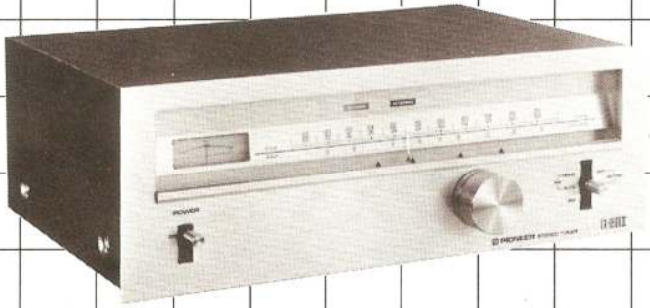


AM/FM STEREO TUNER

# TX-6500II

OPERATING INSTRUCTIONS

S  
S/G



TX-6500II is designed to operate from 110V, 120V, 220V or 240V main. Before turning on the power, please confirm the line voltage setting indicated on the rear of your unit corresponds to the supply voltage in your area; if not, change the setting as described in IMPORTANT-LINE VOLTAGE on page 3.

 PIONEER®

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## FEATURES

### Superb Selectivity FM Front End

Junction type FET (field effect transistor) and frequency linear 3-gang variable capacitor are utilized in the front end to achieve an exceptional effective sensitivity of  $1.9\mu\text{V}$ . Reliable performance is assured in both weak and strong signal locations.

### Highly Stable FM IF Section

A high density IC, which incorporates 3 differential amplifier stages, plus diode limiter and quadrature detector circuits, is used together with two dual element phase linear ceramic filters in the IF (intermediate frequency) amplifier section. By inserting a transistorized matching buffer amplifier between the ceramic filters, increased gain and phase response flatness are obtained, resulting in an outstanding effective selectivity of 60dB. Adjacent signal interference and even spurious signals at the same frequency as a desired station become strongly suppressed.

### Multiplex Circuit Includes Newly Developed IC

In order to obtain stable separation without adverse effects from ambient temperature and aging variations, the stereo demodulator includes a newly developed IC PLL (phase

locked loop) circuit. Beautiful stereo reception can be enjoyed with superb harmonic and intermodulation distortion characteristics. Since a low pass filter is built into the MPX circuit, carrier leakage becomes a remarkable  $-62\text{dB}$ . The significance of this specification is most apparent when tape recording FM programs.

### Advanced Performance AM Tuner

Selectivity and frequency response are improved by employing a high density IC and ceramic filter circuit in the AM tuner section. This IC functions uniformly under both strong and weak input signal conditions. The balanced type mixer circuit features excellent spurious characteristics and contributes to the enjoyment of refreshing AM programs even in strong signal locations.

### Effective FM Muting

Comfortable and noise-free FM station selection is ensured by the built-in muting circuit which blocks pop noise and interstation noise during tuning knob operation. The circuit also is designed to eliminate click noise when operating the power and function switches.

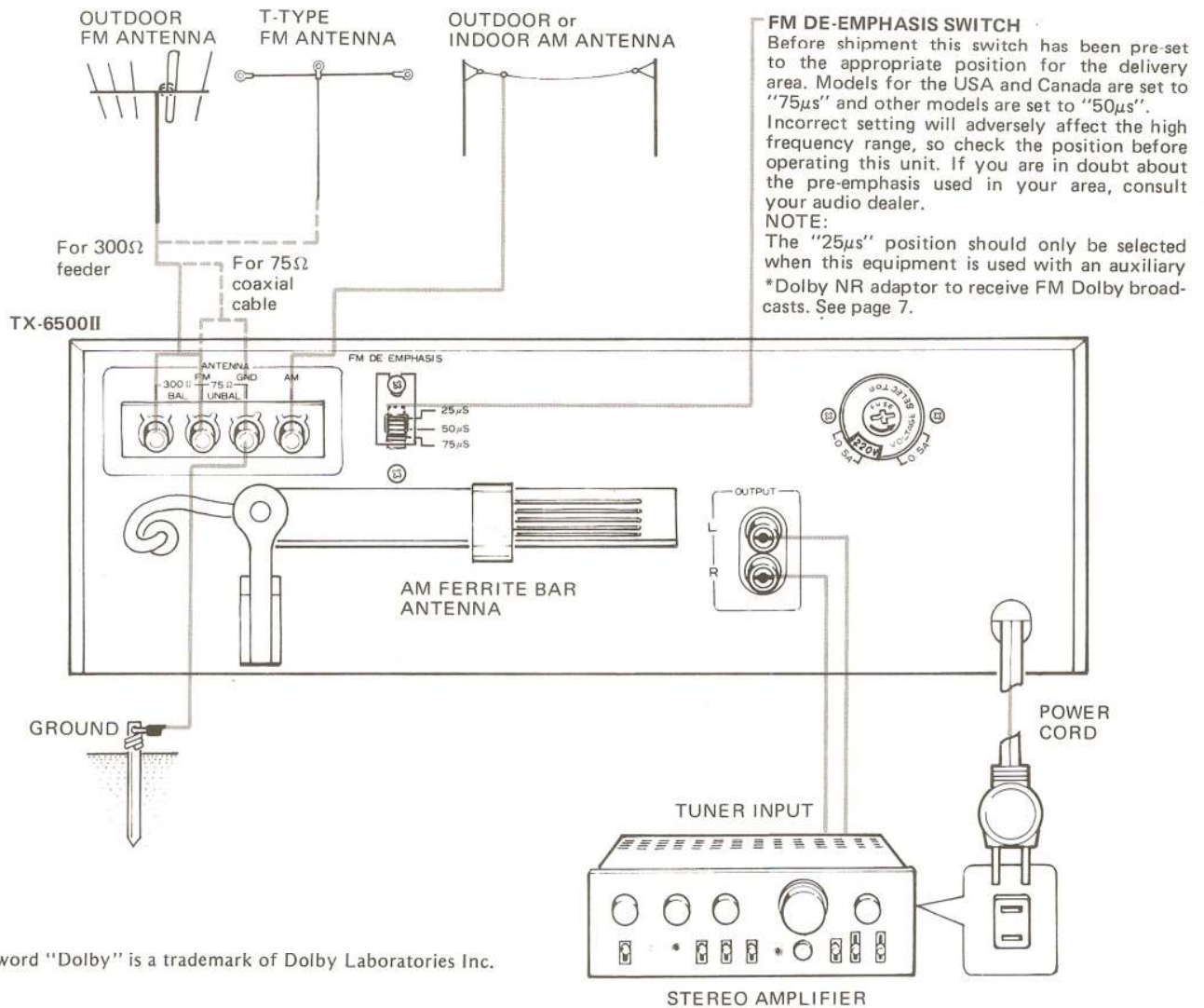
## INSTALLATION CAUTIONS

To ensure long term reliable performance, avoid installing the TX-6500II in locations such as the following:

Locations to be avoided	Possible detrimental effects
<ul style="list-style-type: none"> <li>● Direct sunlight, radiators or other heat sources. Above or near high power stereo amplifiers or power transformers.</li> <li>● Sites subject to poor ventilation, high humidity or moisture.</li> <li>● Dusty locations</li> <li>● Where AM radio or TV set is being used simultaneously.</li> <li>● Locations where alcohol, insect sprays or volatile materials are used or stored.</li> </ul>	<ul style="list-style-type: none"> <li>● External heating can cause deterioration of circuit components and may prevent stable operation.</li> <li>● Corrosion of terminal contacts which can lead to faulty connections. Humidity and moisture can also cause defective insulation, present the risk of leakage currents and overheating of circuit components.</li> <li>● Internal accumulations of dust can absorb moisture and lead to faulty insulation.</li> <li>● Mutual interference can occur from oscillator circuits used in these products.</li> <li>● Appearance and finish of front panel can be damaged.</li> </ul>



# CONNECTION DIAGRAM



## IMPORTANT-LINE VOLTAGE

Before using this unit, be sure that the rear panel line voltage selector switch has been set to match your household AC power line voltage. If necessary to change the switch setting, proceed according to the steps below.

1. Disconnect the A.C. mains cord.
2. Use Phillips screwdriver to unscrew fuse cap, then take out fuse and SELECTOR plug (Fig. A).
3. Reinstall the SELECTOR plug so that its cut out section exposes the voltage indication of the SELECTOR socket which corresponds to your household AC power line.
4. Insert fuse in fuse cap, then install cap to plug and tighten.

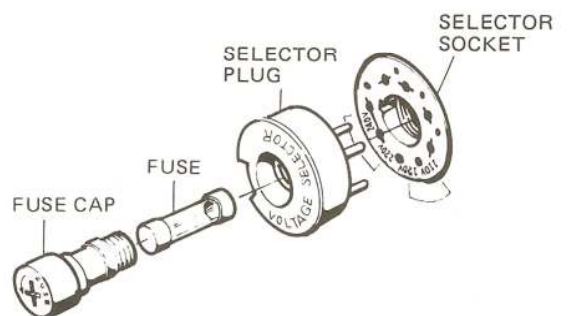


Fig. A

# STEREO SYSTEM COMPOSITION

As illustrated in the figure, AM and FM broadcasts can be enjoyed by combining this unit with separately sold stereo amplifier and speaker systems. Also, by connecting a separately sold tape deck (open reel or cassette) to the stereo amplifier, desired programs can be recorded, enabling you to compile a personalized tape library of your favorite music.

## CONNECTION

### CONNECTIONS TO STEREO AMPLIFIER

Use the accessory connecting cords to connect the OUTPUT jacks with the tuner jacks of a stereo amplifier.

#### Connection Notes

- Upper jack is for the left (L) channel and lower jack for the right (R) channel. As stereo amplifiers are also provided with L and R channel jacks, use care to connect the channels correctly (L to L and R to R) in order to obtain proper stereo reproduction.
- Plug connecting cords firmly into the jacks. Loose connections can cause absence of sound or noise.
- Do not bundle input and output cords with power and speaker cords. Also avoid using longer cords than necessary. These practices can result in noise, impaired sound quality and possible operating difficulties.

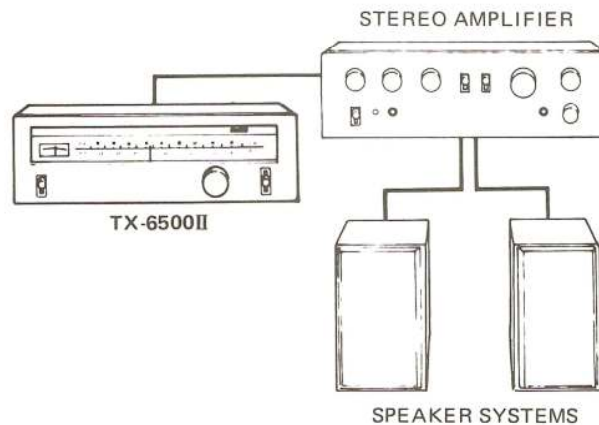


Fig. 1

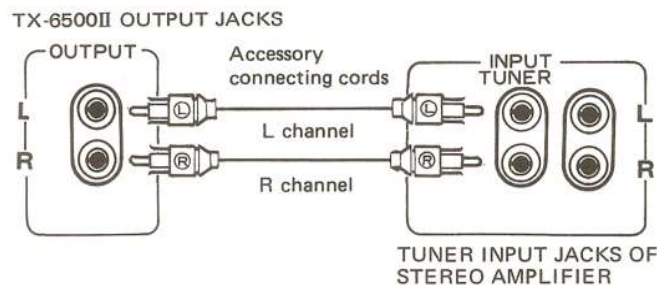


Fig. 2

# ANTENNA AND GROUND CONNECTIONS

## FM ANTENNA

Due to the properties of FM signals, they are considerably weakened by mountains, tall buildings and metal framed structures. Select the FM antenna carefully according to ambient conditions and signal strength.

### Outdoor FM Antennas

An outdoor FM antenna is recommended to obtain an input signal with which the TX-6500II can display its full performance capabilities.

- While listening to an FM station (see FM Reception on Page 6), determine the antenna direction for optimum reception, than install it securely.
- According to type of antenna, employ 300ohm feeder or 75ohm coaxial cable for connection.

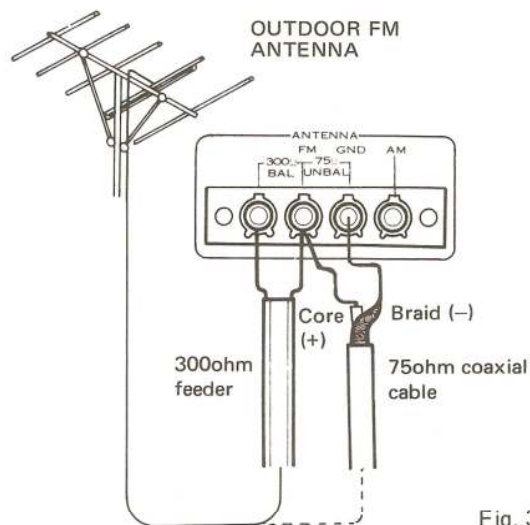


Fig. 3



**300ohm feeder:** This is suitable in locations where external noise is not a problem and if the distance between the antenna and the TX-6500II is short. Connect to the 300ohm BAL terminals as shown in Fig. 3.

**75ohm coaxial cable:** Recommended in locations where external noise is incurred due to street traffic, high voltage power lines or other causes. Also employed if distance between antenna and TX-6500II is relatively large. Connect to the 75ohm UNBAL terminals as shown in Fig. 3.

**NOTE:**

Consult a reliable audio dealer regarding FM antenna and 75ohm cable installation.

**T Type Dipole FM Antenna**

The accessory T type FM antenna can be employed in locations where FM signals are strong, such as those near transmitting stations or within wooden structures. As shown in Fig. 4, connect the T type FM antenna to the 300ohm BAL terminals. While listening to FM stations, open the antenna to a T shape, rotate it 180° to determine where the best reception is obtained, then attach it to a wall or ceiling.

**AM ANTENNAS**

While listening to AM stations (see AM Reception on Page 6), move the rear panel ferrite bar antenna and position it for best reception.

- In cases when the bar antenna is insufficient for adequate reception, an indoor AM antenna can be made from a length (5 to 6 meters) of vinyl insulated wire. As shown in Fig. 4, connect one end of the wire to the AM antenna terminal and suspend the free end from a wall or ceiling at as high a location as possible.
- If reception is still difficult with an indoor antenna, use vinyl insulated wire to erect an outdoor AM antenna between two supports as shown in Fig. 6.

**GROUNDING**

From aspects of both safety and reduced noise, if possible employ a ground as shown in Fig. 6. Connect the ground lead to the GND terminal of the TX-6500II. Consult a qualified electrician regarding proper grounding techniques.

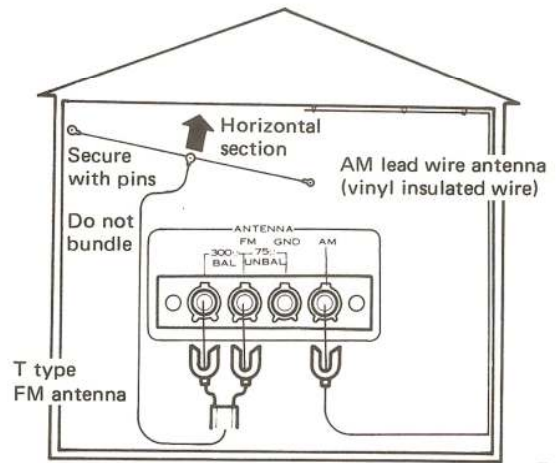


Fig. 4

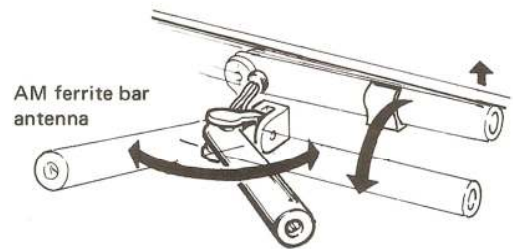


Fig. 5

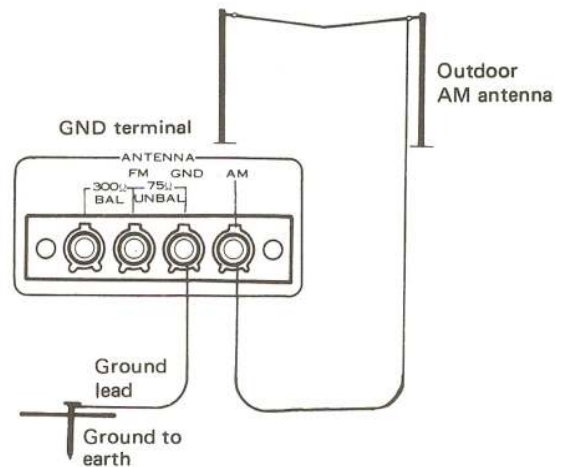


Fig. 6

# FRONT PANEL FACILITIES

## POWER SWITCH

Set to ON to turn on power.

## AM/FM METER

Meter indicates receiving conditions.

AM reception: Optimum tuning point is where maximum deflection toward the right is obtained.

FM reception: Optimum tuning point is where meter indicates center of scale.

## STEREO INDICATOR

With FUNCTION switch at FM AUTO, lights when FM stereo signal is being received.

## FUNCTION SWITCH

Switch for selecting type of broadcast reception. Incorporates muting switch for cutting interstation noise.

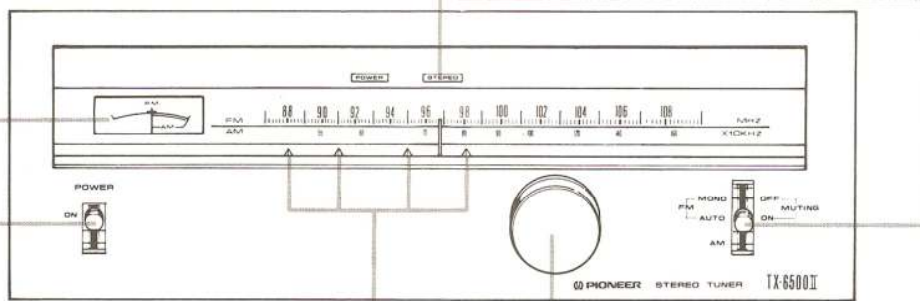
FM AUTO (MUTING ON): FM stereo reception. Automatically switches to mono mode when an FM mono signal is received.

FM MONO (MUTING OFF): FM mono reception. Set to this position if reception at FM AUTO position is noisy or signals weak.

AM: AM broadcast reception.

### NOTES:

- **MUTING ON:** Eliminates unpleasant noise in sections of the FM band where stations are absent (interstation noise) to allow comfortable station tuning.
- **MUTING OFF:** Set to this position if desired FM station is weak or station tuning difficult.



## MEMORY MARKERS

Convenient for designating most often tuned in stations. Slide markers with fingertip to desired positions.

## TUNING KNOB

Knob for selecting stations. Turn knob while observing AM/FM meter deflection.

# LISTENING TO BROADCASTS

## FM RECEPTION

1. Set FUNCTION switch to FM AUTO.
  2. Turn TUNING knob to select desired station. Tune so that AM/FM meter indicates center of scale, as shown in Fig. 7.
  3. Adjust volume and tone with the controls of the connected stereo amplifier.
- FM STEREO indicator lights when an FM stereo signal is being received. It does not light during mono reception.

### NOTE:

If reception is difficult in FM AUTO mode, switch to FM MONO. At this setting, monophonic reception will be performed.

**FM stations:** Meter indicates center when FM station is absent. As the tuning knob is turned and a station approached, the meter deflects toward the right or left. Then when the station is correctly tuned in, it returns to center position.

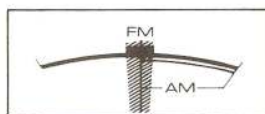


Fig. 7

## AM RECEPTION

1. Set FUNCTION switch to AM.
2. Turn TUNING knob to select desired AM station. Adjust the knob for maximum deflection of the AM/FM meter toward the right, as shown in Fig. 8.
3. Adjust volume and tone with the controls of the connected stereo amplifier.

**AM stations:** When selecting AM stations, carefully turn the TUNING knob for maximum deflection of the AM/FM meter toward the right, as shown in the figure.

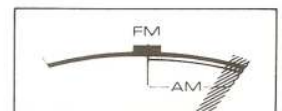


Fig. 8

### NOTE:

If reception is noisy or difficult when listening to AM or FM broadcasts, refer to "Antenna and Ground Connections" on Page 4 and inspect antenna connections.



### FM-DOLBY RECEPTION

The FM DE-EMPHASIS switch is provided to allow reception of FM-Dolby broadcasts in locations where these programs are being transmitted. A separately sold adaptor must be connected to the stereo amplifier in this case, then proceed according to the following steps.

1. As shown in Fig. 9, connect Dolby NR adaptor to the tape (record & play) jacks of the stereo amplifier.
2. Set rear panel FM DE-EMPHASIS switch to 25 $\mu$ s.
3. Set tape monitor switch of stereo amplifier to ON.
4. Set FUNCTION switch to FM and use the TUNING knob to tune in FM-Dolby broadcast. Tuning is performed in the same manner as described in "FM Reception".
5. Operate adaptor and set for reception. Adjust volume and tone with the controls of the stereo amplifier.

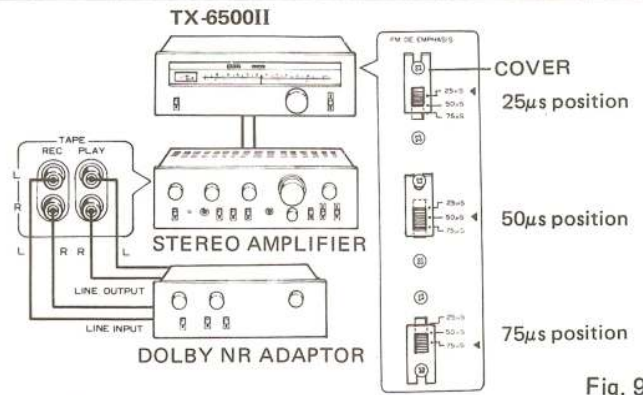


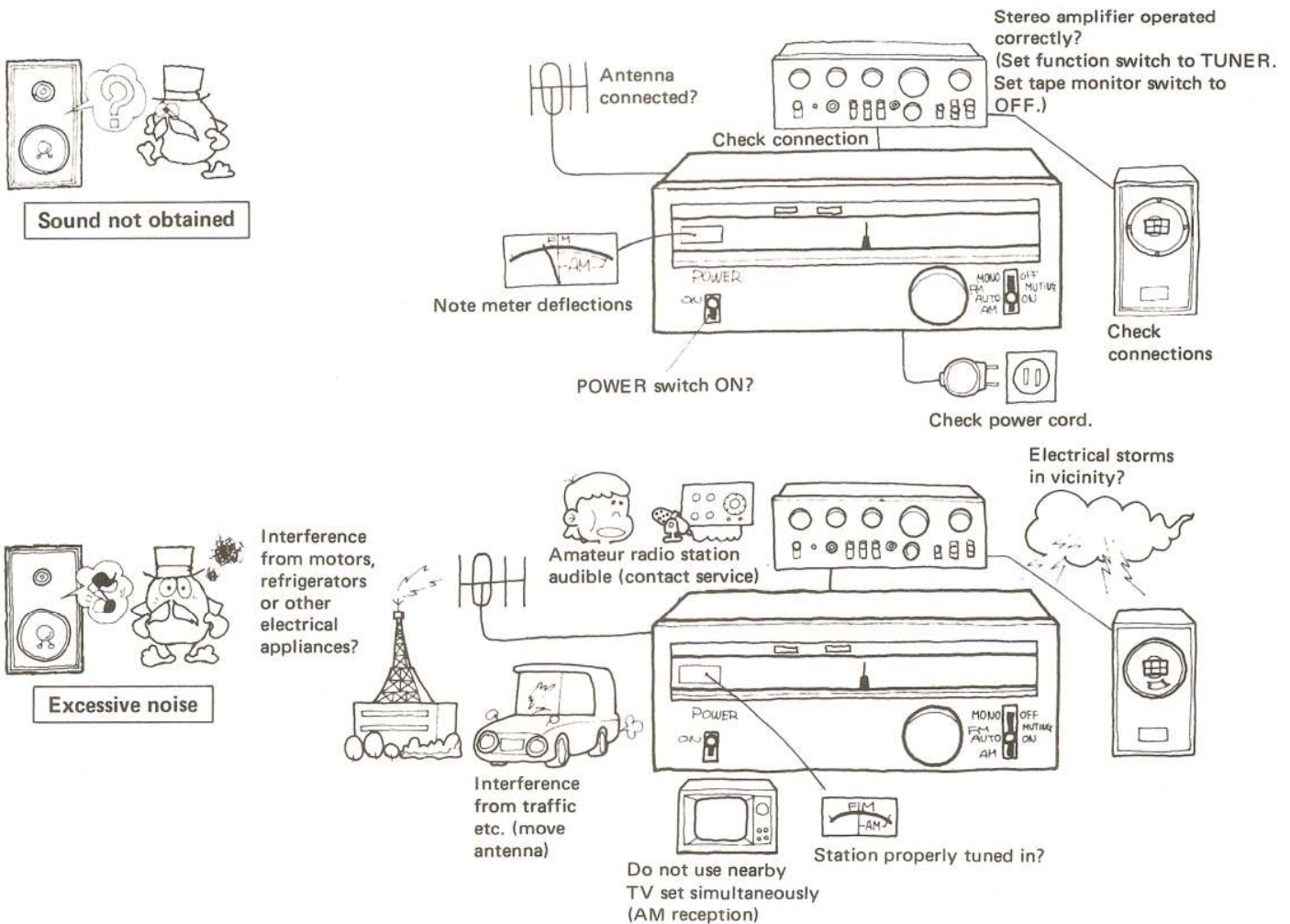
Fig. 9

**NOTES:**

- Refer to the Dolby NR adaptor operating instructions regarding connection and operation.
- When not listening to FM-Dolby broadcasts, be sure to set the FM DE-EMPHASIS switch to 50 $\mu$ s or 75 $\mu$ s.

## CONDITIONS FREQUENTLY MISTAKEN FOR MALFUNCTION

Most cases of operating difficulty can be attributed to simple causes. In event of trouble, check equipment according to the following chart. If the difficulty cannot be remedied, contact your nearest Pioneer Authorized Service Center.



# SPECIFICATIONS

## Semiconductors

FET	1
ICs	3
Transistors	7
Diodes	9

## FM Section

Circuitry . . . . . 1 FET, 1-stage RF Amplifier  
3-gang variable capacitor, 5-  
stage limiter, PLL MPX.

Usable Sensitivity . . . . . Mono: 10.7dBf (1.9μV)

50dB Quieting Sensitivity . . Mono: 14dBf (2.8μV)

Stereo: 38dBf (44μV)

### Signal to Noise Ratio

at 65dBf . . . . . Mono: 75dB

Stereo: 68dB

### Distortion at 65dBf:

100Hz . . . . . Mono: 0.15%

Stereo: 0.3%

1kHz . . . . . Mono: 0.15%

Stereo: 0.3%

10kHz . . . . . Mono: 0.2%

Stereo: 0.6%

Frequency Response . . . . . 30Hz to 10kHz  $\pm 0.2$ dB

20Hz to 15kHz  $\pm 0.2$ dB

-1.0

Capture Ratio . . . . . 1.0dB

### Alternate Channel

Selectivity . . . . . 60dB

Spurious Response Ratio . . . 75dB

Image Response Ratio . . . . . 60dB

IF Response Ratio . . . . . 90dB

AM Suppression Ratio . . . . . 50dB

Muting Threshold . . . . . 10dBf (1.7μV)

Stereo Separation . . . . . 40dB (1kHz), 30dB (30Hz to

15kHz)

Subcarrier Product Ratio . . . 62dB

SCA Rejection Ratio . . . . . 62dB

Antenna Input . . . . . 300ohms balanced

75ohms unbalanced

## AM Section

Circuitry . . . . . 1-stage RF amplifier, 2-gang  
variable capacitor

### Sensitivity:

(IHF, Ferrite antenna) . . . 300μV/m

(IHF, Ext. antenna) . . . . 15μV

Selectivity . . . . . 35dB

Signal to Noise Ratio . . . . . 50dB

Image Response Ratio . . . . . 40dB

IF Response Ratio . . . . . 70dB

Antenna . . . . . Built-in ferrite loopstick an-  
tenna

## Audio Section

### Output Level/Impedance:

FM . . . . . 650mV/4.6kΩ (100% MOD)

AM . . . . . 150mV/5.4kΩ (30% MOD)

## Miscellaneous

Power Requirements . . . . . AC 110V, 120V, 220V, 240V  
(Switchable) 50/60Hz

Power Consumption . . . . . 14W

Dimensions . . . . . 380(W)x139(H)x322(D)mm

15x5-1/2x12-11/16in.

Weight: Without package . . . 5.6kg (12lb 5oz)

With package . . . . . 6.8kg (14lb 15oz)

## Furnished Parts

FM T-type Antenna . . . . . 1

Connection Cord with Pin Plugs . . . . . 1

Hex. Wrench (used for fastening TUNING knob) . . . . . 1

Operating Instructions . . . . . 1

Fuse . . . . . 0.5A; 1

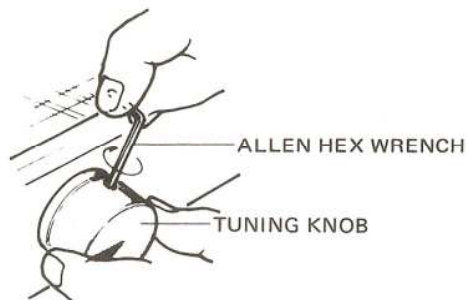
### NOTE:

*Specifications and the design subject to possible modifica-  
tion without notice due to improvements.*

## ALLEN HEX WRENCH

The accessory Allen hex wrench is provided for removing the TUNING knob or tightening its set-screw in event it becomes loose.

If required, loosen the setscrew by inserting the wrench into the hole on the side of the knob and turning the wrench counterclockwise. Be particularly careful not to scratch the front panel when employing the wrench.



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