

## Description

In this session you will:

- Access, via hands-on disassembly, key components of Minn Kota Motor Lower Units.
- Learn the names and terminology associated with key components
- Learn the Lower Unit Frame Sizes the differences between them and which ones are substantially similar.
- Discuss “D” shaped motor shafts and why they are not field replaceable the way threaded shafts are.
- Learn the function of many Minn Kota special tools.
- Remove a threaded Shaft and prep the lower unit it was removed from to receive a new shaft.



## Hands-on Tasks:

- Disassemble/Reassemble a 3 ¼” or a 3 5/8” Lower Unit
- Disassemble/Reassemble a 4” or a 4 1/2” Lower Unit
- Remove a shaft from a lower unit and use the “hollow tap” to condition the threads in that lower unit to receive a new shaft.
- Disassemble/Reassemble other motor sizes as time allows.

## Key Concepts:

- How motors are assembled is basically identical by frame size, in spite of thrust level differences. These Frame Sizes are 3 ¼”, 3 5/8”, 4”, 4 ½”, and 4 ¾” (E-Drive). The name for the size is determined by the diameter of the center section of the motor (where the magnets are located)
- 3 ¼” and 3 5/8” are very similar in layout
- 4”, 4 ½” and E-Drive Lower units are very similar in layout
- Magnet damage limited to less than 1” square with no additional cracking can be repaired by removing the displaced section of the magnet, without replacing the whole center section; if there is additional cracking or a larger displaced section of magnet then the center section should be replaced.
- A brush spreader made from a torch striker is a very useful tool on 3 ¼” and 3 5/8” motors.
- A section of ½” plastic pipe is handy in many situations.
- A hook-shaped pick tool or needlenose pliers are essential when finishing the assembly of 4” and larger lower units.
- Stands, while useful in training, are not practical for field repairs of lower units.
- Speed Coils and Sonar have a limited impact on motor repair
- Thru-Bolt O-rings should be replaced every time a thru-bolt is removed, other O-rings and Seals can be reused on a limited basis
- Shaft replacement of threaded lower units is possible/reasonable, a “D” shaped shaft requires an assembly.

