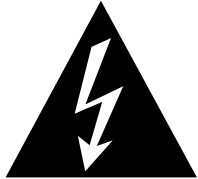


ENGLISH



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION: POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

Harman Kardon TU950

Date of purchase _____

Purchased from _____

Address of business purchased from _____

Installed by _____

Date Installed _____

Serial No. _____

Thank you for choosing a Harman Kardon AM/FM Tuner.

Your new Unit is an exceptionally well-engineered product that will give you years of superb performance.

Save all packing material.

It is essential for shipping should you move, or in the event the unit ever needs repair.

U.S. and Canadian customers should use 120 volt AC only. Other customers should use voltages appropriate to their area. Connecting the unit to an outlet supplying a higher voltage may create a fire hazard.

HANDLE THE POWER CORD GENTLY

- To disconnect the plug from the AC outlet, pull on the plug itself, not on the cord.
- Disconnect the plug from the AC outlet whenever the unit is to be left unused for an extended period of time.
- Do not place furniture or other heavy objects on the cord, and avoid dropping heavy objects on it. Also do not make a knot in the cord.

PLACE THE UNIT ON A FIRM AND LEVEL SURFACE

Avoid installing it:

- In moist or humid places
- Close to heating equipment or in places exposed to direct sunlight
- In a direct draft from an air conditioner or in other very cold locations
- In places subject to excessive vibration or dust
- In poorly ventilated places

MOVING THE UNIT

Before moving the unit, be sure to unplug the power cord from the AC outlet and disconnect all wires to antennas and other components.

SERVICE

Call your local distributor for service.

DO NOT OPEN THE CABINET

Do not attempt to service this unit. Tampering with internal components can cause fire or shock, and may void your guarantee. If water or a small object enters the unit, unplug the power cord immediately and consult an authorized Harman Kardon service center. Using the unit under such conditions may cause a fire or shock hazard.

CLEANING

Remove dust by wiping the unit with a soft, dry cloth. If necessary, use a soft cloth lightly dampened with mild soapy water; then wipe with a dry cloth. Never use benzene, thinner, alcohol or other volatile agents, and avoid spraying insecticides near the unit.

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WELCOME TO RDS!

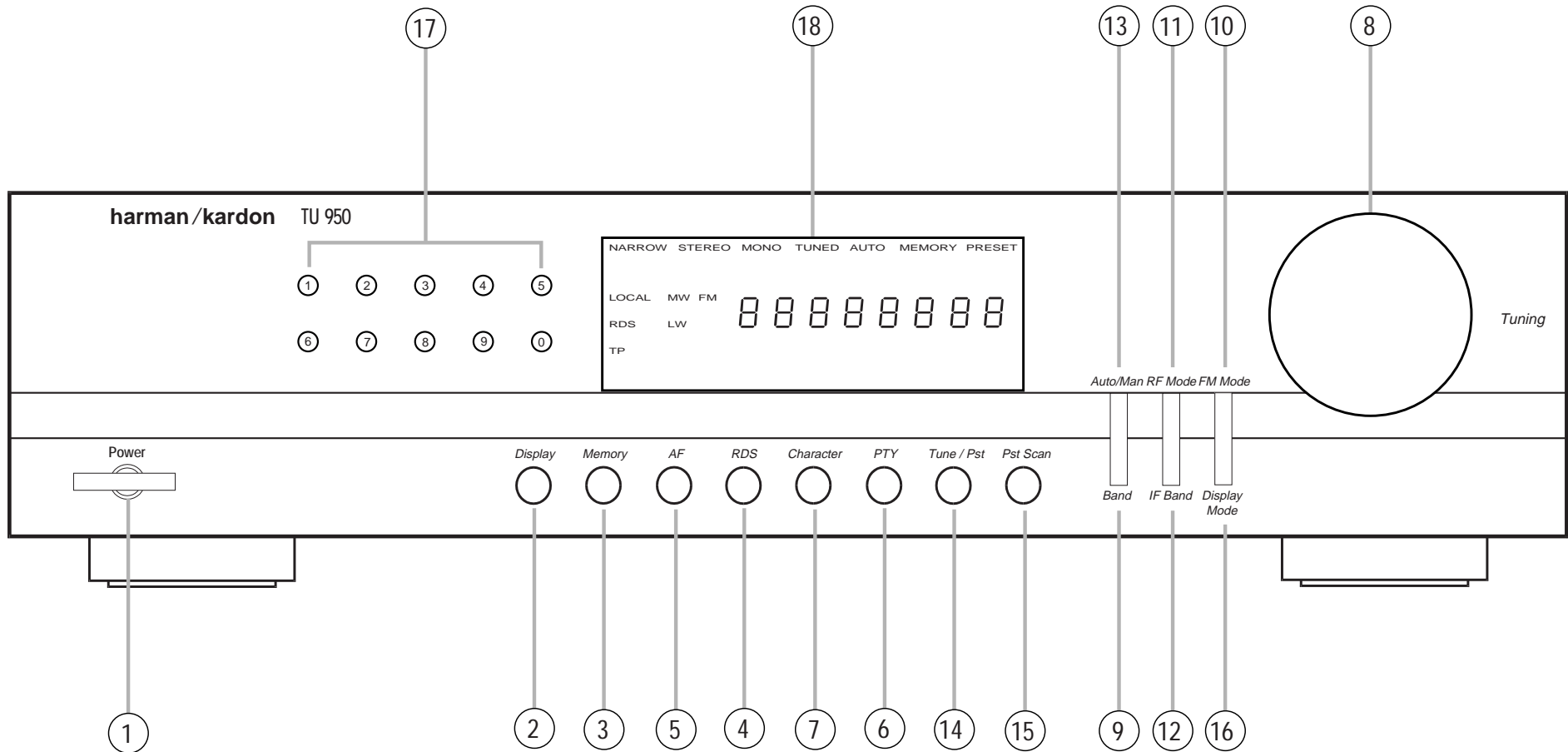
Your new TU950 is equipped with RDS (Radio Data System), which brings a wide range of information to FM radio listeners. Now in use in many countries, RDS is a system for transmitting station call signs or network identification, a description of the station's programming, indication of national, regional or local programmes and the correct time. Additional RDS services include a list of alternate frequencies for a specific network or programme and traffic information.

The TU950 features a wide range of control systems that enable you to use RDS information to search for favorite programme type or to automatically tune to the best station carrying your selected network. A large, bright fluorescent display brings all this information to you with high visibility.

As more FM stations become equipped with RDS capabilities, the TU950 will serve as an easy to use center for both information and entertainment.

Front Panel Controls and Displays

ENGLISH



Front Panel Controls and Displays

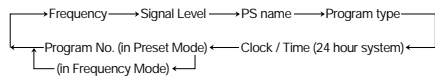
1. POWER BUTTON

Press this button to turn the unit on. Press it again to turn the unit off. Note that the rings above and below the button will glow green when the unit is on.

2. DISPLAY BUTTON

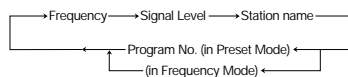
Pressing this button will display information about the current frequency or station. Each press of the button will cycle the display to the next item in the sequence. The information available will vary with the band in use and the availability of RDS information.

a) Display for FM stations when RDS is turned on:

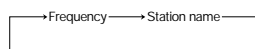


Note: Due to the nature of RDS transmissions, the unit needs to be tuned to a station for a short period before the time display will appear. This is normal and does not indicate a fault with either the unit or broadcast station.

b) Display for FM station when RDS is turned off:



c) Display for MW or LW:



3. MEMORY BUTTON

This button is used to enter stations into the preset memories. The memory indicator blinks when the button is pressed.

See page 9 for instructions on using the memory system.

4. RDS BUTTON

Pressing this button once turns on the RDS system for FM broadcasts and is confirmed by illumination of the RDS indicator on the display panel. When the unit is in the RDS mode and is tuned to a station transmitting RDS data, the station's frequency will be shown briefly and the display will then switch to the call letters or other identifying information contained in the RDS data signal.

When no signals are available with RDS data, the display will indicate "NO RDS".

Pressing this button twice, or until the RDS and TP indicators light up activates the RDS Traffic Program. When in this mode, the tuner will display RDS data if it is transmitted, as well as special traffic advisories when available.

5. AF BUTTON

Pressing this button when the RDS system is turned on and RDS data is present will cause the tuner to automatically scan up to six alternative frequencies for the same network or service tuned. It will then select the frequency that offers the

best reception. If no list of alternate frequencies are available, the tuner will display a "NO AF" message. This feature is particularly useful when listening to national radio networks where the same program is broadcast on a number of transmitters.

6. PTY BUTTON

Press this button to select a particular PTY (Programme Type) according to the information transmitted by an RDS station. After pressing PTY, turn the Tuning Knob (#8) to select from one of the following programme types:

- NEWS
- AFFAIRS: Political and current events
- INFO: General information, financial and trading news, medical conference and weather information
- SPORT: Sporting events
- EDUCATE: Scholastic and industrial education programmes
- DRAMA: Broadcast plays and literature performances
- CULTURE: Cultural, religion and community programmes
- SCIENCE: Scientific and technical programmes
- VARIED: Entertainment
- POP M: Popular music
- ROCK M: Rock music
- M O R: Middle of the Road Music

- LIGHT M: Light Classical Music
- CLASSICS: Serious Classical Music
- OTHER M: Other types of musical programmes, i.e. Jazz, Reggae, Rap, etc.

• ALARM

After selecting a programme choice, press the PTY button again to begin the search. The unit will scan all RDS stations and tune to the station with the strongest signal transmitting the selected programme type. If no station with the selected programme type is available in your area, the display will show NO PTY and return to the previous station.

7. CHARACTER BUTTON

This button enables the system which permits you to enter or modify the name of any FM, LW or MW station which is not broadcasting in RDS.

To enter a name, press the CHARACTER button once and observe that a line will flash under the first digit of the display.



Turn the tuning knob until the desired letter, number or symbol appears.

Press the button again to advance to the next digit. Repeat the procedure for all places in the display, using the tuning knob to select a character and

the CHARACTER button to advance to the next digit.

When all eight digits have been programmed, press the MEMORY button (#3), then select a memory location (1-30) using the NUMERIC buttons (#17).

The name may be called up at any time by pressing the DISPLAY button.

8. TUNING/SELECT KNOB

This knob has a number of functions, although its primary use is to select stations. In normal use, turn the knob in either direction to move through the selected band to find a station. When the "TUNED" indicator lights, the station is properly locked in.

In addition to standard tuning, a number of automated tuning methods are available:

- In the FM mode, when the AUTO/MAN button (#13) is pressed so that the "AUTO" indicator is illuminated, turning the tuning knob will cause the tuner to scan higher frequencies when moved clockwise and lower frequencies when moved counterclockwise. The tuner will stop at the first station that has sufficient signal to be properly tuned. Turn the knob again to tune to the next available station. Note that when the RDS system is turned on, the tuner will only stop at stations transmitting RDS data

but it will pause briefly without stopping at all other stations that may be received if the RDS system is turned off.

- When the TUNE/PST button is pressed so that the "PRESET" indicator is illuminated, turning the tuning knob will move the tuner up or down through the stations programmed into the unit's memory. When the desired preset station number appears, press the button to view the station's frequency.

As described above, the Tuning/Select Knob also functions as a selector for the PTY (#6) and CHARACTER (#7) functions.

9. BAND BUTTON

Each time this button is pressed the frequency band being tuned is changed in the following order:



10. FM MODE BUTTON

Pressing this button changes mode of FM reception.

- When the button is pressed so that the red "STEREO" indicator is illuminated, the unit will tune to FM stations broadcasting a stereo signal.

- When the button is pressed so that the "STEREO" indicator is not lit, the unit will tune to all FM stations. When a stereo signal is tuned in the mono mode, the left and right channel signals are mixed together and sent to both channels.

NOTE: When experiencing weak or noisy reception of a stereo broadcast, reception quality may be improved by pressing the FM MODE button to switch to mono.

11. RF MODE BUTTON (FM TUNING ONLY)

Pressing this button adjusts the tuner to compensate for RF intermodulation noise caused by interference from other stations in your area.

- In urban areas where reception is strong and there are many stations, press the button until "LOCAL" indicator is illuminated. This will reduce intermodulation noise and provide better sound quality.
- When tuning distant stations press the button so that the "LOCAL" indicator is not lit. This improves the tuner's ability to receive weak signals with lower noise.

12. IF BAND BUTTON (FM TUNING ONLY)

Pressing this button changes the pass band of the intermediate frequency to compensate for interference from adjacent stations.

- **NARROW:** When reception is disturbed by interference from other stations, press the IF BAND button until the "NARROW" indicator is lit. This improves reception.
- **WIDE:** For normal reception, press the IF BAND so that the "NARROW" button is not lit.

13. AUTO/MANUAL SWITCH

Pressing this button so that the "AUTO" indicator is illuminated engages the automatic tuning system. When in the "AUTO" mode, turning the Tuning Knob (#8) causes the tuner to scan to the next available station and stop. Turn the Tuning Knob again to continue through the frequency band to another station.

14. TUNE/PST BUTTON

Pressing this button so that the "PRESET" indicator is illuminated allows tuning through the preset stations in ascending or descending order using the tuning knob (#8). When the button is pressed so that the "PRESET" indicator is not lit, tuning is manual.



15. PST SCAN BUTTON

Pressing this button puts the tuner into an automatic mode that steps through each of the stations that have been preset into the unit's memory. Each programmed station will be played for approximately five seconds and then the next programmed station will be played. To stop the tuner at a desired station, simply press the PST SCAN button.

16. DISPLAY MODE BUTTON

Pressing this button dims the intensity of the front panel display indicators. Press the button again to return indicators to their normal brightness.

17. NUMERIC PRESET BUTTONS

These buttons are used to select stations that have been entered into the preset memories or to enter those stations in conjunction with the MEMORY button (#3).

- To recall a previously programmed station, press the appropriate button. For single digit numbers (1 - 9), press the number and the station will be tuned in a few seconds. To recall preset locations 10 through 30, press the desired buttons in order and the station will be tuned in a few seconds.
- To use the buttons to enter a station to the preset system, follow the instructions on page # 9.

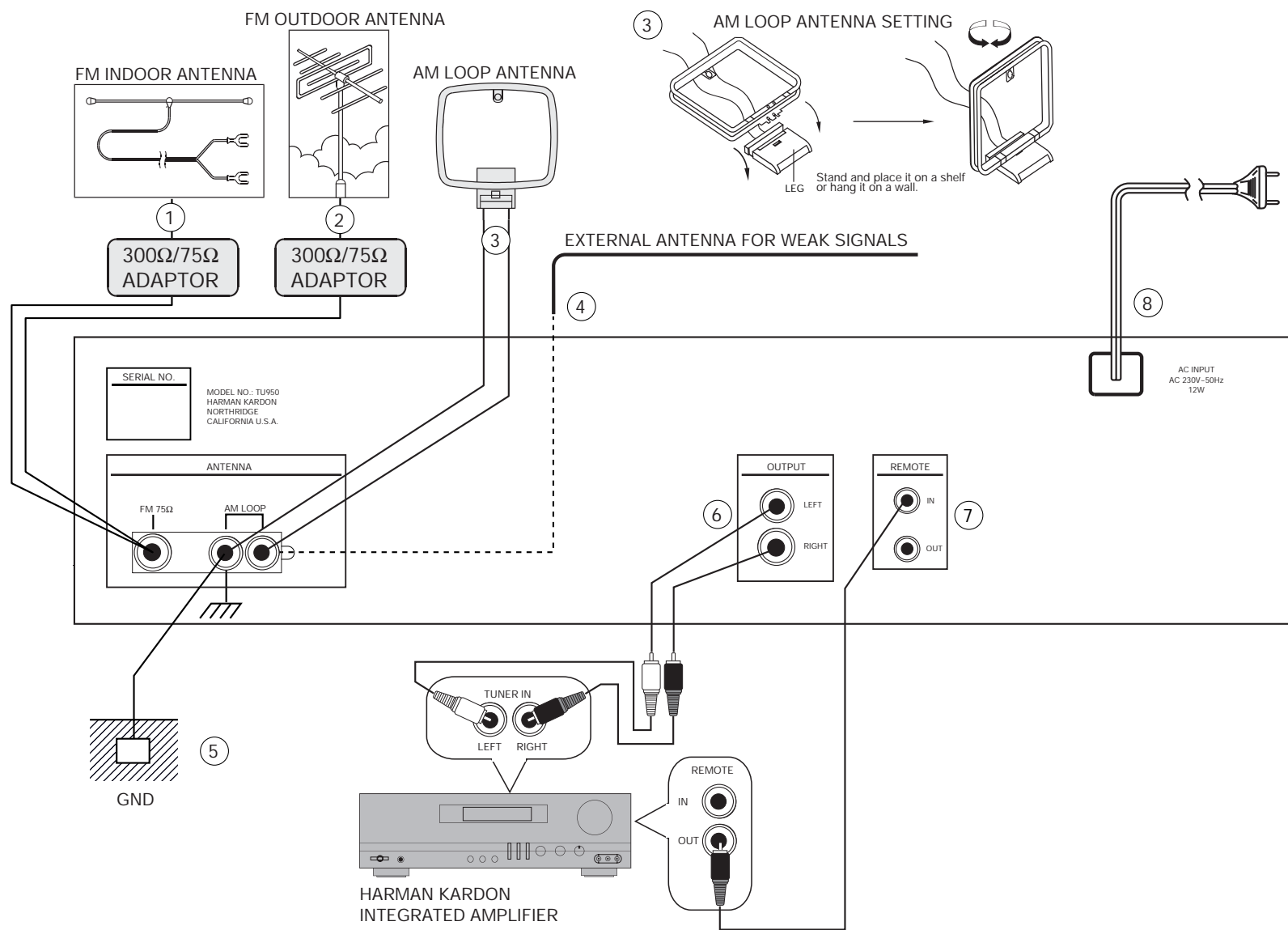
18. FLUORESCENT DISPLAY

The display panel contains a large 8 digit display for station frequency information and RDS data, as well as status indicators for various tuner functions and operating states.



Rear Panel Connections

ENGLISH



Rear Panel Connections

FM INDOOR ANTENNA

Select the FM antenna that best meets your needs:

1. An indoor dipole antenna is supplied with your TU950 (#1). Connect it to 75Ω FM Antenna adapter as shown on the Rear Panel Connections diagram. This will work well if you are located in a strong signal area but it may be necessary to change the position of the antenna until you get the best reception of your favorite stations. Make certain that the half wave antenna is extended to its full length.
2. Other optional indoor antennas are available from your dealer. They may improve reception by offering greater positioning flexibility.
3. If reception is unsatisfactory using indoor antennas, an outdoor antenna should be installed (#2). Disconnect the indoor antenna before replacing it with an outdoor

one. Use the 300Ω/75Ω adapter if the lead from the antenna is 300Ω twin lead wire.

4. The TU950 may also be connected to the FM service of a cable antenna system.

AM ANTENNA

The TU950 comes with an MW/LW antenna (#3) that provides good reception in most locations. Connect this antenna to the screw terminals marked "AM ANTENNA" as shown on the rear Panel Connections diagram. For best reception, place the antenna away from the unit as well as from sources of RF emissions such as a television or computer. It should also be placed away from contact with any metal object.

In areas where MW/LW signals are weak, an outdoor antenna may improve sound and reception quality. Connect the antenna as shown in the Rear Panel Connections diagram making certain to also connect a ground wire to the "GND" terminals.

CONNECTION TO PREAMPLIFIER OR INTEGRATED AMPLIFIER

Using the cable provided, connect the left and right OUTPUT jacks on the back of the TU950 to the TUNER input on your preamplifier or integrated amplifier (#6). Be certain to observe proper channel connections using the color coded cables and connectors so that red connects right channels and white connects left channels. To avoid the possibility of intermittent sound and possible damage to your speakers, be certain to push the plug all the way into the jacks.

NOTE: Before making any audio connections, unplug all components of your audio system from their AC power outlets. To reduce the possibility of hum and/or noise in your system, place all audio interconnection cables away from both AC power cords and speaker wires.

REMOTE IN / OUT JACKS

Using the REMOTE IN/OUT jacks it is possible to control the UP/DOWN tuning, BAND and PRESET functions of the TU950 when it is used with a Harman Kardon remote controlled amplifier. Connect the REMOTE IN jack of the TU950 to the REMOTE OUT jack of another Harman Kardon product as shown on the Rear Panel Connections diagram (#7). Use the remote provided with the amplifier by pointing it at the amplifier, not the TU950. If you have additional Harman Kardon components, you may continue the remote control connection by running a wire from the TU950 REMOTE OUT jack to the REMOTE IN jack of the next component to be connected.

AC POWER CORD

Plug this cord (#8) into an AC main outlet or to the switched AC outlet on the rear of your amplifier.

Operation

BAND SELECTION

Press the Band button (#9) to select the desired frequency bands, FM, MW or LW.

AUTOMATIC TUNING (FM ONLY)

When signals are strong and there is no interference, it is possible to quickly and automatically scan all stations.

1. Press the AUTO/MANUAL button (#13) so that the "AUTO" indicator lights up.
2. Turn the tuning knob (#8) slightly to the left or right. Tuning will start automatically and the unit will stop at each station with sufficient signal strength.
3. If another station is desired, turn the tuning knob again and the tuner will scan for the next station.

NOTE: When the end of a tuning band is reached, tuning begins automatically at the beginning of the same frequency band.

MANUAL TUNING

To tune LW or MW bands, or when signal strength does not permit automatic tuning of FM stations, use the manual tuning method.

1. Press the AUTO/MANUAL button (#13) so that the "AUTO" indicator goes off.
2. Turn the tuning knob (#8) clockwise or counterclockwise to tune to stations with increasing or decreasing frequency,

respectively. Moving the tuning knob continuously will change the frequency rapidly. Once the desired frequency is reached, turn the tuning knob slowly until the desired station is tuned, as indicated by the "TUNING" indicator on the front panel display.

NOTE: To tune weak FM stations, press the FM MODE button (#10) so that the "STEREO" indicator goes off, and the RF MODE (#11) button so that the "LOCAL" indicator goes off.

PROGRAMMING STATIONS

The TU950 is capable of storing up to 30 stations for easy recall. To enter the stations to memory, follow these steps:

1. Tune the desired station using one of the methods detailed above. Set the RDS and FM MODE functions as desired.
2. Press the MEMORY button (#3). Note that the "MEMORY" indicator will illuminate and it will flash at the same time as the two right digits on the main portion of the display.
3. Within 5 seconds, enter the desired memory location using the numeric buttons on the front panel. (#17).

NOTE: Enter memory locations 1 through 9 by simply pressing the number desired. Enter locations 10 through 30 by first pressing 1, 2 or 3, and then immediately pressing the second digit.

4. The unit will pause for a few seconds as the station is entered to memory. When the process is complete, the MEMORY indicator will go off and the station's frequency will be displayed.

Stations stored in the tuner's memory may be recalled either directly or in sequence.

DIRECT RECALL OF STORED STATIONS

To directly select a stored station, press the numeric buttons (#17) that correspond to the location of the stored station. The memory location will appear on the front panel display during the selection and the tuner will switch to the selected station after a brief pause.

NOTE: When selecting a station stored in locations 10 through 30 it is important to press the two numbers in a quick sequence. Pausing will cause an incorrect station to be selected.

MANUAL SCAN OF PRESET STATIONS

To manually scan through the preset stations, follow these steps:

1. Press the TUNE/PST button (#14) until the "PRESET" indicator illuminates.
2. Turn the tuning knob (#8) slightly. The tuner will move to the next preset memory location.
3. Turn the knob again to move to the next higher or lower preset.

4. When the desired station has been tuned, press TUNE/PST to recall the frequency display.

AUTOMATIC SCAN OF PRESET TUNING

To automatically scan through the preset stations, follow these steps:

1. Press the PST SCAN button (#15).
2. The tuner will automatically scan the preset memory, playing the station for each programmed location for approximately five seconds.
3. After playing each station, the tuner will scan for the next preset location where a station has been programmed. Memory locations where there is no station will automatically be skipped over.
4. When the desired preset station has been tuned, press the PST SCAN button to stop the scan.

PRESET MEMORY INFORMATION:

- A. A preset station may only be removed from the memory by programming another station in the same numeric location.
- B. The TU950 has a back-up system that stores all information in the preset memories for up to four weeks in the event there is a power loss. If the unit is unplugged from an AC power source for more than four weeks all stations must be reprogrammed.

Troubleshooting

This unit is designed for trouble-free operation. Most problems users encounter are due to operating errors. So, if you have a problem, first check this list for a possible solution. If the problem persists, consult your authorized Harman Kardon Service Center.

problem	PROBABLE CAUSE	REMEDY
Station Display does not illuminate when POWER button is pressed.	The power cord is not plugged into a live outlet.	Make sure cord is plugged in securely. Make sure the outlet is "live."
No sound is heard.	The tuned frequency does not carry a broadcast. The function or speaker switch of the amplifier is not set in the correct position. The connection wires are disconnected or broken.	Tune to a broadcasted station. Check for correct amplifier settings. Check the connections and wires.
FM sound has a large amount of interference.	The antenna is improperly connected. The antenna is poorly located or directed.	Check antenna wires and connections. Change the location, height, and/or direction of the antenna.
The "STEREO" display is not illuminate.	The transmitting station is too far away.	If an indoor antenna is being used, replace it with an outdoor antenna.
Sound distorts and/or volume level becomes low.	Broadcast signals reflected by nearby buildings or mountains are interfering with signals received directly from the transmitting station.	Use a more directional antenna.
Intermittent or continuous buzzing or hissing.	Unit is being affected by nearby electric appliances (fluorescent lights, TV, motors, etc.)	Place the unit farther away from these appliances. Install noise filters on the appliances.
Stations cannot be preset.	The "PRESET" display is not flashing when the desired Preset button is pressed.	Repeat steps on page 9 and re-enter desired station into the preset memory. Be sure that the "PRESET" display is flashing when a Preset button is pressed.
Station selection cannot be made by using the Preset buttons.	Stations have not been entered into the memory.	Enter stations into the memory as per steps on page 9.
Absent or incomplete RDS data from station listed as transmitting RDS.	The station has changed transmission technique or there is a fault at their studio or transmitter.	This is not a fault of the tuner. Contact the broadcast station.
Radio reception is not optimum.	Station is not tuned properly. Antenna is not connected properly.	Check the tuning. Check the antenna connection. Adjust the position of the relevant antenna.h
The tuner locates few stations.	The antenna signals received are too weak.	Check the antenna connection. Adjust the position of the relevant antenna. If this does not give satisfactory results, the stations received are too weak. In this case, consider connection to external antennas or cable network. If these are already fitted, check their connections.

Specifications

ENGLISH

FM SECTION:

Usable FM Sensitivity, Mono (dBf):	11.2
50dB Quieting Sensitivity, Stereo (dbf):	40.3
Signal-to-Noise Ratio @ 65dBf, Mono:	80dB
Stereo:	73dB
Capture Ratio:	2.0dB
Alternate Channel Selectivity	65dB
IF Rejection:	100dB
AM Rejection @ 45dBf:	60dB
Image Rejection:	90db
Spurious Response Rejection:	70db
THD	
@ 40kHz Mod. DIN,	
Mono: Wide	0.15%
Narrow	0.2%
Stereo: . Wide	0.35%
Narrow	0.45%
Stereo Separation	
@ 1kHz, 65dBf:	50dB
Audio Output Voltage	
@ 1kHz, 40khz Mod:	500mV

AM SECTION:

AM Sensitivity, External Antenna:	400 μ V/m
AM Image Rejection:	35dB
AM IF Rejection:	50dB
AM Signal-to-Noise:	45dB
Audio Output Voltage @ 400Hz, 80% Mod.	500mV

GENERAL:

Power Consumption:	110W
--------------------	------

DIMENSIONS (W×H×D):

mm:	440 x 95 x 300
Weight (lbs/kgs):	4.3kg
Depth measurement includes knobs, buttons and antennas.	
Height measurement includes feet.	

All features and specifications are subject to change without notice.

DECLARATION OF CONFORMITY



We, Harman Marketing Europe a/s

Kongevejen 194B
DK-3460 Birkerød
DANEMARK

declare that the product described in
this owner's manual is in compliance
with technical standards:

EN 55013/6.1990, EN 55020/6.1988

Accredited test laboratory:

MIKES PRODUCT SERVICE GmbH

Ohmstrasse 2-4

D-94342 Strasskirchen

GERMANY, 20.09.1995

Steen Michaelsen

Harman Marketing Europe a/s

*The appliance conforms with EEC directive
87/308/EEC regarding interference suppression*