

# DOTCO®

45-8440

## 14CFS93.. Series .4 hp ERGO Pistol Grip Shears & Scissors



TOOL CLASSIFICATION  
14= ERGO Drill Series

**14 C F S 93 - XX NL**

THROTTLE TYPE  
C= Trigger Actuated

MOTOR SIZE  
.4 hp

HANDLE STYLE  
S= Small Handle

SPEED CODE  
93= 3,200 RPM

Indicates Model With "Oil-Less" Blades.  
SEE NOTE BELOW.

TERMINATION CODES  
*Select One*

98= Scissors Attachment  
99= Shear Attachment

**NOTE:** All models available with "oil-less" rotor blades (extra cost).  
Add "NL" to end of model number - see page. 2.

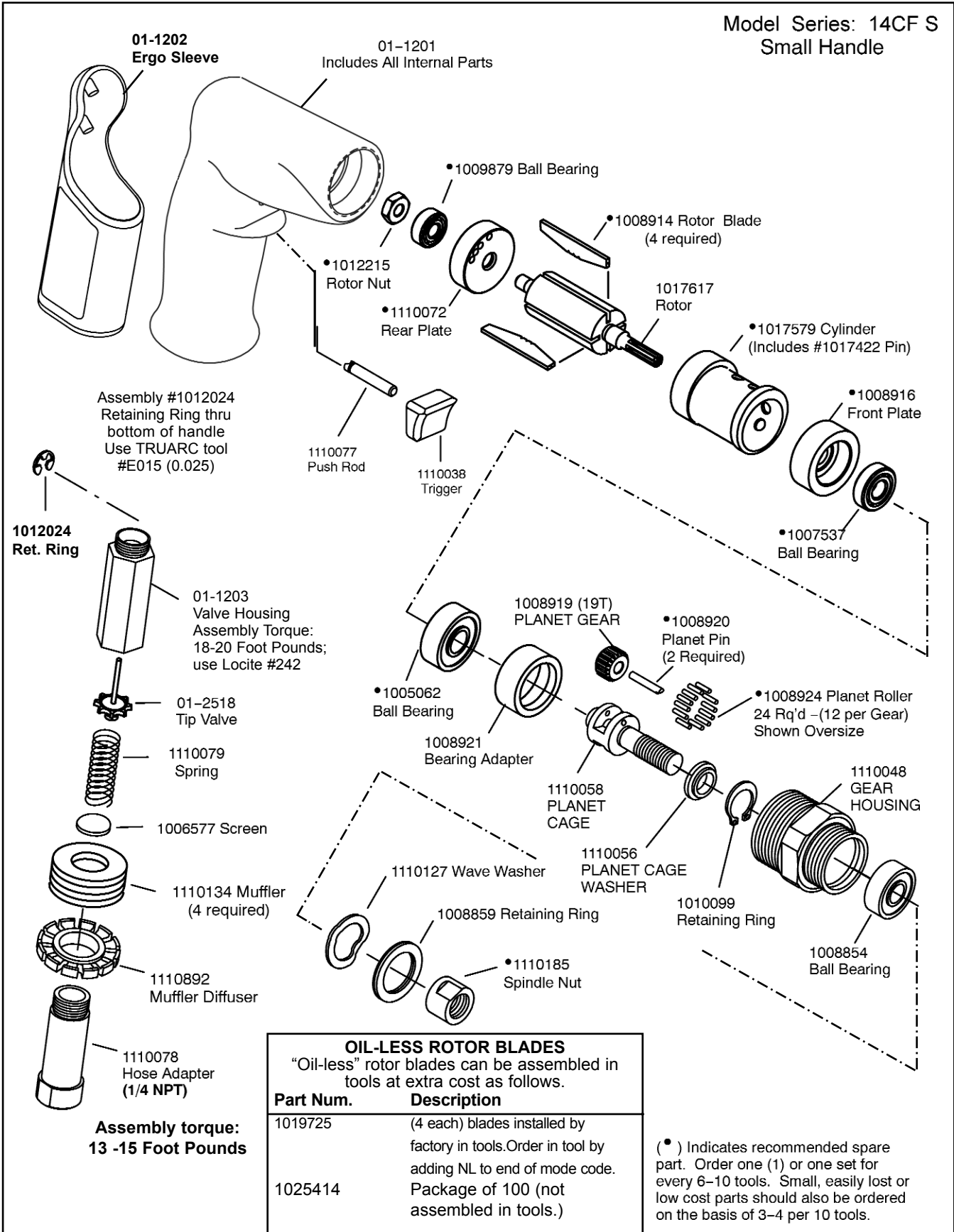
**IMPORTANT:** Read and comply with safety and operating instructions contained in this manual.

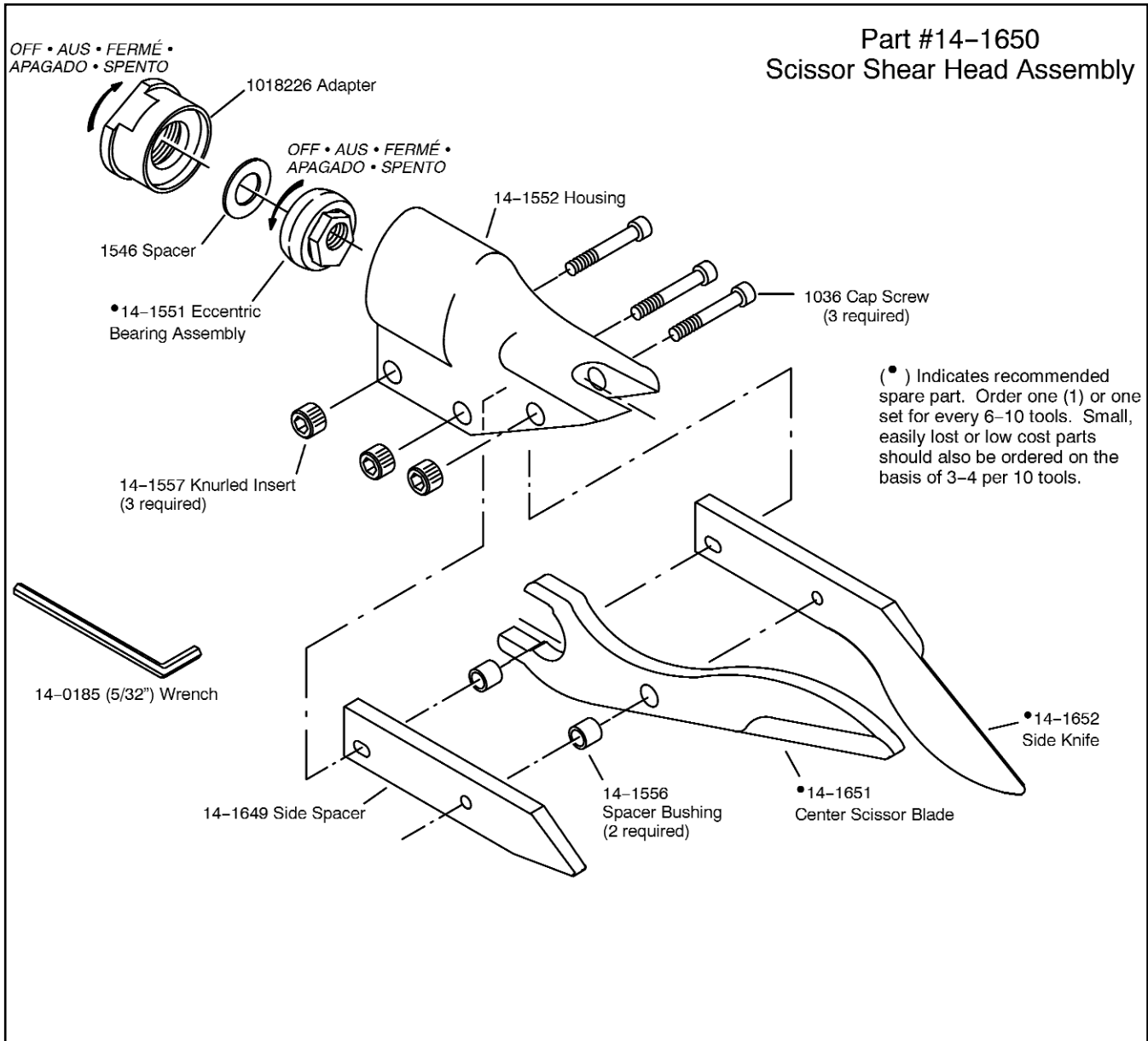
For additional product information visit our website at <http://www.coopertools.com>

CooperTools  
P.O. BOX 1410  
LEXINGTON, SC 29071-1410

**DOTCO**  
**14CFS93-98 Scissors & 14CFS93-99 Shears**

Model Series: 14CF S  
Small Handle





**DISASSEMBLY**

1. Loosen (3) cap screws. Remove shear head by twisting and pulling forward.
2. Remove the (3) cap screws completely. Be careful not to lose rear bushing when removing middle cap screw.
3. Remove center scissor blade from shear housing by tapping blade gently rearward. Be careful not to lose bushing from hole in center blade. Side knife and side spacer will now drop out of housing.

**ASSEMBLY**

1. Install spacer (part #1546) over planet cage, then eccentric bearing assembly. Tighten bearing assembly. Lubricate bearing with a good grade of bearing grease.

**Installing cutter blades:**

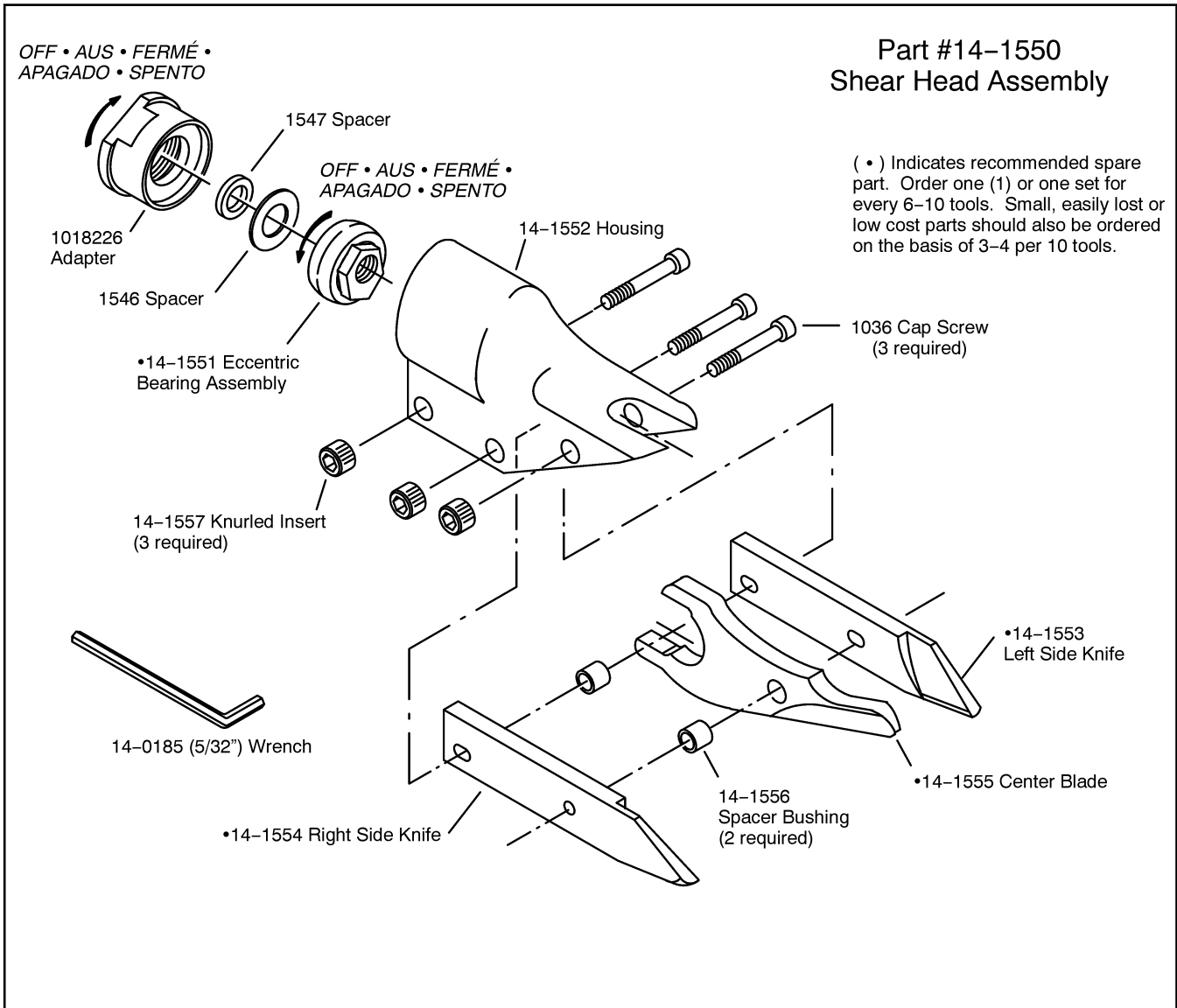
2. Place the side knife and side spacer in position in the shear housing. Insert center cap screw with rear spacer

bushing (part #14-1556) between them - start cap screw into threads just enough to hold blades in position. **DO NOT TIGHTEN.**

3. Insert spacer bushing into hole in center scissor blade and lubricate with a good grade of bearing grease.
4. Install center scissor blade into shear housing by tapping blade gently forward, using a drift to line up hole in center blade with forward holes in housing.
5. Insert and tighten forward cap screw, making sure spacer bushing in center blade stays in position.
6. Apply a good grade of bearing grease to yoke of center blade where it rides on the eccentric bearing assembly.
7. Insert rear cap screw but do not tighten.

**Installing shear head assembly on tool:**

8. Loosen all three cap screws about three or four turns.
9. Place shear head onto tool and tighten screws snugly.



**DISASSEMBLY**

1. Loosen (3) cap screws. Remove shear head by twisting and pulling forward.
2. Remove the (3) cap screws completely. Be careful not to lose rear bushing when removing middle cap screw.
3. Remove center blade from shear housing by tapping blade gently rearward. Be careful not to lose bushing from hole in center blade. Both side knives will now drop out of housing.

**ASSEMBLY**

1. Install spacer (part #1546) over planet cage, then eccentric bearing assembly. Tighten bearing assembly. Lubricate bearing with a good grade of bearing grease.

**Installing cutter blades:**

2. Place the left side knife in position in the shear housing. Insert center cap screw through housing and blade just far enough to slip spacer bushing (part #14-1556) over cap screw.

3. Place right side knife into position and push center cap screw into thread just enough to hold blades in position. **DO NOT TIGHTEN.**
4. Insert spacer bushing into hole in center blade and lubricate with a good grade of bearing grease.
5. Install center blade into shear housing by tapping blade gently forward, using a drift to line up hole in center blade with forward holes in housing.
6. Insert and tighten forward cap screw, making sure spacer bushing in center blade stays in position.
7. Apply a good grade of bearing grease to yoke of center blade where it rides on the eccentric bearing assembly.
8. Insert rear cap screw but do not tighten.

**Installing shear head assembly on tool:**

9. Loosen all three cap screws about three or four turns.
10. Place shear head onto tool and tighten screws snugly. **NOTE: WHEN SHEAR HEAD IS PROPERLY ASSEMBLED, CENTER BLADE WILL MOVE FREELY IN HEAD.**

**LUBRICATION**

**Air Motor Lubrication**

Use "Air Lube 10H-NR" which has a paraffin base. Air Lube is available from CooperTools in one gallon containers by ordering part number 533485. In-line oilers should be used, adjusted to yield about one drop per minute (not per cycle) initially. Oiler adjustments vary (50 clicks/drop, 20 clicks/drop, etc.). If in doubt, contact your supplier. Each time the tool cycles, a drop or partial drop is released into the tool.

**Planetary Gear Lubrication**

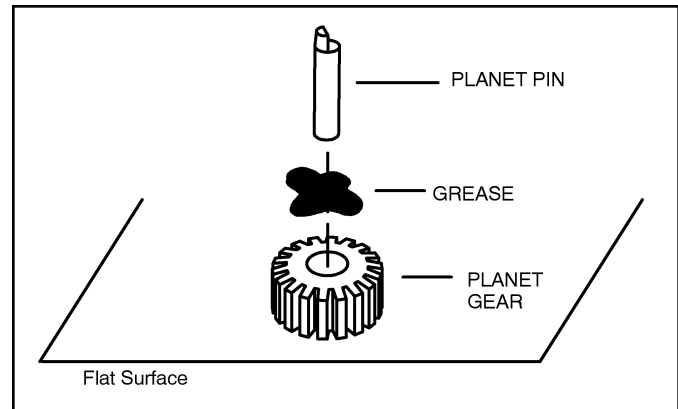
Use teflon grease, available from CooperTools in one pound cans, under part number 513156. Establish a routine inspection and re-lubrication program, **don't short cut**. Re-lubricate planetary by filling 1/3 to 1/2 full. Midget grease fittings are provided on the gear housings and internal gears for external lubrication.

During periodic maintenance, re-lubrication or service where the gears are not replaced, use Cooper's teflon grease. Fill 1/3 to 1/2 full but do not overfill. Too much grease will cause overheating.

**GEARING REASSEMBLY**

**Planetary Gearing**

Place a small amount of grease in each planet gear, as illustrated at right, and place on a smooth clean surface. Insert a planet pin - notched end up - in each gear. Then, install the correct number of rollers (12) around each gear. Grease will hold the rollers in position when the planet gears are removed.



**MOTOR REASSEMBLY**

1. Install ball bearings into both the front and rear plates.
2. Assemble rotor to rear plate/bearing assembly with the rotor's retaining nut. Position and set the rotor as close as possible to the rear plate, without dragging or rubbing.
  - a. A good practice is to stone the blade slots and polish the ends with a medium grit emery cloth.
  - b. Assemble components making sure the bearing is firmly seated in the rear plate.

**RECOMMENDED SPARE PARTS LIST**

*These parts are suggested as a recommended inventory of spare parts. Where parts are small, low cost, or easily lost, then we recommend stocking 3 - 4 for every 10 tools. Other larger, lower wear, or more expensive parts should be maintained as one (or one set) for every six to ten tools.*

Part Number	Description	Quan Per Tool	Recommended Spare Pts	
			Per Tool	Per 10 Tools
1005062	Ball Bearing	1	1	2
1006577	Screen	1	2-3	3-4
1007537	Ball Bearing	1	1	2
1008173	O-Ring	1	2-3	3-4
1008854	Ball Bearing	1	1	2
1008914	Rotor Blade	4	4	20
1008916	Front Plate	1	0	2
1008920	Planet Pin	2	2	4
1008924	Planet Roller	24	24	50
1009879	Ball Bearing	1	1	2
1012215	Rotor Nut	1	1	2
1017579	Cylinder	1	1	2

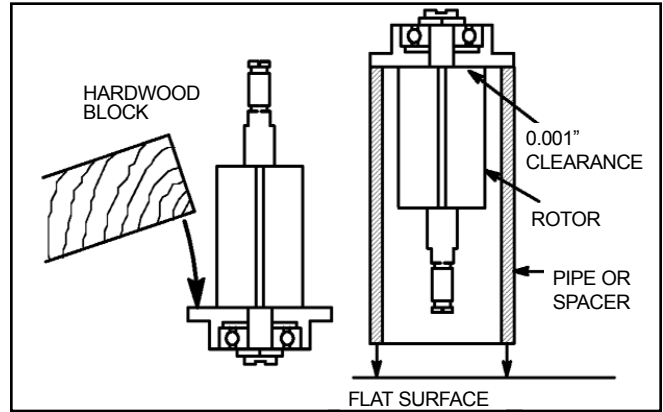
Part Number	Description	Quan Per Tool	Recommended Spare Pts	
			Per Tool	Per 10 Tools
1110072	Rear Plate	1	0	2
1110170	O-Ring	1	2-3	3-4
1110134	Muffler	4	4	8
1110185	Spindle Nut	1	1	2
14-1551	Eccentric Bearing Asm.	1	1	2
MODEL 14CFS93-98 Scissors				
14-1651	Center Scissor Blade	1	1	2
14-1652	Side Knife	1	1	2
MODEL 14CFS93-99 Shear				
14-1553	Left Side Knife	1	1	2
14-1554	Right Side Knife	1	1	2
14-1555	Center Blade	1	1	2

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3. Begin tightening rotor nut without over tightening to avoid damaging the ball bearing. Alternately spin the rotor while tightening until clearance is judged to be proper - about 0.001" clearance.

a. One method, shown at right, is to use a piece of pipe which is slightly longer than the rotor, and tap lightly against a work bench several times. This helps seat threaded components.

b. A second method is to hold the rotor rear plate assembly vertically (plate downward) and lightly strike the edge of the plate with a wood block, alternating sides.



**PARTS INSPECTION**

1. Wash all parts except ball bearings in solvent. Dry and place on a clean cloth for inspection.
2. Check ball bearings for wear. Bearings should turn smoothly with no appreciable shake or looseness.

3. Check rotor blades for wear by comparing with a new blade. Replace if worn more than 1/32" in height.
4. Check motor cylinder for grooves, gouges or pitting. Honing is permissible, however, never remove more than about 0.001" or 0.002" of material. Replacement is usually recommended.

# Safety First!

## ALWAYS COMPLY WITH:

1. General industry Safety & Health Regulations, Part 1910, OSHA 2206, available from: Sup't of Documents; Government Printing Office; Washington, DC 20402.
2. Safety Code of Portable Air Tools, ANSI B186.1 available from: American National Standards Institute, Inc.; 1430 Broadway; New York, NY 10018.
3. State and Local regulations.

Portions of the above codes and regulations are listed below for quick reference.

**THE FOLLOWING EXCERPTS ARE NOT INTENDED TO BE ALL INCLUSIVE: STUDY AND COMPLY WITH ALL REGULATIONS!**

1. **TOOL INTENT:** Tools shall be used only for purposes intended in their design (refer to product catalog).
2. **AIR SUPPLY:** Test and operate tools at 90 PSIG maximum unless tool is marked otherwise. Use recommended airline filters-regulators-lubricators.
3. **UNUSUAL SOUND or VIBRATION:** If tool vibrates or produces an unusual sound, repair immediately for correction.
4. **OPERATOR PROTECTIVE EQUIPMENT:** Wear goggles or face shield at all times tool is in operation. Other protective clothing shall be worn, if necessary. SEE REGULATIONS.
5. **SAFETY MAINTENANCE PROGRAM:** Employ a safety program to provide inspection and maintenance of all phases of tool operation and air supply equipment in accordance with "Safety Code for Portable Air Tools."



**CAUTION: Disconnect the air supply hose before servicing the tool.**

## INSTALLATION:

For best performance, a working air pressure of **90 pounds per square inch** is recommended. Pipings, fittings, and hose should be adequate to maintain **90 psig** while the tool in in operation. An air line filter and lubricator, such as CooperTools' #F02-M Filter (1/4" NPT) and #L02-EP Lubricator (1/4" NPT) should be used (refer to product catalog). Hose should be blown out before attaching to tool.

## LUBRICATION:

The gears in angle head style tools must be lubricated every 8 hours of operation with high quality gear grease. CooperTools' grease #45-0980 is recommended. A Grease Gun, #45-1982, is furnished with each geared tool. Insert the nozzle into the flush type lube fitting, located on the side or top of the angle head, and pump four or five times. The motor must be lubricated and moisture free. Use a high grade SAE #5 spindle oil, such as CooperTools' Lubricating oil #45-0918 (one quart). Two or three drops per minute should be sufficient lubrication. **NOTE: Turbine motor type tools (10-90 & 10-95) must NOT be oiled.**

## LOSS OF POWER:

It is seldom necessary to disassemble this tool for loss of power. A loss of power may not be related to the tool. First, check the air line regulator. Also, check the air line pressure; it should be 90 psig at or near the tool while the tool is running. Check the size of hose and fittings to be certain they are not causing air restrictions. Make certain they are not plugged with dirt, rust, or scale.

## SERVICE INSTRUCTIONS:

The parts of this tool are small and require careful handling. We recommend the tool be returned to the factory for repair. However, if the tool is to be repaired in the field, carefully follow instructions. Do not squeeze the tool or parts in a vise except as specified. Care must be used during assembly and disassembly. When pressing bearings onto a shaft, press only on the inner race. When pressing bearings into a bore, press on the outer race only. **NOTE: Ball bearings are the shielded type. They are lubricated for life by the bearing manufacturer and should not be washed out with solvents to clean.**



**WARNING!**

**CHECK SPEED OF TOOL WITHOUT WHEEL BEFORE IT IS RELEASED FOR USE.**

The **SPEED TOLERANCE** is rated speed minus 10%. The tool must **NOT** have a free speed higher than the RPM stamped on the housing. Use an accurate tachometer to check the tool speed, with 90 psig air pressure at the tool with the tool running.



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