INSTALLATION AND OPERATING MANUAL



DELUXE STEREOPHONIC AMPLIFIER

MODEL W-38

AM - AM / FM / SW Tuner - Combination

DISTRIBUTOR

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I. FEATURES OF THE W-38

1. General Stereophonic Amplifier

It is a general purpose stereo amplifier capable of FM and shortwave reception enabling you to enjoy all types of broadcasts and recordings.

2. Sufficient Output

Output is 14 watts per channel, or 28 watts in total. It is possible, therefore, to reproduce richly the most powerful tones of an orchestra.

3. Direct Current

Hum is entirely eliminated with a DC filament supply system adopted to the equalizer circuit.

4. Loudness Control

No matter how low you keep the volume, you can enjoy "on-the-spot" listening by adjusting the Loudness Control.

5. Rumble Filter

Irritating low level motor rumbling disturbances can be filtered out with the Rumble Filter.

6. RP-Cord Tape Recorder Terminal

The W-38 is equipped with a special socket of the kind agreed to among the major tape recorder manufacturers (a RP-cord terminal by which recording and reproduction are possible using only one connection) as well as an ordinary terminal. Accordingly, you can freely enjoy high fidelity recording and reproduction with any kind of tape recorder.

7. Magic Eye

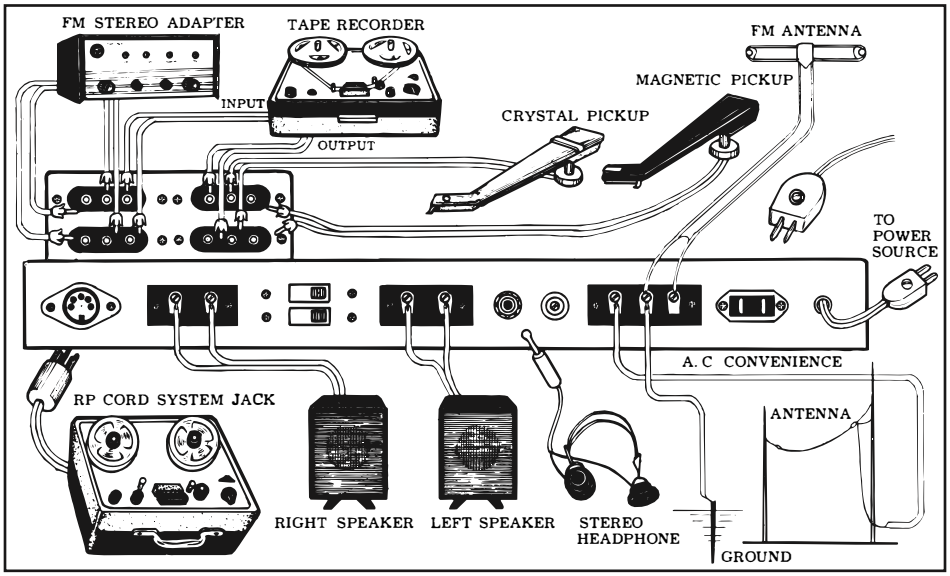
You can select radio stations quickly and accurately with the magic eye.

8. Modernistic Design

The pleasing modernistic design not seen in previous amplifiers will further brighten the atmosphere of your room.

9. Foster Seeley FM Detector

Since the FM detector is a Foster Seeley discriminator, you can enjoy stable and superb high fidelity reception.



(DIAGRAM 1)

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II. CONNECTIONS

1. Speaker Connections

(In the case of stereo)

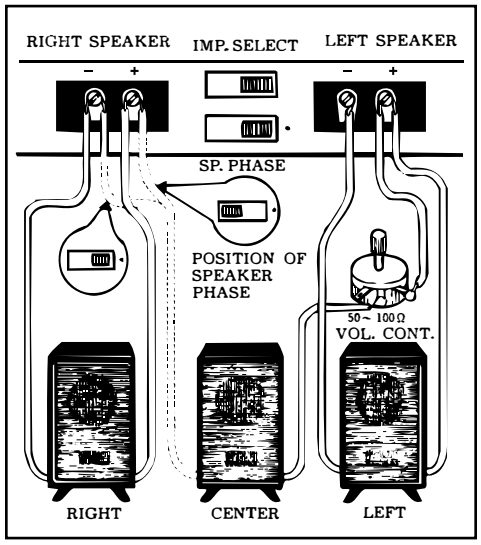
Unwind the screws of the terminals marked Right Speaker and Left Speaker as shown in Diagram 1, then attach the ends of the Speaker cords to them and tighten. You need not be concerned about (+) and (−). Next, set the IMP SELECT switch to the impedance that corresponds to the impedance of the speaker (the impedance is marked on the speaker cabinet, e.g., 8 ohm or 16 ohm) as in the table below:

Speaker Impedance	Position of Imp Select Switch
4 — 8 ohms	8 ohms
9 — 16 ohms	16 ohms

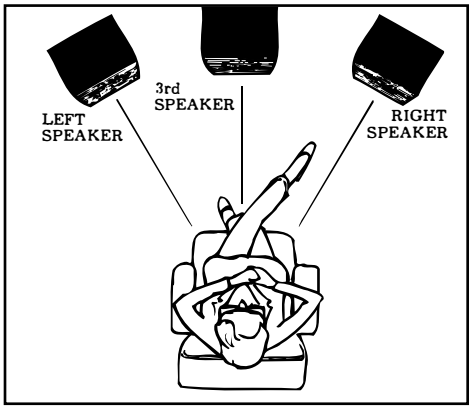
Check to make sure the end of the cord is not touching the next terminal.

(In the case of speakers)

When the speakers are set far apart in a large room, the sound level at the center tends to fall off. In this case, we suggest you add another speaker midway between the two, making the connections as shown in Diagram 2. By supplementing the volume in this way, you can enjoy a very natural sterephonic reproduction.



(DIAGRAM 2)



(DIAGRAM 3)

If you decide to use three speakers, first adjust the phasing of the left and right speakers without connecting the middle speaker. See section on Pointers for how to phase) When the speaker phase switch is set at the red mark position, connect the third speaker to the (+) and (−) terminals of the left and right speakers, respectively. If the Speaker Phase switch is set at the other position, connect the third speaker to the (+) terminals of the left and right speakers.

NOTE:

(1) The potentiometer of 50 - 100 ohms is for adjusting the volume of the central speaker so that it will be uniform with the other two speakers.

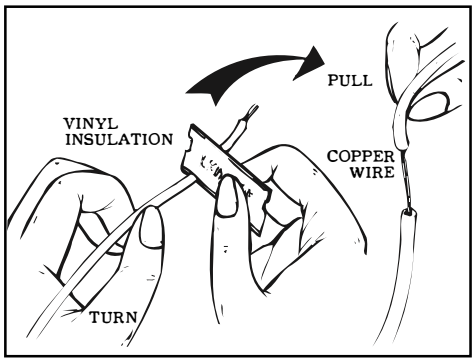
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(2) Place the third speaker exactly mid-way between the left and right speakers as shown in Diagram 3.
If the phasing of the central speaker is incorrect, the volume at the center will fall off and you will notice a deterioration in bass sounds. To correct this, inter-change the two lead lines of the central speaker.

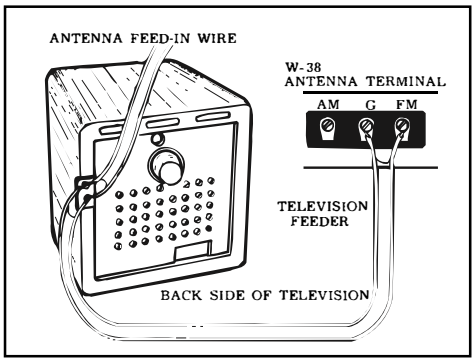
2. Antenna and Ground Connections (See Diagram 1)

(Antenna for ordinary and shortwave reception)

At a place close to the broadcasting station: A vinyl antenna wire of about 2.5 meters in length is provided with the set. As shown in Diagram 4, peel off the covering at one end and attach the bare wire to the terminal marked AM.
At a place far from the broadcasting station: Since the radio wave grows weak if the station is at a distance, the vinyl wire must either be extended or an antenna set up outside. A special antenna wire is available but a large vinyl line may be used. Consult your local radio repair man on how to erect an outdoor antenna.
Inside a ferro-concrete building: Even if you are located close to the broadcasting station, erect the antenna as far as possible from the wall of the building.



(DIAGRAM 4)



(DIAGRAM 5)

IMPORTANT Do not place the antenna line near fluorescent lighting which causes disturbance in the form of a buzz.

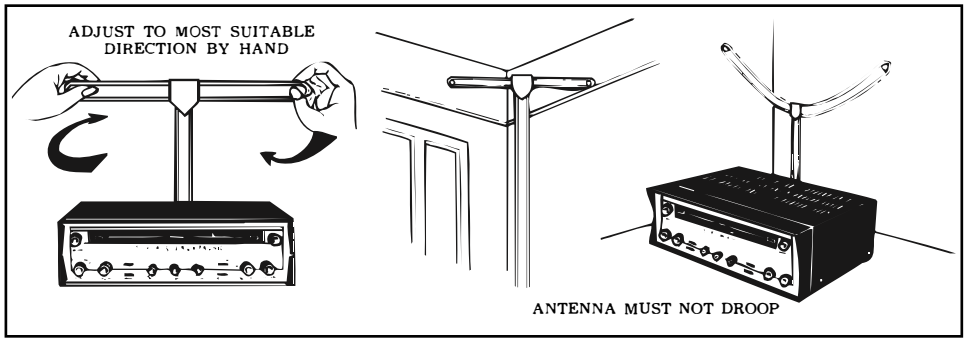
(Antenna for Listening to a FM Broadcast)

Connect the FM antenna to "G" and "FM" as shown in Diagram 1. Turn the horizontal part of the T-shaped antenna towards the direction in which you can receive optimum reception and then pin both ends to either the ceiling or walls (See Diagram 6., Make sure the antenna does not sag (Diagram 6) as it will affect the tone quality.
This indoor antenna is inadequate where the electric wave is weak. In such a case, set up an outside antenna and connect with the "ANT" terminals marked "G" and "FM". You may use the television antenna jointly, but if there is a deterioration in the quality of the image erect separate antennas. See Diagram 4 for joint connection of television antenna.

How to Ground

You can keep hum down to a minimum when reproducing a record by grounding the set. As shown in Diagram 7, drive the earth pole into ground where there is as much moisture as possible. Solder the end of a vinyl line to it and connect with the amplifier terminal marked "ANT G". If the line is left dangling, it will get in the way so stretch if around

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(DIAGRAM 6)

the corners of the room. Do not line it up together with the antenna cord as it will affect sensitivity.

NOTE:

When you listen to an AM broadcast (medium wave and shortwave) using a short antenna, sensitivity is sharper without ground connection.

3. Player Connections (See Diagram 1)

(In the case of stereo pickups)

Crystal Pickup: Connect the set of two lead wires from the player to the terminals marked "XTAL".

Magnetic Pickup: Connect the set of two lead wires from the player to the terminals marked "MAG".

4. Tape Recorder Connections (See Diagram 1)

(Tape Recorder Equipped with RP Cord)

If you use a tape recorder equipped with a RP cord, you can reproduce stereo recording merely by plugging the cord into the socket provided for this purpose.

(Recording with a tape recorder)

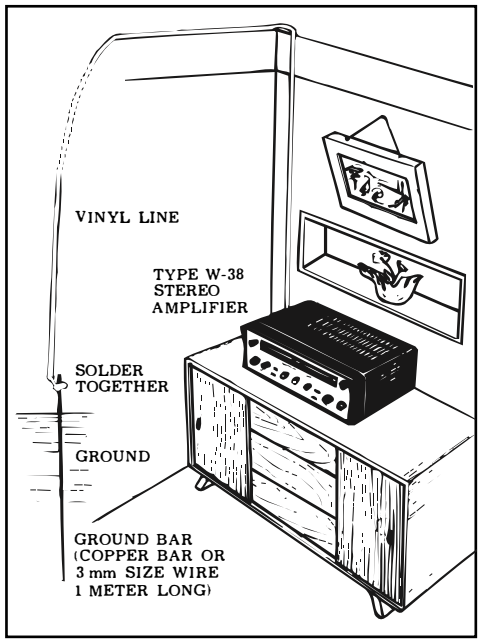
Connect the lead lines from the LINE IMPUT terminals of the tape recorder to the terminals marked "TAPE REC". In the case of monaural recording, either one (top or bottom) of the terminals may be used.

(Playback of tape recorder)

Connect the lead line from the LINE OUTPUT terminals of the tape recorder to the terminals marked "AUX" on the amplifier. In the case of monaural reproduction, either terminals may be used.

5 FM Stereo Broadcast

The W-38 provides Receptacles for a FM stereo adaptor so that you may listen to FM stereo broadcasts by simply connecting the adaptor additionaly with this amplifier.



(DIAGRAM 7)

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III. CONTROLS AND CONNECTION TERMINALS

1. AM RANGE AND POWER SWITCH

POWER OFF — Electricity turned off. (At all other positions, power is on)
SOFT — Listen at this position when there is much disturbance (Medium Wave).
HI-FI — Even the high tones are clearly and faithfully reproduced.
SW — For shortwave broadcast.

2. VOLUME

The sounds of the left and right speakers can be adjusted simultaneously. Turn clockwise to increase volume.

3. LOUDNESS CONTROL

OFF — When the volume is relatively high.
ON — If adjusted to this position when the volume is low, the bass and treble sounds come out automatically and produce a rich tone that gives you a feeling of actually being at the source of the broadcast.

4. RUMBLE FILTER

OFF — When there is no low frequency disturbance.
ON — Irritating low frequency disturbance can be eliminated by turning to this position

5. BASS CONTROL

The low level tones of both left and right speakers can be adjusted simultaneously. Turn clockwise to boost.

6. TREBLE CONTROL

The treble tones of both the left and right speakers can be adjusted simultaneously. Turn clockwise to boost.

7. BALANCE CONTROL

This knob is for the purpose of balancing the left and right speakers. Turn counter-clockwise to boost the volume of the left speaker and clockwise that of the right speaker.

8. FM STABILIZER (FM AFC)

OFF — Select FM station with switch at this position.
ON — Listen with switch at this position after selecting the station.
NOTE — It has no connection with AM or shortwave broadcasts, recording or tape reproduction.

9. SPEAKER SWITCH

Employed when a stereo head phone is used.
OFF — Shuts off the sound from the speaker
ON — Turns on the speaker (normal position)

10. SELECTOR SWITCH

A switch to select the different sources such as radio, recording, FM stereo, etc.

AM-AM2	For receiving medium wave stereo broadcasts.
FM-AM2	For listening to FM, ordinary and shortwave broadcasts.
PHONO	For listening to stereo and monaural record performances.
AUX	For using "AUX" terminal, or for tape recorder playback.
FM MPX	For using a multiplex adaption to listen to a FM stereo broadcast.

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11. MODE

This switch is used to change over from monaural to stereo.

LEFT ..... Sound entering the left channel input terminal emerges from both speakers.

RIGHT ..... Sound entering the right channel input terminal emerges from both speakers.

STEREO ..... Completely separates the two channels for stereo reception.

REV .. .. Reverses the left and right channel sounds.

12. TUNING 1

For left channel station selection to listen to medium wave stereo as well as FM broadcasts.

13. TUNING 2

For right channel station selection to listen to medium wave stereo and shortwave broadcasts.

14. LEFT CHANNEL MAGIC EYE

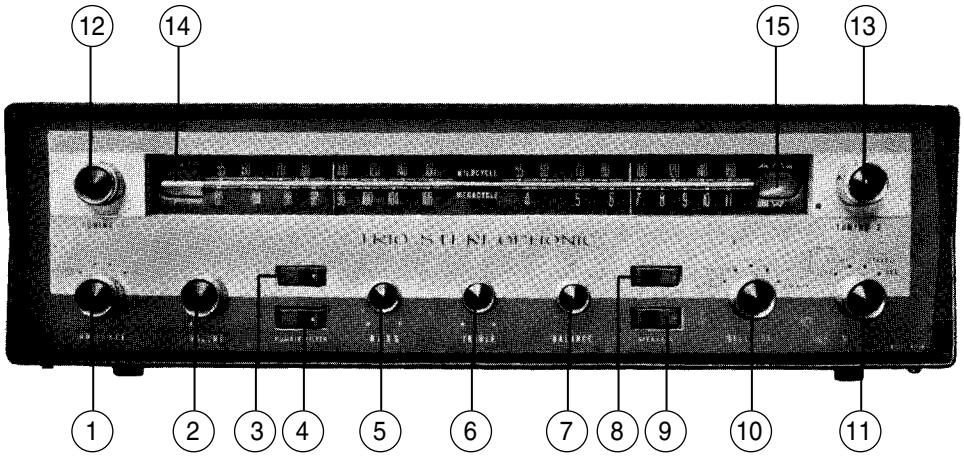
When you select the station with the TUNING 1 knob, see that the magic eye expands to its maximum.

15. RIGHT CHANNEL MAGIC EYE

When you select the station with the TUNING 2 knob, see that the magic eye expands to its maximum.

16. SOCKET FOR TAPE RECORDER WITH RP CORD

17. RIGHT SPEAKER TERMINAL



(DIAGRAM 8)

18. IMPEDANCE SWITCH

Switch to correspond with speaker impedance.

19. SPEAKER PHASING

Use this switch according to instructions given in Pointers section on phasing adjustment.

20. LEFT SPEAKER TERMINAL

21. STEREO HEADPHONE JACK

Plug the headphone cord into this jack to listen to stereo broadcast over the headphone.

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22. HUM CONTROL

Turn until hum is reduced to a minimum according to instruction given in Pointers section on "Hum Balancer".

23. ANTENNA, GROUND TERMINALS

24. POWER SOURCE

Electricity is taken from here for players and stereo adapter.

25. POWER CORD

26. INPUT TERMINAL PANEL

27. POWER & VOLTAGE SWITCH

Since the voltage is set at 100 volts, If the power supply voltage is 117V, switch to "117V" side.

IV. POSITION OF KNOBS

1. COMMON CONTROLS

(1) POWER OFF — At all other positions, electricity is on.
(2) VOLUME CONTROL
(3) LOUDNESS CONTROL
(4) RUMBLE FILTER
(5) BASS CONTROL
(6) TREBLE CONTROL
(7) BALANCE CONTROL
(9) SPEAKER SWITCH

2. RECORD PLAYBACK WITH STEREO PICKUP

(10) "PHONO"
(11) "STEREO" or "REV"

3. PLAYBACK OF TAPE RECORDER

(10) "AUX"
(11) "STEREO" OR "REV"
(Stereo reproduction)
"LEFT" (When the left input terminal is used for monaural listening)

4. RECORDING WITH A TAPE RECORDER

The exact sounds coming out the speaker are recorded. Controls (2), (3), (4), (5), (6), (7) and (9) have no connection.

5. MEDIUM WAVE BROADCAST (AM) LISTENING

(1) "SOFT" or "HI-FI"
(10) "FM — AM2"
(11) "RIGHT"
(13) Station Selection

6. SHORTWAVE (SW) BROADCAST LISTENING

(1) "SW"
(10) "FM — AM2"
(11) "RIGHT"
(13) Station Selection

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7. MEDIUM WAVE (AM) BROADCAST LISTENING

(10) "AM1 — AM2"
(11) "STEREO" or "REV"
(12) Selection of station on left channel
(13) Selection of station on right channel

8. FM BROADCAST LISTENING

(10) "FM — AM2"
(11) "RIGHT"
(12) Station Selection
(8) Selection station at "OFF" position and listen at "ON"

9. FM STEREO BROADCAST LISTENING

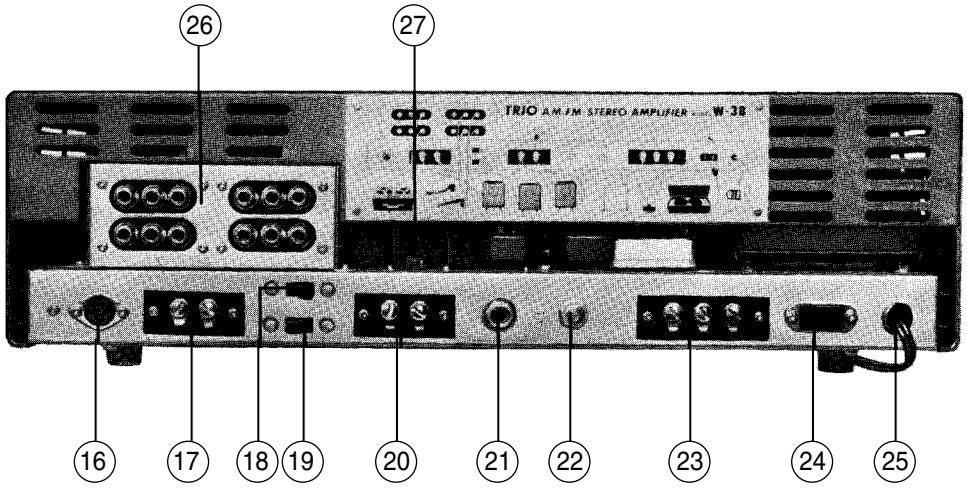
(10) "FM MPX"
(11) "STEREO" or "REV"
(13) Station Selection
(8) Select station at "OFF" position and listen at "ON"

10. FM-AM STEREO BROADCAST LISTENING

(10) "FM — AM2"
(11) "STEREO" or "REV"
(12) FM Station Selection
(13) AM Station Selection
(8) Select FM station at "OFF" position and listen at "ON"

11. STEREO HEADPHONE USE

(21) Plug in headphone jack
(9) "OFF" (To eliminate speaker sound)
"ON" (To bring out the speaker sound')



(DIAGRAM 9)

V. POINTERS

1. It takes approximately 50 seconds for the sound to emerge from the recorder after switching on the power.
A direct current flows into the filament of the tubes which the sounds from record players get through first, thereby eliminating hum entirely. Since it takes approximately 50 seconds for the tubes to start functioning,

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switch on the power some moments before you play records for reproduction. In radio reception, however, the sound can be heard in about 20 seconds.

2. Speaker Phasing

When the left and right speakers are attached to the opposite (+) and (−) terminals, the sound level midway between the two speakers will fall, a deterioration in bass being especially noticeable. Listen to the stereo recording and switch the SPEAKER PHASE. It is in proper phasing if the sound midway between the two speakers becomes full and the bass tone improves.

3. HUM BALANCER

Adjust in the following manner: Connect all the lines from the pickup and to the speakers; switch on the power and turn the volume control up almost to maximum. Turn the HUM BALANCER with a screwdriver or coin until hum — an irritating drone — is reduced to minimum. It will suffice to adjust it only once — you need not adjust it again.
The hum sometimes decreases depending on the way the amplifier power cord is plugged into the socket. Choose the position with the least hum.

4. HOWLING

When the record player is placed directly on top of the speaker case or close by it, the sound from the speaker travels to the player pickup needle and causes "howling". It then becomes impossible to raise either the volume or boost the bass tones. Adjusting the amplifier will not help since it is not responsible for the howling.
In order to avoid howling, keep the player case and speakers as far apart as possible. However, if you are forced to place the player on top of the speaker lay a thick cushion or sponge mat in between.

5. HEATING OF AMPLIFIER

The upper surface of the amplifier case reaches a considerable temperature with the elapse of time; but since the W-38 is well designed with this taken into account, you need not worry about it. However, do not place anything on top of the case thereby blocking the ventilation holes and increasing the heat inside.

6. SPEAKER SWITCH

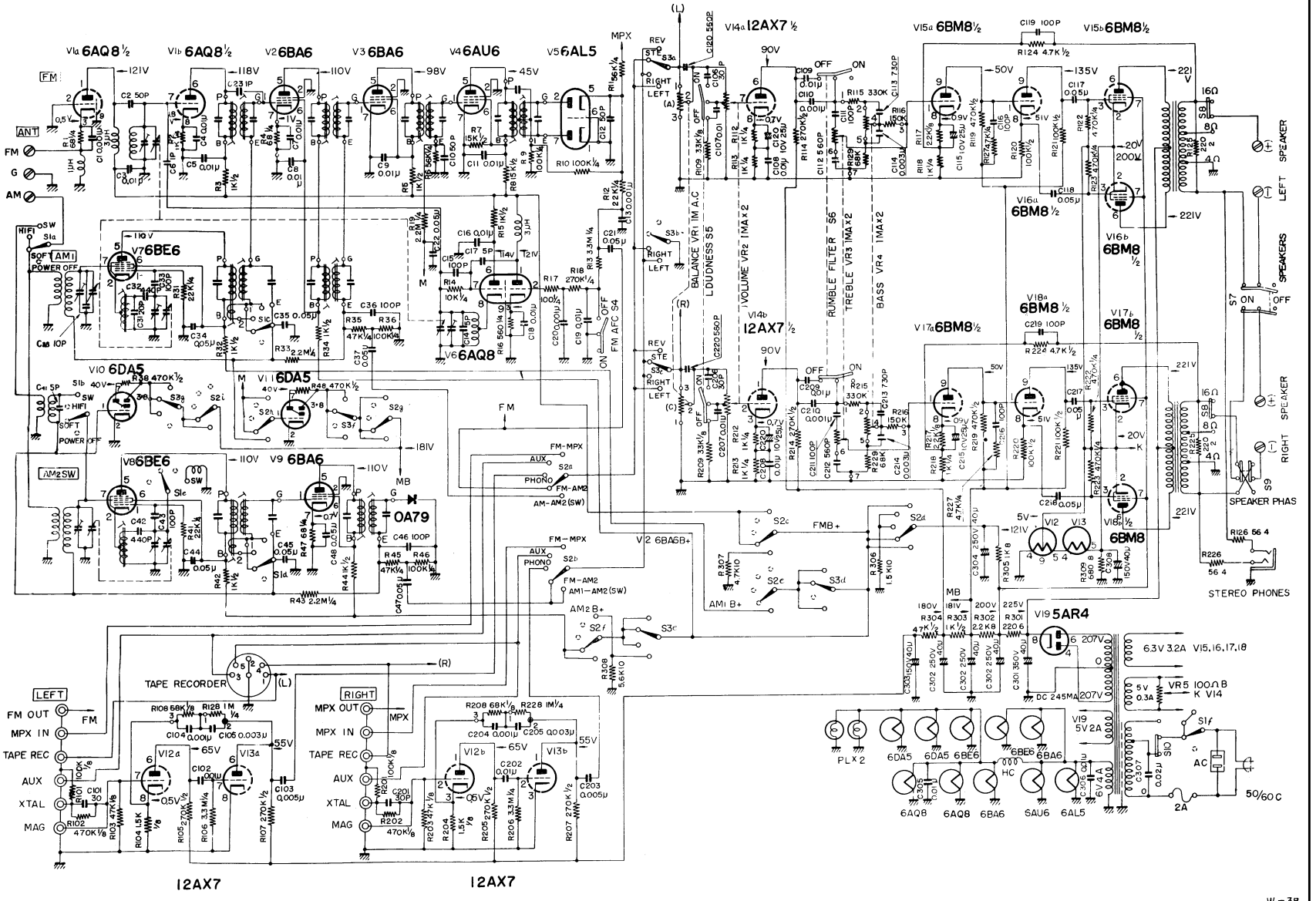
Turn the SPEAKER (See photograph) to OFF position **only** when you use the headphone. Keep it at ON position at all other times.
Caution: Donot raise volume when the switch is in OFF Position with a stereo headphone disconnected. Otherwise, it is likely to cause a breakdown in your amplifier.

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VI. SPECIFICATIONS OF THE W-38

Tubes used:	19 tubes and 1 diode — 6BE6 x 2, 6BA6 x 3, 6AQ8 x 2, 6AU6 x 1, 6AL5 x 1, 12AX7 x 3, 6BM8 x 4, 5AR4 x 1, 6DA5 (Magic Eye) x 2, & 0A79 (Diode) x 1.
Frequency Range:	FM; 80 — 108Mc. AM; 535 — 1605Kc. SW; 3.8 — 11Mc.
Sensitivity:	FM; 2.6uV/94Mc, AM; 6uV/1Mc. SW; 6uV/8Mc. (input required for S/N 20dB quieting)
Image Ratio:	FM; 30dB/94Mc. AM; 46dB/1Mc.
Gain:	Mag; 3mV. X'tal; 36mV. AUX; 225mV. (input required for 9 watt output)
Tone Control:	50c/s $\begin{cases}+10.5\text{dB}\\-8\text{dB}\end{cases}$ 10Kc $\begin{cases}+8\text{dB}\\-8.5\text{dB}\end{cases}$
Rumble Filter:	50c/s; — 8dB. 20c/s; — 15dB.
Loudness Control:	50c/s; 15dB. 10Kc; 4dB. (Volume control at — 30dB)
Output Power:	14 watts per channel, (undistorted output 10 watts), or 28 watts in total. (Harmonic Distortion less than 2%)
Frequency Response:	Within 20c/s — 50Kc ±0.5dB (output at 500mW)
Equalizer:	RIAA
Residual Noise:	MAG; 30mV. AUX; 4mV. (volume maximum, tone control flat)
Special circuits:	FM-AFC, Loudness Control, Rumble Filter, D.C. filament supply Equalizer Circuit, & Stereo Headphone Jack.
Input Terminals:	MAG, X'TAL, AUX, TAPE REC, MPX IN, FM OUT, RP (Recording & Playback) CORD SOCKET.
Dimensions:	5.6'' high x 18'' wide x 14.2'' deep.
Weight:	30 lbs.

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