

Operating Instructions

STEREO TUNER F-9

HE, HB
S, S/G



Thank you for buying this Pioneer stereo tuner. Please read through these operating instructions and then you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

These operating instructions are based on the model HE, and they can be used for the HB, S and S/G models. The differences between the models are given below.

Power Requirements

HB model:

For U.K. ('HB' stamped on packing case): Power line voltage is 240 volts.

HE model:

For mainland Europe ('HE' stamped on packing case): Power line voltage is 220 volts.

S, S/G models:

For destinations excluding above ('S' or 'S/G' stamped on packing case): A 4-point (110 V/120 V/220 V/240 V) voltage selector switch is provided on the rear panel.

NOTE:

Models for the U.K. ('HB'), and mainland Europe ('HE'), and other destinations ('S, S/G') have their power line voltages set in accordance with their destination before they are shipped from the factory. The voltage which has thus been set is indicated on the rear panel of the main unit.

Before switching on the power, make absolutely sure that the voltage tallies with the value used in your area. If it does not tally or if you move to another area with a different voltage (such from 220 V to 240 V or vice versa), get in touch with your nearest authorized Pioneer Service Center or Service Station or, alternatively, call for a qualified electrician to set the voltage properly.

Rear panel

S, S/G models:

The LINE VOLTAGE SELECTOR switch (110 V ↔ 120 V ↔ 240 V ↔ 220 V), AM STEREO OUTPUT JACK, AM CHANNEL STEP switch (9 kHz ↔ 10 kHz) and FM DE-EMPHASIS switch (50 μs ↔ 75 μs) are located on the rear panel. Set these switches to the positions corresponding to the conditions of operation in the area where the unit is to be used. (For details, refer to the section entitled "Rear panel switches" on page 2.)

HE, HB models:

The switches which are featured on the S and S/G models are not provided on the HE and HB models.

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IMPORTANT

[For HB model]

To prevent electric shock, do not remove cover. No user serviceable parts inside, refer servicing to qualified service personnel. Always disconnect all the equipment from the mains supply when disconnecting the signal leads. The power cord should be connected last, make sure that the power switch is off. Unplug the set from the wall socket when it is not to be used for an extended period of time.

FOR USE IN UNITED KINGDOM AND AUSTRALIA

CAUTION 240 V: Mains supply voltage is factory adjusted at 240 V.

FOR USE IN UNITED KINGDOM

The wires in this mains lead are coloured in accordance with the following cord:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

REAR PANEL SWITCHES

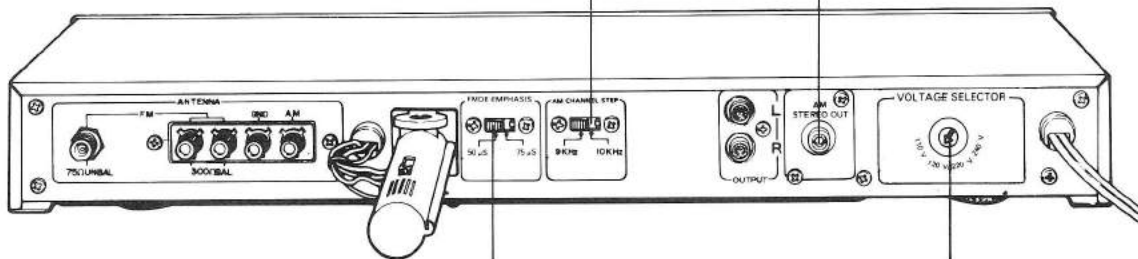
[For S, S/G models]

AM CHANNEL STEP SWITCH

This switch is normally set to the 9 kHz position. Set it to the 10 kHz position when the channel allotment plan is changed and the intervals between the AM broadcasting stations change from 9 kHz units to 10 kHz units.

AM STEREO OUTPUT JACK

This jack is for AM stereo broadcasts. When listening to the AM stereo broadcasts, connect the adaptor component to this jack. For further details, refer to the operating instructions of the AM stereo adaptor component.



FM DE-EMPHASIS SWITCH

This switch is used to select the de-emphasis value. Before the receiver leaves the manufacturing plant, it is set to the de-emphasis of the receiver's destination. For the United States and Canada, it is set to 75 μs, and for other countries to 50 μs. Check that the switch is set properly before use. If the switch is set to the wrong position, the high-frequency range sound will appear distorted during the reception of an FM broadcast. Contact your dealer and inquire if you are not sure about the de-emphasis in your area.

LINE VOLTAGE SELECTOR SWITCH

Check that the indication of the switch is same as your residence area before plugging the power cord into the outlet. If it isn't or if you move to an area where the voltage requirements differ, change the switch setting as follows. Before adjusting, disconnect the power cord.

1. Prepare a medium size screwdriver.
2. Insert the screwdriver into the arrow on the voltage selector and adjust so that the tip of the arrow points to the voltage value of your area.

FUNCTIONS OF THE UNIT

Slim and easy-to operate FM/AM stereo tuner

All the control switches which are not normally used are housed behind a movable panel at the left while the switches which are used regularly are positioned on the right for neat identification. The indicators are grouped together at the center so that the operation and operational mode can be distinguished at a glance. The whole design has been given a slim format which has a refreshing effect on the eyes.

Fingertip-controlled preset tuning function for instant station recall

One FM and one AM broadcasting station can be programmed into each of the station switches (1 through 6). (You can thereby program six FM and six AM stations in all.) When tuning in one of your favorite stations, all you have to do is depress the corresponding station switch (1 through 6) and the station which has been programmed in that switch is recalled instantly.

AUTO/MANUAL tuning mode selection

When you pick up a signal from a broadcasting station, you can select the automatic tuning system which automatically stops the tuning operation or the manual tuning system which permits tuning while the tuning switches are depressed regardless of the signal picked up. This facilitates tuning operations in the preset mode and the tuning of stations which have not been preset.

WIDE/NARROW reception IF bandwidth selection

This tuner is provided with a facility that enables selection between a wide band reception system that yields a sound

reproduction geared to high sound quality without distortion and a narrow band reception system that eliminates interference signals when the effect of too many broadcasting stations near the one whose signals are being received makes reception "muddy" and that makes for interference-free reception as a result.

Built-in reference signal generator for FM recording

When the REC LEVEL CHECK (recording level check) switch is set to the ON position, a reference signal (frequency: 330 Hz; level: 50% modulation) for FM broadcast recording is fed out. The optimum recording mode can easily be obtained by setting the recording level of the tape deck with this reference signal.

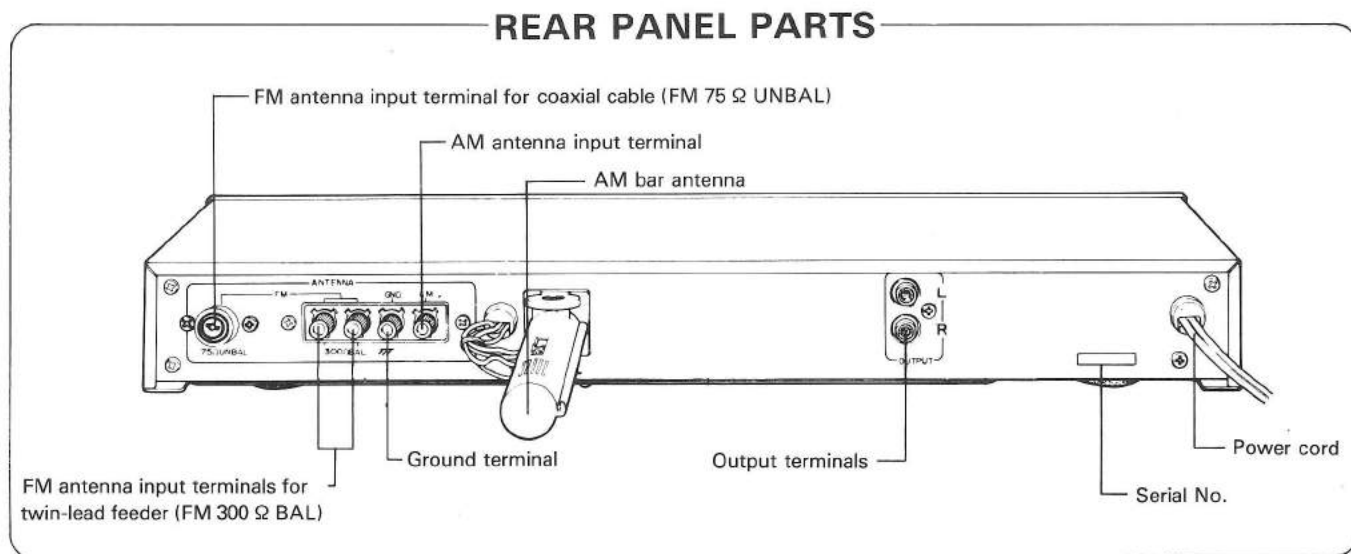
Multipath indicator to warn of multipath distortion

This indicator warns of the presence of multipath distortion by lighting up. Therefore, when installing the FM antenna, it is easy to find the optimum direction of the antenna for the best reception simply by observing whether this indicator has lighted or not.

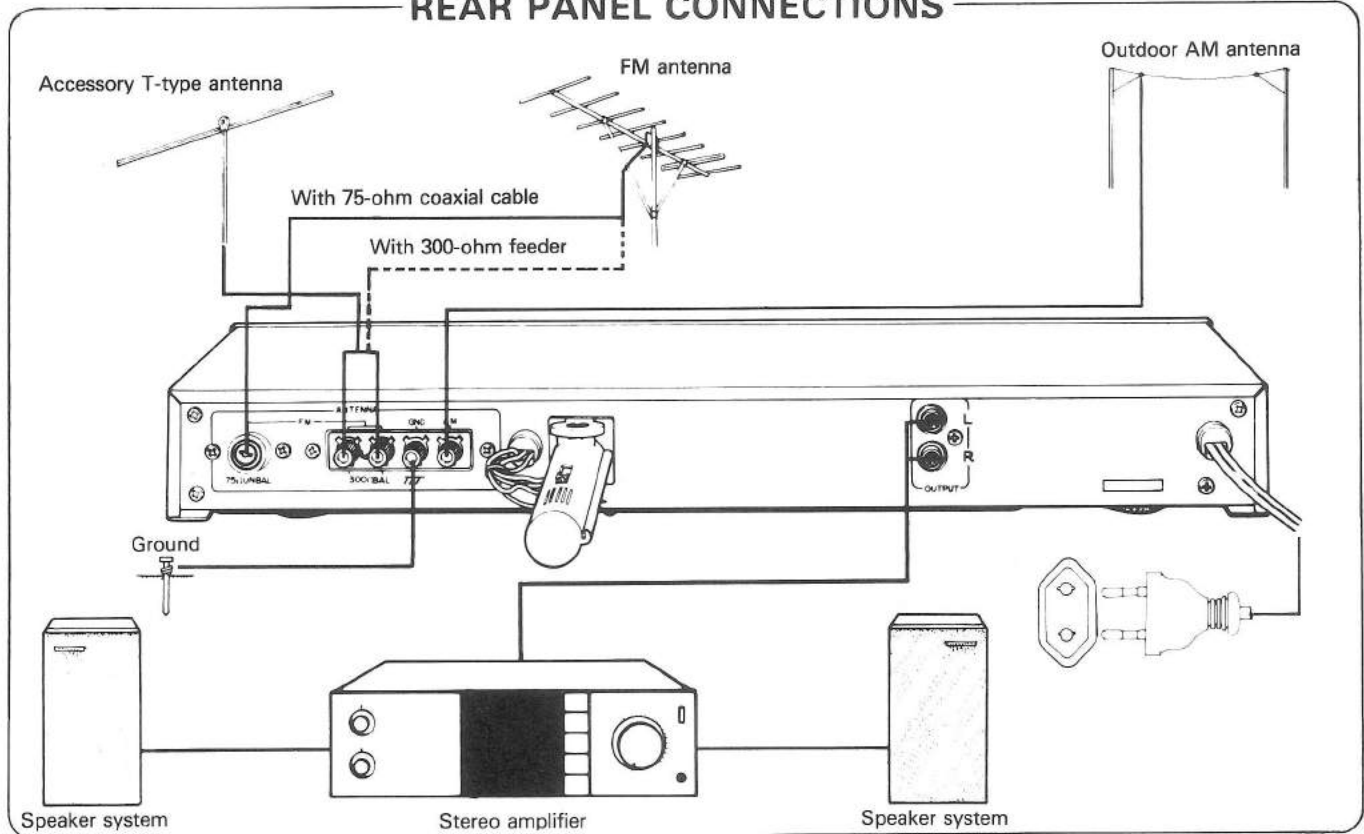
Wide range of operation and mode indicators

The station card that displays the frequency of the programmed stations, the frequency display that indicates the frequency of the broadcasting station tuned in or the type of station and the various indicators that show FM stereo stations and the strength of the picked-up signal are all grouped together in the center for easy identification. This makes it easy to check the operation and mode at any point in time.

REAR PANEL PARTS AND CONNECTIONS



REAR PANEL CONNECTIONS



FM ANTENNA CONNECTIONS

A 300-ohm twin-lead feeder or a 75-ohm coaxial cable may be used to connect the FM antenna to the antenna input terminals.

It is recommended that a 75-ohm coaxial cable be used in order to do full justice to the performance of the tuner (RG59U, etc.). This cable can prevent extraneous interference much more efficiently than the twin-lead feeder. If you have already installed an FM antenna outdoors, connect the antenna as described below. Refer to page 6 for installing the antenna.

Connection with the coaxial cable

The HE, HB model and S and S/G models have different FM antenna input terminals for coaxial cable connections. Proceed with the connections, following the instructions applying to the model concerned.

HE, HB models

Refer to figure and follow the procedure. Prepare the tip of the coaxial cable and connect it to the antenna input terminals (75 Ω UNBAL).

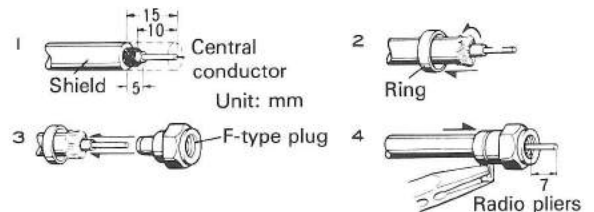
S, S/G models

1) Attach the accessory F-type plug to the end of the coaxial cable. Shape the end of the cable following the sequence shown in the figure.

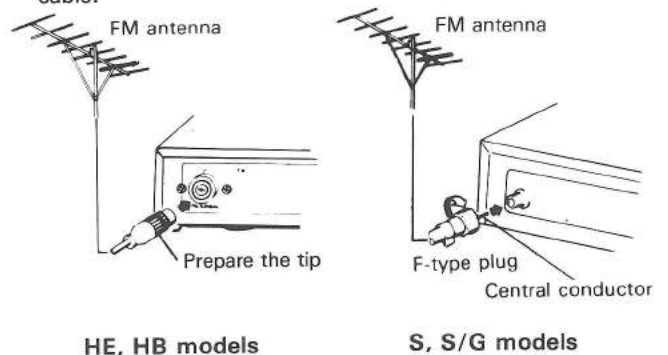
Attaching the F-type plug

1. Strip the coaxial cable's covering.
(Solder the central conductor if it is a stranded wire.)

2. Pass the accessory ring over the coaxial cable and bend back the shield.
3. Insert the F-type plug between the shield and the central conductor.
4. Cut off the projecting shield and tighten the ring.

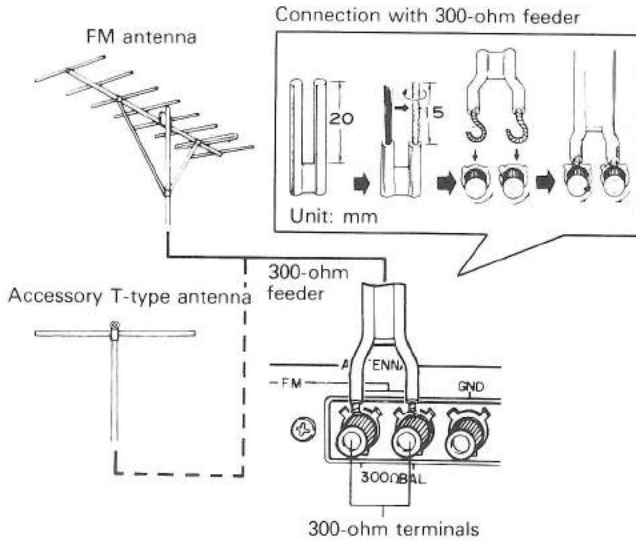


- 2) After having shaped the cable, connect it to the antenna input terminal for the coaxial cable (FM 75 Ω UNBAL). Take care not to bend the central conductor when anchoring the cable.



Connection with 300-ohm twin-lead feeder or accessory T-type antenna

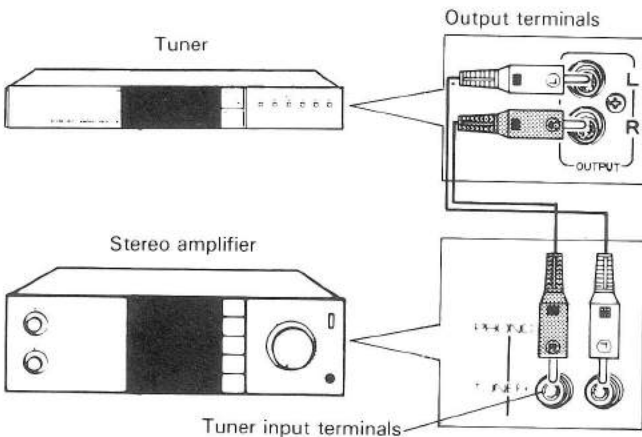
Shape the ends of the twin-lead feeder and attach to the antenna input terminals (300 Ω BAL). Make the feeder as short as possible and do not bundle it or let it run loose on the floor.



Accessory T-type antenna
 This antenna is designed to allow you to pick up FM broadcasts easily in strong FM signal areas until you install an FM antenna. Spread the two ends of the antenna horizontally, rotate it to the left or right, move it up or down and anchor it to the wall or ceiling at the position that provides the best reception.

CONNECTIONS TO STEREO AMPLIFIER

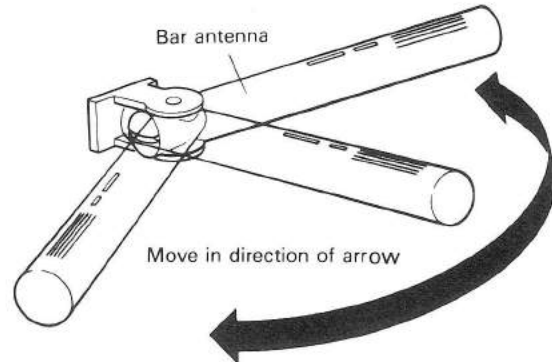
Connect the stereo amplifier's TUNER terminals to the model's OUTPUT terminals using the accessory connecting cords. Make absolutely sure that the stereo amplifier's power has been switched off when connecting. Check the "L" and "R" channel markings on the model and on the stereo amplifier and connect the plugs securely.



AM ANTENNA CONNECTION

Built-in antenna

This model comes with a ferrite bar antenna on its rear panel, and so a special AM antenna is not required if reception is satisfactory with this antenna. Listen to an AM broadcast and then move the bar antenna in the direction which yields optimum reception.



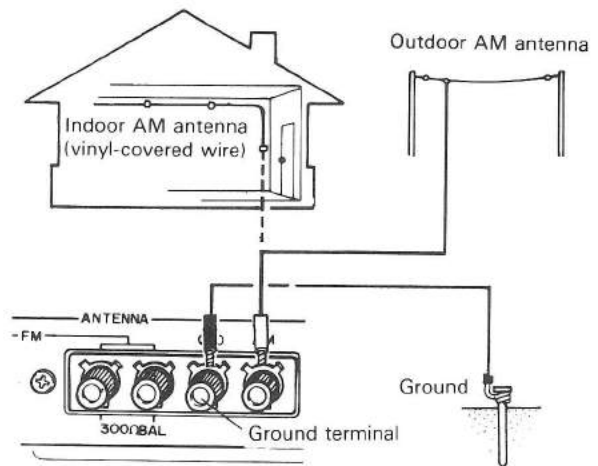
If it still proves difficult to pick up programs even when the bar antenna is moved, connect an indoor or outdoor antenna to the AM antenna input terminal (AM).

AM indoor antenna

Provide yourself with a length of vinyl-covered wire (5 or 6 meters), connect one end to the AM terminal and the other end to a high position on a wall, etc.

AM outdoor antenna

If it still proves difficult to pick up programs even when an indoor AM antenna is used, erect a vinyl-covered wire outdoors as shown in the figure.



GROUNDING

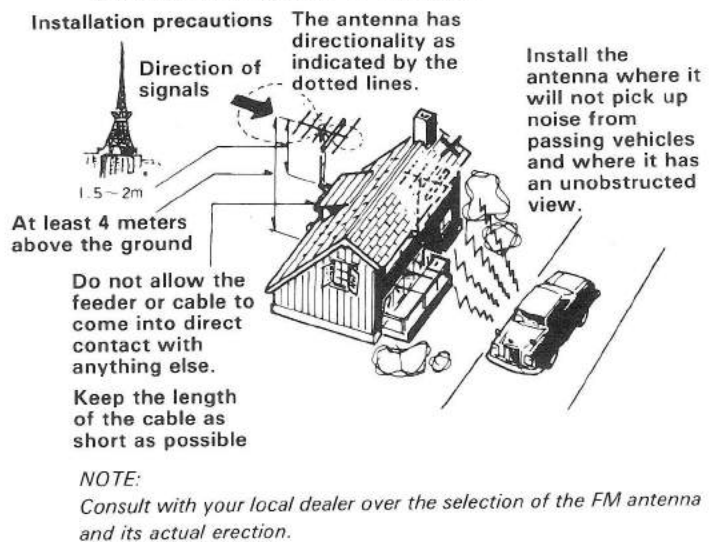
Broadcasts can be picked up even without grounding but wherever possible it is advisable to connect the ground wire to ground in the interests of safety and noise suppression. Never connect this wire to a gas pipe since this is very dangerous.

INSTALLING AN FM ANTENNA

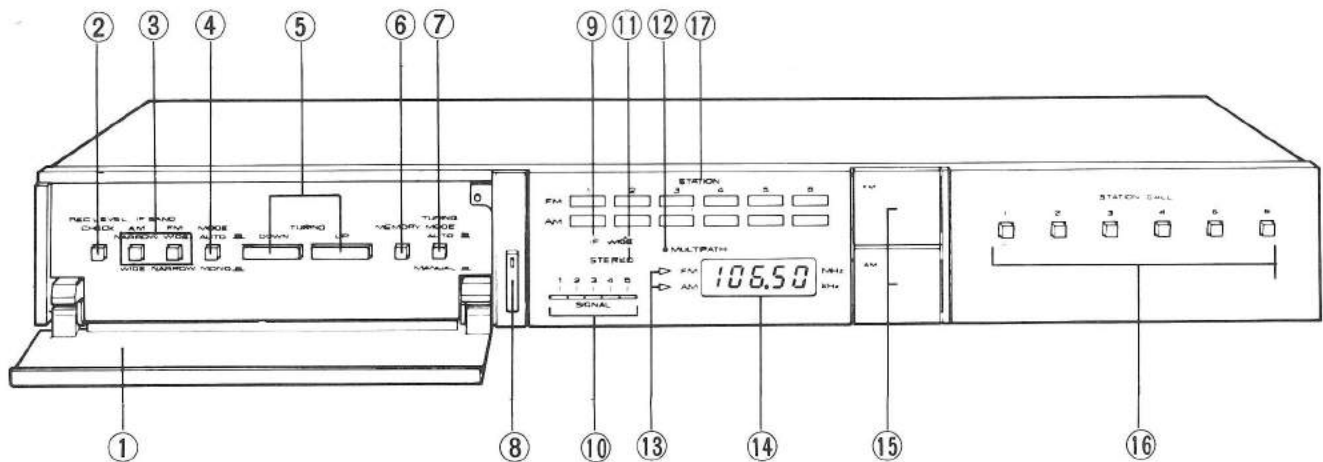
You will not be able to receive FM broadcasts optimally unless you install the antenna properly. Again, unless you have connected all the wires properly and selected a good position, the noise level will increase, the sound will become distorted and reception will be unstable as a result. Install the antenna optimally as indicated below:

- The ideal position is where the waves from the transmitting antenna of the FM broadcasting station are picked up directly. In a position such as behind a building or between buildings where an obstacle is in the vicinity making it impossible to pick up the signals directly, the multipath effect will be caused, the sound which is received will be distorted and the separation between the left and right channels may be impaired. This same multipath effect is caused when the direction and height of the FM antenna have not been set properly when the FM antenna is installed. This particular model is provided with a MULTIPATH indicator. This lights as soon as the multipath effect is detected to communicate this fact to the listener. It is therefore recommended that, when you install the FM antenna, you adjust its direction and its height so that the MULTIPATH indicator does not light when the model is receiving an FM broadcast.

- Install the antenna as far away as possible from a road so that the ignition noise from passing vehicles will not be picked up. Also erect the antenna away from high-voltage transmission lines and neon signs.
- Keep the antenna at least 2 meters away from metal roofs, concrete buildings and TV antennas.



FRONT PANEL FACILITIES



① DOOR

This opens when the top is pulled toward you. Keep it closed unless operating the switches inside.

② RECORDING LEVEL CHECK SWITCH (REC LEVEL CHECK)

When this switch is set to ON, a reference level signal (330 Hz, FM 50% modulation) for FM recording is continuously fed out from the OUTPUT terminals. For receiving ordinary FM or AM broadcasts, this switch is set to OFF.

③ IF BANDWIDTH SELECTOR SWITCH (IF BAND)

This switch is used to select the pass band of the intermediate frequency signal when a broadcast is being received.

Depress FM for FM reception and AM for AM reception.

NARROW: Set to this position when interference results from neighboring stations and this impairs your capacity to listen to the program. This will improve the selectivity and permit interference-free reception.

WIDE: Set to this position in areas with a strong electrical field. This will reduce the distortion and improve the quality of the reproduced sound.

④ MODE SWITCH (MODE)

The MONO mode is set at the "in" position (muting-OFF) and the AUTO mode is set at the "out" position (muting-ON).

AUTO: Set here to listen to FM broadcasts in stereo. With FM monaural broadcasts, reception is automatically set to mono.

MONO: Set here when listening to FM broadcasts in mono. Listen at this position if the noise is too great at the AUTO position or if you are in an area where the signals are weak.

⑤ TUNING SWITCHES (TUNING)

These are used to tune in stations. The reception frequency increases when the UP switch is depressed while it decreases when the DOWN switch is depressed.

(For details, refer to "Auto tuning and manual tuning" on page 10.)

NOTES:

The tuning mode changes as follows in accordance with the position of the TUNING MODE switch.

- **AUTO position:** When the TUNING switches are given a light touch, the tuning operation continues until a broadcasting station is picked up. When the numbers on the frequency display reach either the top limit (for instance, 108.00 MHz with the FM band) or the bottom limit (for instance, 87.50 MHz with the FM band), tuning switches automatically to the other end of the frequency spectrum and the same operation continues until a station is picked up.
- **MANUAL position:** When the TUNING switches are depressed, tuning is conducted in steps (0.05 MHz or 0.1 MHz for FM and 9 kHz or 10 kHz for AM), and the tuning operation stops as soon as either switch is released. When the numbers on the frequency display reach either the top or bottom limit, tuning stops. In this case, to continue tuning depress the other TUNING switch.

⑥ MEMORY SWITCH (MEMORY)

This is used to store (or memorize) the stations in the STATION CALL switches [1] through [6].

⑦ TUNING MODE SWITCH (TUNING MODE)

This is used to select auto or manual tuning: manual at the "in" position and auto at the "out" position. (Refer to page 10 for auto tuning and manual tuning.)

In the AUTO mode, the tuning operation is conducted automatically with the TUNING switches until a broadcasting station is picked up.

In the MANUAL mode, tuning is performed only as long as the TUNING switches are depressed regardless of the broadcasting stations. As soon as these switches are released, the tuning operation stops.

⑧ POWER SWITCH (POWER)

When this switch is set to the ON position, power is supplied to the tuner's main circuits. The unit's power switch is geared to selecting the transformer's secondary and so even at the STAND-BY position, the unit's circuitry will work as long as the power cord is connected to the power outlet.

Disconnect the power cord from the power outlet when you do not plan to use the unit for a long period of time.

⑨ IF WIDE INDICATOR (IF WIDE)

This lights IF bandwidth selector switch has been set to the WIDE position.

⑩ SIGNAL INDICATOR (SIGNAL)

This indicates the strength of the incoming signals with five light-emitting diodes (LEDs).

⑪ STEREO INDICATOR (STEREO)

This lights during FM stereo reception.

NOTE:

This indicator does not light when the mode switch is set to the MONO position.

⑫ MULTIPATH INDICATOR (MULTIPATH)

This lights as soon as the multipath effect is detected during FM reception. When installing the FM antenna, adjust the direction and height of the antenna so that this indicator will not light.

⑬ FM/AM INDICATORS (▷ FM; ▷ AM)

The FM indicator (▷) lights when the FM function switch is depressed; the AM indicator (▷) lights when the AM function switch is depressed.

These indicators wink for about 10 seconds when the MEMORY switch has been depressed and while they are winking they indicate that it is possible to memorize a station.

⑭ FREQUENCY DISPLAY

This indicates the frequency of the tuned-in station. The units are read out in MHz for FM and kHz for AM.

⑮ FUNCTION SWITCHES (FM, AM)

FM: Depress this switch for FM reception.

AM: Depress this switch for AM reception.

⑯ STATION CALL SWITCHES (STATION CALL)

When the frequency of a broadcasting station has been programmed (memorized), depress the corresponding switch to recall that station.

⑰ STATION INDICATORS (STATION)

When a STATION CALL switch has been depressed, the indicator corresponding to the same number lights. The top row is for FM reception and the bottom row for AM reception.

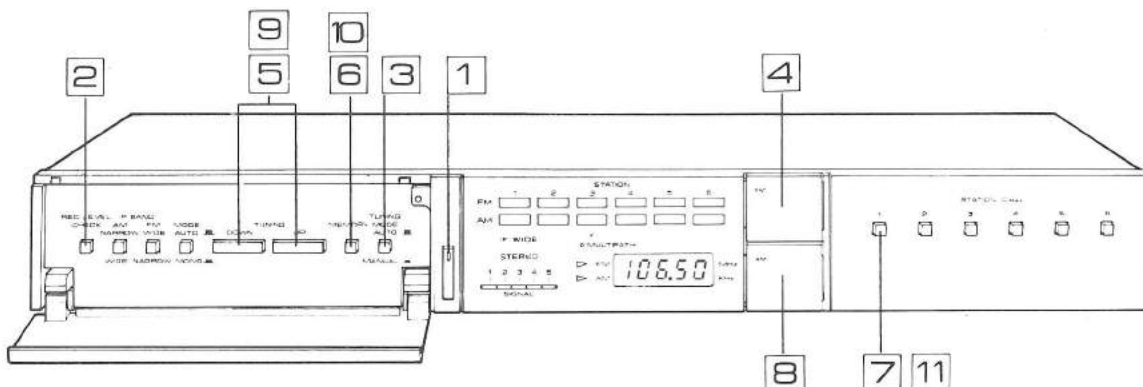
PREPARING FOR OPERATION

MEMORIZING STATIONS

Operate by following the numerical sequence in the figure. The example tells you how to memorize a 106.50 MHz FM station and a 1,080 kHz AM station in STATION CALL switch 1 by auto tuning. The same procedure applies for the other STATION CALL switches (2 through 6).

NOTE:

This example assumes that there are stations actually broadcasting on the 106.50 MHz and 1,080 kHz frequencies, which may not be the case in your area.



- 1** Set the power switch to ON.
- 2** Set the REC LEVEL CHECK switch to OFF.
- 3** Set the TUNING MODE switch to AUTO.
- 4** Depress the FM function switch.

The FM indicator now lights.

- 5** Depress the DOWN or UP tuning switch, and set the frequency display to **106.50**.

If the figures on the display are above **106.50**, depress the DOWN switch; if they are below, depress the UP switch.

NOTE:

The display may not stop at the 106.50 position if the signals from the station are too weak because of the nature of the auto tuning operation. In cases like this, set the TUNING MODE switch to MANUAL.

- 6** Depress the MEMORY switch.
- The FM indicator starts winking (for about 10 seconds).
- 7** Depress STATION CALL switch 1 and memorize the station. (106.50 MHz is now memorized in switch 1.)

FM station indicator 1 lights.

NOTE:

Perform the memorizing operation while the FM indicator is winking (for about 10 seconds). If the indicator has stopped winking, stations cannot be memorized. (When the indicator stops winking before you depress the STATION CALL switch, depress the MEMORY switch again.)

This completes the FM station memorizing procedure.

- 8** Depress the AM function switch.
- The AM indicator now lights.
- 9** Depress the DOWN or UP tuning switch and set the frequency display to **1,080**.
 - 10** Depress the MEMORY switch.
- The AM indicator starts winking (about 10 seconds).
- 11** Depress the STATION CALL switch 1 and memorize the station. (1,080 kHz is now memorized in switch 1.)

AM station indicator 1 lights.

This completes the AM station memorizing procedure.

The 106.50 MHz FM station and 1,080 kHz AM station have now been memorized in STATION CALL switch 1.

This presetting operation can be repeated any number of times. When a new station is preset, the previously memorized station is erased. Do this when you want to change the memory numbers of the stations.

NOTES:

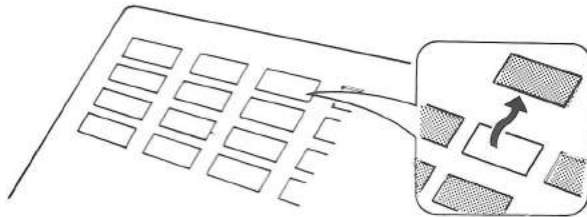
- When the power switch is momentarily set to OFF and then set to ON, the previously received station is heard.
- The preset stations will not be erased even if the power is switched off as long as the power cord is not disconnected. The memory circuit's power supply serves as the capacitor backup circuit and so the preset broadcasting stations will not be erased from the memory even in three days in cases where the power cord has been disconnected.
- When the AM channel step switch on the rear panel has been set (to either 9 kHz or 10 kHz), remember to select the FUNCTION switch first (FM with AM or AM with FM) and then set to the desired position. (S, S/G model only)

SETTING THE STATION CARD

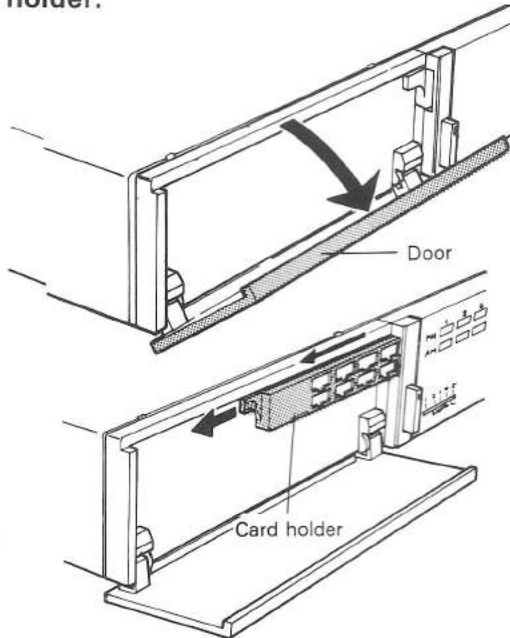
The accessory station card can be used to display the memorized frequencies on the station indicator.

1 Take out the station card.

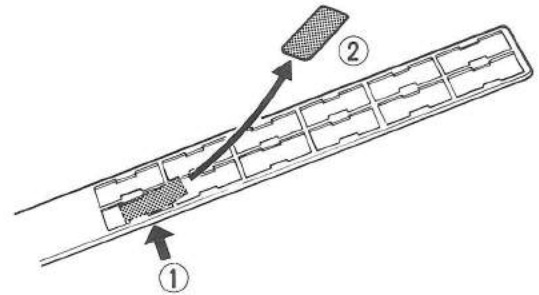
Remove the cards with the numbers corresponding to the memorized frequencies by hand.



2 Open the door and pull out the card holder.

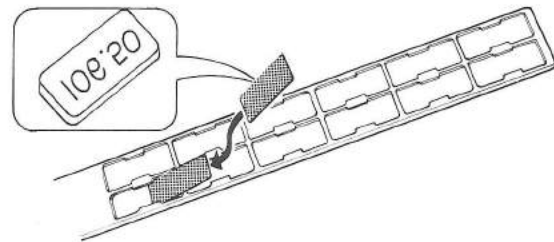


3 Remove the previously attached station card.

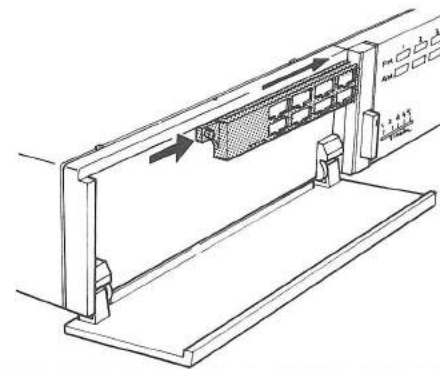


4 Slip in the new station card.

Check the position of the memorized number while you are performing this operation.



5



REC LEVEL CHECK SWITCH

The recording level must be set to the optimum value if the recorded FM broadcast is to display a good quality. When this switch is set to ON, a level adjustment signal used when recording FM programs is fed out from the OUTPUT terminals and so set the recording level in the sequence indicated below.

SETTING THE RECORDING LEVEL

1. Operate the tape deck and set it to the recording standby mode.
2. Set the REC LEVEL CHECK switch to ON.

3. Adjust the recording level controls on the tape deck so that the indication of the level meters comes within the following range.
 - 0 to +2 dB for an open-reel deck
 - About -2 dB for a cassette deck

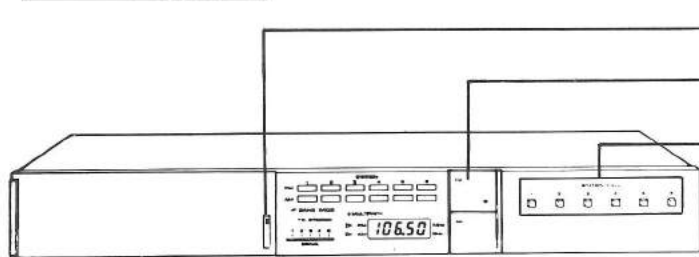
NOTE:

The optimum recording level differs slightly in accordance with the type of tape and the tape manufacturer. Repeat recording and playback, and determine the optimum level for the tape being used.

4. Set the REC LEVEL CHECK switch to OFF.
5. Tune in the FM station and start the recording. The left and right output levels for this signal are identical. Use it for adjusting the volume balance of the stereo system being used.

LISTENING TO BROADCASTS

FM RECEPTION



- 1 Set the power switch to ON.
- 2 Depress the FM function switch.
- 3 Depress the STATION CALL switch and recall the station.

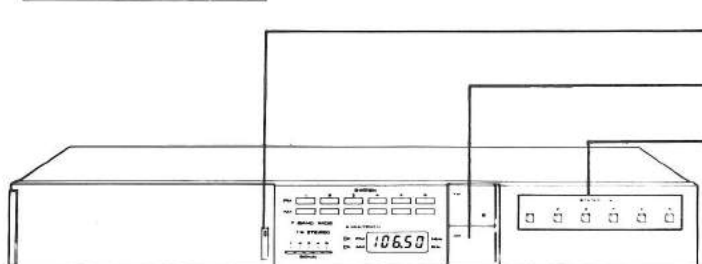
Depress the switch corresponding to the number of the memorized station. (For instance, if 106.50 MHz has been memorized at "1", depress the "1" switch.)

- 4 Adjust the volume and tone with the stereo amplifier controls.

When you do not intend to program (memorize) any broadcasting stations, depress the tuning switches and tune in the frequency of the desired broadcasting station.

Check that the signal indicator has lighted. If it has not lighted, it means you cannot tune into a broadcast because the signals from the station are too weak. (This also happens when the antenna wire has worked free from the antenna terminal on the rear panel.) When you are using the accessory T-shaped antenna, erect a special antenna (refer to pages 5 and 6).

AM RECEPTION



- 1 Set the power switch to ON.
- 2 Depress the AM function switch.
- 3 Depress the STATION CALL switch and recall the station.

Depress the switch corresponding to the number of the memorized stations. (For instance, if 1,080 kHz has been memorized at "1", depress the "1" switch.)

- 4 Adjust the volume and tone with the stereo amplifier's controls.

When you do not intend to program (memorize) any broadcasting stations, depress the tuning switches and tune in the frequency of the desired broadcasting station.

Check that the signal indicator has lighted. If it has not lighted, it means you cannot tune into a broadcast because the signals from the station are too weak. Adjust the direction of the rear panel's bar antenna. (Refer to page 6.)

AUTO TUNING AND MANUAL TUNING

Auto tuning or manual tuning is possible, depending on the strength of the broadcasting station signals, when memorizing stations and when listening to broadcasts from stations which have not been memorized.

Auto tuning

This is performed when tuning in a station whose signals are relatively strong. Just by depressing the TUNING switch (DOWN or UP) once, the tuning operation stops automatically as soon as the station with a frequency closest to the number on the frequency display is picked up. (Repeat this operation if the station picked up is not the one required.)

Manual tuning

This is performed when the signals are too weak to be picked up in the auto tuning mode. (With manual tuning, check the frequency of the station which is about to be tuned in.)

Tuning is performed only while the TUNING switch (DOWN or UP) is depressed regardless of the broadcasting stations (the figures on the frequency display keep changing), and it stops when the TUNING switch is released.

The frequency changes in the following units every time one of the TUNING switches is depressed:

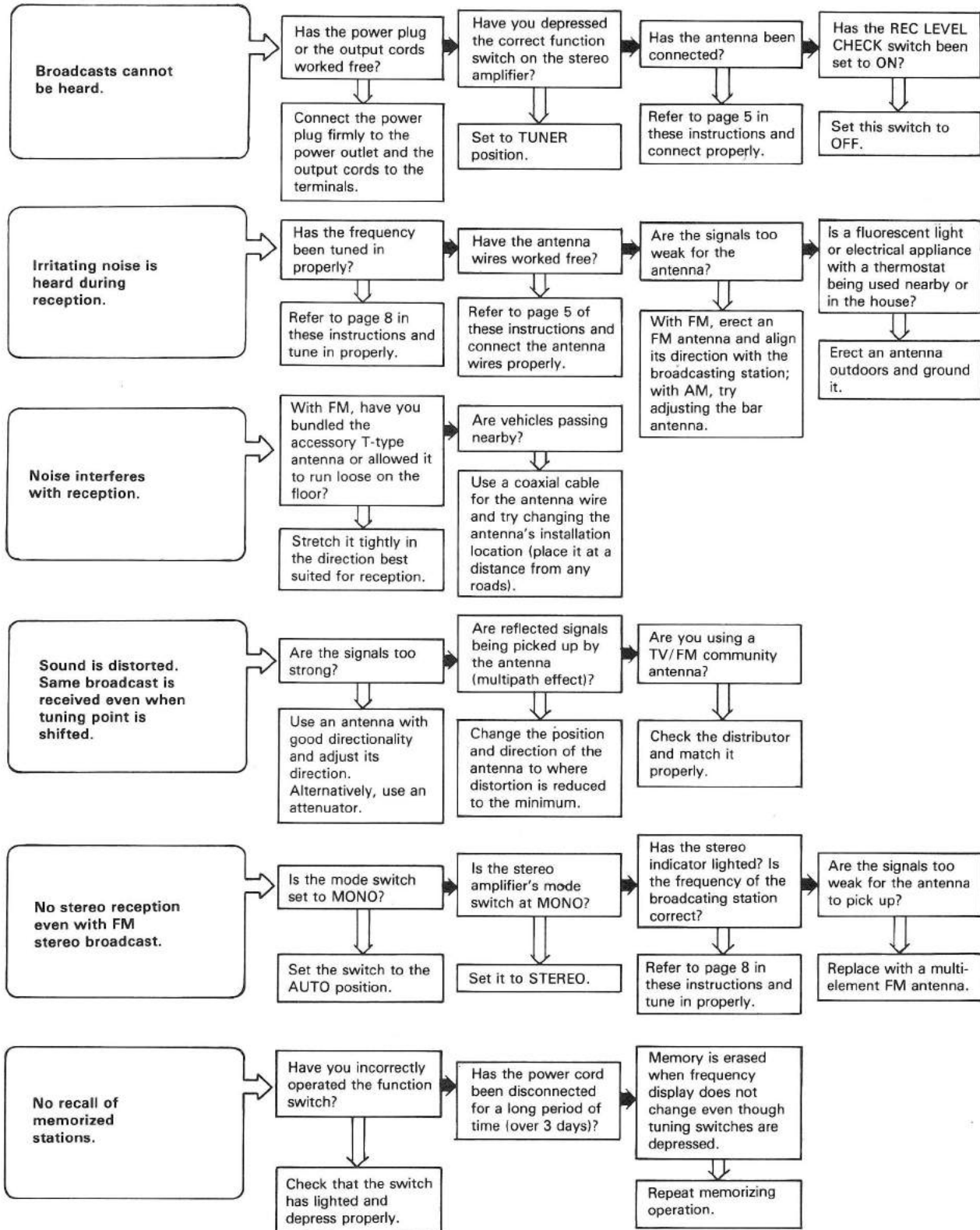
0.05 MHz or 0.1 MHz steps for FM

9 kHz or 10 kHz steps for AM

(depends on the position of the rear panel's AM CHANNEL STEP SWITCH)

TROUBLESHOOTING

Sometimes an operational fault can be mistaken for a malfunction or failure. Check the following points and see if the symptoms of the trouble are outlined below before you get in touch with the serviceman. If you cannot locate the symptoms, turn off the power and contact your nearest Pioneer Service Center, Service Station or authorized Pioneer dealer.



SPECIFICATIONS

FM Tuner Section

Usable Sensitivity	Mono; 10.8 dBf (0.95 μ V)
50 dB Quieting Sensitivity	Mono; 15 dBf (1.55 μ V)
	Stereo; 37 dBf (19.5 μ V)
Sensitivity (DIN)	Mono; 0.55 μ V (NARROW)
	0.8 μ V (WIDE)
	Stereo; 38.5 μ V
Signal-to-Noise Ratio	Mono; 90 dB (at 85 dBf)
	Stereo; 85 dB (at 85 dBf)
Signal-to-Noise Ratio (DIN)	Mono; 77 dB
	Stereo; 71 dB
Distortion (at 85 dBf)	WIDE NARROW
Mono	100 Hz; 0.03% —
	1 kHz; 0.03% 0.05%
	10 kHz; 0.03% —
Stereo	100 Hz; 0.05% —
	1 kHz; 0.05% 0.5%
	10 kHz; 0.1% —
Capture Ratio	1.0 dB 2.5 dB
Alternate Channel	
Selectivity	400 kHz; 40 dB 85 dB
	300 kHz; — 60 dB
Stereo Separation	1 kHz; 55 dB 40 dB
	50 Hz to 10 kHz; 48 dB —
Frequency Response	20 Hz to 15 kHz: $\pm 2 \frac{2}{3}$ dB
Spurious Response Ratio	80 dB
Image Response Ratio	70 dB
IF Response Ratio	100 dB
AM Suppression Ratio	65 dB
Subcarrier Product Ratio	70 dB
SCA Rejection Ratio	65 dB
Muting Threshold	25.2 dBf (5 μ V)
Antenna Input	300 ohms balanced, 75 ohms unbalanced

AM Tuner Section

Sensitivity	
IHF, ferrite antenna	300 μ V/m
IHF, external antenna	15 μ V
Selectivity	10 dB (WIDE)
	50 dB (NARROW)
Signal-to-Noise Ratio	50 dB
Image Response Ratio	60 dB
IF Response Ratio	80 dB
Antenna	Built-in ferrite loopstick antenna

Audio Section

FM (100% MOD)	FIXED 650 mV/1.1 k Ω
AM (30% MOD)	FIXED 200 mV/1.1 k Ω

Miscellaneous

Power Requirements	
HE model	220 V, 50—60 Hz
HB model	240 V, 50—60 Hz
S, S/G models ..	110/120/220/240V (switchable), 50—60 Hz
Power Consumption	17 W
Dimensions	420 (W) x 60 (H) x 380 (D) mm
	16-1/2 (W) x 2-3/8 (H) x 15 (D) in
Weight (without package)	4.5 kg (9 lb 15 oz)

Furnished Parts

FM T-type Antenna	1
Connection Cord with Pin Plugs	1
F-type Plug	1 (S, S/G models only)
Operating Instructions	1

NOTE:

Specifications and design subject to possible modification without notice.