



FROM MANUAL

This procedure has been done by the factory and should not be re-adjusted unless absolutely needed and should only be done by a qualified technician. There are potentially painful high voltages inside the VOXBOX so care should be taken even by good technicians. They have been known to get a shock but they also know to use one hand and insulated tools or gloves.

The function of each trim is labeled on the diagram on the previous page (page 15). You will need an audio oscillator and a high impedance AC voltmeter plus a medium small tip flat screwdriver and a medium (#2) Phillips screwdriver. After removing the top let the unit warm up for 30 minutes so that your calibration will be actually valid. You should check basic signal flow and familiarize yourself with the unit during this time.

- 1) The first step is to make the EQ / DE-ESSER gain block be "unity gain" with no EQ or Limiting. Put a 1 KHz +4.0 dBu (1.228 Volts RMS) tone from an oscillator into the INSERT INPUT and select INSERT. Make sure EQ and DE-ESS is BYPASSED. Measure the EQ OUTPUT PHONE JACK. It should read the same level as the input signal. If not adjust "trimmer 1" (EQ=UNITY GAIN) for +4.0 dBu or 1.228 volts AC RMS.
- 2) Use the VU meter select switch to read "EQ OUT". The VU meter should read "0". If not, adjust trimmer 2 (0 on VU METER = +4.0 dBu = 1.288 VAC RMS).
- 3) Use the VU meter select switch to read "GR". The VU meter should read "0". If not, adjust trimmer 3 (METER GR ZERO SET).
- 4) Now put the oscillator into the LINE INPUT and the AC voltmeter on the PREAMP OUT PHONE JACK. Put the PHASE switch into the middle position (LINE) and the GAIN switch to "45". The filter should be set FLAT and COMPRESSOR in BYPASS and both ATTACK and RELEASE to MEDIUM. Verify that unity gain for the line input is corresponds on the "INPUT" knob to approximately straight up or 11:00. Set the INPUT for +4.0 dBu (1.228 volts) measured at the PREAMP OUT. Now take the COMPRESSOR out of BYPASS and turn up the COMPRESSOR THRESHOLD to maximum. Select "PRE OUT" on the VU meter switch. The VU should also read "-8". If not adjust "trimmer 4" (COMP CAL) so that it does.
- 5) Same as above except switch VU to GR mode and adjust COMP GR CAL. Now turn the threshold so that there is 2 dB of compression. Verify that GR and audio "track" within .5 dB.
- 6) Now put the oscillator back into the INSERT INPUT and the AC voltmeter on the EQ OUT PHONE JACK. SELECT LIMIT on the De-ess rotary switch. Select "EQ OUT" on the VU meter switch. Now take the DE-ESSER out of BYPASS and turn up the DE-ESSER THRESHOLD to MAXIMUM so that the output signal is reduced 8 dB (or that 40% modulation dot)(-2 dBu or .614 AC volts). The VU should also read "-8". If not adjust "trimmer 5" (DS / LIMIT CAL) so that it does. You can also check De-esser operation by switching the oscillator to 3 KHZ and selecting 3 KHZ on the de-esser select switch. Adjust the DE-ESSER THRESHOLD so that the output signal is reduced 6 dB which will read -2 dBu or .614 AC volts. The VU meter should read "-6" +/- .5 dB.
- 7) Same as above but switch VU to D-S and adjust METER DS CAL. Verify DS and audio track.

Step 4 sets up the compressor ratio, Step 5 makes the G-R meter agree. Step 6 sets up the LIMIT Threshold and step 7 makes the D-S meter agree. Two units should be calibrated together for the LINK to perform accurately. At the factory we use a test jig that injects a signal into the LINK jacks to ensure unit to unit sameness needed for LINK to be very predictable. The above procedure will be close.

The calibration procedure is completed unless you want to double check, which we always recommend. In that case return to step 1.

Each of the power supplies is regulated and there are no trims involved. The voltages should be:

+12 VDC for filaments, relays & lamps / leds.

+15 VDC for ICs used in sidechains and meter drivers

VOXBOX MANLEY INTERNAL PROCEDURE

- 1) The first step is to make the EQ / DE-ESSER gain block be "unity gain" with no EQ or Limiting. Put a 1 KHz +4.0 dBu (1.228 Volts RMS) tone from an oscillator into the INSERT INPUT and select INSERT. Make sure EQ and DE-ESS is BYPASSED. Measure the EQ OUTPUT PHONE JACK. It should read the same level as the input signal. If not adjust "trimmer 1" (EQ=UNITY GAIN) for +4.0 dBu or 1.228 volts AC RMS.
- 2) Use the VU meter select switch to read "EQ OUT". The VU meter should read "0". If not, adjust trimmer 2 (0 on VU METER = +4.0 dBu = 1.228 VAC RMS).
- 3) Use the VU meter select switch to read "GR". The VU meter should read "0". If not, adjust trimmer 3 (METER GR ZERO SET).
- 4) Now put the oscillator into the LINE INPUT and the AC voltmeter on the PREAMP OUT PHONE JACK. Put the PHASE switch into the middle position (LINE) and the GAIN switch to "45". The filter should be set FLAT and COMPRESSOR in BYPASS and both ATTACK and RELEASE to FAST. Verify that unity gain for the line input is corresponds on the "INPUT" knob to approximately straight up or 11:00. Set the INPUT for +4.0 dBu (1.228 volts) measured at the PREAMP OUT. LINK OFF. Now take the COMPRESSOR out of BYPASS and turn up the COMPRESSOR THRESHOLD to maximum. Select "PRE OUT" on the VU meter switch. The VU should also read "-8".
- * We use the TEST JIG now. LINK ON. The compressor switch can be BYPASS or the threshold turned OFF. Jig set for -5. Adjust trimmer 4 (COMP CAL) for -5 db seen on the ST.
- 5) Same as above except switch VU to GR mode and adjust COMP GR CAL. Verify that GR and audio "track" within .5 dB by switching the TEST JIG TO -10 & -2, watching both GR and the actual db on the ST.
- 6) LINK still ON. Now put the oscillator back into the INSERT INPUT and the AC voltmeter on the EQ OUT PHONE JACK. SELECT LIMIT on the De-ess rotary switch. Select "EQ OUT" on the VU meter switch. DE-ESS THRESHOLD TURNED DOWN OR OFF. Once again set the TEST JIG for -5. Adjust "trimmer 5" (DS / LIMIT CAL) so that it reduces the output 5 dB.
- 7) Same as above but switch VU to D-S and adjust METER DS CAL. Verify DS and audio track.
- 8) CHECKING. Switch link off, DS THRESHOLD FULL, You should get 5 dB of limiting. Change osc to 9K. Switch de-ess to 9K. Adjust thresh for X db of de-essing. Verify that GR tracks.
- 9) Check various audio/EQ freqs.
- 10) Audio test for compressor times, hum, noise etc

The feed to the TEST JIG MUST BE +4.00 dBu for the limiter section.

The limiter has a flat response from 50 to 20K. Around 20 expect 1 dB less limiting. Around 40K the limiter may drop off but 1 dB of cross talk might be seen as the threshold is turned.

There should be no difference now between limit and de-ess as far as the meters agree. If there seems to be it has to be DC offset on the LED drive op-amp. Not likely.

The -20 position on the TEST JIG is only good on the limiter - it gives about -16? on the compressor. If the two audio OPTO's are not reasonably matched - one turns on before the other and at the small amounts of GR the true reduction and DS meter will not (can not) agree. This seems to be the only place where matching is critical.

A typical CD when turned up to just get to 0VU should get around 5-10 dB of compression and 4-8 dB of Limiting if one threshold is set MAX at a time.