

HG3 Loop antenna connections and trouble shooting

7/3/20 v2

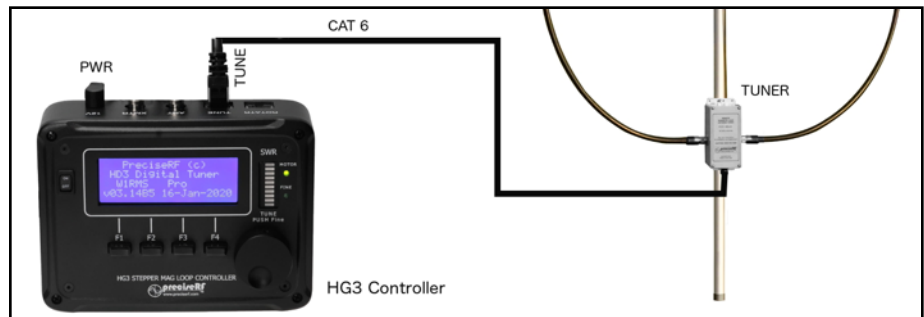
If, after installing your HG3 loop, you are not receiving any signals or are having tuning difficulties, make sure you have read the user guide and watched the demo video. 90% of all problems are the result of not having the correct connections, bad or intermittent cables, cables not completely seated, or not understanding the radio or controller controls.

1. Make sure the radio is receiving correctly

- a) Set your radio to a 40m frequency, such as 7.15 MHz and select the SSB mode.
- b) Connect a known good antenna (a length of 10' piece of wire will also work) to the radio's RF input.
- c) You should note an increase in the background static. This indicates that the radio is receiving something and most likely working correctly.

2. Check for proper tuner and controller function

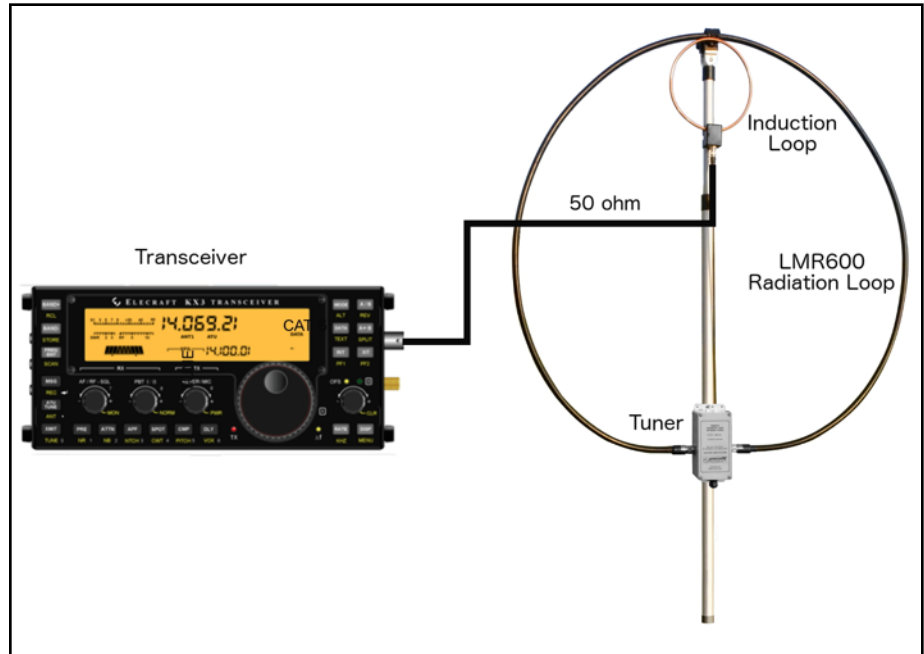
- a) See the figure at right. For this test, you do not need to assemble the HG3 in its operating configuration. We'll just use the controller and the tuner (the light gray case).



- b) Connect the CAT6 cable from the controller output (labeled TUNE) to the tuner's CAT6 input. This cable must be pushed in completely and securely seated.
- c) Carefully remove the tuner's cover (4 bolts secure it in place). DO NOT TOUCH THE CAPACITOR PLATES.
- d) Apply power to the controller and turn it on. You should notice that the green MOTOR LED illuminates as the cap is indexed to 40m. If the cap is already at 40m, not much cap turning will be observed.
- e) Using the BAND F1 button and <- -> buttons, change the band from 40m to 20m, then back to 40m. You should notice the capacitor is opening and closing accordingly (at 40m it is mostly closed).
- f) If the capacitor is not opening or closing as the band is changed, then the controller, CAT6 cable, CAT6 connectors, a loose or incorrect connection, the tuner, or the tuner driver may be the cause.
- g) Check that the tuning capacitor is not shorted. Connect an ohm meter across the tuner input connectors (located on the sides of the case) while tuning from 40m through 10m. There should NOT be any DC shorts while doing so. If shorted, it must be returned for warranty service.
- h) Using your ohm meter, make sure that the capacitor connections are properly soldered.
- i) Re-install the cover.

3. Check that all the loop connections are good

- a) Refer to the figure at right. Assemble the HG3 loop and connect the radiation loop (LMR600) to the tuner's HF connectors. Ensure they are securely fastened to the tuner HF inputs located on each side.
- b) Connect a known good 50 ohm BNC cable from the copper induction loop to the radio's RF input. (they could be intermittent, so jiggle them to check them).
- c) You should notice an increase in the background static.

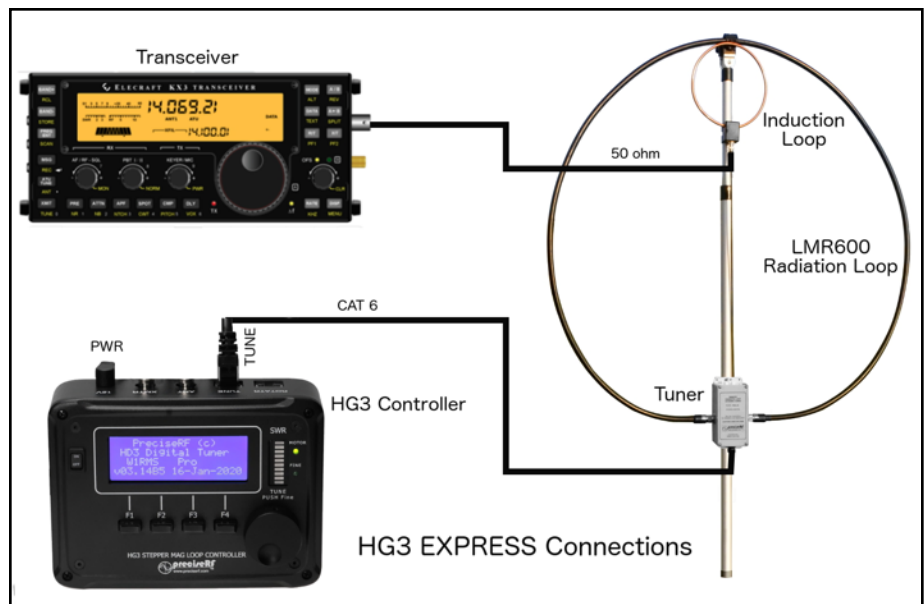


This indicates the connections from the radio to the induction loop are good.

- d) If you do not hear an increase in the background static, then any of the following may be bad: Cable/connector, induction loop, radiation loop or the tuner.
- e) To check the induction loop, use an ohm meter and check that it reads a DC short at the BNC input (it is just a one turn copper loop). If it is open, the induction loop is defective. Use an ohm meter to check the cables and all connectors.

4. Check the HG3 EXPRESS for proper operation

- a) Make sure you have completed all the checks in 1, 2, 3 above.
- b) Refer to the figure at right. Assemble the HG3 loop and connect the radiation loop (LMR600) to the tuner's HF connectors. Ensure they are securely fastened to the tuner HF inputs located on each side.
- c) Connect the CAT6 cable from the controller output (labeled TUNE) to the tuner's CAT6 input. This cable must be pushed in completely and securely seated.

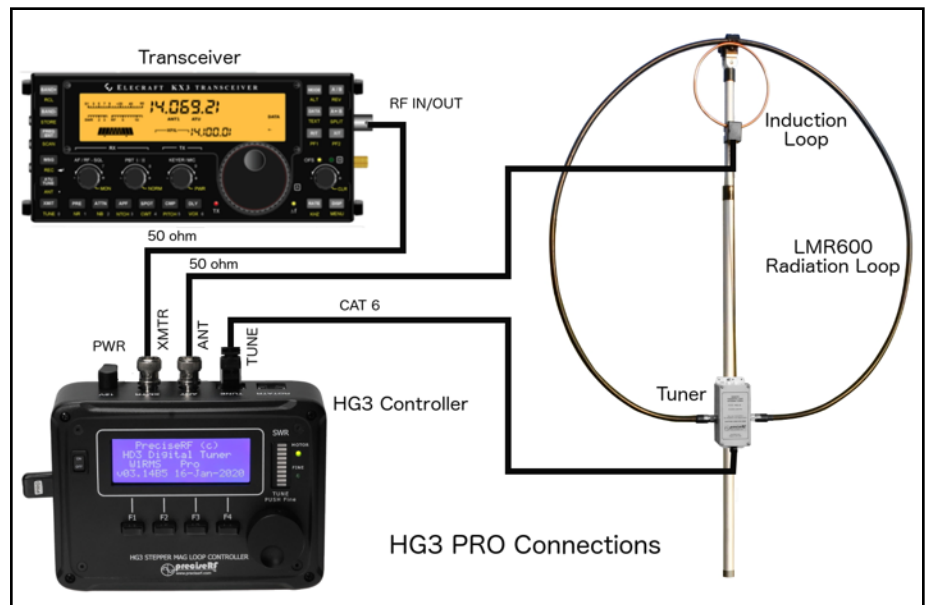


- d) Ensure that the copper induction loop is connected to the radio's RF input/output connector.
- e) For this test, set the radio to 40m (7.15MHz will work).
- f) Turn the controller from OFF to ON (this indexes the tuner to 40m).
- g) You should notice an increase in the background static. This indicates that the connections from the radio to the antenna's induction loop are good.
- h) Using the controller's tuning knob, adjust it for the loudest static. This indicates the HG3 loop is working properly.

5. Check the HG3 PRO for proper operation

- a) Make sure you have completed all the checks in 1, 2, 3 above and you have the USB PRO key installed.
- b) Refer to the figure at right.

- c) Assemble the HG3 loop and connect the radiation loop (LMR600) to the tuner's HF connectors. Ensure they are securely fastened to the tuner HF inputs located on each side.
- d) Connect a known good 50ohm BNC cable from the copper induction loop (mounted on the antenna) to the controller's BNC ANT input.



- e) Connect another known good 50ohm BNC cable from the controller's XMTR to the radio's RF input/output.
- f) Connect the CAT6 cable from the controller output (labeled TUNE) to the tuner's CAT6 input. This cable must be pushed in completely and securely seated.
- g) Set the radio to 40m (7.15MHz will work).
- h) For this test, turn the controller from OFF to ON (this indexes the controller to 40m).
- i) You should notice an increase in the background static. This indicates that the connections from the radio to the induction loop are good. If you do not get an increase in noise, the coupler board, mounted to the controller main board, may be the cause.
- j) Select a frequency on the 40m band (7.15Mz will work).
- k) Press AUTO (F2) for auto-assist. The LCD prompts "Connect Radio Transmit 1-3 Watt CW".
- l) Transmit a low power carrier of about 2-3 Watt and press OK. If the power is not correct, it prompts to adjust the power level accordingly. After finding an acceptable SWR, auto-tuning ends. This indicates the loop is working properly.

If, after completing all these checks, you are still experiencing difficulty, contact preciseRF for further technical support and or warranty service.

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