

**harman kardon**

# **OPERATING AND INSTALLATION MANUAL**

## **Model MX700**

**SELF-POWERED ADAPTER FOR TUNERS EQUIPPED  
WITH MULTIPLEX RECEPTACLES**



## IMPORTANT!

Please read this instruction manual carefully before installing your FM stereo adapter. Taking a few minutes now, may save you considerable time and effort later on and will avoid the possibility of an improper installation. Be sure to keep this booklet available at all times. It contains indispensable technical and service information.

## INTRODUCTION

FM Multiplexing depends upon the placing of two information channels on one station carrier. The first information channel consists of the sum of the left and right stereo signals and is transmitted on the main carrier in the usual manner. All existing monophonic FM receivers will treat this as a normal monophonic signal. The listener equipped with a standard FM set is not aware that stereo is being broadcast and his position is analogous to that of the black and white TV set owner who continues to receive a black and white compatible picture even when a colorcast is in progress. The decoding element from which stereo is derived consists of the difference of the left and right signals (L-R).

The main carrier is modulated by a supersonic subcarrier which in turn is modulated by the decoding element L-R. The function of the FM stereo adapter is to convert the two signals into left and right channels and produce the full stereophonic effect. The broadcast is solely FM with all of FM's advantages.

Listed below are several questions and answers which should further help explain FM stereo.

**Question:** Why Was The GE/Zenith System Chosen?

**Answer:** The GE/Zenith system permits adequate opportunity to provide excellent performance at relatively moderate cost. The frequency response and distortion characteristics are consistent with high fidelity standards. Stereo separation is good throughout the entire range. In short, it offers a minimum degradation of conventional FM monophonic response and a simple and effective method of achieving excellent FM stereo.

**Question:** What Equipment Is Needed To Receive FM Stereo Broadcasts?

**Answer:** An FM tuner with multiplex output jack, multiplex adapter, dual channel amplifier and two speakers.

**Question:** Are There Any Special Antenna Requirements For Receiving FM Stereo?

**Answer:** In difficult reception areas, more sensitive and directional antennas, both indoor and outdoor, might be required. The reason for this is that the decoding element of the signal is weaker and more susceptible to noise than regular monophonic programs.



## UNPACKING

After unpacking the Model MX700, inspect it carefully for signs of transit damage. The unit was subjected to many inspections and tests prior to final packing, and 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 without delay.

Check the contents of the carton thoroughly and inspect the folds of the packing material before discarding it. Your package should contain the following items:

- 1 MX700 Stereo Adapter
- 1 Instruction manual
- 1 Warranty card
- 1 Package of Assorted Hardware

## WARRANTY POLICY

We urge you to fill in your warranty card and mail it to the factory without delay to protect your rights under warranty. The warranty 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 identify your set and reply quickly.

*NOTE: It is necessary to receive factory authorization before returning a set for warranty repair to an authorized station. Repairs are to be returned on an Express Prepaid basis. A letter describing the exact difficulty must be enclosed with the unit together with your original sales slip.*

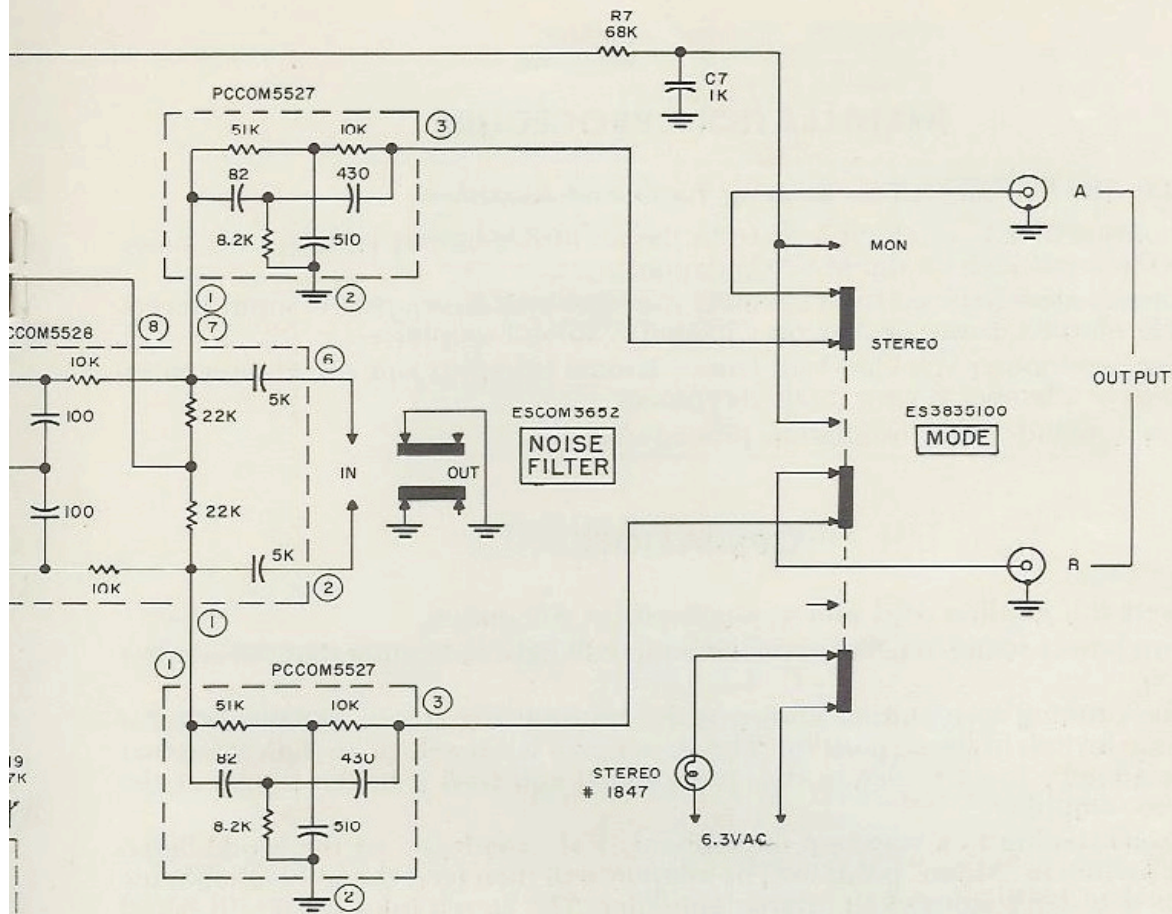
## WARRANTY

We warrant each Model MX700 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 under the 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 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 instructions furnished by us.

This warranty is expressly in lieu of all other warranties, express or implied, and of all other obligations or liability 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 this instrument.







**NOTES:**

- UNLESS OTHERWISE SPECIFIED—
- 1 — ALL RESISTANCE VALUES IN OHMS +10%.
  - 2 — ALL RESISTORS 1/2 WATT.
  - 3 — ALL CAPACITORS WITH DECIMAL VALUES IN MFD.
  - 4 — ALL CAPACITORS WITHOUT DECIMAL VALUES IN MMF.
  - 5 — ALL VOLTAGES ARE DC & MAY VARY ± 20%.

**RESISTANCE READINGS**

ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9
V1	6C4	* 45K	—	—	—	* 45K	1M	1K	—	—
V2	6BL8	* 47K	220K	* 100K	—	—	* 8Ω	1K	3.3K	1M
V3	EZ80	1330	—	—	0	0	—	1330	—	—

\* RESISTANCE READINGS MARKED WITH ASTERISK ARE MEASURED FROM THE JUNCTION OF R16 & C16C.

S560  
S4695641C



## INSTALLATION PROCEDURE

### Attaching The MX700 To Your Existing Tuner And Amplifier:

1. Connect GREY shielded lead from the multiplex output jack on your tuner to the input jack on the MX700 adapter.
2. Connect shielded lead from Channel A output jack on adapter to input Receptacle marked Tuner or Aux on Channel A side of amplifier.
3. Connect another shielded lead from Channel B output jack on adapter to respective Channel B amp input receptacle.

This concludes the installation procedure.

## OPERATION

1. Insert the AC line cord into any convenient AC outlet.
2. Turn power switch on. The red pilot lamp will light indicating that the adapter is on.
3. When tuning to a station known to be transmitting stereo, set the Adapter Mode Switch in stereo position. The stereo pilot lamp will go on indicating that the adapter is set to detect the stereo signal and feed it to the Inputs of the stereo amplifier.
4. When listening to a standard monophonic FM broadcast, set the Mode Selector Switch in "Mono" position. The adapter will then feed the full monophonic signal to both sides of the stereo amplifier. The stereo pilot lamp will be off with the Mode Selector Switch in this position.  
The use of the Mode Selector Switch will permit the use of both channels of the stereo amplifier even when listening to a monophonic broadcast.
5. If the adapter is used in a good signal area, it will probably not be necessary to use the Noise Filter and the Noise Filter switch should be left in the "Off" position.

If background noise cannot be eliminated by reorienting your antenna or by using the tone controls of your amplifier the Noise Filter may be switched on.

## A FINAL WORD ON THE FM ANTENNA

The use of a high quality outdoor antenna cut specifically for the FM band cannot be stressed too strongly as it is the keynote for optimum FM stereo reception. A faulty antenna system can result in degraded performance due to a loss of sensitivity and can introduce noise and other undesirable factors. Pay careful attention to your antenna, lead-in wires and their connection to the antenna input receptacles. In fringe areas a quality Yagi antenna system is especially recommended. Should you require additional information or recommendations on FM antennas please write directly to us. Our technical service department is always at your disposal.



MULTI PLEX ALIGNMENT PROCEDURE

DO NOT ATTEMPT ALIGNMENT UNLESS FOLLOWING EQUIPMENT IS AVAILABLE

- 1- MULTIPLEX STEREO GENERATOR
- 2- FM SIGNAL GENERATOR
- 3- OSCILLOSCOPE
- 4- AC VTVM
- 5- AUDIO GENERATOR

STEP	ALIGN	GENERATOR	FEED SIGNAL	OUTPUT INDICATOR	ADJUST	ADJUST FOR
1	T1 GLCOM5390	AUDIO GEN SET TO 67.5KC	(B)	VTVM AT (A)	BOTTOM OF T1	MINIMUM
2	T2 19KC TRANS.	FM SIGNAL GEN MODULATED 30% BY STEREO GEN (CHANNEL A)	ANTENNA TERMINALS. TUNE TO SIGNAL	SAME	TOP OF T2	MAXIMUM
3	T3 38KC DOUBLER GLCOM5422	SAME	SAME	SAME	TOP & BOTTOM OF T3	MAXIMUM
4	T2 19KC TRANS	SAME	SAME	SCOPE AT OUTPUT (CHANNEL B)	TOP OF T2 and matrix adjust	MINIMUM

**PARTS REPLACEMENT LIST**

Part No.	Description	List Price
ES4185313	SLIDE SWITCH (STACKPOLE #SS36-1 GREY)	.35
ESCOM3652	SLIDE SWITCH (STACKPOLE #SS-50 GREY)	.40
3835100	SLIDE SWITCH (STACKPOLE #SS-34 GREY)	.40
HC3825011	PILOT LIGHT SOCKET	.40
RVCOM5388	50K POT SCREW DRIVER KNURL ADJUST LIN. TAPER	.85
LCOM2970	FUSE 0.5 3 AG	.15
KB3835159	LAMP PILOT LIGHT #1847 (FROSTED)	.25
Z3414016	CRYSTAL DIODE IN542	1.80
JE2502987	LYTIC 30/350V-65-40/300V	3.00
FT4695623	POWER TRANSFORMER	6.85
PCCOM5527	38KC FILTER NETWORK	1.00
PCCOM5528	DETECTOR MATRIX NETWORK	2.00
GLCOM6170	38KC DOUBLER	2.50
GLCOM6156	19KC COIL	2.00
GLCOM5390	L-R M-DERIVED FILTER	2.85
GLCOM5442	70mh COIL	.85
GLCOM5594	2.5mh COIL	.55
JE4385449	4MFD/350V	.85
P4695611	ESCUTCHEON PAINTED	3.50

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