

Parts Manual

45-8193

PL30-1227-7

04/21/2011

**DOTCO®**

**12-27 Series  
Saw**



<b>12</b>	<b>S</b>	<b>2</b>	<b>7</b>	<b>XX</b>	<b>-</b>	<b>XX</b>
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Product Classification

12 = Ergo Handle

Trottle Type

S = Locking Lever

Motor Size

2 = 0.9 hp

Handle Style

7 = Right Angle - Rear Exhaust

Speed Options (RPM)

73 = 5,000

74 = 7,000

75 = 8,500

Termination Code

01 = Porta-Bag (Vacuum bag on tool)

02 = Floor Bag with 8' Hose

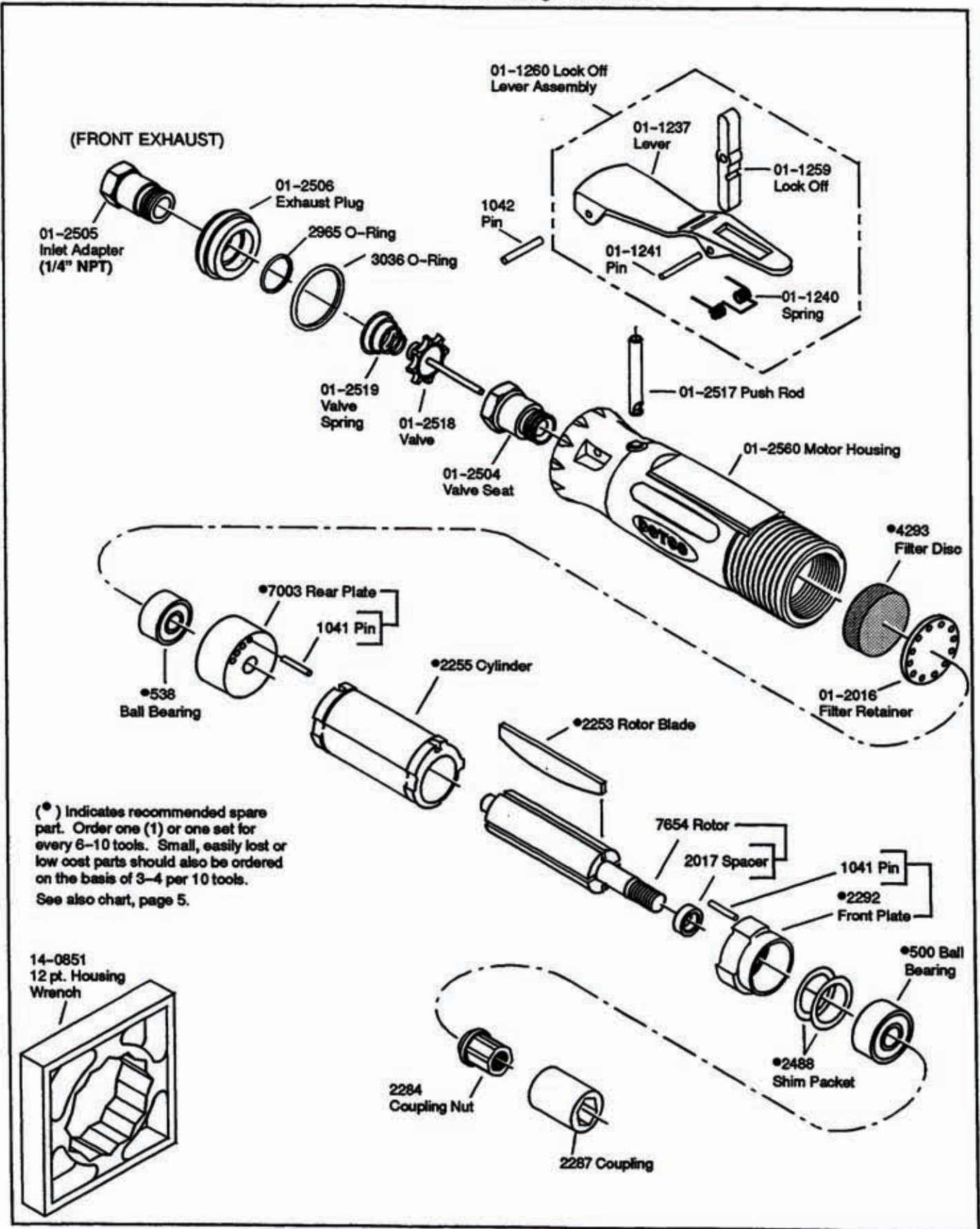
03 = Saw (only) with Adapter for user's 1-1/2" I.D. hose system.

Adapter can be turned to smaller diameter.

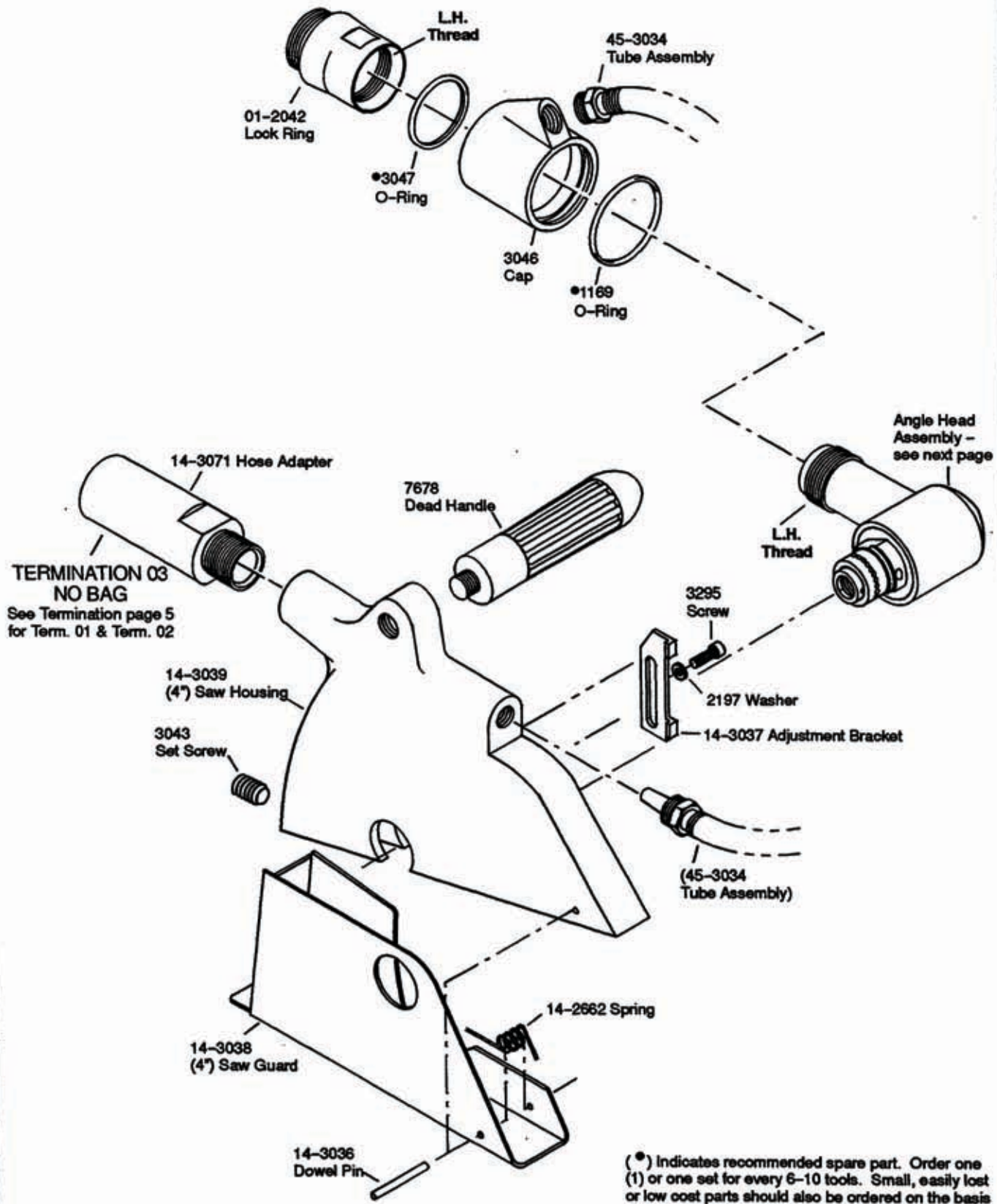
*For additional product information visit our website at:*

<https://dotcotool.com/product-category/dotco-air-tools/dotco-specialty-tools/dotco-saws/dotco-12-27-series-saws/>

Models 12-27 Series ERGO Right Angle Vacuum Saws  
Motor & Motor Housing Assemblies



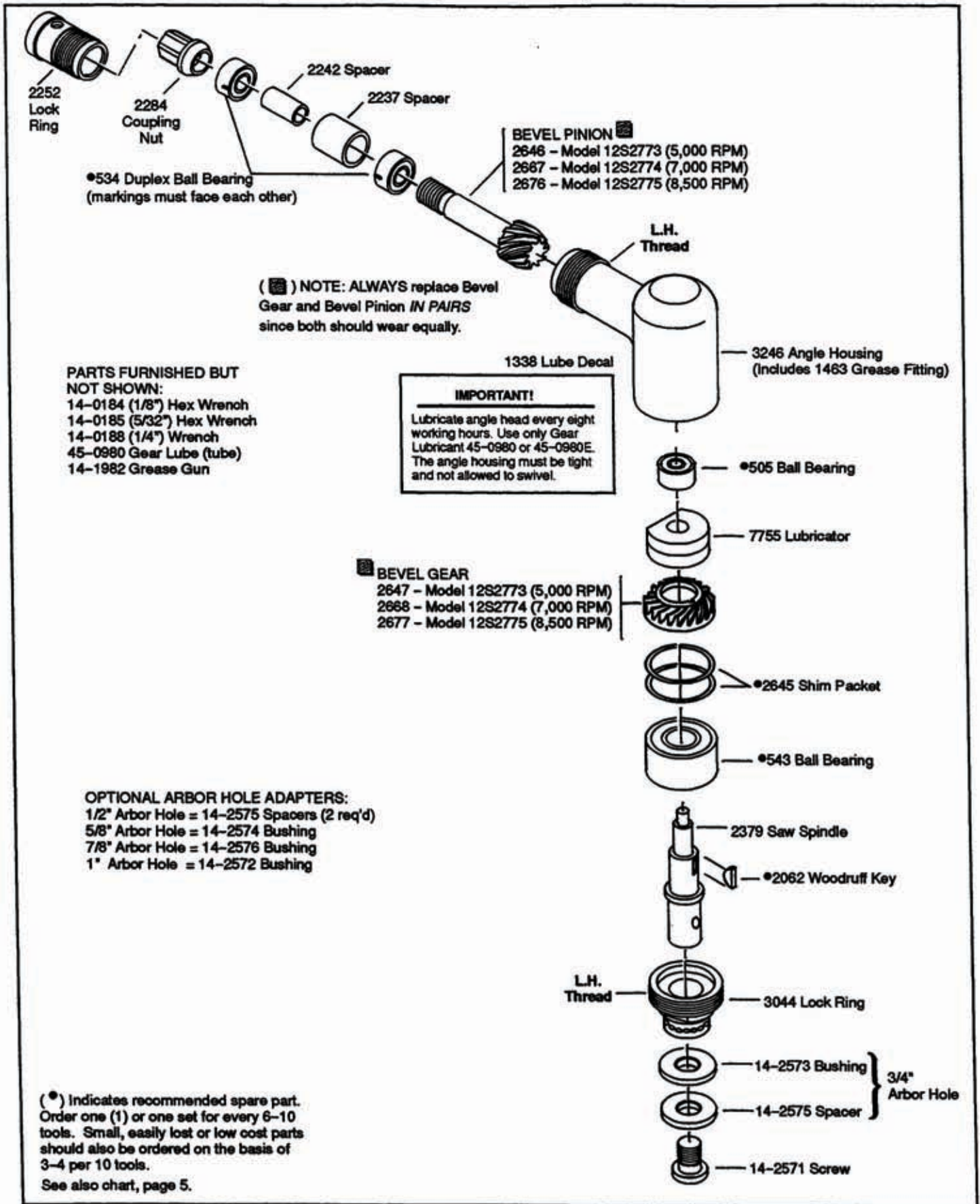
Models 12-27 Series ERGO Right Angle Vacuum Saws  
Saw Guard Assembly & Housing/Angle Head Connection

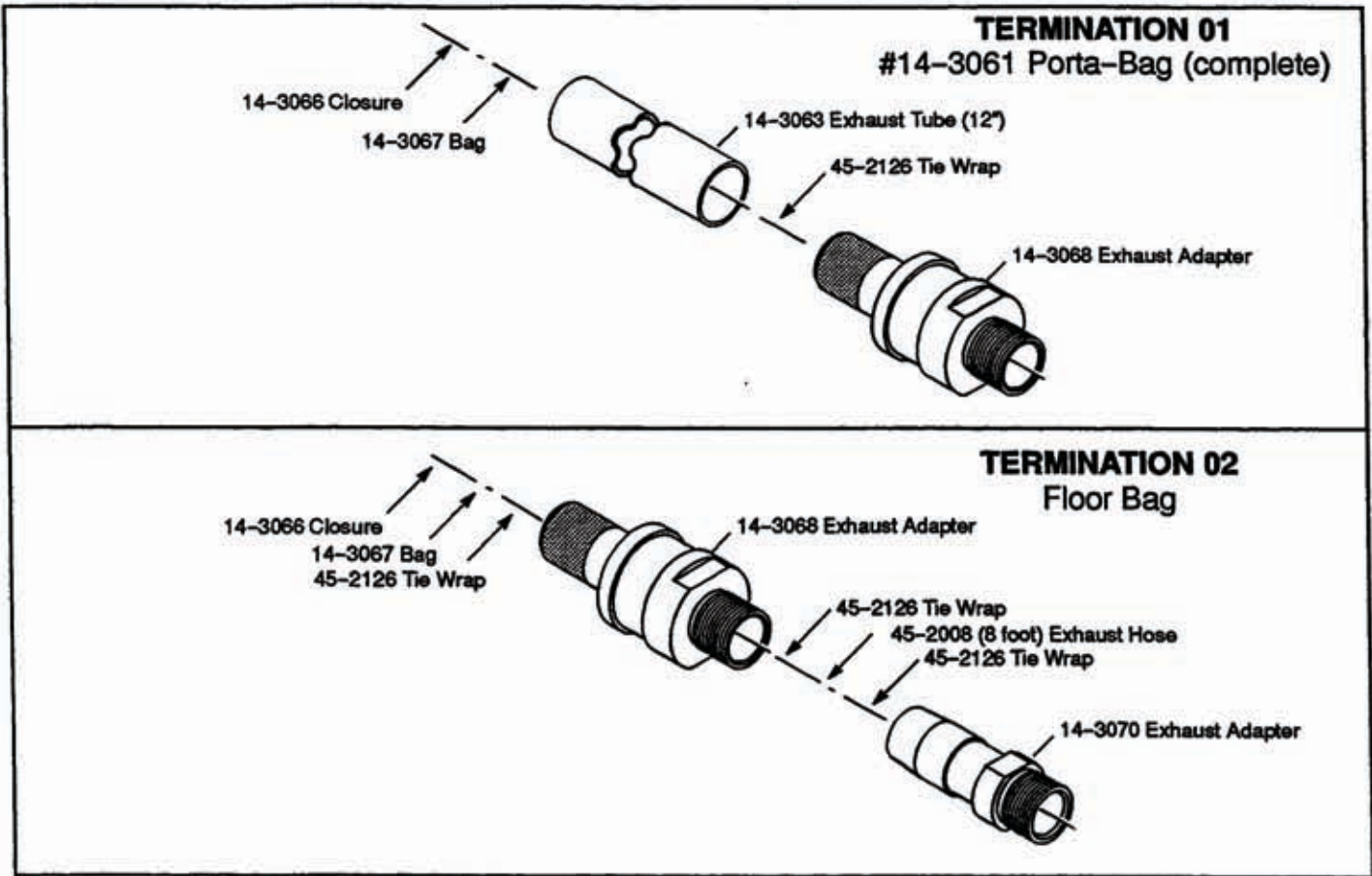


TERMINATION 03  
NO BAG  
See Termination page 5  
for Term. 01 & Term. 02

(\*) 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.  
See also chart, page 5.

**DOTCO®**  
**Models 12-42 Series ERGO Right Angle Vacuum Saws**  
**Angle Head Assembly**





**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 to 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	Qty. per Tool	Recommended Spare Parts	
			Per Tool	Per 10 Tools
1169	O-Ring	1	2-3	3-4
2062	Woodruff Key	1	2-3	3-4
2253	Rotor Blade	4	4	20
2255	Cylinder	1	0	2
2292	Front Plate	1	0	2
2488	Shim Packet	1	1	3
2645	Shim Packet	1	1	3
3047	O-Ring	1	2-3	3-4

Part Number	Description	Qty. per Tool	Recommended Spare Parts	
			Per Tool	Per 10 Tools
4293	Filter Disc	1	1	2
500	Ball Bearing	1	1	2
505	Ball Bearing	1	1	2
534	Duplex Ball Bearing	1	1	2
538	Ball Bearing	1	1	2
543	Ball Bearing	1	1	2
7003	Rear Plate	1	0	2

## **INSTALLATION**

For best tool performance, a working air pressure of **90 pounds per square inch** is recommended. Pippings, 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 motor must be lubricated and free of moisture. Use a high grade SAE spindle oil, such as Cooper's Lubricating Oil #45-0918 (one quart). Two or three drops per minute should be sufficient.

The gears in the angle head must be lubricated every eight hours of operation with a high quality, high speed, gear grease. Cooper

Power Tool's gear lube #45-0980 is recommended. A Grease Gun, #45-1982, is furnished with each tool for this purpose. Insert the nozzle in the flush-type fitting located in the side of the angle head and pump four or five times.

## **LOSS OF POWER**

A loss of power may not be related to the tool. First, check the air line pressure. It should be **90 psi at the tool while operating**.

## **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.

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## **DISASSEMBLY INSTRUCTIONS**

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 #01-2042*) from Motor Housing and Angle Head. Remove Angle Head and Coupling (*part #2287*) from motor. Pull Motor from Housing (*part #01-2560*).

### **To Disassemble Motor –**

2. Hold motor in one hand and tap rear of rotor with a brass drive punch until rear plate (*part #7003*) and Bearing (*part #538*) are free from Rotor (*part #7654*). Remove Cylinder (*part #2255*) and Rotor Blades (*part #2253*). Coupling Nut (*part #2284*) can be removed by holding the rotor in soft vise jaws and unthreading coupling nut. Front Plate (*part #2292*), with Ball Bearing (*part #500*), can now be pressed off.

### **To Disassemble Saw Attachment –**

3. To Remove Saw Attachment: Disconnect Exhaust Hose (*part #45-3034*) from Saw Housing (*part #14-3039*). Using (1/4") wrench through access hole in Saw Guard (*part #14-3038*), unthread Saw Arbor Screw (*part #14-2571*). Remove saw blade from saw arbor with Spacer and Bushing (*parts #14-2575*,

*14-2573*). Loosen Set Screw (*part #3043*) and remove saw attachment.

### **To Disassemble Angle Head –**

4. Lock Ring (*part #01-2042*) should have already been removed. Remove Lock Ring (*part #2252*) from rear of angle head and pull out the pinion assembly. If pinion assembly cannot easily be removed, tap lightly on pinion end of housing with a small plastic mallet (take care not to damage threads or raise burrs on housing end).

#### **To disassemble pinion assembly:**

5. Hold bevel pinion in soft, smooth vise jaws while unscrewing Coupling Nut (*part #2284*). Press the first half of duplex Bearing (*part #534*) off of pinion assembly. Remove outer and inner Spacers (*parts #2237 & 2242*). Press off the second half of the duplex bearing.

#### **To disassemble output spindle assembly:**

6. Unscrew Lock Ring (*part #3044*) - LH thread - and pull out spindle assembly. Remove Ball Bearing (*part #505*) and press off Bevel Gear. After Key (*part #2062*) is removed, Ball Bearing (*part #543*) can be pressed off spindle.

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## **ASSEMBLY INSTRUCTIONS**

### **To Assemble the Angle Head –**

NOTE: Do not place grease in angle head assembly until proper gear mesh is obtained.

Make sure all parts are thoroughly cleaned.

#### **Output spindle assembly –**

1. Press Ball Bearing (*part #543*) against spindle's shoulder. NOTE: press only on bearing inner race. Insert Key (*part #2062*) in slot of Spindle (*part #2379*); 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 Bearing (*part #505*) until it seats on spindle's shoulder. Insert

this assembly into Angle Head (*part #3246*). Thread Lock Ring (*part #3044*) into angle head until tight (LH thread).

#### **Pinion assembly –**

2. Press one half of duplex Ball Bearing (*part #534*) onto Bevel Pinion, taking care to keep the small marking (refer to parts illustration) facing the other half of the duplex bearing. Slip Inner Spacer and Outer Spacer (*parts #2242, 2237*) over pinion. Press second half of duplex bearing onto pinion - taking care to keep the small marking on the bearings in line and facing the marking on the other bearing half. Screw on Coupling Nut (*part #2284*).

## ASSEMBLY INSTRUCTIONS

(continued)

Install this pinion assembly in the angle head, making sure the teeth of the bevel pinion mesh with the teeth of the bevel gear by revolving the spindle slowly. Screw on Lock Ring (part #2252). If removed, slip Cap (part #3046) over angle head. Be sure O-Rings (#1169, 3047) are in place inside cap. Lightly grease o-ring and inside of cap, making sure smaller O-ring (#3047) does not extrude from cap.

### Shimming of angle head gearing -

3. **IMPORTANT:** Due to gear manufacturing tolerances, it is sometimes necessary to place a small shim between the outer race of Bearing (part #543) and the internal shoulder of Angle Head (part #3246) against which it seats. There should be a backlash of 0.002" to 0.003" between the two gears. After the spindle assembly and pinion assembly 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 Lock Ring (#3044) from housing. Then remove output spindle assembly and position two shims, each 0.001" thick, on the outer race of Bearing (#543) - use some grease to hold shims on bearings.

Reassemble and again follow above procedure. If there is still not sufficient backlash, add another shim. Shim Packet (#2645) contains two shims 0.001" thick and one 0.003" thick. When a gear is worn out both gears should be replaced. Also, all ball bearings should be replaced.

### To Assemble Motor -

4. Make sure all parts are clean. 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 a 0.002" shim. Insert the 0.002" Shim in the Front Plate's pocket and install #500 Ball Bearing into the Front Plate. Also, install #538 Ball Bearing into the Rear 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. Assemble Coupling Nut (part #2284) onto rotor by holding rotor in soft vise jaws.

5. Now, hold the rotor in the left hand and the front end plate in the right hand. Apply an outward (pulling) pressure and observe the spacing between the end of the rotor and the bearing plate. This should 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" spacing between the end of the rotor and the bearing plate, then add 0.001" shim between the bearing and bearing plate.*

6. Replace Cylinder, part #2255. **NOTE:** be sure that the cylinder is not on backwards! The air inlet in the cylinder must line up with the air inlet in the rear plate when the plate's pin is engaged in the mating slot in the cylinder.

7. Insert the rotor blades into the rotor. Support this assembly on the face of the Coupling Nut. Then, press on the Rear Bearing Plate (part #7003) - with bearing assembled - pressing on inner race only. Press just enough to bring the bearing plate against the cylinder. There should be a slight drag between the bearing plate and the cylinder when these are moved with the fingers. Position the cylinder until the motor turns finger-free.

8. Insert motor into housing and screw in the Lock Ring (part #01-2042) until tight. Check the assembly by spinning the coupling nut; it must be free. If it is not free, remove motor from housing and recheck snugness and alignment of cylinder between end plates. **IMPORTANT:** Lock Ring must be tight - do not loosen this lock ring for the purpose of "freeing up" the motor.

*Spindle must turn freely.*

### To Assemble Completed Angle Head Assembly to the Motor -

Place Motor Housing vertically in Service Wrench (14-0851) which is clamped horizontally in a smooth jaw vise. Install Coupling (part #2287) over coupling nut on motor. Thread Angle Head Assembly into Lock Ring (#01-2042).

### To Replace Saw Attachment -

Place Attachment against shoulder on Lock Ring (part #3044). Rotate attachment until desired relationship is obtained with angle head and motor assembly. Tighten securely. Tighten Set Screw (part #3043) in Saw Housing (part #14-3039) with 1/8" Hex Wrench. Set Screw should seat in any one of the depressions around the small outside diameter of lock ring. Replace Bushing (part #14-2573), saw blade and Spacer (part #14-2575).

Thread Arbor Screw (part #14-2571) into spindle through access hole in Saw Guard (part #14-3038). Tighten securely with 1/4" Hex Wrench. Reconnect Exhaust Hose (part #45-3034) to saw housing.

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## Pre Operation Inspection

Before tool is connected to the air line, be sure spindle turns freely. Tools should not be operated if there is any rubbing or binding in the assembly. Add a few drops of oil to tool before testing.

**NOTE:** A 5/32" Wrench (part #14-0185) is provided to for Adjustment Bracket Screw (part #3295).

## 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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