

INSTALLATION INSTRUCTIONS

Date: May 1988

HP MODEL 8902A MEASURING RECEIVER SERIAL PREFIXES 2535A TO 2703A HP 8902A RF INPUT ASSEMBLY UPGRADE KIT HP PART 08902-60129

DESCRIPTION

Current HP 8902A Measuring Receivers are produced with improved RF input switches. The switches offer higher reliability and better repeatability than the previous RF input switches. Changing a capacitor in the power supply is also required for proper instrument operation with the new RF input switches. This upgrade kit adds these improvements to HP 8902A instruments with serial number prefixes 2535A to 2703A.

Table 1. Parts List

QTY	DESCRIPTION	PART NUMBER	CD
1	Attn/Switch (U3)	08902-60121	5
1	Deck, attn/switch (MP32)	08902-00063	8
1	Deck, RF Input Assembly (MP33)	08902-00062	7
1	Amp/Switch interconnect (A70)	08902-60064	5
1	RF Input Control (A15)	08902- 60136	4
1	SR Cable (W61)	08902-20117	5
1	SR Cable (W62)	08902-20118	6
1	SR Cable (W63)	08902-20119	7
2	Screw, 4-40 UNC	2200-0105	4
1	Capacitor, 47 uF (A10C10)	0180-0097	7
1	Trim Strip, Self Adhesive	5001- 0540	1
1	5/16" wrench	5021-2810	5

(cont'd)

PROCEDURE

1. Set the HP 8902A POWER switch to STBY.
2. Remove the AC line power cord from the rear panel of the HP 8902A.
3. Remove top cover, bottom cover, and right side cover.
 - a. Remove the four rear plastic feet on the HP 8902A rear frame. One on each corner.
 - b. Top and bottom covers are removed by unscrewing the screw on the rear center of cover. This is a captive screw and will back the cover out as it is unscrewed.
 - c. The right side lifting strap must be removed to remove the right side cover. Remove the screws attaching the strap at each end. Slide the right side cover towards the back of the instrument to remove it.
4. Remove front panel.
 - a. Remove the trim strip on the top of the front frame. This is best accomplished by lifting one end up with a small screw driver. Then pull up on the trim strip to remove it.
 - b. Remove the three screws on top of the front frame. (In the channel under the trim strip.)
 - c. Remove the RF Input connector knurled nut. Use knurled nut tool HP 8902A-K90 or very carefully use a straight jaw pair of pliers.
 - d. Remove the Modulation Output connector knurled nut.
 - e. Remove all six screws from the channel in the bottom of the front frame.
 - f. Pull the front panel forward from the instrument. This is best accomplished by gently pulling on the AM/FM Output connector and the MOD OUT/AUDIO INPUT connector. Remove all cables attached to the front panel. (One ribbon cable, one power cable, two SMA coax cables, and the Modulation Output connector cable.)
 - g. Set the front panel aside.

NOTE

Refer to Figures 6-2 and 6-5 on pages 6-148 and 6-151 in Volume 2 of the HP 8902A Service Manual and to Figure 1 at the end of this procedure for steps 5 through 12. Use wrench 5021-2810 (5/16 in., supplied with kit), for loosening and tightening SMA connectors.

5. Remove RF Input Assembly.
 - a. Remove the trim strip or rack mount ear on the right side of the front frame. The trim strip is located in the channel on the right side of the front frame. It is a textured self adhesive piece of vinyl. Removing it will most likely destroy it. A replacement is supplied with this kit. If a rack ear or rack handle is installed on the HP 8902A the trim strip was removed to install it.
 - b. Remove the screw in the bottom of the right side channel on the front frame. (This screw holds the RF input connector in place.)
 - c. Disconnect W15 from the top of the A70 board. (Multi-colored cable, best removed from the top of the instrument (Figure 6-2).)
 - d. Remove the screws that hold MP29 and MP32 in place (Figure 6-2).
 - e. The RF Input Assembly should now be loose. Pull it forward and disconnect W8 (98, Wht/Blue) from S2. Use 5/16" wrench for removal of connectors from S1 and S2. (Figure 6-2).
 - f. Disconnect W1 from W3 (Figure 6-2). The RF Input Assembly can now be removed from the instrument.

6. Remove MP33 and replace with new MP33 (HP P/N 08902-00062). (Refer to Figure 6-5 for location of MP33.)
 - a. MP33 is the sheet metal piece to which MP29 and MP32 were attached.
 - b. MP33 is held in by two screws on the right side frame struts. One on the top strut the other on the bottom strut, each is in the top row first hole back from the front frame.
 - c. Remove screw from the bottom center strut which holds MP33 in place. MP33 is now free and can be removed.
 - d. Replace MP33 with new MP33 (HP P/N 08902-00062), use screws just removed from old MP33 in the steps above.
7. Remove U1, U2, and MP29 from the RF Input Assembly (Figure 6-2). Remove all cables required to accomplished this.
8. Connect U1 and MP29 to the new A70 (HP P/N 08902-60064). (Refer to Figure 1.) Use the screws just removed in the above step.
9. Connect Attn/Switch (U3, HP P/N 08901-60121) to new MP32 (HP P/N 08902-00063). Refer to Figure 1 for assembly orientation. Use two 2200-0105 screws to attach U3 to MP32.
10. Assemble new RF Input Assembly.
 - a. Remove the two screws which attached the old A70 board to the old RF Input Assembly.
 - b. Use two screws from "a" above to loosely attach the new A70 board to MP32. Leave the screws very loose (one or two turns on only).
 - c. Attach U2 to U3 as shown in Figure 1.
 - d. Connect W62 (HP P/N 08902-20118) and W63 (HP P/N 08902-20119) to U1 and U3/U2 as shown in Figure 1. Take extreme caution to make sure that all cables are aligned correctly. Tighten all connections then tighten the screws attaching the A70 board to MP32.
 - e. Solder U1 to the new A70 board (two pins). U1 was socketed on the old A70 board. On the new A70 board, it must be soldered.
 - f. Connect W61 (HP P/N 08902-20117) to U3 as shown in Figure 1. Leave the connection loose.
11. Install new RF Input Assembly into HP 8902A.
 - a. Connect W61 to W1. Leave connection loose. Refer to Figure 6-2 for location of W1 and to Figure 1 for location of W61.
 - b. Connect W8 (Wht/Blue) to U3 J4.
 - c. Connect the new RF Input Assembly to MP33 with the six screws removed in step 5e. The RF Input Assembly on Figure 1 is shown inverted to enhance detail. The RF Input Assembly is oriented with the connectors on U3 oriented down, when installed in the HP 8902A.
 - d. Re-install the two screws that attach the RF input connector to the front frame. One in the bottom of the front frame, the other on the right side. One screw was removed in step 4 and the other in step 5. These screws are slightly longer than the other ones removed in step 4.
 - e. Tighten the connection between W61 and W1.
 - f. Tighten the connection between W61 and U3.
 - g. Connect W15 to the A70 board (Figure 6-2).
 - h. Connect the U3 control ribbon cable to the A70 board (Figure 1). The brown wire on the U3 ribbon cable is oriented to the right as viewed from the front of the instrument.
 - i. Make sure that all screws and connections are tight.
 - j. Peel the plastic off of the back of the self adhesive trim strip (HP P/N 5001-0540). Carefully install it in the trough on the right side of the front frame. Do this only if the HP 8902A does not have rack ears or handles installed on it.

6. Remove MP33 and replace with new MP33 (HP P/N 08902-00062). (Refer to Figure 6-5 for location of MP33.)
 - a. MP33 is the sheet metal piece to which MP29 and MP32 were attached.
 - b. MP33 is held in by two screws on the right side frame struts. One on the top strut the other on the bottom strut, each is in the top row first hole back from the front frame.
 - c. Remove screw from the bottom center strut which holds MP33 in place. MP33 is now free and can be removed.
 - d. Replace MP33 with new MP33 (HP P/N 08902-00062), use screws just removed from old MP33 in the steps above.
7. Remove U1, U2, and MP29 from the RF Input Assembly (Figure 6-2). Remove all cables required to accomplished this.
8. Connect U1 and MP29 to the new A70 (HP P/N 08902-60064). (Refer to Figure 1.) Use the screws just removed in the above step.
9. Connect Attn/Switch (U3, HP P/N 08901-60121) to new MP32 (HP P/N 08902-00063). Refer to Figure 1 for assembly orientation. Use two 2200-0105 screws to attach U3 to MP32.
10. Assemble new RF Input Assembly.
 - a. Remove the two screws which attached the old A70 board to the old RF Input Assembly.
 - b. Use two screws from "a" above to loosely attach the new A70 board to MP32. Leave the screws very loose (one or two turns on only).
 - c. Attach U2 to U3 as shown in Figure 1.
 - d. Connect W62 (HP P/N 08902-20118) and W63 (HP P/N 08902-20119) to U1 and U3/U2 as shown in Figure 1. Take extreme caution to make sure that all cables are aligned correctly. Tighten all connections then tighten the screws attaching the A70 board to MP32.
 - e. Solder U1 to the new A70 board (two pins). U1 was socketed on the old A70 board. On the new A70 board, it must be soldered.
 - f. Connect W61 (HP P/N 08902-20117) to U3 as shown in Figure 1. Leave the connection loose.
11. Install new RF Input Assembly into HP 8902A.
 - a. Connect W61 to W1. Leave connection loose. Refer to Figure 6-2 for location of W1 and to Figure 1 for location of W61.
 - b. Connect W8 (Wht/Blue) to U3 J4.
 - c. Connect the new RF Input Assembly to MP33 with the six screws removed in step 5e. The RF Input Assembly on Figure 1 is shown inverted to enhance detail. The RF Input Assembly is oriented with the connectors on U3 oriented down, when installed in the HP 8902A.
 - d. Re-install the two screws that attach the RF input connector to the front frame. One in the bottom of the front frame, the other on the right side. One screw was removed in step 4 and the other in step 5. These screws are slightly longer than the other ones removed in step 4.
 - e. Tighten the connection between W61 and W1.
 - f. Tighten the connection between W61 and U3.
 - g. Connect W15 to the A70 board (Figure 6-2).
 - h. Connect the U3 control ribbon cable to the A70 board (Figure 1). The brown wire on the U3 ribbon cable is oriented to the right as viewed from the front of the instrument.
 - i. Make sure that all screws and connections are tight.
 - j. Peel the plastic off of the back of the self adhesive trim strip (HP P/N 5001-0540). Carefully install it in the trough on the right side of the front frame. Do this only if the HP 8902A does not have rack ears or handles installed on it.

12. Re-install the front panel.
 - a. Re-installation is the reverse of step 4.

NOTE

Refer to the HP 8902A Service Manual, Volume 2 pages 8A-7 through 8A-9, for assembly locations for the remainder of this procedure.

13. Install new A15 RF Input Control Assembly (HP P/N 08902-60134).
 - a. Disconnect W15 from A15 J1 and the AT1 cable from A15 J2.
 - b. Remove the screws from the A15 cover (6 screws, 3 on each side).
 - c. Remove the A15 Assembly and replace with the new A15 Assembly (HP P/N 08902-60134). Re-install screws from step "b" above.
 - d. Reconnect W15 to A15 J1 and AT1 cable to A15 J2.
- * 14. Change value of A10 C10.
 - a. Remove the A10 Power Supply assembly.
 - b. Remove A10 C10 and replace with HP P/N 0180-0097. A10 C10 location can be found on the component locator on page 8G-70 in Volume 4 of the HP 8902A Service Manual (back side of SS31).
 - c. Re-install the A10 assembly.
15. Re-install right side cover, bottom cover.
 - a. Re-installation is the reverse of step 3.
16. Re-connect the AC line power cord to the rear of the HP 8902A.
17. Set the HP 8902A POWER switch to ON.
 - a. Verify instrument operation. Check frequency tuning, AM and FM measurements using a signal generator.
 - b. Allow the HP 8902A to warm up for one half hour.
18. Re-install the top cover and rear feet.
19. Perform the HP 8902A Basic Functional Checks (HP 8902A Operation and Calibration Manual Vol. 1, page 3-47) and the Tuned RF Level Performance test (HP 8902A Operation and Calibration Manual Vol. 1, Performance test 10 or 11, page 4-35 or 4-39).

* A10 08901-60311 C10 Deleted

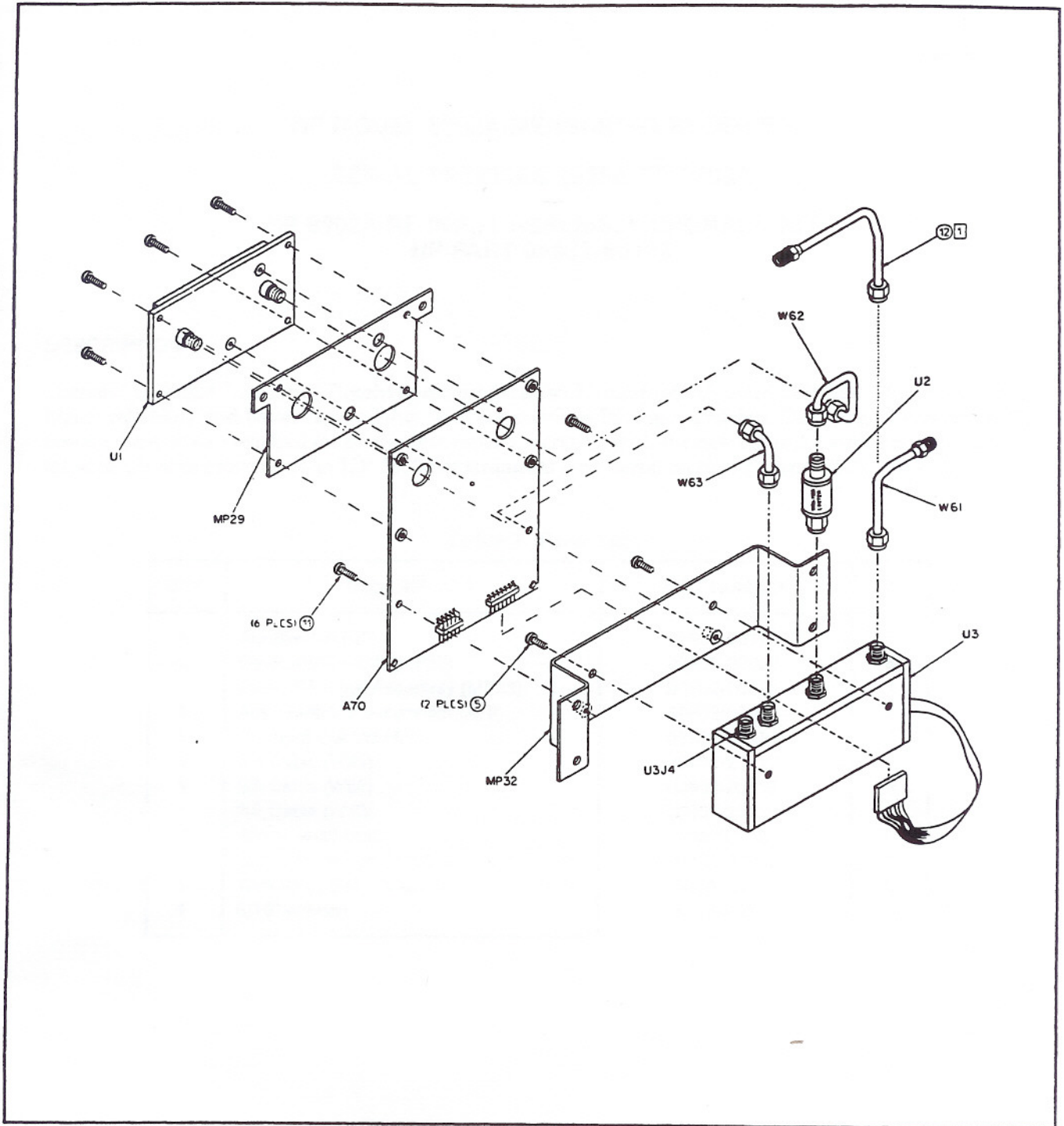


Figure 1. Exploded View of RF Input Assembly