(**Note:** The current reading should appear to be slightly rising at this time as well. This is perfectly normal. Also, if the above values are obtained, then the amplifier is probably in good operating condition. Proceed.)

4. Turn off the AC power.

5. Remove the amplifier top cover.

6. If the output transistor emitter resistors are exposed along each of the output heatsink channels, then choose one resistor, and connect a millivolt meter using long clip leads across it. If the amplifier does not have exposed emitter resistors, then follow the directions in illustration #1.

<u>IMPORTANT !!</u> When making the following adjustments of the bias potentiometer, **DO SO VERY SLOWLY, WATCHING YOUR MILLIVOLT METER. SMALL INCREMENTS OF ROTATION OF THE BIAS POT CAN MAKE BIG CHANGES IN THE BIAS CURRENT !! BE CAREFUL !!**

(Should you accidently rotate the control too far, the worst that likely will happen to a properly functioning amplifier is that one or both supply rail fuses will probably blow.)

7. Again, turn on the AC power, and adjust the variac to the proper AC line voltage.

8. With a small insulated shaft blade screwdriver, and while watching your millivolt meter, adjust the voltage reading across the emitter resistor to the value (given in the attached chart) marked "cold start value".

9. Now, look again at the AC line current meter. The indicated current value should still be in the approximate range given in step #3 above. **NOTE:** if it is not, or if you have trouble in adjusting the bias in step #8 above, then stop and turn off the amplifier and check for faults, or a circuit failure before proceeding any further.

10. (See the graphs in Illustration #2) The two graphs illustrate the typical bias current/time/ temperature characteristics of **THRESHOLD** amplifiers. Note that it takes about 1 hour to reach a stable value. Also note that the amplifier **BACK AND TOP COVER MUST BE IN PLACE** when these values are reached to be correct.

11. After about 1 hour recheck the amplifier - this time with the temperature meter and probe inserted

in the last screw hole in the top cover near the back end of the amplifier. This is the standardized temperature measurement point for all **THRESHOLD** amplifiers.

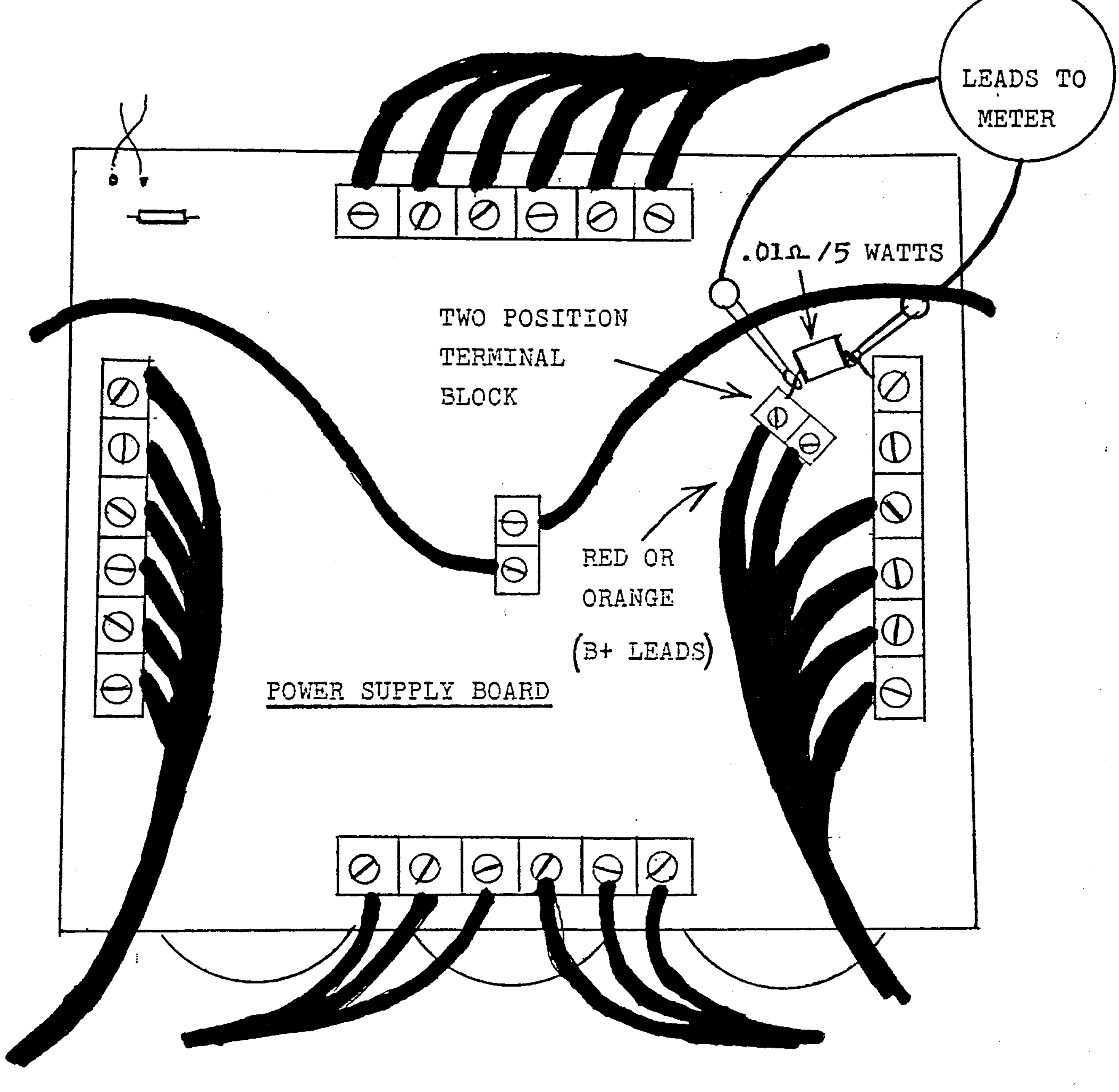
12. Check the temperature reading above against the proper value given in the attached chart for the particular amplifier being adjusted.

13. If the measured temperature is outside of the specified operating range, then remove the top cover and adjust the idle current a small amount in the direction the temperature must be changed (higher if the temperature must be increased, or lower if it must be decreased). Reinstall the top cover. After about 15 minutes, recheck the temperature as before: if the desired value has not been reached, re-adjust once more, and recheck again after another 15 minutes.

<u>NOTE:</u> **THRESHOLD** amplifiers, once they achieve a stable bias value (whether it is correct or not), have a tendency to "lock in" to it. Therefore, if the two attempts at re-adjustment above do not bring the temperature into specification, the only way to "unlock" it is to turn the amplifier off and allow it to cool back down to room temperature. A small fan is very helpful here. After the cooling is complete, then restart the process with step #8 above. This time make slight adjustments to the bias voltage value read on the millivolt meter while the amplifier is still warming up. Do this as often as necessary until the required temperature value is reached and maintained.

14. Once the correct value of stable operating temperature has been achieved, it is important to once more turn off the amplifier, allow it to cool down, and restart it again, this time allowing it to come up to the specified stable operating temperature **WITHOUT HAVING MADE ANY ADJUSTMENTS TO THE BIAS.** If after 1 hour the amplifier still meets the given temperature specification, and passes all electrical tests as well, it is then ready to be delivered to its owner.

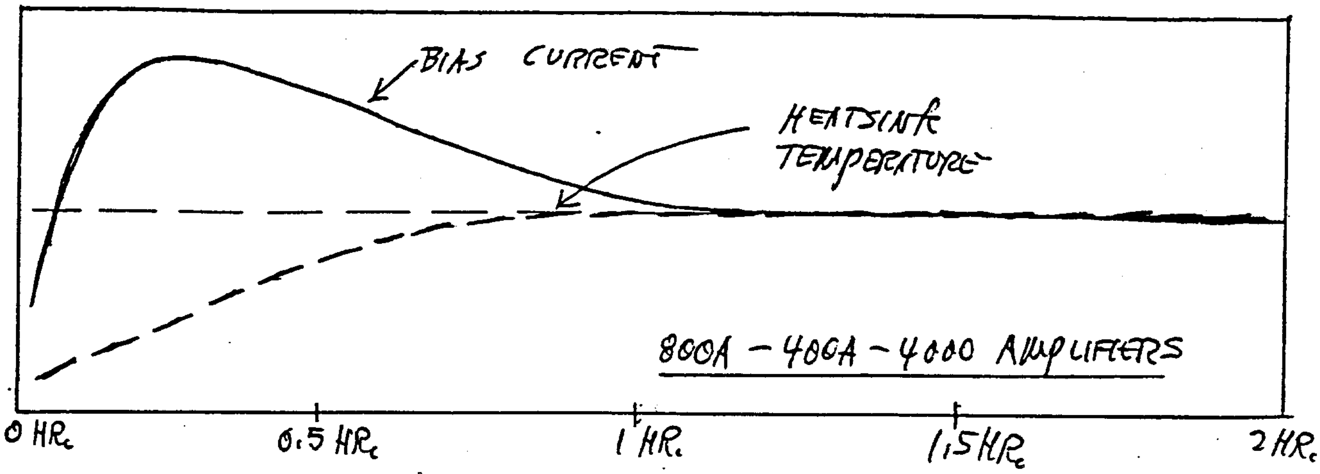
ILLUSTRATION #1

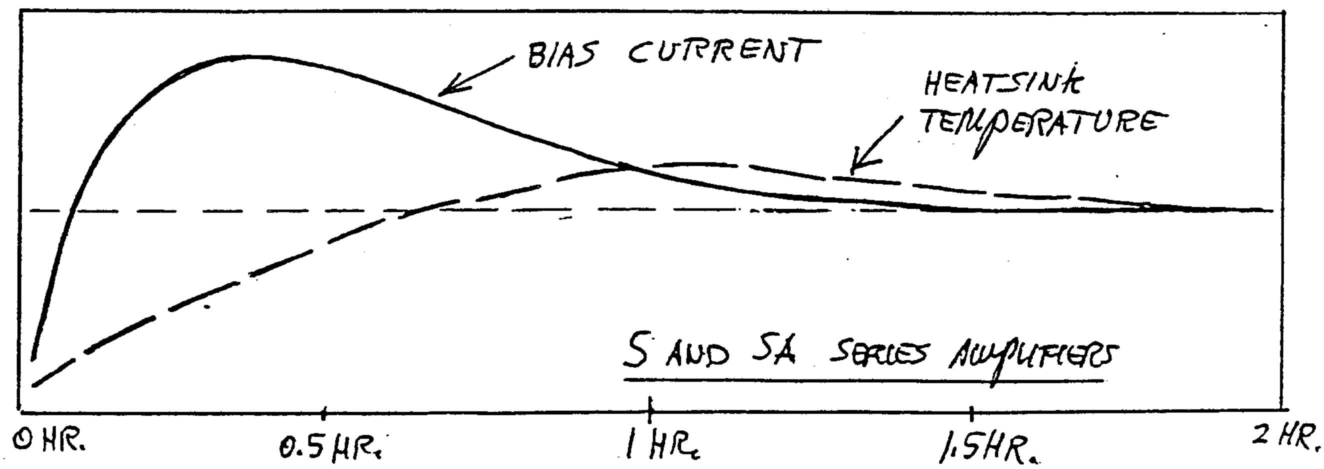


REAR OF AMPLIFIER

ILLUSTRATION #2

TYPICAL BIAS CURRENT/TEMPERATURE/TIME RELATIONSHIPS.





BIAS REQUIREMENTS CHART

NOTES:
1. All covers must be on.
2. Maximum allowable variation in temperature from channel to channel is 5 degrees centigrade.
3. When using .01 ohm resistor to measure bias current 10 mV. = 1 A. of current.

AMPLIFIER	COLD START VALUE	FINAL TEMPERATURE
800A	About 1.2 A. AC line current (120V)	(slightly warm when cover closed and fan on full)
400A/4000	1 ohm = 195 mV. 0.68 ohm = 90 mV. 0.33 ohm = 65 mV.	45 degrees c, +/-2 deg. C
CAS-1	Bias for low distortion. Runs cool.	
CAS-2/3	(Same as 400A/4000)	
STASIS 1	90 mV.	Temp.= 45 degrees C, +/- 2 degrees C.
STASIS 2	85 mV.	(Same)
STASIS 3	75 mV.	(Same)

FOR THE FOLLOWING AMPLIFIERS, TWO BIAS VALUES ARE GIVEN FOR TEMPERATURE: ONE FOR NON-OPTO BIAS CIRCUITS (IN PARENTHESIS), AND ONE FOR OPTO-BIAS (NO PARENTHESIS). TOLERANCE FOR ALL TEMPERATURES IS +/- 2 DEGREES CENTIGRADE.

AMPLIFIER	COLD START VALUE	FINAL TEMPERATURE
S/150	180 mV.	(42) 49 degrees
S/160	0.6A.	(-) 49 degrees
S/200	180 mV.	(42) 49 degrees
S/250	0.9A.	(-) 49 degrees
S/300	145 mV.	(42) 49 degrees
S/350	1.2A.	(-) 49 degrees
S/450	1.5A.	(-) 49 degrees
S/500	90 mV.	(42) 49 degrees
S/550	1.2A.	(-) 49 degrees
S/1000	1.2A.	(42) 49 degrees
S/1600	1.2A.	(42) 49 degrees
SA/1	125 mV.	(42) 49 degrees
SA/2	150 mV.	(42) 49 degrees
SA/3	250 mV.	(42) 49 degrees
SA/3.9E	2.1A.	(-) 49 degrees
SA/4E	2.1A.	(42) 49 degrees
SA/6E	1.7A.	(-) 49 degrees
SA/10E	1.4A.	(-) 49 degrees
SA/12E	1.1A.	(-) 49 degrees