

Teleton

50-WATT SOLID STATE AM/FM STEREO RECEIVER MODEL TFS-50



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INSTALLATION AND OPERATING MANUAL

GENERAL DISCRIPTION

The TELETON TFS-50 is excellent and fully transistorized AM/FM stereo radio system. It comprises a main unit which is an AM/FM stereo receiver. By simply connecting to the speakers you can immediately enjoy AM or FM monophonic broadcast or the fulldimensional FM stereo broadcast, all brought to you with superb quality.

An advanced feature on the receiver is the fully automatic FM stereo receiving system. When tuned to an FM stereo station, the unit automatically switches to stereo operation and lights an indicator lamp. This system not only eliminates the need for tiresome manual switching, but also shows at a glance, whether the FM station is broadcasting a monophonic or stereo program.

The receiver also has stereophonic input receptacle for connection of a stereo record player and other program sources you may wish to add. A pair of output receptacles is provided for connection to a tape recorder so that you may record AM or FM stereo broadcasts. Built-in antenna for AM will provide good reception of most local stations. For those cases where reception is poor, terminal have been provided for the connection of external antennas.

In order that you may benefit from the many operating and performance features designed into this deluxe stereo radio we recommend that you carefully read all the instruction contained in this manual. Also, we suggest that you keep the manual close at hand and in a safe place so that you can refer to it when necessary.

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INSTALLATION

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The receiver may be used in any convenient location such as equipment cabinet shelf, table or broadcast. Modern and attractive in appearance, the receiver lends itself to this type of installation.

The amount of heat generated by the receiver is extremely small compared to equivalent vacume-tube units. Even so, provision must be made for some ventilation in order to disperse the small amount of heat that is generated.

CAUTION: Avoid excessively warm locations-keep away from radiators, hot air vents, etc.

AC POWER

The receiver is designed to operate on 115 or 230 volts, 50/60 cycles AC.

NOTE: This receiver is pre-set at 230 volts AC before shipment from factory. Therefore, when using on 115 volts AC, set the voltage selector at 115 volt.

CAUTION: On voltage selector, "230V" position cover between 220-240 volts and also 115V position cover 110-120 volts, DO NOT ATTEMPT TO USE THE RECEIVER ON AND OTHER POWER SOURCE

MORE THAN 240V OR LESS THAN 110V.

CONNECTING THE SPEAKERS

This receiver can operate at the same time the four speakers (Left speakers and Right speakers in A and B group) by connecting them with the receptacle at the rear of receiver marked "L" and "R" of A and B with DIN LB-2-type plug. (Don't use any other plug than LB-2)

CAUTION: As effective impedance of the speaker for this set is 8-16 ohm, DON'T ATTEMPT TO USE THE RECEIVER ON ANY OTHER IMPEDANCE THAN 8-16 OHM, OR DAMAGE WILL RESULT.

SPEAKER PLACEMENT

To realize optimum performance from your stereo radio, it is important that the speakers are placed at definite locations within the listening area. If the speakers are too closely spaced, the stereo effect will be limited. Except in a very small room, eight feet is considered minimum spacing between speakers for good stereo separation. In a two channel system, good stereo listening begins a distance

in front of the speakers equal to their separation, and continues for twice this distance. For example, if the speakers are placed 8 feet apart, the best listening area extends from 8 to 16 feet in front of the speaker.

A large spread between speakers is permissible if the listening area is moved back proportionately. Close listening to widely separated speakers creates "a hole in the center" which gives the impression of two distinctly separate sound sources rather than the desired sound dispersion. If the speakers are substantially separated, it is generally best to "angle" the side speakers toward the center of the listening area.

By connecting the four speakers in A and B group with cable, you can enjoy monophonic and stereo broadcasts in two separate room at the same time, and also enjoy excellent Hi-Fi sound by setting four speakers in your room.

GROUND CONNECTION

The screw terminal at the rear marked GND (Ground) permits a ground connection to be made between the receiver and any external equipment such as a record player to aid in the reduction of hum. When using an outdoor antenna, it is recommended that this screw be connected to a suitable

ground point (a cold water pipe, etc) for purposes of safety.

AM ANTENNA

The ferrite loopstick at the rear of the receiver assures adequate reception of all local AM stations. However, in fringe area, high noise area or where surrounding metal objects interfere with normal reception, a 20-30 ft. length of insulated antenna wire should be connected to the screw terminal designated "AM" (See Fig. 1).

NOTE: The ferrite loopstick is mounted on a swivel bracket. For maximum pick up, the loopstick should be swung away from the chassis and adjust for maximum pick up.

FM ANTENNA

The antenna is the single, most important factor in obtaining good, distortionfree FM reception. The finest, most sensitive tuner will not operate properly if it is fed with poor FM signal. You should therefore give careful consideration to the selection of an antenna for your tuner if you want the best results particularly for FM stereo reception.

According to building FET transistor in FM tuner, this receiver become more sensitive and also cross modulation become much better.

For reception of weaker signal of stations, the use of an outdoor FM antenna installed as high as possible is highly recommended. These are available in various types. When stations are scattered in many directions, a nondirectional type of antenna must be used. If the desired stations lie mostly in one direction, a highly directional type will provide better results.

When using a directional antenna always orient it for strongest reception of the desired station.

FM & AM ANTENNA CONNECTION

To connect an external FM antenna, connect the lead-in to the "300" ohm pair of terminal as shown in Figure 1.

To connect an external AM antenna, connect the lead-in to the "A" terminal as shown in Figure 1.

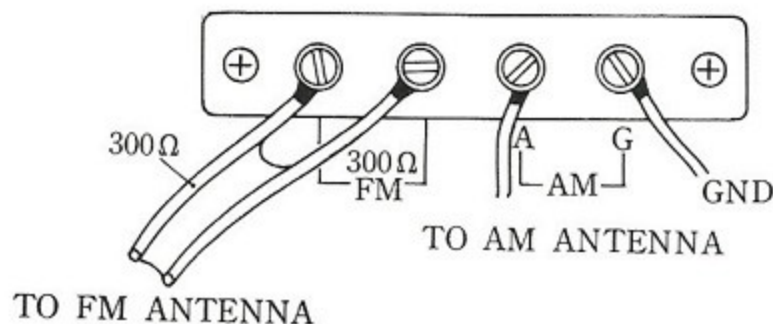


Fig 1

CONNECTION A RECORD PLAYER

The input receptacle to connect a record player of this receiver are designed for two kind of players, one of whose tone arm is equipped with ceramic or crystal cartridges, the other is with moving magnet cartridges.

To connect the moving magnet type player, connect 5P Din plug to the receptacle marked "PH MAG". To connect the ceramic or crystal type player, connect the above one to the receptacle marked PH X'TAL. If the player is also equipped with "GND" Terminal, connect it to the "GND" Terminal at the rear of the receiver.

CONNECTING A TAPE RECORDER

The output receptacles marked "TAPE" are provided to permit connection of the receiver to the high level inputs of a stereo tape recorder for recording purposes. Use shielded audio cables terminated at one end with Din-type phono plugs (for the receiver), and terminated at the other end with plugs suitable for insertion into the high level inputs on the recorder (these are generally designated as

"TAPE" or "RADIO").

NOTE: All programs reproduced through the receiver, AM, FM or from a record player, etc., will be fed to the record output receptacles, and may be recorded on tape by connecting a recorder as indicated above.

PLAYBACK OF RECORDED TAPE

Some tape recorders are equipped with high-level outputs to permit playback of tape through an external amplifier. These outputs are generally labeled "Preamp Out", "Monitor", or more frequently "External amplifier". Simply connect these outputs to the TAPE or REC input receptacles on the receiver, using shielded audio cables with DIN type plugs at one end (for the TAPE inputs on the receiver), and suitable plugs for insertion into the recorder at the other end.

NOTE: Do not attempt to connect outputs on the receiver labeled "External Speaker" etc., to the receiver. These are designed for connection directly to speakers only.

DESCRIPTION OF CONTROLS

We suggest you take the time to read this section carefully. A number of controls and switches have been provided on this receiver to ensure complete flexibility of operation. A full understanding of each control and its functions will enable you to obtain maximum enjoyment from your complete system.

FUNCTION SELECTOR

The 6-position switch (PHONO MAG, PHONO X'TAL, FM, AM, TAPE, AUX) at the upper of left hand side of the receiver is used to select the desired type of operation by push type switch. In detail, each position does the following.

PHONO MAG.....This selects the output of Moving magnet type player that may be connected to the PHONO MAG input receptacle, and reproduces it through the amplifier section.

PHONO X' TAL.....This selects the output of the Ceramic or Crystal type player that may be connected to the PHONO X'TAL input receptacle, and reproduces it through the amplifier section.

FM.....In this position, the system operates as a conventional FM radio.

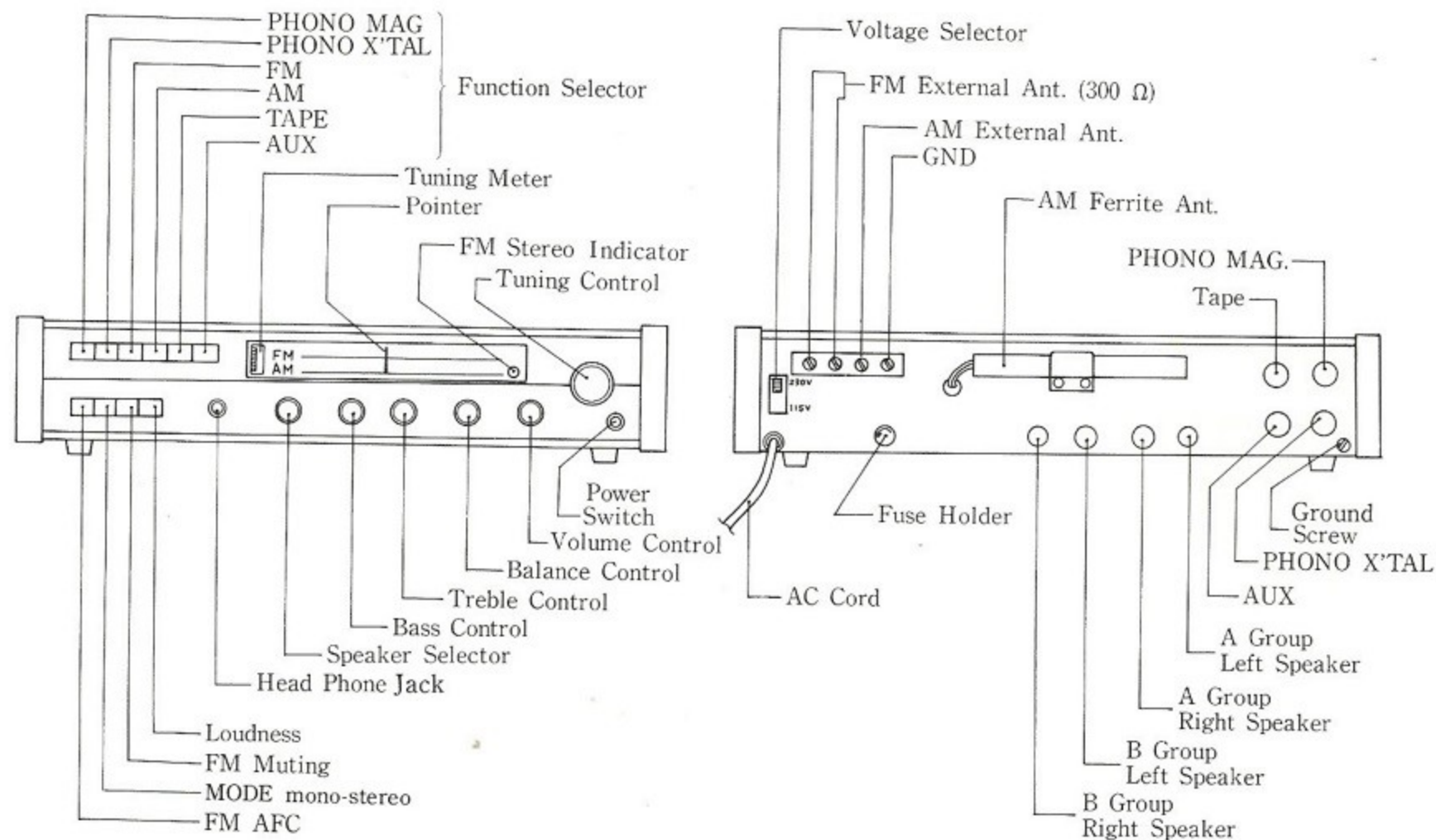


Fig 2

AM.....In this position the entire system operates as an AM radio.

TAPE.....In this position, any external program source connected to the TAPE input receptacles is reproduced through the amplifier section of the receiver and heard from the speakers.

AUX.....In this position, any external program source connected to the AUX input receptacles is reproduced through the amplifier section of the receiver and heard from the speakers.

FM AFC SWITCH (Push-Push Type)

This provides the same function as the FM position, except that AFC (Automatic Frequency Control) is added. If your area is especially crowded with too many FM stations, after tuning in the desired station, push the AFC switch to "ON". When AFC is turned ON, the station is locked in and ensures accurate tuning at all time.



Fig 3

MODE MONO STEREO

Mono position ...This provides monophonic operation through both speakers, even if the selected program source is stereo.

Stereo position...This is the normal position for stereo operation, and will provide stereo reproduction when the selected program source is stereo.



Fig 4

FM MUTING

This function is provided for selecting the broadcasting stations without the annoying noises in the outside of stations.

NOTE: In case of weak reception in broadcast signal, select the stations in position of Muting OFF.

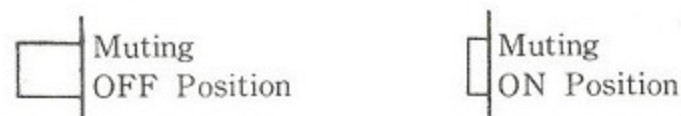


Fig 5

LOUDNESS

When music is played at low volume, a reduction in the bass and treble tones appears to take place. This is not caused by the equipment, but is due to a natural characteristic of the human ear. To com-

compensate for this apparent reduction of bass and treble at low volume, simply place the LOUDNESS switch in the "ON" position. This actuates special circuits that automatically increase the bass and treble tones by a pre-determined amount, so that music is heard with greater realism when placed at low volume.

POWER SWITCH

This switch turns the receiver on, causing the dial lamps to light. Since the unit is fully transistorized, no "warm up" time is needed and the receiver will be ready for operation almost instantaneously.



Fig 6

TUNING

This single control permits you tune the receiver over either the AM or FM band. Use the upper scale (87 to 108MHz) for FM tuning, and lower scale (540 to 1600KHz). for AM tuning. This function is designed to be able to tune smoothly with flywheel bearings.

VOLUME

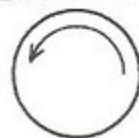
This function is provided for producing an equal

increase or decrease in volume at the same time from both speakers.

BALANCE

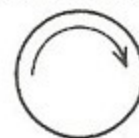
This knob will allow you to adjust the volume for each speaker individually, by simply turning to right or left. For maximum output of right speaker, turn the control to the fully clockwise direction. For maximum outputs of left speakers, turn to the fully counter clockwise. The control is continuously variable and may be set at any point between two extremely to provide the desired tonal reproduction.

BALANCE



The output of Left Speaker is made large.

BALANCE



The output of Right Speaker is made large.

Fig 7

TREBLE

This function is provided for increase or decrease to high tone that is changed by volume of high or low degree. When the pointer (Black line in this knob) indicate 0 mark on the front panel, it means to be flat.

BASS

This function is provided to permit increase or decrease to bass tone that is changed by volume of high or low degree. When the pointer (Black line in this knob) indicate 0 mark on the front panel, it means to be flat.

SPEAKERS

This switch is provided for permit you selection of the four kinds of function which are composed with HEAD PHONES, A group speakers marked "L" on the front panel, B group speakers marked "R", and A & B group speakers marked L & R.

FM STEREO INDICATOR

When the set is receiving FM MONO broadcasting, if the station you have turned in is broadcasting the FM STEREO program, this function will operate and lamp will be lighted automatically and you will be indicated it.

TUNING METER

This meter arbitrarily calibrated from 1 to 10 is in use for making the finest tuning for either AM or FM broadcasting. This is particularly important on FM...poor tuning will result in noise and distortion.

On FM stereo, poor tuning will also result in a loss of channel separation.

OPERATING INSTRUCTIONS

Before attempting to operate the receiver, make sure you have properly connected your loud speakers and any other associated equipment you intend to use such as a record player.

Initially, set all controls as indicated in the chart headed "Quick Guide For Operating Your AM/FM Stereo Radio".

NOTE: A slight "pop" from each speaker when the receiver is first by switched on is normal and should not cause concern.

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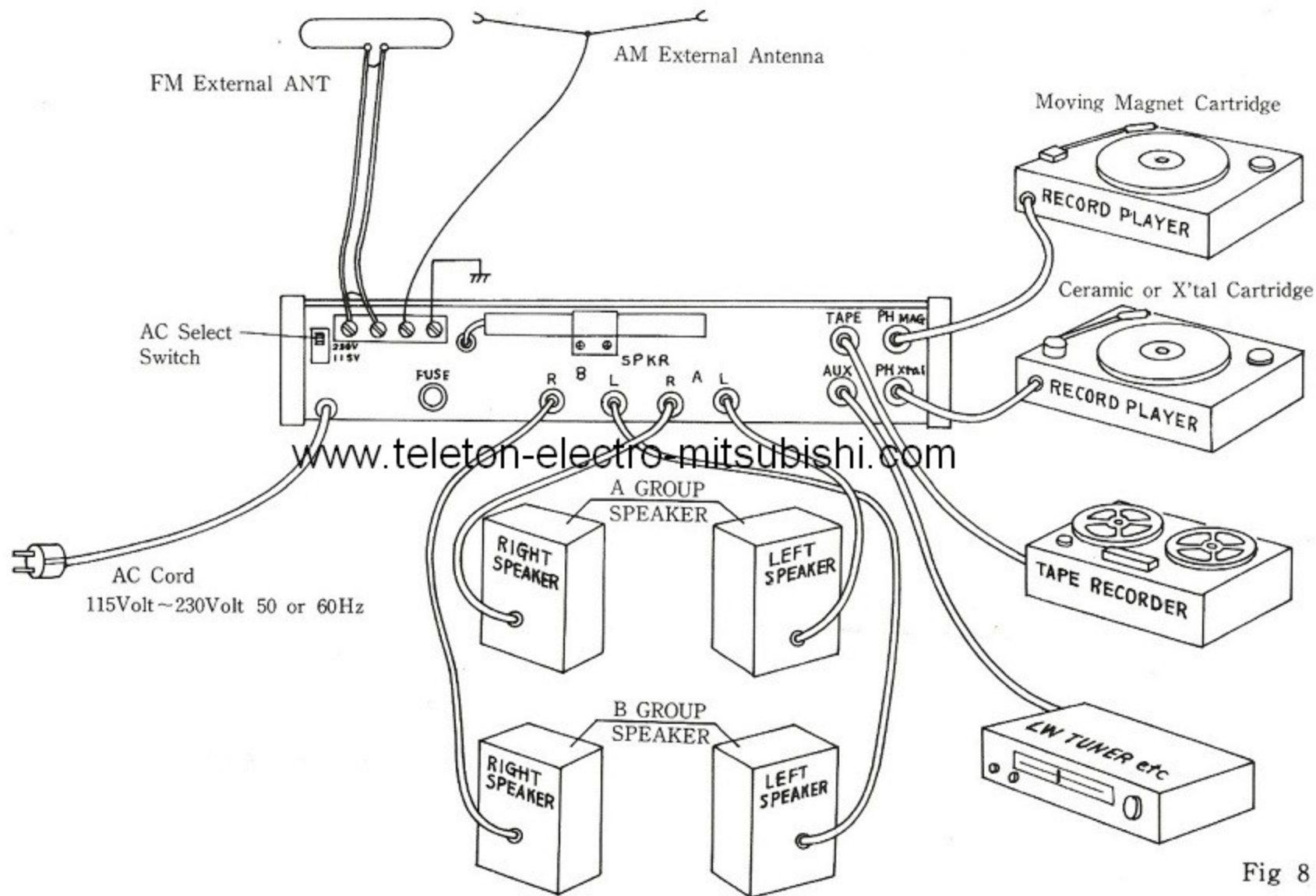


Fig 8

QUICK GUIDE FOR OPERATING YOUR AM/FM STEREO RADIO

| Function | Tuning | Function Selector Switch | FM AFC Switch | FM Muting Switch | MODE MONO STEREO Switch | Loudness Switch | Balance | Volume | Power |
|--------------------------------|--|--------------------------|---------------|------------------|-------------------------|-----------------|----------------|-------------|-------|
| AM Radio | Use tuning control 540 to 1600 KHz scale | AM | Not used | Not used | Not used | ON or OFF | O point adjust | As required | ON |
| FM Mono Radio | Use tuning control 87 to 108MHz scale | FM | ON | * ON | MONO Position | ON or OFF | " | " | " |
| Automatic FM Stereo Radio | - ditto - | FM | ON | * ON | STEREO Position | ON or OFF | " | " | " |
| Stereo Phono (Mag. Cartridge) | Not used | Phono Mag. | Not used | Not used | STEREO Position | ON or OFF | " | " | " |
| Stereo Phono (X'tal Cartridge) | Not used | Phono X'tal | Not used | Not used | - ditto - | ON or OFF | " | " | " |
| Stereo Tape Recorder | Not used | TAPE | Not used | Not used | - ditto - | ON or OFF | " | " | " |
| LW Tuner AM Tuner etc. | Not used | AUX | Not used | Not used | STEREO or MONO | ON or OFF | " | " | " |

NOTE: Tone and Loudness controls may be re-set in accordance with your preferences.

* In case of weak reception in broadcast signal, select the stations in a position of Muting OFF.

If record player is connected to TAPE input, function selector switch must be set to "TAPE" position.

USING THE AUTOMATIC FM STEREO TUNING SYSTEM

The automatic FM STEREO tuning circuit offers a simple and fast means of locating FM stations which are broadcasting a stereo program. Operating...function selector switch in the "FM" position and MODE mono stereo switch. in the "STEREO" position. Monophonic stations will produce no light from the stereo indicator lamp and you will hear them monophonically. A station broadcasting a stereo program will cause the stereo circuit to switch in automatically and light the indicator to signify that the radio is operating stereophonically.

On occasion, the FM STEREO indicator will light on a station which sounds as if it is broadcasting a monophonic program. This condition is usually encountered during an announcement or newscast, and can be explained as follows: Announcements or newscast during a stereo program may actually be transmitted monophonically on both channels from the station, so that the sound heard from your left speaker will be identical to that heard from your right speaker (some stations do transmit announcements on one channel only however). During such a period, the stereo indicator may remain lit, even though the program content is monophonic.

STEREO SEPARATION

It should also be remembered that the musical program being transmitted from the station may have various degrees of stereo separation, depending on the musical selection which, frequently, is reproduced from records. Since few record companies use the same stereo recording techniques, the amount of stereo separation available will vary from one record to another. However, there is more to stereo phonic sound than the mere division of musical instruments between the left and right speakers. There is a subtle depth and spaciousness to the music, with the sounds of various instruments distributed over a broad area. This particular characteristic will become more apparent if you make the following listening test. Set controls for FM stereo operation. Tune in a stereo station and adjust tonal controls for desired reproduction. The sound you will hear from both speakers is stereophonic.

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PROTECTIVE FUSES

AC INPUT FUSE

The receiver is fused in the AC primary to prevent damage to components by excessive current drain that would result from a serious malfunction in the unit. This fuse, which has a value of 2 amperes, is located within the Fuse Holder on the rear panel. Failure of this fuse will cause the dial lights to go out.

OUTPUT TRANSISTOR FUSES

A special fused circuit for each channel is included in the receiver to guard against output transistor damage due to unintentional short-circuits at the speaker outputs. The electrical overload which would result from this condition will cause the protective fuse to blow automatically, and thus prevent serious damage. Blowing of a protective fuse on one or both channels (depending where the short-circuit occurs) will cause the sound output to go off permanently in that channel. Both of these fuses are within the receiver and are rated at 1.5 amperes.

WARNING: ONLY QUALIFIED SERVICE TECHNICIANS SHOULD ATTEMPT REPLACEMENT OF THESE FUSES.

SIMPLE TROUBLE-SHOOTING

If any trouble is encountered with your AM/FM Stereo Receiver, we recommend that you do the following:

1. Make sure the receiver is plugged into the correct power source (115 volts or 230 volts cycles AC). Check the dial lamps on the receiver. If they are not lit, the main AC fuse may have failed. When replacing the fuse, be sure to fix the fuse holder to the correct power voltage position.
2. If the receiver appears to be operating but there is no sound output on one or both channels, check for a possible overload which has caused a protective fuse to fail (See section titled "Output Transistor Fuses").
3. Check for possible error in control or switch settings (See "Quick Guide For Operating Your Receiver"). Make sure the MODE mono stereo switch and other switch, function selector are correctly set to provide the type of operation you want.
4. If the trouble was experienced during your initial operation of the receiver, check that all speaker plugs are properly inserted. If trouble is expe-

rienced on FM, check antenna system and connections.

5. Check to make sure of your program source is not at fault if you are using a record player. Make sure speakers are not faulty.
6. Check any connecting cables themselves for an intermittent "open" or "shorted" condition.

IMPORTANT: When checking cables, make sure, volume controls are at minimum or receiver is switched off.

GENERAL SPECIFICATIONS

RECEIVER UNIT

TUNING RANGE

AM: 540-1600 KHz. FM: 87-108 MHz.

FUNCTIONS.....

- (1) AM Reception. (2) FM Reception.
- (3) Stereo phono Mag., when used with optional record player moving magnetic cartridge.
- (4) Stereo phono X'tal, when used with optional record player crystal cartridge.
- (5) Auxiliary inputs for reproduction of any high level external program source.

AUDIO OUTPUTS.....

Stereo speaker outputs (8 ohms); Stereo tape recording outputs.

AUDIO OUTPUT POWER ...

15 watts each channel.

CONTROLS

- (1) Function Selector (Push Button).
- (2) Tuning Control. (3) Volume Control.
- (4) Balance Control. (5) Bass Control.
- (6) Treble Control. (7) Speaker Selector (Rotary)
- (8) AFC - ON/OFF, MUTING - ON/OFF
LOUDNESS - ON/OFF (Push Button)
- MODE - MONO/STEREO
- (9) Power Switch ON/OFF

ANTENNA SYSTEMS.....

FM: External antenna 300 ohms symmetry.

AM: Built-in system, plus terminal for external antenna.

SOLID-STATE DEVICES.....

1 Field Effect Transistor, 36 Transistors, 23 Diodes, 2 Rectifiers.

POWER REQUIREMENTS...

230, 115 volts, 50/60Hz. AC (transformer operated).

DIMENSIONS (over all).....

19½"(W)×4"(H) (inc. legs)×12½"(D) (excluding knobs but including rear projections).

NET WEIGHT..... 19 lbs.

