

WEST•BOND® INC.

ULTRASONIC BOARD (P/N A-10345 REV C) IN-MACHINE CALIBRATION

1. Equipment required:
 - 1.1 An oscilloscope.
 - 1.2 A multi-meter (true RMS voltages up to 100 KHz).
 - 1.3 20-Ohm resistor, 5-Watt minimum.

* All following measurements are made with respect to circuit common TPI*

2. DC voltage verification:

- 2.1 Turn on bonder main power and leave it idle at home.
- 2.2 Using DC volt meter, verify the DC voltages as follows:
 - At J3 pin 1 for -15 VDC
 - At J3 pin 3 for +15 VDC
 - At TP6 for -5 VDC
 - At TP7 for +5 VDC
 - At TP3 for -1.2 VDC
 - At TP5 for 0 VDC

3. Oscillator calibration:

- 3.1 Disconnect transducer at connector J2.
- 3.2 Connect the oscilloscope probe to TP2.
- 3.3 Verify that the signal is a 5V square wave.
- 3.4 Adjust potentiometer RT1 until the scope reads about 63.5 KHz (15.75uS).

4. Output voltage calibration:

- 4.1 Connect a 20-Ohm, 5-Watt resistor across pin 1 and pin 2 of connector J2. Take care not to short across 2 pins.
- 4.2 Connect AC voltmeter and oscilloscope probes to TP5.
- 4.3 Connect jumper E1 pin1 to pin 2 (high power output).
- 4.4 Program selected channel to have bond power 999 (full power) and bond time 999 (999mS).
- 4.5 Trigger the selected channel, by firing the ultrasonics in the air, verify that the meter reads 8 Vrms (22.63Vp-p) and scope shows a clean sine wave. Adjust RT2 to obtain the reading.
- 4.6 Connect jumper E1 pin 2 to pin 3 (low power output).
- 4.7 Trigger the selected channel, by firing the ultrasonics in the air; verify that the meter reads 4.5 Vrms (12.73Vp-p). Adjust RT3 to obtain the reading.

5. Final check:

- 5.1 Remove 20-Ohm resistor at connector J2 and connect machine transducer to it.
- 5.2 Return jumper E1 pin connections to original position.
- 5.3 Verify the tool is installed to the proper tool drop and that the screw is the correct size.
Wedge setscrew – 2-56 x 3/32, Ball socket screw: 0-80 x 5/32.
- 5.4 Connect Oscilloscope to TP5 and trigger ultrasonics.
 - 5.4.1 Verify frequency of <65 KHz.
 - 5.4.2 Verify that the output voltage is close to the calibrated voltage of 4.5 and 4.7 (8V_{RMS} or 4.5V_{RMS} respectively)
- 5.5 Remove all test leads.
- 5.6 Press the machine reset switch or recycle machine main power, verify that there is no error message from the machine.

