

ALIGNMENT PROCEDURE & INSIDE VIEW

IDLE CURRENT ALIGNMENT

1. 5 Minutes minimum pre-heating is necessary.
2. Set the volume control at minimum position.
3. Connect DC milli-voltmeter across R654 for right channel and across R653 for left channel. The meter sensitivity should be set for 30–100mV full scale deflection.
4. RX2 (right channel) and RX1 (left channel). insert 560 ohm carbon resistor to connect in parallel with R646 (right channel) and R645 (left channel).
5. After insert 560 ohm. if the reading of meter were between 30 mV and 60 mV then the alignment is completed.
6. If the reading were less than 30mV then the value of RX1 or RX2 should be reduced till the reading is between 30mV and 60mV.
7. If the reading were more than 60mV. then the value of RX1 or RX2 should be increase till the reading is between 30mV and 60mV.

DC OFF-SET ALIGNMENT

1. 5 Minutes minimum pre heating is necessary.
2. Set volume control at minimum position.
3. Connect a DC milli-voltmeter to the speaker terminals of each channel. The meter sensitivity should be set for 100-300mV full scale deflection. The positive input of the meter should be connected to the red (+) speaker terminal.
4. Adjust VR5 (for left channel) and VR6 (for right channel) till the meter reading is zero.

3020B procedure

5. If within turn-on tolerances, allow unit to warm up for 5 minutes.
The voltage should then be 30 mV, tolerances $\pm 10\text{mV}$.
IF NOT WITHIN TOLERANCES GO TO ADJUSTING.
6. If OK, reconnect the soldershots across R 653 and R 654.
Adjusting:
7. Turn off, remove bias adjusting resistors RX 1 (left) and RX 2 (right) and temporary replace with variable resistors 2 Kohms to 5 Kohms, set the variable resistors to maximum resistance.
8. Turn on and read voltage across R 653 and R 654. It should be less than 10 mV. If too high, turn off unit immediately and check the output amplifier section, especially Q609-Q611-Q613-Q615-Q617 left channel or Q610-Q612-Q614-Q616-Q618 right channel.
9. If voltage is OK upon turn-on, adjust variable resistors to read approximately 12 mV on VOM. Leave unit on for 5 minutes and reset voltage to 30 mV. Note that it takes a little time for readings to stabilize.
10. Turn off and remove variable resistors and replace with fixed resistance with exactly the same measured value. Use resistors in series or parallel if necessary.
11. Recheck idling current.
12. Reinstall soldershots across R 653 and R 654.

ALIGNMENT INSTRUCTIONS (continued)

Notes:

1. Failure to re-install soldershot across R653 and R 654 will result in failure at high volume.
2. Decreasing value of RX 1 and RX 2 will cause idling current to increase.
3. Too little idling current will cause "Crossover" distortion. Too much idling current will result in overheating.

B DC OFFSET:

1. Set Volume control to minimum, disconnect any output loads.
2. Connect DMM or VOM across each channel's speaker terminals.
3. Turn on and read VOM. Reading should be 0 V.DC. Tolerance $\pm 50\text{mV}$.
Adjust VR 5 (left) or VR 6 (right) as necessary.

Notes:

1. Before adjusting VR 5 or VR 6 soften the lock paint with laquer thinner to avoid destroying them. Secure with lock paint (nail polish) when adjustment is completed.
2. Incorrect adjustment of DC offset can create pop when inserting/removing Headphone plug.
3. Offset more than 3 V is caused by defective parts, not by misadjustments.