



## Disassembly/Assembly Instructions

### Reversible Pistol Grip 0.5 hp. Direct-Drive Screwdriver

Model: 53472, 53474, 53475, 53477

**Notice:** Use these instructions along with the tool manual.

**Important:** Disconnect tool from the air supply.

- To avoid damage, use the Special Repair Tools designed for disassembly and assembly.

#### Motor Disassembly:



1. Place protective padding around housing. Fasten "Driver" in vise with spindle pointing up.
  - ♦ Use a 1-9/16" (~40 mm) crowfoot or adjustable wrench to remove gear housing.
  - ♦ Turn counterclockwise.(To disassemble gears see: Planetary Gear Disassembly)

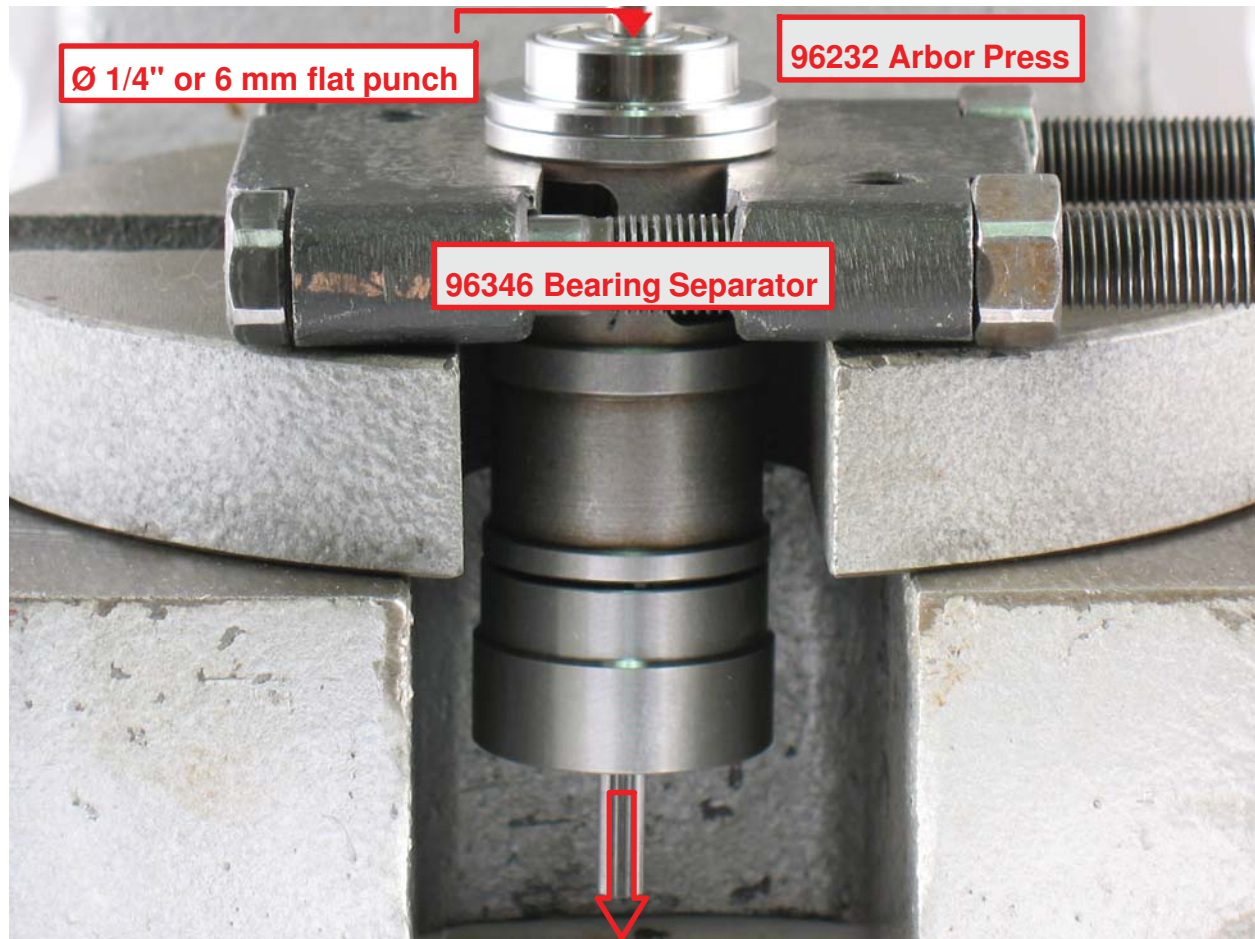


**2. Remove motor from housing:**

- a)** Carefully fasten **53339** Front Plate in vise with aluminum or bronze jaws.
- b) Notice:** Motor is held by o-rings. Use **HEAT GUN** to warm and expand housing.

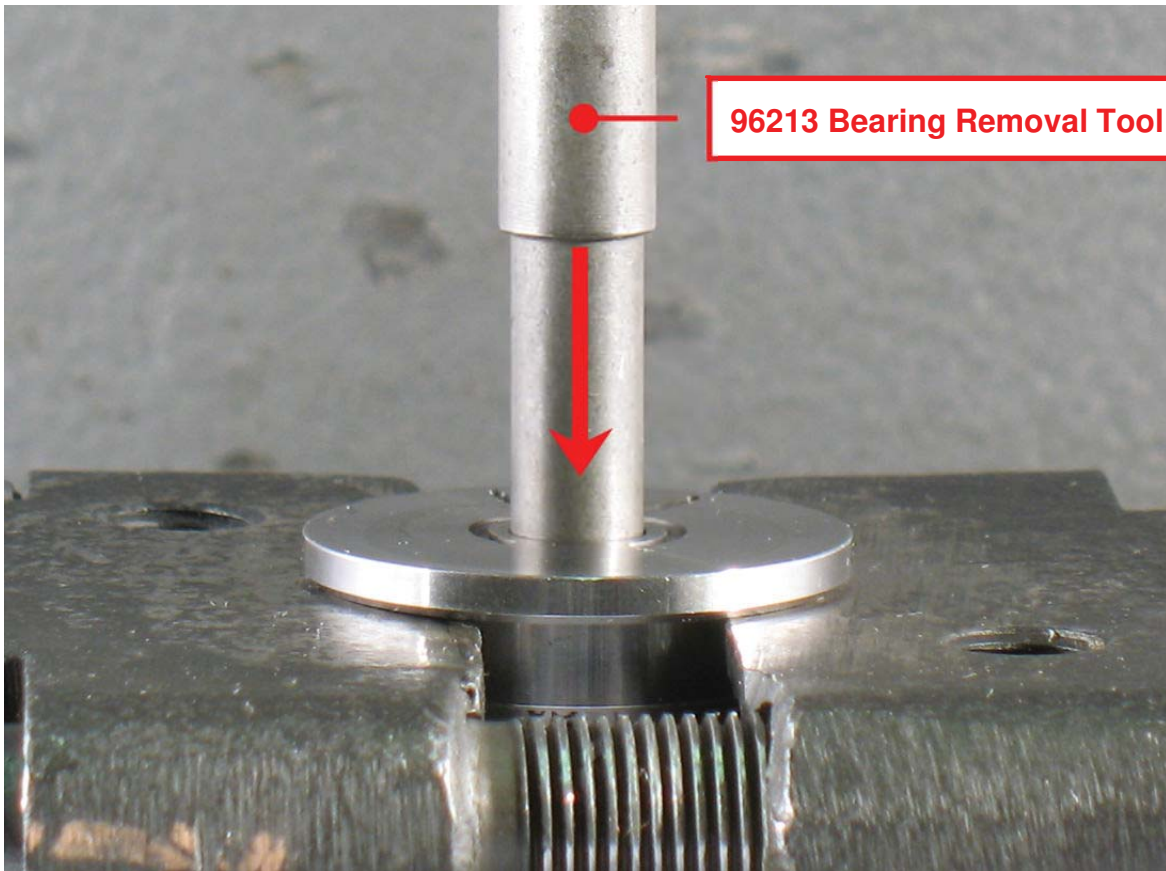


3. Pull up and wiggle housing to release motor. Remove motor from housing.

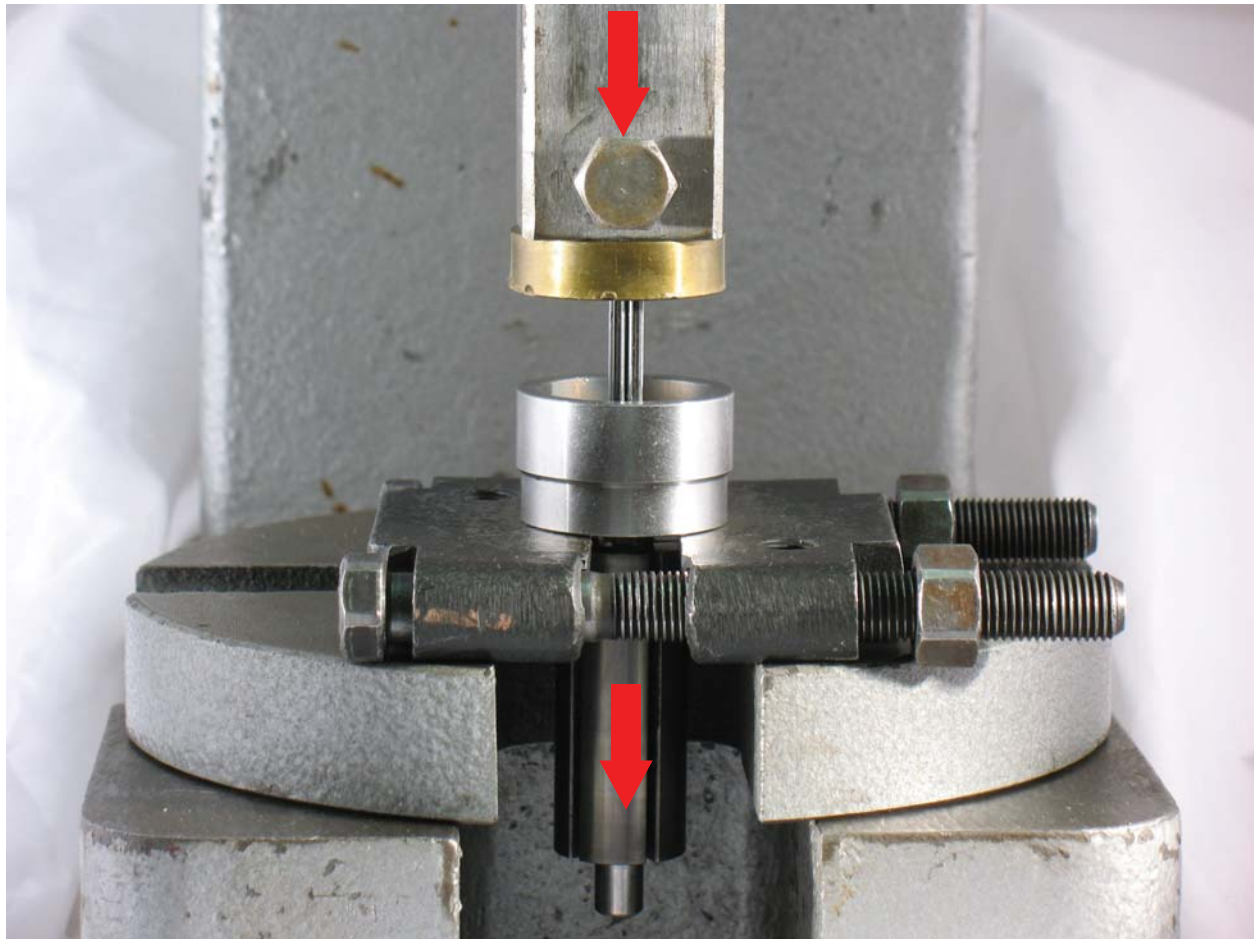


4. Fasten **96346** Bearing Separator (2") around **52046** Cylinder. Place separator and motor in **96232** Arbor Press (#2) with rotor spindle pointing down.
  - ♦ Use a Ø 1/4" or 6 mm flat-end drive punch to push rotor out of **02649** Bearing.

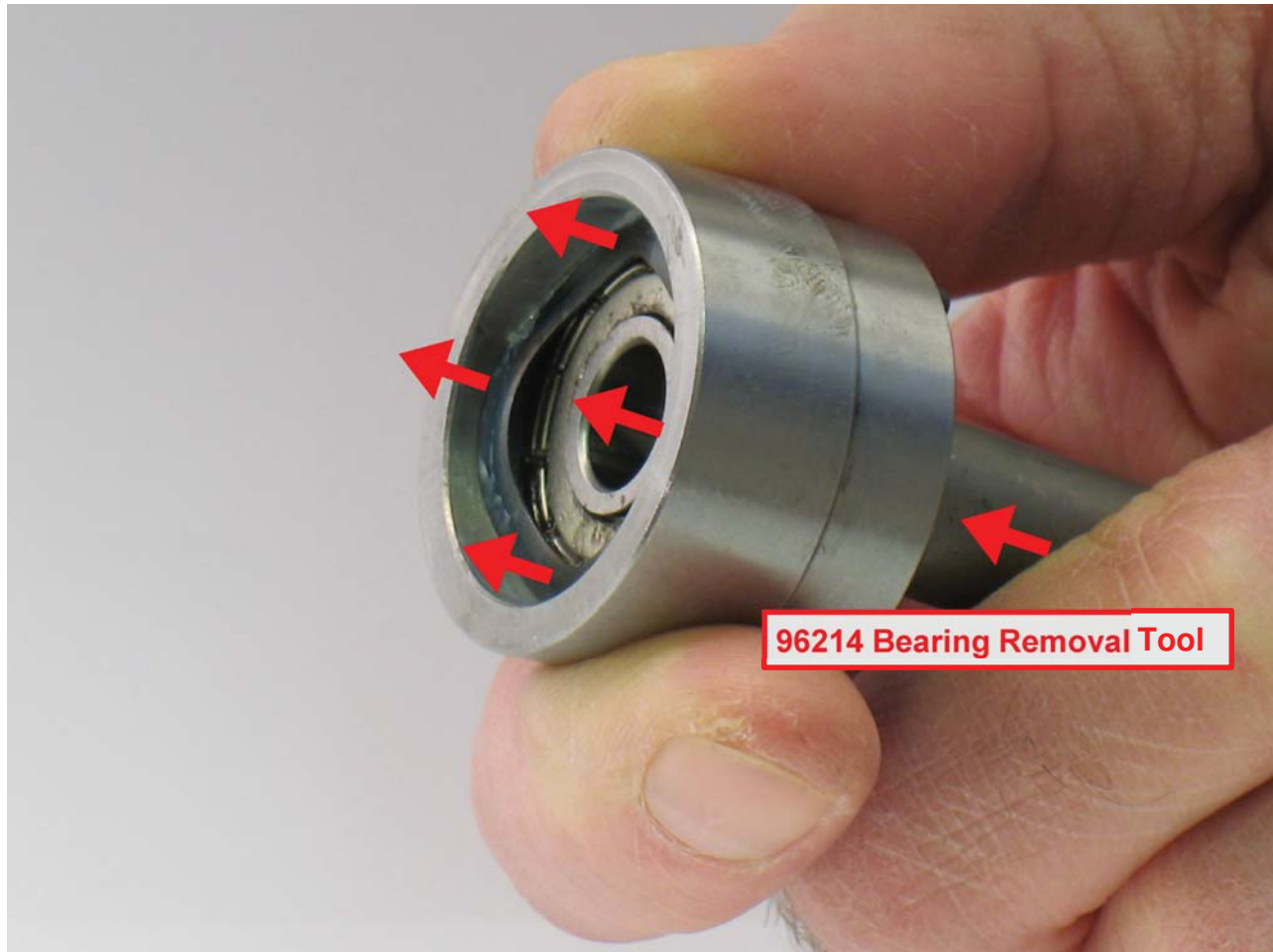




5. Use **96213** Bearing Removal Tool and arbor press to remove **02649** Bearing from **52044** Rear Plate.



6. Use arbor press and separator to remove rotor from front bearing and plate. Remove **02651** Bearing, **53339** Front Plate, shims, and **53337** Spacer.



7. Use **96214** Bearing Removal Tool to push **02651** Bearing and **96556** Wave Washer out of **53339** Front Plate. Remove shims from plate.



**Motor disassembly completed.**

**Clean and inspect parts for wear or damage.**



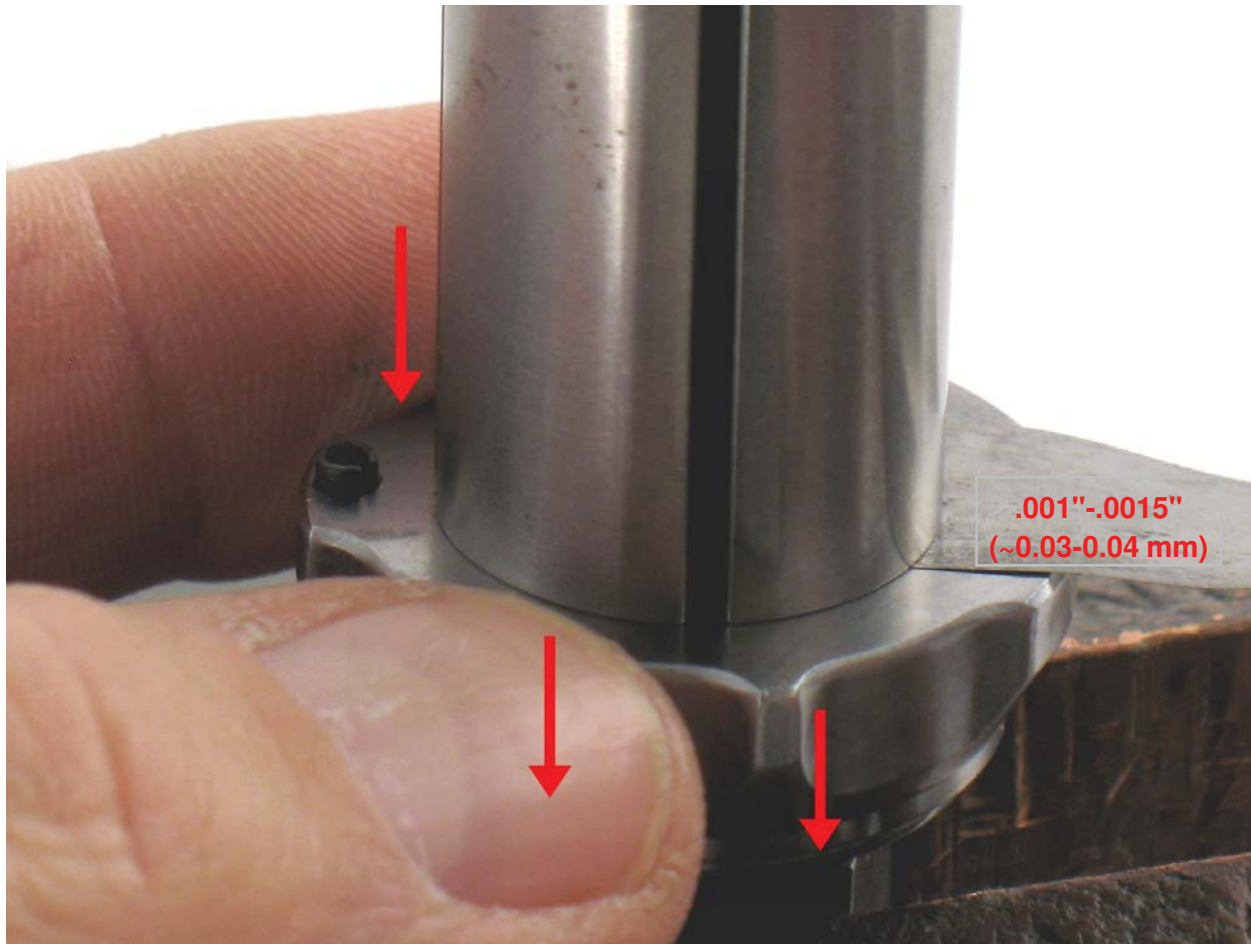
### **Motor Assembly:**



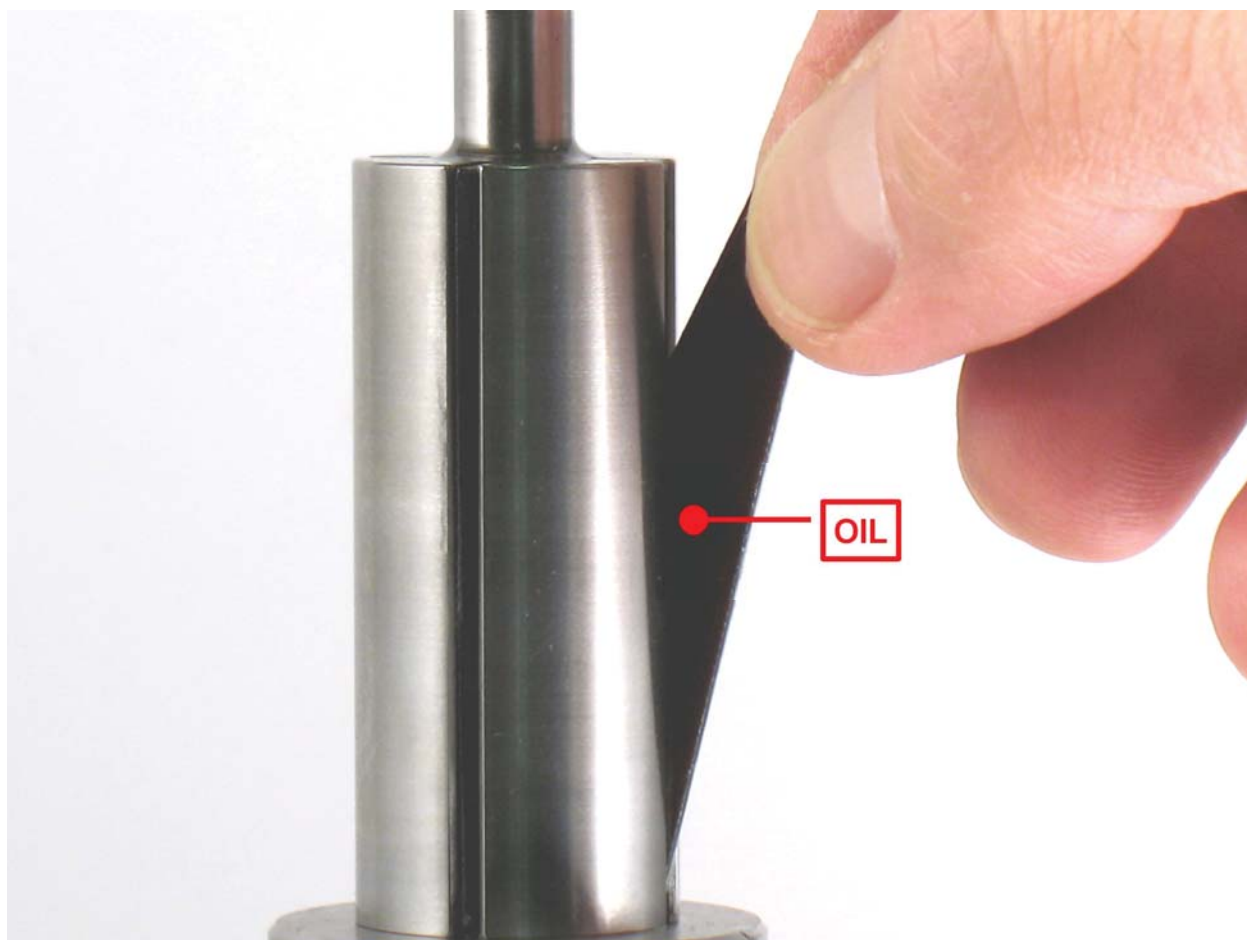
1. Select .003" (~0.08 mm) shim thickness from **53397** Shim Pack.
  - Place shims into **53339** Front Plate.
  - Install **02651** Bearing.



2. Install **53337** Spacer onto rotor.
  - ♦ Use **RAISED INSIDE DIAMETER** of **96239** Bearing Press Tool and arbor press to install; **53339** Front Plate, shims and **02651** Bearing. **Notice:** Use a socket on top of **96239** to extend depth of press tool.



3. By hand, move front plate forward away from rotor.
  - ♦ Check clearance between rotor and front plate. Use a .001" (~0.03 mm) thick feeler gauge. **Notice:** Clearance should be .001"-.0015" (~0.03-0.04 mm).
  - ♦ If rotor/plate clearance needs further adjustment, repeat steps 1-3. Remove, or add shims as required.

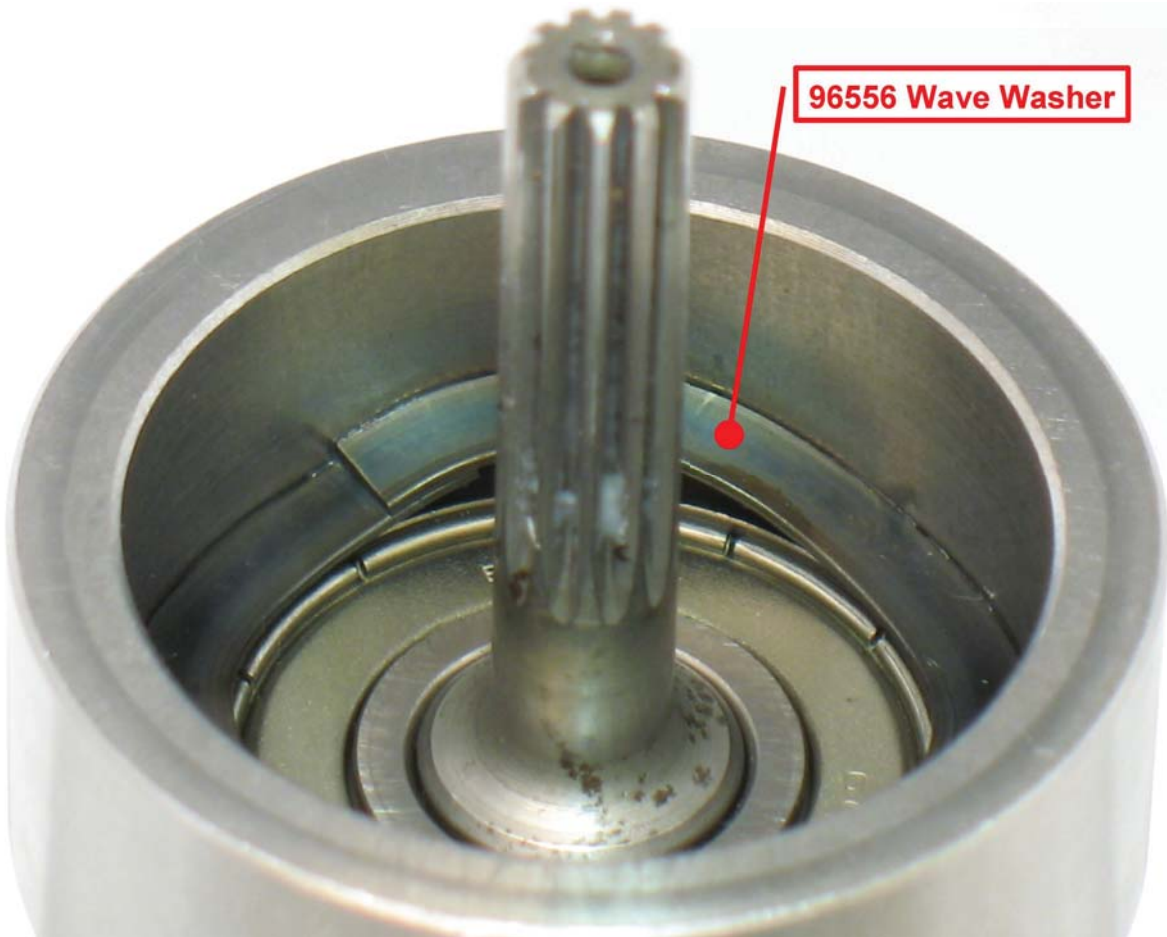


4. Oil **01057** Vanes with **95842** Dynabrade Air Lube 10W/NR or equivalent and install in rotor.

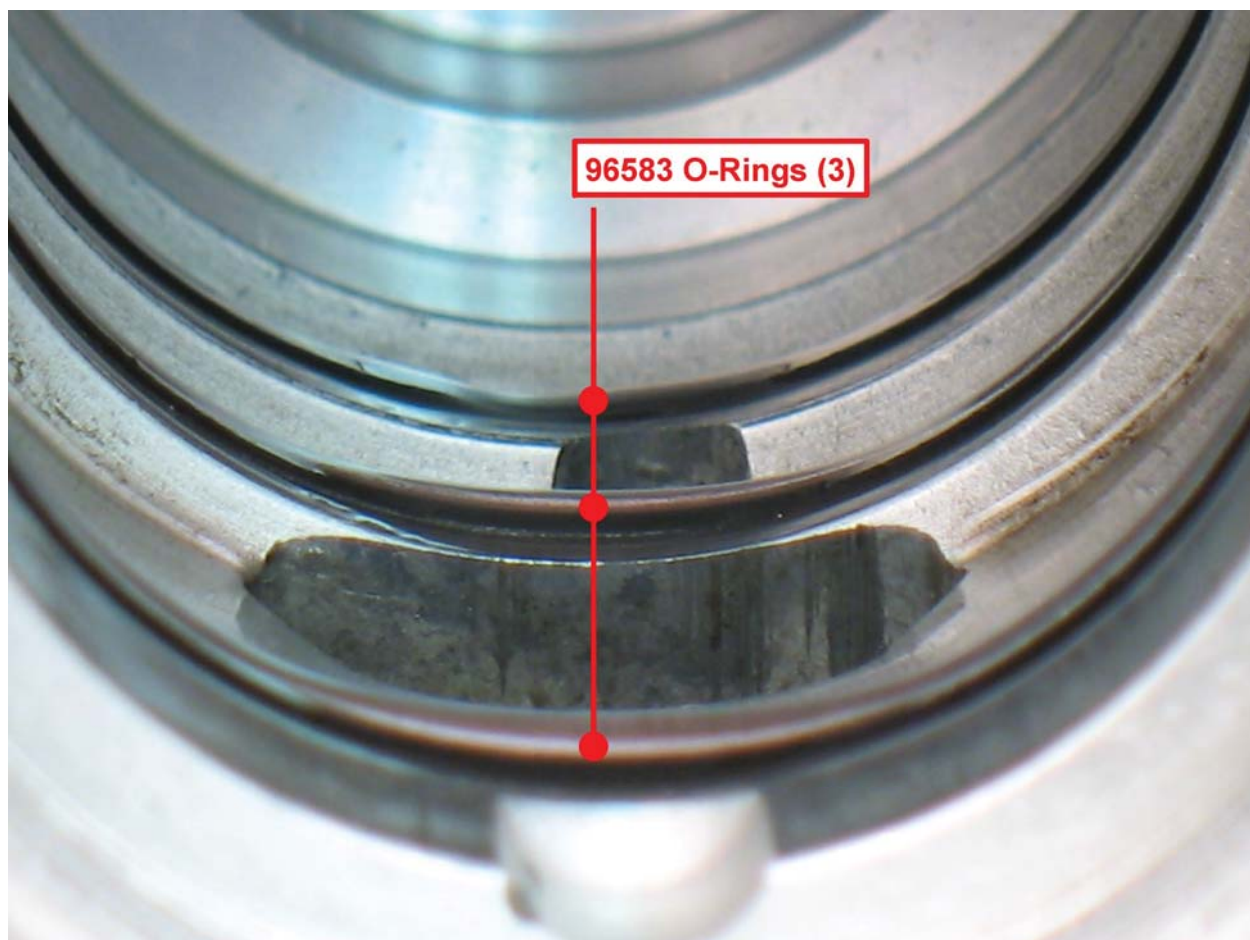




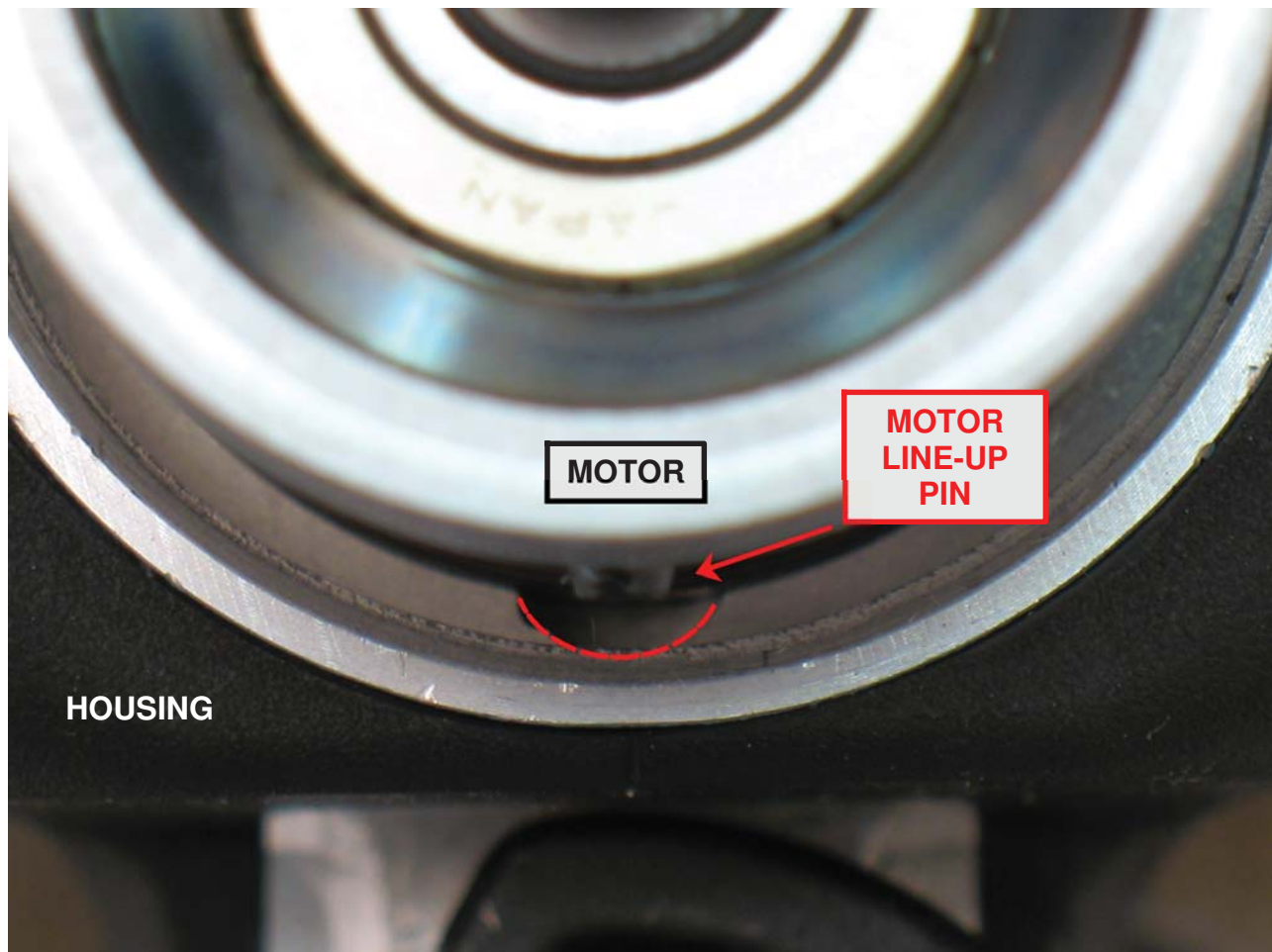
5. Use **RAISED INSIDE DIAMETER** of 96239 Bearing Press Tool to support 02651 Bearing. Use **RAISED INSIDE DIAMETER** of 96240 Bearing Press Tool and arbor press to install 02649 Bearing. **Notice:** Press bearing and plate down until it just touches the cylinder. This will create a close fit between the cylinder and plates.



6. Install **96556** Wave Washer into **53339** Front Plate.

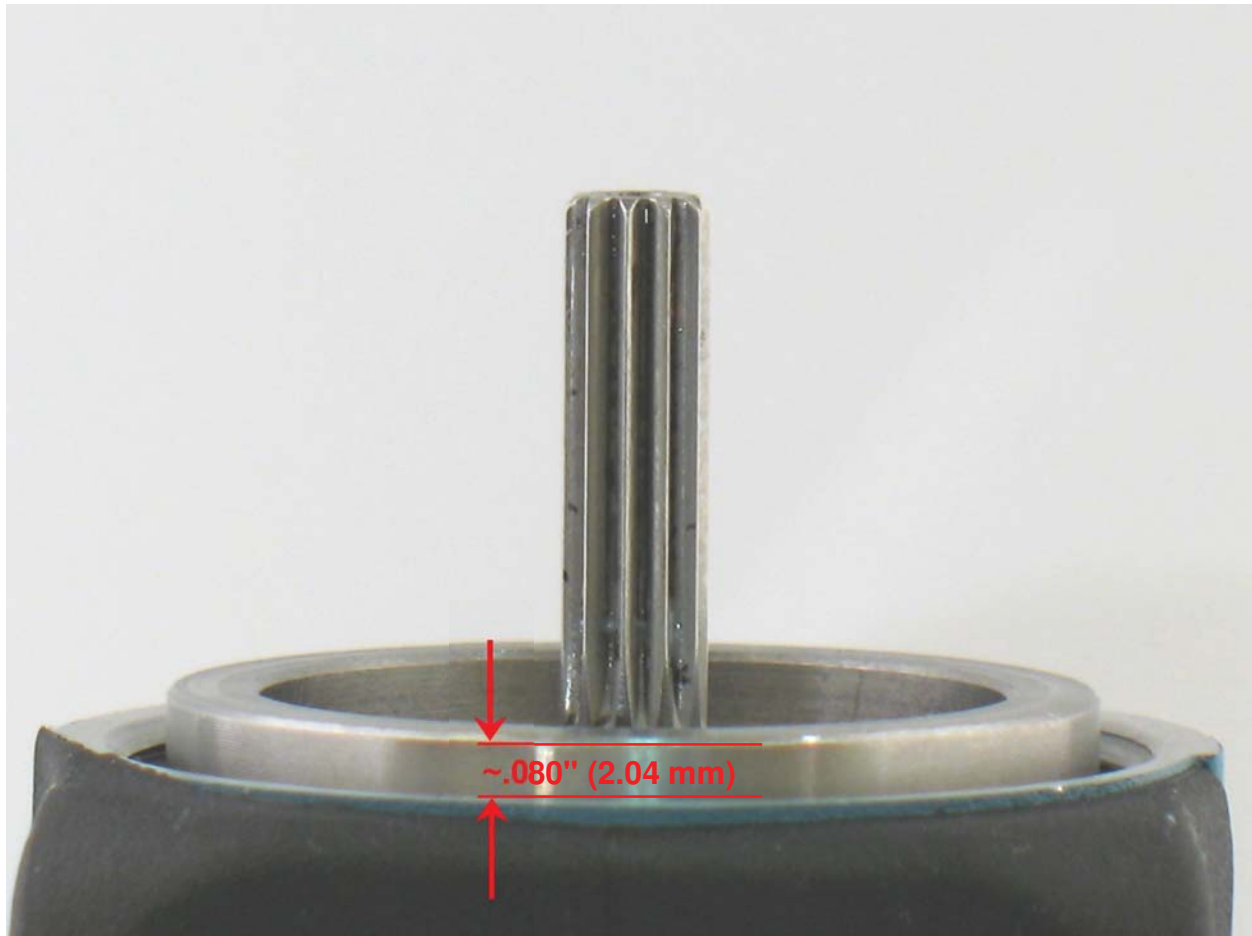


7. Install **96583** O-Rings (3) into housing.
  - ♦ Apply oil to O-Rings. Use **95842** Dynabrade Air Lube 10W/NR or equivalent.



8. Line-up motor pin with groove in Housing.
  - Install motor.





9. **53339** Front Bearing Plate should stand **~.080" (2.04 mm)** beyond edge of housing.

**Motor assembly completed.**

### **Planetary Gear Disassembly:**

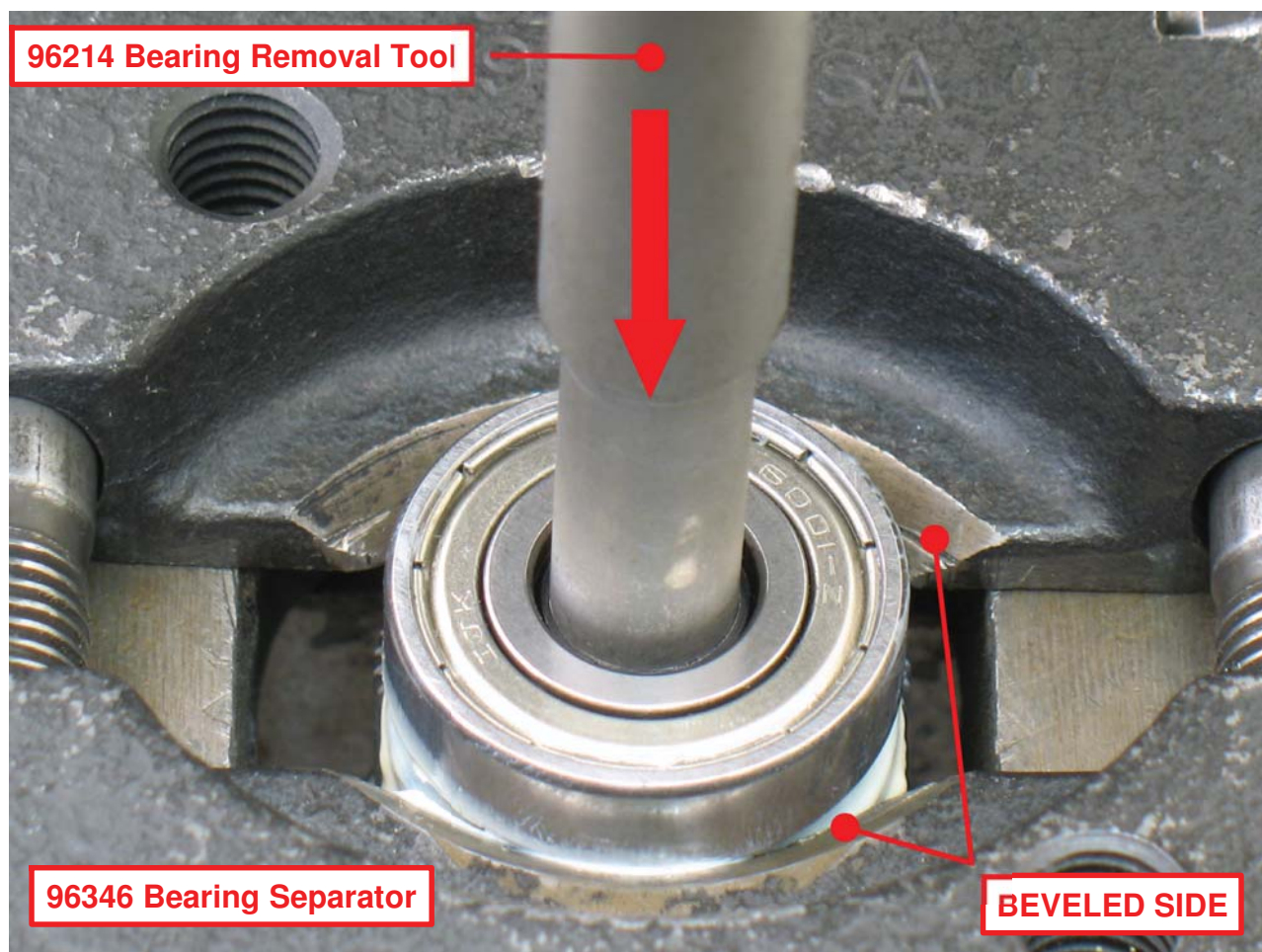
**NOTICE:** Use these instructions along with the tool manual. Apply similar steps to double gear reduction models: 53472 and 53474.



1. Use a 2.5 mm hex key to remove **96467** Set Screw. Turn counterclockwise.



2. By hand, push spindle with gear assembly out of housing.



3. Use **96346** Bearing Separator and **96214** Bearing Removal Tool to remove the **02651**, **01036** or **53330** Bearing from carrier. **IMPORTANT:** Always position flat side of carrier toward the ring gear and beveled side toward the bearing.
  - Remove gears from carrier. (**See Photos Below**)





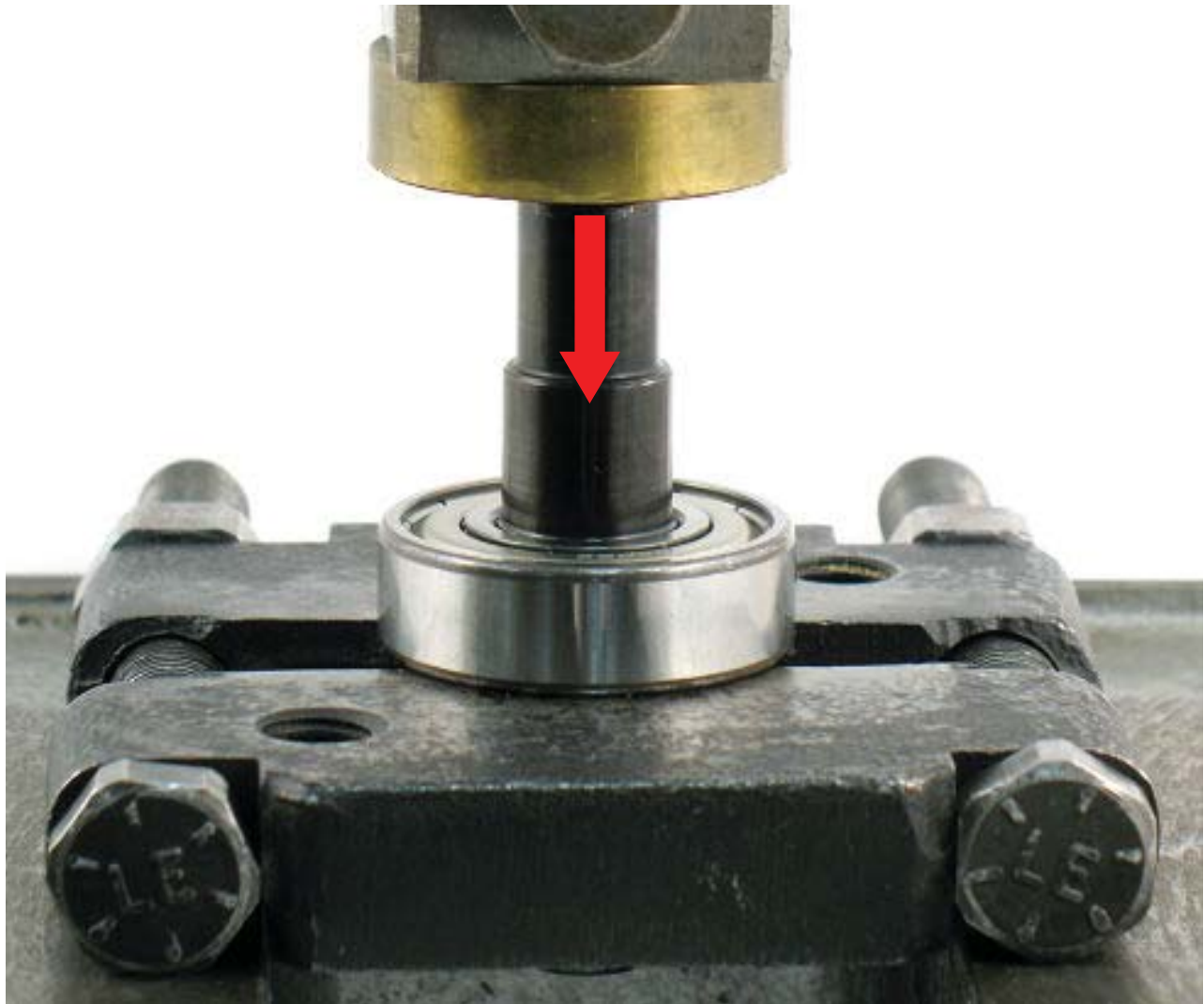


4. To disassemble “Quick Chuck”, fasten carrier with spindle pointing up in vise with aluminum or bronze jaws. Use a small screwdriver or pick to remove **96592** Snap Ring.



5. Remove all "Quick Chuck" components: **96592** Snap Ring, **53357** Washer, **53359** Spring, **53356** Sleeve, and **53358** Ball.





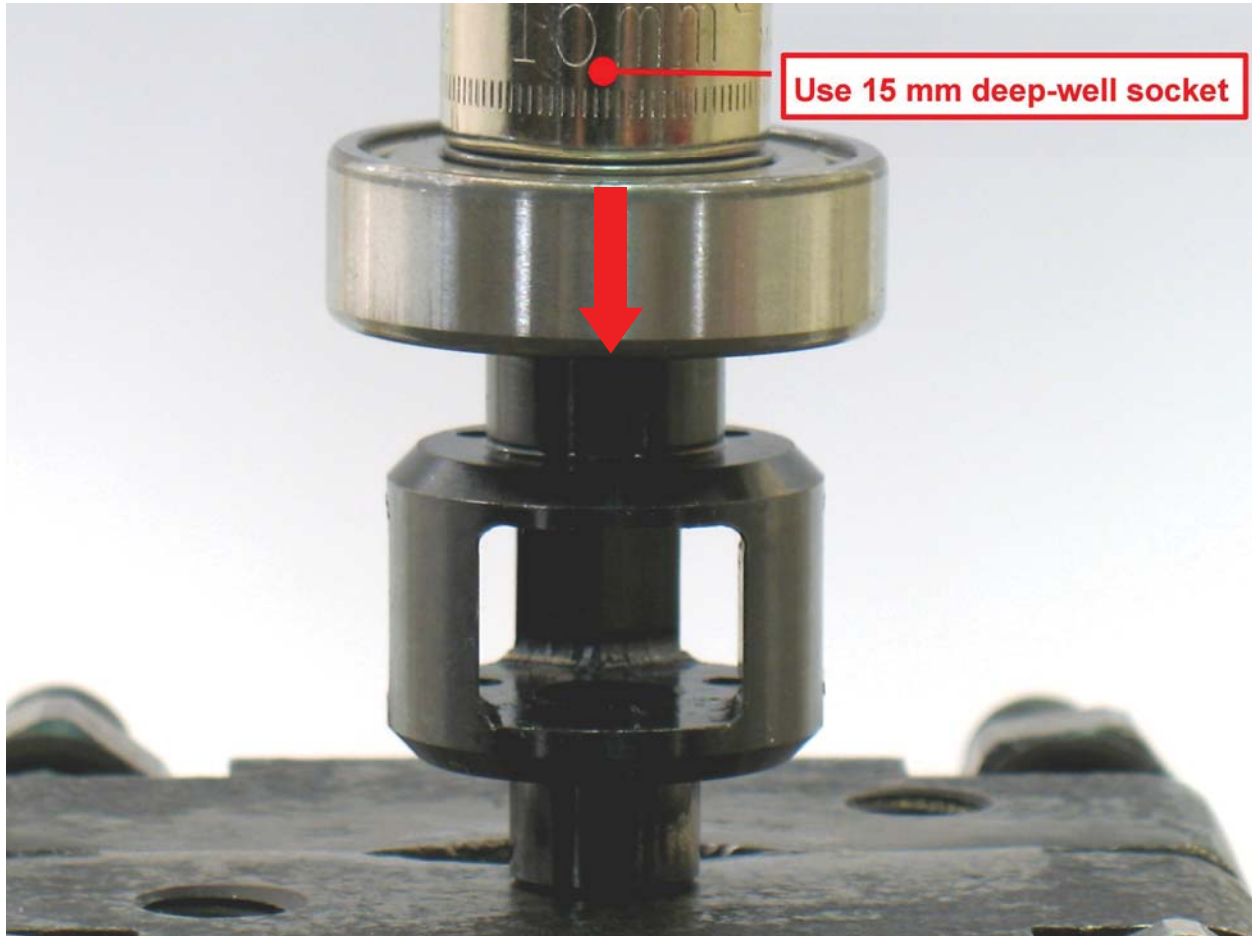
6. Use arbor press and bearing separator to remove **01036** Bearing.

**Planetary gear disassembly completed.**

**Clean and inspect parts for wear or damage.**



**Planetary Gear Assembly:**



1. To install **01036** Bearing onto carrier spindle, use a 15 mm deep-well socket as a press tool along with arbor press.



2. With spindle pointing up, fasten carrier in vise with aluminum or bronze jaws.
  - Install **53358** Ball into carrier.



3. Install **53356** Sleeve and **53359** Spring onto carrier spindle.



4. Install **53357** Washer and **96592** Snap Ring onto carrier spindle.





5. Use a small screwdriver and push down on **96592** Snap Ring and **53357** Washer to fasten snap ring into groove in spindle.





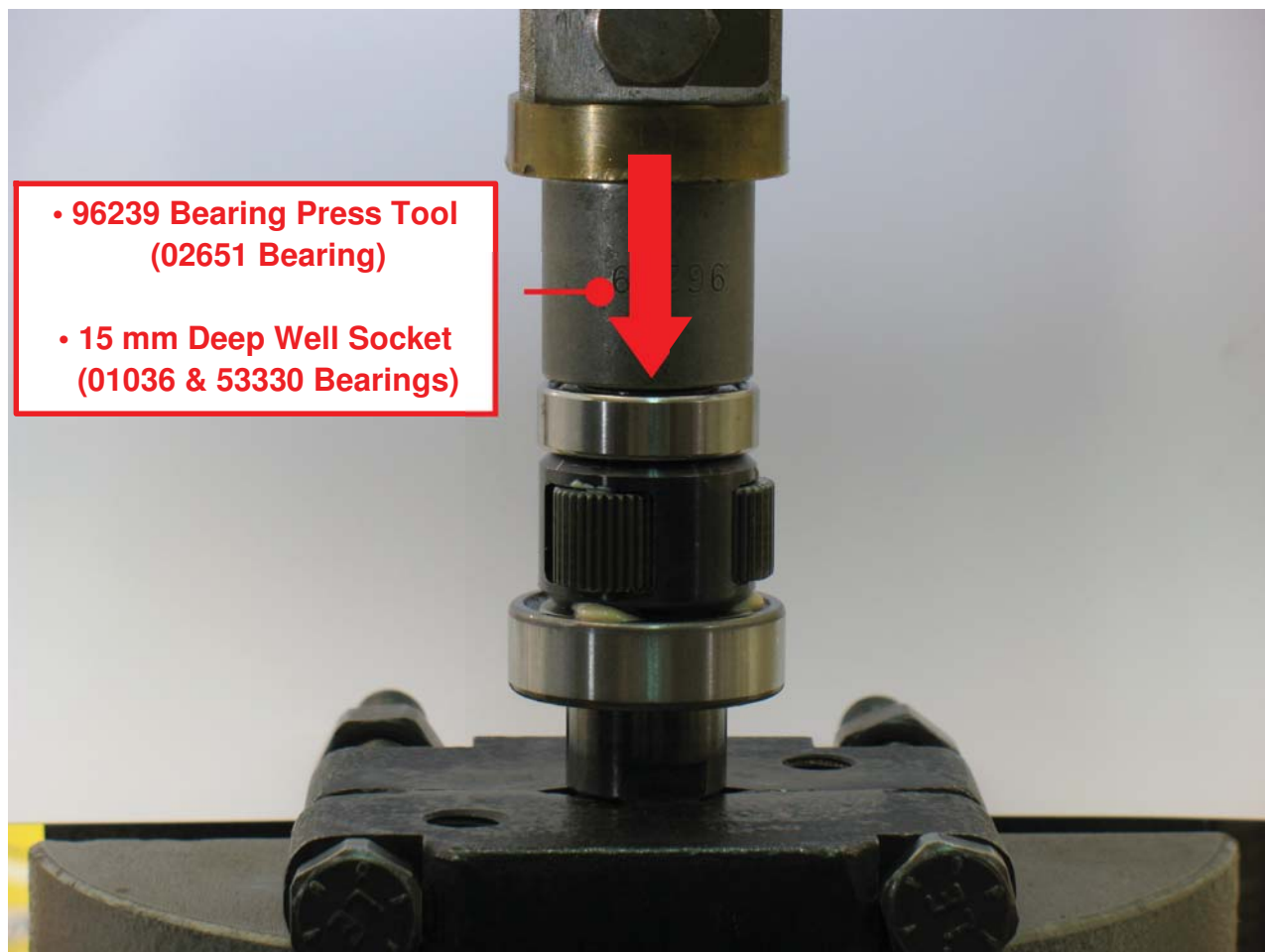
6. Pull up on **53356** Sleeve to check operation.



7. Apply **95542** Grease or equivalent to gears and bearings.



8. Install gears and **53182** Shafts into carrier.



- 96239 Bearing Press Tool (02651 Bearing)

- 15 mm Deep Well Socket (01036 & 53330 Bearings)

9. To install **02651** Bearing onto carrier, use arbor press and **96239** Bearing Press Tool. To install **01036** or **53330** Bearing onto carrier, use arbor press and a 15 mm deep well socket as a press tool. **IMPORTANT:** For carrier assemblies using two **01036** Bearings, install ring gear as shown below. Press bearing so that it just touches the ring gear.

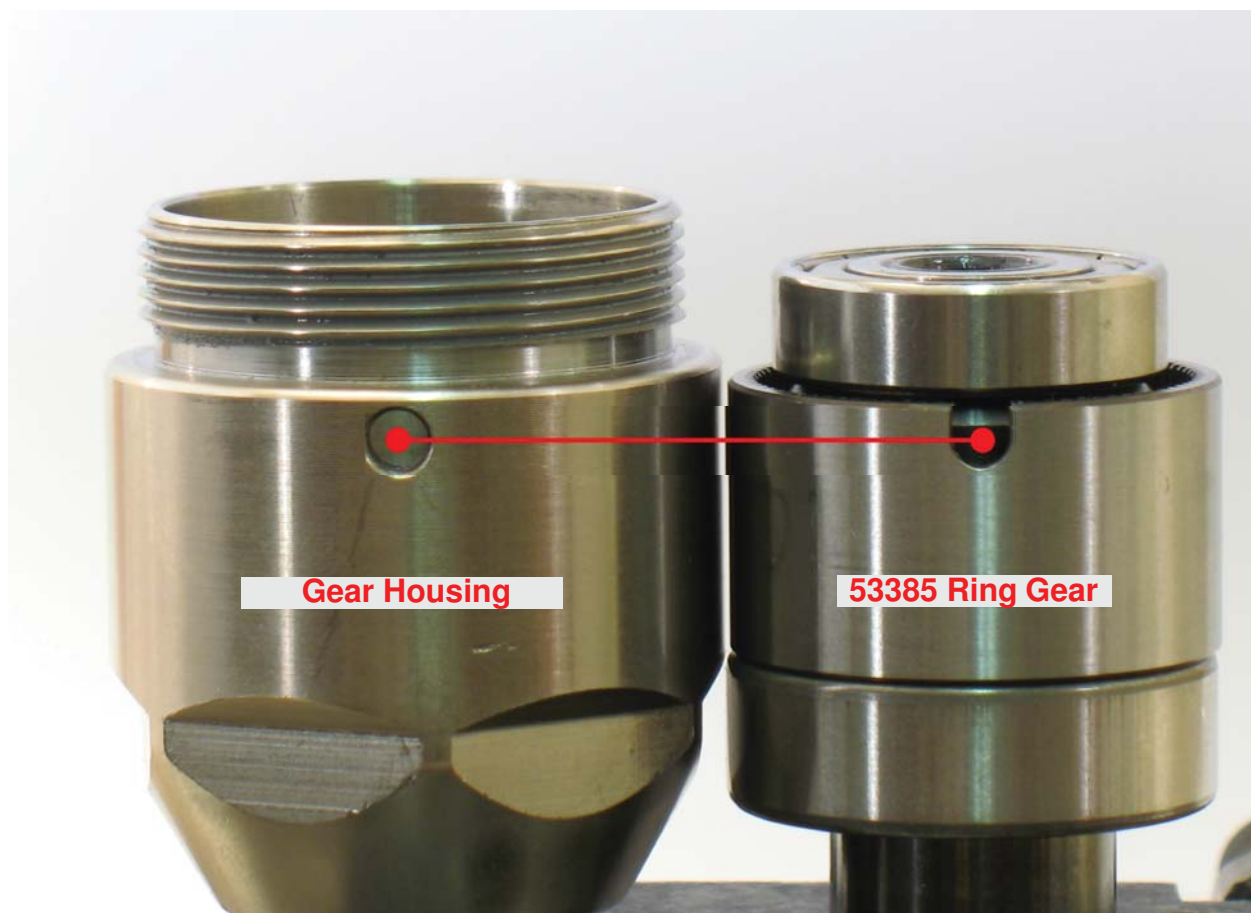
**IMPORTANT:** Carriers using two **01036** Bearings, Install ring gear before installing second **01036** Bearing.

**TWO 01036 BEARINGS**



**Just Touch**





10. Install ring gear so that openings will line-up with set screw and lube fitting openings in gear housing.



11. Install gear assembly in gear housing.

**IMPORTANT:** Models 53472 and 53474, install **53188** Spacer before installing second planetary assembly. (See Tool Manual)

**IMPORTANT:** Models 53474 and 53477 (with **53330** Bearing) install **53334** Spacer between planetary and motor assemblies. (See Tool Manual)



- 12.** Use a small screwdriver to rotate and line-up ring gear openings with openings in gear housing.



13. Apply a small amount of #567 Loctite to thread of **96467** Set Screw.  
Use a 2.5 mm hex key to install set screw.

**Planetary gear assembly completed.**



**Final Assembly:**



1. Apply #243 Loctite or equivalent to threads on gear housing.



2. Use protective padding around housing and fasten "Driver" in vise with spindle pointing up.  
Use a 1-9/16" (~40 mm) crowfoot or adjustable wrench to fasten gear housing.  
Turn clockwise. Torque to 28 N•m/~250 lbs. in.  
Initially, use **95541** Lubricant Gun to apply three plunges of **95542** Grease through **01041** Lube Fitting. **Notice:** After every 50 hours of use apply 3 plunges of grease.  
**Important:** Check operation of air motor. Refer to tool manual and follow directions for checking RPM before installing accessories.

**Final assembly completed.**