harman/kardon

HIGH FIDELITY CASSETTE DECK/TUNER

CH120

owner's manual

FEATURES

Congratulations on your purchase of a Harman Kardon CH120 High Fidelity Cassette Deck/Tuner.

To fully understand the CH120's capability, please read this manual carefully and follow all of the instructions regarding its use and installation.

Superior autosound performance is now available in a small 7" chassis that will fit nearly any car made. The CH120 houses a complete full-featured unit.

CASSETTE DECK SECTION

■ Playback Frequency Response 20 — 20,000 Hz (±3dB)
■ Auto Replay at End of Rewind
■ Dolby B Noise Reduction
■ 70 μSEC (Tape Selector) Switch
Adjusts for normal or metal/CrO_2 tapes in tape mode.
■ Cassette Glide
New improved mechanism literally pulls cassette into play position.
■ Locking Fast Forward and Rewind
Locking mechanism allows hands-off fast wind.
■ Key Off Eject/Tape End Eject
Automatically ejects the cassette when the ignition key is turned off or the tape reaches at the tape end.

TUNER SECTION

■ Low Distortion Dual-Gate MOSFET Tuner
■ Auto Tuner Monitor
Allows monitoring tuner automatically during the fast forwarding or rewinding.
■ Auto Separation & Soft Muting Control
Adjusts the separation and soft muting automatically during FM stereo reception for optimum reception and sound quality.
■ Pulse Noise Suppressor
Pulse Noise Suppressor Circuit is included to reduce noise caused by the automobile electrical system.

PREAMP SECTION

■ Fader Control
■ Amplifier Remote Turn-on Lead
■ Power Antenna Lead

ACCESSORIES

- Metal Mounting Strap
- Flat Washer (6 pcs.)
- Spring Washer (1 pc.)
- Hex. Nut (4 pcs.)
- Bolt (1 pc.)
- Tapping Screw (1 pc.)
- Spare Fuse (1 pc.)

SPECIFICATIONS

CASSETTE DECK SECTION

Frequency Response (Harman/Kardon Test Tape, ±3 dB, Dolby NR off)	: 20 — 20,000 Hz
Wow and Flutter (WRMS)	: 0.09%
Signal to Noise Ratio (CrO_2)	
Dolby NR off	: 54 dB
Dolby B NR	: 64 dB

TUNER SECTION

Antenna Terminal Impedance	: 75 Ohms

—FM—

Usable Sensitivity (Mono)	: 14.8 dBf (1.5μV—75 Ohms)
50 dB Quieting Sensitivity (Mono)	: 18 dBf (2.2μV—75 Ohms)
Signal to Noise Ratio (65 dBf, Mono)	: 70 dB
Alternative Channel Selectivity	: 55 dB
Stereo Separation (1kHz 65 dBf 100% Modulation)	: 40 dB
THD (1kHz, 65 dBf)	
Mono	: 0.2%
Stereo	: 0.4%

—AM—

Sensitivity	: 30μV
Alternative Channel Selectivity	: 45 dB

AUDIO SECTION

Tone Control	
BASS (at 50 Hz)	: ±10 dB
TREBLE (at 10 kHz)	: ±10 dB
Preout Output Level (10 k Ohms Load)	: 775 mV
Preout Output Impedance	: 220 Ohms

GENERAL

Dimensions	
Chassis (W×H×D)	: 7"×2"×5-1/8" (178×50×130mm)
Nose Piece (W×H×D)	: 4-1/8"×1-5/8"×1-3/8" (105×42×35mm)
Shaft Spacing	: 5-1/8", 5-5/8", 5-13/16" (130, 142, 148mm)
Weight	: 2 lbs. 14 oz. (1.3 kg)
Power Supply	: DC 13.8 V (11—16 V Usable), Negative Ground
Current Consumption	: 0.4 A

All specifications and features subject to change without notice.

INSTALLATION

Your CH120 comes with a complete kit that includes a mounting strap, bolts, washers, front trim plate and control knobs. Fig. 2 shows the proper step procedure. Look at the diagram and make sure that you have all the necessary parts. Then, begin this procedure.

SHAFT SPAN AND NOSEPIECE OPENING DIMENSIONS

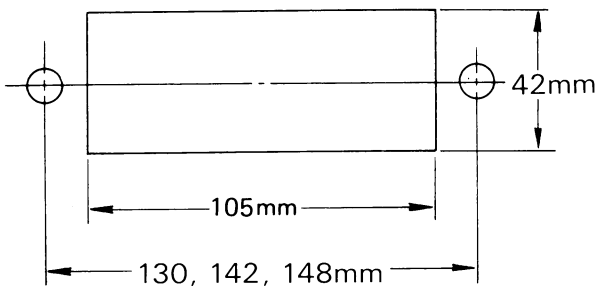

Fig. 1

The shaft span has been preset to 148 mm, but this can be reset to 130 mm or 142 mm by loosing the shaft nuts and moving the shaft adjustment washers.

Press the Wire Assembly firmly into the rear panel jack until the Wire Assembly locks in place. (Fig. A.)

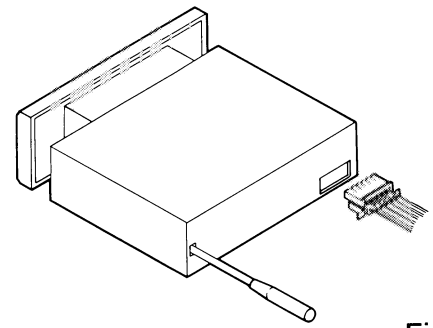

Fig. A

1. Secure one end of the mounting strap to the rear of the unit using the enclosed bolt (Fig. 2-1). Then secure the other end of the strap to the wall using the self-tapping screw (Fig. 2-2).
2. Place nuts and flat washers on the control shafts as illustrated. Then, after fitting the front trim plate, mount the washers and nuts on the control shafts to attach the front trim plate securely to the dashboard.
3. Attach the covers and install the control knobs on the shafts, installing first the "A" knobs and then the "B" knobs.

This unit is designed to operate with any NEGATIVE GROUND 12 V (11—16 V usable) DC electrical system.

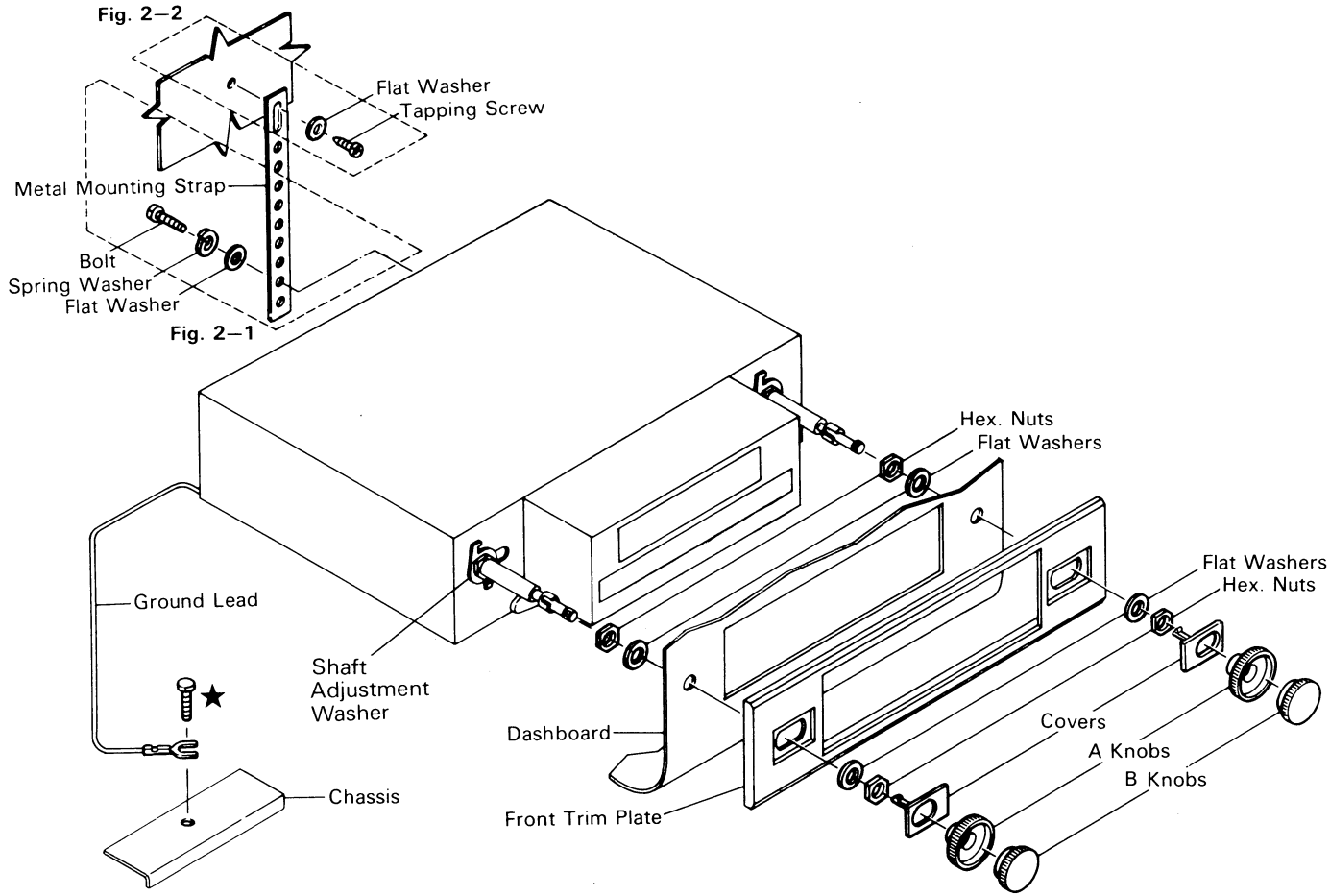

Fig. 2

NOTE: Secure the ground lead of the unit by using a screw (★) already attached to the chassis of the car. Be sure that this chassis point is a good electrical ground, as it may otherwise cause engine noise in the audio signals.

After installing all components, connect the wiring according to Fig. 3.

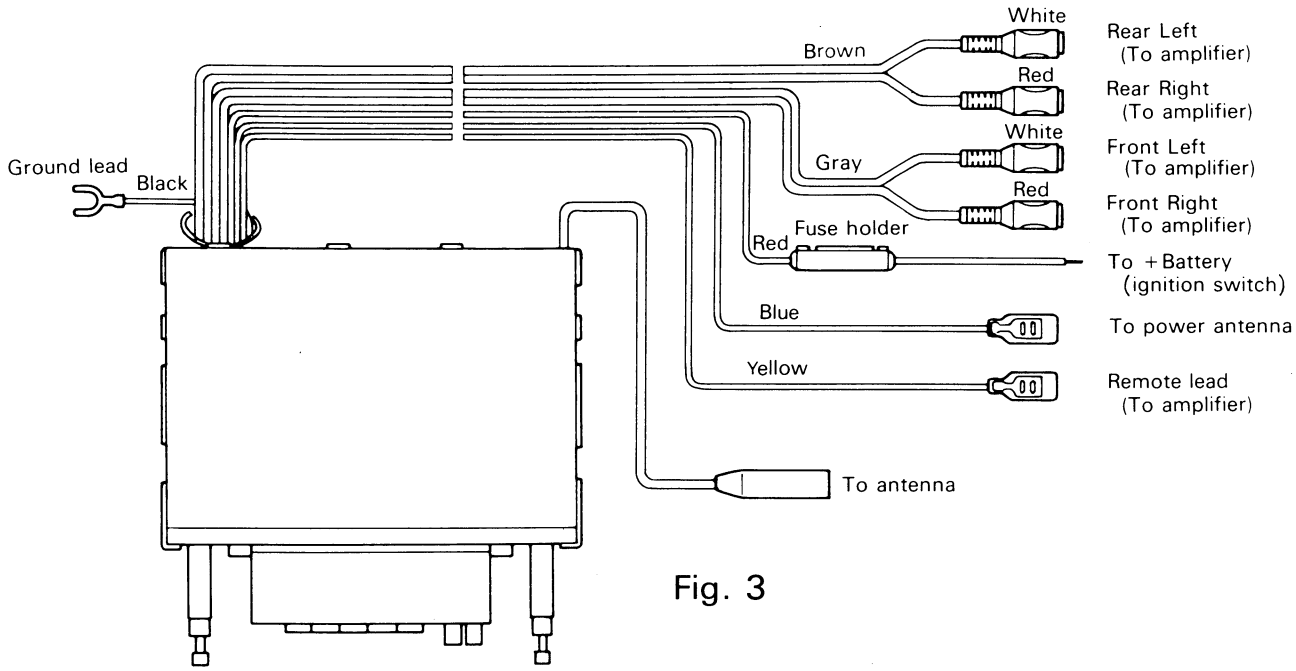

Fig. 3

+BATTERY

The +Battery lead is the positive power input. It should be connected to the circuit which operates when the IGNITION SWITCH is at "ACC" position.

REMOTE

Connect the amplifier remote turn-on lead (yellow) to the proper terminal on the amplifier, if provided.

POWER ANTENNA CONTROL

Connect the power antenna control lead (blue) to the connector of a fully automatic power antenna. Power antenna control does not work with a semi-automatic or manually operated antenna.

GROUND

This is the negative power input. It should be connected directly to the car chassis.

NOTE: Be sure to secure the ground lead or this may cause noise.

CONTROLS & INDICATORS

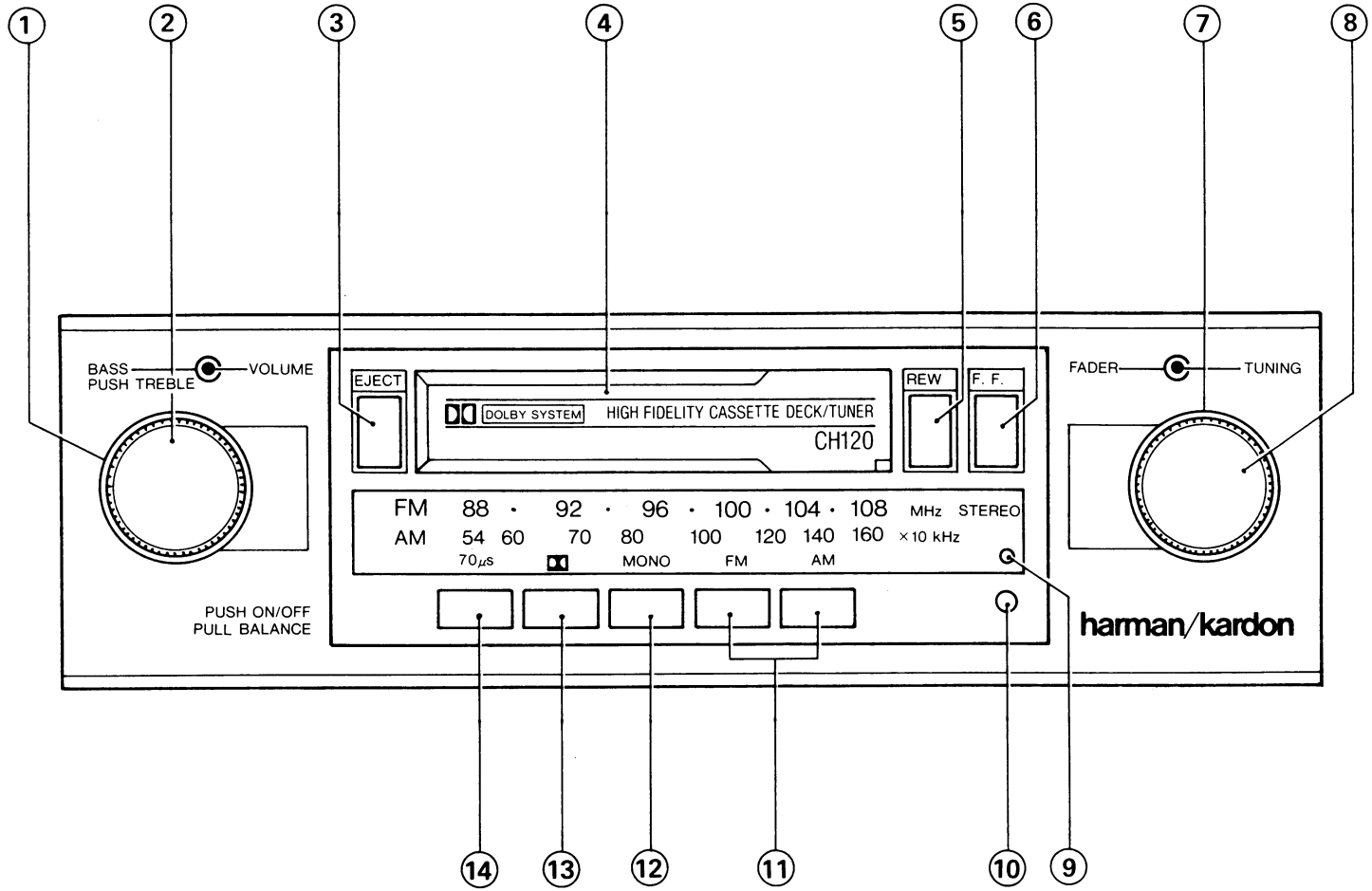

Fig. 4

1. BASS Control/TREBLE Control (push)
   This knob controls the low frequency sounds. Turn it clockwise to boost or counterclockwise to cut them. This also controls the high frequency sounds when pushing in on this knob. Turn it clockwise to boost or counterclock to cut them. It has center click to indicate flat frequency response.
2. VOLUME Control/ON-OFF Switch (push)/BALANCE Control (pull)
   Push this knob to turn on the Tuner. Push again to turn it off. This knob controls the sound level. Turning clockwise increases the sound volume and turning counterclockwise decreases it. This also controls the balance of the left and right channels when pulling out on this knob. Turn it to clockwise or counterclockwise to balance the sound.
3. EJECT Button
4. Loading Slot
5. REW (Rewind) Button
6. F. F. (Fast Forward) Button
7. FADER Control
   This control adjusts the balance of front and rear level. Turn this control clockwise to decrease the front level, or counterclockwise to decrease the rear level.
8. TUNING Control
9. FM STEREO Indicator
10. Antenna Trimmer
    Adjust this trimmer for the optimum AM reception. Refer to "Antenna Trimmer Adjustment" section.
11. FM/AM Band Select Switch
12. MONO Switch
    ON (button in) position : All FM broadcasts will be received as monaural broadcasts, regardless of whether or not they are in stereo. This position may provide quieter, more listenable sound quality under poor reception conditions.
    OFF (button out) position : FM stereo reception is automatically selected when received at medium or high signal strength. When a FM monaural signal or a weak FM stereo signal is received, it automatically switches to the FM monaural mode.
13. DOLBY NR Switch
    Push this switch to play a tape recorded with Dolby NR.
14. 70 μSEC (Tape Selector) Switch
    Depress when using metal or CrO_2 tape.

CASSETTE

1. With the cassette tape opening to the right, insert the cassette into the loading slot as far as it will go. The unit is then turned ON even if the tuner is off and tape will begin playing.
2. If the tape is a Metal/CrO_2 type cassette, push the 70 μSEC (Tape Selector) switch.
3. Push the DOLBY NR switch for a tape recorded with Dolby NR.
4. Adjust the VOLUME, BASS, TREBLE, BALANCE and FADER controls to suit your listening preference.
5. To stop tape play, depress the EJECT button. The cassette will eject and the player will automatically change over to Tuner mode (when the tuner is switched on).
6. The cassette will be ejected automatically when the tape reaches the end during play or F. F. mode.

NOTE: Cassette will be ejected automatically whenever you turn the ignition switch to the "OFF" position while cassette is playing.

Winding the Tape Rapidly in Forward or Reverse Direction

1. Depress the F. F. or REW button until it locks and the tape will run rapidly in the designated direction. The player automatically changes over to the Tuner mode (when the tuner has been switched on) during the fast winding.
2. Lightly depress the other button (FF or REW) to stop the fast winding mode. The tape will start playing again.

NOTE: The tape will be replayed automatically after the tape is rewound.

OPERATION

TUNER

The tuner will not operate if a tape is inserted. Remove the tape by depressing the EJECT button.

FM Reception

1. Set the FM/AM Band select switch to FM position.
2. Turn the tuner on by pushing the VOLUME control knob. Turn it clockwise to increase the volume.
3. Select the desired station by turning the Tuning control. When the Mono switch is not depressed, the stereo indicator will illuminate when a FM stereo broadcast is being received.
4. Adjust the VOLUME, BASS, TREBLE, BALANCE and FADER controls to suit your listening pleasure.

AM Reception

Change the Band select switch to AM position. Other procedure are the same as FM tuning.

Antenna Trimmer Adjustment

Precision adjustment of antenna trimmer is required for optimum AM reception.

1. Fully extend the antenna and turn the TUNING control until the dial pointer reaches 1400 kHz.
2. Tune in a weak station adjacent to this frequency by turning the TUNING control very slowly.
3. Then, turn the antenna trimmer with a screwdriver (not enclosed) until maximum volume is obtained.

ANTENNA TRIMMER LOCATION

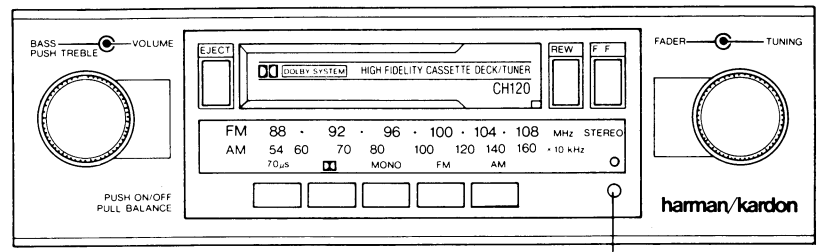

Fig. 5 Antenna Trimmer

1. Always remove the cassette tape from the unit when not in use.
2. When replacing fuse(s), the replacement must be of the same amperage as shown on the fuse holder. If the fuse(s) blow more than once, carefully check all electrical connections for shorted circuitry. Have your car's voltage regulator checked also. Do not attempt to repair the unit yourself ; consult your nearest Harman Kardon Service Station for servicing.
3. In order to ensure proper performance, be sure the temperature in your car is within the range of 14° F (−10 °C) to 140° F (60°C) before turning your player on. Good air circulation is essential, especially in hot weather, to prevent internal heat build-up in the unit.
4. C-120 type cassette tapes are not recommended for use in automobile tape players.
5. Prevent any foreign objects from entering the cassette opening as the precision mechanism and tape head could be damaged.
6. When your tape is not in use, store in the case provided by tape manufacturer.
7. To protect your cassette tapes, store them in a cool place away from dust, dirt and strong magnetic sources such as electric motors and TV sets.
8. Check and make sure any slack in the tape is taken up before inserting the tape into the unit. A loose tape could cause damage to the unit and the tape itself. Tighten the cassette by inserting a pencil or a similar instrument into the spindle hole and turn until all the slack has been taken up.

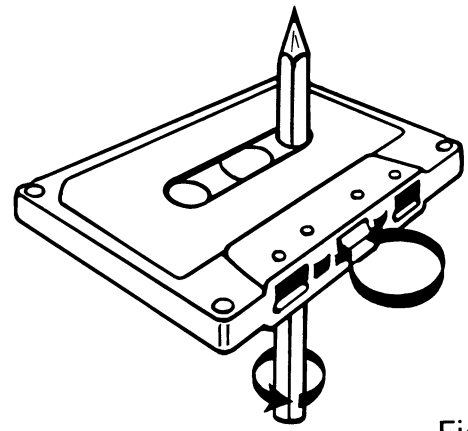

Fig. 6

CLEANING

It is recommended that the tape head be cleaned after every 10 hours of use. To do so, insert a special head cleaning cassette into the tape loading slot and allow it to run for a few minutes.

TROUBLESHOOTING CHECKLIST

Most of the problems are due to incorrect operation of this unit. If this unit does not operate as you intended, first check the items in the checklist. Also check other related components such as the speakers, amplifier and other electrical equipment you use with this unit.

Problem	Cause	Remedy
The tape does not run.	● Tape has too much slack.	● Eject the cassette and remove tape slack.
Sound flutters.	● Tape head, capstan or pinch roller is dirty. ● Cassette tape is bad.	● Clean those parts using a special cleaning cassette. ● Use new cassette.
Unit does not play back.	● Incorrect connection. ● Sound is not recorded on the tape. ● Tape head is dirty.	● Be sure all connections. ● Exchange with a recorded tape. ● Clean the tape head.
Sound is distorted.	● Tape head is dirty. ● Incorrect setting of the 70 μSEC SWITCH.	● Clean the tape head. ● Set 70 μSEC SWITCH according to the type of tape.
High frequency sound is not clear.	● Tape head is dirty. ● Incorrect operation of DOLBY NR or 70 μSEC SWITCH.	● Clean the tape head. ● Set the switch correctly.
Broadcast cannot be heard.	● The tape is running. ● Incorrect connection of the antenna.	● Eject the cassette. ● Check the antenna connection wire.
AM sound is noisey.	● The unit is effected by the amplifier.	● Move the amplifier to a location farther away from the antenna.
Sound has ignition noise.	● Poor connection of ground. ● Poor power line filtering.	● Be sure to secure ground lead. ● Add a power line filter to the + Battery wire.