

MFJ Remote Sensor Add-on Kit for High Sierra Antennas

Installation Manual

INTRODUCTION

Installation of this simple kit on your screwdriver antenna will allow you to enjoy the convenience of quickly and accurately returning to antenna settings, when used with the MFJ-1924 Screwdriver Antenna Digital Controller With Counter.

The High Sierra screwdriver antenna does not have a magnetic switch installed from the factory. In order for the Digital Controller to function the screw driver antenna must have a magnet and a magnetic switch installed. Removing your antenna from its mount is necessary to install this kit.

Follow the instructions in this manual to disassemble the antenna. Then install the magnet bracket and the magnetic switch and reassemble the antenna. Install the dropping resistor and connect the sensor wires from the antenna to the digital controller.

PARTS INVENTORY

- 1 – Magnet and bracket assembly
- 1 – Surface mount magnetic contact (switch)
- 2 – Heavy duty cable straps
- 1 – stainless steel split washer
- 1 – ¼-20 stainless steel nut
- 1 – 5-ohm ceramic resistor
- 2 – lengths of switch wire, one brown, one white

PREPARATION – ANTENNA DISASSEMBLY

- (1) Remove whip and disconnect motor control wires at antenna base.
- (2) Remove antenna from its mount and place on a flat work surface.
- (3) Unscrew quick disconnect or other whip mount from top of antenna and set aside, along with lock washer and flat washer.
- (4) Slide off the clear plastic weather shield, along with the top plastic cap.
- (5) Remove the 8 screws and washers that secure the large brass insert into the main shaft at the base of the antenna.
- (6) Slide the brass insert out and set aside.

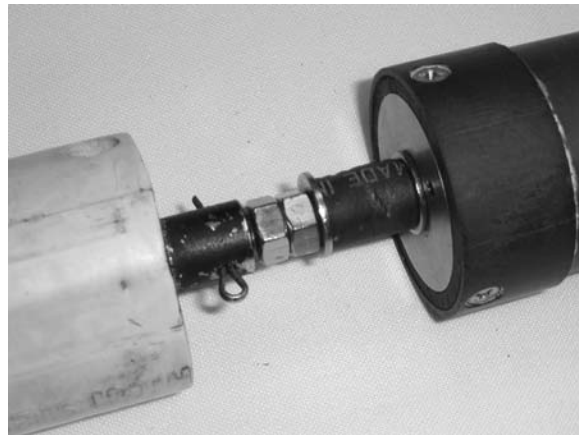


Figure 1: Before modification

- (7) Locate the two screws in the main shaft, which are about 9 inches from the bottom of the shaft. Remove the screws and washers and set aside.
- (8) Use a yardstick or dowel rod to gently push the motor and coil assembly, from the top of the antenna, completely out of the bottom of the main shaft.
- (9) Remove the cotter pin that secures the motor bushing to the threaded rod and pull the bushing off the shaft.

INSTALLATION

- (10) The threaded shaft is secured to the base of the coil form by a rubber bushing, flat washer, and two nuts. Remove only the outer nut. (Fig. 1)
- (11) Place the magnet bracket onto the threaded shaft against the existing nut.
- (12) Place a split washer on the threaded shaft.
- (13) Screw a nut on the shaft and tighten it very tight, until the split washer is compressed. Screw on the second supplied nut and tighten it very tight. (Fig 2). Install the first nut and tighten securely *before* installing the second nut.

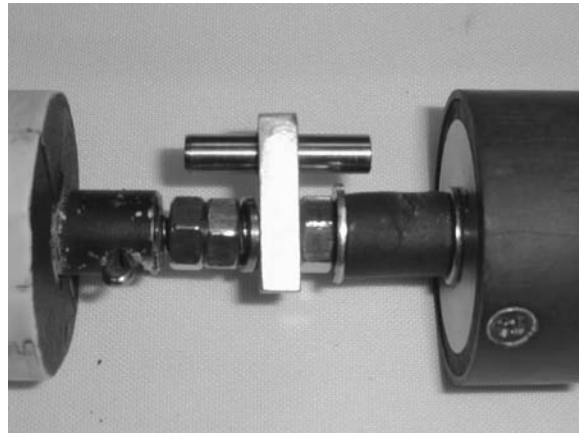


Figure 2: After modification

- (14) Now is a good time to perform the antenna manufacturer's scheduled maintenance on your antenna, such as washing and periodic cleaning. See your High Sierra manual.
- (15) Temporarily screw the quick-disconnect (or other whip fixture) back into the top of the coil form.
- (16) Place the coil and motor assembly side-by-side with the motor's mounting holes aligned with the motor mounting holes in the main shaft. Observe how far the coil form and quick disconnect extend past the top end of the main shaft.
- (17) Note the position of the magnet relative to the main shaft and make a corresponding mark on the outside of the main shaft. Make a permanent mark for future reference. (Fig. 3)
- (18) Slide the motor/coil assembly into the bottom of the main shaft the appropriate distance. Use the temporarily-installed whip fixture to manually rotate the motor/coil assembly until the motor mounting holes line up. Or, you can grasp the whip fixture with pliers and rotate the main shaft to align the motor mounting holes. If you removed the plastic bumper and the lower weather shield cap for cleaning, reinstall them on the main shaft.
- (19) Install the 2 motor mounting screws.

TEMPORARY WIRING AND TESTING

- (20) Temporarily secure the switch (Fig.3) to the main shaft (the outer, black plastic tube) with a piece of tape; center the switch over the mark corresponding to the position of the magnet.
- (21) Connect the yellow wire from the MFJ-1922 controller directly to the red wire from the antenna motor.
- (22) Connect the green wire from the MFJ-1922 controller to the white wire from the motor, with the 5-ohm resistor *in series* with the wire. Wrap the connections with electrical tape or other suitable insulating material.

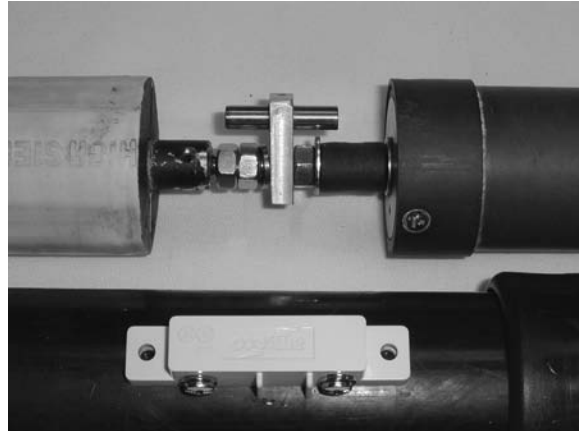


Figure 3: Alignment

WARNING

The High Sierra screwdriver antenna motor runs on 5 volts; the output of the MFJ-1922 controller is 12 volts. Installation of the dropping resistor in the motor circuit is *mandatory*. Failure to do so will damage the motor.

- (23) Connect the MFJ-1922 red (+) and black (-) wires to a 12 VDC source.
- (24) Connect a continuity tester across the two terminals of the switch. Since the switch is normally “closed,” the continuity tester may indicate a closed circuit at this time, depending on the position of the magnet relative to the switch.
- (25) Apply 12 VDC to the MFJ-1922 and turn the MFJ-1922 on. Press UP or DOWN to turn the antenna motor; you will hear the motor run.
- (26) As the motor turns you should be able to observe the continuity tester going “on” and “off” as the switch alternates between open and closed. If you are not seeing this result, adjust the position of the switch on the shaft up or down very small amounts until the switch shows “on” and “off” on the continuity tester. ***The correct alignment of the magnet and switch is critical for proper operation.***
- (27) Remove the tape from the switch and secure it in place with the plastic cable straps, ***making sure to keep the switch in exactly the same position on the main shaft.***
- (28) Remove the continuity tester.
- (29) Temporarily connect the sensor wires (brown and white) from the MFJ-1922 to the switch terminals (the polarity does not matter). Now, when you activate the motor, the on/off analog signal from the switch will cause the LED counter in the MFJ-1922 to “count.”
- (30) Proceed with calibration instructions in the MFJ-1924 manual.

REASSEMBLY

- (31) With operation confirmed, slide the brass insert into the bottom of the main shaft. Be sure the two motor control wires travel cleanly through the groove in the brass insert. Secure the brass insert with its 8 washers and screws.
- (32) Remove the whip fixture from the top of the coil form, then reinstall the weather shield, top cap, flat washer, split washer, and secure with the whip fixture.
- (33) Reinstall your screwdriver antenna, and calibrate again per the SDC-100 instructions.

TECHNICAL ASSISTANCE

If you have any problem with this unit first check the appropriate section of this manual. If the manual does not reference your problem or your problem is not solved by reading the manual, you may call *MFJ Technical Service* at **662-323-0549** or the *MFJ Factory* at **662-323-5869**. You will be best helped if you have your unit, manual and all information on your station handy so you can answer any questions the technicians may ask.

You can also send questions by mail to MFJ Enterprises, Inc., 300 Industrial Park Road, Starkville, MS 39759; by Facsimile (FAX) to 662-323-6551; or by email to techinfo@mfjenterprises.com. Send a complete description of your problem, an explanation of exactly how you are using your unit, and a complete description of your station.