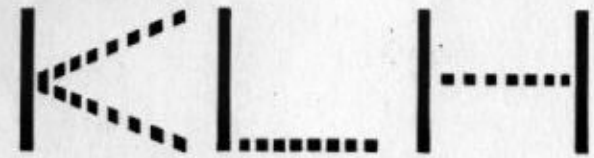


PLEASE READ BEFORE UNPACKING
KEEP FOR FUTURE REFERENCE

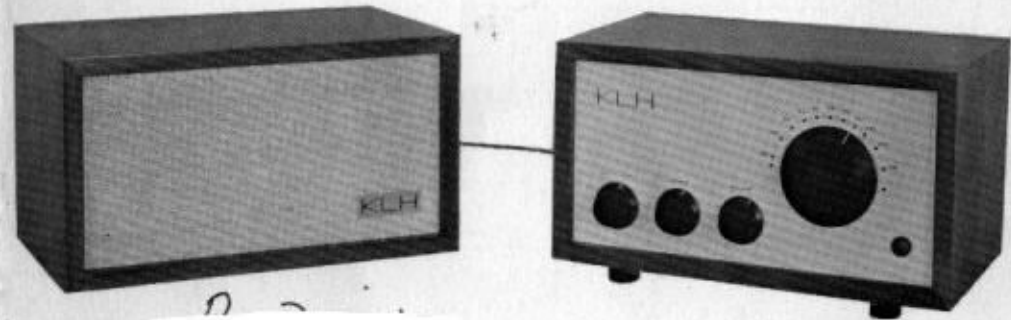
INSTRUCTION MANUAL



MODEL EIGHT FM RECEIVING SYSTEM

SN 1918

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[Handwritten notes and redactions]

KLH RESEARCH and DEVELOPMENT CORP.
30 CROSS ST., CAMBRIDGE 39, MASS.

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**MODEL EIGHT
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INTRODUCTION

Your KLH Model Eight Receiving System consists of an FM receiver (FM tuner plus power amplifier) and a separate loudspeaker. The two components of the system are housed in separate cabinets for versatility in placement, convenience in operation, and greatly enhanced loudspeaker performance. Careful design, the use of only the finest materials, and frequent, critical testing during the manufacturing process insure long, trouble-free operation.

Take advantage of the care that has gone into your Model Eight by devoting a few minutes to this instruction manual. Read it before you operate your Model Eight. You will be rewarded for your patience in the added satisfaction that you will derive from its improved performance.

NOTE

Do not use the Model Eight loudspeaker with anything other than the Model Eight Receiver. Do not use the power output from the Model Eight Receiver (SPEAKER jacks) with any loudspeaker other than the Model Eight.

UNPACKING

Read instructions on the upper cardboard filler in the shipping carton.

INSPECTING FOR DAMAGE

After you have unpacked your Model Eight, inspect it for damage. If any damage is evident, the following procedure should be followed:

- ① If the Model Eight was received directly from a dealer (if it was not shipped to you via a public transportation agency), it should be returned to him for inspection and possible replacement or repair at KLH.

② If the Model Eight was received via public transportation, please read the **SERVICING** section of this manual, and follow instructions for returning equipment to the KLH factory for repairs. Report the damage immediately to the shipping company, and request instructions from them for the recovery of any charges that may be made for repairs.

OPERATION

Uncoil the AC line cord completely, and insert the plug into a 110-120 volt 60-cycle AC outlet or extension. Almost any outlet will do, since the system uses only about 65 watts (0.55 ampere) when operating.

NOTE

The Model Eight operates from 110-120 volts 60-cycle AC only. Operation from other AC power sources may damage the system. It will not operate from a DC power source.

Uncoil the twisted white wire on the cleats behind the loudspeaker until you can insert the plug attached thereto into the jacks labelled **SPEAKER**, located on the terminal board on the rear of the receiver chassis.

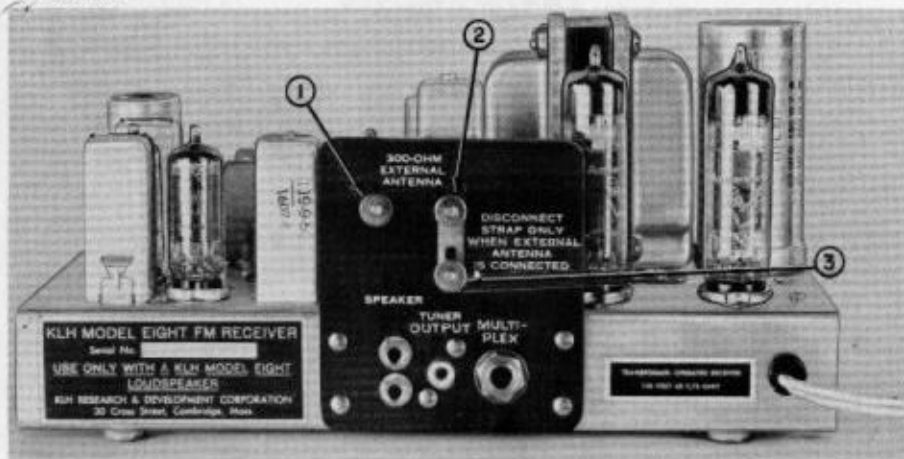


Figure 1

The system is turned on and off by rotating the **ON-OFF** switch. An orange-colored glow appears at the pilot light indicator when the system is **ON**. Stations are tuned in by rotating the large knurled knob. Sound output is controlled with the **VOLUME** knob, and high frequency response with the **TREBLE** knob.

PLACEMENT

The separation of receiver and loudspeaker in the Model Eight allows you to place each cabinet in a preferred location in your room. Place the receiver in the location of your choice; then, by uncoiling the loudspeaker cord from the cleats on the rear of the loudspeaker, the loudspeaker can be placed in any location that is within reach of the 30-foot cord.

NOTE

Do not interfere with the circulation of air into or out of the receiver cabinet. The rear of the cabinet should not be closer than three inches to a wall or other large objects. The bottom of the cabinet must be a half inch above any object. Do not place the receiver on any soft surface.

The loudspeaker may be placed to suit your requirements for convenience or decorative effect, or it may be moved around within a room until a location is found where optimum acoustical performance is achieved. It can, of course, be moved into another room, if that is desirable. The cabinet is finished on all four sides and may be placed in any position.

The acoustics of rooms differ widely. In some rooms, the loudspeaker may sound best in a corner, while in other rooms it may sound best near the center. Generally, however, a location along a wall, several feet removed from both floor and ceiling, will give good results.

TUNING

The frequency scale on the panel of your Model Eight Receiver is calibrated from 88 megacycles to 108 megacycles, embracing the entire

FM band of frequencies. The station you desire is tuned in by moving the dial pointer back and forth in the vicinity of the scale corresponding to the station's frequency. Local FM stations, their frequencies, and their programs are listed in your local newspapers. The exact position of the pointer dial should be noted for each station to facilitate retuning to the stations.

NOTE

Always use the large knurled knob when tuning the Model Eight Receiver. Never turn the pointer dial.

As the dial pointer moves from station to station, a hissing or crackling sound will be heard. In the presence of radiation from automobile ignition systems or other sources of impulse noise, a popping sound will also be heard. These sounds are typical of FM receivers and do not imply any difficulty. If the station being tuned in is a weak one, the correct dial pointer position is where the background noise is a minimum or just disappears. If the station is a strong one, the dial pointer should be centered in the no-noise range. There may be occasions when automobile ignition noise or other impulse noise becomes audible, even after a strong station has been tuned in. This would indicate that the dial pointer was not centered properly within the no-noise range. When this occurs, the dial pointer should be readjusted slightly to the no-noise position. If a no-noise position cannot be found, the station signal is too weak for the type of antenna being used.

TREBLE CONTROL

The amount of harmonic distortion, and high-frequency response (emphasis or de-emphasis of the treble frequencies), in FM broadcasting varies widely from station to station, and from time to time for the same station. The TREBLE knob on the Model Eight Receiver provides a wide range of adjustment of the high-frequency response of the system. This enables you to compensate for the individual station characteristics and for the response characteristics of the listening room. The knob always should be adjusted until the music sounds best.

A treble control is only a minor help if harmonic distortion is present in the station output. When a station sounds fuzzy or distorted, check the reception on other stations.

It is possible for the Model Eight itself to introduce distortion on some stations if the volume control setting is too high. On most stations, comfortable listening can be obtained with a fairly low setting (8 o'clock to 11 o'clock) of the volume control, and if the volume control is advanced to a much higher setting, then distortion may possibly be heard regardless of the quality of the station signal. The higher settings of the knob are available for use when listening to other stations, whose modulation index is low and which require the extra amplification supplied at high settings.

A safe rule to apply in checking the performance of the Model Eight is that **IF ANY STATION CAN BE MADE TO SOUND GOOD AT A REASONABLE LOUDNESS, THE SYSTEM IS FUNCTIONING PROPERLY.**

ANTENNAS

In comparison with reception over AM receivers, in which audible noise is reduced as the signal strength increases, background noise (static) in FM receivers is suppressed completely if the signal strength exceeds a critical value. This difference in performance is inherent in the difference between AM and FM transmission and reception. The range over which FM signals can be received without elaborate antenna systems, in contrast with AM signals, is restricted to approximately 50 to 100 miles, depending on local conditions. In this respect, FM is similar to TV.

The same characteristic of FM (and TV) transmission that requires a clear transmission path, i.e., the very short wavelength, can cause great changes in reception when the antenna position is changed and when people move about near the antenna, especially when distant or weak stations are being received and when the built-in line-cord antenna or a vertical-wire antenna is being used.

The terminal board on the rear of the receiver chassis is equipped with three screw terminals that permit a choice of different types of

antennas. See Figure 1. The line-cord antenna that is built into the receiver remains connected so long as the shorting strap remains in place on terminals (2) and (3). In general, the built-in antenna will provide optimum reception of stations within metropolitan areas, and no advantage can be gained by erecting an external antenna, whether it be indoor or outdoor.

Whether the built-in line-cord antenna is adequate for your purposes is determined by its ability or inability to receive the stations of your choice without background noise. (Noise such as record scratch, tape hiss, and hum, which are sometimes an audible part of the signals radiated by FM stations, is not included in the term "background noise" as it is used here).

If background noise is present in the reception of the weakest of the desired stations, the following steps should be taken, in the order indicated:

- ① Rearrange the line cord behind the receiver, to see whether a new position of the cord can be found that will improve reception, keeping in mind that the cord must be uncoiled away from and preferably to the rear of the receiver if the line-cord antenna is to function properly.
- ② If the rearrangement of the line cord does not provide the desired improvement, loosen the two knurled nuts clamping the shorting bar on the terminal board (shown in Figure 1), and slide the shorting bar downward until it clears the upper terminal (2). Do not remove the shorting bar from the terminal board. You may find occasion to use it in the future. Instead, re-tighten the lower knurled nut (3) to retain the bar, and install a 3 to 5-foot length of wire on ~~one of the~~ antenna terminals (1) or (2). In general, best results are obtained when this wire is vertical, but a number of positions should be tried.
- ③ An alternative to the use of the single-wire antenna is the use of a "rabbit ear" antenna commonly used with TV receivers. The procedure outlined under (2) should be followed in connecting the antenna,

except that the leads from this antenna should be connected to the antenna terminals (1) and (2) of Figure 1. Try different positions (up, down, and sideways), different "ear" lengths, and rotate the antenna for optimum reception.

Where an outdoor TV antenna is already installed in a favorable location, its use with the Model Eight may improve reception considerably because of its location, in spite of the fact that it is designed for optimum performance in the TV band rather than the FM band.

- ④ In fringe areas, at long distances from FM stations, where the procedures outlined under ① to ③ do not result in complete suppression of background noise in reception from desired stations, the services of a competent FM and/or TV technician should be solicited. He can recommend an antenna specifically designed for long-distance FM reception, install it in an appropriate location, and orient it for the reception of specific stations, if this is desired. If a coupler is used with the Model Eight, so that more than one receiver (FM and/or TV) can be used with a single antenna, such a coupler should be of the switching type, to avoid the loss of signal strength that accompanies the loading of the antenna with more than one receiver at a time. Boosters are not recommended for use with the Model Eight, except in those instances in which they are a part of an elaborate antenna system with a long transmission line between antenna and receiver, in which a booster placed at the antenna might be desirable to compensate for losses in the transmission line.

AUDIO SIGNAL CONNECTIONS

The terminal board attached to the rear of the receiver chassis is equipped with:

- ① a pair of jacks labelled SPEAKER into which the plug at the end of the 30-foot loudspeaker cable is plugged;
- ② a single jack labelled TUNER from which a signal suitable for application to the input of preamplifiers, power amplifiers, or tape recorders, may be obtained; and

- ③ a single phone jack labelled MULTIPLEX (or MX) into which an adapter, that KLH will produce when the FCC establishes a set of standards for multiplex stereo transmission, can be plugged to convert the Model Eight for stereophonic FM reception.

SERVICING

If the Model Eight upon delivery seems to be undamaged but fails to operate when set up in accordance with the foregoing instructions, please return it to your dealer for inspection and possible replacement or repair at KLH. If it was received by you via a public transportation agency, please follow instructions for returning the system to the factory for repairs.

If your Model Eight works properly when first installed but appears to become defective at a later time, please re-read the OPERATION section of this manual. If the manual does not provide a clue to the cause of poor performance, or if the system has been damaged during or after installation, or does not work at all, please follow the procedure outlined below:

- ① If the apparent defect occurs within the two-year warranty period, please write to KLH for a RETURN AUTHORIZATION FORM. Our service department will promptly send you either an authorization to return the system for repairs, or advice that will result in the remedy of your difficulty. All necessary repairs will be made and the system will be tested and returned to you promptly.

All repairs that fall within the scope of KLH obligations under the terms of the warranty will be made free of charge. If our inspection clearly determines that any necessary repairs are not covered by the warranty, a minimal charge will be made and included in the C.O.D. charge on the return shipment to you. When such a repair charge covers damage in shipment, your claim for damage should be submitted to the shipper by following his instructions (see the INSPECTION FOR DAMAGE section of this manual).

- ② If the apparent defect occurs after the end of the two-year warranty period, KLH will be glad to make repairs at a minimal charge, if the system is shipped prepaid to our Service Department.

- ③ To insure freedom from damage in shipment, the system should always be packed as it was when it left KLH. If you saved the original carton, liners, and polyethylene bags; ship the system in the original carton. Our RETURN AUTHORIZATION will show the proper arrangement of the cabinets and fillers in the carton. If the original carton was damaged or you did not save it, ask your dealer for a new carton. All dealers are ordinarily supplied with new cartons. If your dealer cannot supply a carton, please mention this when writing for your RETURN AUTHORIZATION, so that a new carton can be sent to you promptly.

PLEASE READ CAREFULLY

WARRANTY

The FM Receiver and the Loudspeaker of the Model Eight FM Receiving System were designed and built entirely by the KLH Research and Development Corporation. We warrant this system to be free of defects in performance, materials, and workmanship. KLH will replace free of charge any defective part, including tubes, and correct any defect in workmanship or performance without charge for labor. The obligation of KLH under the terms of this warranty is effective only if the defect develops in a normal installation and under normal use and service, and if the entire receiving system (both receiver and loudspeaker) is returned intact to our factory at 30 Cross Street, Cambridge 39, Massachusetts, with all transportation charges prepaid, within two years from the date of purchase. KLH's obligation to repair without charge is effective only if the warranty card that accompanies this receiver is mailed to KLH with a postmark dated not more than a week after the date of purchase, and if the examination by our Service Department confirms the existence of the defect.

This warranty is effective only if the receiving system is properly installed and used in accordance with our written instructions. This warranty does not cover abuse, neglect, or accidental damage, and is void if our examination of the receiver discloses wiring not installed at KLH or if the receiver has been taken apart, repaired, or altered outside our factory.

This warranty supplants any verbal or other stated or implied warranties.