

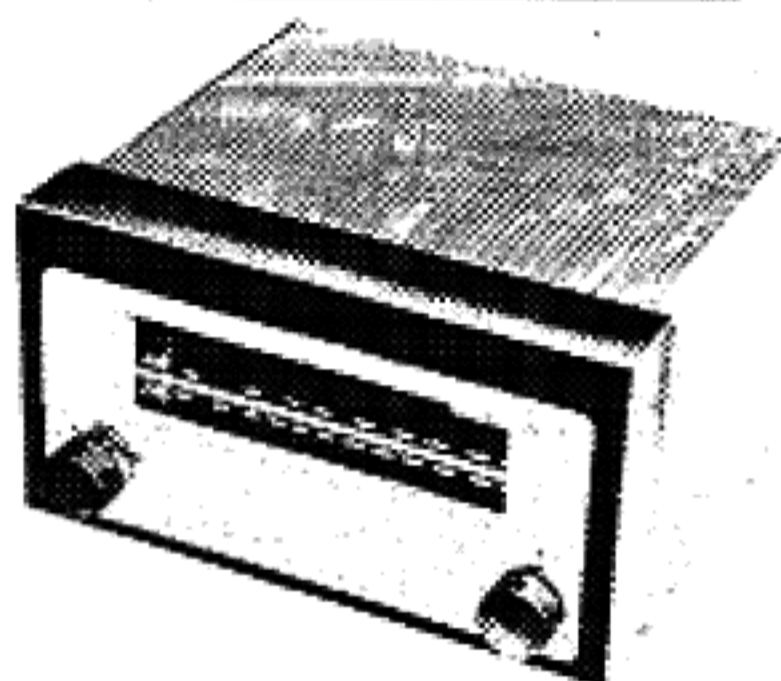
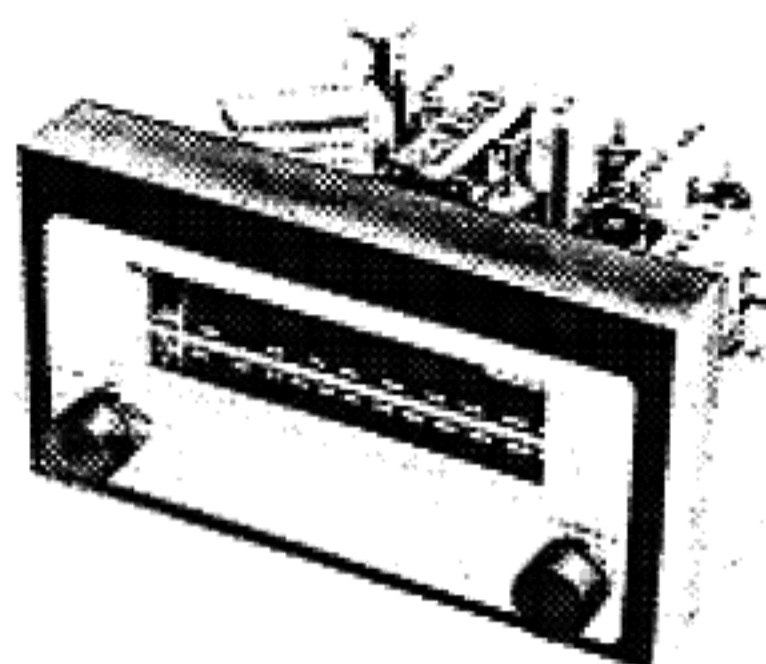
**harman kardon**

MODEL-A200

# The Guide

HIGH FIDELITY AM-FM TUNER

## OPERATION AND SERVICE INSTRUCTIONS



### UNPACKING

After unpacking the Guide, inspect it carefully for any signs of damage in transit. Your unit was subjected to many inspections and tests, and then carefully packed. If any damage is visible, notify the transportation company at once.

Check the contents of the package carefully.

You should find:

- 1 Tuner, Model A-200
- 1 Instruction Booklet
- 1 Warranty Card

It is strongly urged that the warranty card be completed and mailed without delay, to protect your rights under the warranty. If you should require repair service or information on the use of the Guide, we will be able to identify your unit immediately, and respond quickly.

### CONNECTIONS

#### AM ANTENNA

The Harman-Kardon ceramic loopstick, built into the Guide, comprises all the antenna required for the finest in noise-free local AM reception. In locations more removed from metropolitan areas, an outdoor antenna may be required. This should consist of a single wire, as long as is reasonably practical, located away from large metal objects, power lines or electrical machinery. Connect one end to the AM terminal of the ANTENNA terminal strip on the rear of the chassis.

#### FM ANTENNA

A short length of ordinary wire, connected to the terminal marked FM will prove adequate in most installations. A loop of wire, approximately 36 inches long, connected between "FM" and "G" and hung inside the cabinet will prove useful in increasing the rejection of spurious signals. In those situations requiring an external FM antenna, connection should be made between "G" and "FM". A single dipole will be useful when stations to be received are located in opposite directions from each other. A non-directional dipole should be used if the stations are located in dispersed directions. A folded dipole antenna with reflector will provide maximum efficiency and may increase the number of distant FM stations your A-200 can receive.

#### POWER

Plug the power cord into any outlet furnishing 117 volts, 60 cycles house current. The exact voltage is relatively unimportant, and may vary between 105 and 125. Be sure, however, that you have 60 cycle AC power. For many installations, such as with the MELODY Model C100 Amplifier, it will be more convenient, from an operational point of view, to plug the power cord of the Guide into the convenience outlets provided on the amplifier chassis. The tuner will then be turned on or off by the amplifier power switch.

**HARMAN - KARDON, INC.**

520 MAIN STREET, WESTBURY, L. I., N. Y.

## SPECIFICATIONS

### RF SECTION

**Circuits:** FM: Armstrong circuit with Limiter & Foster-Seeley Discriminator. Automatic Frequency Control - Low Noise Front End consisting of Triode Grounded Amplifier and Triode Mixer. AM: Superheterodyne with A.V.C. and Ferrite Antenna.

**Sensitivity:** FM: 5 microvolts for 30 db quieting; 3 microvolts for 20 db quieting. AM: Loop sensitivity 80 microvolts/meter; Terminal sensitivity 20 microvolts.

**Selectivity:** FM: 200 KC bandwidth: 6 db down. AM: 8 KC bandwidth: 6 db down. FM Discriminator peak to peak separation 375 KC.

**Frequency Range:** FM: 88-108 MC. AM: 530-1650 KC.

**FM Drift:**  $\pm 5$  KC max.

**Image Rejection:** FM: 30 db. AM: 30 db.

**IF Rejection:** FM: 70 db. AM: 30 db.

**Antenna Input:** FM: 300 ohms. AM: Built-in low noise ferrite loopstick plus high impedance terminal for external antenna.

**Distortion:** Less than 1% harmonic on FM. Less than 1% harmonic for up to 80% mod. on AM.

**Frequency Response:** FM:  $\pm 1/2$  db 20 to 20,000 c.p.s. including standard 75 micro-second de-emphasis.

AM: 3 db 20 to 5,000 c.p.s.

**Noise Level:** 60 db below 100% modulation.

### AUDIO SECTION

**Output Level:** FM: 2 1/2 volts for 100% modulation; 1 volt for 30% modulation. AM: 1 volt (average).

**Output Impedance:** High impedance.

### OVERALL SPECIFICATIONS

**Controls:** (Total 2) Function (OFF-AM-FM-PH) and Tuning/momentary AFC defeat.

**Convenience Outlet:** 1 AC receptacle on chassis rear, controlled by power switch.

**Tube Complements (Total: 7)** 2-12AT7, 1-6BE6, 1-6BA6, 2-6AU6, 1-6AL5, Selenium Rectifier.

**Dimensions:** 9-5/8" wide x 5-1/4" high x 9-1/2" deep (including ferrite loopstick - not including knobs).

**Power Consumption:** 30 watts

**Shipping Weight:** 8 lbs.

**Finish:** Chassis and escutcheon: brushed copper - Display panel for escutcheon and knobs: matte black - Edge lighted dial glass: yellow and white.

**Functional Features:** (a) Counterweighted Tuning Control; (b) AFC defeat achieved by depressing tuning knob for center channel tuning; (c) High impedance phono input.

**Special Notes:** (a) Face up mounting of Guide permissible without special precaution.

### OPTIONAL ACCESSORIES

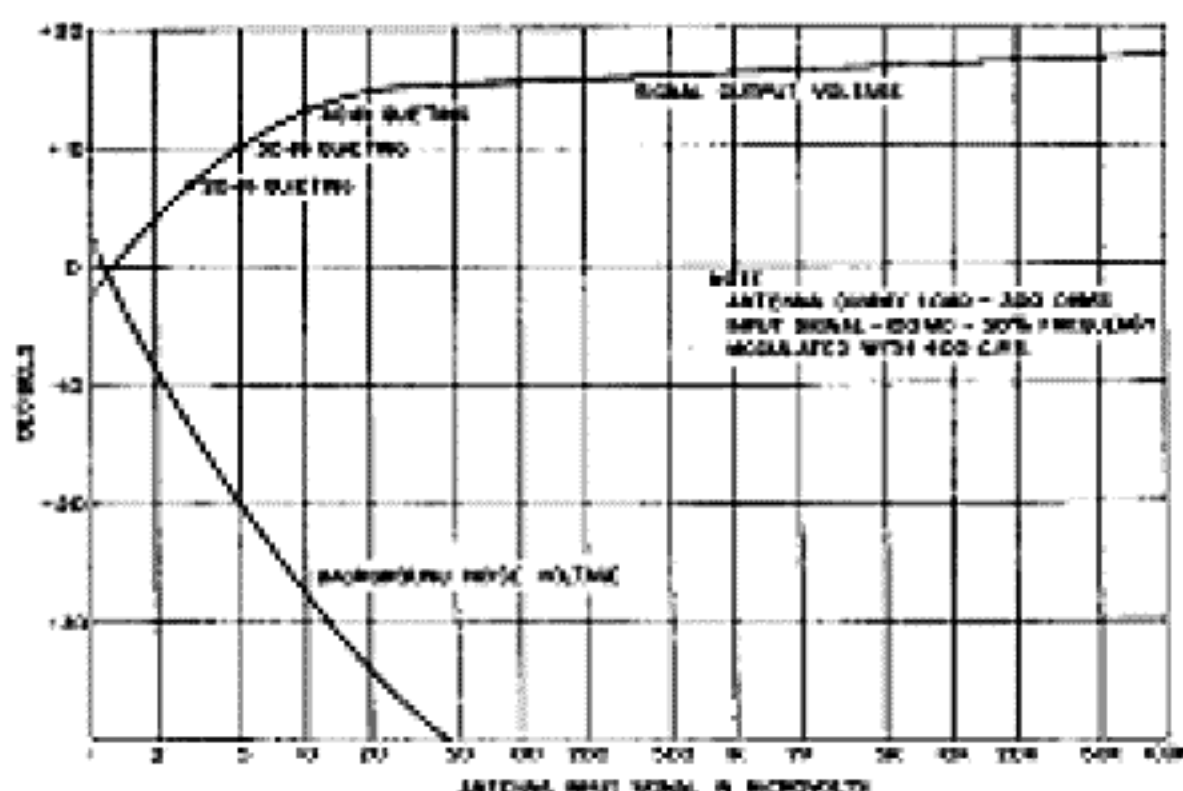
- Metal Cage (Model AC-2) finished in matching brushed copper, furnished with mounting hardware and instructions.
- Brass finished escutcheon available on special order.
- Brass finished cage available on special order.
- Vertically calibrated dial glass available on special order.

## WARRANTY

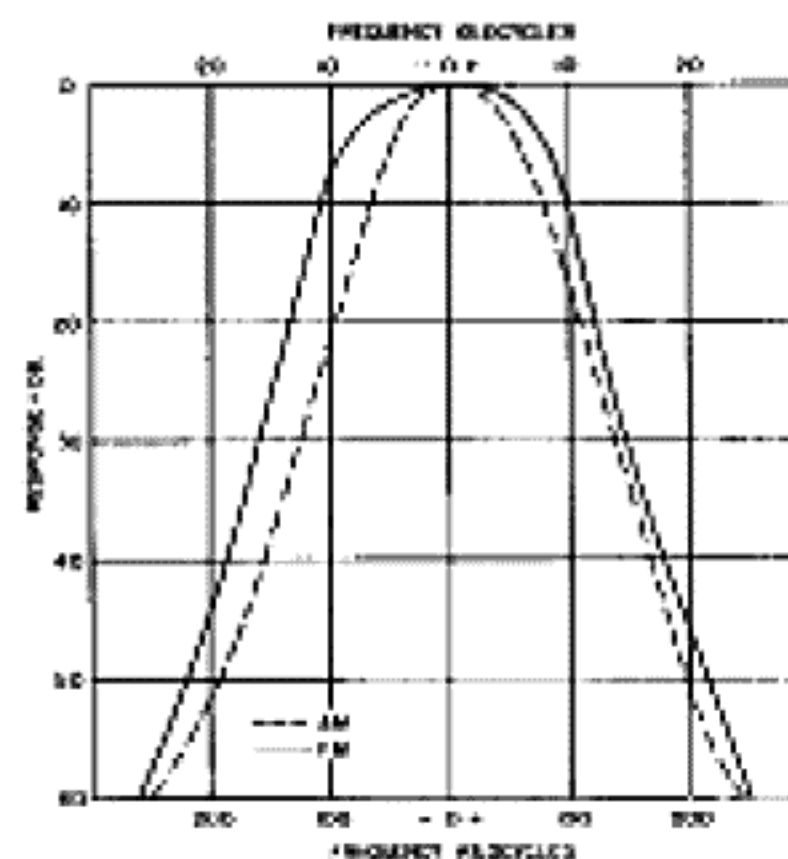
We warrant each Guide, Model A-200 to be free from defects in material and workmanship under normal use and service, and in accordance with the conditions herein below set forth, for a period of 90 days from date of delivery to the original purchaser, and agree to replace or repair any part or parts returned to us within said 90 days, with transportation prepaid, and which our examination shall disclose to our satisfaction to have been thus defective. This warranty does not include free labor, nor is it applicable to any instrument which shall have been repaired or altered in any way so as in our judgment to affect its stability or reliability nor

which has been subject to neglect, misuse, abuse, negligence or accident nor which has had the serial number altered, effaced, or removed. Neither shall this warranty apply to any instrument which has been connected otherwise than in accordance with the instructions furnished by us.

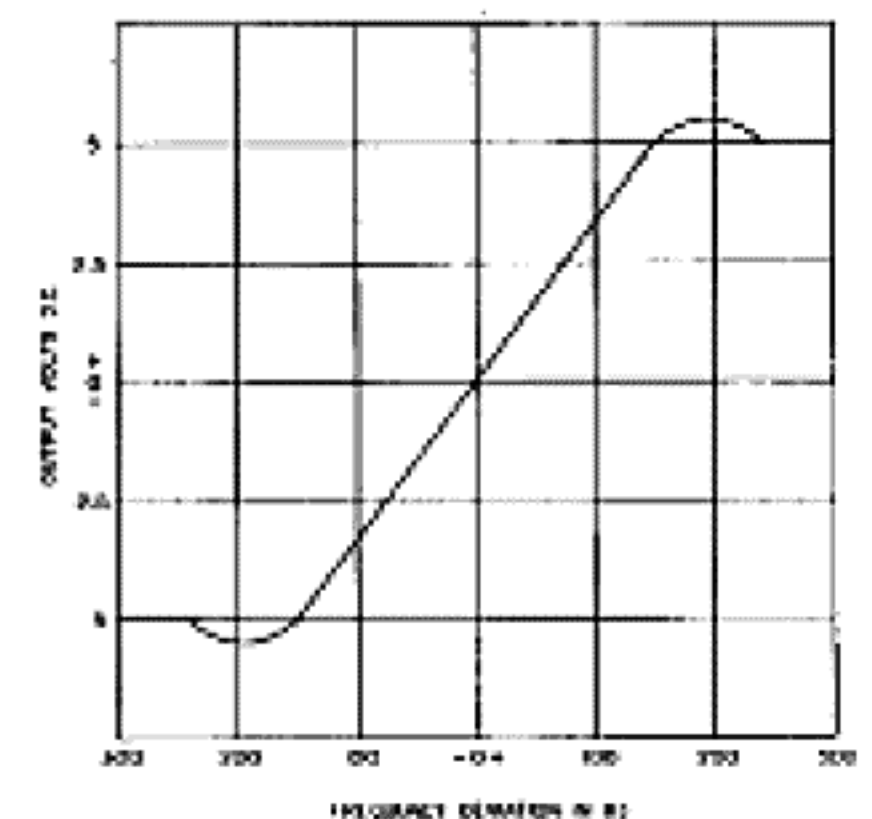
This warranty is expressly in lieu of all other warranties, express or implied, and of all other obligations or liabilities on our part, and we neither assume nor authorize any representative or other person to assume for us any other liability in connection with the sale of the Model A-200 Guide.



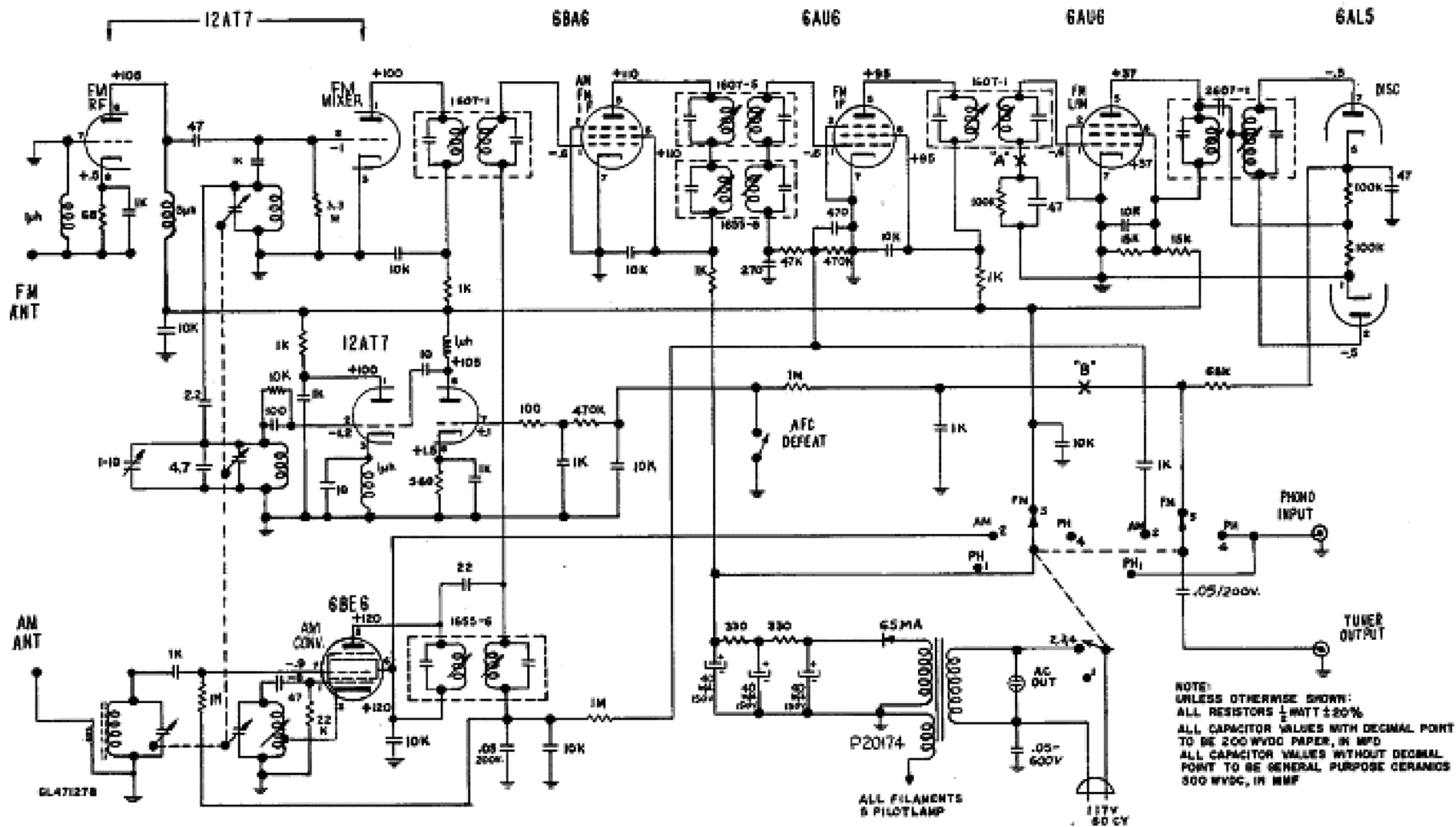
FM detector output voltage characteristics



FM & AM selectivity characteristics



FM discriminator characteristics



FUNCT. SWITCH SETTING	SIGNAL GENERATOR		SIGNAL INPUT POINT	OUTPUT INDICATOR	CONNECT INDICATOR TO:	DIAL SETTING	ADJUST	OUTPUT INDICATION
	FREQ.	MOD.						
AM	455 KC	30% AM	6BE6 PIN 7	AC-VTVM OR SCOPE	OUTPUT TERMINAL	—	2 AM IF TRANS.	MAXIMUM OUTPUT
AM	1500 KC	30% AM	AM ANT. TERM.	"	"	1500 KC	OSC. & ANT. TRIMMERS	"
AM	600 KC	30% AM	"	"	"	600 KC	OSC. COIL	ROCK GANGS FOR MAX. OUTPUT

FUNCT. SWITCH SETTING	SIGNAL GENERATOR		SIGNAL INPUT POINT	OUTPUT INDICATOR	CONNECT INDICATOR TO:	DIAL SETTING	ADJUST	OUTPUT INDICATION
	FREQ.	MOD.						
FM	10.7 MC	300 KC FM 60 CYCLES	12AT7 MIXER PIN 2	AC-VTVM OR SCOPE	"A" ON SCHEMATIC THRU 100K	—	3 FM IF TRANS.	MAX. GAIN & SYMMETRY
FM	10.7 MC	"	"	"	"B"	—	DISCR. TRANS.	S PATTERN OF MAX. GAIN & SYMM.
FM	106 MC	"	FM ANT. TERM.	"	"A"	106 MC	106 MC OSC & ANT. TRIMMER	MAXIMUM OUTPUT
FM	90 MC	"	"	"	"A"	90 MC	"	"

## OUTPUT

A receptacle, marked "OUTPUT" will be found at the rear of the chassis. A shielded cable of the shortest practical length, which may be purchased at any electronic supply store, should be used to connect from this receptacle to the tuner input receptacle on the amplifier.

## PHONO INPUT

A receptacle marked "PHONO INPUT" will be found at the rear of the chassis. A crystal pickup, or the output of a magnetic pickup pre-amplifier, may be plugged into this receptacle. The function switch of the Guide will then serve to connect the phonograph or either FM or AM broadcasts to the amplifier input. This feature is particularly useful when the Guide is used to convert a high quality phonograph into a radio-phonograph combination.

## VENTILATION

All electrical equipment generates heat which must be allowed to escape. Although the Guide is well ventilated in itself, sufficient space should be allowed around it to permit free air flow. If it is placed in a bookcase, it should be located well toward the front, to provide as much clearance as possible at the rear.

Do not put books or other objects on top of the Guide. This would reduce the ventilation and result in sharply reduced component and tube life.

## OPERATION

### CONTROLS

The Harman-Kardon Guide has only two operating controls. The Function Switch (at the left) serves to turn the power off in its extreme counterclockwise position. In any other position the power is turned on. This switch also selects among AM reception, FM reception and phonograph. The Tuning Knob (at the right) is used to tune to the desired station, and also operates as a momentary AFC defeat.

### AUTOMATIC FREQUENCY CONTROL (AFC)

FM Broadcasting, by its very nature, eliminates almost all natural and man-made static. However, the characteristics of FM which make this possible also make for problems in tuning. The HARMAN-KARDON Guide incorporates an effective Automatic Frequency Control (AFC) circuit that overcomes these problems and insures proper tuning even if the manual tuning is not accurately done. The following experiment will lead to an understanding of AFC, and the fuller enjoyment of the Guide.

First, tune across the FM scale. Note how the stations "pop" into place. Now tune to any station, preferably one with a musical program. Press the tuning knob in to defeat the AFC, and tune slowly through the station from left to right. Notice that there are three points where the station sounds clean, interspersed with points of distorted sound. The middle clean-sounding point is the proper tuning position for the best tone quality with minimum noise and

interference. With the knob depressed, detune the station so that the sound is distorted. Release the tuning knob to reactivate the AFC, and notice how the sound clears up.

Actually, the tuning has been readjusted by the operation of the AFC circuit, which automatically retunes the electronic circuits to the center of the station channel.

The AFC circuit of the Harman-Kardon Guide performs the further function of overcoming any tendency of the tuning to drift.

In order to take maximum advantage of the benefits of AFC, it is suggested that fine tuning be done with the knob pressed in. When the knob is released AFC will improve this careful tuning by a factor of 10 to 1. This procedure is especially recommended in those cases where a weak station is found close to a strong station. Under these conditions, the AFC may tend to reach for the strong station, and completely skip over the weak station. If the weak station is tuned with the AFC defeated, the AFC will lock it in, after the knob is released.

## MAINTENANCE AND REPAIR

In some installations, hum may be encountered due to a voltage difference between the amplifier, tuner and record changer chassis. This may be eliminated by reversing one or all of the AC power plugs. Simply reverse one at a time until improvement is experienced.

Due to the conservative design and high quality components of the Guide, no routine maintenance other than yearly tube-testing is required. Should trouble develop, however, only the most qualified serviceman should be employed, as special equipment and training is required to properly service high fidelity equipment.

This instruction booklet contains diagrams and other information needed by your repairman. It should be kept available for his use.

### LIST OF REPLACEABLE PARTS

DESCRIPTION	HARMAN-KARDON PART NUMBER	LIST PRICE
Power Transformer	FT20174	6.00
FM IF Transformer	GT24605	1.50
FM Discriminator	GT24608	2.10
AM IF Transformer	GT24610	1.30
K Tran Coil Clip	Z24614	.05
Gang Condenser	JV471083	9.00
AM Antenna Loopstick	GL471278	3.50
Electrolytic Cap. 40,40,40/150	JE20635	2.20
RF Trimmer 1-10 MMF	JV20688	.30
Function Switch	ER27748	2.50
Dial Glass	P27749	1.25
Dial Glass Clip	Z24774	.05
Pointer	Z24773	.30
Display panel	P24747	4.75
Escutcheon	C24750	6.75
Cage	C471078	7.50
Knob	P25790	.15
Instruction Sheet		.75
Loopstick Tuning Ring	P28810	.15
Selenium Rectifier	Z20690	1.50
Broadcast OSC Coil	GL471251	.75