

Scope of Work: Replacing a Sieb & Meyer Drive in a Knight Servo

OEM: Knight Industries

Description: This document describes how to replace a Sieb & Meyer (S&M) Drive located inside a Knight Servo enclosure.

Replace the S&M Drive

- #1) Press the Run-Stop button and remove power from the servo unit.
- #2) Remove the covers from the servo unit.
- #3) Remove the cables connected to the top of the old drive.
- #4) Remove the cables connected to the sides of the old drive.
- #5) Remove the old drive from the enclosure.
- #6) Remove the SD card from the old drive and put it into the replacement drive.
- #7) Install the replacement drive into the enclosure.
- #8) Reconnect the cables to the sides of the replacement drive.
- #9) Reconnect the cables to the top of the replacement drive.
- #10) Reapply power to the servo and release the Run-Stop button.
- #11) Check the functionality of the servo to ensure it works properly.

NOTE: Each individual SD Card includes specific information for each individual Knight servo hoist. They should NOT be swapped between hoists, please only remove a SD Card and install it into a replacement drive.

Replace the SD Card

#1) Press the Run-Stop button and remove power from the servo unit:

- A) Ensure that the Run-Stop button is depressed and then disconnect the 240VAC power from the unit.

#2) Remove the covers from the servo unit:

- A) Remove the side and upper covers from the unit to gain access to the right side and top of the servo.

#3) Remove the cables connected to the top of the old drive:

- A) Remove all of the connectors attached to the top of the old drive. See Figure 1.
- X18: Encoder cable connector
 - X20: 24-pin connector
 - X25: 24-pin connector
 - X14: Ethernet connector
 - X21: 9-pin D-sub connector

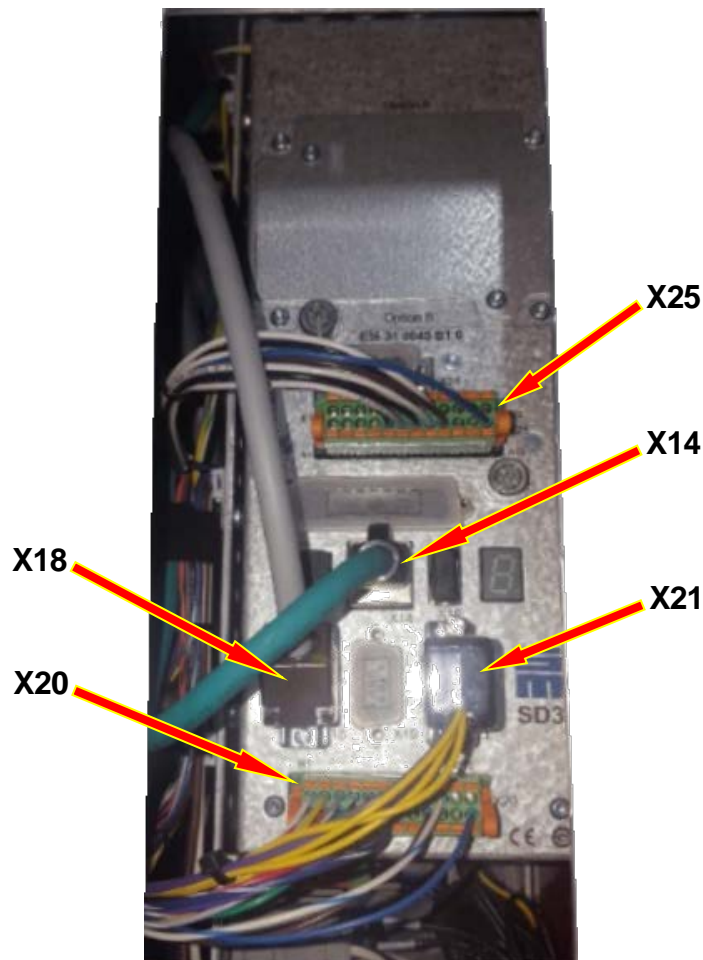


Figure 1

#4) Remove the cables connected to the sides of the old drive:

- A) Remove the clamp that secures the motor cable to old drive.
Disconnect the motor cable connector from the old drive. See Figures 2 and 3.

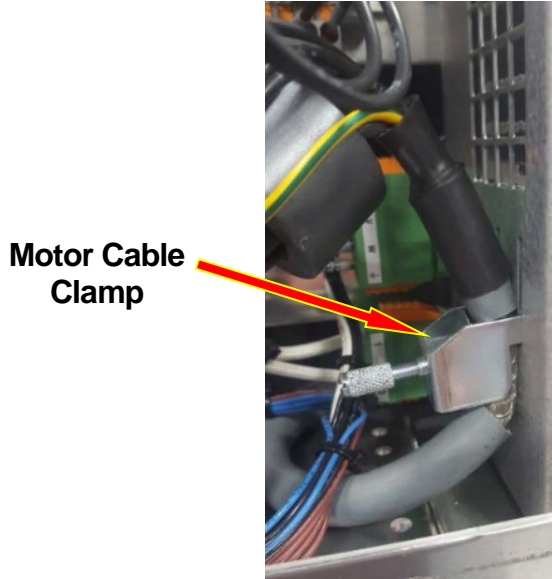


Figure 2



Figure 3

- B) Disconnect the shunt resistor connector from the old drive.
- C) Disconnect the ground screw from the old drive. See Figure 4.

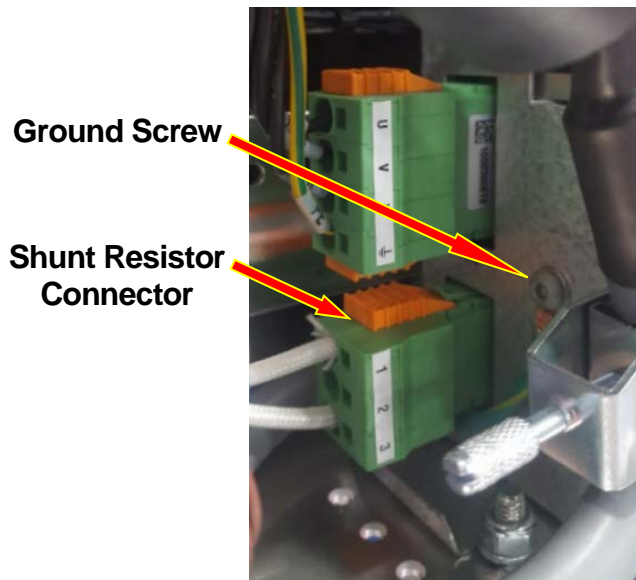


Figure 4

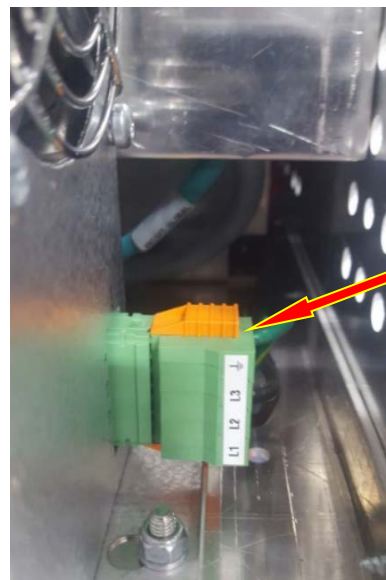


Figure 5

- D) Disconnect the power connector from the other side of the old drive. See Figure 5.

#5) Remove the old drive from the enclosure:

- A) Remove the (2) two 10mm nuts that secure the servo to the bottom plate using a metric deep well socket wrench. See Figures 6 and 7.
- B) Save these 10mm nuts, they will be reused in Step #7 to install the new drive.
- C) You can now remove the old drive from the enclosure.
- D) NOTE: The (2) two button head bolts that the nuts thread onto are 6mm in size. If they back out, use a 4mm Allen wrench to secure them to the enclosure's bottom plate.

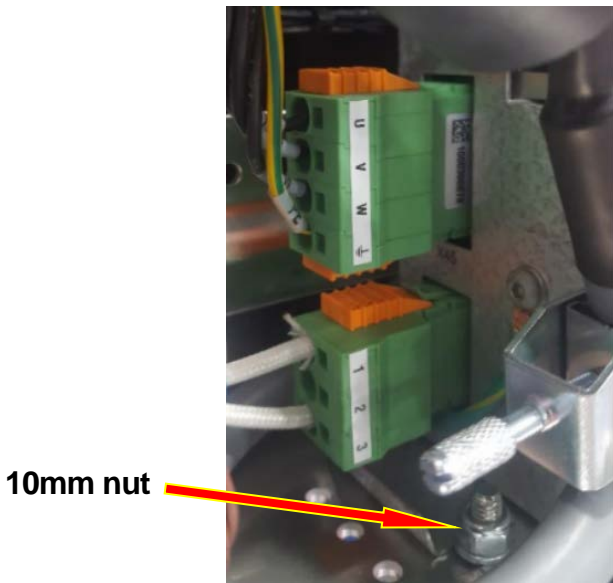


Figure 6

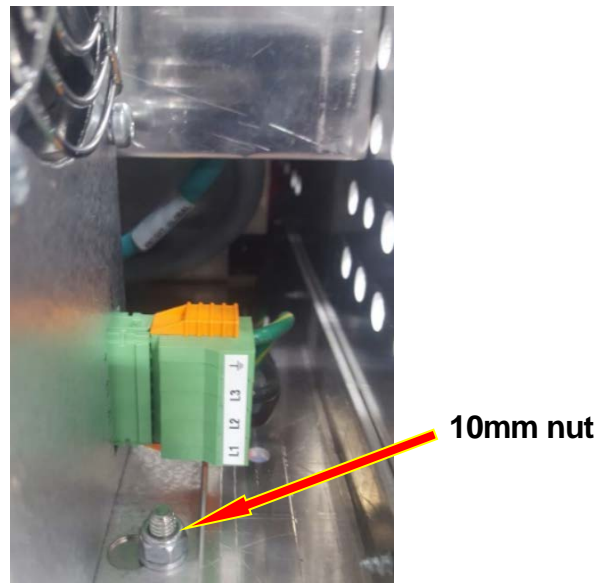


Figure 7

#6) Remove the SD card from the old drive and put it into the replacement drive:

- A) Loosen the (2) two thumbscrews. Use a #1 Philips screwdriver if necessary.
Lift off the I/O Module from the old drive. See Figure 8.

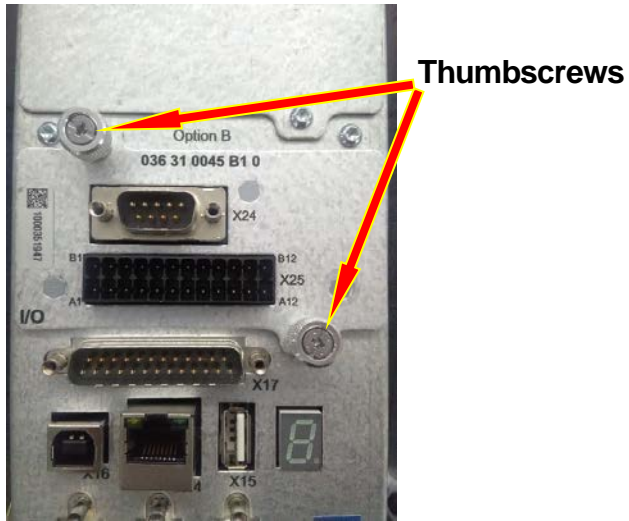


Figure 8

- B) The top of the original SD Card can be seen in the lower right-hand corner of the recess.
 - i. See Figure 9.

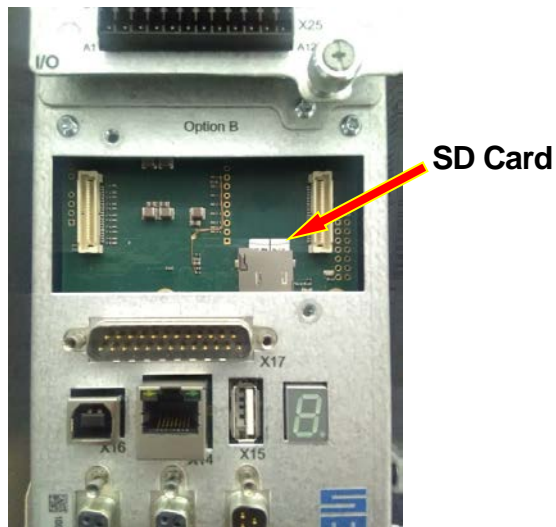


Figure 9

- C) Remove the original SD Card from the servo.
- Place your finger on the circuit board in front of the SD card. When the SD card is released it will spring back with enough force to move several inches. See Figure 10.
 - Eject the SD card by pressing it in with your other index finger and then allowing it to spring back.

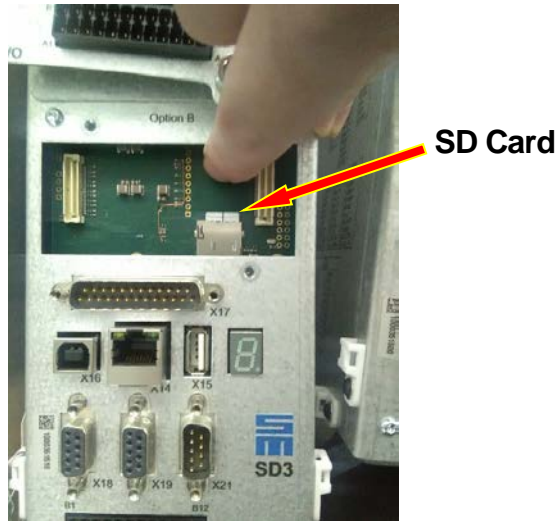


Figure 10

Note: When released, the SD card may spring out of the slot quickly. If there is nothing in front of the SD card, it may be ejected with enough force to move several inches and possibly drop down inside the servo.
After the SD Card is released, if it doesn't move forward far enough to be removed from the slot, you may need to move your finger off of the card more quickly.

- D) Install the new SD Card into the servo.
- Line up the new SD Card with the slot and gently press it forward until it clicks into place.
- E) Replace the I/O module and ensure that the (2) two thumbscrews are tightened correctly.
- Reinstall the I/O module back onto the servo drive. Do not apply an excessive amount of force. If it is lined up correctly, the I/O module should easily slide down into place.
 - Tighten the thumbscrews fully by hand, before using a #1 Philips screwdriver. Ensure the screws don't strip when tightening.

#7) Install the replacement drive into the enclosure:

- A) Reinstall the (2) two 10mm nuts and secure the drive to the enclosure's bottom plate.
- B) See Step #5 for details.

#8) Reconnect the cables to the sides of the replacement drive:

- A) Reconnect both the shunt resistor, ground screw and the power connector to both sides of the drive.
- B) Reconnect the motor cable connector and then reattach the motor cable clamp to the drive.
- C) See Step #4 for details.

#9) Reconnect the cables to the top of the replacement drive:

- A) Reconnect all (5) cables to the top of the drive.
 - i. X18: Encoder cable
 - ii. X20: 24-pin connector
 - iii. X25: 24-pin connector
 - iv. X14: Ethernet connector
 - v. X21: 9-pin D-sub connector
- B) See Step #3 for details.

#10) Reapply power to the servo and release the Run-Stop button:

- A) Apply 240VAC power to the servo and then release the Run-Stop button by twisting it $\frac{1}{4}$ turn to the right.

#11) Check the functionality of the servo to ensure it works properly:

- A) Ensure that the servo operates correctly.
- B) If the hoist does not start up properly, there may be a difference in the replacement drive's hardware revision.
Please contact a Knight controls representative to receive a firmware update to allow the replacement drive to function properly with the SD card.