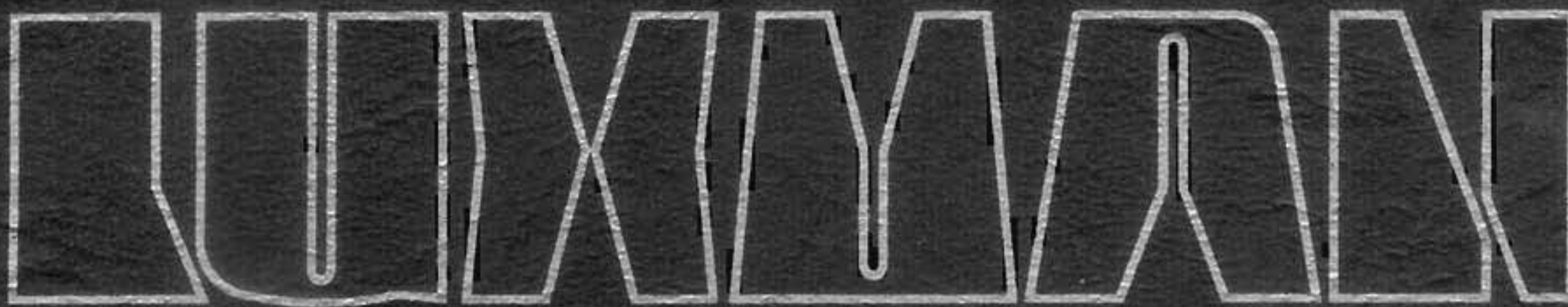


ULTIMATE HIGH FIDELITY STEREO COMPONENT



**T-34**

▶ **OWNER'S MANUAL** ◀

SOLID STATE AM/FM STEREO TUNER

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## CONTROLS & CONNECTORS

### 1. Selector Switch

This switch selects AM or FM reception. On "AM" position AM reception can be obtained. When FM reception is desired, set this switch to "FM stereo auto" position, by which automatic switch-over between FM stereo and FM monaural is possible. "Mono" position may be used for reception in case such a weak signal unpractical for stereo reception is available, or in case stereo signal is desired compulsorily to be obtained through monaural reception.

### 2. AM/FM Dial

Turn the tuning knob according to frequency printed on dial and a desired signal can be received. Receivable frequency range for FM section is from 88MHz to 108MHz, and that for AM is from 525KHz to 1605KHz.

### 3. Stereo Indicator Lamp

When FM on reception changes from monaural to stereo, this beacon lights up and indicates stereo reception. When selector switch (1) is set to "FM stereo auto", stereo indicator lamp lights up and stereo reception is automatically obtained. When it is set to "mono", the lamp does not light up, and needless to say stereo reception cannot be obtained.

### 4. Tuning Knob

Use this knob for tuning on any desired FM or AM stations.

### 5. Signal Indicator (tuning/signal strength)

This indicator offers 3 operations; AM Signal Strength Meter, FM Centre Tuning Meter and FM Signal Strength Indicator.

#### a) AM Signal Strength Meter

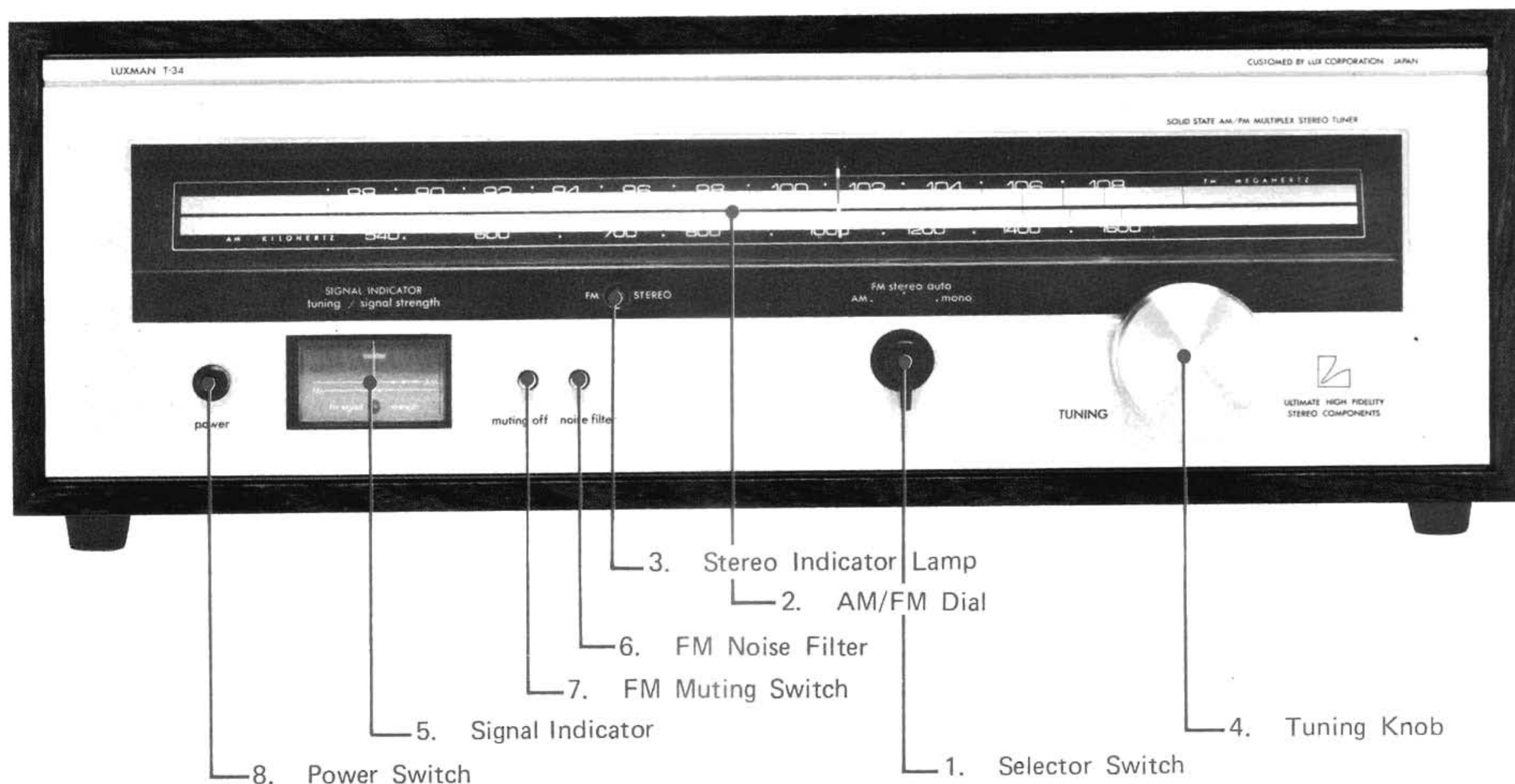
The accurate tuning point is obtained by the maximum swing of the needle of this meter. The needle movement may be dependent on the strength of receiving signals. Even if the needle swings to the extreme right, it does not impair the meter. Such wave that can be received when muting switch is at the "on" position is effective as a programme source. The needle moves from the centre position towards the right direction.

#### b) FM Centre Tuning Meter

When no signal is on reception, this meter remains at the centre position. As the tuning knob is turned, the needle of this meter comes out of the centre, and when the accurate tuning point is very near, the needle comes again closer to the centre position. Therefore, an accurate tuning point is obtained when the needle comes to the real centre position.

#### c) FM Signal Strength Indicator

The accurate tuning point is obtained when the indicator lamp of Light Emitting Diode lights up. Such wave that cannot be cut off when muting switch is at the "on" position is effective as stereo reception.



## 6. FM Noise Filter

By this filter high frequency noises can be eliminated in FM stereo reception. By pushing in the switch to "on" position, high frequency noise elimination filter is put into operation. This filter is not of treble-cut type but of high-blend type circuit and, therefore, is effective to attenuate treble noise without causing any deterioration of frequency response. This filter is not on function for AM or FM mono reception.

## 7. FM Muting Switch

Interstation noise which may be possible when tuning point is drifted can be eliminated by this switch in both FM and AM reception. Use it to cut off muting noise or reception of other impractically weak radio waves. Waves which can be received on muting-on position are practical on stereo reception. It is recommended to keep this switch always "on" except such a case when weak wave should be received.

## 8. Power Switch

Push this switch to get mains power supply and then the dial panel lights up. Push it once again, then power supply is cut off.

## 9. FM Antenna Terminal (300-ohm)

Connect to this terminal T type (dipole type) antenna of antenna feeder cable for TV (impedance 300-ohm) or FM antenna with TV feeder cable used for lead-in wire. Please do not use short wire on this terminal as replacement for the antenna, and always connect an exclusive FM antenna.

## 10. FM Antenna Terminal (75-ohm)

Use this terminal for FM antenna with 75-ohm coaxial cable as lead-in wire. A coaxial cable can be easily connected — the core wire to the 75-ohm terminal and the sheathing wire to the GND terminal. In this case a matching transformer (300-ohm : 75-ohm) is set near the antenna and a 75-ohm coaxial cable connects between the transformer and this tuner.

## 11. AM External Antenna Terminal

This is the terminal for AM antenna. In case a normal reception is possible with the built-in bar antenna, it is not necessary to use this terminal.

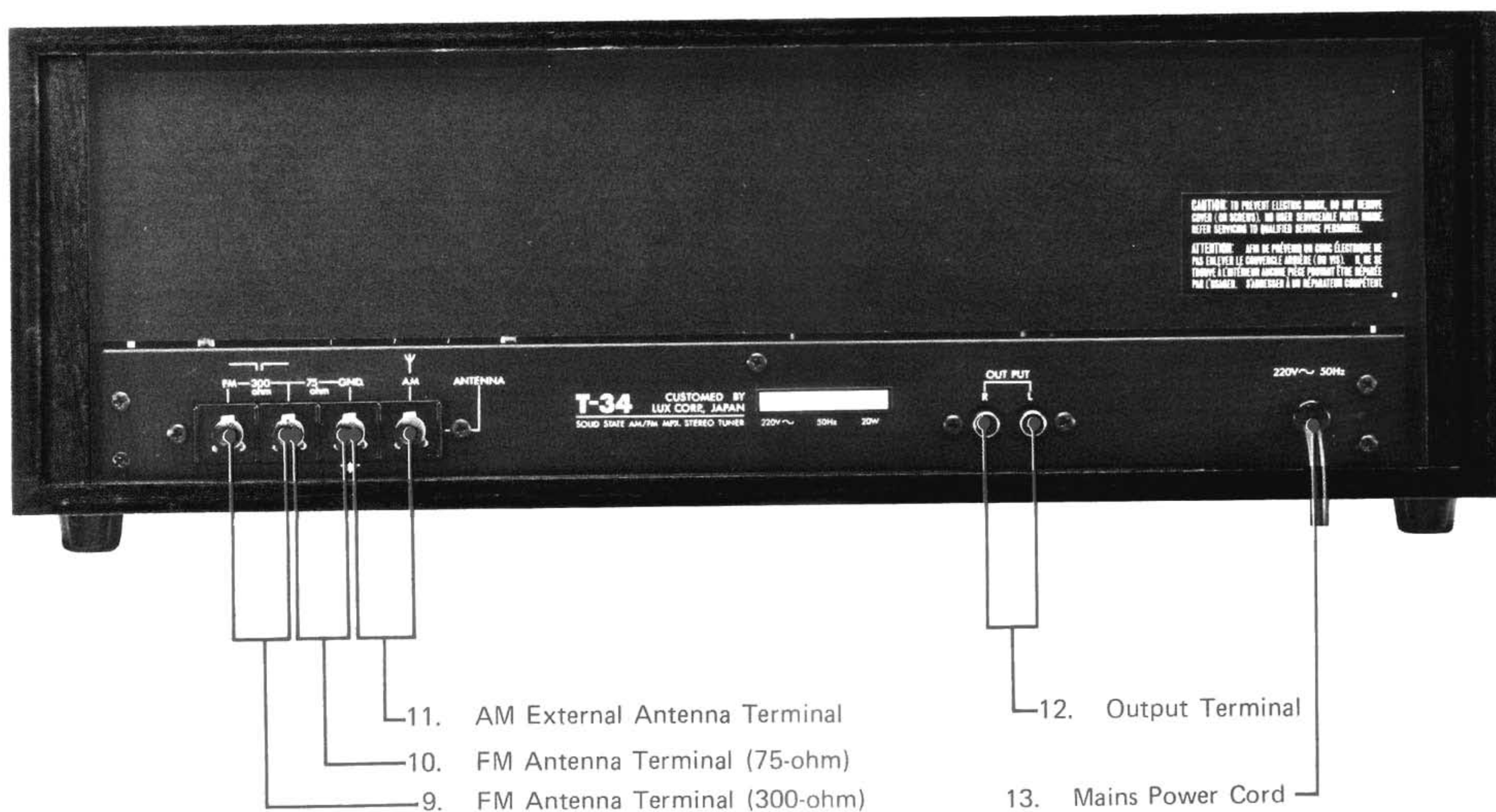
In case a reception of a weak wave is desired, connect a full scale antenna wire to this terminal. When a simple wire antenna is used, it is not always necessary to have a ground connection which sometimes deteriorates sensitivity. A full scale outdoor antenna is effective to decrease undesired noises.

## 12. Output Terminal

From this terminal, output signal of the tuner is made available. This output may be connected to AUX terminals (Tuner terminals) of your audio amplifier, which means the perfect connection between the tuner and the amplifier. The other output is recommended to connect direct to LINE IN terminals (AUX terminals) of a tape recorder for effective tape recording.

## 13. Mains Power Cord

Connect the end of the mains cord to any suitable mains power supply point (120/220/240V).



## BEFORE SWITCHING ON THIS TUNER

### FM Antenna

Needless to say the greatest advantage of FM broadcasting is that the playback sound is superior. It is, first of all, important to catch the transmission wave perfectly in order to enjoy the radio programme under good tonal quality. For this purpose not only the tuner itself must be of high sensitivity, but also the antenna must be an appropriate one. It must be corresponding to the electric field strength. In such places where the relatively strong radio waves are available, perfect FM reception is possible with simple antenna such as di-pole (T-type) antenna. Since FM waves have directivity and even the simple antenna has also directivity, the direction of horizontal plane of the antenna should be carefully set up by rotation so that the optimum FM reception is feasible. Select the direction of antenna plane so that the FM signal strength indicator lights up and that the highest sensitivity and best tonal quality are obtained under the minimum noise.

When the tuner is installed in the weak radio wave zones for from the stations or behind mountains, buildings etc. it is necessary to provide the exclusive FM antenna. There are various types of antenna available on the market, and selection of the optimum type of antenna and its proper installation may be consulted at your nearest audio shop. As the number of antenna elements increases from 3 to 5, or to 7 . . . . ., the gain and directivity are improved proportionately.

The location of antenna is so selected that it is clear from the surrounding obstacles, and also it is recommended to set it as high as possible. Against possible pick-up of the ignition noise care should be paid so that it should be set up as far as possible from the motor roads. After the selection and location of antenna is fixed, connect the antenna with the tuner. The FM antenna has 300-ohm impedance, and it should be connected to the FM antenna terminal (300-ohm) (9) via ribbon feeder for TV. In order to avoid the external noise or loss by the feeder cable it is possible to make use of the coaxial cable (with the matching transformer 300-ohm : 75-ohm near the antenna). In this case the coaxial cable is connected to FM antenna terminal (75-ohm).

### AM Antenna

The tuner is equipped with the ferrite rod antenna for AM reception which is invisible from outside since it is installed inside the cabinet. Where sufficiently strong AM radio wave are available, a full scale outdoor antenna is not necessary. If a complete AM reception is desired in a weak radio wave zone or in a ferro-concrete building, however, connection to the outdoor antenna may be necessary. In this case, connect the antenna wire to the AM external antenna terminal (11).

The standard dimension of the outdoor antenna is as follows:

Length:	15m
Height (from ground)	7.5m
Length of lead-in wire	10m

In many cases, however, a PVC covered lead wire of a proper length can be practically used as an antenna. It is recommended to build an outdoor antenna at a possible long distance from the building.

In case a simple antenna is used, a ground connection is not necessary, as it sometimes induces less sensitivity of the tuner, but it is effective to eliminate noise in case a full scale antenna is used.

An end of a grounding wire led from GND terminal should be buried into ground with a grounding bar or may be connected to a water supply pipe. The ferrite rod antenna of this tuner is horizontally installed on the upper centre of the rear panel. In case mains power cord comes close to this place, a buzz modulation hum may sometimes come out when tuned to AM. Furthermore, in case such a metal plate as a bottom panel of amplifier is put near by the top of the bonnet, sensitivity for AM reception decreases when the inside ferrite rod antenna is used.

Therefore, please refrain as much as possible from putting the amplifier etc. close to the tuner.

### Output Terminals and Connection to Audio Amplifier

Connect the output terminals (12) to the AUX or TUNER terminals of audio amplifier using pin jack cord. Caution is necessary to make correct connection – right channel output to right channel input of amplifier.

### Power Cord

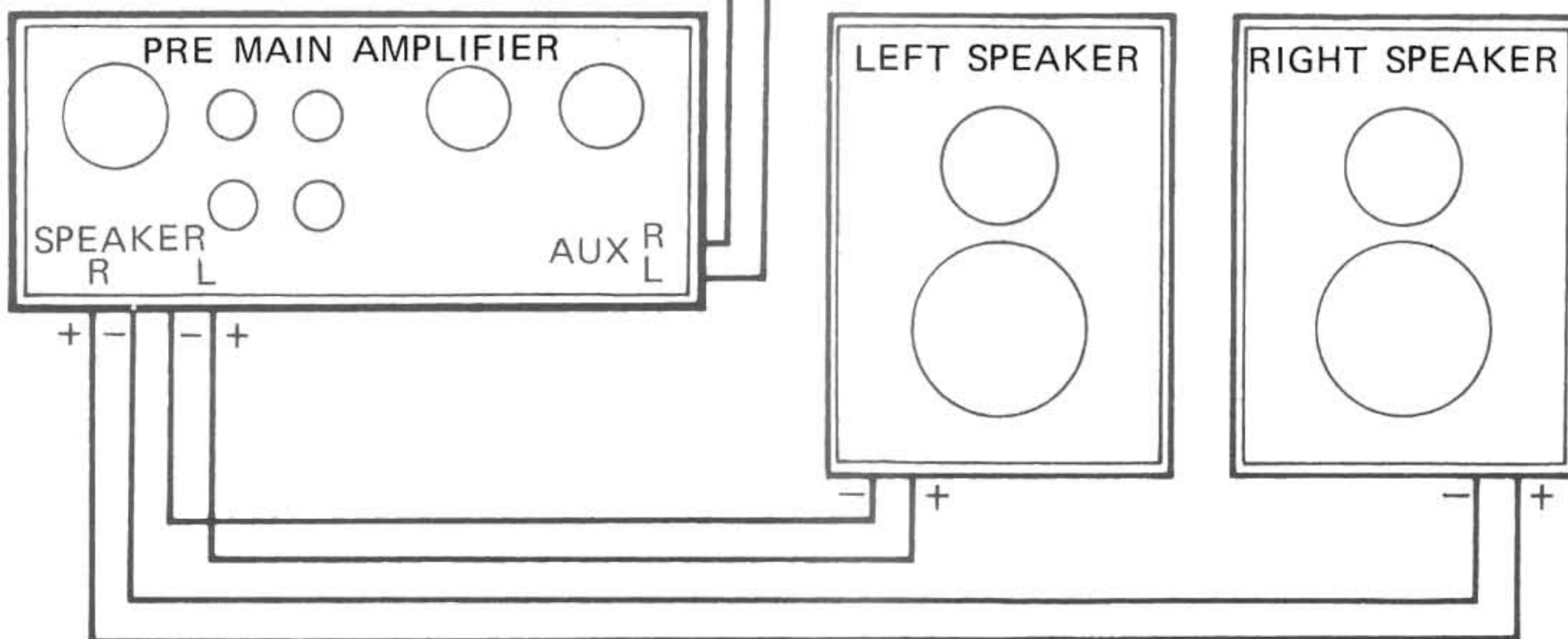
Plug in the pin plug connectors to an appropriate mains outlet. Now, push the power switch of the tuner (8) to be at the "on" position then the tuner starts to operate.

300Ω ANTENNA  
(OUTDOOR)

300Ω ANTENNA  
(OUTDOOR)

DIPOLE ANTENNA  
(INDOOR)

300Ω : 75Ω  
MATCHING  
TRANS.



## FM/AM RECEPTION

### FM Reception

1. Press the power switch (8) and the illumination lights up showing the tuner is in operating condition.
2. Set the selector switch (1) at "FM stereo auto" position. By this selection, FM stereo or monaural reception can be made automatically. When receiving FM stereo broadcasting, the stereo indicator lamp illuminates. If the selector switch is at "FM mono" position, neither FM stereo reception is possible, nor the stereo indicator lamp is operable. Therefore normally the selector must be set at "FM stereo auto" position except in case a weak radio wave which is ineffective to stereo reception is received or in case stereo radio wave is desired intentionally in monaural style.
3. Turn the tuning knob (4) to tune on any desired FM station. Correct tuning can be verified by the Signal Indicator (5). The needle of the Centre Tuning Meter moves out of the centre position when the accurate tuning point is near-by and comes back again to the centre point when the accurate tuning point is obtained. Therefore, turn the tuning knob slowly so that the needle can be clearly matched to stop at the very centre point, i.e., at the accurate tuning point. The tuning knob is coupled with the dial needle indicating the frequency in reception.
4. By the above procedures, FM reception is now possible. As FM output signals are available at the output terminals (12), set the input selector switch of your audio amp to the corresponding position of the terminals connected with the tuner and enjoy FM programme at any desired volume, adjusting volume control.

### FM Noise Filter

By pushing the Noise Filter Switch (6) on the front panel, the noise filter is put on operation. This noise filter circuit is effective only in FM stereo reception and not effective in FM monaural or AM reception. To remove high frequency noise in FM stereo reception, press in this switch, by which FM stereo reception can be enjoyed in clear sound without any high frequency noise. Since this filter is not of high-cut type but a high-blend type, it is effective to attenuate treble noises causing no or little deterioration of frequency response.

### FM Muting

Interstation noise in FM reception which is caused by drifting of tuning point can be rejected by the FM muting circuit. When the muting switch is set on, reception of other impractically weak FM radio waves or muting noises can be cut off. Therefore, a quiet tuning is ensured by elimination of unpleasant interstation noises. Such waves that can be received under the "on" position of the muting switch can be practically used for stereo reception.

### AM Reception

1. Set the selector switch (1) at the "AM" position and a desired AM station can be received by turning the tuning knob (4).

2. Turn the tuning knob (4) to tune on any desired AM station shifting the needle along the dial scale. For correct tuning, adjust the knob so that the needle of the signal strength meter shows the maximum swing.
3. By the above procedures, AM output signals are available at the output terminals. Therefore, set the input selector switch of your audio amplifier to the corresponding position of the terminal to which the tuner is connected, and adjust sound volume by volume control.

## OTHER CAUTION

### Tuning and Tone Control

Tuning is most closely related with playback tonal quality. Inaccurate tuning deteriorates tonal quality. If the tuning is made excessively different from the correct point, the playback sound gets distorted and proper dynamic range may not be obtained. In this tuner, besides the signal strength indicator, centre tuning meter is provided to make it easy to find the correct tuning point. When no radio wave is caught in reception, the needle of the centre tuning meter remains at the centre but when the tuning point is getting closer by, it moves out of the centre. Turn the tuning knob (4) further and it comes again to the centre and obtain the maximum swing of the needle of the signal strength meter. This means the correct tuning point. In case of AM reception, if tuning gets drifted from the correct point, considerable deterioration in sound quality is triggered, especially with poor low frequency response. When you get used to this tuning practice, you may be able to find the correct tuning point by listening to the playback tonal quality even without looking at the signal strength meter.

### Location

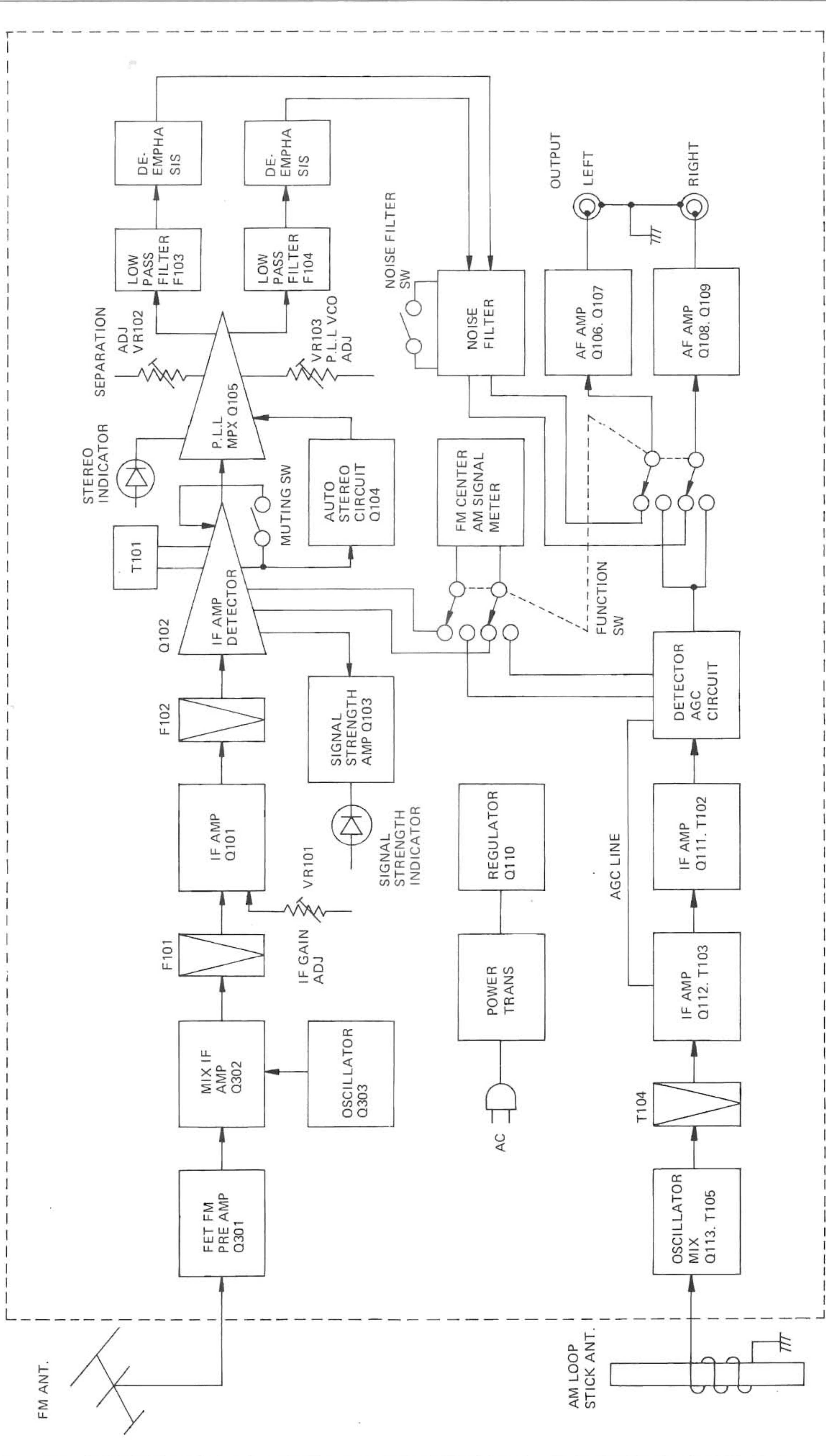
This tuner is designed to maintain under normal use its stable performance with more than necessary precaution for the fluctuation of ambient temperature. However, placement of the tuner under the sunshine or such a heat radiating substance as an audio amplifier, etc. should be avoided, since it causes unstable operation or trouble of the tuner by ambient temperature exceeding the allowable limit. Selection of the location with good ventilation and small temperature fluctuation can be recommended.

### Mains Power Requirement

The tuner is designed to exhibit its specified performances against 10% fluctuation of single phase mains power available. Since a high efficiency power transformer which ensures voltage stabilization is provided at the mains power supply section.

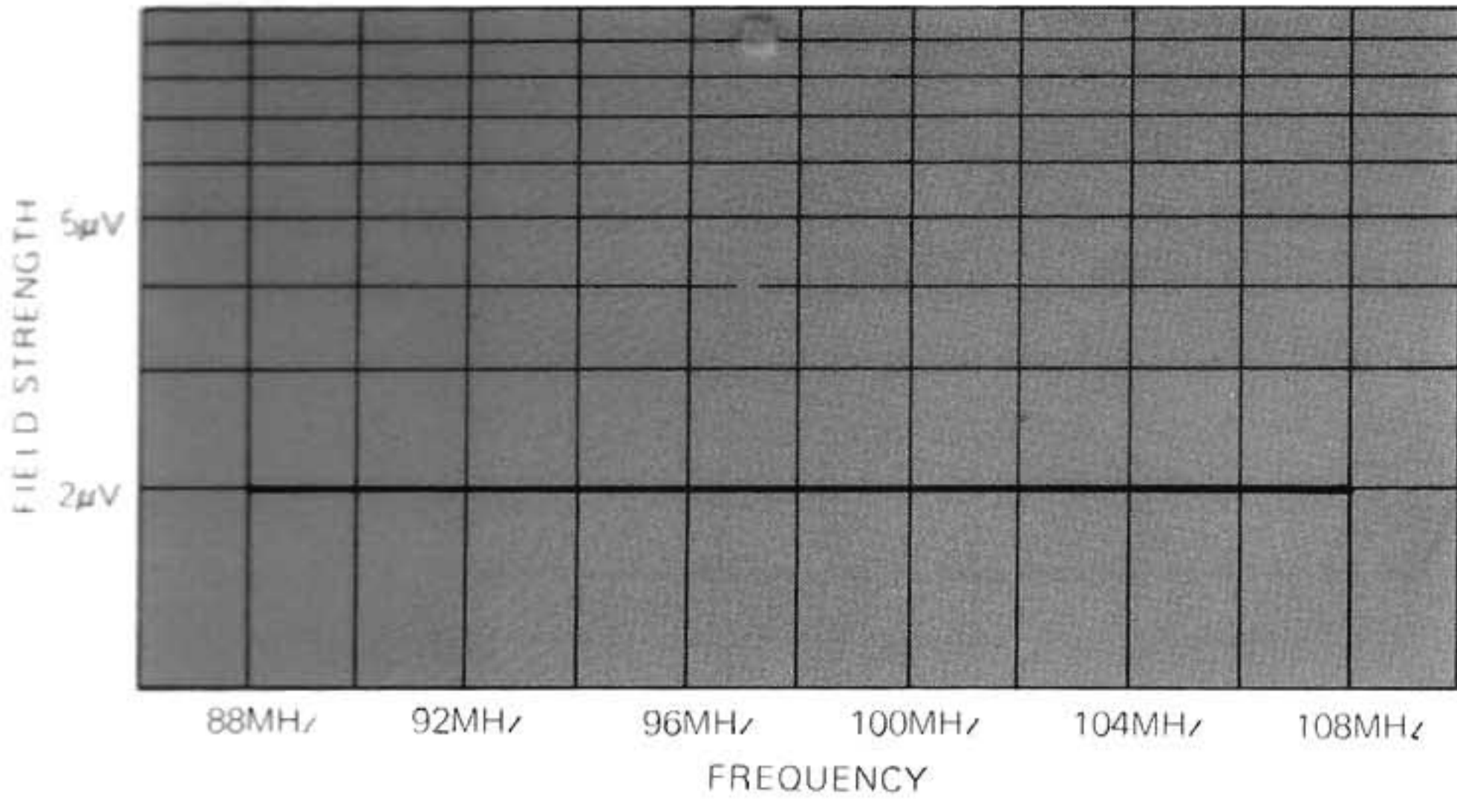
However, if the power supply voltage exceeds 10% allowance for a long time, there may be some bad influence on the tuner.

# BLOCK DIAGRAM

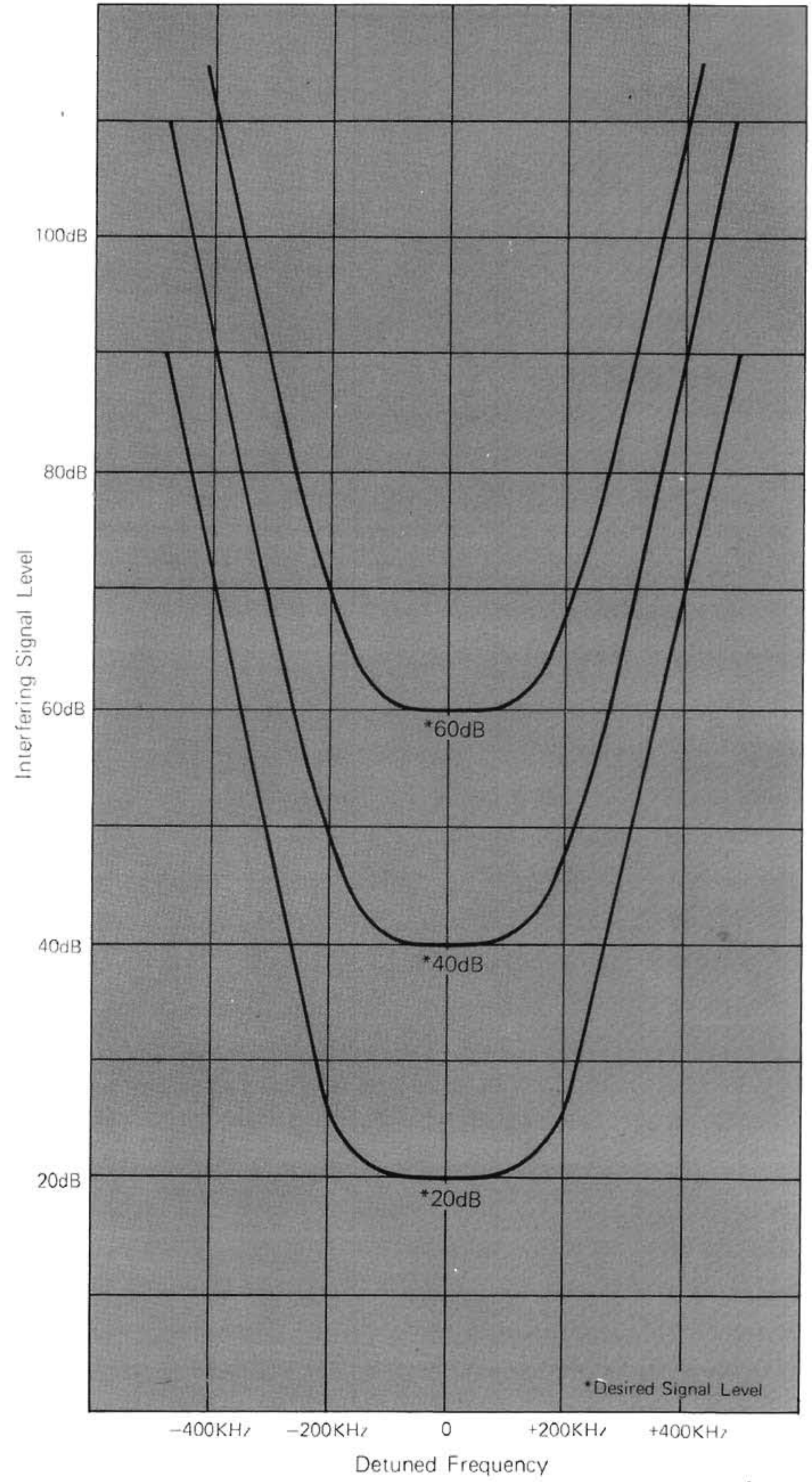


# STANDARD CURVES

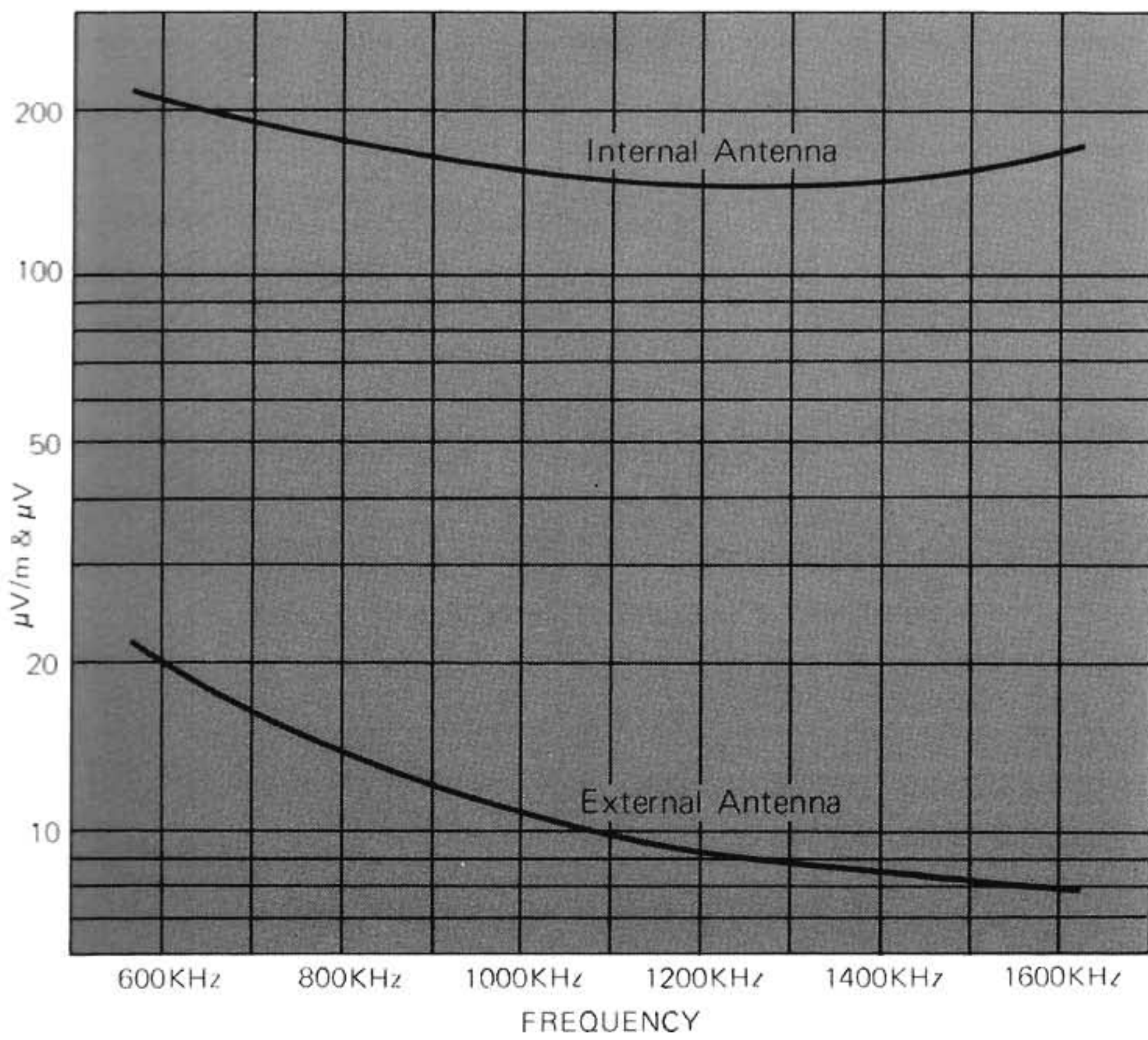
## FM IHF SENSITIVITY



## SELECTIVITY

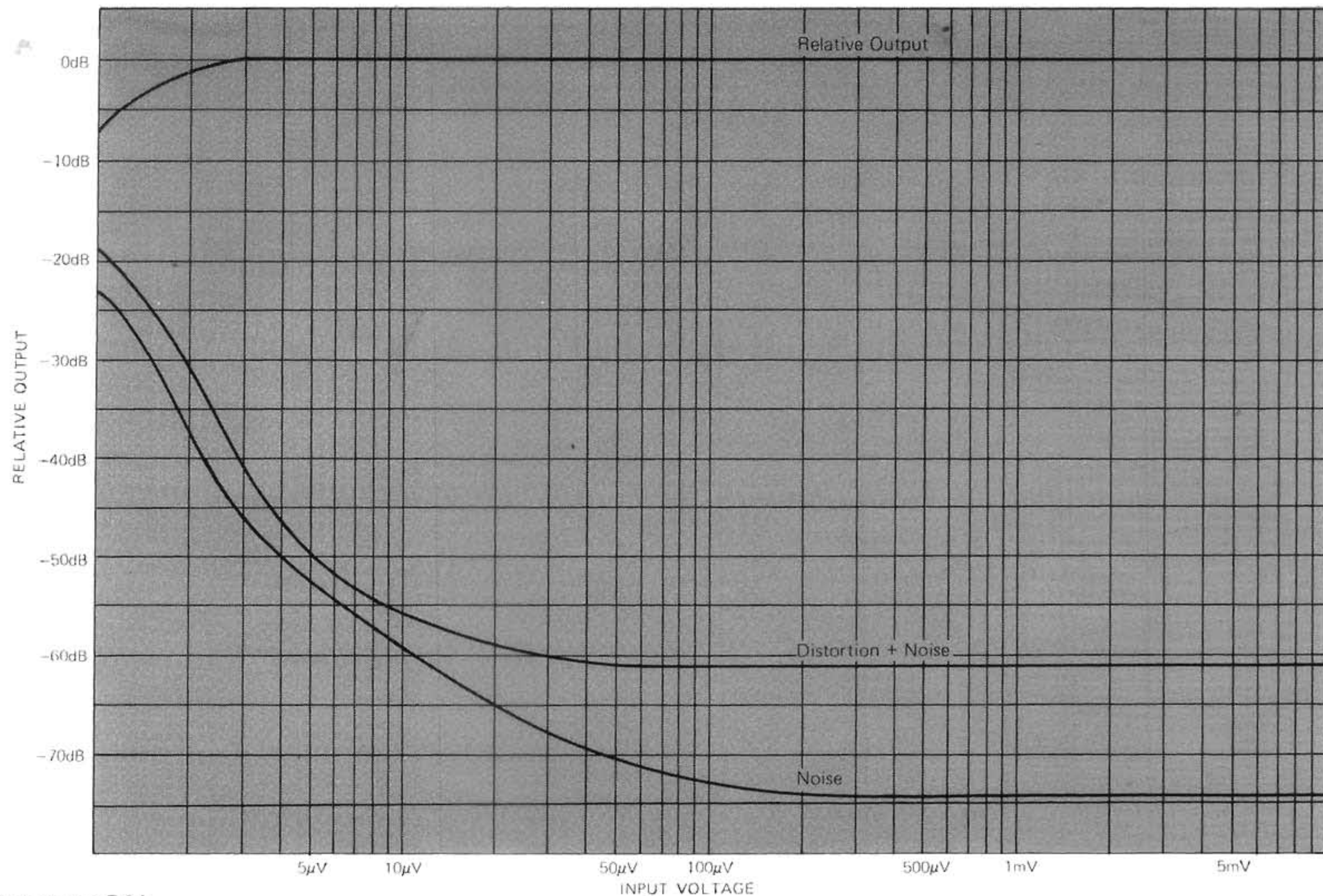


## AM SENSITIVITY

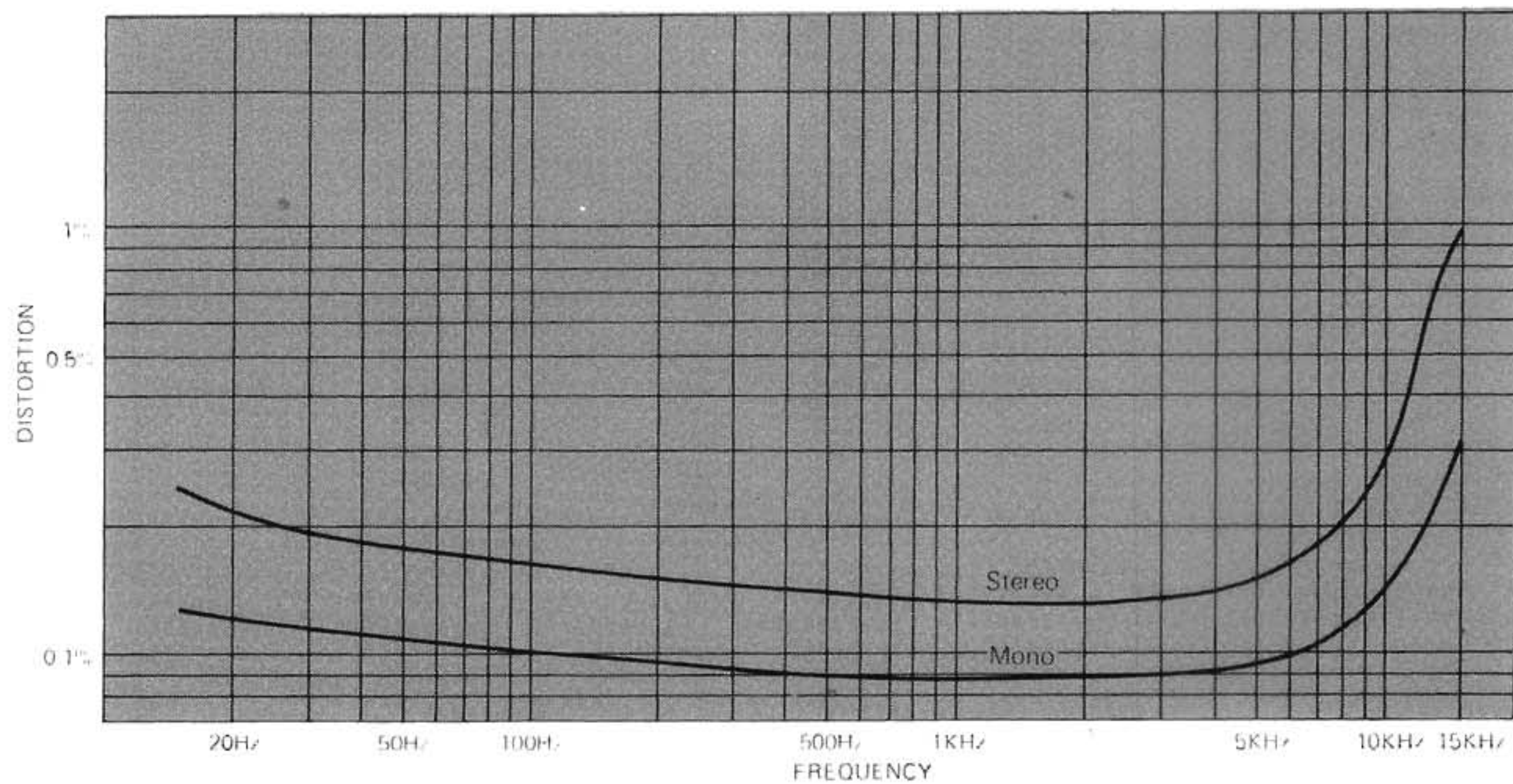




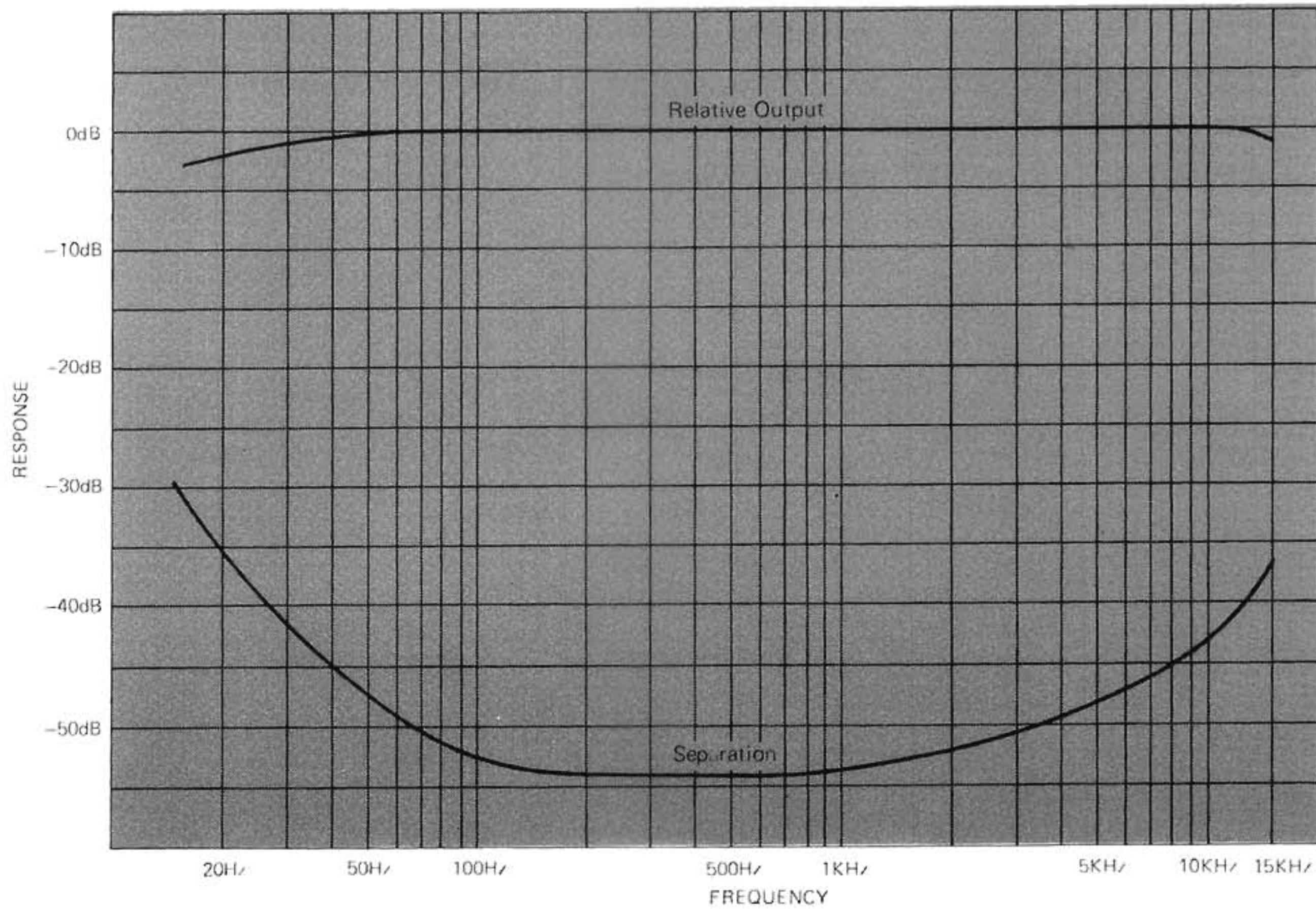
### OUTPUT LEVEL, DISTORTION & NOISE



### TOTAL HARMONIC DISTORTION



### STEREO SEPARATION



## T-34 SPECIFICATIONS

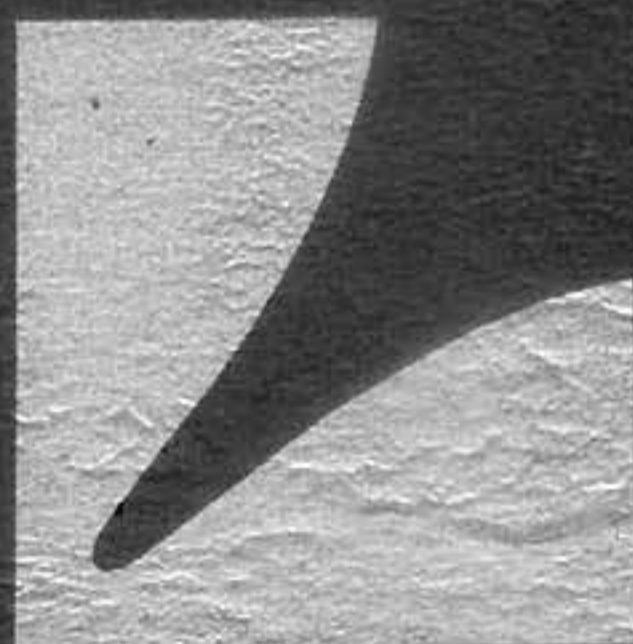
### FM

1.	IHF usable sensitivity at 98MHz, 400Hz, 100%mod.			2 $\mu$ V (11.2dBf)
2.	50dB quieting sensitivity	mono	50 $\mu$ sec.	3.3 $\mu$ V (15.6dBf)*
		stereo	50 $\mu$ sec.	38 $\mu$ V (36.8dBf)
3.	Selectivity at 98MHz, 100 $\mu$ V, $\pm$ 400KHz			50dB
4.	AM suppression at 98MHz, 1mV			60dB
5.	Capture ratio at 98MHz, 1mV			1dB
6.	Image ratio at 98MHz			55dB
7.	IF rejection at 98MHz			70dB
8.	S/N at 98MHz, 1mV, mono			72dB
9.	Frequency response at 98MHz, 1mV	mono	50–10KHz	+0.5dB –1.0dB
			20–15KHz	+0.5dB –1.5dB
		stereo	50–10KHz	+0.5dB –1.0dB
			20–15KHz	+0.5dB –1.5dB
10.	Distortion at 98MHz, 1mV	mono	400Hz	0.1%
			100–10KHz	0.2%
		stereo	400Hz	0.2%
			100–10KHz	0.3%
11.	Stereo separation at 98MHz, 1mV		400Hz	45dB
			100–10KHz	40dB
12.	SCA rejection at 98MHz, 1mV			60dB
13.	Tuning range			87.5 <sup>+0.2</sup> – 109 $\pm$ 0.7MHz –0.1
14.	Muting setting at 98MHz, 400Hz, 100%mod.			2.2 $\mu$ V
15.	Output level at 98MHz, 400Hz, 100%mod.			1.0V
16.	Muting range 98MHz, 1mV, 400Hz, 30%			$\pm$ 45KHz
17.	Carrier leak 98MHz, 1mV, 400Hz, stereo 100%			62dB 50 $\mu$ sec.
18.	Level to operate signal indicator 98MHz, 400Hz, 100%			30 $\mu$ V

### AM

1.	IHF usable sensitivity at 1000KHz, 400Hz, 30%mod.			200 $\mu$ V
2.	Image ratio at 1000KHz, EXT. ANT.			50dB
3.	IF rejection at 1000KHz, EXT. ANT.			40dB
4.	S/N ratio at 1000KHz, 5mV, 400Hz, 30%mod.			50dB
5.	Distortion at 1000KHz, 5mV, 400Hz, 30%mod.			0.6%
6.	Tuning range			525 – 1640KHz
7.	Output level at 1000KHz, 5mV, 400Hz, 30%mod.			0.33V

DIMENSIONS	440mm W (17-5/16") x 218mm D (8-9/16") x 161mm H (6-11/32")
WEIGHT	Net 4.5 Kgs (9.9 lbs)
	Gross 5.5 Kgs (12.1 lbs)



**LUX CORPORATION, JAPAN**

1-1, 1-CHOME, SHINSENRI-NISHIMACHI, TOYONAKASHI, OSAKA  
PHONES:06-834-2222 CABLE:LUXELECT OSAKA TELEX:J63694