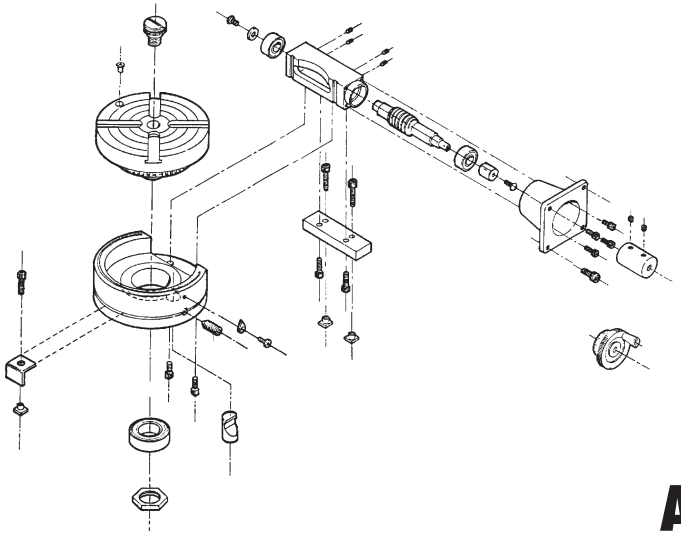


SHERLINE PRODUCTS
INCORPORATED 1974

Rotary Table Assembly Instructions

Assembly Instructions for the Rotary Table Worm

1. The following screws all have removable "Loctite" on their threads. We use Loctite #242 thread locker. [(2) P/N 37200 10-32 button head screw, and P/N 37160 Preload Nut].

NOTE: All of the part numbers mentioned are listed in the exploded view on the last page of these instructions.

2. Use a 1" socket (possibly a 26mm socket) and loosen the P/N 37160 Preload Nut.
3. Remove the (2) P/N 40540 10-32 screws that hold the Worm Housing P/N 37121 to the Rotary Table Base P/N 37100.
4. Wiggle the worm housing back and forth to break the silicon seal. Then remove the entire Worm Housing Assembly.
5. 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 until the Set Screw P/N 40520 lines up with the access hole.
6. Loosen the set screw P/N 40520 a couple turns.
7. Remove the (4) 8-32 screws P/N 67100 that hold the Stepper Motor on.
8. Remove the Stepper Motor. If it is hard to remove, loosen the set screw P/N 40520 more.
9. Screw in the P/N 40520 set screw until it is flush with the outside of the CNC Rotary Table Coupling P/N 37123. Insert the Allen wrench through the access hole and into the set screw. You will be using the Allen wrench to keep the Worm P/N 37131 from turning, so you can loosen the (2)10-32 Button Head Screws P/N 37200. Break the two screws loose.
10. Now remove the P/N 37200 screw that is on the "preload bearing" side of the Worm Housing.
11. Once the (2) P/N 37200 screws are removed, you can remove the (4) P/N 40530 screws that hold the Motor Mount P/N 87510 onto the Worm Housing P/N 37121. The twist and pull the Motor Mount off.
12. Now remove the other P/N 40520 set screw that holds the Coupling P/N 37123 onto the Coupling Adapter P/N 37124. Then pull the Coupling off.
13. Place the long end of a 1/8" Allen wrench into the 10-32 hole at the "preload end" of the Worm Shaft P/N 37131. Tap the Allen wrench with a hammer. The worm shaft, along with the Top Bearing P/N 10930 should all come out of the Stepper Motor side of the Worm Housing. All of the bearing fits are very light slip fits. They are not press fits.
14. Now remove the Coupling Adapter. There may be some Loctite on the adapter, so you may need to use pliers to twist it free. Once the Adapter is off you can remove the bearing from the Worm Shaft.

Assembly Instructions

1. Place the Bearing and Adapter onto the new Worm Shaft. Apply a drop of "Loctite #242" to the thread of the P/N 37200 screw. Screw it in tight.
2. Push the assembled Worm Shaft into the Worm Housing (and the bearing at the preload end of the Worm Housing).
3. Mount the Coupling P/N 37123 onto the Adapter. Be sure that the "Flat" on the Adapter is aligned with the set screw. Tighten the set screw.
4. Now leave the Allen Wrench in the set screw and use it for leverage so you can tighten the P/N 37200 screw that holds the Adapter on to it's final tension. All of the screws on the Stepper Motor end must be very tight to avoid any extra backlash.
5. Now it is time to tighten the P/N 37200 screw at the "preload end" of the Worm Housing. The purpose of this screw is to take up any slop in the bearing and any backlash in the final worm assembly. If you over tighten this screw, you will damage the bearings.

NOTE: Before you tighten this screw, you need to spin the worm with your fingers. Use the coupling to spin the

worm. Notice how free it spins. There should not be any resistance to the spinning motion.

Now place a drop of Loctite #242 on the threads (not too much or it may get into the bearings). Turn the screw in until the washer makes contact with the inner bearing race. Then just finger tighten a little to take up the bearing play. Now spin the worm again and see how it feels. If there is noticeable resistance to the turning motion, then the screw is too tight. Loosen the screw and tighten it a little. Then give the worm another spin.

6. Before you assemble the Worm Housing, you will need to look at all of the teeth on the Rotary Tabletop P/N 37110. Look for any steel chips on the gear teeth or in the grease that is on the gear teeth. It only takes one little chip to lock up the whole table.
7. Apply fresh grease to the gear teeth of the Rotary Tabletop P/N 37110.
8. Now apply fresh grease to the teeth of the Worm Gear.
9. Put a little line of "Silicon Caulk" on the two 1/8" grooves that are on the worm housing. This is used as a dust seal between the Worm Housing and the Rotary Table Base.
10. Now set the Rotary Table on it's side, with the Worm Housing "Step" facing up.
11. Pull the Rotary Tabletop away from the Base just enough so the Worm Housing will fit in without getting damaged.
12. Wipe all matting surfaces of the Worm Housing, Base, and Table clean.
13. Gently lower the Worm Housing down into place.
    a. You can turn the Coupling to get the worm teeth and the table teeth to line up.
    b. Once the teeth are aligned, turn the worm to move the housing back and forth to line up the (2) 10-32 screw holes for mounting the worm housing to the base.
    c. Insert the (2) P/N 40510 screws and leave them loose.
    d. When the worm housing is assembled there will be a slight gap between the worm housing and the base. This is so you can adjust for gear wear in the future.
    e. Gently rock the worm housing back and forth until it is square to the base.
    f. Use "Very Light" finger pressure to hold the worm housing in place. Then tighten the (2) 10-32 mounting screws to secure the worm housing in place.
    g. Gently tighten the P/N 37160 Preload Nut to remove any backlash from the Headstock Bearing P/N 40420.

NOTE: The torque on the preload nut is Less Than 1 in lb. When we assemble the table we just tighten the preload nut up until it makes contact with the bearing (by hand). If you exceed 1 in lb, you will lock up the table. The preload nut is basically there just to keep the bearing in place and the tabletop held slightly against the base.

    h. Now turn the Coupling back and forth to see how tight the worm is.
    i. If it is hard to turn, you were probably exerting too much pressure on the worm housing when you tightened the worm housing screws. Loosen the (2) screws, and then retighten them without pressing down on the worm housing. Then turn the coupling again.
    j. If the worm turns smooth and easy, then you will need to make the table go through one full revolution. As you are turning the coupling, feel for tight spots. Anytime you feel a tight spot, change direction and go back and forth over that area a couple times (this tightness can be caused by too much grease on the teeth. Once you have squeezed it out by turning the worm through that area a couple times, it should smooth out.
14. If it gets smoother, then continue turning through the first rotation.
15. If it gets harder to turn (or if it binds) then you will need to mark the tabletop to show the part of the Table that was engaged with the worm gear. Then remove the worm housing and look for anything that could be causing the worm to jam.

NOTE: If you experience a few areas that are slightly tighter than the rest of the table. Loosen the (2) P/N 40510 screws and lightly tap the worm housing away from the rotary table. Then tighten the screws and turn through another full revolution. The maximum amount of play that is allowable is (2) Tenths of a degree. This is (2) lines on the handwheel.

    a. Once the Worm backlash is set. Remove the Headstock Bearing Preload Nut P/N 37160. Apply a small drop of Loctite 242 thread locker to the threads. Retighten the preload nut.

NOTE: The torque on this preload nut is the same as the torque on the P/N 37200 screw on the worm shaft. All you are doing is taking up the backlash in the bearing. This nut should be just finger tight.

    b. Turn the worm shaft and see if it still moves as free as it did before you tightened the preload nut.
    c. Use the (4) 8-32 screws P/N 40530 and remount the Motor Mount to the worm housing.
    d. Turn the coupling until the set screw lines up with the access hole in the motor mount.
    e. Put the Allen wrench through the hole and into the set screw.

f. Now insert the stepper motor shaft into the coupling (with the flat on the shaft facing the set screw in the coupling.

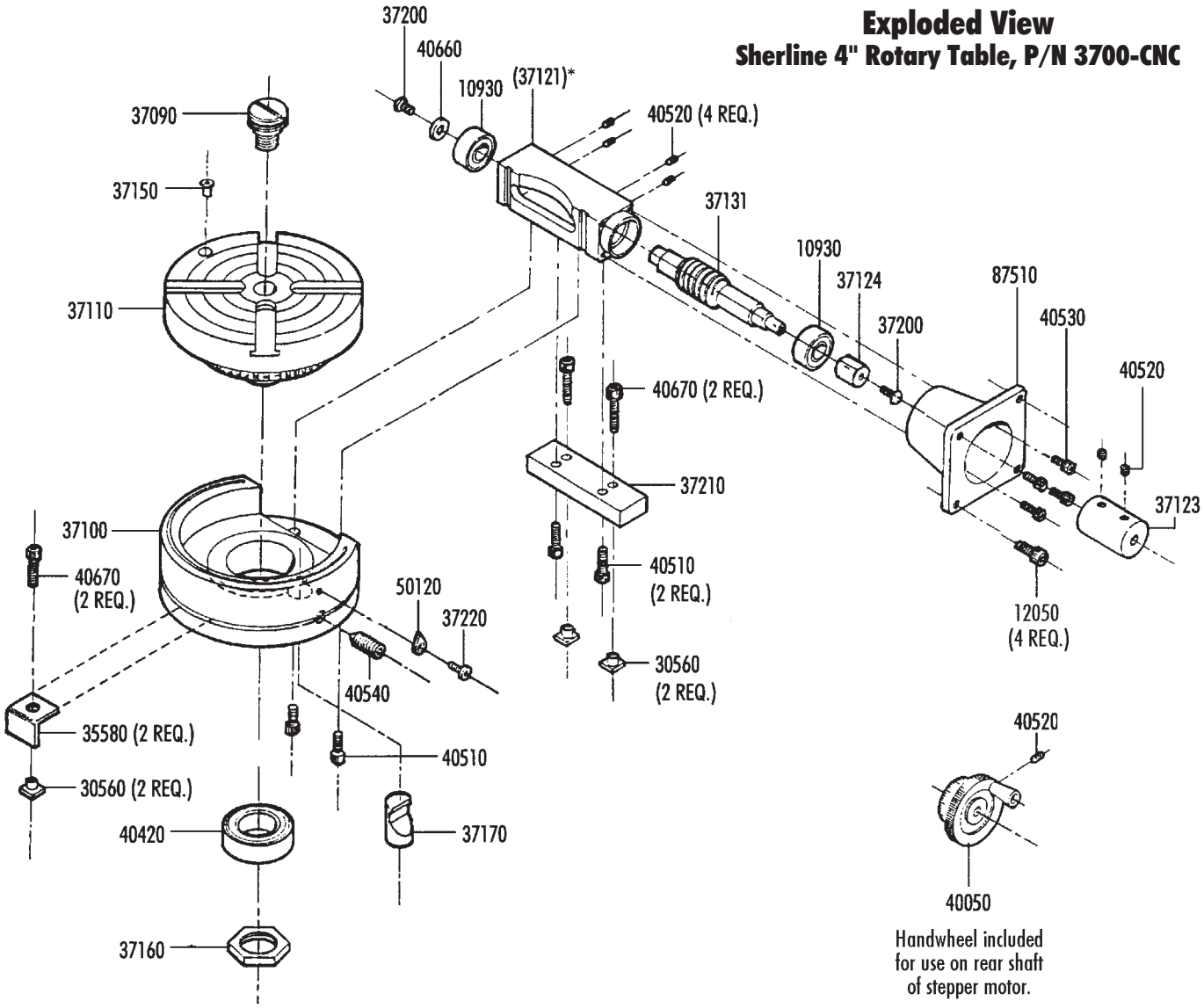
g. Push the stepper motor into position. Tighten the set screw just finger tight. Now insert the (4) 8-32 screws to mount the stepper motor to the motor mount. Tighten them firmly. Now loosen the set screw in the coupling to relieve and end force that may have been exerted on the coupling. Then retighten the set screw.

h. 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.

i. If all is good, hook up the stepper motor and put the table through some test moves.

Thank you,
Sherline Products Inc.

Exploded View
Sherline 4" Rotary Table, P/N 3700-CNC



NO. REQ.	PART NO.	DESCRIPTION	NO. REQ.	PART NO.	DESCRIPTION
2	10930	3/8" Bearing	1	37210	Hold-down tab
4	30561	10-32 T-nut	1	37220	6-32 x 1/4" button head screw
2	35580	Hold-down clamp	1	40050	1-5/8" handwheel assembly
1	37090	Chuck adapter	2	40330	10-32 x 5/8" SHCS (socket head cap screw)
1	37100	Rotary table base	2	40420	Headstock bearing
1	37110	Rotary table top	4	40510	10-32 x 3/8" SHCS
1	37121	CNC rotary table worm housing (*Not sold sep.)	7	40520	10-32 x 3/16" cup point set screw
1	37131	CNC rotary table worm shaft	4	40530	5-40 x 3/8" SHCS
1	37123	CNC rotary table coupling	1	40540	5/16-18 x 3/4" cone point set screw
1	37124	CNC rotary table coupling adapter	1	40660	3/16" I.D. washer
1	37150	Oiler	2	40670	10-32 x 1/2" SHCS
1	37160	Preload nut	1	50120	Pointer
1	37170	Lock pin	4	12050	8-32 x 3/8" SHCS
2	37200	10-32 x 3/8" button head screw	1	87510	CNC rotary table stepper motor mount