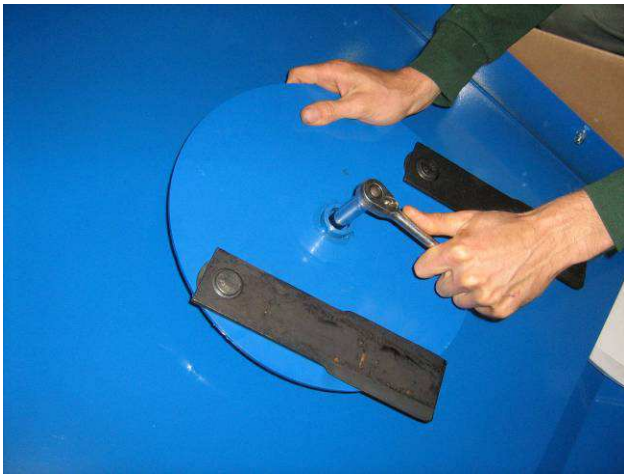
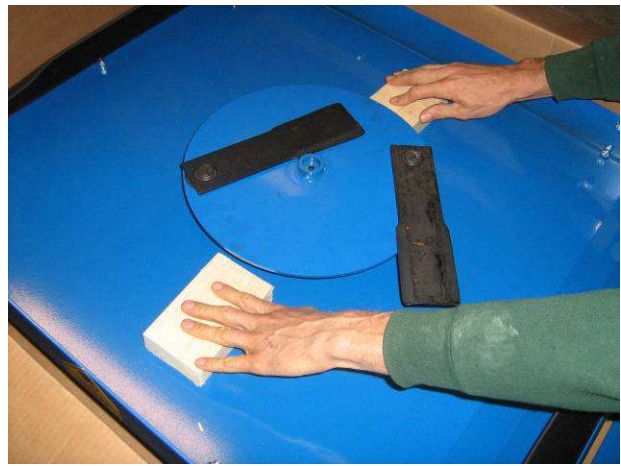


**DEL MORINO BRAND 21", 26" & 31" BRUSH MOWER DIS-ASSEMBLY  
& REPAIR INSTRUCTIONS (FOR BCS & GRILLO TRACTORS)**



**1.** With brush mower removed from tractor, flip mower over and remove center bolt from blade carrier



**2.** Position some scraps of 2x4 wood on deck to act as leverage points (see next picture)



**3.** Using 2 pry-bars, pry up on blade carrier to get it off shaft. Apply **EVEN** pressure on both sides!



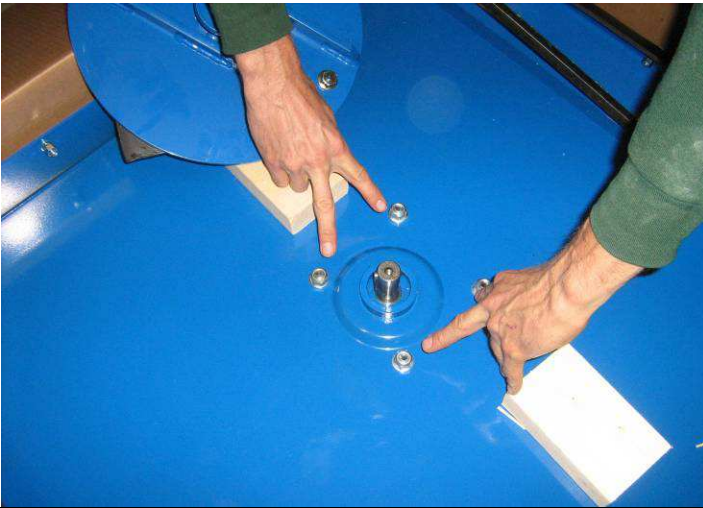
**4.** Blade carrier is coming up off shaft in picture. You may have to add additional wood pieces as it gets pried up, if it is "stiff" all the way off.



**4A.** If blade carrier is so tight on shaft that the above "pry-bar" method will not remove it, the following method will have to be used: After removing the original center bolt, replace it with a slightly **LONGER** bolt with an Allen (socket) head. **DO NOT TIGHTEN!**



**4B.** Using a large gear-puller, hook the puller on outer edge of blade carrier and put center "pusher" bolt of gear puller in center of Allen-head bolt. This allows the puller to "push" against the shaft itself while pulling the blade. Make sure that if the blade carrier "bottoms out" against the Allen-bolt, you continue to back the bolt out or switch to a longer bolt if needed. You need to have **AT LEAST 1/4"** of threads screwed into the shaft to "push" against.



5. When the blade carrier is off, remove the key from the shaft, and then the 4 nuts & bolts that affix the mower deck to the gearbox/neck assembly. Remove the deck. **IF WHAT YOU ARE REPAIRING IS THE BOTTOM OIL SEAL, REFER TO FIGURE 13**



6. Remove the 4 nuts & long bolts holding the gearbox into the neck assembly. (different color, same Del Morino type mower) Remove the sheet metal cover that was over the gearbox.



7. Loosen the Allen-head set screw affixing the PTO input shaft into the Universal Joint (U-joint).



8. Using a hammer, drive on the edge of the U-joint, driving it AND the gearbox out the front of the neck assembly. Drive evenly on both sides (one hit one side of the shaft, one hit on the other)



9. Gearbox and U-joint removed from neck assembly.



10. To remove the U-joint, loosen the 5mm Allen-head set screw affixing the U-joint to the gearbox shaft.



**11.** Using two pry-bars, pry U-joint up off of gearbox shaft (use even pressure on both sides).



**12.** The easiest way to remove the keys from the shaft is to grip the edge of the key with a side-cuts (wire cutters) and leverage the cutters against the end of the shaft to pop the key out. If this makes a little burr on the key, you can file it off.



**13.** If either of the oil seals need to be replaced: Insert a flat-blade screwdriver slightly into the inner lip of the seal and pry it out of the gearbox. (this picture shows gearbox still in neck assy., and if replacing just the lower seal, this is fine. Obviously, replacement of the rear seal necessitates removal of the gearbox & U-joint.)



**14.** Slide old seal up off shaft. When sliding new seal down over shaft, MAKE SURE the inner lip of seal has been oiled, and take care not to cut the seal on the sharp edges of the key slot in the shaft. Tap new seal into place with a hammer, evenly on all sides, until flush with gearbox housing.

**PTO Input Shaft Removal:** The PTO input shaft is held into the neck assembly by either: A bolt in the center of the 3-jaw shaft coupling (for BCS), or a Snap Ring (for Grillo). Remove either the bolt or snap-ring, (and in the case of the BCS, remove the 3-jaw shaft coupling and spacer behind it), and using a brass or wooden dowel (drift) and a hammer, drive the shaft out TOWARD WHERE THE GEARBOX USED TO BE.

There are sealed bearings inside the neck housing which were supporting the PTO end of the input shaft; inspect for roughness (they should rotate smoothly) and replace if necessary. On the BCS units, there is ONE bearing, and on the Grillo units, there are TWO. The bearings are driven out TOWARD THE PTO FLANGE END of the neck assembly. When re-installing shaft, make sure bearings are fully seated in neck housing, and then shaft is fully seated into bearings (until “stop” washer / snap ring on gearbox side of shaft comes up against bearings), then install PTO side fastener.

- Re-assembly:** Basically just reverse order of disassembly. Make sure that:
- The Keys are in the shafts (3 locations: 1 on PTO input shaft, 1 on gearbox input shaft, 1 on blade shaft)
  - The U-joint is not driven too far onto the gearbox input shaft (it should be about 1/4” from gearbox)
  - BOTH Allen-head set screws are well-tightened
  - Blades are properly balanced (weigh each blade tip on a Postal scale and keep grinding edge until equal weights)
  - Fill gearbox 1/2 full with 90w gear oil
  - Grease shafts before installation of U-joint, blade carrier, etc.—in order to have easy removal next time.