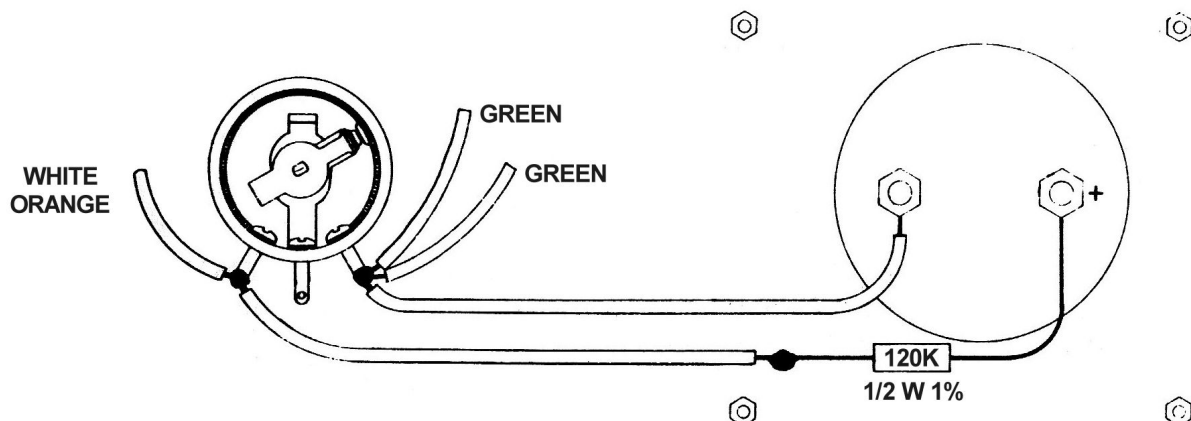


STARK ELECTRONIC INSTRUMENTS LIMITED

CALIBRATION PROCEDURE

BIAS CALIBRATION:

1. Turn the LINE ADJUST control to the OFF position.
2. Place the TEST switch on the TUBE position.
3. Plug the AC line connector into a 117 volt outlet (or 220 volt when required).
4. Switch on the LINE ADJUST control and while pressing down the LINE ADJUST push button P7 adjust the control for a meter reading at the LINE TEST mark on the meter.
5. Connect an accurate DC voltmeter of at least 2000 ohms per volt between the green wire (negative) and the white orange wire (positive) on the BIAS potentiometer P2, a voltage of approximately 35 to 50 volts is to be expected. If an accurate DC voltmeter is not available a 120K ohm $\frac{1}{2}$ watt 1% resistor is supplied to temporarily convert the meter of the 12-22 tester into an accurate voltmeter. Since the meter of the 12-22 has a sensitivity of 500 ua the addition of the 120K resistor in series with it will convert it into a 0 – 60 volt voltmeter, read on 6000 scale and divide by 100. Remove the two terminal lugs from the meter. Connect one end of the 120K ohm resistor to the positive terminal of the meter. Connect the other end to the white orange wire of the Bias control, using approximately 6 inches of insulated wire to extend the length of the resistor lead. Connect another piece of wire approximately 6 inches long between the negative terminal of the meter and the green wires of the Bias control. Make the connections so that they may be easily disconnected when the Bias Calibration is completed.



STARK ELECTRONIC INSTRUMENTS LIMITED

6. Adjust the sliding tap of R5 the 8500 ohm adjustable resistor until a voltage of 42 volts + or – 2% is obtained on the DC voltmeter.

IMPORTANT: While doing this calibration check the AC LINE TEST and reset if necessary.

CAUTION: Use an insulated screwdriver in order to avoid shorts with adjacent terminals.

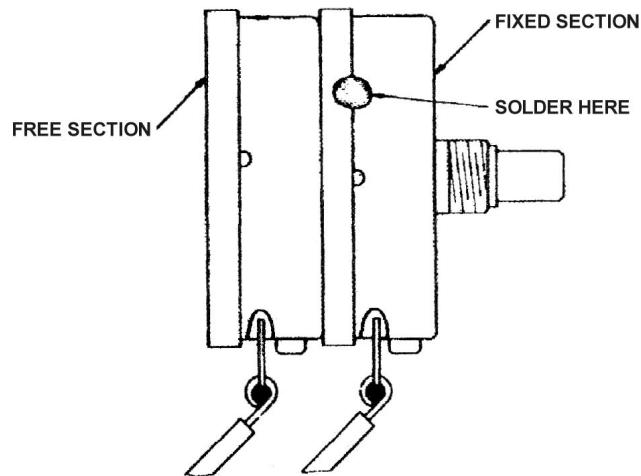
7. Check that the BIAS knob indexes at zero when it is in extreme counter clockwise position and correct if necessary.

B CALIBRATION OF THE DYNAMIC MUTUAL CONDUTANCE TEST:

1. Check that the ENGLISH knob indexes at zero when in the extreme counter clockwise position.
2. Set the controls and switches so as required to test a 50C5 tube as follows: FIL: 50.0 volts, SELECTORS: JR-2763-0, BIAS: 23, ENGLISH: 91.
3. Place the TEST switch on SHORTS position 1.
4. Place a calibrated 50C5 tube into the 7 pin miniature socket.
5. Rotate the TEST switch from positions 1 to 5 to check for shorts.
6. If the tube shows no shorts place the TEST switch on position TUBE.
7. While pressing down the LINE ADJ. Push button P7 adjust the LINE ADJUST control for a meter reading at LINE TEST.
8. Press P4 and while doing so rotate the rear portion of the ENGLISH dual potentiometer in order to obtain on the meter a full scale deflection of the pointer (graduation 3000-6000-15000).
9. Check that the knob is still set to 91 on the English dial.
10. Check again that the AC LINE TEST is correct, adjust if necessary.

STARK ELECTRONIC INSTRUMENTS LIMITED

11. Without disturbing the relative positions of the two English potentiometers secure them by soldering both sections as shown below.



12. Press P4 and rotate the English control so as to obtain a reading of 7500 micromhos (half scale) on the meter. The position found is the setting for the 15000 micromhos range. Using a pencil temporary mark the English dial.
13. With the English control set to the 15000 micromhos range rotate the Bias control until the meter indicates 6000 micromhos on the 15000 scale.
14. Now rotate the English control so that the meter indicates full scale or 6000 micromhos. The new position of the English control is the setting for the 6000 micromhos range. Mark the English dial as before.
15. With the English control set to the 6000 micromhos range rotate the Bias control until the meter indicates 3000 (half scale) on the 6000 scale.
16. Rotate the English control so that the meter indicates full scale or 3000 micromhos. This new position of the English control is the setting for the 3000 micromhos range, mark the dial as before.
17. Re-check that the AC line is correctly adjusted (see step 7) and repeat steps 12 to 16.
18. When you are sure that the calibration is correct the English dial is marked permanently using a steel centre punch or similar sharp instrument. Fill in the markings with red paint.

NOTE: The 3000 range should be located between graduations 70 and 80, the 6000 range between graduations 80 and 90 and the 15000 range between graduations 90 and 100.

STARK ELECTRONIC INSTRUMENTS LIMITED

VOLTAGE READINGS:

1. Set the selector switches to JR-2763-0. Set the BIAS control at 100, set the ENGLISH control at zero.
2. Set the TEST switch to TUBE position.
3. Adjust the AC LINE for a reading at LINE TEST.
4. Connect an AC voltmeter between pin #2 and pin #7 of the octal socket.
5. Rotate the Filament Voltage switch from OFF to 117.0. The following voltages should be obtained.

POSITION	AC VOLTAGE	POSITION	AC VOLTAGE
OFF	0	12.6	13
BLST	0	20	20.4
.6	.62	25	26
1.1	1.15	35	38
1.5	1.60	50	54
2.0	2.10	75	78
2.5	2.65	117	120.5
3.0	3.4		
4.3	4.4		
5.0	5.4		
6.3	6.5		
7.5	7.6		
10.	10.6		

6. Connect a DC voltmeter having an impedance of at least 2000 ohms per volt between pin #1 (negative) and pin #3 (positive) of the 8 pin octal socket. The voltage should read 42 VDC.
7. Set the Bias control to zero and connect an AC voltmeter between pin #1 and pin #3 of the 8 pin octal socket. The voltage should read 5 VAC.
8. Leaving the Bias control at zero connect a DC voltmeter between pin #3 and pin #8 of the 8 pin octal socket and press P4. The voltage should be 180 VDC. Rotating the Bias control to 100 should increase the voltage to 220 VDC.
9. Leaving the Bias control at zero connect a DC voltmeter between pin #3 and pin #6 of the 8 pin octal socket, press P4. The voltage should be 130 VDC. Rotating the Bias control up to 100 should decrease the voltage to 90 volt DC.
10. Set the Test switch on the Transistor Test. Connect a DC voltmeter between the diode positive and negative jacks. The voltage should be 10 volts.