

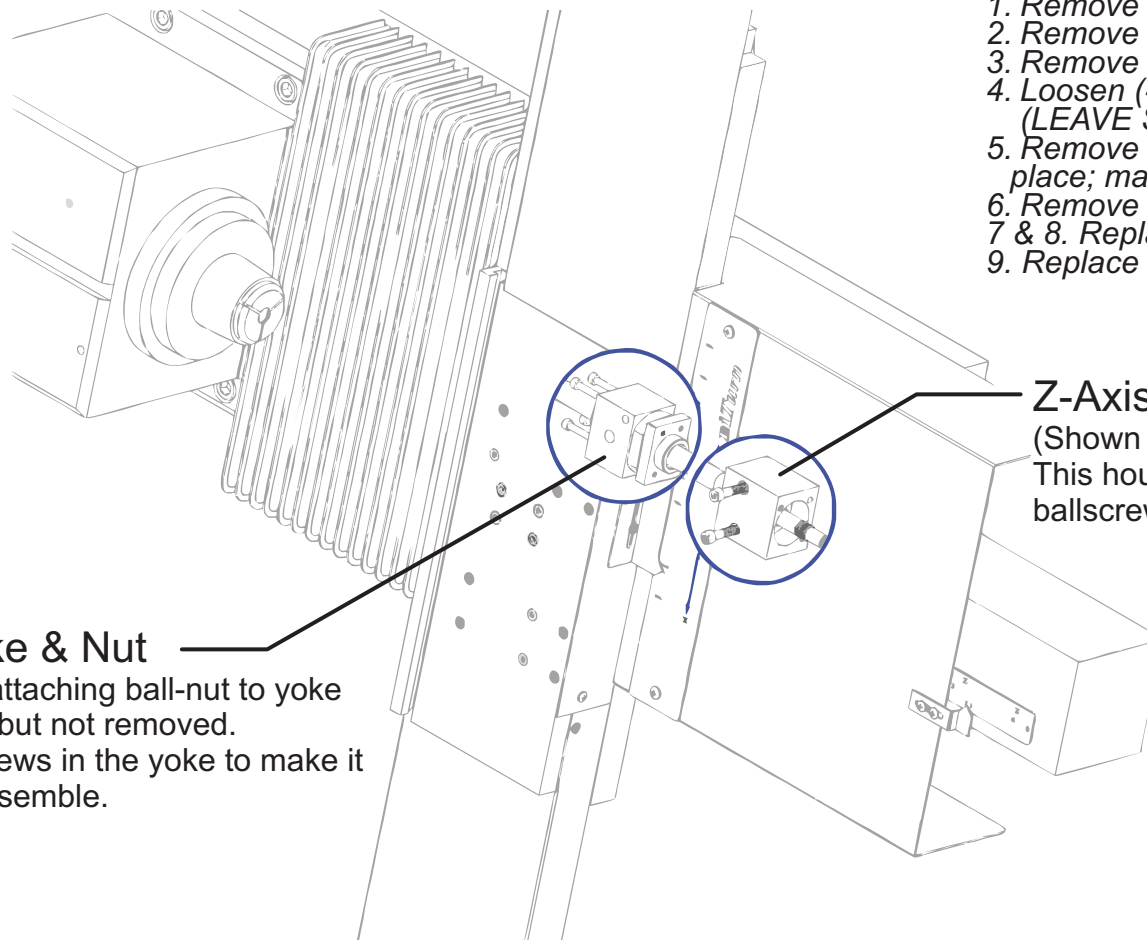
To replace Z-axis ballscrew without removing X-axis components

When rebuilding an OmniTurn slide, all the precision components are replaced. The tooling plate and saddle are removed to gain access to the z-axis components, then the slide is re-assembled with new linear rails, bearings, ballscrews and support units.

Occasionally, though, only the z-axis ballscrew needs replacement. This document describes how to remove & replace the z-axis ballscrew w/o removing the x-axis components. The 'trick' is to loosen the screws that hold the ball-nut to the yoke, but leave them in place for easy re-assembly, and to release the support unit housing so it comes out with the ballscrew.

Order of Operations:

1. Remove Sheetmetal
2. Remove Servo Motor
3. Remove Support Unit
4. Loosen (4) screws holding ball-nut
(LEAVE SCREWS IN YOKE)
5. Remove Support Unit Housing (Pinned in place; may need to be lightly tapped)
6. Remove & replace ballscrew
- 7 & 8. Replace Support Unit
9. Replace Servo Motor



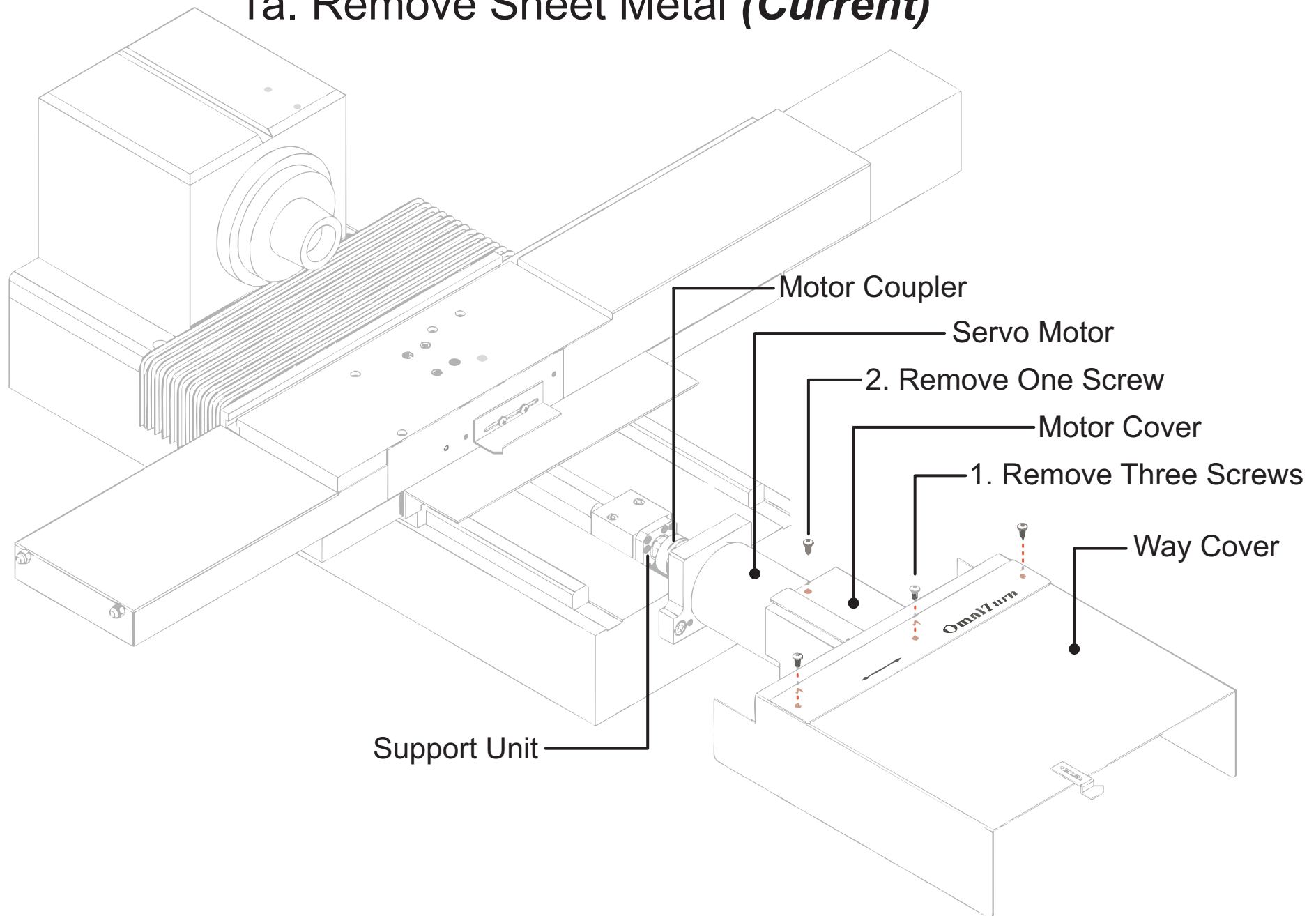
Z-Axis Yoke & Nut

Four screws attaching ball-nut to yoke are loosened but not removed. Leave the screws in the yoke to make it easier to reassemble.

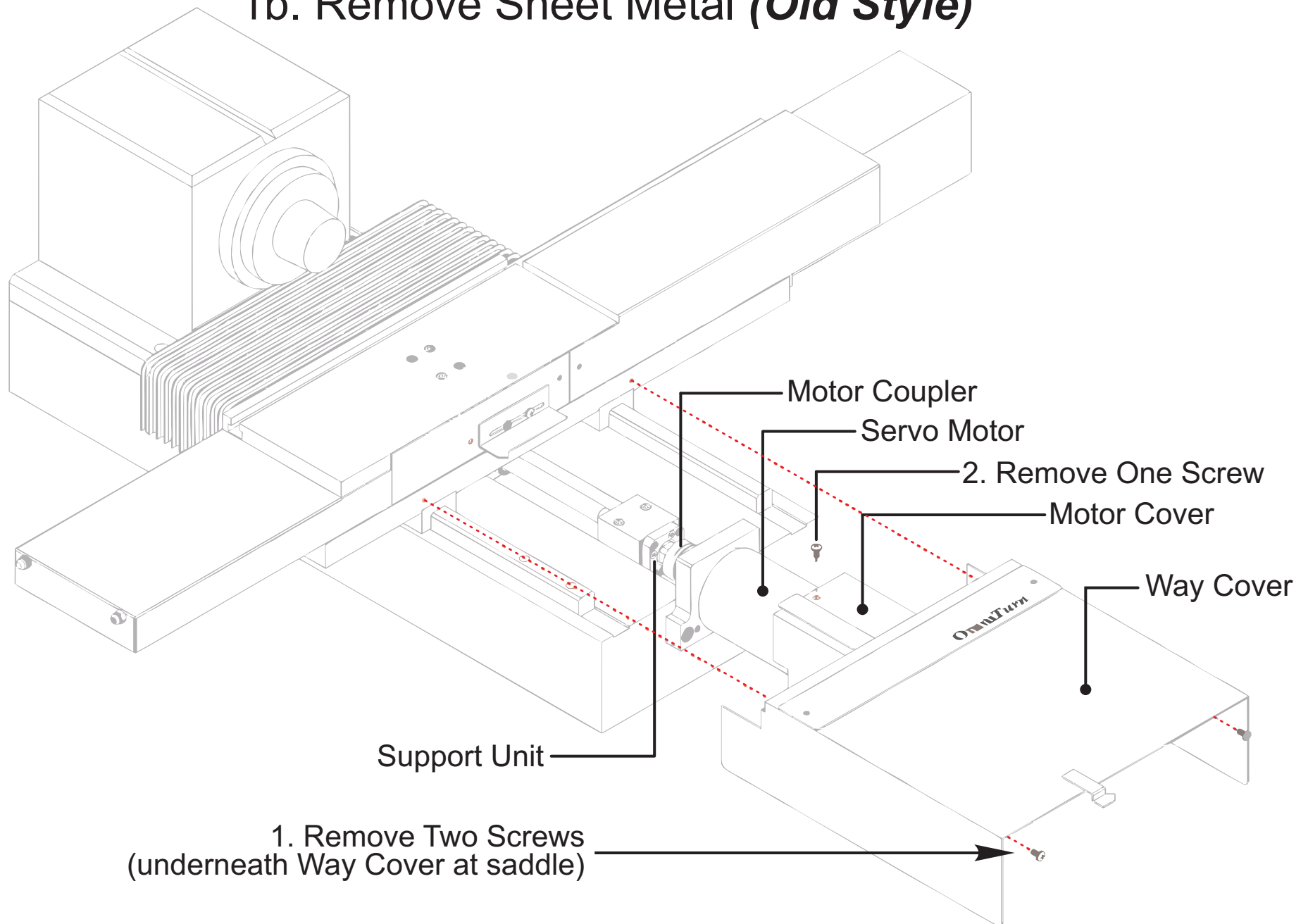
Z-Axis Support Unit Housing

(Shown with support unit removed)
This housing will be removed with the ballscrew after loosening the yoke screws

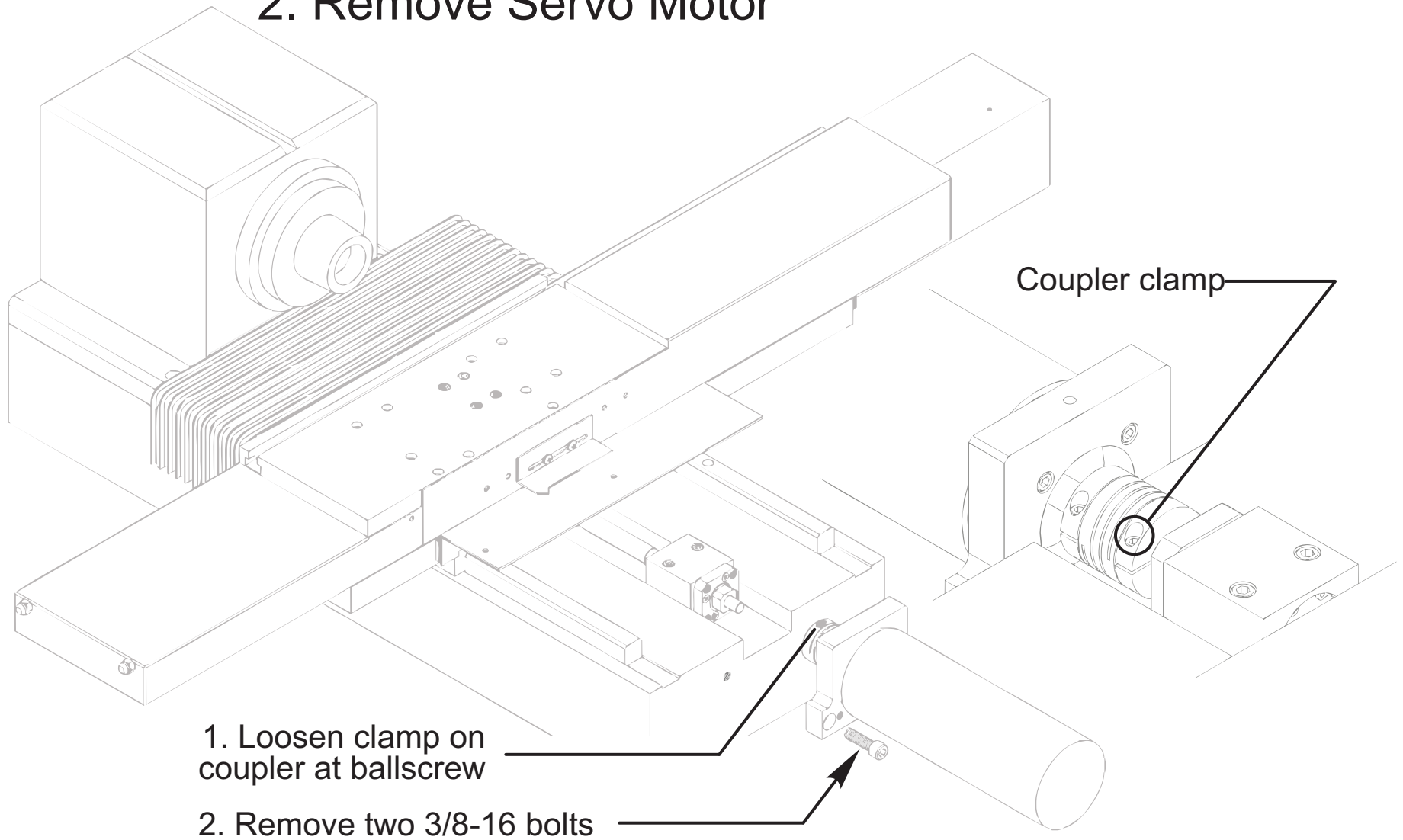
1a. Remove Sheet Metal (**Current**)



1b. Remove Sheet Metal (*Old Style*)

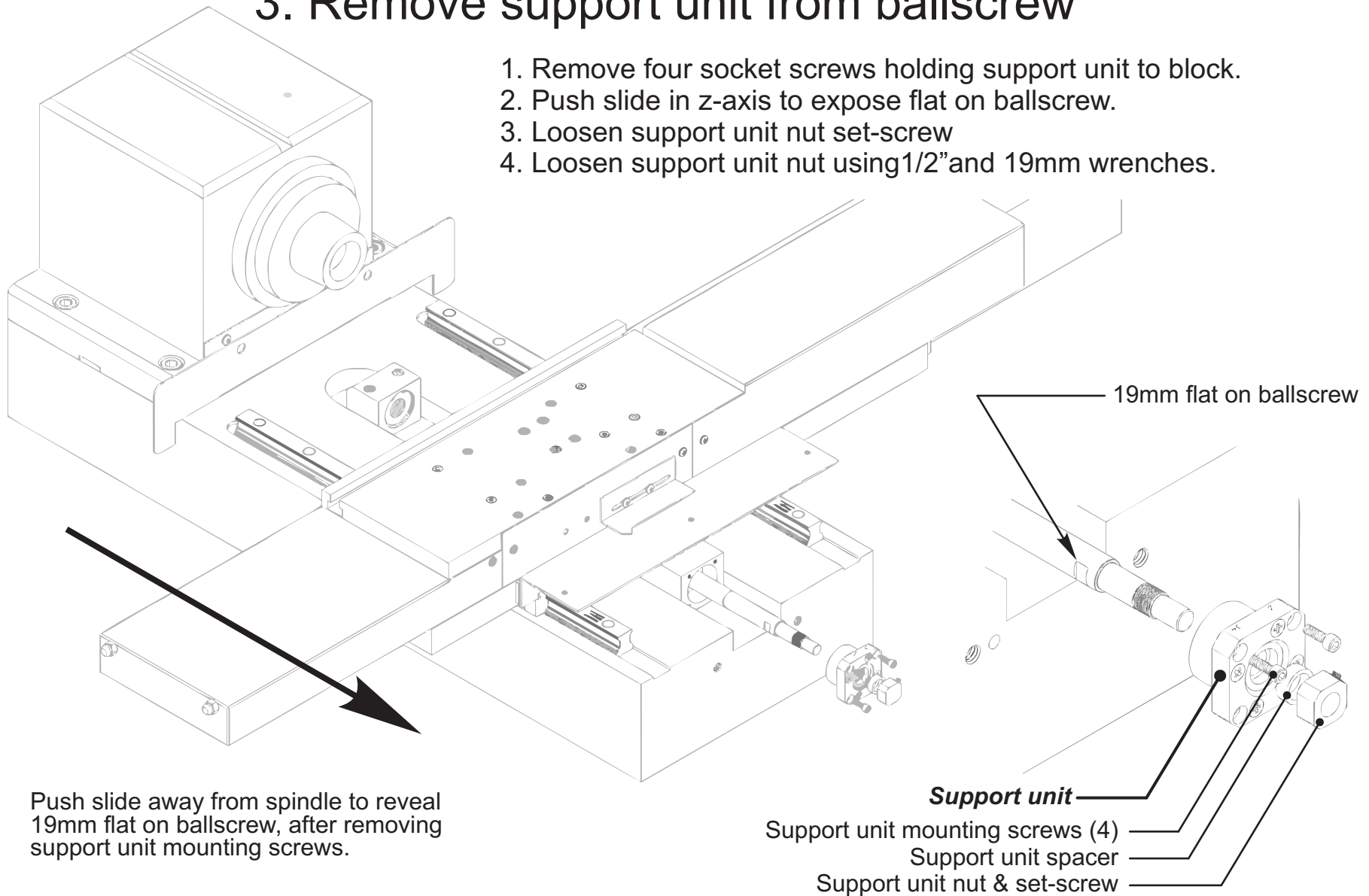


2. Remove Servo Motor



3. Remove support unit from ballscrew

1. Remove four socket screws holding support unit to block.
2. Push slide in z-axis to expose flat on ballscrew.
3. Loosen support unit nut set-screw
4. Loosen support unit nut using 1/2" and 19mm wrenches.

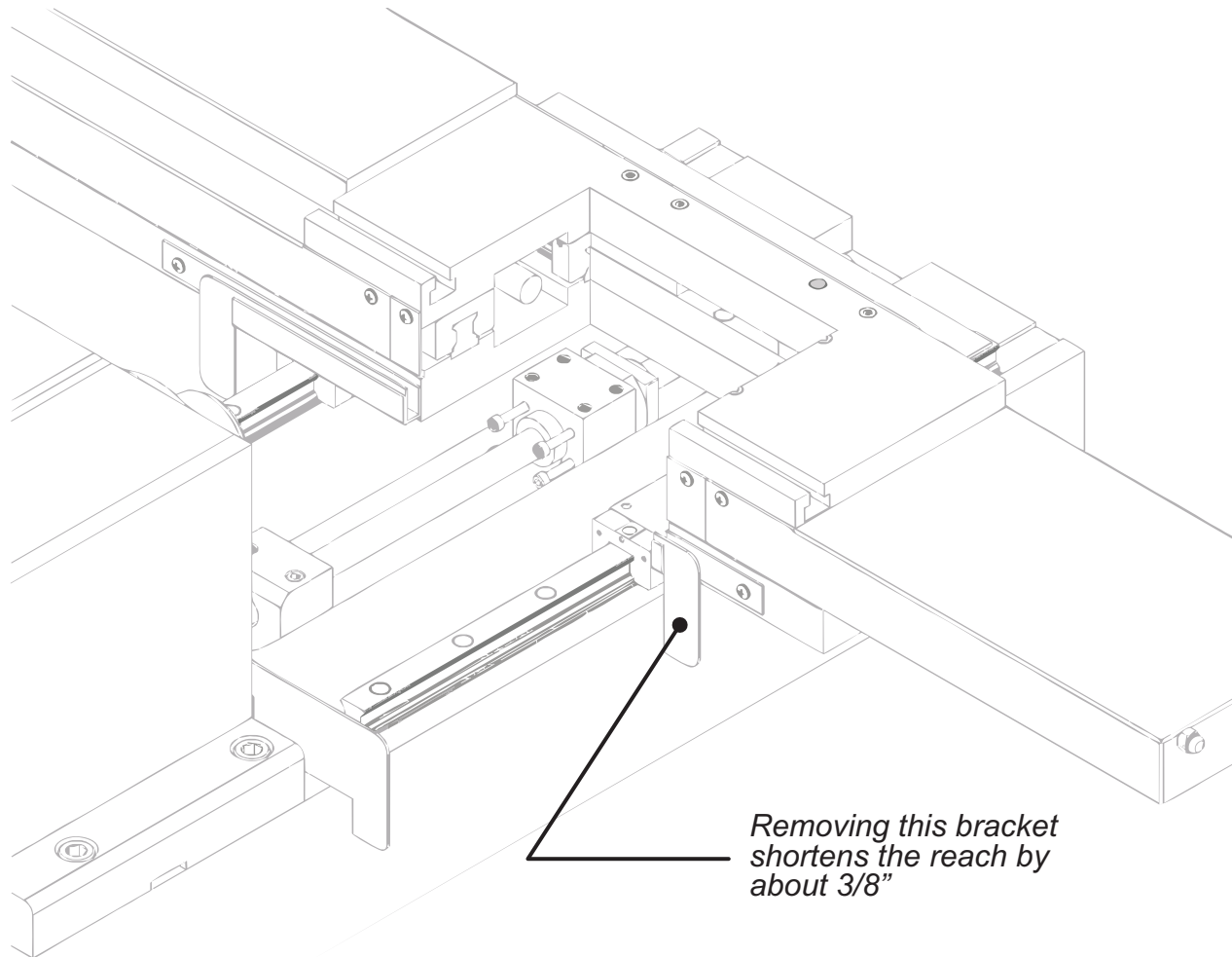


Push slide away from spindle to reveal 19mm flat on ballscrew, after removing support unit mounting screws.

4. Loosen (4) screws that attach ball-nut to yoke

Leave screws in yoke to facilitate re-assembly. If they fall out, it's hard to get them back into the holes in the yoke.

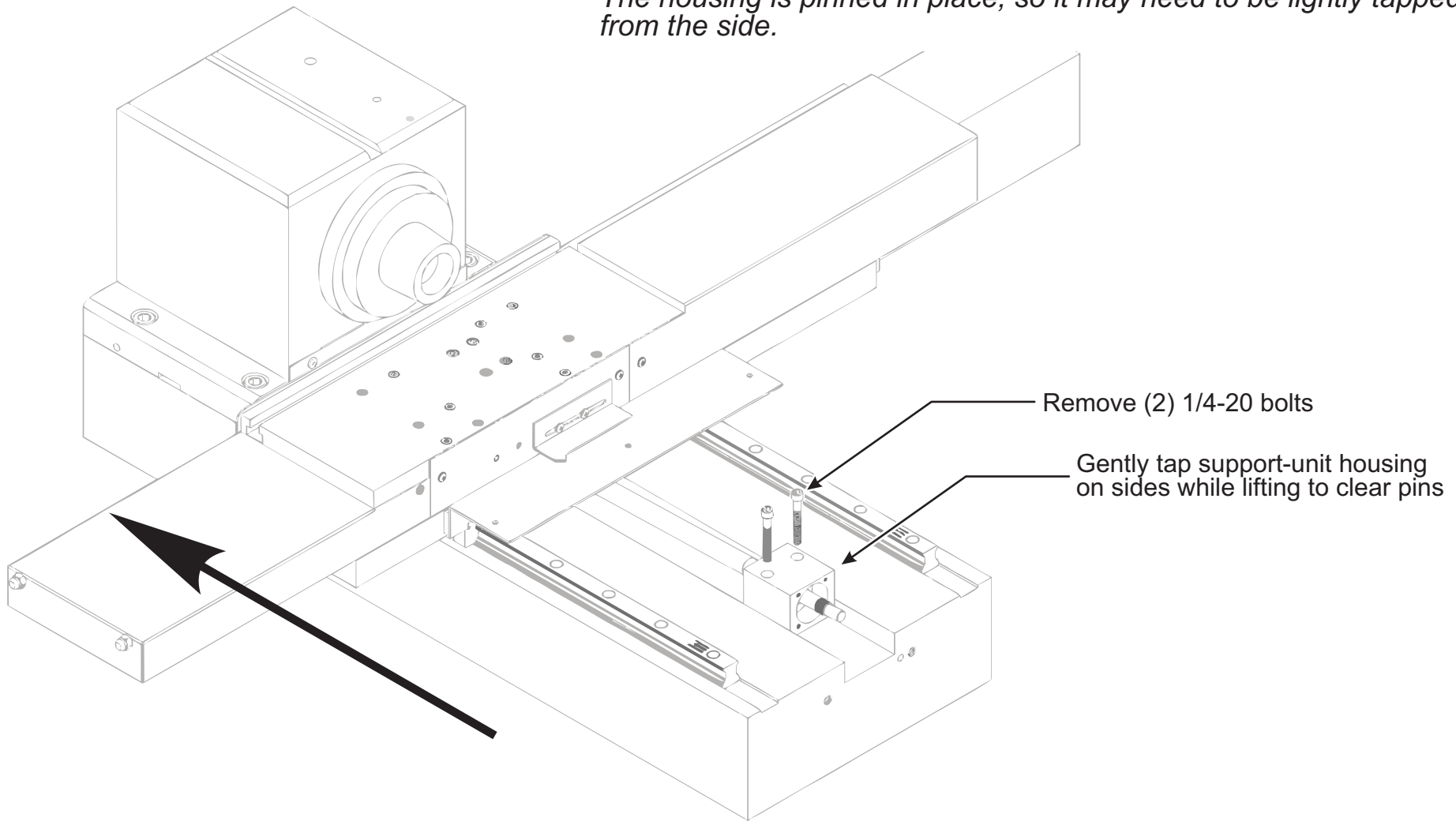
Remove accordion way cover, then position slide so you can reach the screws with 5/32 hex key.



5. Remove support unit housing

Gently push tooling plate all the way to headstock to allow maximum play in ballscrew while removing support unit housing.

The housing is pinned in place, so it may need to be lightly tapped from the side.

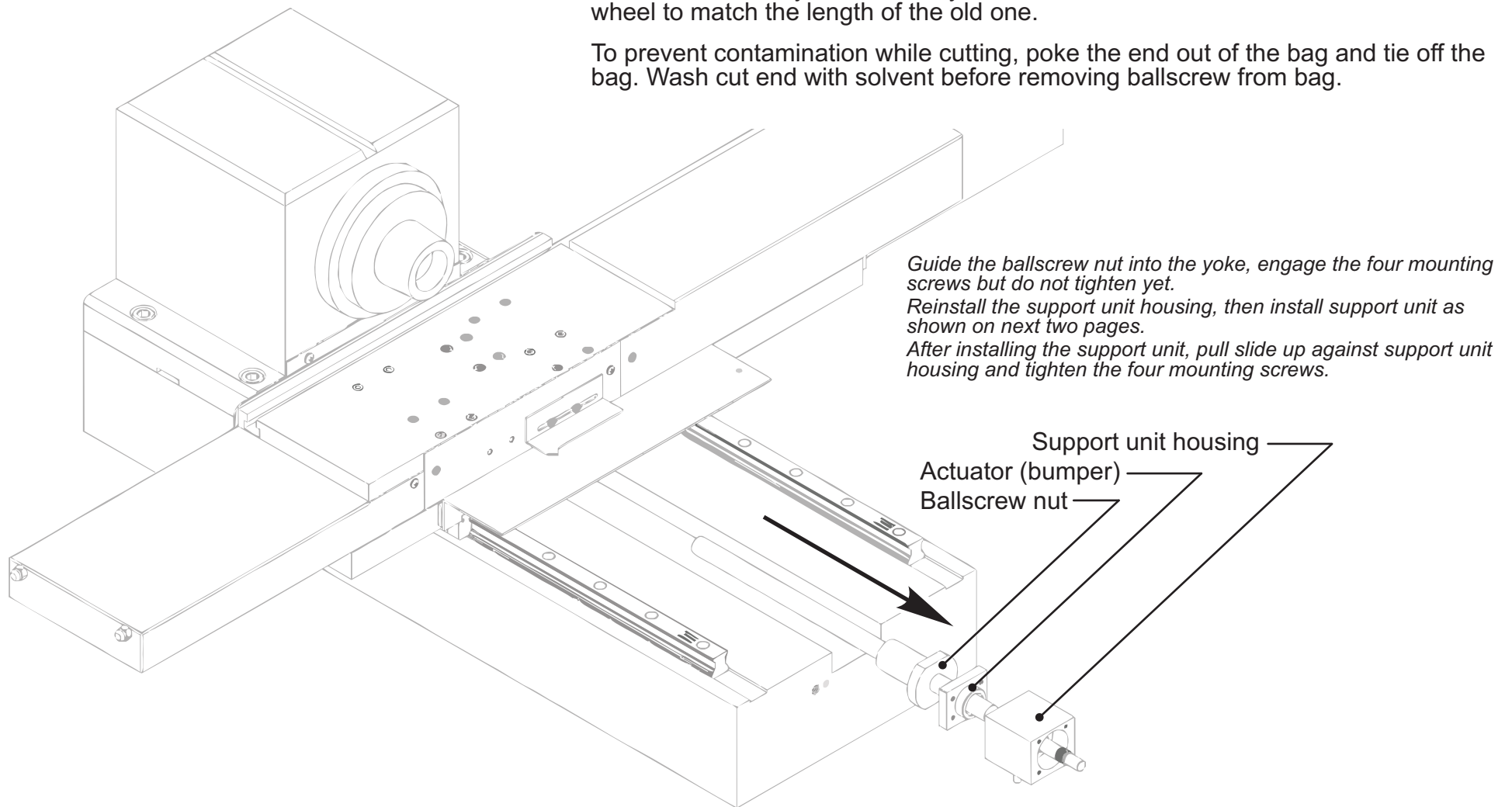


6. Remove and replace ballscrew

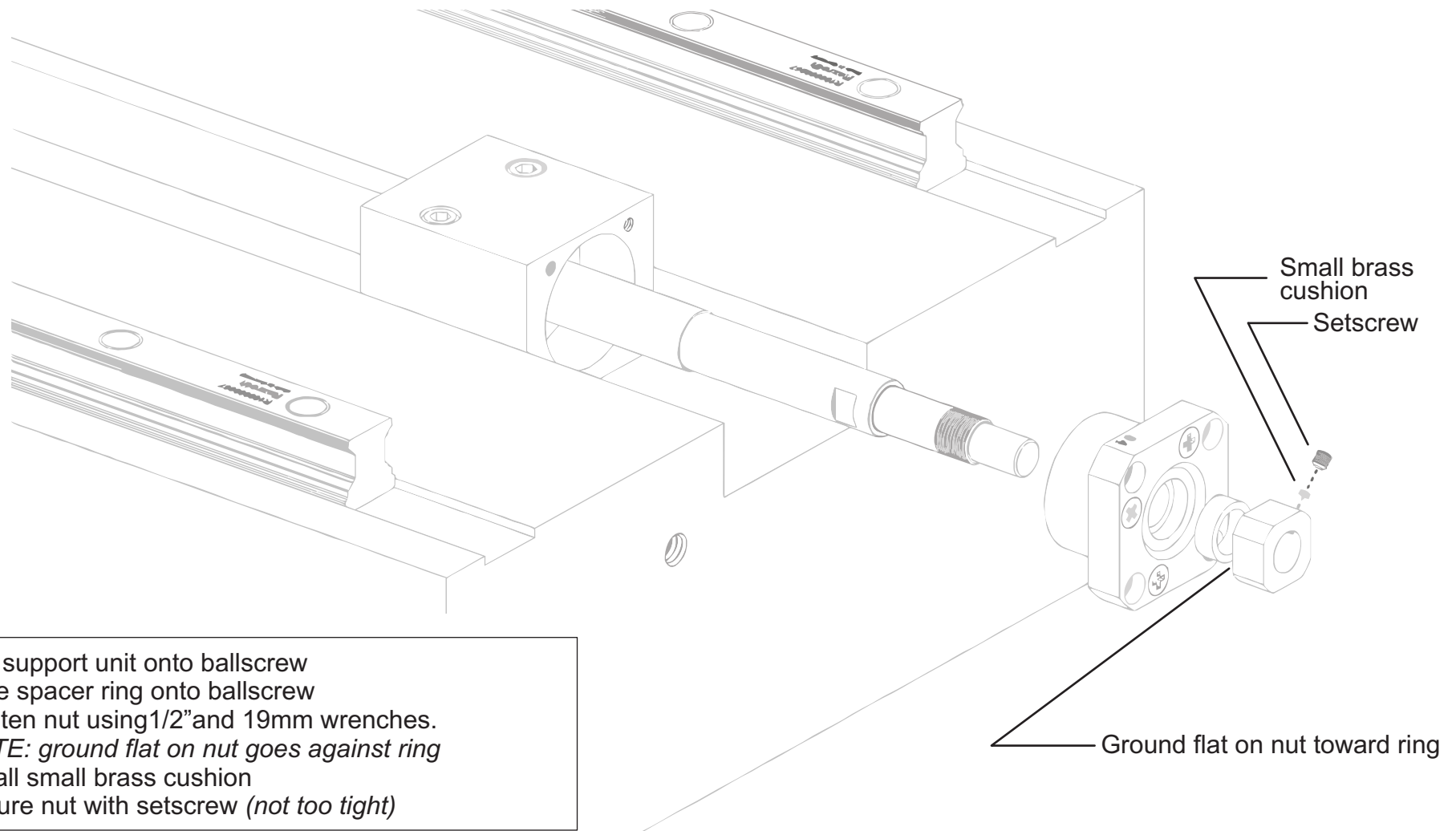
Remove the housing, then gently slide ballscrew assembly out.

Before installing new ballscrew, measure your old ballscrew and compare it to the new one; it may be necessary to cut the new ballscrew on an abrasive cut-off wheel to match the length of the old one.

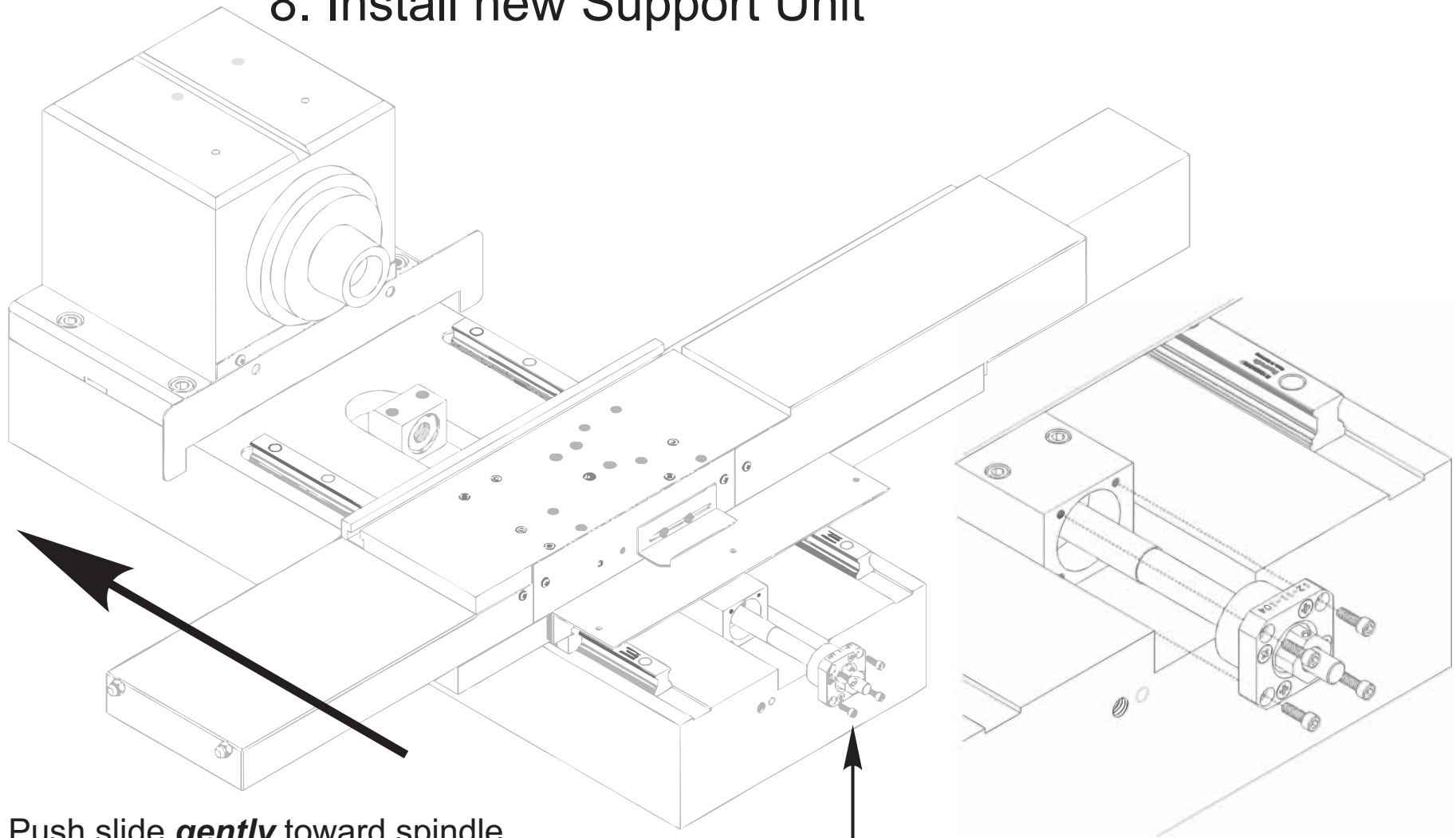
To prevent contamination while cutting, poke the end out of the bag and tie off the bag. Wash cut end with solvent before removing ballscrew from bag.



7. Attach new support unit to ballscrew



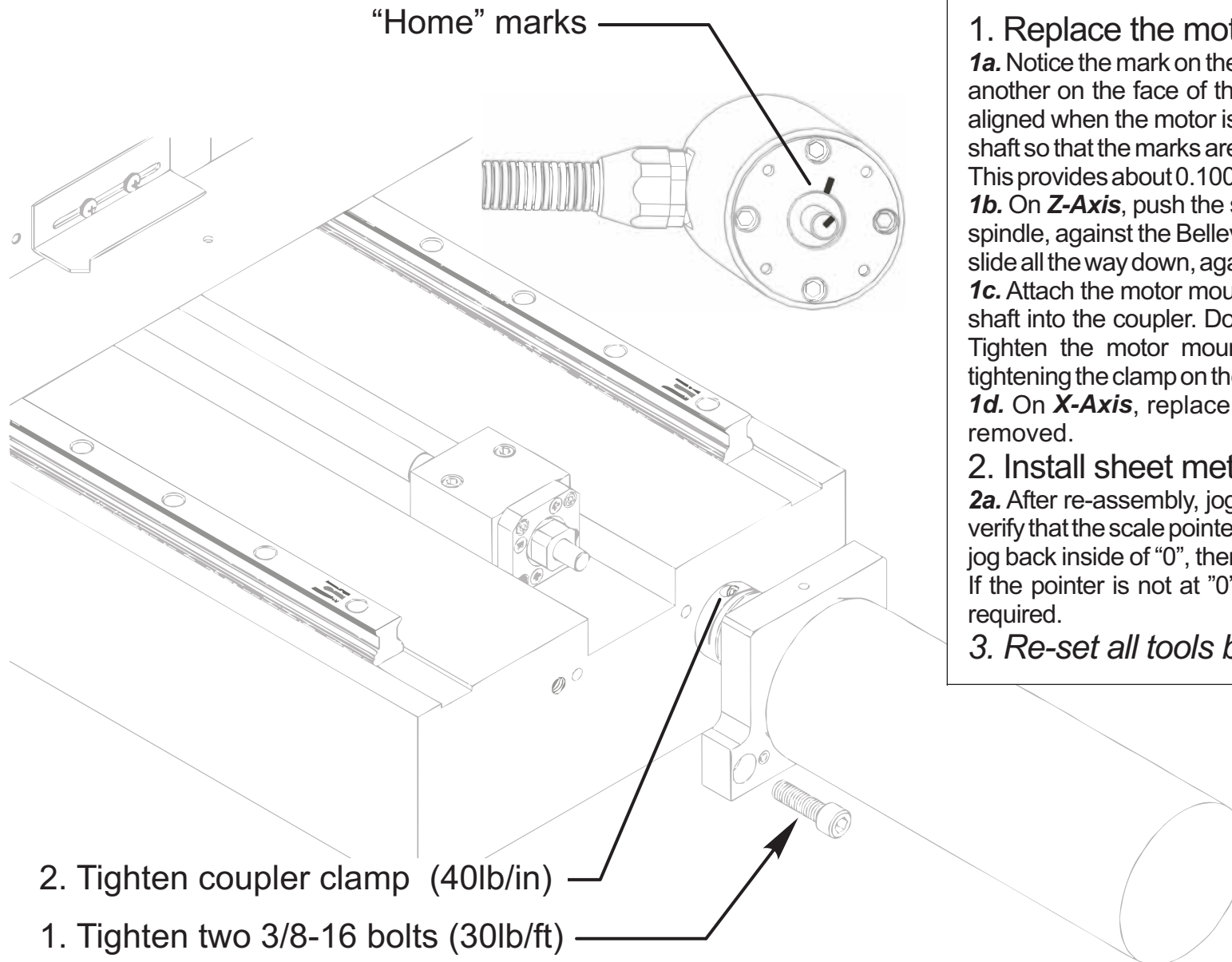
8. Install new Support Unit



1. Push slide **gently** toward spindle to seat support unit in block.

2. Tighten four mounting screws (20lb/in).

9. Replace Servo Motor



1. Replace the motor:

1a. Notice the mark on the end of the motor shaft and another on the face of the motor. These marks are aligned when the motor is at “home”. Turn the motor shaft so that the marks are 180° apart; that is 1/2 turn. This provides about 0.100” clearance past home.

1b. On **Z-Axis**, push the slide all the way toward the spindle, against the Belleville stack; on **X-Axis**, push slide all the way down, against Bellevilles

1c. Attach the motor mount to the base, slipping the shaft into the coupler. Don’t let the shaft turn much. Tighten the motor mount to the machine *before* tightening the clamp on the coupler.

1d. On **X-Axis**, replace slide brake if it has been removed.

2. Install sheet metal

2a. After re-assembly, jog the axis to both ends and verify that the scale pointer will go just slightly past “0”; jog back inside of “0”, then establish Home as usual. If the pointer is not at “0”, loosen it and move it as required.

3. *Re-set all tools before running*