

FIGURE 1

## 18" Mill Table Installation

P/N 54182

### Removing the Existing Table

Using the X-axis handwheel or CNC jog command, turn the leadscrew counterclockwise until it disengages from the saddle nut and slide the table off the saddle.

**MANUAL MACHINES:** Remove the handwheel by loosening the set screw in the side of the handwheel. Remove the 5-40 x 3/8" SHCS (Socket Head Cap Screw) that secures the round handwheel thrust to the table. Unscrew the brass anti-backlash nut from the leadscrew.

**CNC MACHINES:** Loosen the set screw in the coupler inside the motor mount by inserting a hex key into the hole in the side of the mount after first visually aligning the set screw with the hole. Remove the stepper motor from the mount by removing the four 8-32 mounting screws from the corner of the mount. Be careful removing the motor from the coupling, as it can easily be broken at the dampening slits if flexed. Remove the two 8-32 screws that secure the motor mount to the table. Remove the longer 5-40 screw in the end of the coupling that secures it to the leadscrew and remove the leadscrew from the motor mount. (Loc-tite® is used in assembly, so it may be somewhat difficult to remove.) If the outer bearing comes with the leadscrew, remove it and replace it in the motor mount. Unscrew the brass anti-backlash screw and the preload nut from the leadscrew.

### Installing the New Table

Thread the existing anti-backlash nut at least 2/3 of the way onto your new 18" leadscrew. For CNC leadscrews, reinstall the preload nut with the counter-bored side facing the bearing.

**MANUAL MACHINES:** Attach the 18" leadscrew to the new table in the same manner you removed the old leadscrew from your old table, using the existing thrust and 5-40 screw from your old table and your existing handwheel. Don't tighten the screw that secures the thrust completely before installing the handwheel. (It will be retightened later.)

**CNC MACHINES:** Insert the leadscrew into the two ball bearings in the motor mount and reattach the coupling to the end of the leadscrew using a very small amount of Loctite on the long 5-40 screw and conical surface. Attach the stepper motor mount to the new table using the two 8-32 screws you removed from the old table.

### Motor Mounting Instructions (CNC only)

To mount the motor, start by turning the leadscrew until the coupling set screw lines up with the access hole in the mount. Carefully insert the motor shaft into the coupling, being

careful not to put bending loads on the flexible portion. With the flanges touching, rotate the stepper motor until the flat on the shaft is in alignment with the coupling screw. Tighten the set screw. Rotate the motor to align the motor with the 8-32 tapped holes. We usually attach the motor using three screws and use a zip tie in the fourth hole to secure the wire bundle.

Using Loc-tite® on the shaft set screw may result in the shaft becoming glued to the coupling, making it difficult to remove the motor at a later time. If this were to occur, the bearing preload nut could be loosened and backed off to the point that the motor could be backed out an equal amount until the coupling was entirely exposed.

### Installing the Leadscrew

Make sure the saddle is free of chips. This would be a good time to apply new lubricating grease or oil on the dovetails. Slide the table onto the saddle and start the leadscrew into the hole until you feel it stop at the saddle nut inside the saddle. Turn the handwheel to start the leadscrew threading into the saddle nut. Continue to turn the handwheel or use the jog control on a CNC machine to thread the leadscrew into the saddle until the anti-backlash nut contacts the side of the saddle. Adjust the anti-backlash nut according to the instructions in your *Sherline Assembly and Instruction Guide* that came with your mill. (5th Edition, page 11. 6th Edition, page 12.)

### Centering the Thrust Collar on Manual Machines

Turn the handwheel until the table is moved all the way to the left and the handwheel is as close to the saddle as possible. Remove the handwheel and tighten the 5-40 x 3/8" screw that holds the thrust to the table. (This is why it was left not fully tightened in a previous step.) Reinstall the handwheel.

### Installing the thrust on the left end of the table

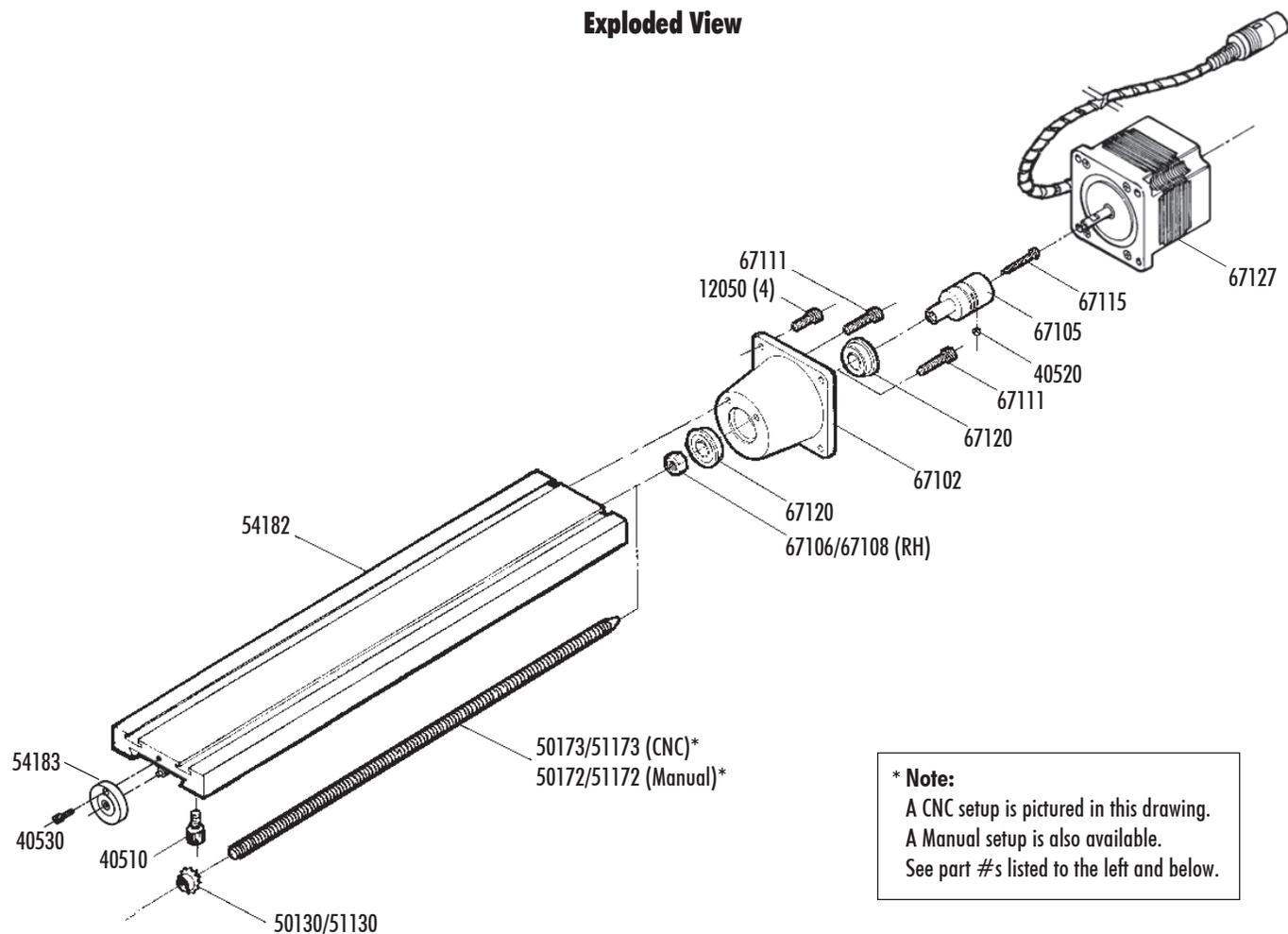
(See Figure 1 above.) Because of the extra length of the 18" leadscrew, we have added a support bushing at the far end of the leadscrew. Slip the brass bushing over the nub on the end of the leadscrew and attach it loosely to the table with the new 5-40 x 3/8" screw provided. Turn the handwheel or jog the stepper motor to bring the table as far to the right as it will go. This will center up the thrust for you. Tighten the 5-40 screw.

### Adjusting the Table Gib

If the handwheel is difficult to turn, the gib may be too tight in relation to the new table. Also, check the table for side-to-side movement. If sloppy, the gib locking screw can

be loosened and the tapered gib pushed a little further into the saddle. In this case, loosen the gib locking screw and pull the gib out a small amount and check for both ease of movement and side-to-side play. Proper adjustment is always a compromise between those two elements based on your personal preferences and need for accuracy. When adjusted, don't forget to retighten the screw that secures the gib lock.

### Exploded View



**\* Note:**  
 A CNC setup is pictured in this drawing.  
 A Manual setup is also available.  
 See part #s listed to the left and below.

### PARTS LIST

NO. REQ.	PART NO.	DESCRIPTION	NO. REQ.	PART NO.	DESCRIPTION
4	12050	8-32 x 3/8" Skt. Hd. Cap Screw	1	54182	18" Deluxe Mill Table
1	40510	10-32 x 3/8" Skt. Hd. Cap Screw	1	67102	CNC Mount (All axes)
1	40520	10-32 x 3/16" Cup Point Set Screw	1	67105	CNC Coupling
1	40530	5-40 x 3/8" Skt. Hd. Cap Screw	1	67106/67108 (RH)	CNC Preload Nut
1	54183	18" Table Leadscrew Bushing	2	67111	8-32 x 3/4" Skt. Hd. Cap Screw
1	50130/51130	Backlash Nut, X-axis	1	67115	5-40 x 7/8" Skt Hd. Cap Screw
1	50173/51173	18" X-axis Leadscrew - CNC	1	67120	CNC Preload Bearing
1	50172/51172	18" X-axis Leadscrew - Manual	1	67127	Stepper Motor Assembly