



Heavy Duty Non-Locking Mast Overhaul Replacing Seals and Expanders

1. Place the mast horizontally on a pair of saw horses or similar supports. Secure the mast base tube to the supports so that the mast does not roll off. To disassemble the mast, start with the top section and work toward the base section.
2. To remove the top mast section pull it out several inches away from the collar and remove the top tube stop. Remove the collar bolts on the top collar and slide the collar over the end of the mast section. Slide the top section out. Do not drop the mast section as it comes out.
3. Remove the orifice bolt, lock washer, back-up washer, expander and seal from the bottom of the mast section. Thoroughly clean and inspect all parts. The mast section should be cleaned inside and outside with a solvent such as lacquer thinner. Do not use anything that might scratch the honed inside surface of the mast section. Repeat this procedure for each subsequent mast section.
4. Refer to [Service Sheet #422](#) and [Service Sheet #423](#) for replacement of bumpers, collar Delrin and wear rings.
5. Reassemble the orifice bolt, lock washer, back-up washer, new expander and new seal on the bottom of the mast section. Note that the port sizes of the orifice bolts are smaller on the upper mast sections. Refer to the mast cover drawing for correct orifice bolt locations. As the orifice bolt is being tightened, center the seal on the butt plate. Torque the orifice bolt to 16 lbs-ft. Repeat this procedure for each mast section.
6. Before reassembling the mast, lightly oil the lip of the seal and the inside honed surface of each mast section with TMD Mast Lubricant or lightweight machine oil such as SAE 10. When reassembling the mast, start with the base section and work toward the top section.
7. Secure the base section of the mast horizontally on the saw horses. Hold the next mast section so that the top end of the section is at a lower elevation than the seal end. Next, rest the lip of the seal on the inside of the receiving section. Refer to the illustration below. Slowly raise the lower end of the mast section to horizontal while carefully pressing the lip of the seal into the receiving section. Use your thumbs and forefingers on both sides of the seal to simultaneously press both sides of the seal in an upward motion. Work this way until your fingers meet at the top. Make sure that the seal is in correctly. If not, the mast will eventually leak air. If the seal has not been inserted into the receiving tube correctly, remove the mast section and try again. Once the seal is inserted, guide the wear ring into position within its groove, and slide in the mast section. Be careful not to damage the seal as it slides past the collar bolt holes which are located near the insertion end of the receiving section.

8. Slide the section in leaving several inches protruding. Rotate the section so that the match mark "O" stamped on one of the keys at the end of the section is in line with the "O" stamped on the end of the base section.
9. Replace the collar on the mast section. Line up the match mark "O" on the collar with the "O" on the mast section. On locking collar masts, retract the latch pins to allow the collar to slide onto the end of the mast section. Make certain that all the bolt holes in the collar align exactly with the holes in the mast section. Install and hand tighten the collar bolts and lock washers. Torque the collar bolts to 80 lbs-in maximum.
10. Repeat steps 6 through 9 for each subsequent mast section.

