 0.1 µF
R504	0698-6392	Resistor 22k, 0.1 %
R651, 652	0757-0476	Resistor 301k
R665, 6664	0757-0199	Resistor 21.5k
R690	0698-8827	Resistor 1M
R691	0757-0465	Resistor 100k
R718	0698-8695	Resistor 36k, 0.1 %
R730, 731	0699-0934	Resistor 36.65k, 0.1 %
R768	8159-0005	Resistor 0 ohms
R809	0699-0769	Resistor 17.5k, 0.1 %

Table 5-10. A6 Output Board

Ref. Des.	Agilent Part No.	Description
		ELECTRICAL PARTS
C901, 903, 905	0180-4705	Capacitor 6000 µF, 100V
Q903	1855-1003	Transistor IRFIP-240
R909, 910	0698-3644	Resistor 5.1k, 2W
R934	0698-0082	Resistor 464 ohms

Table 5-11. A7 Snubber Board

Ref. Des.	Agilent Part No.	Description
		ELECTRICAL PARTS
C990, 991	0160-5466	Capacitor 1000 pF, 100V
R990- 995	0698-3634	Resistor 470 ohms