



# Meade Instruments Corporation

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## LX50 - Magellan II

### I. LX50 Encoder Installation

#### A. Components

.050 Allen wrench	(1)
1/16 Allen wrench	(1)
1/8 Allen wrench	(1)
4-40x1/4 button head screws	(1)
4-40x5/8 button head screws	(2)
10-32x3/4 button head screw	(1)
#10 Washer	(1)
Cylindrical Stand-off	(2)
RA Encoder Assembly (w/cabling)	(1)
RA Gear (144 tooth, Alum.)	(1)
RA Gear Shoulder Spacer	(1)
DEC Encoder Ring Gear	(1)
DEC Encoder Assembly	(1)
DEC Coil Cord	(1)
Handbox Coil Cord	(1)
Magellan II Handbox	(1)

#### B. DEC Encoder

1.) Remove the declination setting circle, **beauty** cover, and setting circle spacer, indicated by 'A' in the diagram below, from the left fork arm by unscrewing the declination knob. The left fork arm has a socket labeled "ENCODERS" near its base.

2.) Using the 1/16 Allen wrench, unscrew the four button head screws of declination cover plate and remove the plate.

3.) Slip the end of the cable of the **RA Encoder Assembly** with the Spin connector through the back side of the rectangular opening in the declination housing. Cut the tie strap on this cable only if you are installing on the 10" telescope .

4.) Plug the S-pin connector to the base of the encoder on the **DEC Encoder Assembly**.

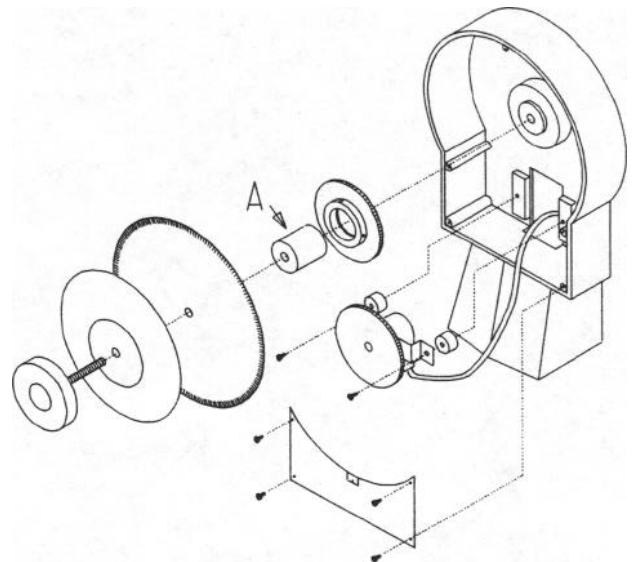
**NOTE:** Be sure the connector fits over all the exposed pins and that the wires from the connector are oriented away from the bracket.

5.) Inside the declination housing, there are two pads with tapped holes on either side of the rectangular opening. If these pads are only **about 1/8"** high, it will be necessary to use the **two Cylindrical Stand-offs** and the **4-40x5/8 button head screws** when mounting the **DEC Encoder Assembly**. Otherwise, discard the **Cylindrical Stand-offs** and use the 4-40x1/4 **button head screws**.

6.) Position the holes of the **DEC Encoder** mount bracket over the tapped holes of the two pads and attach with two 4-40 screws. Note that one of the holes in the bracket is slotted.

7.) Slide the **DEC Encoder Ring Gear** over the setting circle spacer indicated by 'A' in the drawing.

8.) Slip the stud of the declination knob through the spacer/ring gear. To ensure a snug fit, wrap some tape around the stud. Screw this assembly completely into the DEC housing.



9.) Adjust the position of the **DEC Encoder Ring Gear** to match the gear of the encoder assembly, then tighten its two set screws with the 1/16 Allen wrench.

10.) Next, adjust the **DEC Encoder Assembly** by rotating it through the slotted hole of the bracket until the gears mesh smoothly.

11.) Remove the declination knob. Slip the stud of the declination knob first through the beauty cover, then the setting circle, and then the setting circle spacer (with the DEC Encoder Ring Gear firmly locked in place). Thread the stud into the DEC housing.

Remember to align the setting circle before tightening firmly.

12.) Replace the declination cover plate.

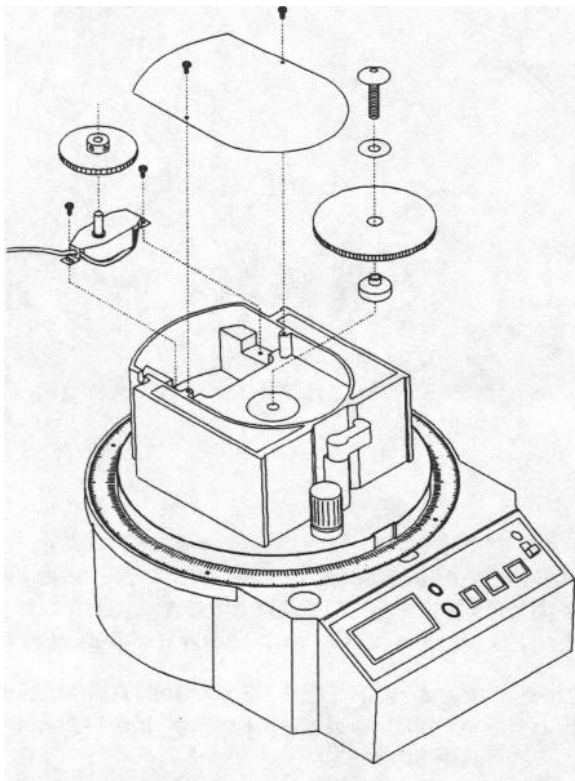
## C. RA Encoder

1.) Remove the RA Encoder Cover Plate found on the drive base by unscrewing the two screws that hold it in place.

2.) Using the 1/8 Allen wrench, remove the center bolt from the polar housing and discard. Be sure to leave the remaining large bent washer in place.

3.) Take the 10-32x3/4 button head screw and slip first the #10 Washer, then the RA gear, and then the RA gear spacer onto the screw. Make certain that the shoulder of the RA gear spacer fits into the hole of the RA gear. Insert the screw assembly into the polar housing and tighten firmly.

4.) Position the holes of the RA Encoder Assembly mount bracket over the tapped holes on the recessed ledge oriented such that the encoder cable can easily exit through the notch in the polar housing and attach with two 4-40x1 1/4 screws (see diagram below).



5.) Adjust the position of the gear on the RA Encoder Assembly to match the height of the RA Gear, then tighten its two set screws with the .050 Allen wrench.

8.) Next, adjust the RA Encoder Assembly by rotating it through the slotted hole of the bracket until the gears mesh smoothly

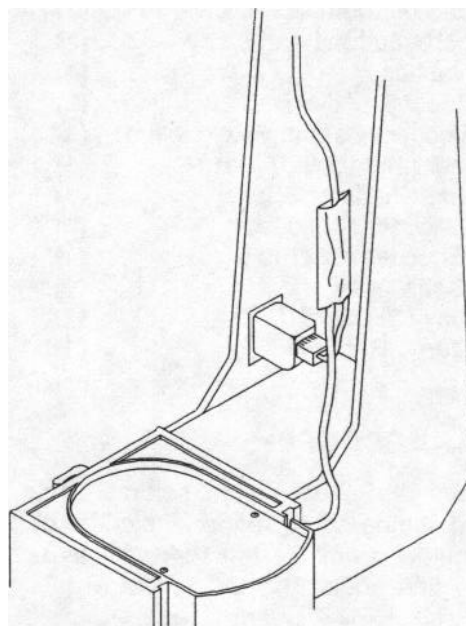
7.) Place the RA Encoder Cover Plate back over the polar housing and re-attach the two screws that hold it in place.

## D. Connecting to Magellan

1.) Coming down the inside of the left fork arm is the encoder cable. Plug its 8-pin phone connector into the socket near the base on the inside of the fork arm and tuck the black shrink wrapped electronics board inside the fork arm.

2.) Connect the 8-pin DEC Coil Cord into the plug on the LX50 power panel labeled 'Encoders'. Plug the other end of this cord into the socket label "ENCODERS" on the left fork arm.

3.) Plug one end of the Handbox Coil Cord into the Magellan II Handbox, and plug the other end into the 4-pin phone socket labeled "Handbox" on the Magellan II power panel.



## F. Troubleshooting

If the encoder display of the hand box shows no change when the telescope orientation is moved, check the following.

1.) Make sure the batteries are fresh and connected properly.

2.) Check the connections of all the cables. Loose wires will inhibit performance.

3.) Tighten the set screws on the DEC Encoder Ring Gear and the gear of the RA Encoder Assembly. Be certain that any telescope movement turns the encoder shafts.

4.) Firmly tighten the 10-32x3/4 center bolt in the polar housing.