Parts Manual
45-8182
PL30-1222
04/21/2011

OMEGA TECHNOLOGIES

DOTCO®

12-22 Series
Right Angle Grinders & Sanders

12	X	2	2	XX	-	XX	XX	OH

Product Classification
12 = Ergo Grinder/Sander

Trottle Type
L = Locking Lever
S = Locking Lever

Motor Size
2 = 0.6 hp

Handle Style
2 = Angle

Speed Options (RPM)
12 = 12,000 **14 =** 14,500
13 = 13,500 **18 =** 18,000

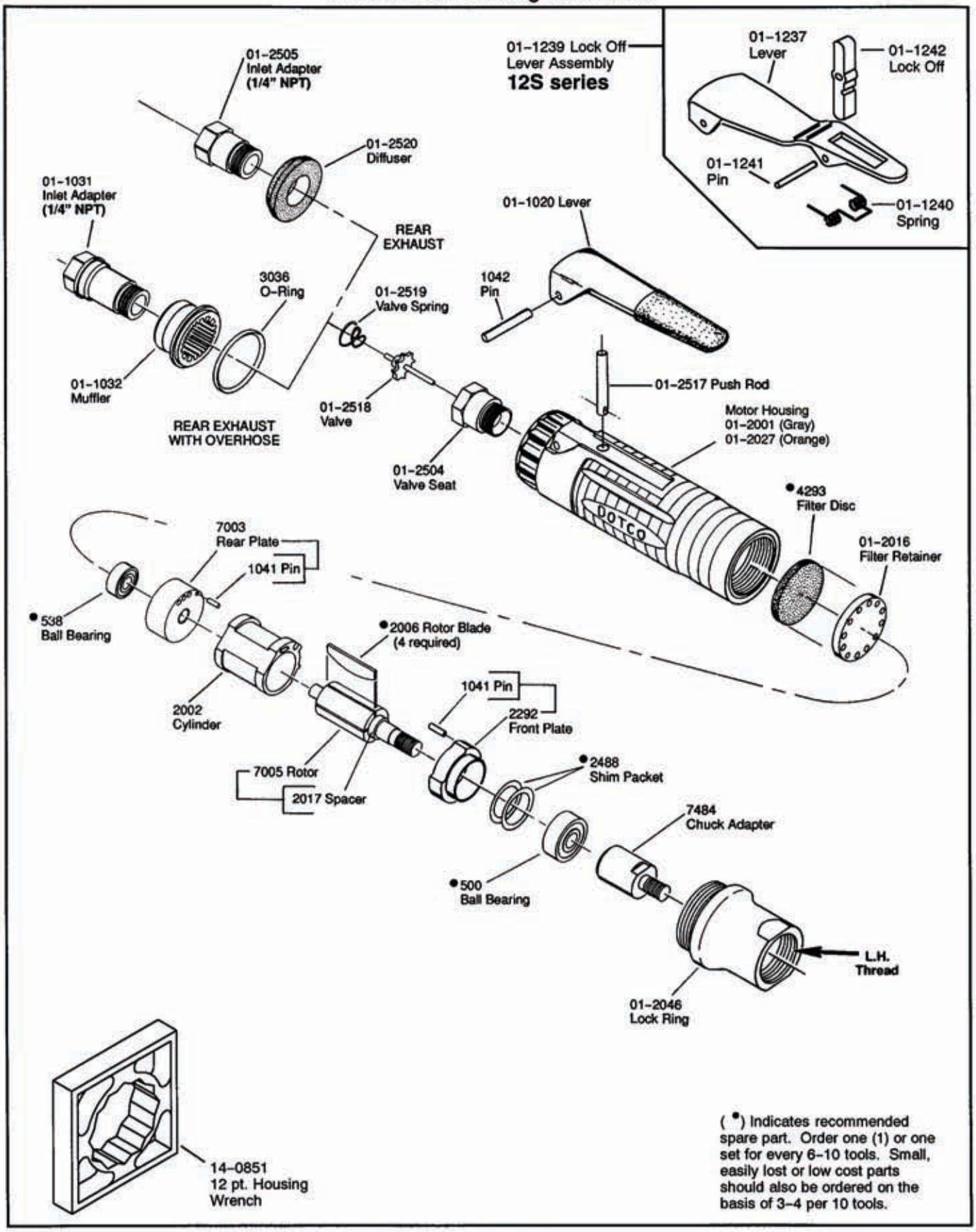
Termination Code
27 = 3" Type 1 Cut-Off Wheel
28 = 4" Type 1 Cut-Off Wheel
32 = 1/4-28 Internal Thread Spindle
36 = 300 Series, 3 piece collet
45 = Universal (short) Collet
83 = 3" Depressed Center Wheel
84 = 4" Depressed Center Wheel

Optional Collet (no extra cost)
08 = 1/8" **18 =** 9/32" **M6 =** 6mm
10 = 5/32" **20 =** 5/16" **M8 =** 8mm
12 = 3/16" **22 =** 11/32"
14 = 7/32" **24 =** 3/8"

Overhose Option (extra cost)
OH = Overhose (rear exhaust models only)

For additional product information visit our website at:
https://dotcotool.com/product-category/dotco-air-tools/dotco-sanders/dotco-right-angle-sanders/dotco-12-22-series-right-angle-sanders/

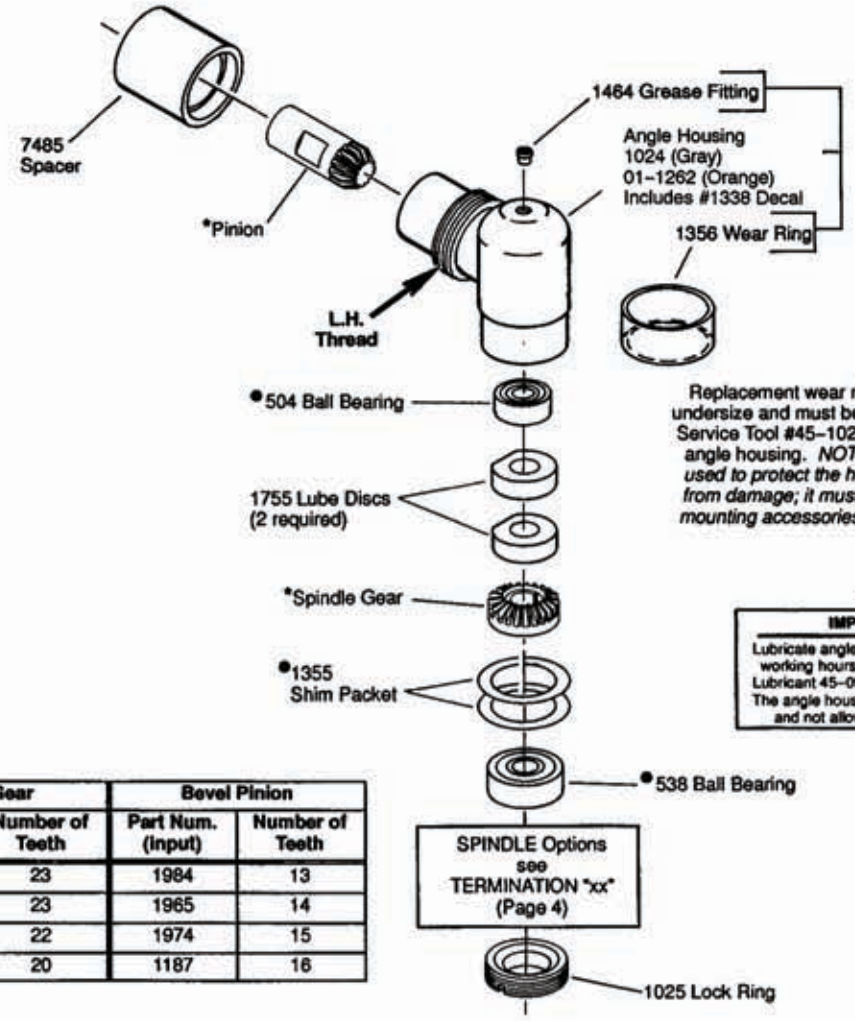
DOTCO®
12-22 Series ERGO Short Coupled Right Angle Grinders
Motor & Motor Housing Assemblies



(•) Indicates recommended spare part. Order one (1) or one set for every 6-10 tools. Small, easily lost or low cost parts should also be ordered on the basis of 3-4 per 10 tools.

DOTCO®
12-22 Series ERGO Short Coupled Sanders & Grinders
Angle Head Assemblies

(•) Indicates recommended spare part. Order one (1) or one set for every 6-10 tools. Small, easily lost or low cost parts should also be ordered on the basis of 3-4 per 10 tools.



Replacement wear rings are 0.050" undersize and must be expanded using Service Tool #45-1020 to slip onto the angle housing. *NOTE: Wear Ring is used to protect the housing diameter from damage; it must be removed for mounting accessories on the housing.*

1338 Lube Decal

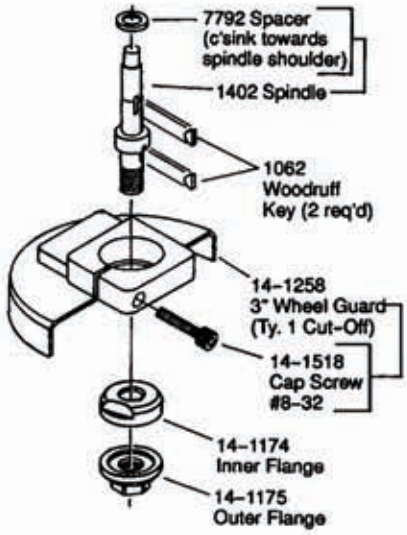
IMPORTANT!
Lubricate angle head every eight working hours. Use only Gear Lubricant 45-0980 or 45-0980E. The angle housing must be tight and not allowed to swivel.

(*)

Output Speed (rpm)	Spindle Gear		Bevel Pinion	
	Part Num. (output)	Number of Teeth	Part Num. (input)	Number of Teeth
12,000	1985	23	1984	13
13,500	1964	23	1965	14
14,500	1975	22	1974	15
18,000	1188	20	1187	16

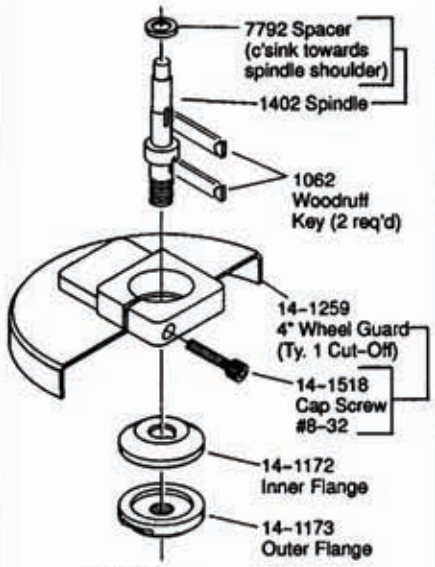
DOTCO®
12–22 Series ERGO Right Angle Sanders & Grinders
TERMINATIONS

TERMINATION 27
3" Type 1 Cut–Off Wheels
3" x 3/16" x 3/8"



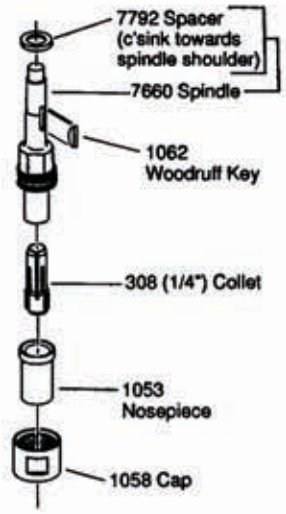
Includes:
14–0186 (3/16") Hex Wrench
14–0809 (9/16") Wrench
14–0812 (3/4") Wrench

TERMINATION 28
4" Type 1 Cut–Off Wheels
4" x 3/16" x 3/8"



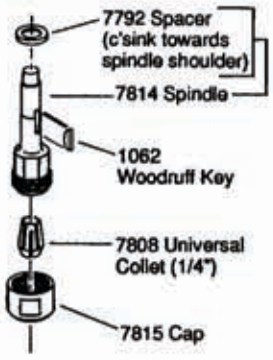
Includes:
14–0186 (3/16") Hex Wrench
14–0820 (1–1/4") Wrench

TERMINATION 36



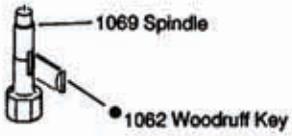
Includes:
14–0807 7/16" Wrench
14–0811 11/16" Wrench

TERMINATION 45
Short Collet



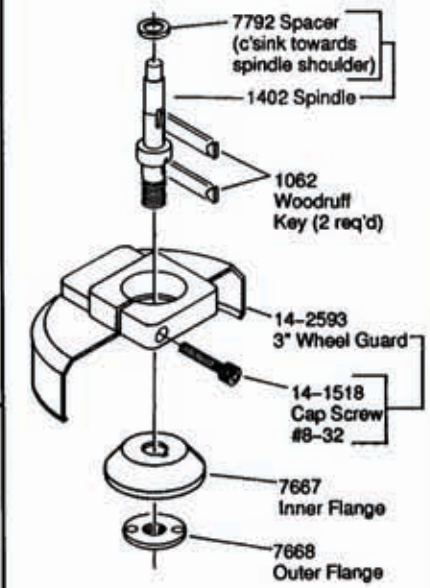
Includes:
14–0807 (7/16") Wrench
14–0811 (11/16") Wrench

TERMINATION 32
1/4"–28 Spindle

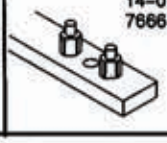


Includes:
14–0807 (7/16") Wrench

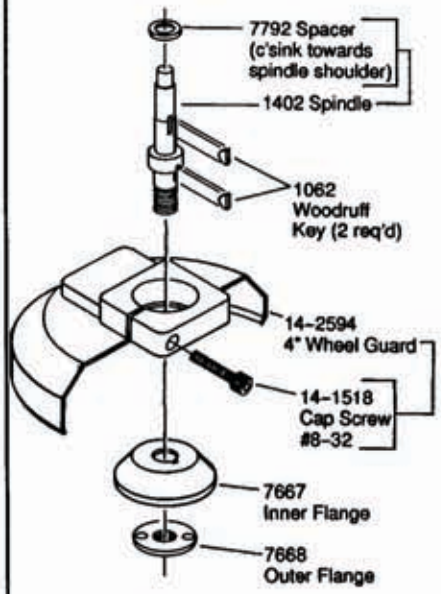
TERMINATION 83
3" Depressed Center Wheels
3" x 1/4" x 3/8"



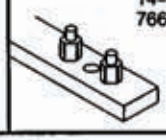
Includes:
14–0186 (3/16") Hex Wrench
7666 Spanner



TERMINATION 84
4" Depressed Center Wheels
4" x 1/4" x 3/8"



Includes:
14–0186 (3/16") Hex Wrench
7666 Spanner



INSTALLATION

For best tool 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 is in operation. An air line filter and lubricator, such as Cooper Power Tool's #F02-M Filter (1/4" NPT) and #L02-EP Lubricator (1/4" NPT) should be used **(refer to Cooper's "F-R-L" brochure)**. Hose should be blown out before attaching to the tool.

LUBRICATION

The gears in the angle head must be lubricated every 8 hours of operation with a high quality gear grease. Cooper Power Tool's Grease #45-0980 is recommended. Cooper's Grease Gun # 45-1982 is furnished with each tool. Insert the nozzle into the flush type lube fitting, located in the side of the angle head, and pump four or five times. The motor must be lubricated and free of moisture. Use a high grade SAE #5 spindle oil, such as Cooper's Lubricating Oil #45-0918 *(one quart)*. Two or three drops per minute should be sufficient.

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 it 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

Do not squeeze tool or parts in a vise except as specified. Care must be used in their 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.

DISASSEMBLY INSTRUCTIONS

To Disassemble Complete Sander

1. Place the special 12—point socket wrench, *part #14-0851*, horizontally in a vise and insert the tool's housing vertically into the wrench. Unscrew Lock Ring *(part #01-2046)* and remove the angle head assembly.

2. **To remove & disassemble motor:** Unscrew Lock Ring *(part #01-2046)* and pull motor from housing. Hold motor in one hand and tap the rear of rotor *(part #7005)* with a brass drive punch until Rear Plate *(part #7003)* and Ball Bearing *(part #538)* are free from rotor. Remove Cylinder *(part #2002)* and four Rotor Blades *(part #2006)*.

Chuck Adapter *(part #7484)* and Pinion may be removed by holding the rotor in soft vise jaws and unthreading the chuck adapter and pinion from the rotor. *(Adapter & pinion are threaded together and may unscrew from the rotor together; if so, disassemble with open end wrenches)*. The Front Plate *(part #2292)* and Ball Bearing *(part #500)* can now be pressed off (NOTE: do not lose Spacer - *part #2017*).

3. **To disassemble angle head:** Remove Spacer *(part #7485)* from the rear of angle head assembly. To disassemble the output spindle assembly, unscrew Lock Ring *(part #1025)* and pull out spindle assembly. Remove Bearing *(part #504)* and press off bevel gear. After Key *(part #1062)* is removed, Bearing *(part #538)* can be pressed off of spindle.

ASSEMBLY INSTRUCTIONS

All parts should be thoroughly cleaned and inspected before assembly. Ball bearings are normally replaced in most repairs.

To assemble motor:

4. Make sure all parts are clean and oiled. Press Pins *(part #1041)* — if necessary — into the motor end plates. To correct for bearing tolerances, it is necessary to use shims to maintain correct clearances between the ends of the rotor and the bearing plates. Shim Packet *(part #2488)* contains a 0.001" shim and two 0.002" shims. Insert a 0.002" Shim in the Front Bearing Plate's pocket and install *#500* Ball Bearing into the Front Plate. Also, install *#538* Ball Bearing into the Rear Bearing Plate, *#7003*. Slip Spacer, *part #2017*, onto the threaded end of the Rotor. Support the rotor on the *rear end* and assemble the front plate assembly onto the rotor by pressing on the bearing's inner race. Thread Chuck Adapter *(part #7484)* onto rotor tightly by holding rotor in soft vise jaws.

5. Hold rotor in left hand and front bearing plate in the other hand. Apply an outward (pulling) pressure and observe the spacing between the end of the rotor and bearing plate. This must be from flush, not rubbing, to 0.002" maximum. If the rotor rubs the bearing plate, reduce the spacing between the bearing and bearing plate by removing the 0.002" shim entirely or by substituting the 0.001" shim for the 0.002" shim. However, if there was more than 0.002" between the bearing and bearing plate, **add 0.001"** between the bearing and bearing plate. Install Cylinder *(part #2002)* - NOTE: BE SURE CYLINDER IS NOT ON BACKWARDS, air inlet in cylinder must line up with air inlet in Rear Plate *(part #7003)* when Pin *(part #1041)* in engaged in mating slot of cylinder.

ASSEMBLY INSTRUCTIONS

6. Insert all four Rotor Blades *(part #2006)* in rotor. Support the assembly on the face of the Chuck Adapter *(part 7484)*. Press on the Rear Plate *(part #7003)* by pressing on the inner race of Ball Bearing *(part #538)* just enough to bring the bearing plate up against the cylinder. There should be only a slight drag between the bearing plate and the cylinder when these are moved in the fingers. Position cylinder until motor turns freely.

7. Insert motor assembly into housing. Screw in Lock Ring *(part #01-2046)* but do not tighten Lock Ring at this time. Check the assembly by spinning the pinion - it must spin finger free.

To assemble angle head:

NOTE: do not place grease in angle head assembly until the proper gear mesh is obtained. Refer to instructions, below.

8. Make certain all parts are properly cleaned. Press Ball Bearing *(part #538)* against spindle shoulder; press only on bearing's inner race. Insert Key *(part #1062)* in slot of spindle. Align keyway of bevel gear with key and press gear onto spindle until it seats on inner race of bearing. Complete the spindle assembly by pressing on Ball Bearing *(part #505)* until it seats on spindle's shoulder.

NOTE: LUBE DISCS ARE NOT INSTALLED UNTIL AFTER GEAR MESH IS OBTAINED BY PROPER SHIMMIMG.

Insert this assembly into housing and thread Lock Ring *(part #1025)* into housing until tight.

9. Install Spacer *(part #7485)* over rear end of angle housing *(part #1024)*. Screw angle head assembly into Lock Ring making sure teeth of pinion (on end of rotor) properly engages teeth of output spindle gear.

Gear mesh and shimming:

Output spindle assembly (without Lube Discs) should be in angle housing and held in place with Lock Ring tightened, per above instructions. Gears must be shimmed at this time according to the following instructions.

When proper shimming is obtained, remove spindle assembly from the angle head, remove top Ball Bearing *(part #505)* and install two Lube Discs *(part #1755)*. Discs must be filled with Cooper's Lube *#45-0980* prior to assembly on the spindle. Reinstall spindle assembly into the housing aligning flats on lube disc with pinion gear and tighten lock ring.

10. Due to gear manufacturing and bearing tolerances, it is sometimes necessary to place a thin shim between the outer race of Bearing *(part #538)* and the internal shoulder of angle housing *(part #1024)* against which it seats. There should be a backlash of 0.002" - 0.003" between the two gears. After the angle head spindle and angle head pinion have been assembled and before any lubricant has been applied to the gears, slowly rotate the spindle back-and-forth a few degrees with the fingers. If the gears are in mesh but no backlash can be felt, remove the spindle's Lock Ring *(part #1025)*, remove spindle assembly and position two shims, each 0.001" thick *(from shim packet, part #1355)* on the outer race of Bearing *(part #538)*. Use a little grease to hold shims on bearing. Reassemble components and again follow procedure.

If there is still not sufficient backlash, add another shim. Shim Packet *(part #1355)* contains two 0.001" and one 0.003" thick shims. It is suggested that when a gear is worn out that ***both*** gears be replaced.

To assemble complete angle head assembly to the motor:

Thread the angle head assembly into the Lock Ring *(part #01-2046)* - NOTE: LH threads. Before tightening, position the angle head assembly approximately in the desired position and hold both housings while tightening the Lock Ring.

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 speed, with 90 PSIG air pressure at the tool while running.

Sales & Service Centers

Note: All locations may not service all products. Please contact the nearest Sales & Service Center for the appropriate facility to handle your service requirements.

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45-8182/PL30-1222/Printed in USA 04/2011/