



# XM PLASMA VOLTAGE FEEDBACK CALIBRATION

Doc. No.: TP-XM-005

Revision: 2

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Effective Date: 04/10/2008

## 1. INTRODUCTION

This procedure is used to check and calibrate the XM System Plasma Voltage Feedback function to assure accurate and reliable control of the weld power supply. This procedure applies to all XM Modules loaded with AVC firmware.

## 2. RESPONSIBILITIES

Performer	Responsibility
Technician	After assuring prerequisites are met, performs a calibration of the Plasma Voltage Feedback functions of the AVC Module using steps 4.1 through 4.14 of this procedure.  If calibration fails, initiate troubleshooting with the assistance of AMET Technical Support.

## 3. PREREQUISITS

Record the XM Module serial number in Appendix A. The following tools and equipment are required to perform this calibration:

- 3.1 Calibrated DC power supply (0-40 volts).

## 4. INSTRUCTIONS

- 4.1 Connect the DC power supply between the Torch and Work. Connect the positive lead to the Work and the negative lead to the Torch. Leave the DC power supply OFF.
- 4.2 Press the SET UP Mode Button on the controller.
- 4.3 Use the SELECT MODULE Programming Knob to highlight the AVC Module being calibrated.
- 4.4 Press the CALIBRATE Programming Knob to enter the CALIBRATION Mode.
- 4.5 Verify that the ARC VOLTAGE meter on the controller display reads .1 volts with the DC power supply turned OFF. If the ARC VOLTAGE readout reads 0.1 volts, proceed to step 4.8. If the ARC VOLTAGE readout does not read 0.1 volts, proceed with step 4.6.
- 4.6 Use the SELECT PARAMETER Programming Knob to highlight the COARSE OFFSET parameter under the VOLTAGE FDBK calibration section.
- 4.7 Use the ADJUST VALUE Programming Knob to adjust the value of the COARSE OFFSET to obtain a reading of 0.1 volts on the ARC VOLTAGE readout. If you cannot obtain a correct value by using the COARSE OFFSET, adjust the FINE OFFSET to obtain a reading of 0.1 volts.
- 4.8 Turn the DC power supply ON and set the output voltage to 39.5 VDC.
- 4.9 Verify that the ARC VOLTAGE meter on the controller display reads 39.5 volts. If the ARC VOLTAGE readout reads 39.5 volts proceed to step 4.12. If the ARC VOLTAGE readout does not read 39.5 volts proceed with step 4.10.



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- 4.10 Use the SELECT PARAMETER Programming Knob to highlight the COARSE GAIN parameter under the VOLTAGE FDBK calibration section.
- 4.11 Use the ADJUST VALUE Programming Knob to adjust the value of the COARSE GAIN to obtain a reading of 39.5 volts on the ARC VOLTAGE readout. If you cannot obtain a correct value by using the COARSE GAIN, adjust the FINE GAIN to obtain a correct reading.
- 4.12 Repeat steps 4.5 through 4.11 until no further adjustment is needed.
- 4.13 Starting at a DC power supply output of 5.0 VDC, adjust the voltage in increments of 5 volts until you reach an output of 40.0 volts. At each voltage setting, record the ARC VOLTAGE readout in Appendix A, Table A-1, *Arc Voltage Calibration*, to make sure that it is accurately displaying the actual voltage output of the DC power supply. If the calibration does not seem to be linear throughout the full voltage range, repeat the calibration procedure again beginning with step 1.
- 4.14 Turn OFF the DC power supply and disconnect it from the XM System.

### **5. RECORDS**

The records for this calibration are in Appendix A, *XM Plasma Voltage Feedback Data*.

### **6. DEFINITIONS**

None

### **7. REFERENCES**

- 7.1 XM System Manual, SM-001
- 7.2 XM Maintenance Manual, MM-001 (DRAFT)

### **8. APPENDIXES**

Appendix A, *XM Plasma Voltage Feedback Data*.



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## APPENDIX A

### XM Plasma Voltage Feedback Calibration Data

\_\_\_\_\_  
Technician:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
XM Module Serial Number:

**Table A-1 - ARC VOLTAGE Calibration**

Step 4.13 - Test Voltage Input	ARC VOLTAGE Reading	Expected Value (Volts)
5.0		4.8 – 5.2
10.0		9.8 – 10.2
15.0		14.8 – 15.2
20.0		19.8 – 20.2
25.0		24.8 – 25.2
30.0		29.8 – 30.2
35.0		34.8 – 35.2
40.0		39.8 – 40.2