

Disassembly Instructions - 0.4 hp. (Angle Head)

Important: Use these instructions along with the tool, parts page or manual. To repair the air motor and planetary reduction gears, separate the planetary adapter or gear case from the housing core. Also, view and follow the "**Disassembly Instructions - 0.4 hp. Air Motor (Straight)**", and "**Disassembly Instructions - 0.4 hp. Planetary Reduction Gears**".

Disconnect the tool from the air supply. Use the **95987**, 5/16" Wrench to hold the work spindle stationary, and remove the accessory.

Angle Head Disassembly:

1. Fasten the wrench flats of the **54547** Angle Housing in a vise with aluminum or bronze jaws.

2. Use an adjustable wrench to loosen the **54527** Lock Ring.

LEFT HAND THREAD

Turn clockwise.

Separate the **53451** or **53454** Adapter from the **54547** Angle Housing.



3. Use a 5/8" or 16 mm hex key to remove the **54540** Retaining Nut.

LEFT HAND THREAD

Turn clockwise.



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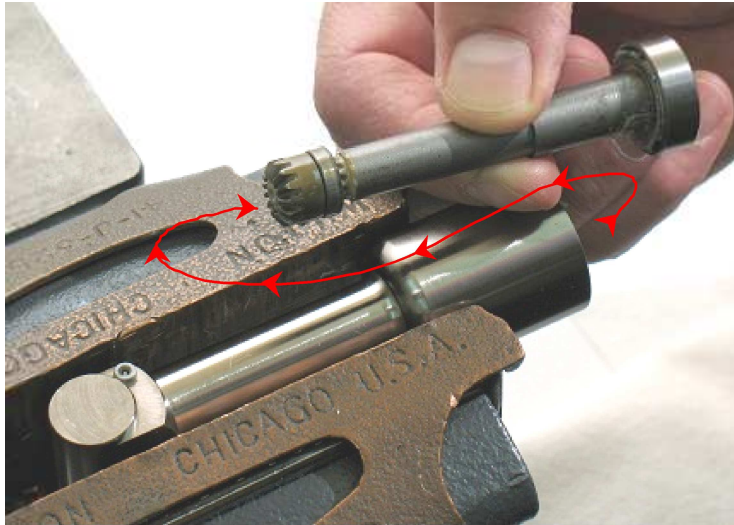
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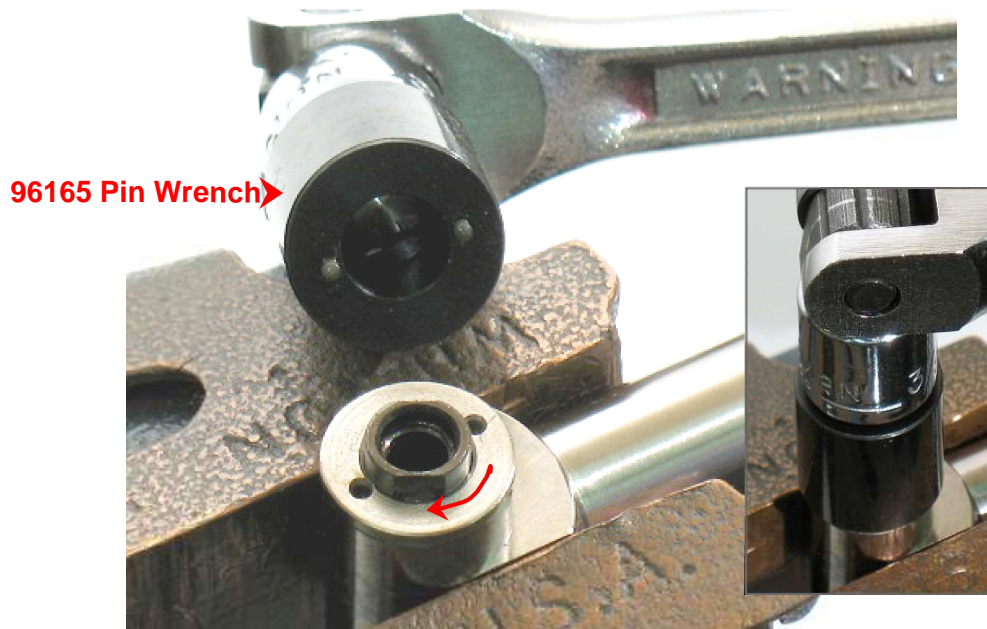
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4. Remove the **54541** Spindle and connected parts, from the **54547** Angle Housing.



5. Reposition the **54547** Angle Housing and fasten the flat sides of the housing in the vise with the **54550** Bearing Cap facing up.



6. Use the **96165** Pin Wrench to remove the bearing cap. **LEFT HAND THREAD**
Turn clockwise.

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Disassembly/Assembly Instructions

7. Remove the **54549** Work Spindle, bearings and shims.
8. Use the **96345** Bearing Separator (15/16"), a 3/16" flat-end drive punch, and the **96232** Arbor Press (#2) to remove the bearings from the **54549** Work Spindle, and the **54541** Spindle.



Angle Head Disassembly Complete.

Clean and inspect parts before assembling.

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Assembly Instructions - 0.4 hp. (Angle Head)

Angle Head Assembly:

1. Use the **RAISED CENTER** of the **96243** Bearing Press Tool and the arbor press to install the **54542** Bearings (2) onto the **54549** Work Spindle and the **54541** Spindle.



2. Use the **RAISED CENTER** of the **96418** Bearing Press Tool and the arbor press to install the **54537** Bearing onto the **54549** Work Spindle.



3. Use the **54536** Shim Pack. **Notice:** Shim pack contains .002" (0.05 mm) and .005" (~0.13 mm) thick shims. To start, install a .002" (0.05 mm) thick shim into the **54547** Angle Housing. Install **54549** Work Spindle with bearings into the angle housing.

4. Use the **96165** Pin Wrench to install the **54550** Bearing Cap hand-tight. **LEFT HAND THREAD** Turn counterclockwise.



5. Rotate the work spindle to check the fit in the angle housing. The spindle should turn smoothly. Also, check axial movement of the spindle.
 - a) If spindle rotation is rough, remove the shim and check rotation again.
 - b) If there is axial movement, add shims as required.



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6. When the adjustment is correct, apply Loctite #7649 Primer to the threads of the **54550** Bearing Cap. Apply a small amount of Loctite #567 (or equivalent) to the threads of the bearing cap. Use the **96165** Pin Wrench to tighten the bearing cap.
(T to 1.2 N•m/~11 in. lbs.)
7. Install the **95398** Bearing onto the **54541** Spindle. **Notice:** If necessary, use the **RAISED CENTER** of the **96243** Bearing Press Tool and the arbor press.
8. Install the **54541** Spindle with bearings into the housing.



Install the **54540** Retaining Nut. (T to 34 N•m/~300 in. Lbs.)

9. With the **54541** Spindle secured in the angle housing, shake the angle housing assembly to check movement of the spindle assembly. **Notice:** Minimal movement is desired to reduce gear backlash.



If there is movement, use the **54536** Shim Pack and add shims as required.

Notice: Shim pack contains .002" (0.05 mm) and .005" (~0.13 mm) thick shims.

10. Fasten the wrench flats of the **54547** Angle Housing in a vise with aluminum or bronze jaws.
11. Join the **53451** or **53454** Adapter to the **54547** Angle Housing. Use an adjustable wrench to tighten the **54527** Lock Ring. **LEFT HAND THREAD** Turn counterclockwise.
12. Use an adjustable wrench to tighten the **54527** Lock Ring. **LEFT HAND THREAD** Turn counterclockwise. (T to 34 N•m/~300 in. lbs.)
Angle Head Assembly Complete.

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