

MODIFICATION RECOMMENDED

6038A-13

**S E R V I C E N O T E**

Supersedes:  
NONE

6038A DC POWER SUPPLY, 0-60VDC, 0-10A, 240 W. AUTORANGING - GPIB

Serial Numbers: US00000000/US999999999,  
MY41000101/MY410001461  
SG41000101/SG410001461  
0000A00000/9999A99999

To correct the "CC" Constant Current mode offset performance anomaly.

**Parts Required:**

P/N	Description	Qty.
NONE		

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:			
<b>MODIFICATION RECOMMENDED</b>			
ACTION CATEGORY:	x ON SPECIFIED FAILURE <input type="checkbox"/> AGREEABLE TIME	STANDARDS	LABOR: 1.0 Hours
LOCATION CATEGORY:	X CUSTOMER INSTALLABLE <input type="checkbox"/> ON-SITE X SERVICE CENTER <input type="checkbox"/> CHANNEL PARTNER	SERVICE INVENTORY: <input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input type="checkbox"/> SEE TEXT	USED PARTS: <input type="checkbox"/> RETURN <input type="checkbox"/> SCRAP <input type="checkbox"/> SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	NO CHARGE AVAILABLE UNTIL: (Always)	
AUTHOR:	cp	PRODUCT LINE: sp	
ADDITIONAL INFORMATION: This situation may happen more often as the customer use model changes.			

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**Situation:**

The power supply CC Control Signal is normally active between -0.5 and -1.2 volts. The more negative the CC Control Signal the shorter the PWM Pulse Width Modulated duty cycle. A CC Control Signal more negative than -1.2 volts will inhibit the PWM and keep the power supply output at zero.

The CC error amplifier offset voltage could cause the CC amplifier's output, which is the CC Control Signal, to saturate at or near the amplifiers negative bias voltage which is -15 volts. This in itself is not a problem except when combined with the slow response of the CC error amplifier. The slow response of the CC amplifier allows for stable power supply operation into reactive loads. The compensation loop around the CC amplifier contains relatively large capacitance values. It is the charge and discharge of these capacitors that are creating the long delay at low current levels.

**The Problem**

When the power supply is turned on and programmed to a low output current, the supply will normally respond within 300 milliseconds. If the power supply is programmed to zero current and sits at the programmed state for a period of time, then reprogrammed to a low output current, there may be a delay before any voltage or current appears on the output of the power supply. The length of the delay is dependent upon the length of time the power supply was sitting at the zero output current program state.

**Solution/Action:**

To correct a problem related to "CC" Constant Current mode offset should be re-calibrated to correct the performance anomaly.

The reason for this is that the CC loop may be in the wrong direction depending upon where it was calibrated. The manual calls out + or – some amount. The correct way to calibrate the unit to prevent this is to calibrate it only on the positive side with some offset to guarantee that it will not be in the wrong direction.

Listed below are the new values to be used to calibrate Constant Current Zero Calibration. These values are under the section in the service manual called, "**Constant Current Zero Calibration**"

**Constant Current Zero Calibration NEW ADJUSTMENT Values (Adjust R29 as Shown below)****SPECIAL NOTE**

The re-adjustment of R29 will not affect any other specifications; no other calibration will be required. See attachment below for additional details

**SERVICE MANUAL****AUTORANGING****SYSTEM DC POWER SUPPLY****AGILENT MODELS 6033A and 6038A****Agilent Part No. 5959-3346**

<http://cp.literature.agilent.com/litweb/pdf/5959-3346.pdf>

**Constant Current Zero Calibration**

- Connect the test setup shown on page 18 of the Service Manual (See link below P/N 5959-3346).
- Send string "VSET 5; ISET 0; OUT ON".
- Allow several minutes (3 or more) to ensure thermal settling.
- Adjust A8R29 (CC PROG ZERO) to:

Model	Old values	New values
6038A	-350uV to +350uV	<b>+1.8mV to +2.5mV</b>

**Reference Other similar Service Notes**

6033A -15 6038A-13 (200 Watt Auto ranging System DC Power Supply)

6030A -22 6031A -24 6032A -23 6035A -12 (1000 Watt Auto ranging System DC Power Supply)