ASSEMBLY AND WIRING INSTRUCTIONS

FOR THE

Miller

NO. 565 MILLER HIGH FIDELITY GERMANIUM DIODE BROADCAST BAND TUNER KIT

You are now the proud owner of a No. 565 Miller High Fidelity Germanium Diode Broadcast Band Tuner Kit . . . the only tuner kit of its kind.

The Miller No. 565 Tuner Kit is the result of masterful engineering and careful planning. Previously sold only as a factory assembled unit the tuner has received overwhelming acceptance by the most critical audiophiles. When assembled in accordance with the following instructions, the No. 565 Tuner Kit will give you a lifetime of trouble-free performance.

Assembly and wiring of your tuner is not difficult. Every possible precaution has been taken to assist you in completing it. Please take the necessary time to assemble and wire the No. 565 Tuner Kit carefully. Read this entire instruction folder before you start the actual assembly. Check each part against the parts list (back page). This way you will become familiar with each part. Refer to the "exploded view" and the photographs to identify the parts and their location.

The Miller No. 565 Tuner is designed to be used with a high gain amplifier or pre-amplifier. It should be connected to the phono or mike jack for best performance. The most satisfactory antenna we have found is a simple long wire approximately 75 feet in length. The antenna should be L shaped, with the vertical portion rising from the tuner to the top of your house and the horizontal portion preferably stretched in a straight line across the roof or to some other support. The wire may be insulated or bare, whichever is on hand. In general, the longer and higher the antenna the better the reception. If space does not permit the use of a long antenna a shorter one may be used and will generally operate quite satisfactorily. No attempt should be made to use the A.C. line as the antenna. This may result in serious damage to the tuner.

To enable the use of earphones with the No. 565 tuner the Miller phono adaptor No. 2705 is available. When earphones are used a good ground connection is also necessary. The tuner may be grounded by connecting the Fahnestock clip on the back of the tuning condenser to a water pipe or equivalent. Soldering methods are very important. Rosin core solder is especially recommended for wiring the Miller No. 565 High Fidelity Tuner Kit.

MILLER NO. 565 TUNER KIT ASSEMBLY INSTRUCTIONS

Notice in the pictorial diagrams that each component has been given a code designation and that each terminal has also been given a number. Also note that on the wiring panel the code designation and the shape of each component is stamped on the panel.

When the wiring instructions read "connect one end of the 15 uuf condenser (56) to terminal No. 1-NS," it will be understood that the connection is to be made to the terminal designated as No. 1 in pictorial B. The No. 56 appearing in parenthesis after "connect one end of the 15 uuf condenser" is the code designation of that component and is stamped on the wiring panel. The letters NS means that the connection is not to be soldered at that time. When the connection is to be soldered the letter S will follow the terminal number. The number in parenthesis following the letter S indicates the number of leads to be soldered at that connection.

When passing the leads through the eyelet terminals on the wiring panel leave approximately ⅛" on the other side of the panel and bend flat against the panel. This is done to hold the component or lead in place until it is soldered. After the tuner is completed these ends may be cut off to provide a neat appearance of the unit.

1. Identify the wiring panel (64) from figure A or B.

2. Position the panel as in figure B. This is the rear side of panel.

3. Insert the volume control (44) in the hole marked volume control in figure B. Terminals should be facing to your left or toward the inside of the panel. Press the control into place until the spring clips lock it there. This may require considerable pressure and is usually accompanied by two small clicks as the control locks into place. Rocking the control from side to side will enable the clips to lock easier.

4. Insert the two rubber grommets (4) into their places as shown in pictorial B. Squeeze grommets with fingers and slide into slots. Insert a screwdriver in the center of the grommet and pull into place.

5. Connect one end of the antenna lead (66) [red lead with alligator clip on one end] to terminal No. 1-NS.

6. Connect one end of 15 uuf condenser (56) to terminal No. 1-NS. Connect the other end to terminal No. 2-NS.

7. Connect one end of small coil (38) to terminal No. 1-S (3). Connect the other end to terminal No. 3-NS.

8. Cut a piece of hook-up wire [tinned copper wire] 2¾" long. Connect one end to terminal No. 4-NS. Connect the other end to terminal No. 6-NS.

9. Insert the two long coils (30-A and 30-B) into the rubber grommets. End of coil with shortest lead mounts in grommet. (Wet inside of grommet. Press coil into rubber grommet and twist to ease mounting. Be careful not to damage winding.) *CAUTION:* The coils should be inserted from the figure B side of the wiring panel and only far enough to secure firm mounting. The end of the coil form should be flush with, but not extend from the figure A side of the wiring panel. NOTE: Because these coils are wound with litz wire having a great many strands of extremely fine wire, the ends of the leads have been cleaned and tinned before leaving the factory. A good solder connection can only be made at the tinned portion of the leads. UNDER NO CIRCUMSTANCES SHOULD THE ENDS OF THE LEADS BE CUT OFF!

10. Connect short lead of the left coil (30-A) to terminal No. 4-S (2).

11. Connect the long lead of the left coil (30-A) to terminal No. 2-NS.

12. Cut a length of hook-up wire 2" long and connect one end to terminal No. 2-S (3). Leave other end loose.

13. Connect one end of 10 uuf condenser (22) to terimnal 8-NS. Connect the other end to terminal 11-NS.

14. Cut a length of hook-up wire 2½" long and connect one end to terminal No. 11-NS. Leave other end loose.

15. Connect the long lead of the right coil (30-B) mounted in grommet to terminal No. 11-S (3).

16. Connect short lead of coil (30-B) mounted in grommet to terminal No. 10-NS.

17. Connect one end of large choke coil (36) to terminal No. 8-NS. Connect the other end to terminal No. 14-NS.

18. Connect one end of 200 uuf condenser (18) to terminal No. 14-NS. Connect the other end to terminal No. 15-NS.

19. Connect one end of 100 K resistor (20) to terminal No. 14-NS. Connect the other end to terminal No. 15-NS.

20. Turn panel over and position as in pictorial A. [Volume control should be on your left at the bottom of panel.]

21. Cut a length of hook-up wire 1½" long. Connect one end to terminal No. 14 [pictorial A]-S (4). Connect the other end to terminal No. 16-NS.

22. Cut a length of hook-up wire 1¾" long. Connect one end to terminal No. 15-S (3). Connect the other end to terminal No. 13-NS.

23. Connect one end of .05 condenser (40) to terminal No. 16-S (2). Pass the other end of the .05 condenser (40) through terminal No. 12 and solder to terminal No. ① (1) of volume control [see figure C].

24. Cut a length of hook-up wire 4" long. Slip one end through terminal No. 13 and connect to terminal No. ③ on volume control [see figure C]. Do not solder at this time. Connect the other end to terminal No. 3-NS.

25. Cut a piece of hook-up wire 2" long. Connect one end to terminal No. 9-NS. Connect the other end to terminal No. 13-S (3).

26. Cut a length of hook-up wire 1¾" long. Connect one end to terminal No. 10-S (2). Connect the other end to terminal No. 7-NS.

27. Connect one end of the crystal diode (52) to terminal No. 8-S (3). [CAUTION. Leave approximately ½" lead on the crystal as shown in the diagram and hold the lead with long nose pliers between the crystal and the solder point. This will prevent excess heat from reaching the crystal which could permanently damage it.] Connect the other end to terminal No. 9-S (2) [polarity is not important].

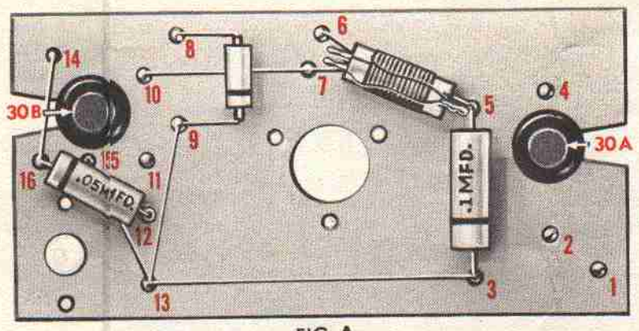


FIG. A

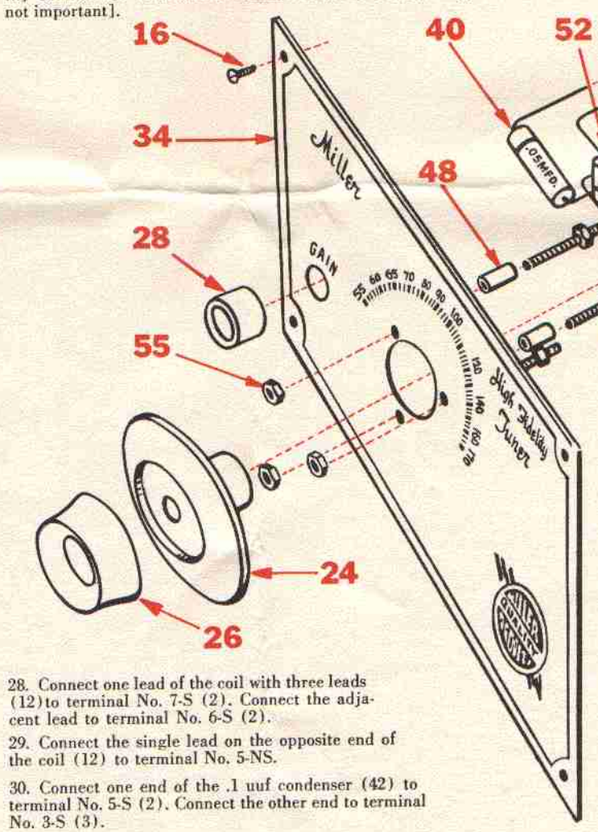


FIG B

28. Connect one lead of the coil with three leads (12)to terminal No. 7-S (2). Connect the adjacent lead to terminal No. 6-S (2).

29. Connect the single lead on the opposite end of the coil (12) to terminal No. 5-NS.

30. Connect one end of the .1 uuf condenser (42) to terminal No. 5-S (2). Connect the other end to terminal No. 3-S (3).

31. REFER TO FIGURE C.

32. Connect the center conductor of the grey audio cable (11) to terminal No. ② (1) on the volume control. Solder this connection.

33. Connect the braid of the cable (11) to terminal No. ③ of the volume control. Do not solder.

34. Cut a piece of hook-up wire 2" long. Connect one end to terminal No. ③ (3) on the volume control. Solder this connection. To the other end of the wire solder one of the solder lugs (No. 33).

35. Take the other solder lug (33) and with the long nose pliers bend the small end around the grey audio cable 2½" from terminal No. ③ on volume control [refer to figure C].

36. REFER TO FIGURE B. Insert the tuning condenser (8) from this side through the large hole in the center of the panel.

37. From side A of panel anchor the tuning condenser with the three 6-32 studs (54) using the short end of the studs.

38. REFER TO FIGURE B. Connect the loose lead [one end of which connects to terminal No. 2] to the terminal on the tuning condenser closest to the panel and solder (1).

39. Connect the loose lead [one end of which connects to terminal No. 11] to the terminal at the back [furthest away from the panel (64)] of the tuning condenser and solder (1).

40. Using one of the short 6-32 x $\frac{3}{16}$" long machine screws (7), connect the lead [which comes from terminal No. ③ on the volume control] to the hole closest to the panel on the bottom of the tuning condenser.

41. Using one of the 6-32 machine screws (7), anchor the grey audio cable [using the solder lug] to the hole furthest from the panel on the bottom of the tuning condenser.

42. On side A of panel [front] slip the ¼" x ½" long metal spacers (48) over the 6-32 studs which were used to mount the tuning condenser.

43. Take the brass face plate (34) and mount it to the three studs using three 6-32 nuts (55). Be sure that top edge of plate is parallel with the top edge of variable condenser.

44. Install the knobs on the volume control and the tuning condenser. The smallest knob (28) goes on the volume control. The largest knob (24) goes on the tuning condenser followed by the remaining knob (26).

45. Connect the Fahnestock clip (5) to the back of the tuning condenser using a 6-32 machine screw (7). This is your ground connection. [Ordinarily this connection is not used.] Grounding is through shield of audio cable when used with an amplifier. For best results your amplifier should be connected to ground through the screw on electric outlet box, water pipe, or equivalent.

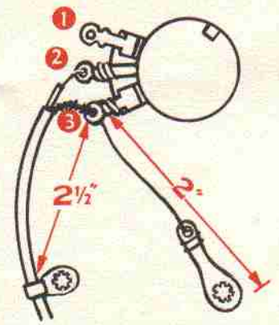


FIG. C

ALIGNMENT INSTRUCTIONS

At this point the tuner is in operating condition and is ready to be aligned.

Connect the phono plug to your amplifier or pre-amplifier and connect the antenna lead to your outside antenna (discussed previously). Set the mark on the large dial knob to the frequency of a strong local station at the high end of the band. If possible this should be between 1400 and 1600 kilocycles. Turn the volume control to the full clockwise position. Note on the left side of the tuning condenser near the bottom two small screws. With the mark on the dial knob setting at the frequency of the desired station adjust the screw closest to the front panel until the station is heard in the speaker. Then adjust the other screw until the station comes in with the greatest volume. The tuner is now aligned and all the other stations should fall into their respective places on the dial. If they do not, the foregoing step was not carried out properly and should be repeated.

In fringe areas where the signal strength is low and hard to get, the antenna coupling condenser (56) should be changed to a greater capacity value. A capacity between 20 mmf to 25 mmf should prove satisfactory. The variable condenser (8) must be re-aligned after this change has been made.

After the tuner has been satisfactorily aligned it is ready to be mounted in the cabinet.

The bottom of the cabinet (50) will be recognized by the four small holes in each corner. Insert the small rubber feet (6) into these holes. Slip the antenna lead (66) and the audio lead (11) through the cabinet first and then the tuner. The tuner is mounted to the cabinet using the four brass self tapping screws (16).

The cabinet may be polished using ordinary furniture polish or wax.

"IN CASE OF DIFFICULTY"

Recheck the wiring. Trace each lead in colored pencil on the pictorial as it is in the tuner. Most cases of difficulty result from improper connections. In the event of continued difficulty with the completed instrument the facilities of the "MILLER Service Department" are at your disposal. Your tuner may be returned for inspection and repair for a nominal service charge plus shipping expense.

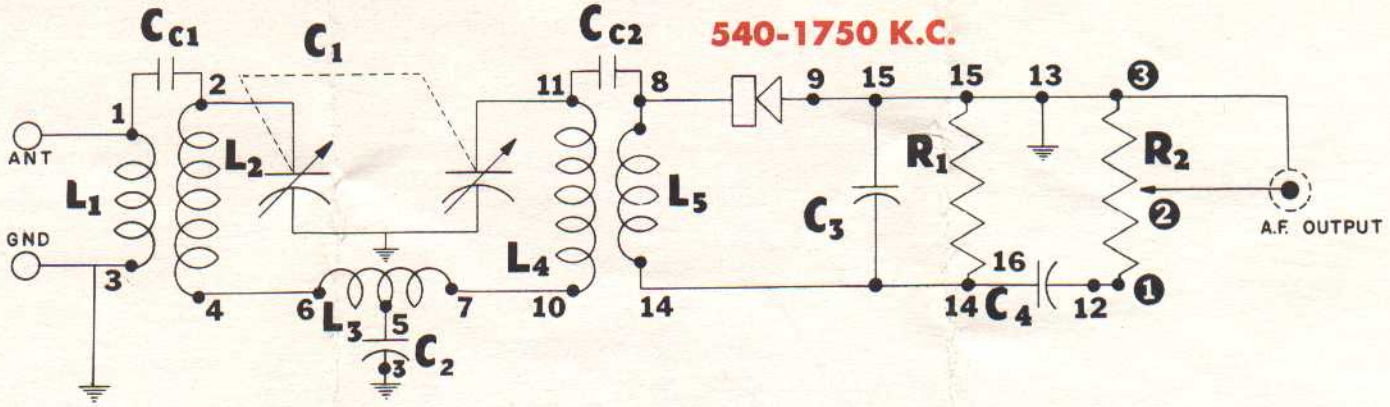
PARTS LIST

PART NO.	PARTS PER KIT	DESCRIPTION
565-8	1	2-Gang Variable Condenser
565-11	1	Audio Cable Assembly
565-12	1	Mutual Coupling Coil
565-18	1	Condenser, 200 mmfd.
565-20	1	Resistor, 100,000 Ohm
565-22	1	R. F. Coupling Condenser, 10 mmfd.
565-24	1	Dial Knob, Large Center
565-26	1	Dial Knob, Center (Vernier Drive)
565-28	1	Volume Control Knob
565-30	2	Ferramic Coil Windings (30-A & 30-B)
565-34	1	Front Panel, Yellow Brass
565-36	1	Ferrite Choke Coil
565-38	1	Peaking Coil
565-40	1	By-Pass Condenser .05
565-42	1	By-Pass Condenser .1
565-44	1	Volume Control, 1 Meg.
565-50	1	Cabinet, Black Bakelite
565-52	1	G-100 Diode (Detector)

PART NO.	PARTS PER KIT	DESCRIPTION
565-56	1	Antenna Coupling Condenser, 15 mmfd.
565-64	1	Mounting Plate Complete
565-66	1	Antenna Lead Assembly, Complete

HARDWARE

565-4	2	Grommets (for mounting 30-A & 30-B)
565-5	1	Fahnestock Ground Clip
565-6	4	Black Stem Bumpers For Cabinet
565-7	3	Screws, 6/32x3/16" Round Head Brass, Cadmium Plated
565-16	4	Screws, Yellow Brass Front Panel, 1/2" long
565-33	2	Solder Lugs
565-48	3	Metal Dial Spacers 1/4"x1/2"
565-54	3	Hex Collar Screws, 6/32x3/4" overall
565-55	3	Hex Nuts, 6/32 Small Pattern
565-57	1	Tinned Lead Wire, #24, 22" long



L_1	—565-38	Loading Coil, 250 uhy	C_1	—565-8	2-Gang Variable Condenser	C_{C1}	—565-56	Antenna Coupling Condenser, 15 mmfd.
$L_{2\&4}$	—565-30	Ferramic Coil Windings (30-A & 30-B)	C_2	—565-42	By-Pass Condenser .1	C_{C2}	—565-22	R.F. Coupling Condenser, 10 mmfd.
L_3	—565-12	Mutual Coupling Coil	C_3	—565-18	Condenser, 200 mmfd.	R_1	—565-20	Resistor, 100,000 Ohm
L_5	—565-36	Ferrite Choke Coil	C_4	—565-40	By-Pass Condenser .05	R_2	—565-44	Volume Control, 1 Meg.

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