

# BOBBIN AND CON ROD UPGRADE

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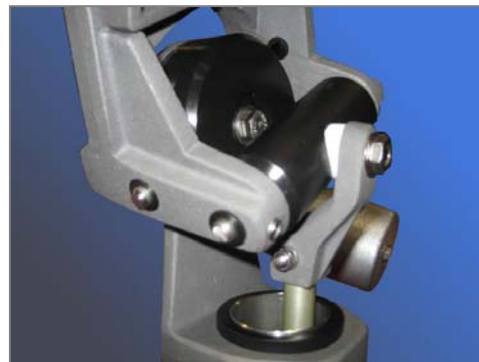
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## BOBBIN AND CON ROD UPGRADE

**BOBBIN** - The new Bobbin and Con Rod is compatible with older units. The casting, Con Rod Top #68, and plastic Bobbin Washer #17 are eliminated. The upgrade is standard on units from Spring 2010 onward. It is 33x stronger than the old version and provides a more controlled movement.



*Figure 1 New Bobbin/Con Rod*



*Figure 2 Old Bobbin/Con Rod*

Be sure to order a complete assembly that includes:

1. Bobbin #3
2. Con Rod #63
3. Ball Screw Set #57

**AXLES** - On the Drive Unit there are 8 Axels #47 on which the drive components pivot. The Axles are held in place by Axel Screws #40 – set screws embedded in the casting. There are two of these Axles holding the Bobbin #3 in place. Those set screws are held in place with Loctite. The Loctite seal needs to be

cracked loose. Best to use an impact 'driver' tool for that. When re-assembling be sure to use Loctite on the set screws.

### Removal of parts

1. Optional: For ease of handling, you might want to remove the Weight Arm #67 with the lead weights – Bolts #52.
2. Undo the Con Rod Bolt #49 and detach Con Rod Top #68 casting from con-rod 63.
3. Remove the Axles holding the Bobbin in place by slackening their Axle Set Screws #40.
4. TIP – If struggling with removal of the Axles; simply cut the Bobbin in half.
5. Loosen the two Ball Sockets #20 that hold the Ball Screw in place by first loosening the 2 Ball Socket Screws #43 (similar procedure as described in the AXLES paragraph above). Then the Con Rod with the attached Ball Screw can be removed.

### Re-assemble

6. The hard part is done. Secure the Bobbin, Con Rod and Ball Screw assembly in place:
  - a. Black plastic Ball Sockets #20 holding the Ball Screw.
  - b. Con Rod held firmly by the Axles – Axle butt ends to protrude equally on either side.
  - c. Reminder to use Loctite on the set screws.
7. Test positioning:
  - a. With the Ratio in the Neutral/far right position the Ratio Rod #35 should be centered on top of the top of the shaft.
  - b. Insert Vane Locking Pin #60 and the Shaft Locking Pin #61. Check that the ratio knob will move freely from neutral (far right) to the 3:1 ratio (far left)
  - c. If needed, the Ball Screw can be raised or lowered by loosening the 2 lock nuts.
8. Replace the Balance Weight Arm