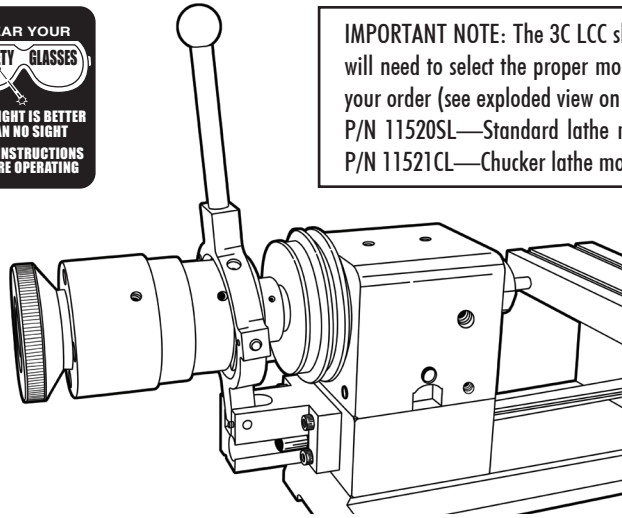




**IMPORTANT NOTE:** The 3C LCC ships with a mounting base, however, you will need to select the proper mounting base for your needs when placing your order (see exploded view on page 4).  
P/N 11520SL—Standard lathe mounting base (4000 and 4400 models)  
P/N 11521CL—Chuck lathe mounting base (6600 models)

**SHERLINE  
PRODUCTS**  
INCORPORATED 1974



(Shown without motor and speed control)

## 3C Lever Collet Closer

P/N 3025

### Introduction

The 3C lever collet closer was designed to work with our 3C headstock (P/N 30113), and is based on the same design as our standard lever collet closer (P/N 1150).

Anyone doing repetitive lathe operations on small parts will find this new accessory saves a lot of time when holding parts in a 3C collet.

The Sherline collet closer's locking mechanism is inside the cam and is actuated by pushing the handle away from the rear of the headstock. To unlock, you pull the lever forward. The tension mechanism is a ball detent that rides on a knurled wheel. As you turn the drawbar knob to tighten the collet, the ball moves to the next knurled tooth, giving a positive feel and holding it in place.

In order to make our collet closer durable, we made all of the wear parts out of hardened A2 tool steel and 1144 Stress-proof steel along with hardened dowel pins in the pivot joints.

This collet closer can be attached to any of standard lathes using the 3C base mounting unit, P/N 11520SL, or to our industrial chucker lathe using P/N 1521CL, each sold separately.

The lever operated collet closer makes production work and collet work easier and faster. Long stock up to 1/2" in diameter can be held through the 3C collets and spindle. Larger parts can be held in one of our 3- or 4-jaw chucks with the use of our chuck adapter (P/N 10670).

### Installation

#### Installing the collet closer base(s)

**1. Standard lathes**—Loosen the two 10-32 screws in the collet closer base, P/N 11520SL. (See Figure 2 on next page for location.) After inserting the collet drawbar tube (P/N 11510C) into the rear of the headstock spindle shaft, slide the collet closer base onto the rear of the leadscrew support that extends from the lower left end of the lathe base. Push the base of the collet closer up tight against the lathe base. Tighten the two 10-32 screws using the 5/32" hex key provided with your collet closer to secure it to the collar.

**2. Chucker lathe**—After inserting the collet drawbar tube (P/N 11510C) into the rear of the headstock spindle shaft, secure the base, P/N 11521CL, to the headstock base using the four 10-32 x 1" screws. Make sure the base slides over the brass leadscrew cover tube.

**Attaching the collet closer body**—First remove the 3C Spindle "End Cap," P/N 30128, from the end of the 3C spindle. You will be replacing this part with P/N 11512C, the 3C LCC "spindle mounting sleeve." The mounting sleeve is already assembled to the 3C collet closer. Insert the drawbar tube into the spindle, and then thread the mounting sleeve onto the end of the spindle. Once the inner shoulder of the mounting sleeve is located firmly against the end of the spindle you can tighten the set screw.

**NOTE:** This set screw is designed to keep the mounting sleeve from threading off during use. Do Not over tighten the set screw or you will damage the spindle. Just tighten it until it is snug.

### Adjustment

With the lever handle (P/N 11501) pushed to your right toward the spindle and a collet installed in the adapter, slip a piece of appropriately sized raw stock into the collet. Rotate the knurled drawbar knob (P/N 30118C) clockwise until the collet closes onto the part and it can't be moved by hand. Back off (counter-clockwise) a little on the handwheel until the part can just be slid in and out of the collet.

Move the lever handle to your left, locking the part in place. Check to see that the part is held securely. You may need to make some fine adjustments of the drawbar knob to find a position that allows a part to be easily installed in the collet while still being held securely when the arm is actuated.

### Lubrication

The primary wear parts of the collet closer are the shoes (P/N 11518C). We recommend that you place a few drops of light weight oil (such as 3-in-1 oil) into the oiler hole on the top front side of the Yoke (P/N 11522C) prior to each use or hourly if used constantly. (See Figure 2.)

The other wear parts are the steel balls (P/N 11530C), the thrust washers (P/N 11509C) and the cam (P/N 11509C).

All of these parts are hardened steel. They are assembled at the factory using Super-Lube PTFE (Teflon-based) grease available from Sherline as P/N 7550. If you use your collet closer frequently, we suggest that you disassemble the cam periodically and add fresh grease to the balls and inner face of the thrust washers.

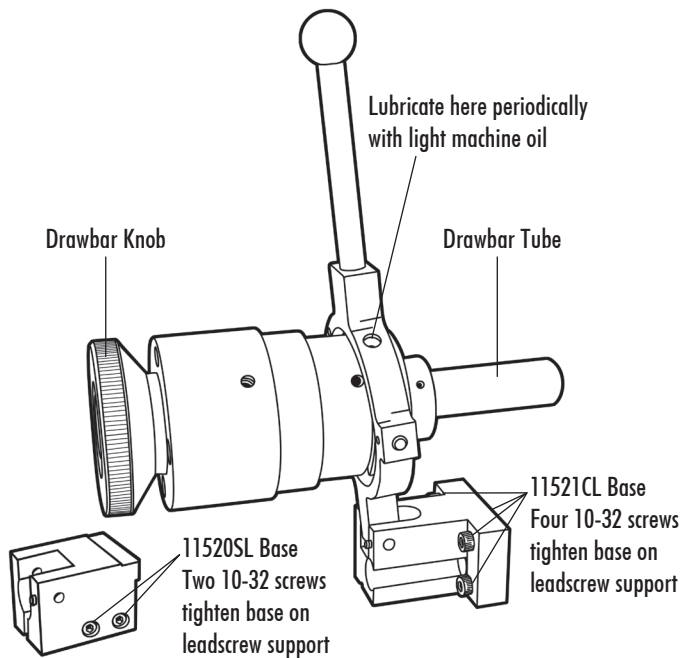


Figure 2—Lubrication and attachment points. Shown with P/N 11521CL base in place for the chucker lathe. The 3C LLC base, P/N 11520SL, is an available option for mounting to a standard Sherline lathe.

### Troubleshooting the Lever Collet Closer (LCC)

There are a limited number of things that can go wrong with our collet closer. If yours is not functioning correctly, here are a couple items to check.

First, the easy things:

1. Is the #11512C Spindle Mount Sleeve attached securely to the Headstock Spindle with the #30129 5-40 1/8" 3C Set Screw ?
2. Is the 3C LCC Base pressed all the way up to the end of the lathe bed? There will be a space between the Base and the casting, but there shouldn't be any space between the Base and the lathe Bed. Are the clamping screws tightened securely so the base cannot move?

Now the more serious topics: Collet clamping and unclamping problems.

3. Does the spindle turn freely inside the yoke with the collet unclamped? If not, there is a problem with the Shoes #11518C binding in the groove in the Cam #11514C. See fix below in instruction 4 a-c below.
4. Does the spindle turn freely inside the Yoke with the collet clamped? If not, there is a problem with the Shoes #11518C binding in the groove in the Cam #11514C. See fix below in sections a-c.
  - a. If the spindle turns freely when the collet is open and locks up when you close the lever, there is either

### CAUTION!

1. **Do not over-tighten the collet before engaging the cam lever**—Because of the cam lever action of this collet closer, you can exert a very high closing force on the collet if it is over-tightened prior to final closing with the lever handle. Do not pre-tighten the collet on the part to a point where the collet is in the full clamp position prior to clamping with the lever. This will put excessive force on the collet threads and result in premature wear and failure of your collets and your collet closer.
2. **Do not allow long stock to protrude too far from the left end of the spindle**—An inherent danger when running long stock through the spindle on all lathes is the possibility of an excessive whipping action. Just as there is a rule of thumb for how far unsupported stock should be sticking out of a collet when machining (1.5 times the diameter of the stock), a similar rule also applies to how far your stock should be sticking out of the rear end of the spindle without support. Since 1/2" is the largest diameter of stock that can feed through the spindle, we recommend that your stock does not protrude more than 3.5"-5.0" past the end of the spindle. This distance could be increased if the spindle speed is reduced or decreased if the spindle speed is increased. The inherent danger caused by the whipping action is this: As your stock begins to whip, the centrifugal force on the end of the stock exceeds the stress level of the material, which can happen very quickly, your stock will bend at a 90 degree angle to the spindle and become the equivalent of an airplane propeller, damaging everything it hits while rotating. Excess stock longer than noted above must be supported.

something wrong with the Shoes or the 3/16" pins #11526C are rubbing on the Cam groove.

- b. First loosen the two set screws #11528 that hold the 1/8" pins in place. Then pull the 3/16" pins out a little. Clamp the collet and see if the spindle turns freely. If it frees up, the problem was the 3/16" pins were in too far, and they were rubbing on the Cam. Retighten the two set screws and try again.
- c. If the spindle is still binding you may need to flip the Shoes 180 degrees in the Yoke, or replace them. Flip one Shoe at a time first to see if that frees up the spindle.
5. Does your collet lever move forward to the open position when you are running the spindle?
  - a. One of the Thrust Washers #11509C was assembled incorrectly. The thrust washers are flat on one side and have a taper cut on the other side. When assembled correctly the taper side of both washers should be facing the Ball Carrier #11507C (See Figure 3). If the Thrust Washers are not assembled correctly, the lever will close the collet, but it will slowly work its way back open during use.
  - b. To fix this you will need to partially disassemble the collet closer. You will need a 1/16" Allen Wrench and a small slotted screw driver.

## Disassembly

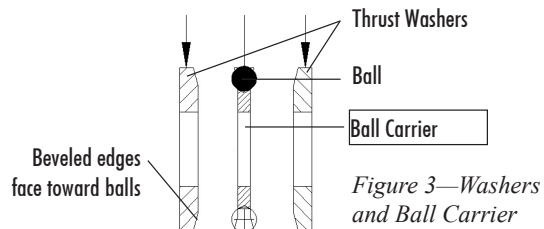
**IMPORTANT NOTE:** We use blue removable Loctite® on the screws that you will need to loosen to do this partial disassembly.

1. Loosen the two #11532C Dog Point Set Screws about three turns.
2. Loosen the #11535C set screw with ball detent three turns.
3. Remove the collet if necessary.
4. Now you should be able to pull the entire drawbar assembly out from the back side.

**NOTE:** Place a rag or towel under the back side of the collet closer. There are eight 3/16" steel balls in the carrier that are only held into the carrier with grease. If they fall out, they will be hard to find.

5. Once the drawbar assembly has been removed, push the two Thrust Washers away from the Ball Carrier #11507C and see if the side with the taper is facing the ball carrier on both of them. If not, pull them off, turn them around, and reassemble them.

This is how they should be assembled:

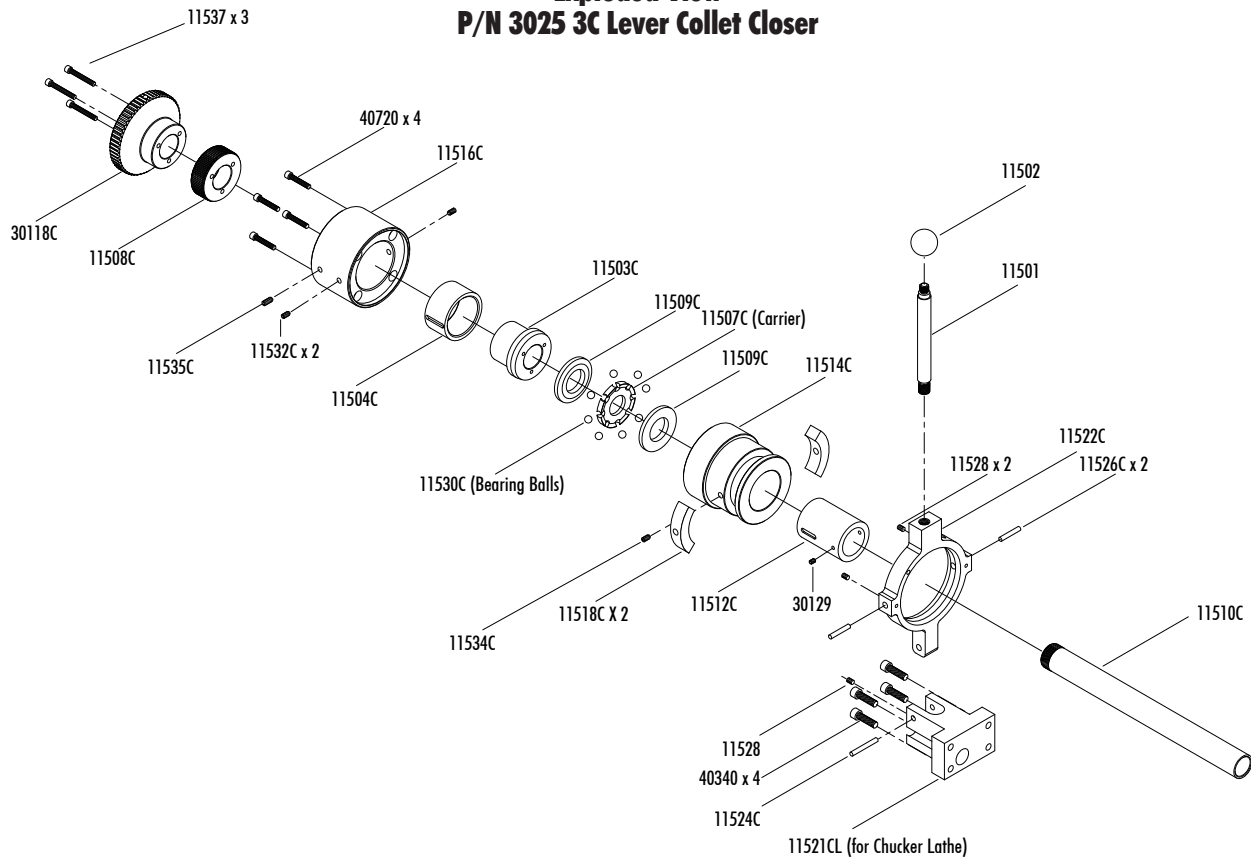


6. To reassemble, carefully insert the drawbar shaft assembly back into the Cam body (taking care not to lose any balls).
7. Align the slots in #11504C Guide Ring with the Dog Point Set Screws #11532C. Turn one set screw in at a time until it bottoms out in the groove. Then back it out 1/2 turn. There must be clearance between the set screw and the groove so the parts can move back and fourth.
8. Turn the ball detent set screw in until it bottoms out on the #11508C Knob Adapter Plate. Then back it out 1/2 turn. If the screw is adjusted correctly, you should be able to turn the drawbar assembly with ease and feel the Ball click into each knurled groove on the Adapter Plate.

**SPECIAL NOTE:** This is the same procedure that we use to check the Balls and Thrust Washers for wear. We also use this procedure to apply grease to the Balls and the Ball Carrier during general maintenance.

Thank you,  
Sherline Products Inc.

## Exploded View P/N 3025 3C Lever Collet Closer

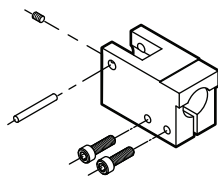


### Parts List

NO. REQ.	PART NO.	DESCRIPTION	NO. REQ.	PART NO.	DESCRIPTION
1	11501	LCC Handle Shaft	1	11522C	3C LCC Yoke
1	11502	LCC Handle Knob	1	11524C	3C 3/16" X 1" Harden Steel Dowel Pin
1	11503C	3C LCC Hub	2	11526C	3C 3/16" X 3/4" Harden Steel Dowel Pin
1	11504C	3C LCC Guide Ring	3	11528	5-40 x 3/16" Cone Point Set Screw
1	30118C	3C LCC Drawbar Knob	8	11530C	3C 3/16" Steel Bearing Balls
1	11507C	3C LCC Ball Carrier	2	11532C	3C 10-32 x 1/4" Dog Point Set Screw
1	11508C	3C LCC Knob Adapter Plate	1	11534C	3C 10-32 x 3/8" Half Dog Point Set Screw
2	11509C	3C LCC Thrust Collar	1	11535C	3C 10-32 x .513" Set Screw w/ Spring Loaded Ball
1	11510C	3C LCC Drawbar Tube	3	11537	5-40 x 1-1/2" SHC Screw
1	11512C	3C LCC Spindle Mount sleeve	1	30129	5-40 1/8" 3C Set Screw
2	11514C	3C LCC Cam	4	40340	10-32 x 1" SHC Screw (for Chucker Lathe Base)
1	11516C	3C LCC Cam Cap	1	40550	5/32" hex key (not shown)
2	11518C	3C LCC Cam Shoe	1	40570	3/32" hex key (not shown)
1	11521CL	3C LCC Base (for Chucker Lathe)	2	40690	10-32 x 3/4" SHC Screw (for Standard Lathe Base)
1	11520SL	3C LCC Base (for Standard Lathe)	4	40720	10-32 x 1-1/2" SHC Screw

**Accessories for the  
3C Lever Collet Closer**

- 3C LCC Standard Lathe Base P/N 11520 SL
- Adjustable 3C Collet Stop P/N 3024



*LEFT: Optional standard lathe base P/N 11520 SL*

*RIGHT: Optional adjustable 3C collet closer work stop kit P/N 3024*

