SHERLINE PRODUCTS
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Troubleshooting CNC Rotary Table Problems

Steps for Regaining the Connection between the Stepper Motor and the Worm Shaft

If your stepper motor turns but your rotary table does not turn, the screw (P/N 37200) that holds the coupling adapter (P/N 37124) onto the end of the worm shaft has probably come loose. Use the following steps for regaining the connection between the stepper motor and the worm shaft.

1. Use the handwheel (P/N 40050) to turn the stepper motor (P/N 67130). Look through the access hole in the stepper motor mount and turn the handwheel until the set screw (P/N 40520) lines up with the access hole.

FIGURE 1— The set screw is aligned with the access hole.

2. Use a 3/32" Allen wrench to loosen the set screw (P/N 40520) a couple turns (see Figure 2).
3. Remove the (4) 8-32 screws (P/N 67100) that hold the stepper motor onto the stepper motor mount.
4. Remove the stepper motor. If it is hard to remove, loosen the set screw (P/N 40520) a bit more.
5. At this point, insert an Allen wrench into the set screw (P/N 40250) through the access hole as described in step 2 (see Figure 3). You will be using the Allen wrench as a brake so you can tighten the button head screw (P/N37200).

NOTE: Please refer to the exploded view on page 3 of these instructions for all P/N references.

FIGURE 2—Shows the 3/32" Allen wrench inserted through the motor mount access hole.

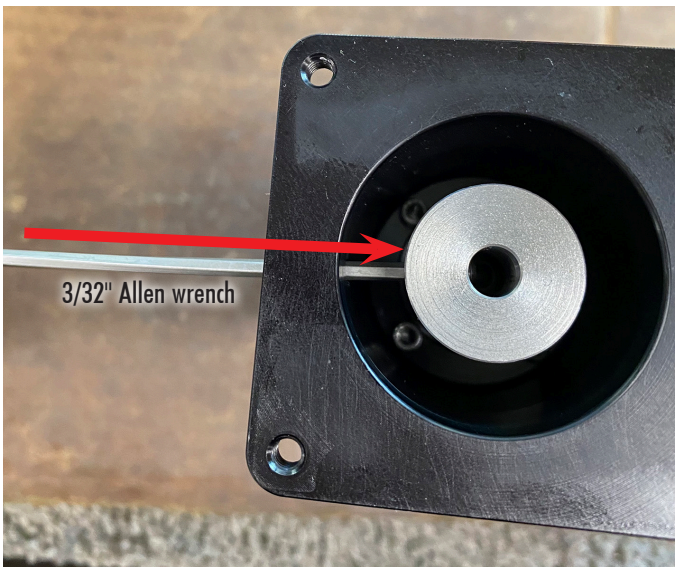

FIGURE 3—The red arrow shows another view of the Allen wrench inserted into the set screw (P/N 40520) through the motor mount access hole.

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6. Using a 1/8" Allen wrench, insert it into the center hole in the coupling (P/N 37123), and into the Allen head of the button head screw (P/N 37200).

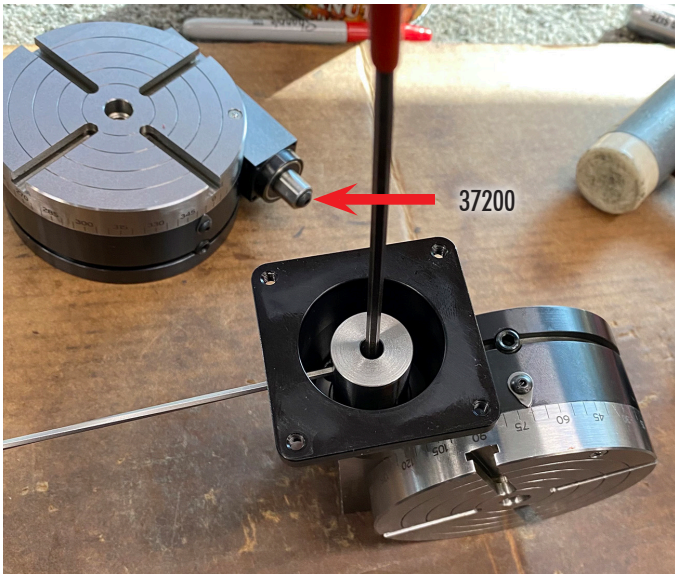


FIGURE 4—The 1/8" Allen wrench has been inserted through the center hole of the coupling (P/N 37123). The red arrow is pointing to the button head screw (P/N 37200) on another rotary table that has the stepper motor mount removed for reference.

7. First turn the 1/8" Allen wrench CCW to see if the 37200 screw is loose. If it is, turn the screw CW until the 3/32" Allen wrench contacts the side of the motor mount access hole. Then tighten screw (P/N 37200) as tight as possible.
8. Now go to the following Assembly Instructions section to reassemble the stepper motor.

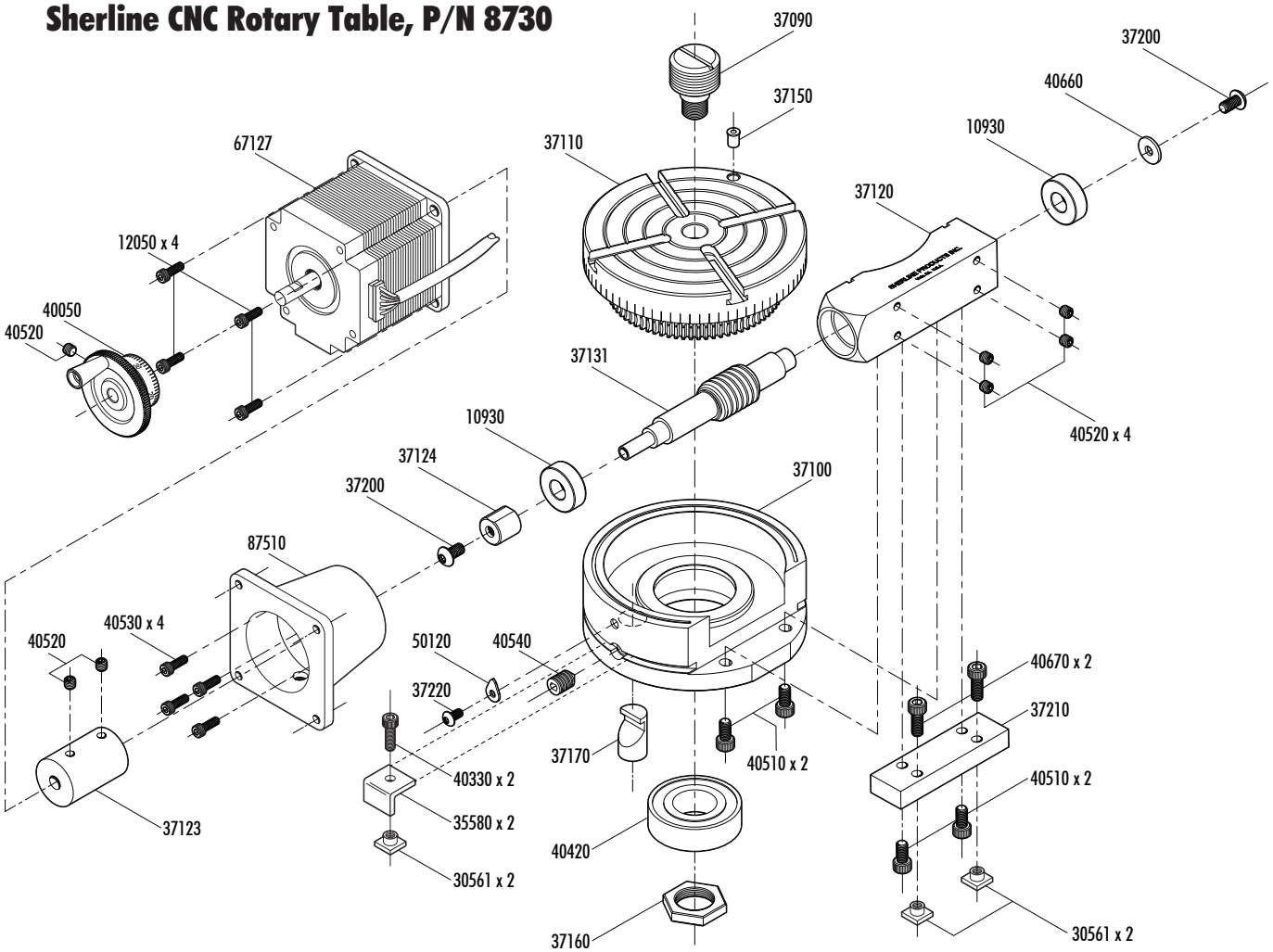
NOTE: If you want to add Loctite to the threads of screw 37200, you will need to follow instructions 9-14. Apply Loctite to the threads. Hold the coupling adapter securely, and tighten the button head screw (P/N 37200) again.

9. Remove the (4) screws (P/N 40530) that hold the stepper motor mount (P/N 87510) onto the worm housing (P/N 37121).
10. Wiggle and twist the stepper motor mount (P/N 87510) off of the worm housing.
11. Now remove the other set screw (P/N 40520) that holds the coupling (P/N 37123) onto the coupling adapter (P/N 37124). Then pull the coupling off.
12. Now remove 10-32 button head screw (P/N 37200) . Add a small amount of Loctite #242 to the threads of the screw.
13. Thread the screw back into the end of the coupling adapter and the end of the worm shaft (P/N 37131) and tighten it as tight as possible. You can hold the coupling adapter with a pair of pliers or in a small vise in order to tighten the screw (P/N 37200). Take care to not damage the outer surface of the coupling adapter (P/N 37124).
14. As long as you do not loosen the screw (P/N 37200) that is on the opposite end of the worm shaft, you should not need to worry about the bearing preload. It will be set again when you retighten the 37200 screw that secures the coupling adapter.

Assembly Instructions

1. Now replace the coupling (P/N 37123) onto the adapter with the flat towards the set screw. Slowly tighten the set screw making sure that it is perpendicular to the flat on the coupling adapter (P/N 37124). Then tighten the set screw all the way.
2. With the coupling secured, replace the stepper motor mount and align the four holes with the holes in the worm housing. Now secure the stepper motor mount to the worm housing with the (4) screws (P/N 40530). Get all four screws started first, then tighten them a little bit at a time, alternating from one screw to the next until they are all tight.
3. Now insert the stepper motor shaft into the coupling with the flat on the shaft facing the set screw in the coupling.
4. Push the stepper motor into position. Tighten the set screw just finger tight. Now insert the (4) 8-32 screws to mount the stepper motor to the motor mount. Tighten them firmly. Now loosen the set screw in the coupling to relieve any end force that may have been exerted on the coupling. Then retighten the set screw.
5. Tighten the locking screw (P/N 40540) so the table can't move. Now use the handwheel to check the amount of backlash (2/10 of a degree=2 lines). If the backlash is 2/10 or less, unlock the table, and turn the table through a full revolution.
6. If all is good, hook up the stepper motor and put the table through some test moves.

Exploded View
Sherline CNC Rotary Table, P/N 8730



NO. REQ.	PART NO.	DESCRIPTION
2	10930	3/8″ Bearing
4	30560	10-32 T-nut
2	35580	Hold-down clamp
1	37090	Chuck adapter
1	37100	Rotary table base
1	37110	Rotary table top
(1)	37121	CNC rotary table worm housing (Not sold sep.)
(1)	37131	CNC rotary table worm shaft (Not sold sep.)
1	37122	CNC rotary table worm housing assembly
1	37123	CNC rotary table coupling
1	37124	CNC rotary table coupling adapter
1	37150	Oiler
1	37160	Preload nut
1	37170	Lock pin
2	37200	10-32 x 3/8″ button head socket hd. screw
1	37210	Hold-down tab
1	37220	6-32 x 1/4″ button head socket hd. Screw

NO. REQ.	PART NO.	DESCRIPTION
1	40050	1-5/8″ handwheel assembly
2	40330	10-32 x 5/8″ SHCS
1	40420	Headstock bearing
4	40510	10-32 x 3/8″ Socket head cap screw (SHCS)
7	40520	10-32 x 3/16″ cup point set screw
4	40530	5-40 x 3/8″ SHCS
1	40540	5/16-18 x 3/4″ cone point set screw
1	40660	3/16″ I.D. washer
2	40670	10-32 x 1/2″ SHCS
1	50120	Pointer
4	67100	8-32 x 3/8″ SHCS
1	67127	2 Amp, 100-oz., 23 frame size stepper motor
1	87041	120 VAC power supply (24 VDC, 1 amp output)
1	87100	Control unit with keypad/electronics (not shown)
1	87250	Motor-to-keypad 6′ extension cable (not shown)
1	87350	Remote (limit) switch/daisy-chain 1/2 cable (not shown)
1	87510	CNC rotary table stepper motor mount