COOPER Tools

# Parts Manual • Ersatzteil–Liste

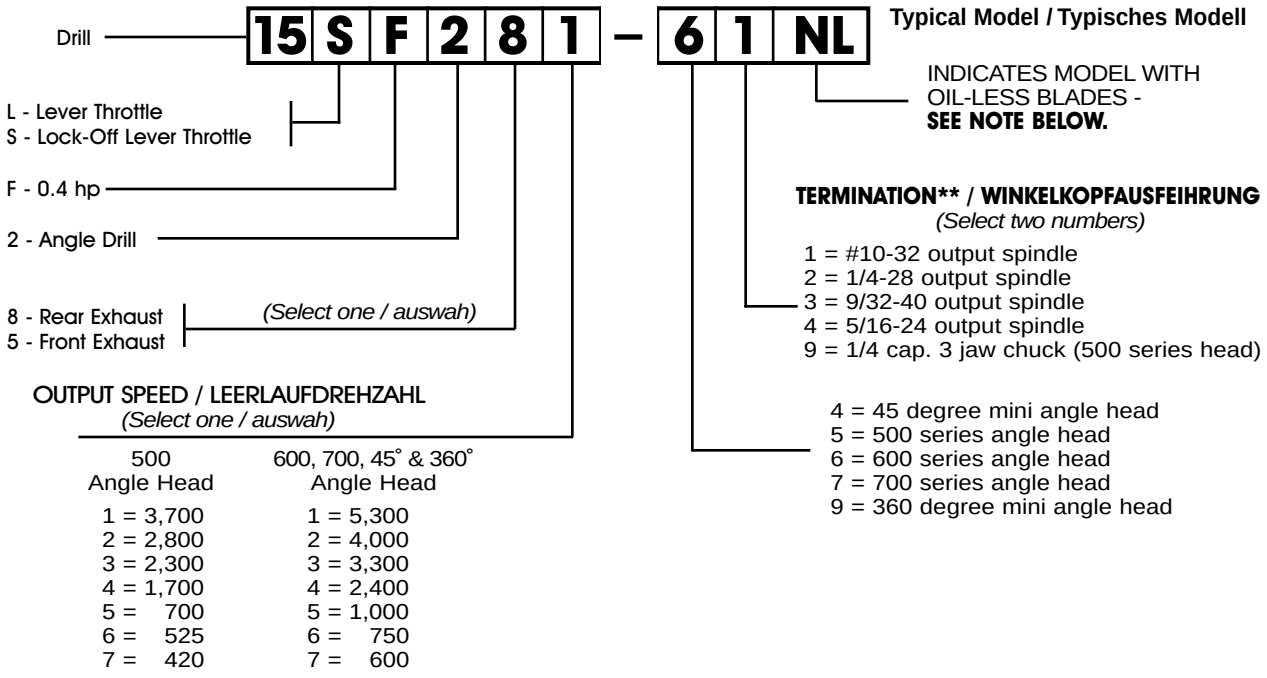
**PL31-340** 11/00

DOTCO®

45-8422

## Model: **15LF2.. & 15SF2..**

**0.4 hp ERGO Angle Drills**




**For additional product information visit our web site at http://www.coopertools.com**

**CooperTools**
P.O. BOX 1410
Lexington, South Carolina 29071-1410

## ANGLE HEAD GEARING

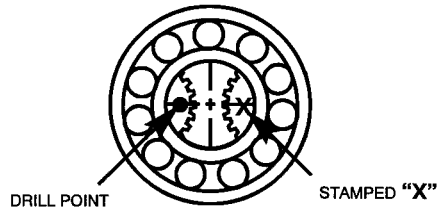
When angle head gearing is replaced, wipe on a thin coat of Molykote, grade G; only a small amount is necessary. An 8 ounce tube is available under part number 540394.

CAUTION *Do not use substitutes for oil and grease. This could result in damage to the tool.*

**SPEED CODE "4" ONLY: Timing of the Step Reduction Gear Assembly:**

Assemble the planet gears into the planet cage, making sure the notched planet pins fit over the planet cage washer. Rotate each gear until the aligning hole — on the end of one gear — is diametrically opposite the **"X"** mark of the other gear. Hold the gears in this position and slip the planet cage into the internal gear. It's important to avoid "wiping out" the gear teeth.

This is the only position where the gear teeth are lined up.




## MOTOR REASSEMBLY

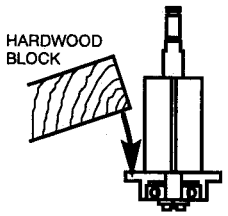
1. Install ball bearings into both the front and rear plates.
2. Assemble rotor to rear plate/bearing assembly with the rotor's retaining screw. **Position and set the rotor as close as possible to the rear plate, without dragging or rubbing.**

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

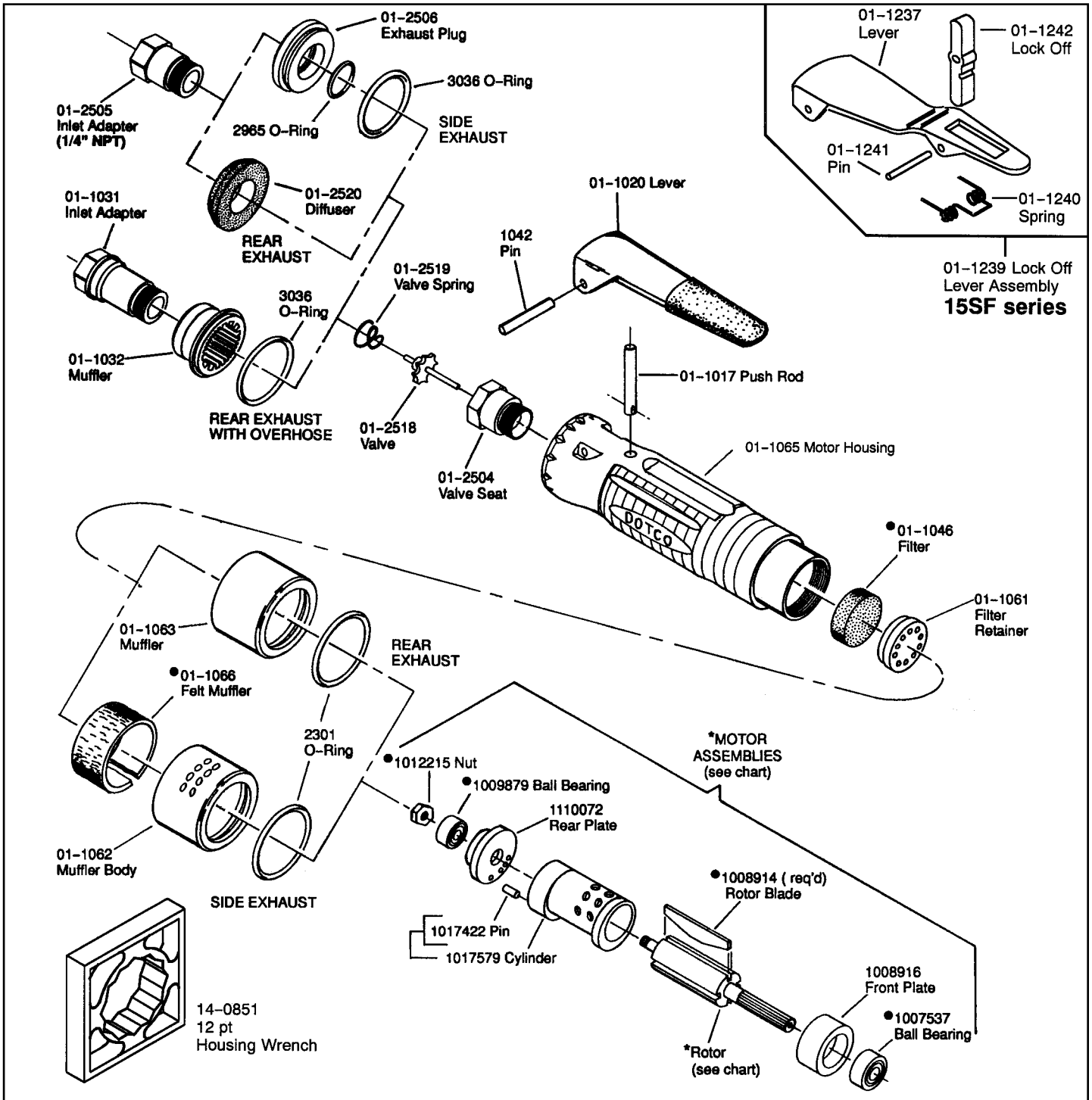
3. Begin tightening rotor screw without over-tightening to avoid damaging the ball bearing. Alternately spin the rotor while tightening until clearance is judged to be proper—**about 0.001" clearance.**
One method, shown below, is to hold the rotor/rear plate assembly verticaly (plate downward) and strike the edge of the plate with a wood block.

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.**

Hold the rotor/rear plate assembly vertically (plate downward) and strike the edge of the plate with a wood block.



# DOTCO
## Motor & Motor Housing Assemblies

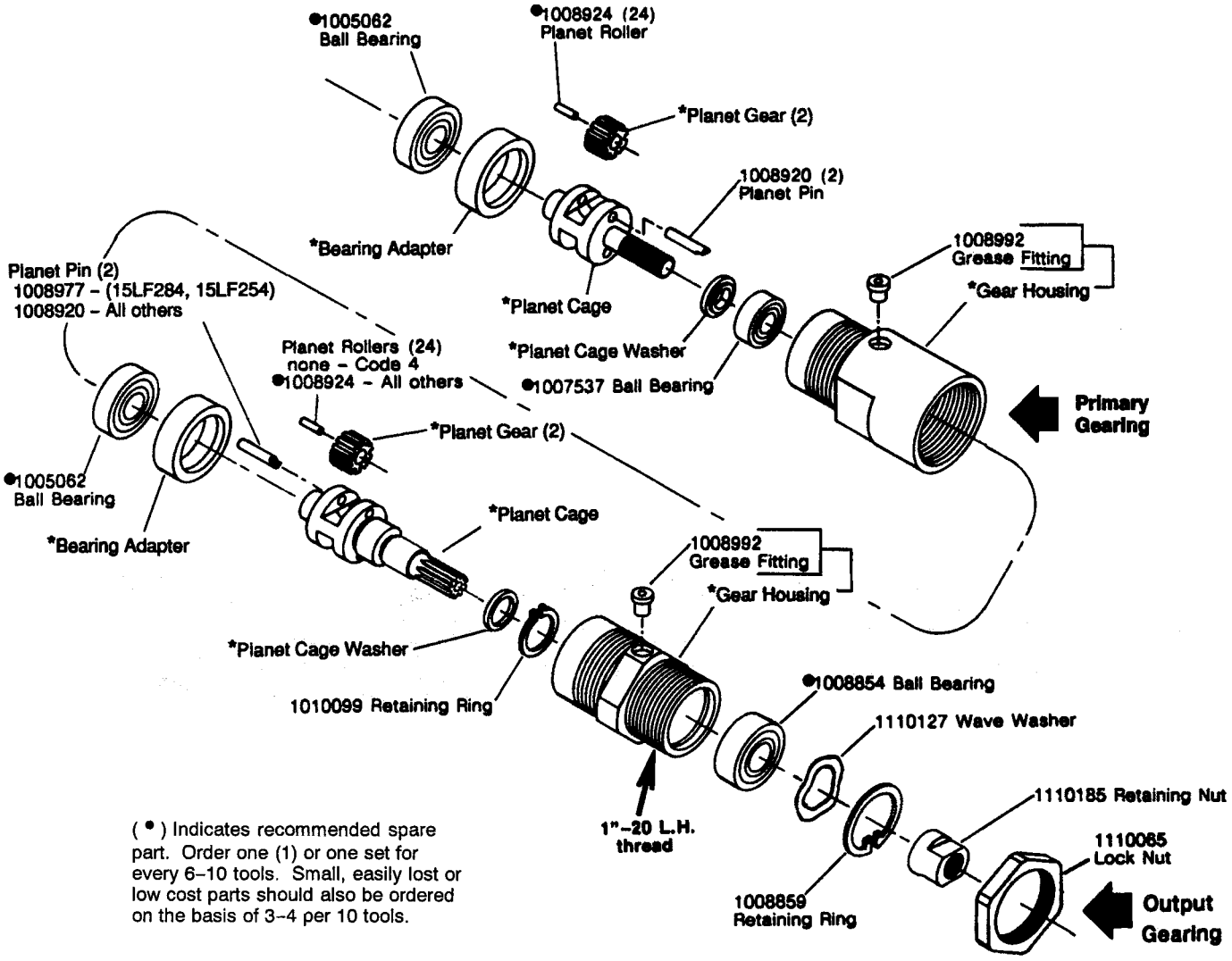



**( * ) Motor Chart**

| MODEL: | 15LF251<br>15LF281 | 15LF252<br>15LF282 | 15LF253<br>15LF283 | 15LF254<br>15LF284 | 15LF255<br>15LF285 | 15LF256<br>15LF286 | 15LF257<br>15LF287 |
|---|---|---|---|---|---|---|---|
| *rpm – TERM. 50 series:* | *3320* | *2450* | *1950* | *1475* | *630* | *450* | *350* |
| *rpm – TERM. 40, 60, 70, 90 series:* | *4750* | *3500* | *2800* | *2100* | *900* | *650* | *500* |
| **PART NAME:** | | | | | | | |
| Rotor *(Num. teeth)* | 1015872 *(9T)* | 1017518 *(7T)* | 1017517 *(6T)* | 1017516 *(5T)* | 1015872 *(9T)* | 1017518 *(7T)* | 1017517 *(6T)* |
| Motor Assembly (complete) | 1025550 | 1025554 | 1025552 | 1025556 | 1025550 | 1025554 | 1025552 |

( ● ) 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
## Planetary Gearing



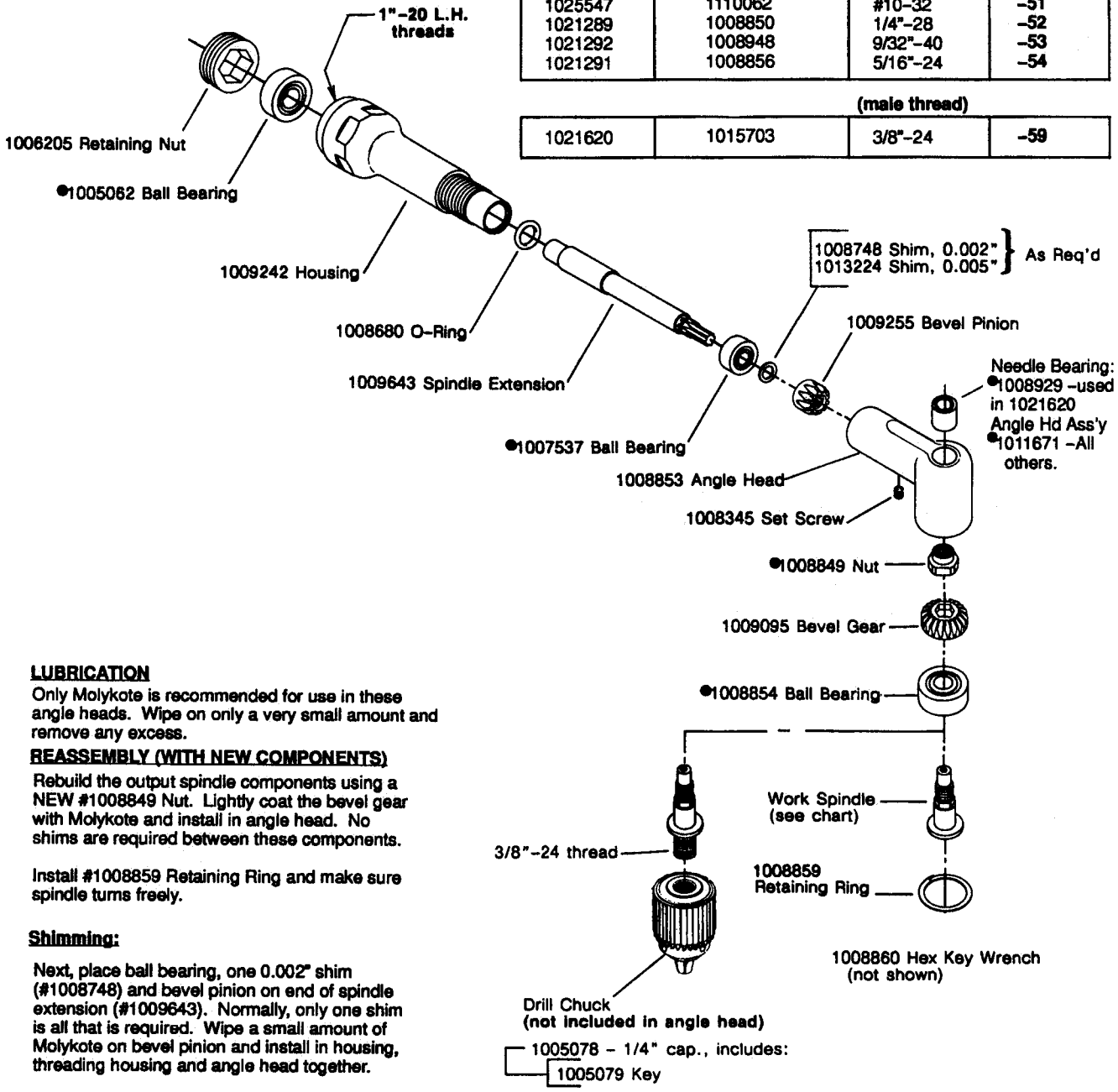

( • ) Indicates recommended spare part. Order one (1) or one set for every 6–10 tools. Small, easily lost or low cost parts should also be ordered on the basis of 3–4 per 10 tools.

( * )

| MODEL: | 15LF281<br>15LF251 | 15LF282<br>15LF252 | 15LF283<br>15LF253 | 15LF284<br>15LF254 | 15LF285<br>15LF255 | 15LF286<br>15LF256 | 15LF287<br>15LF257 |
|---|---|---|---|---|---|---|---|
| **Part Name** | Single Reduction | | | | Double Reduction | | |
| | *OUTPUT PLANETARY* | | | | *OUTPUT PLANETARY* | | |
| Planet Cage Washer (inside diameter) | 1110054 (0.486") | 1110055 (0.534") | 1110056 (0.511") | 1110055 (0.534") | 1110054 (0.486") | 1110054 (0.486") | 1110054 (0.486") |
| Gear Housing (num. teeth) | 1110046 (39T) | 1110047 (43T) | 1110048 (46T) | 1110049 (37T) | 1110046 (39T) | 1110046 (39T) | 1110046 (39T) |
| Planet Cage | 1110223 | 1110225 | 1110224 | 1110233 | 1110233 | 1110233 | 1110233 |
| Planet Gears (2 each) | 1008973 (14T) | 1008968 (17T) | 1008919 (19T) | 1008973 (13T/19T) | 1008973 (14T) | 1008973 (14T) | 1008973 (14T) |
| Bearing Adapter | — | — | 1008921 | 1008921 | — | — | — |
| | | | | | *PRIMARY PLANETARY* | | |
| Gear Housing (num. teeth) | — | — | — | — | 1019146 (39T) | 1019147 (43T) | 1019148 (46T) |
| Planet Cage Washer | — | — | — | — | 1008986 | 1009680 | 1009682 |
| Planet Cage | — | — | — | — | 1008985 | 1009679 | 1009681 |
| Planet Gears (2 each) | — | — | — | — | 1008973 (14T) | 1008968 (17T) | 1008919 (19T) |
| Bearing Adapter | — | — | — | — | — | — | 1008921 |

# DOTCO
## 90° Heavy Duty Angle Heads

| Angle Head Assembly Part Number | Assembly Includes Output Spindle Part Number | Spindle Thread Size (internal) | Termination Code |
|---|---|---|---|
| 1025547 | 1110062 | #10-32 | -51 |
| 1021289 | 1008850 | 1/4"-28 | -52 |
| 1021292 | 1008948 | 9/32"-40 | -53 |
| 1021291 | 1008856 | 5/16"-24 | -54 |
| | | (male thread) | |
| 1021620 | 1015703 | 3/8"-24 | -59 |




**LUBRICATION**

Only Molykote is recommended for use in these angle heads. Wipe on only a very small amount and remove any excess.

**REASSEMBLY (WITH NEW COMPONENTS)**

Rebuild the output spindle components using a NEW #1008849 Nut. Lightly coat the bevel gear with Molykote and install in angle head. No shims are required between these components.

Install #1008859 Retaining Ring and make sure spindle turns freely.

**Shimming:**

Next, place ball bearing, one 0.002" shim (#1008748) and bevel pinion on end of spindle extension (#1009643). Normally, only one shim is all that is required. Wipe a small amount of Molykote on bevel pinion and install in housing, threading housing and angle head together.

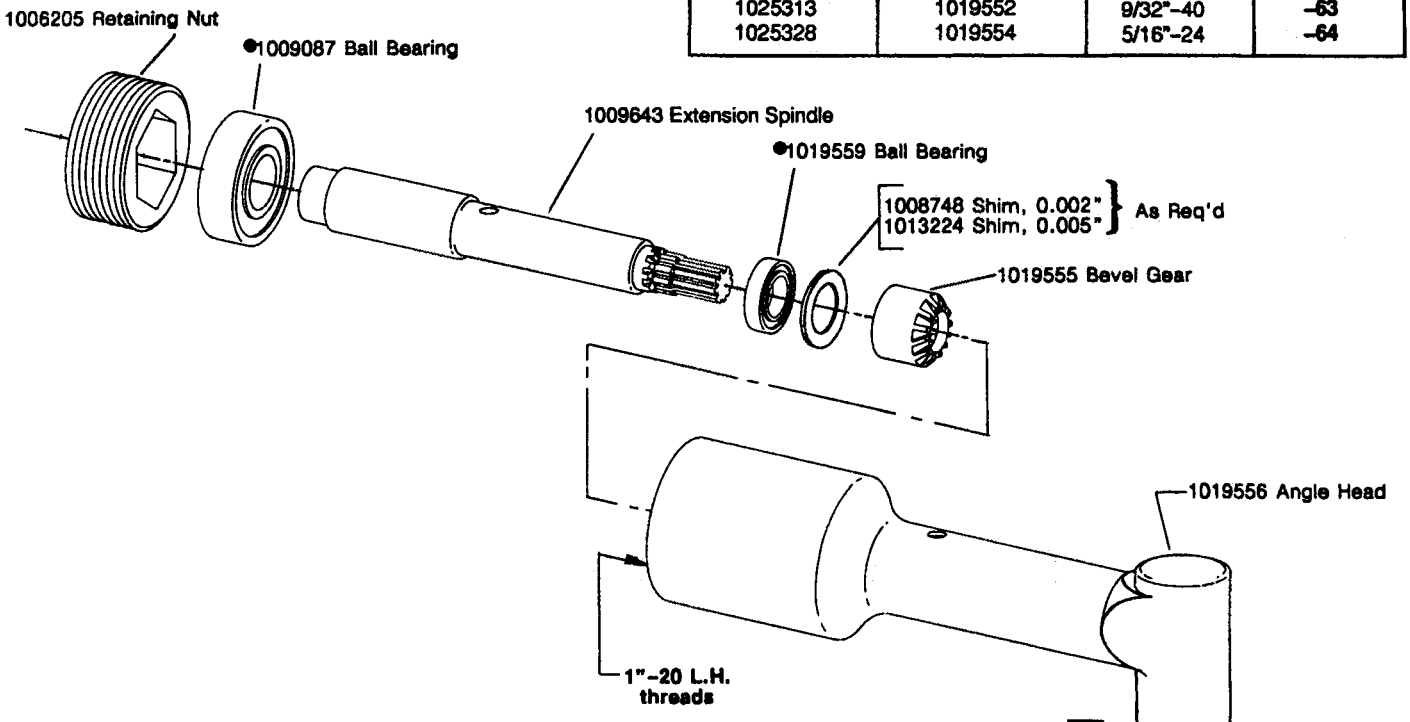
**Checking gear mesh:**

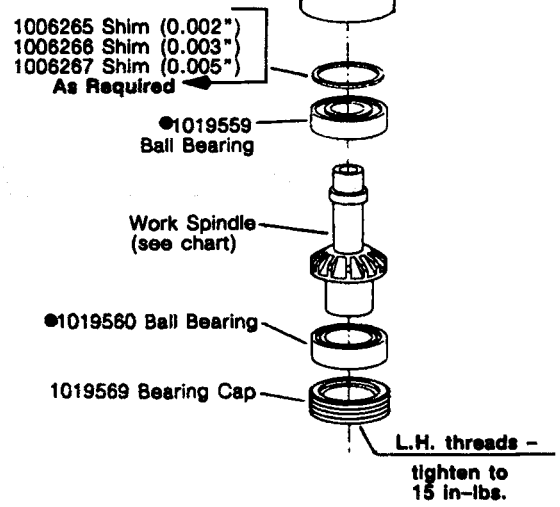
Hold end of spindle extension with fingers and turn output spindle back-and-forth. Acceptable play is **0.005", or less.** Add only one shim at a time (or take out one shim) until play is correct.

( • ) 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
## 90° Miniature Angle Heads

| Angle Head Assembly Part Number | Assemblies Include Output Spindle Part Number | Spindle Thread Size (internal) | Termination Code |
|---|---|---|---|
| 1025314 | 1019553 | #10–32 | –61 |
| 1025409 | 1019551 | 1/4"–28 | –62 |
| 1025313 | 1019552 | 9/32"–40 | –63 |
| 1025328 | 1019554 | 5/16"–24 | –64 |




**LUBRICATION**

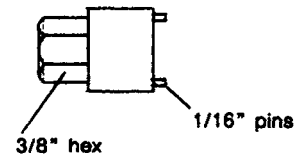
Only Molykote is recommended for use in these angle heads. Wipe on only a very small amount and remove any excess.

**REASSEMBLY (WITH NEW COMPONENTS)**

1. Start with one only 0.002" shim (part #1006265) above work spindle in bearing pocket. Assemble all output spindle components, applying Molykote, then tighten bearing cap to 15 inch–pounds torque.

   This is for **END PLAY** only. With too much play, take out the 0.003" shim. A slight back–and–forth amount of play is acceptable and necessary.
2. Assemble all remaining components and check gear "shake". This is for **GEAR MESH** which should be no more than 0.005".
3. Be sure to apply Molykote before assembly.

EXTRA EQUIPMENT:

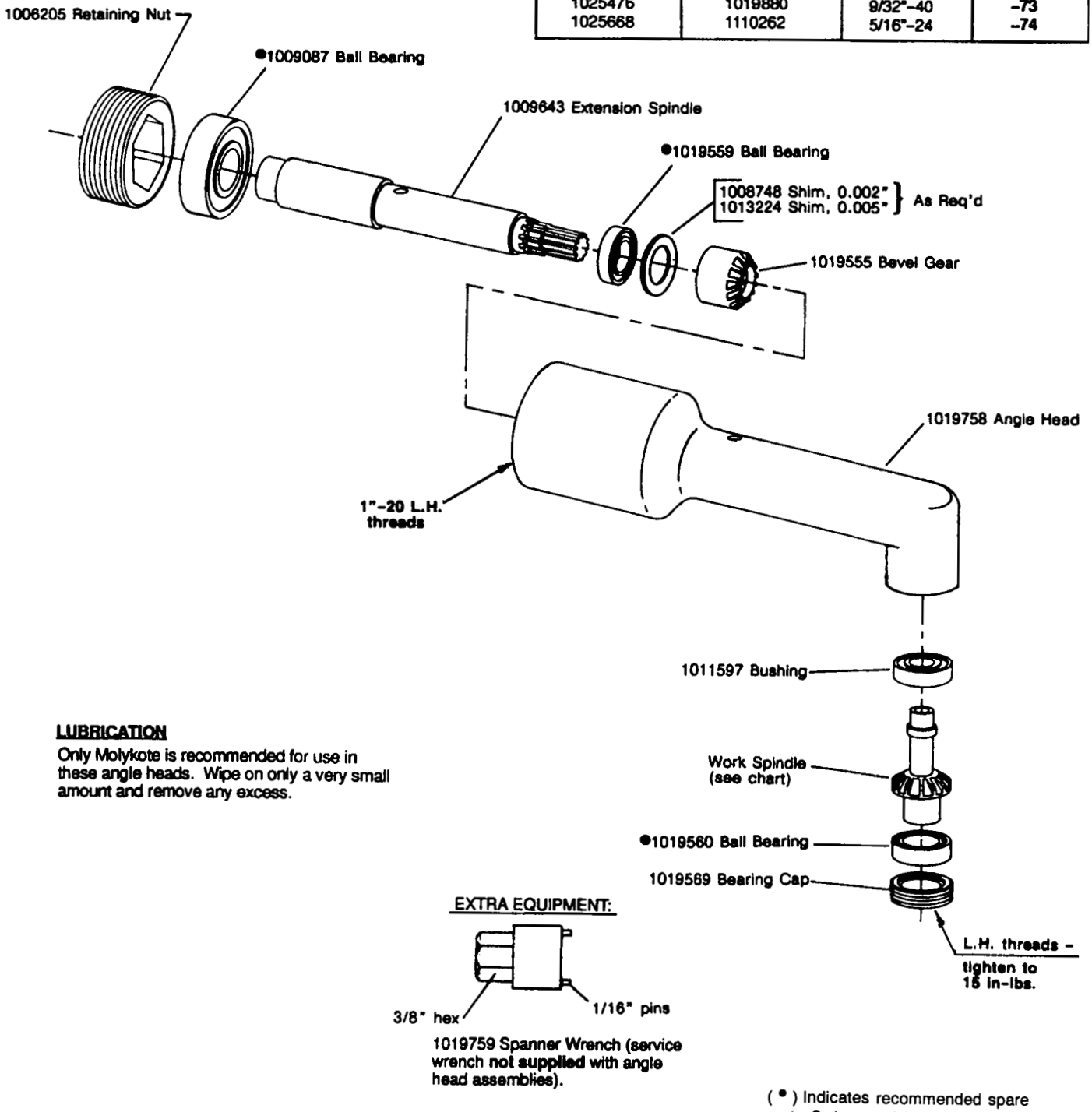



1019759 Spanner Wrench (service wrench **not supplied** with angle head assemblies).

( • ) 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.

# DOTCO
## 90º Compact Angle Heads

| Angle Head Assembly Part Number | Assemblies Include Output Spindle Part Number | Spindle Thread Size (Internal) | Termination Code |
|---|---|---|---|
| 1025667 | 1110261 | #10–32 | –71 |
| 1025477 | 1019879 | 1/4"–28 | –72 |
| 1025476 | 1019880 | 9/32"–40 | –73 |
| 1025668 | 1110262 | 5/16"–24 | –74 |




**LUBRICATION**

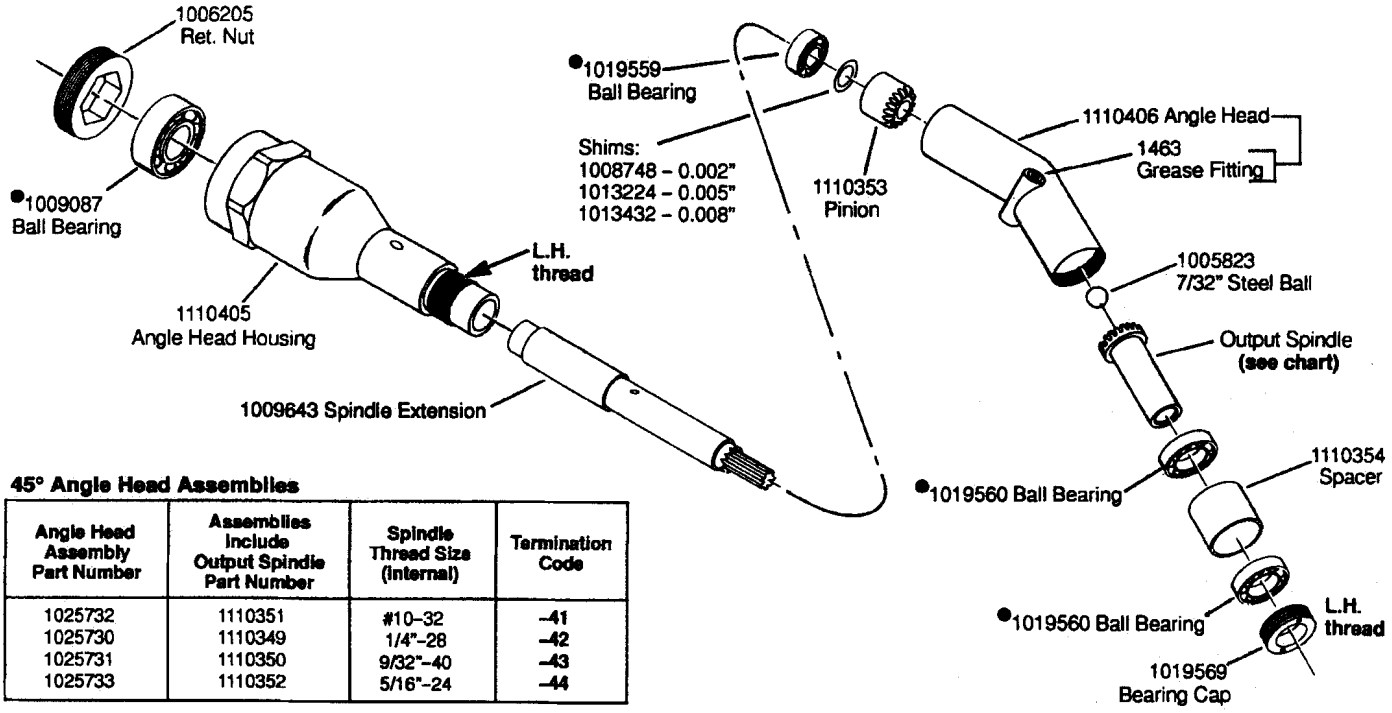
Only Molykote is recommended for use in these angle heads. Wipe on only a very small amount and remove any excess.

( ● ) 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
## Model 15LF series (0.4 hp) Angle Heads

### 45° Mini Angle Head

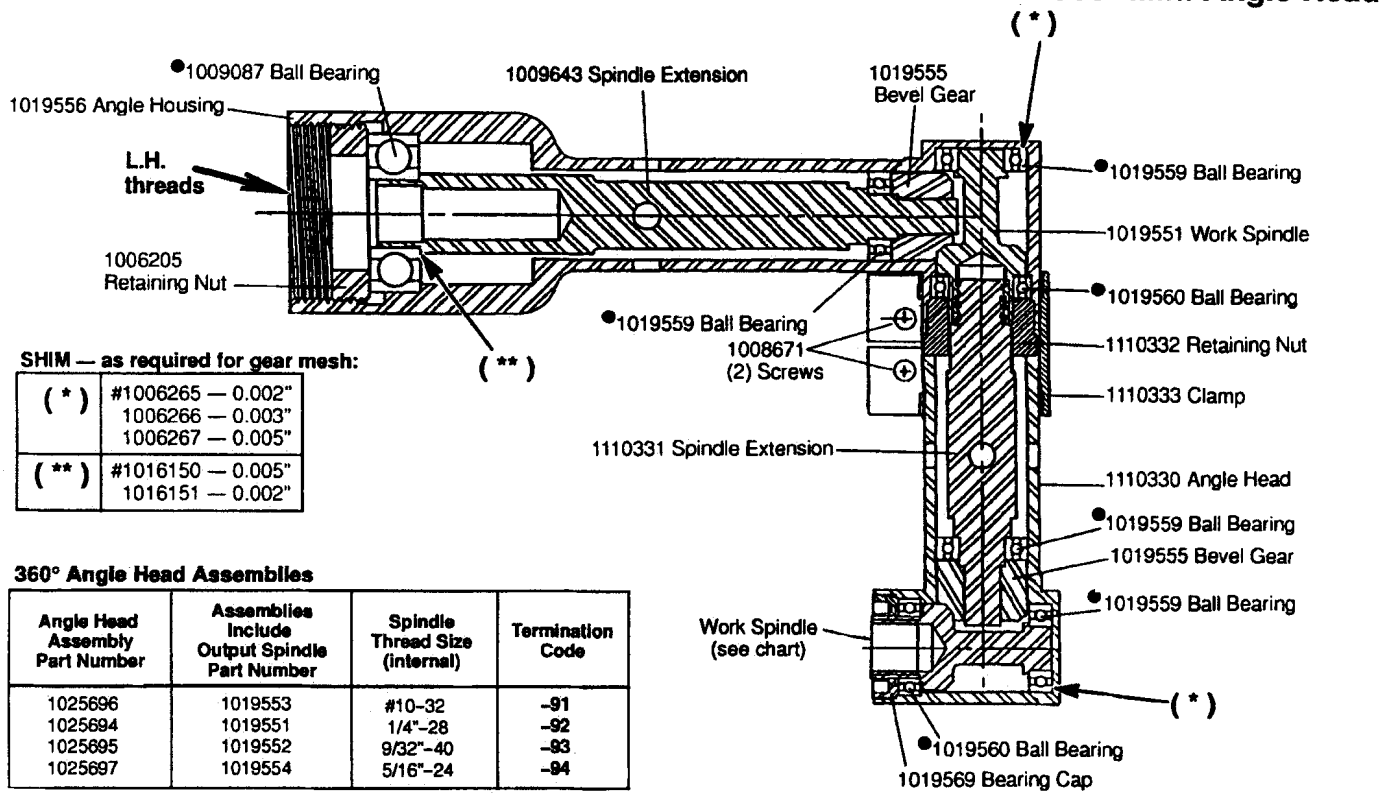
( • ) Indicates recommended spare part. Order one (1) or one set for every 6–10 tools. Small, easily lost or low cost parts should also be ordered on the basis of 3–4 per 10 tools.




**45° Angle Head Assemblies**

| Angle Head Assembly Part Number | Assemblies Include Output Spindle Part Number | Spindle Thread Size (internal) | Termination Code |
|---|---|---|---|
| 1025732 | 1110351 | #10–32 | –41 |
| 1025730 | 1110349 | 1/4"–28 | –42 |
| 1025731 | 1110350 | 9/32"–40 | –43 |
| 1025733 | 1110352 | 5/16"–24 | –44 |

### 360° Mini Angle Head




**SHIM — as required for gear mesh:**

| | |
|---|---|
| ( * ) | #1006265 — 0.002"<br>1006266 — 0.003"<br>1006267 — 0.005" |
| ( ** ) | #1016150 — 0.005"<br>1016151 — 0.002" |

**360° Angle Head Assemblies**

| Angle Head Assembly Part Number | Assemblies Include Output Spindle Part Number | Spindle Thread Size (internal) | Termination Code |
|---|---|---|---|
| 1025696 | 1019553 | #10–32 | –91 |
| 1025694 | 1019551 | 1/4"–28 | –92 |
| 1025695 | 1019552 | 9/32"–40 | –93 |
| 1025697 | 1019554 | 5/16"–24 | –94 |