8. ADJUSTMENTS

8.1 FM TUNER

Tuning coil in the FM front-end does not have an adjusting core. Consequently, tracking adjustments at 90MHz are performed by regulating the gap between the rotor and stator of the tuning capacitors (VC_1, VC_2, VC_3). The expression "adjust VC_1" (VC_2, VC_3) found in the text means that the two outer rotor blades of each of these tuning capacitors are to be extended outwards with spatula (Part No.: GGK-066) as shown in Fig. 8).

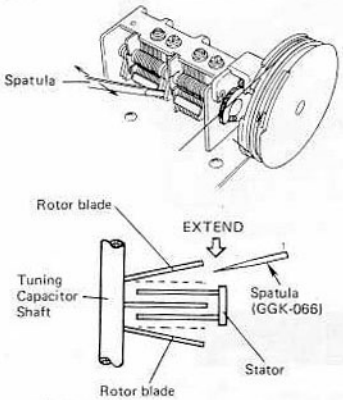


Fig. 8 Adjustment of the tuning capacitor

1. Connect the test instruments as shown in Fig. 10.
2. Set the FUNCTION switch to FM.
3. Turn the FM MUTING switch to OFF.
4. Set the dial pointer of the SX-880 to 106MHz.
5. Set the FM Signal Generator (FM SG) output to 60dB at 106MHz, with 100% modulation (±75kHz deviation) for 400Hz. This modulation setting should be used for all the following adjustments (section 6 to 23).
6. Adjust TC_3 to give the maximum reading on the SIGNAL meter of the SX-880.
7. Adjust the primary (lower) core of T_2 so that the TUNING meter indicator needle of the SX-880 reads dead center.
8. Set the FM SG output to 15dB.
9. Adjust TC_1 and TC_2 to give the maximum reading on the SIGNAL meter.
10. Set the SX-880 dial pointer to 90MHz.
11. Set the FM SG output to 60dB at 90MHz.
12. Adjust VC_3 for maximum reading on the SIGNAL meter.
13. Set the FM SG output to 15dB.
14. Adjust VC_1 and VC_2 so that the SIGNAL meter reading reaches a maximum.
15. Alternately repeat the adjustments of VC_3, VC_1 and VC_2 when the dial pointer is at 90MHz, and of TC_3, TC_1 and TC_2 when the dial pointer is at 106MHz, until adjustment at the one frequency requires no further readjustment at the other frequency.
16. Adjust the core of T_1 to give the maximum reading on the SIGNAL meter.
17. De-tune the SX-880 (to a position at which only inter-station noise is heard), and adjust the primary (lower) core of T_2 so that the TUNING meter indicator needle reads dead center.
18. Set the FM SG output to 60dB at 98MHz.
19. Tune the SX-880 to a dial reading of 98MHz and check that the TUNING meter is reading correctly at the center of meter scale.
20. Adjust the secondary (upper) core of T_2 to give a minimum level of distortion.
21. Repeat the steps detailed in section 17 to 20 for the adjustment of primary and secondary cores of T_2 until both requirements are fully satisfied.
22. Set the SX-880 dial indication and FM SG frequency for 98MHz.
23. Turn the FM MUTING switch to ON, and check the muting threshold. If the muting threshold is more than 28dB, cut the jumper lead N(Fig. 10).
24. Set the FM SG output to 106dB.
25. Adjust VR_{11} so that the SIGNAL meter reads 4.8 (80% of the distance between 4 and 5 on the scale, see Fig. 9).

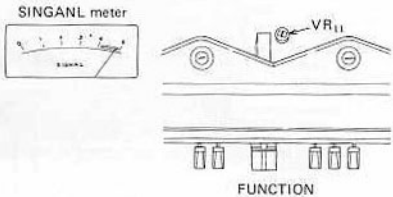


Fig. 9 SIGNAL meter calibration

Multiplex Decoder

26. Connect an Multiplex Signal Generator (MPX SG) to the external modulator terminal of the FM SG.
27. Connect the pilot signal (19kHz) output terminal of the MPX SG to the X-plates (horizontal input) of an oscilloscope, and use a probe to connect the Y-plates (vertical input) to the No. 23 terminal on the Tuner assembly.
28. Set the FM SG output to 66dB, unmodulated.
29. Adjust VR_1 to freeze the motion of the resulting Lissajous figure.

NOTE:
Lissajous figure adopts the general form shown in Figure 11 due to the fact that the MPX SG 19kHz pilot signal output is a sine wave, and the No. 23 terminal carries a 76kHz saw-tooth wave as determined by the adjustment of VR_1.

30. Turn the FM SG modulation mode setting to external modulation.
31. Set the MPX SG to pilot signal (19kHz) only (±7.5kHz deviation).
32. Adjust VR_2 so that an AC voltmeter (REC terminal) shows minimum reading (19kHz leak).
33. Adjust the MPX SG modulation setting to 1kHz, L+R, 90% modulation (±67.5kHz deviation), with 10% pilot modulation (±7.5kHz deviation).
34. Adjust the core of T_1 for minimum distortion in the 1kHz demodulated output from L or R channel.

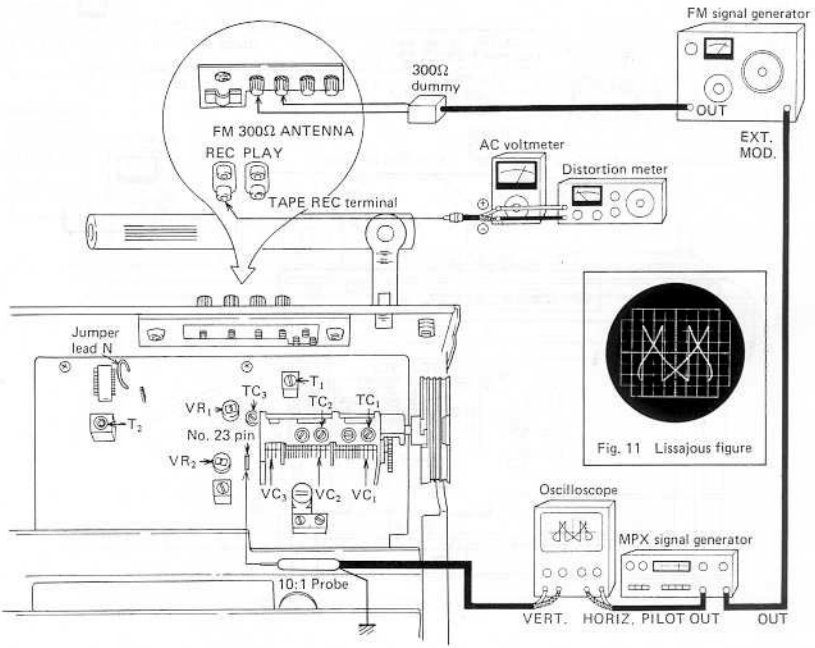


Fig. 10 Connection diagram for FM tuner adjustment

8.3 POWER AMPLIFIER

Turn VR_7(L) and VR_8(R) fully around in the counter-clockwise direction, but set VR_5(L) and VR_6(R) to the center positions. Without any load or input signal, turn the POWER switch ON.

DC Balance

Adjust VR_5(L) and VR_6(R) so that potential difference between terminals 5(L) and 12(R) and ground reads zero volts (to within ±30mV).

If this level cannot be attained, disconnect the jumper leads P(L) and Q(R) (or reconnect if already disconnected), and then readjust.

Idle Current

Adjust VR_7(L) and VR_8(R) so that the potential difference between the plus(+) terminals 8(L) and 14(R), and the minus (−) terminals 10(L) and 16(R) reads 30mV (or at least in the 20 to 40mV range).

After passing a current for about 10 minutes, check these voltage readings again.

Output Meter Calibration

1. Set the SPEAKERS A switch to ON, and connect an AC voltmeter to the SPEAKERS A terminals.
2. Set the BASS and TREBLE controls to the flat (center) position.
3. Set the FUNCTION switch to the AUX position, and apply a 1kHz, 150mV signal to the input terminals.
4. Adjust the VOLUME control for an AC voltmeter reading of 21.9V.
5. Adjust VR_9(L) and VR_{10}(R) for reading of 60W(0dB) at the output meter under this condition.

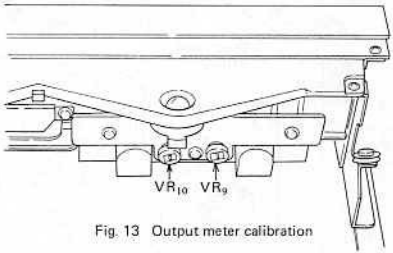


Fig. 13 Output meter calibration

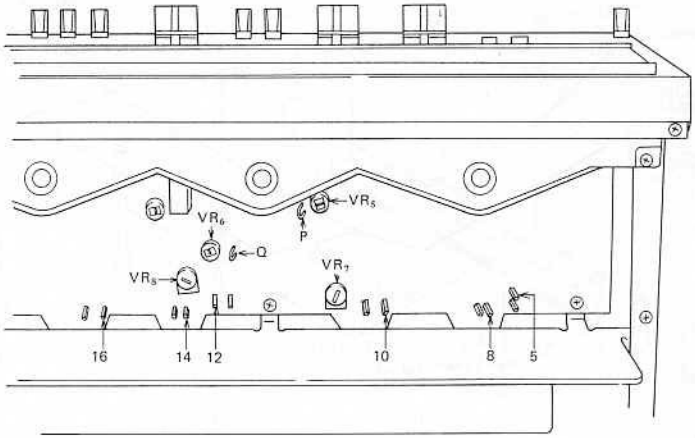
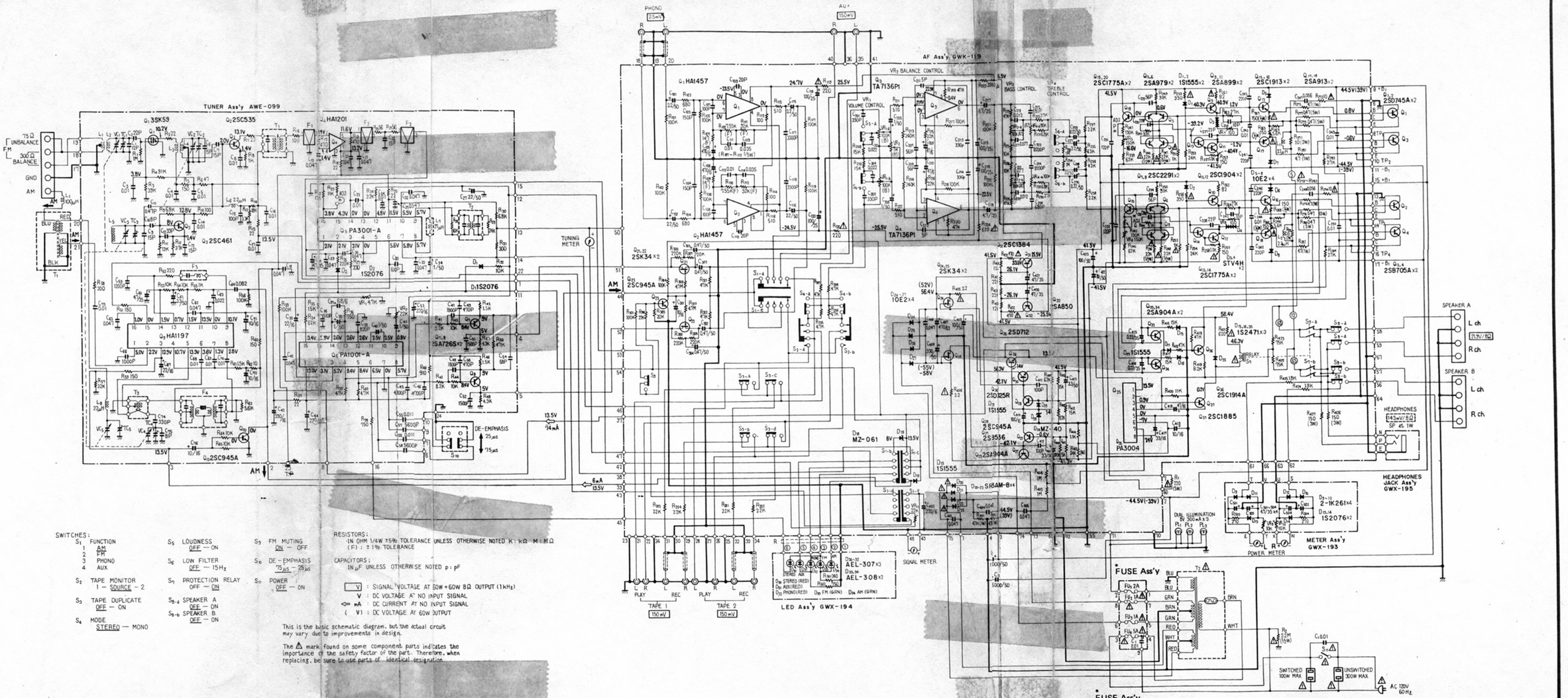


Fig. 14 Power amplifier adjustment

PIONEER

AM/FM STEREO RECEIVER

SX-880 KU, KC



SWITCHES:

- S_1 FUNCTION: 1 AM, 2 FM, 3 PHONO, 4 AUX
- S_2 TAPE MONITOR: 1 — SOURCE — 2
- S_3 TAPE DUPLICATE: OFF — ON
- S_4 MODE: STEREO — MONO
- S_5 LOUDNESS: OFF — ON
- S_6 LOW FILTER: OFF — 15Hz
- S_7 PROTECTION RELAY: OFF — ON
- S_{8-4} SPEAKER A: OFF — ON
- S_{8-5} SPEAKER B: OFF — ON
- S_9 FM MUTING: ON — OFF
- S_{10} DE-EMPHASIS: 75μs — 25μs
- S_{11} POWER: OFF — ON

RESISTORS:
1N OHM 1/4W ±5% TOLERANCE UNLESS OTHERWISE NOTED K: kΩ M: MΩ
(F): ±1% TOLERANCE

CAPACITORS:
IN μF UNLESS OTHERWISE NOTED p: pF

[V] : SIGNAL VOLTAGE AT 50W+50W 8Ω OUTPUT (1kHz)
V : DC VOLTAGE AT NO INPUT SIGNAL
<= mA : DC CURRENT AT NO INPUT SIGNAL
(V) : DC VOLTAGE AT 60W OUTPUT

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

The △ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

FUSE Ass'y
AWR-171 (UL-approved model)
AWR-174 (CSA-approved model)