

*The Tempo*

Model F-10

**INTRODUCTION**

It is essential you read this instruction book carefully before setting up your high fidelity system. You have invested in a fine instrument into which many excellent engineering developments have been incorporated, and each is important for the proper operation of your system. This booklet has been written in non-technical language and if you will take the time to read it first before doing anything else, you will find it simple to obtain optimum performance from your Harman-Kardon unit.

**UNPACKING**

After unpacking the Tempo, Model F-10, inspect it carefully for signs of damage in transit. This unit was subjected to many inspections and tests prior to final packing and it, therefore, should be in perfect condition. If damage is visible, notify your dealer at once. If the unit was shipped to you, notify the transportation company immediately.

Check the contents of the carton carefully and inspect the folds of the packing material before discarding it.

The package should contain:

- 1 Tempo, Model F-10 tuner.
- 1 Instruction Booklet.
- 1 Warranty Card.
- 1 Mounting Template.

**WARRANTY**

It is strongly urged that the warranty card be completed and mailed without delay, to protect your rights under warranty. These cards are carefully filed for reference and should you require information on the use of this high fidelity unit or repair service, we will be able to immediately identify your set and respond quickly.

It is necessary to receive factory authorization before returning a set for warranty repair. We will suggest a warranty station in your area and give you the proper procedure and authorization for shipping.

We warrant each Tempo, Model F-10 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 1 year from date of delivery to the original purchaser, and agree to replace or repair any part or parts, with the exception of tubes which are covered by manufacturer's 90 day warranty, returned to us within said 1 year 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 judgement to affect its stability or reliability nor which has been subject to misuse, neglect, 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.

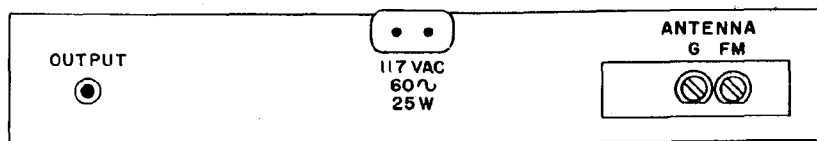
This warranty is expressly in lieu of all other warranties, express or implied, and of all other obligations or liabilities on our part, and we neither assume nor authorize any representative or other person to assume for us any other liability in connection with the sale of the Model F-10, Tempo.

## INSTALLATION PROCEDURE

Your tuner may be installed on an open shelf, table, bookcase or high fidelity equipment cabinet. For cabinet mounting, refer to the mounting template and instructions supplied with this book.

### Ventilation:

The Tempo is well ventilated in itself, but sufficient space must be allowed around it to permit proper air flow. Permit the air to enter from one side or from the front, and allow it to dissipate through the rear. Do not place books or other objects on the cage or in the immediate vicinity of the tuner. Reducing the air flow will result in sharply reduced component and tube life. For custom cabinet installation, the cage must be removed to assure maximum ventilation. Caution: Do not remove the bottom plate.



REAR PANEL CONNECTIONS F 10

### Power Requirements:

Plug the AC power cord into any outlet furnishing 117 volts, 60 cycle house current. The exact voltage is relatively unimportant and may vary between 105 and 125 volts. Be sure the power source is 60 cycles.

### Connecting Your Tuner:

Located on the left rear panel of the tuner is a coaxial connector marked "Output". Fasten a three foot shielded cable between this jack and the "Tuner" or "Aux" input jack on your amplifier.

### Connecting Your FM Antenna:

The Antenna Terminal Strip is located on the right rear of the tuner. Attach a 36" piece of wire to the "FM" terminal. For most locations, this short piece of wire should be sufficient antenna, however, if your location is a difficult one, an outside antenna may be necessary. Your TV antenna is not recommended for it is not cut for the FM band. A good FM dipole or yagi is worth the investment for this will insure maximum reception in difficult locations or fringe areas.

Attach the 300 ohm lead-in wire from the antenna to terminal "G" and "FM". Polarity is unimportant.

### OPERATING INSTRUCTIONS

Your Tempo FM tuner incorporates only two operating controls located on the front panel. High fidelity equipment does not have to be complicated in order to perform superbly. The new F-10 proves this point by incorporating only two controls; a power switch and station tuning control. The knob on the right is the on/off switch and the knob to the left is the Station Tuning Control.

To operate, turn the set on by rotating the on/off switch. After the set warms up, tune to the desired station.

### MAINTENANCE AND REPAIR

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

### ALIGNMENT PROCEDURE

FUNCTION 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 CPS	FM MIXER GANG	AC-VTVM OR SCOPE	TEST POINT		3 FMIF TRANS.	MAX GAIN & SYMMETRY
FM	10.7 MC	300 KC FM 60 CPS	FM MIXER GANG	AC-VTVM OR SCOPE	TUNER OUTPUT		DISCR. TRANS	S PATTERN OF MAX GAIN & SYMM
FM	106 MC	300 KC FM 60 CPS	FM. ANT. TERMINAL	AC-VTVM OR SCOPE	TEST POINT	106 MC	106 MC OSC RF. MIXER TRIMMERS	MAXIMUM OUTPUT
FM	90 MC	300 KC FM 60 CPS	FM ANT. TERMINAL	AC-VTVM OR SCOPE	TEST POINT	90 MC	OSC. RF. MIXER COILS	MAXIMUM OUTPUT

NOTE: This tuner incorporates an FM MULTIPLEx output jack located on the rear panel. Refer to your multiplex adapter instruction book for hook up information.

## SERVICE NOTES

Servicing printed wiring is a relatively simple matter and is no more complicated than servicing conventionally wired circuits. No special tools or skills are required and if you follow the outlined procedure, a repair can be easily made.

Avoid damage to the copper foil. Remove components carefully. If the copper is damaged, the broken spot may be jumped with a small piece of wire or bridged with molten solder.

Avoid damage to the printed board. Do not press the board, especially when changing tubes. The board is sturdy in construction, but may break if proper care is not taken when servicing.

Avoid excessive solder deposits. In some areas on the board, wiring is closely spaced. Be careful not to bridge two leads with excessive solder. This may cause a short or intermittent trouble.

Avoid overheating. Use an iron 35 watts or less and do not hold the iron to the connection for a longer period of time than necessary.

Tools and materials required. Low wattage iron, small wire brush, 60% tin-40% lead low temperature solder-rosin core, thin bladed knife and a small pick or soldering aid.

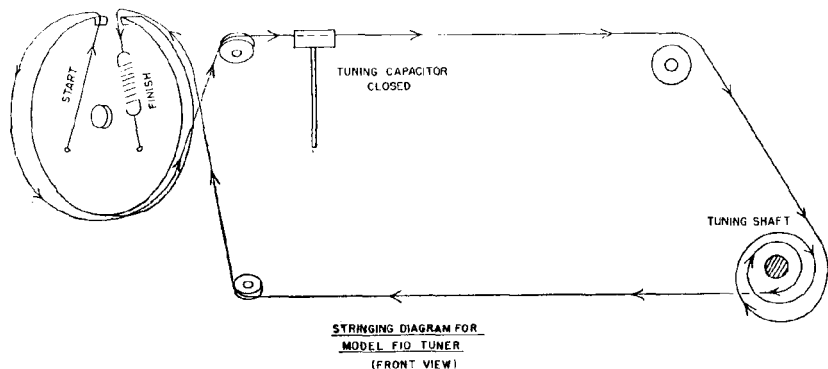
## SPECIFICATIONS

For those who are technically minded, we have listed a brief summation of the excellent performance characteristics of this tuner. All specifications are based on actual measurement using the most accurate test equipment available.

This tuner incorporates a unique electronic circuit known as Automatic Frequency Control that always insures proper tuning. This AFC feature keeps the station locked into place permanently and eliminates distortion caused by inaccurate tuning.

Circuits	Armstrong circuit with Limiter and Wide Bank Discriminator, Automatic Frequency Control, Low Noise Front End consisting of Tuned Triode Grounded Grid Amplifier and Triode Mixer.
Sensitivity:	5 microvolts
(for 30 db of quieting)	2.5 microvolts
(for 20 db of quieting)	200 KC Bandwidth: 6 db down.
Selectivity:	
Discriminator Peak to Peak Separation:	600 KC
Frequency Range	88-108 MC
Drift	$\pm 5$ KC Max.
Image Rejection	40 db
IF Rejection	70 db
Antenna Input	300 Ohms

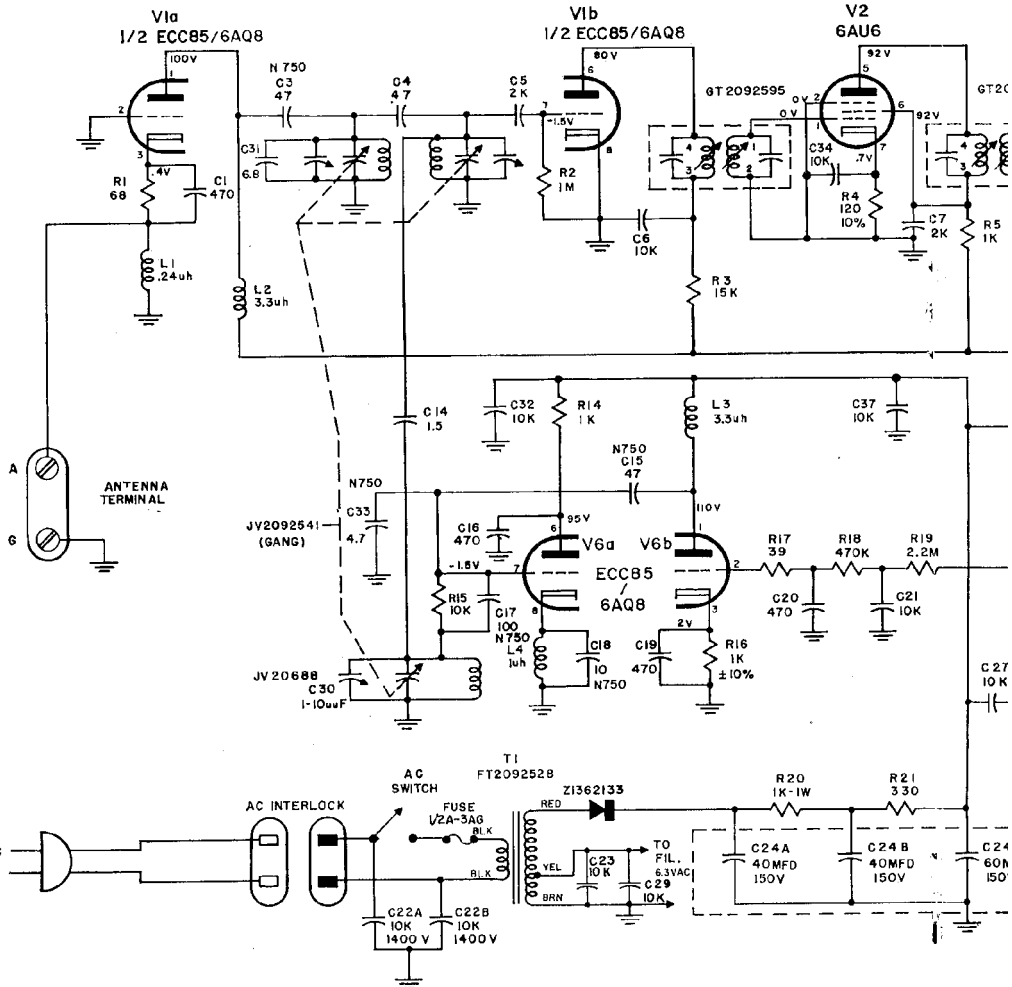
Distortion	Less than 1% harmonic and IM at 30% modulation.
Frequency Response	±1 db 20-20,000 c.p.s. including stand- ard 75 micro-second deemphasis
Hum Level	60 db below 100% modulation
Radiation	Within FCC requirements
Output Level	1.5 V. for 100% modulation 0.5 V. for 30% modulation
Output Impedance	High Impedance. Output Jack

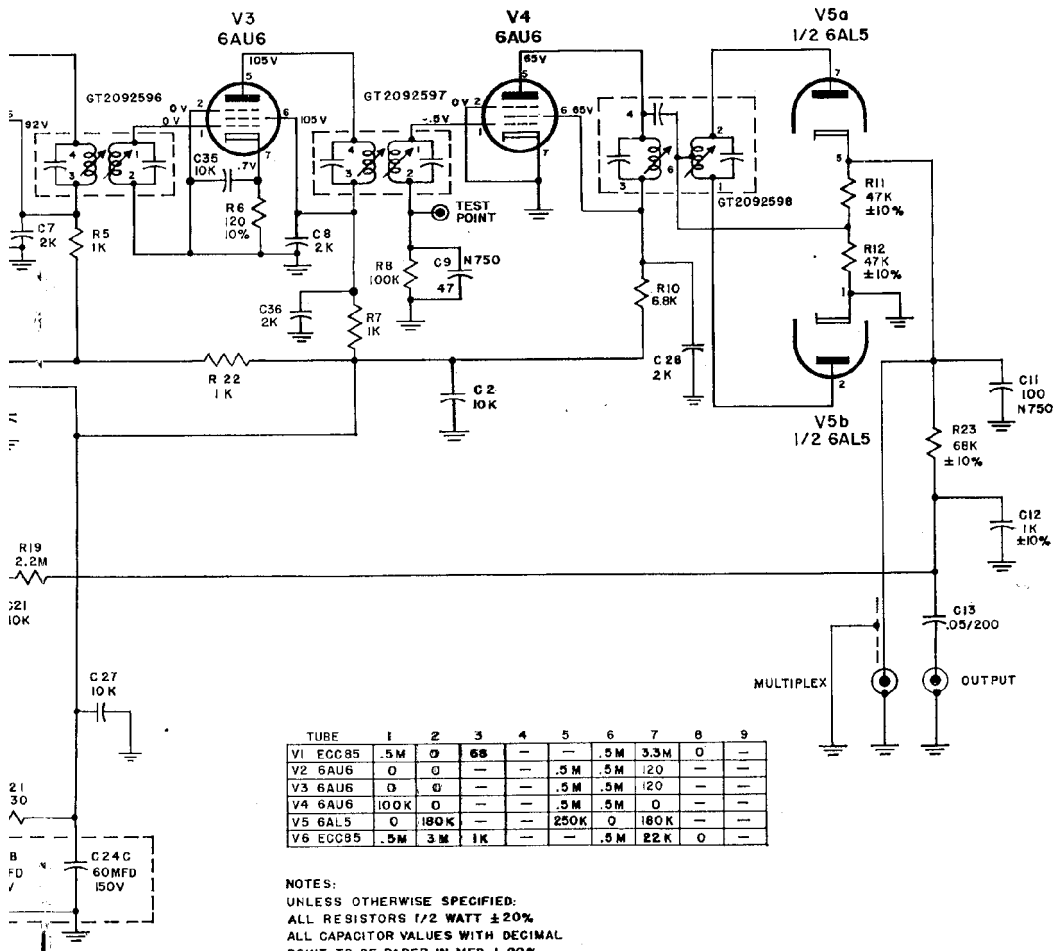


## LIST OF REPLACEABLE PARTS

### Model F10

H-K Part No.	Description	List Price
Z1362133	Rectifier, Selenium	\$1.90
ER2092537	Switch, AC, On-Off	1.00
P2092531	Dial Glass	.80
JE2092540	Elect. Cap. 60/40/40/150V.	2.50
P2092534	Escutcheon	2.70
P20778	Knob with White Line	.15
P20778	Knob, Tuning	.15
L2092613	Instruction Book	.50
L2092614	Mounting Template	.25
JV2092541	Condenser, Variable	4.50
JV20688	Osc. Trimmer 1-10 mmf	.30
GT2092595	Transformer, 1st IF	1.55
GT2092596	Transformer, 2nd IF	1.55
GT2092597	Transformer, 3rd IF	1.55
GT2092598	Transformer, Disc	2.00
P2092536	Cage	5.25
FT2092528	Power Transformer	5.50





TUBE	1	2	3	4	5	6	7	8	9
V1 ECC85	.5M	0	68	—	—	.5M	3.3M	0	—
V2 6AU6	0	0	—	—	.5M	.5M	120	—	—
V3 6AU6	0	0	—	—	.5M	.5M	120	—	—
V4 6AU6	100K	0	—	—	.5M	.5M	0	—	—
V5 6AL5	0	180K	—	—	250K	0	180K	—	—
V6 ECC85	.5M	3M	1K	—	—	.5M	22K	0	—

NOTES:  
 UNLESS OTHERWISE SPECIFIED:  
 ALL RESISTORS 1/2 WATT  $\pm 20\%$   
 ALL CAPACITOR VALUES WITH DECIMAL  
 POINT TO BE PAPER IN MFD  $\pm 20\%$   
 ALL CAPACITOR VALUES WITHOUT DECIMAL  
 POINT TO BE GENERAL PURPOSE CERAMICS  
 500 WV DC IN MMF.