

 **MITSUBISHI**  
**FM STEREO TUNER**  
**DA-F30**  
**INSTRUCTION BOOK**

Congratulations on your choice of the Mitsubishi FM Stereo Tuner Model DA-F30.

For best performance results, please read this instruction book carefully before use.

**WARNING—TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

For future reference a space has been provided below for recording the serial number of your tuner.

Serial #

# PRECAUTIONS

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## 1. GENERAL

### BE SURE TO USE THE CORRECT A.C. POWER SOURCE

The A.C. power requirement is marked on the rear panel of this unit. Connection to any other power source may cause damage to this unit and/or severe electrical shock.

### DO NOT PLUG IN OR UNPLUG THE POWER CORD WITH WET HANDS

There is a great danger of severe electrical shock if the power cord is plugged in or unplugged with wet hands. Do not attempt to unplug the cord from an A.C. outlet by pulling the cord. Firmly grasp the plug to remove it from the A.C. outlet.

### DO NOT ALLOW WATER OR ANY FOREIGN MATTER TO GET INSIDE THIS UNIT

Should water or a metallic object accidentally fall into this unit, immediately disconnect the power cord and consult your authorized service dealer.

### HANDLE THE POWER CORD WITH CARE

Do not bend sharply or twist the power cord. If the insulation becomes damaged, the conductor breaks, or poor contacts occur, request service from your authorized service dealer. Continued use under these conditions, may cause fire or electrical shock.

### DO NOT TOUCH THE INSIDE OF THIS UNIT

There are high voltages inside this unit. Never remove the top or bottom cover. All inspections and repair, including fuse replacement, should be carried out by your authorized service dealer.

### DISCONNECT THE POWER CORD AT THE FIRST SIGN OF TROUBLE

At the first sign of unusual noise, odor or malfunction, disconnect the power cord and consult your authorized service dealer. Continued use under these conditions, may increase damage or cause additional problems.

**THIS PRODUCT IS DESIGNED AND WARRANTED FOR CONSUMER HI-FI USE ONLY. NOT INTENDED FOR INDUSTRIAL OR PRO-AUDIO APPLICATIONS.**

## 2. LOCATION

### AVOID PLACEMENT IN DIRECT SUNLIGHT, NEAR AIR CONDITIONER ETC.

This unit can become unstable if operated in extremely high or low temperatures. Place it in a well ventilated area for proper heat dissipation. Avoid placement in direct sunlight, near air conditioners, poorly ventilated areas or in areas of excess humidity or dust. Do not block the ventilation holes.

## 3. CONNECTIONS

### BE SURE TO TURN OFF THE POWER BEFORE MAKING CONNECTIONS

This is to prevent damage to the speakers from the popping noise which occurs when plugging and unplugging cords.

### USE EXTREME CARE IN MAKING THE CORRECT CONNECTIONS

If you reverse the R (right) and L (left) leads, you will reverse the stereo location of R and L channels.

### MAKE CONNECTIONS SECURELY

If any of the plugs should become loose or disconnected, a hum may develop. If this is not corrected, deterioration of sound quality and possible damage to the speakers may result.

### USE ONLY SHIELDED CORD FOR THE LEADS

Use only shielded cords (supplied with this unit) for interconnecting components. Do not use cords longer than 2 m (6'). Excessive lead lengths can deteriorate high frequency response and are subject to interference that can result in hum or noise.

## 4. OPERATIONS

### BEFORE PLACING THE POWER SWITCH IN THE ON OR OFF POSITION OR OPERATING SWITCHES, ALWAYS TURN THE PREAMPLIFIER'S VOLUME (ATTENUATOR) CONTROL ALL THE WAY DOWN.

This is to protect the speakers from the damage, that can occur if the volume level is set high and the power is turned on.

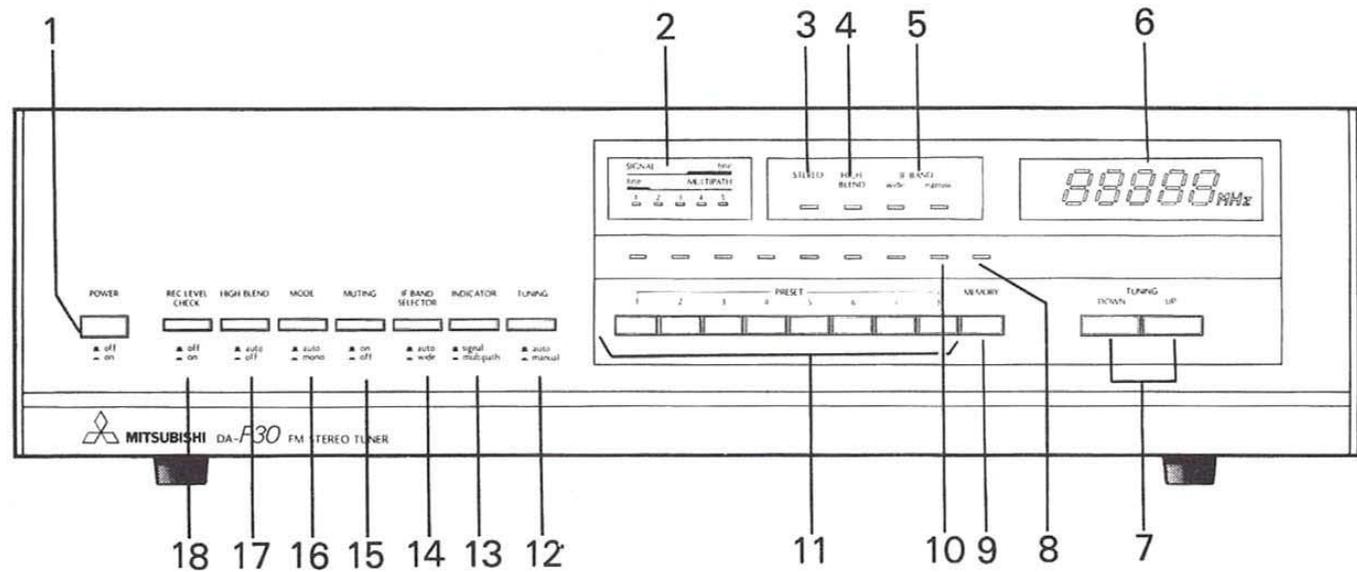
### THERE WILL BE NO SOUND FOR A FEW SECONDS AFTER YOU TURN ON THE POWER. THIS IS NOT A MALFUNCTION.

This unit is equipped with a power supply muting circuit which prevents popping noise when the power switch is turned on or off.

# FRONT PANEL TERMINOLOGY AND FUNCTIONS

## 5. CARE

Wipe the cabinet with a soft cloth when it becomes dusty. If it should get really dirty, dampen a soft cloth in a weak solution of mild soap and water, wring it out dry and wipe off. When finished, dry completely with a soft dry cloth. Any volatile materials such as alcohol, thinner, benzine, insecticides, etc, may remove the paint or damage the luster and should not be used.



### 1. POWER (Power Switch)

This switch is for turning this unit on and off. When in the ON position, the frequency digital display is illuminated.

### 2. SIGNAL/MULTIPATH INDICATOR

Usually, this indicator shows the signal strength level of the input at the antenna. Sufficient signal to noise ratio for stereo reception is obtained when four or more indicator lamps are illuminated. For monaural reception, when three or more indicator lamps are illuminated. When the INDICATOR switch is pressed, this indicator will also the multipath level.

### 3. STEREO INDICATOR

This indicator is illuminated when a FM stereo broadcast is being received. If the MODE switch is in the MONO position, this indicator will not illuminate even when a stereo station is tuned.

minate even when a stereo station is tuned.

### 4. HI BLEND INDICATOR

This indicator is illuminated when a weak FM stereo broadcast is being received. If the HI BLEND switch is in the OFF position or the MODE switch is in the MONO position, this indicator will not illuminate.

### 5. IF BAND INDICATOR

#### wide

This indicator is illuminated when a clear FM broadcast is being received, or when IF BAND SELECTION switch is in the WIDE position.

#### narrow

When the IF BAND SELECTOR switch is in the AUTO position, if interference signals are included in the input signal, the IF bandwidth is automatically switched to the narrow band, and this indicator will illuminate.

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## 6. FREQUENCY DIGITAL DISPLAY

This display expresses the numerical value of the receiving frequency.

## 7. TUNING CONTROL

When the UP or DOWN button is pressed with the TUNING switch in the AUTO position, the reception frequency will change continuously until a broadcasting frequency is reached. If then pressed again, the reception frequency will continue to change until the next broadcasting frequency is reached. When the UP or DOWN button is pressed with the TUNING switch in the MANUAL position, however, the reception frequency will be increased or decreased by a signal 0.2MHz step. Keeping the UP or DOWN button depressed, will cause the frequency to be changed continuously until the button is released.

## 8. MEMORY INDICATOR

This indicator shows that the memory is ready in standby mode.

## 9. MEMORY

When this button is pressed, the MEMORY indicator illuminates for about 5 seconds. To preset a particular broadcasting station in the memory, first tune to the desired frequency by operating the TUNING buttons (7), press this MEMORY button, and then while the MEMORY indicator remains on, press a suitable PRESET button.

## 10. PRESET CHANNEL INDICATOR

These indicators are illuminated when each PRESET switch is pushed.

## 11. PRESET

When any of these buttons is pressed, the frequency already preset in memory will be tuned automatically, and the corresponding indicator above the button will be illuminated.

## 12. TUNING

■ auto For automatic tuning operations.

▬ manual For manual tuning operations.

## 13. INDICATOR

This switch is for selecting the mode of indicator.

■ signal Indicator shows the signal strength level of the input at the antenna.

▬ multipath Indicator shows the multipath level of the input at the antenna.

## 14. IF BAND SELECTOR

■ auto In this position, the IF band will be switched automatically to either narrow or wide, depending on the input signal condition. If interference input signals are received, the narrow bandwidth will be selected automatically.

▬ wide For receiving an FM broadcast when there is no interference from near by stations. In this position, the lowest distortion reception is obtained.

## 15. MUTING SWITCH

This switch is for eliminating the interstation noise present when selecting a broadcast station.

■ For receiving a normal FM broadcast. In this position, interstation noise is eliminated while selecting a broadcast station.

▬ For receiving a weak FM broadcast. In this position, the interstation noise is not eliminated while selecting a broadcast station, enabling weaker FM broadcast stations to be tuned in.

## 16. MODE SELECTION SWITCH

This switch is for selecting the mode of reception you desire.

■ auto For receiving stereo FM broadcasts. In this position, stations broadcasting in monaural will automatically be heard in monaural.

▬ mono For receiving monaural FM broadcasts. In this position, stereo broadcasts will be received monaurally.

## 17. HI-BLEND

■ auto In this position the HI-BLEND circuit is switched automatically, depending on the input signal level. If a strong input signal is received, the circuit will automatically switch off.

▬ off In this position the HI-BLEND circuit is switched off, irrespective of the input signal level.

## 18. REC LEVEL CHECK SWITCH

This switch is used for the adjustment of the recording level when FM broadcasts are recorded. When this switch is in the ON position, a sine wave of 440Hz, which is equivalent to 50 % FM modulation, will be produced at the output. For more details, see page 9.

# REAR PANEL TERMINOLOGY AND CONNECTIONS

## ANTENNA (Antenna Terminals)

These terminals are used for connecting an FM antenna. For more details, see page 6 and 7.

**FM 75Ω (75 ohms Antenna Terminals with Holder)**

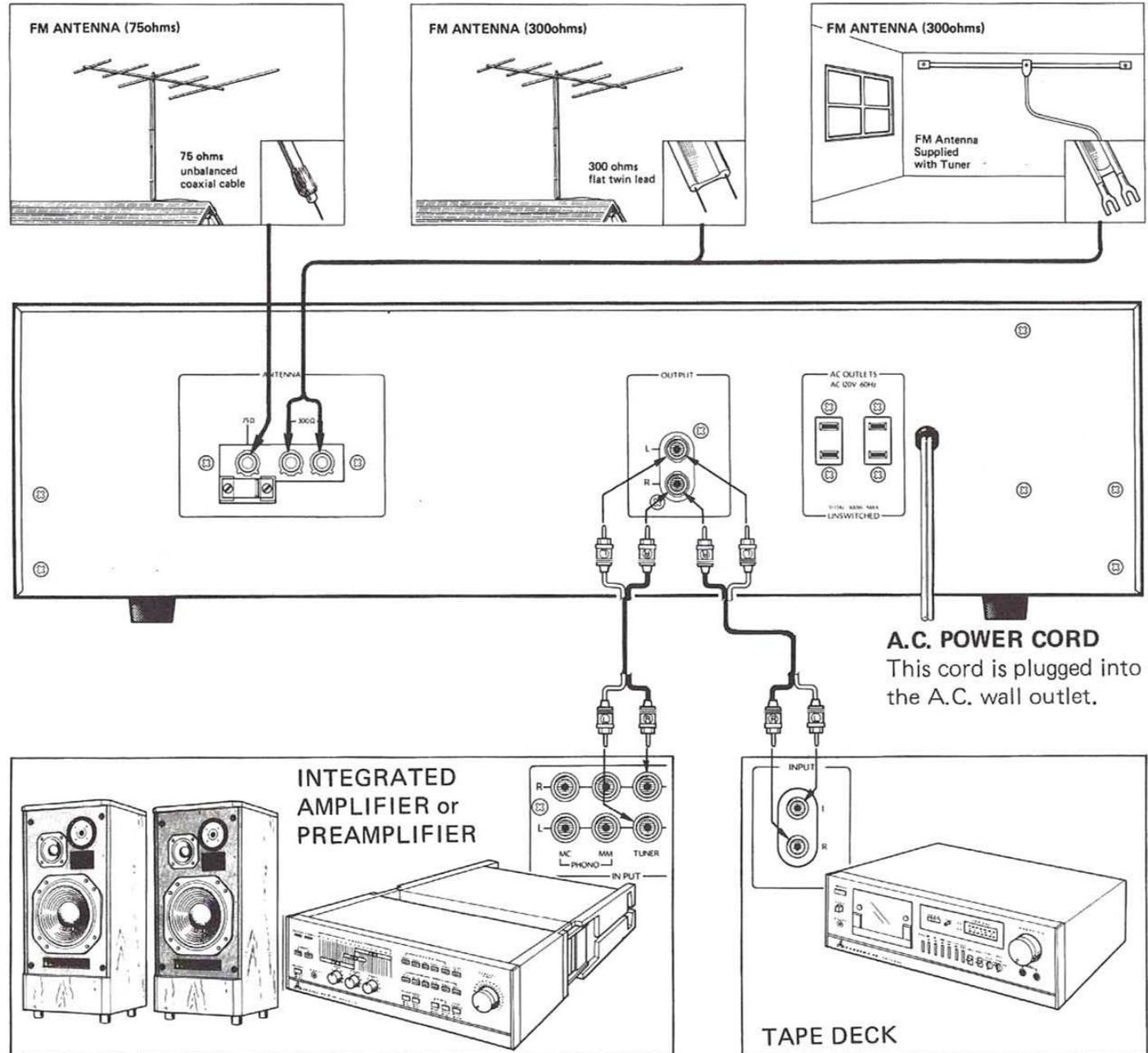
For connecting 75 ohms coaxial cable.

**FM 300Ω (FM 300 ohms Antenna Terminals)**

For connecting 300 ohms flat twin lead.

## OUTPUT (Tuner Output)

For connecting to the "tuner" inputs of the integrated amplifier or preamplifier.



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# INFORMATION ON ANTENNA

## 1. FM ANTENNA

For excellent reproduction of FM broadcasts, a proper FM antenna is a necessity.

### CHOOSE THE PROPER ANTENNA FOR YOUR AREA

#### ● AREAS WHERE THE STATIONS ARE CLOSE AND THE SIGNALS ARE STRONG

The use of an outdoor FM antenna is recommended but the T shaped antenna provided with this unit can also be used. When using the T shaped antenna, connect it to the FM 300Ω terminals. While listening to an FM station, attach the antenna to the ceiling or wall. The strength of the signal will change with the direction of the horizontal part of the antenna. Orient it in the direction that brings the strongest and best reception.

#### ● AREAS WHERE SIGNALS ARE WEAK BECAUSE OF LONG DISTANCE FROM FM STATIONS OR WHERE BUILDING CONSTRUCTION BLOCKS THE SIGNALS

Use an outdoor FM antenna of from 3 to 8 elements located in the highest possible place. Usually 300 ohms flat twin lead is used between the antenna and the tuner. It should be connected to the FM 300Ω terminals.

#### ● AREAS WITH A LOT OF INTERFERENCE OR NOISE

If you live in the city where there is a lot of automobile traffic, near industrial plants, or near high voltage lines, you may encounter noise even if you install an outdoor FM an-

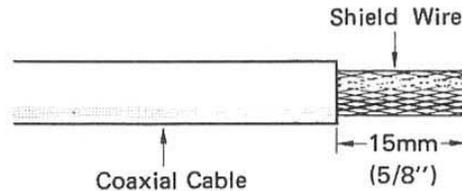
tenna. In such areas, it is necessary to connect the antenna to the tuner with 75 ohms coaxial cable. When using 75 ohms coaxial cable, connect it to the FM 75Ω terminal.

### HOW TO ATTACH COAXIAL CABLE

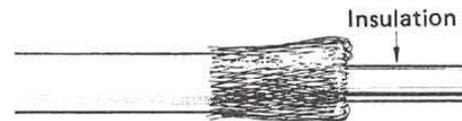
Use a coaxial cable cutter or some other suitable instrument such as a wire cutter, etc.

#### TO 75 OHMS TERMINALS WITH HOLDER

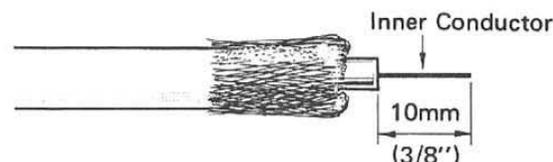
- 1 Cut back the outer insulation of the cable to a distance of 15 mm (5/8").



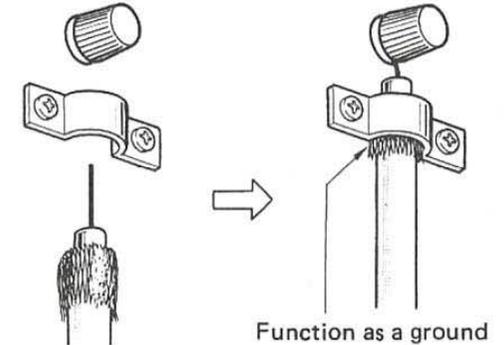
- 2 Peel the braided shield wire back over the outer insulation of the cable.



- 3 Cut the insulation from the inner conductor to a distance of 10 mm (3/8").



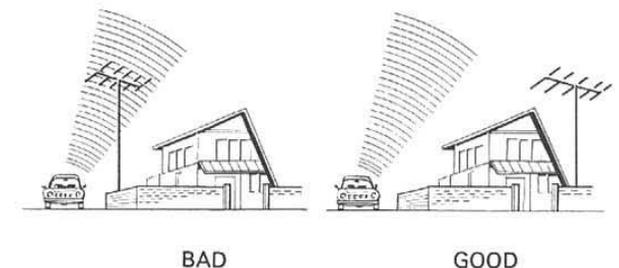
- 4 Insert the end of the coaxial cable into the holder of the FM 75Ω terminals and fasten the inner conductor down. Then tighten the holder, over the braided portion of the cable.



### HOW TO POSITION THE FM ANTENNA

- Locate the antenna where the broadcasting station's signals can be received directly without obstruction, such as buildings, etc. In places where the radio signal cannot be received directly, as in between tall buildings, find the optimum location for the antenna by rotating to the position of least noise and distortion while listening to the signal.
- To avoid automobile ignition noise, place the antenna as far from roads as possible.

#### Positioning of FM Antenna



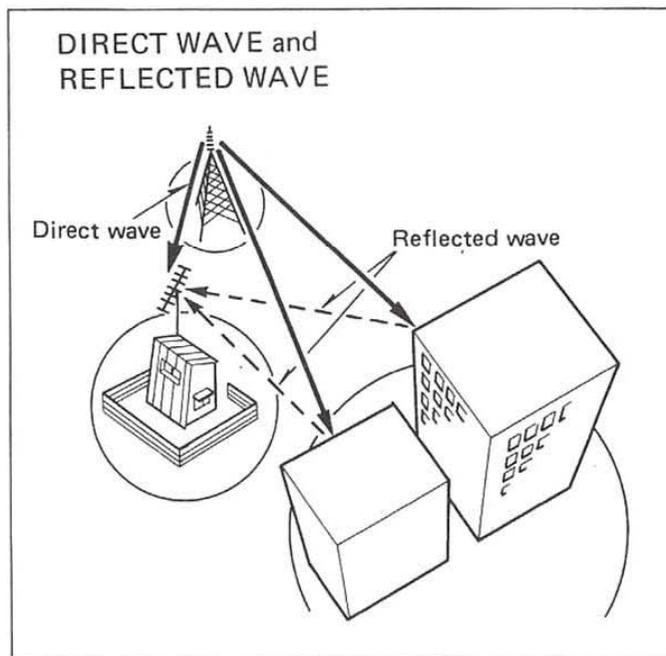
## FM MULTIPATH ADJUSTMENT

- As a rule the higher the antenna, the better the reception, but in certain places a medium height is best.
- FM antennas have a characteristic called "directivity", which means that they receive signals best from a certain direction. Be sure to orient the antenna so that it is pointing toward the transmitting antenna of the broadcasting station.
- Position your FM antenna in the direction which will minimize multipath interference. For more details, see "FM MULTIPATH ADJUSTMENT" section on page 7.

### ATTENUATION

If you experience audible distortion, or if you are unable to get adequate station separation during FM reception, this indicates that signals may be too strong. By using an attenuator, this problem can be overcome. Please consult your authorized audio dealer for additional information.

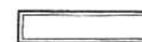
FM radio waves behave somewhat like light waves, and when there are buildings or other objects near the receiver antenna, the waves are reflected as shown in the diagram. When these reflected waves enter the antenna at the same time as the direct waves, the two waves interfere with each other and produce distortion in the receiver. This is termed "multipath distortion"; The result of multipath is distortion in the sound and poor stereo separation. To prevent such multipath interference, use the most directional antenna you can obtain (one with the most elements) and point it either directly at the station's broadcasting antenna or in a direction where no multipath effects are noticed. To determine the direction of least multipath interference, this unit is equipped the multipath indicator. Adjust your antenna position by the following method.



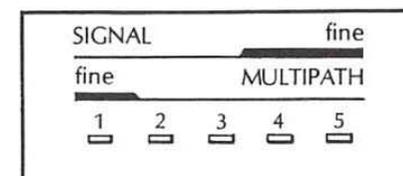
### ADJUSTMENT

After tuning to the desired broadcasting frequency, press the INDICATOR switch to the MULTIPATH position (  ). If any multipath interference is being received at that frequency, the level will be shown in the SIGNAL/MULTIPATH indicator. This level must be reduced to a minimum, and this may be done by changing the direction and/or the position of the antenna.

INDICATOR



 signal  
 multipath



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# OPERATIONS

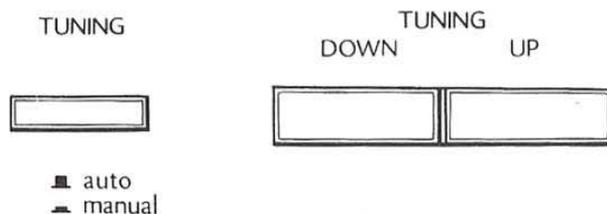
## BEFORE OPERATING

Check to ensure that the FM antenna, the amplifier and all other components are properly connected and operating normally before the POWER switch is in the ON position.

## 1. LISTENING TO BROADCASTS

### Auto Tuning

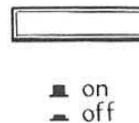
- 1 Press the POWER switch (1) ON.
- 2 Leave the TUNING switch (12) in the  AUTO position.
- 3 All other switches are also to be left in the  position.
- 4 Then press the UP TUNING button (7) if the frequency of the desired broadcasting station is higher than the frequency shown in the FREQUENCY display, or press the DOWN button if it is lower. When either button is pressed, the reception frequency will change continuously until a broadcasting station frequency is reached. To tune to the next station, simply press the button a second time. If the signal of the desired broadcasting station is not very strong, however, automatically tuning will not stop at that frequency. Such stations must be tuned manually as described in the next procedure.



### Manual Tuning

- 1 Press the POWER switch (1) ON.
- 2 Press the TUNING switch (12) into the  MANUAL position.
- 3 Leave all other switches in the  position.
- 4 Then press either the UP or DOWN TUNING button (7) until the frequency of the desired broadcasting station appears in the FREQUENCY display. The display frequency may be changed in 0.2MHz steps by pressing the UP or DOWN button in single push button operations, or continuously by keeping either button depressed. Note that if the signal of the desired station is rather weak, the signal will quite likely be muted, and no sound will be heard. In this case, press the MUTING switch (15) OFF .

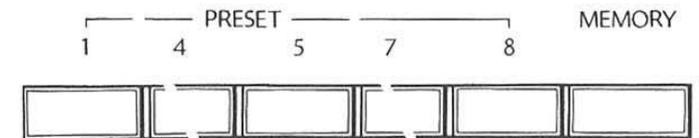
MUTING



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### Preset Tuning

- 1 First tune to the frequency of the desired broadcasting station. This may be done either manually or automatically, it does not matter which method is used.
- 2 Press the MEMORY button (9), resulting in the MEMORY indicator (8) being illuminated.
- 3 Then, while this MEMORY indicator remains on (approximately 5 seconds) press any suitable PRESET buttons (11) from 1 to 8.
- 4 The tuned frequency is thus preset in that channel. Other frequencies may likewise be stored in any of the other remaining channels. To tune to any of the preset frequencies, simply press the relevant PRESET button (11). The corresponding PRESET channel indicator will be illuminated. Preset frequencies may be altered at any time by simply repeating the above procedures. The previously preset frequency will be erased automatically, and the new frequency preset.



**NOTE:** If you experience excessive noise when listening to a weak FM station, turn the MODE switch to the MONO position. The broadcast will not be in stereo but the noise will decrease. This measure should only be necessary to reduce noise when listening to a very weak stereo broadcast.

## 2. RECORDING FOR BROADCASTS

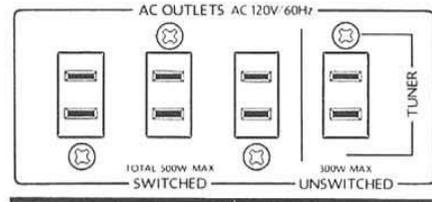
### ● RECORDING THROUGH AN AMPLIFIER

- 1 Connect the OUTPUT to the "tuner" inputs on the amplifier.
- 2 Rotate the "selector" switch on the amplifier to the "tuner" position. Tune the broadcast you wish to record.
- 3 Operate the tape deck in the recording mode. Then place the REC LEVEL CHECK switch in the ON position. Set the proper recording level with the "input" controls on the tape deck. The proper positions of the meter are 0 to 2 dB (VU) for an open deck and -2 dB (VU) for a cassette deck. Recording may commence after placing REC LEVEL CHECK switch in the OFF position.

**NOTE:** Before placing the REC LEVEL CHECK switch in the ON position, decrease the position of the "volume" control on the preamplifier since the output of the record level check is higher than the normal program sources.

**NOTE:** In order to preserve the preset memory contents, leave the power cord connected to an UNSWITCHED AC OUTLET of the amplifier or to the A.C. wall outlet. If the power cord is left unplugged for more 3 days, the preset frequencies will be erased.

The illustration shows the UNSWITCHED AC OUTLET of the companion pre-amplifier DA-P30.



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### ● RECORDING DIRECTLY TO THE TAPE DECK

- 1 Connect the OUTPUT to the inputs on the tape deck.
- 2 Tune the broadcast you wish to record.
- 3 Operate the tape deck in the recording mode and listen to the broadcast with headphones connected to the tape deck. Then adjust the record level as in section 3 above.

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## BEFORE TAKING YOUR TUNER IN FOR SERVICING....

First check to ensure that all other components are properly connected to this unit and are operating normally. Then check the following items.

SYMPTOM	CAUSE	REMEDY
◇ Power does not come on when the POWER switch is turned on.	◇ Power cord not completely plugged in. ◇ Fuse has blown	◇ Plug in completely. ◇ Consult your authorized service dealer.
◇ No sound	◇ "Selector" switch on the preamplifier not set to "tuner" position.	◇ Set the "selector" switch to "tuner" position.
◇ Noise	◇ Antenna not connected properly or not set in the proper direction.	◇ Connect the antenna properly or set in the proper direction.
a) Hum	◇ Noise from electrical appliances (fluorescent lights, TV, motors, etc.) ◇ Unfavorable listening location or problem at the radio station.	◇ Remove as far as possible from the noise source or eliminate the appliances. ◇ Difficult to correct.
b) Scratching noise	◇ Auto ignition noise	◇ 1. Change antenna direction. 2. Move outdoor antenna as far as possible from the road. 3. Substitute 75 ohms coaxial cable for 300 ohms flat twin lead. 4. Difficult to correct without eliminating source of noise.
c) Continuous hissing in between stations.	◇ Normal noise on the FM band	◇ Turn the MUTING switch to ON, the muting switch will be turned on and this noise should not be heard.
d) More noise on stereo than monaural.	◇ This is due to the fact that it requires more signal strength to secure better stereo broadcast than monaural.	◇ 1. Turn the MODE switch to the MONO position. 2. Install outdoor antenna.
e) Hissing noise	◇ Noise from electrical appliance (fluorescent lights, TV, motor, etc.)	◇ 1. Install outdoor antenna and attach a good ground. 2. Difficult to correct without eliminating the source of noise.
f) Interference caused by amateur radio signals.	◇ Interference noise by high or low harmonics from amateur radio stations.	◇ Discuss with the amateur radio operators concerned.
g) Difficulty in listening to the station because it is weak and covered by noise.	◇ Weak signal	◇ Install outdoor antenna.
◇ Poor sound quality	◇ Radio signals too strong. ◇ Radio signals too weak.	◇ Install the attenuator in between the antenna and the antenna terminals. ◇ Install outdoor antenna.
◇ Stereo indicator not lighting on stereo broadcasts. ◇ Volume level difference between tuner and records.	◇ Weak signals. ◇ MODE switch is in the MONO position. ◇ Receiver signal strength and record level are different.	◇ Install outdoor antenna. ◇ Place the MODE switch in the AUTO position. ◇ It is not always possible to remedy this completely.

# SPECIFICATIONS

## 1. TUNER SECTION

<b>Usable sensitivity</b>	
<b>MONO</b>	10.3dBf (1.8 $\mu$ V)
<b>50dB quieting sensitivity</b>	
<b>MONO</b>	16.1dBf (3.5 $\mu$ V)
<b>STEREO</b>	37.3dBf (40 $\mu$ V)
<b>Signal to noise ratio at 85dBf</b>	
<b>MONO</b>	WIDE 84dB NARROW 84dB
<b>STEREO</b>	WIDE 78dB NARROW 78dB
<b>Signal to noise ratio at 65dBf</b>	
<b>MONO</b>	WIDE 82dB NARROW 82dB
<b>STEREO</b>	WIDE 74dB NARROW 74dB
<b>Frequency response</b>	$\pm 0.5$ dB from 30Hz to 16kHz $\pm 0.5$ dB from 50Hz to 15kHz
<b>Total harmonic distortion at 1kHz, 65dBf</b>	
<b>MONO</b>	WIDE 0.05% NARROW 0.15%
<b>STEREO</b>	WIDE 0.08% NARROW 0.25%
<b>Capture ratio</b>	WIDE 1.0dB NARROW 1.5dB
<b>Alternate channel selectivity</b>	WIDE 45dB NARROW 75dB
<b>Spurious response ratio</b>	100dB
<b>Image response ratio</b>	100dB
<b>IF response ratio</b>	100dB
<b>AM suppression</b>	WIDE 55dB NARROW 50dB

<b>Stereo separation</b>	WIDE 42dB at 100Hz 50dB at 1kHz 43dB at 10kHz
	NARROW 40dB at 100Hz 42dB at 1kHz 36dB at 10kHz
<b>Subcarrier product ratio</b>	70dB
<b>Tuning range</b>	87.9MHz to 107.9MHz
<b>SCA rejection</b>	75dB
<b>Output level/impedance</b>	600mV/1k ohms

## 2. GENERAL

<b>Power consumption</b>	14W
<b>Dimensions</b> <b>(W x H x D)</b>	470 x 135 x 260mm (18-1/2 x 5-3/8 x 10-1/4")
<b>Weight</b>	5kg (11 lbs)

Supplied with; T shaped antenna, Pin plug cord

Design and specifications are subject to change without notice for improvement.

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