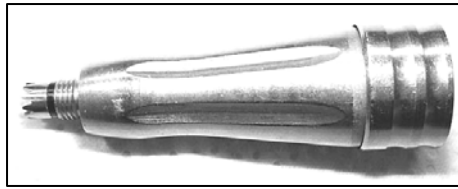


STAR MOTOR TO ANGLE ADAPTER REPAIR PROCEDURE



The Star Motor to Angle Adapter is used to attach a latch type head onto a Star motor. It has gone through very little change over the past thirty years. This repair procedure will be relatively short and easy since there are few parts involved in this unit. Most replacement parts are available for this adapter. Most often, the adapter will simply need a bushing or drive gear. As always, try to determine the problem before disassembling the nosecone.

Some of the most common problems with this handpiece are:

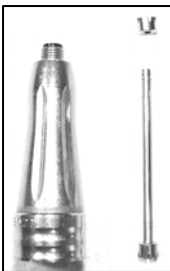
- A drive gear is cracked or missing thus, no torque.
- The shaft spins roughly.
- The adapter is locked up.

The repair procedures for each of these problems is addressed below



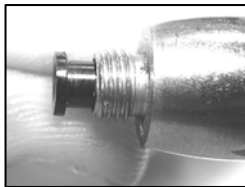
STEP 1

Place the adapter on your work surface. Then place a small punch on top of the main shaft in the middle of the top drive gear. Tap the punch in order to push the main shaft out of the top drive gear. Once this is done, you can pull the bottom drive gear and shaft out of the adapter.



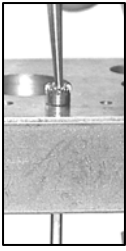
STEP 2

You should now have an assembly which looks like the picture to the left. Note: There are two black plastic bushings left at both ends of the adapter. These will be removed in the next step.



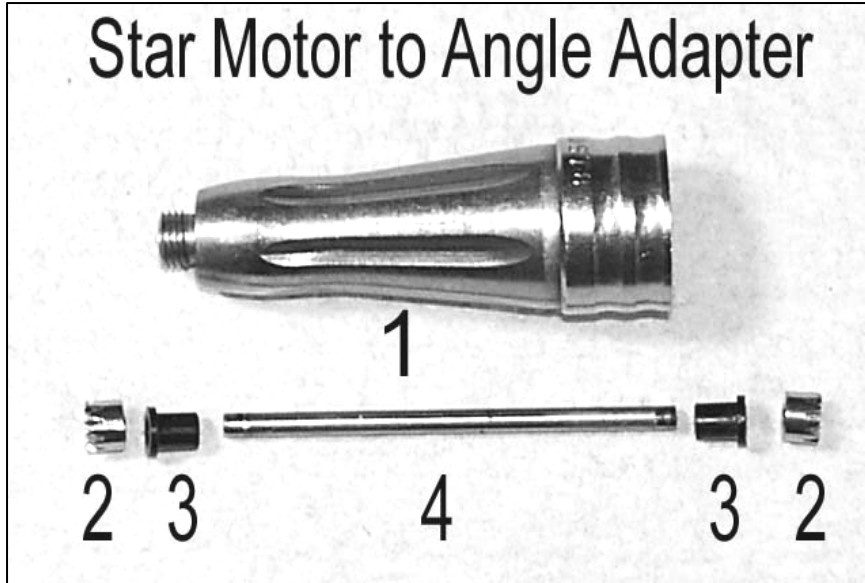
STEP 3

Remove the bushings from the adapter. You can start by prying the top bushing out of the adapter with a strait edge. Once that is removed, insert a rod through the top hole to push the other bushing out of the bottom of the adapter.



STEP 4

To remove the rear drive gear, put the shaft into hole # 7 on your elevated work block. Place a small punch over the shaft and tap the shaft out of the rear drive gear.



| Picture Number | Part Number | Description |
|----------------|-------------|----------------------|
| 1 | N/A | Main Adapter Housing |
| 2 | 60258 | Drive Gear |
| 3 | 60259 | Bushing |
| 4 | 60259A | Drive Shaft |

We will address some of the troubleshooting tips now that we are about to reassemble our adapter.

- A drive gear is cracked or missing thus, no torque. No torque on the adapter is caused when one of the drive gears is cracked. Determine if one or both of the gears are cracked and replace as necessary.
- The shaft spins roughly. A rough, or slow, spinning shaft is usually caused by one or both of the bushings being damaged. Simply replacing these bushings and buffing the shaft should solve the problem.
- The adapter is locked up. An adapter will lock up if the drive gears have been tapped on to the shaft too far. This is solved by tapping the drive shaft slightly out of the top drive gear. The shaft should have a small amount of play, which allows it to spin freely. It can also lock up if the shaft has started to rust inside the bushings, or if the bushings themselves are damaged. In this case, replace the bushings or buff the shaft until it is free of any rust or other build up.

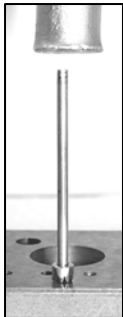


STEP 5

To replace the top bushing, insert the new bushing into the top of the adapter. Carefully tap the bushing into the hole until the flange is firmly in contact with the top threaded portion of the adapter.



To replace the bottom bushing, insert the new bushing into the bottom hole and tap it into place. Since you can't fit a hammer into the opening, you will need to tap it in using a cylindrical tool or punch.



STEP 8

To place the bottom drive gear onto the shaft, face it with the gear side down on your work block. Then insert the drive shaft into the bottom of the drive gear. You must now be very careful as you tap the shaft into the gear. If you do not hit the shaft squarely, you might bend the drive shaft. It is very important that you do not bend the shaft as you accomplish this segment of the repair.



STEP 9

To complete our assembly process, we must insert the drive shaft and gear into the adapter main housing from the bottom. The shaft will stop when the bottom gear comes in contact with the bottom bushing. You will now have the adapter assembly with only the top drive gear missing.



STEP 10

To install this gear, place a round brass cylinder type tool with a flat top, in the bottom end of the adapter and place it on your work block (see picture). Next, put a small dab of grease on the tip of the drive shaft. Align the top gear squarely on the drive shaft and tap the gear on using a brass hammer. This will protect the gear teeth. The shaft should spin freely and have a small amount of play, up and down. If the shaft is hard to spin, you may have tapped the top gear on too far. In this case, simply tap the drive shaft with a small punch until it is freed up.