



	15	X	F	2	X	X	-	X	X	NL
Product Classification										
15 = Drill										
Trottle Type										
L = Locking Lever										
S = Locking Lever										
Motor Size										
F = 0.4 hp										
Handle Style										
2 = Right Angle										
Exhaust Type										
5 = Front Exhaust										
8 = Rear Exhaust										
Speed Options (RPM)										
500 Angle Head	600, 700, 45°, 360° Angle Heads									
1 = 3,700	5 = 700	1 = 5,300		5 = 1,000						
2 = 2,800	6 = 525	2 = 4,000		6 = 750						
3 = 2,300	7 = 420	3 = 3,300		7 = 600						
4 = 1,700		4 = 2,400								
Termination Code: Angle Head Type										
4 = 45° Mini Angle Head	7 = 700 Series Angle Head									
5 = 500 Series Angle Head	9 = 360° Mini Angle Head									
6 = 600 Series Angle Head										
Termination Code: Output Type										
1 = #10-32 Output Spindle	4 = 5/16-24 Output Spindle									
2 = 1/4-28 Output Spindle	9 = 1/4 Capacity 3 Jaw Chuck (500 series head)									
3 = 9/32-40 Output Spindle										
Blade Option (extra cost)										
NL = Oil Less Blade										

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.



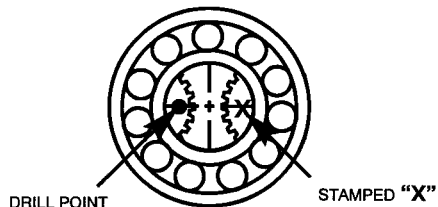
CAUTION

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.

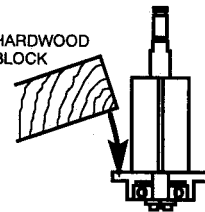
b. Assemble components making sure the bearing is firmly seated in the rear plate

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 vertically (plate downward) and strike the edge of the plate with a wood block.

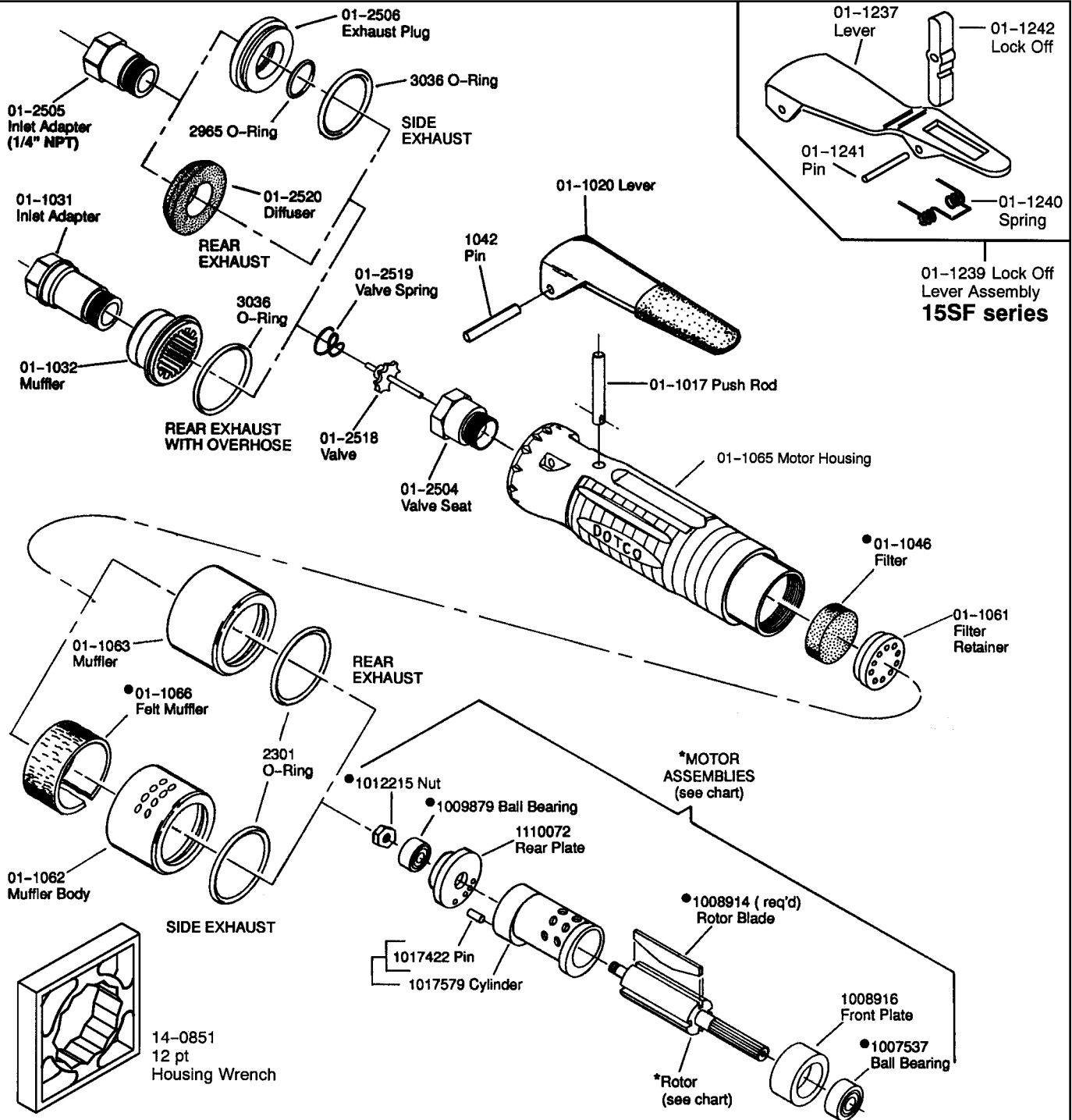
Begin tightening rotor nut without over-tightening to avoid damaging the ball bearing. Alternately spin the rotor while tightening until clearance is judged to be proper—**about 0.001" clearance.**

HARDWOOD
BLOCK



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

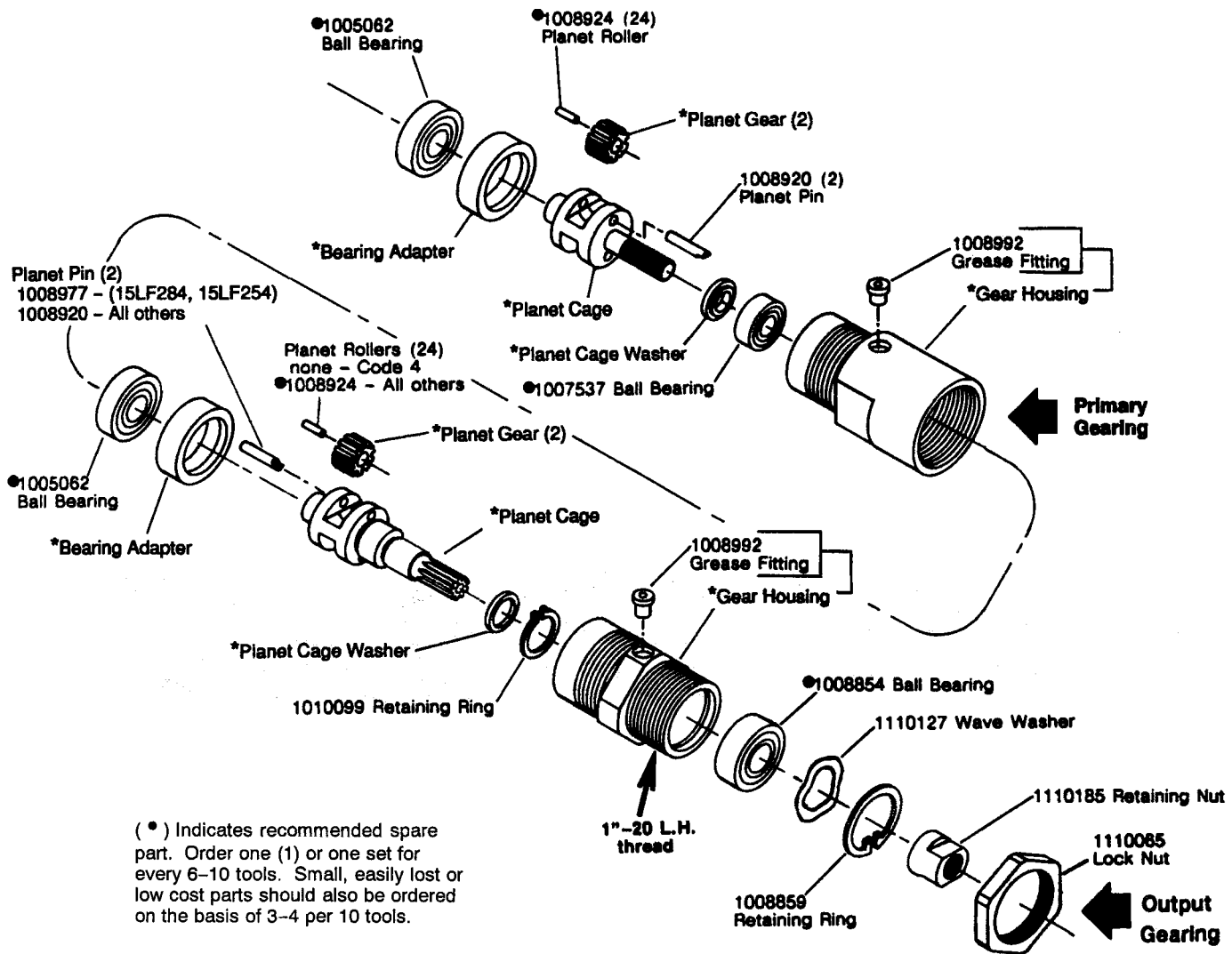


(*) Motor Chart

MODEL:	15LF251 15LF281	15LF252 15LF282	15LF253 15LF283	15LF254 15LF284	15LF255 15LF285	15LF256 15LF286	15LF257 15LF287
<i>rpm – TERM. 50 series:</i>	3320	2450	1950	1475	630	450	350
<i>rpm – TERM. 40, 60, 70, 90 series:</i>	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

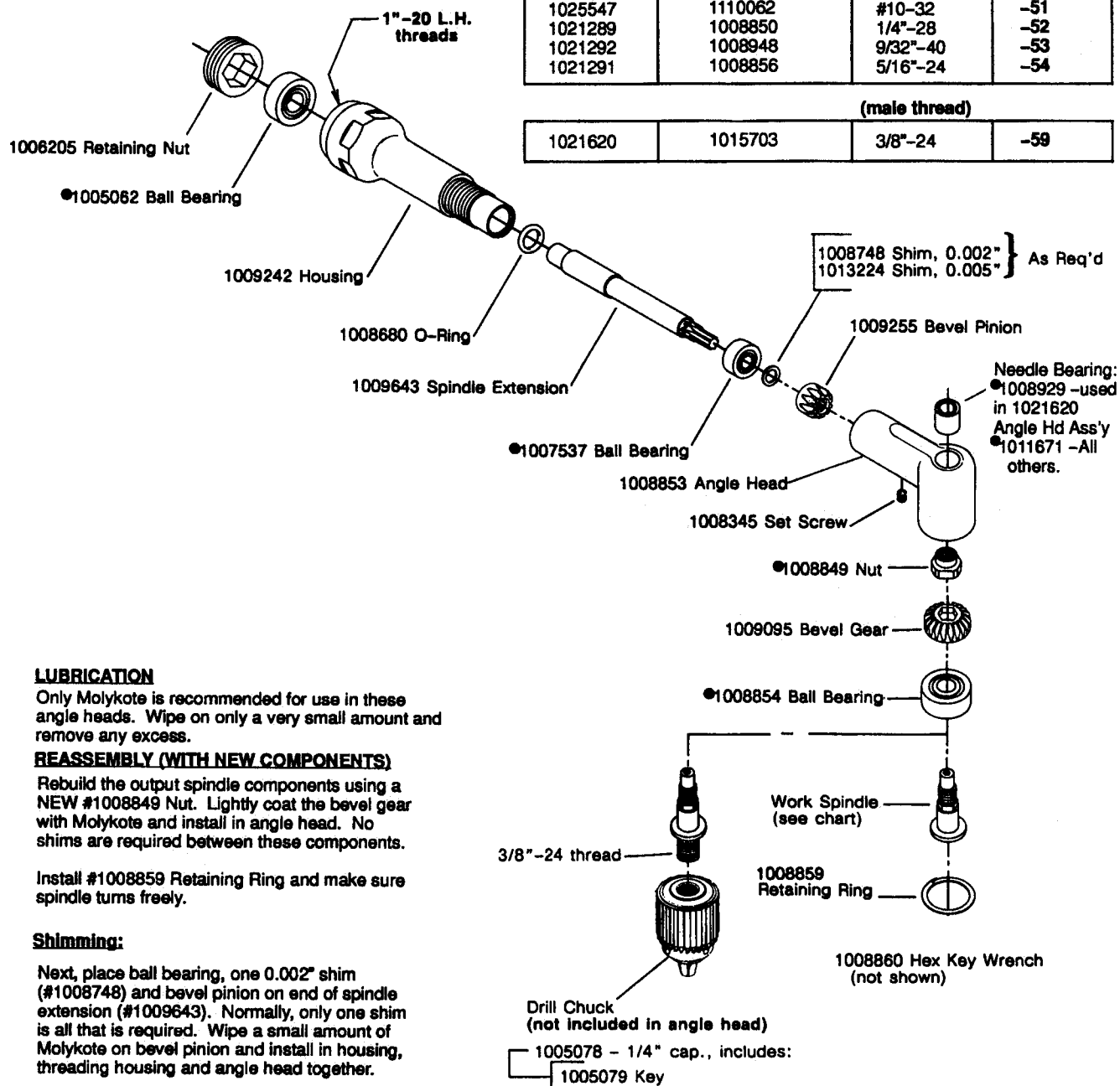


(*)

MODEL:	15LF281 15LF251	15LF282 15LF252	15LF283 15LF253	15LF284 15LF254	15LF285 15LF255	15LF286 15LF256	15LF287 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

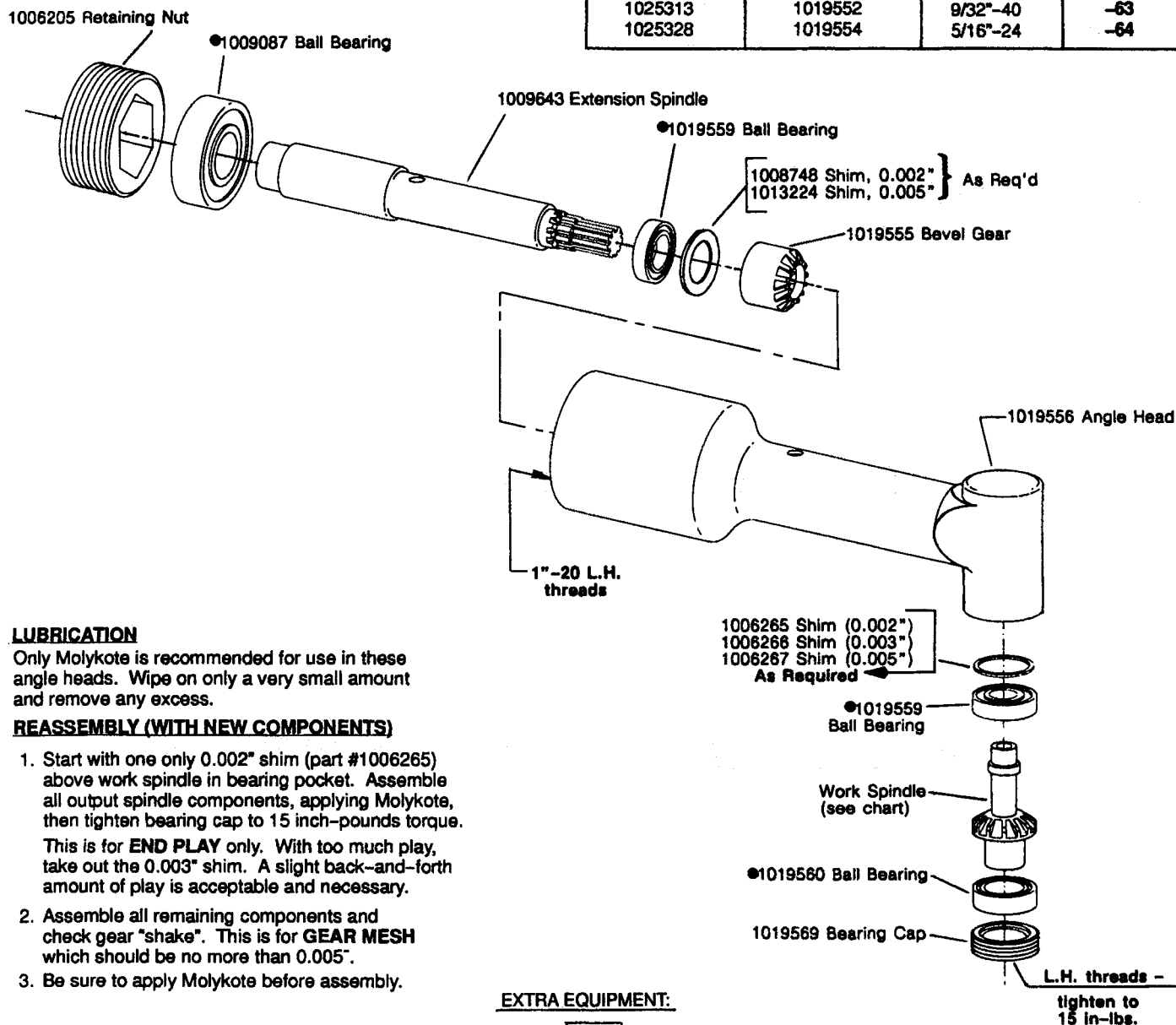


(•) Indicates recommended spare part. Order one (1) or one set for every 6-10 tools. Small, easily lost or low cost parts should also be ordered on the basis of 3-4 per 10 tools.

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.

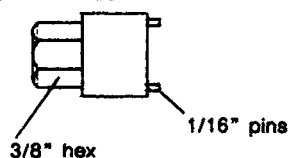
REASSEMBLY (WITH NEW COMPONENTS)

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:



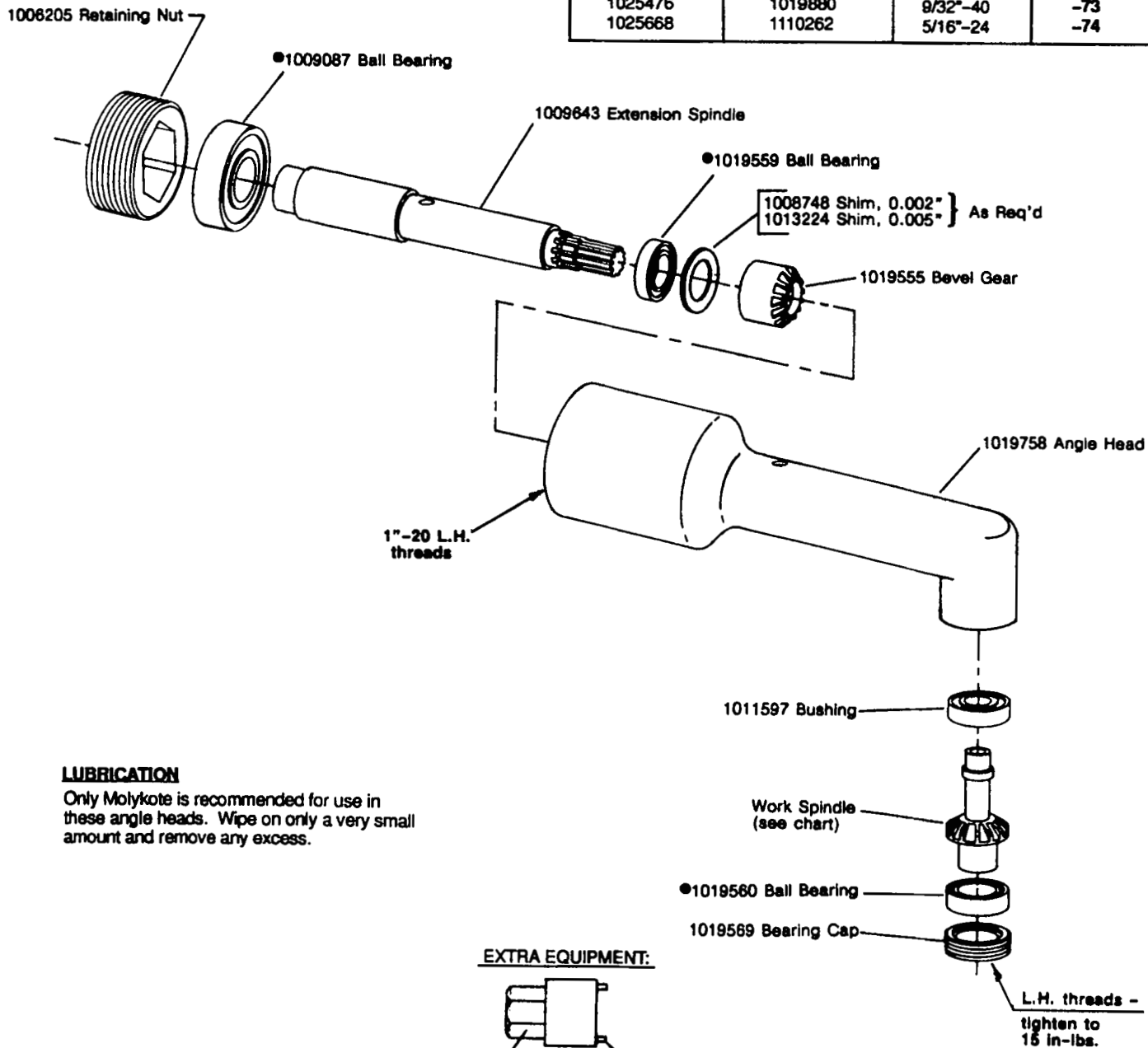
1019759 Spanner Wrench (service wrench not supplied with angle head assemblies).

(*) 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

90° Compact Angle Heads

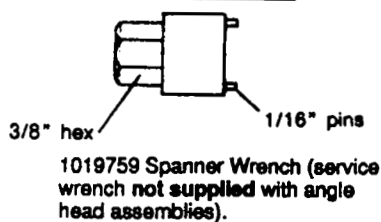
Angle Head Assembly Part Number	Assemblies Include Output Spindle Part Number	Spindle Thread Size (Internal)	Termination Code
1025667	1110261	#10-32	-71
1025477	1019879	1/4"-28	-72
1025476	1019880	9/32"-40	-73
1025668	1110262	5/16"-24	-74



LUBRICATION

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

EXTRA EQUIPMENT:



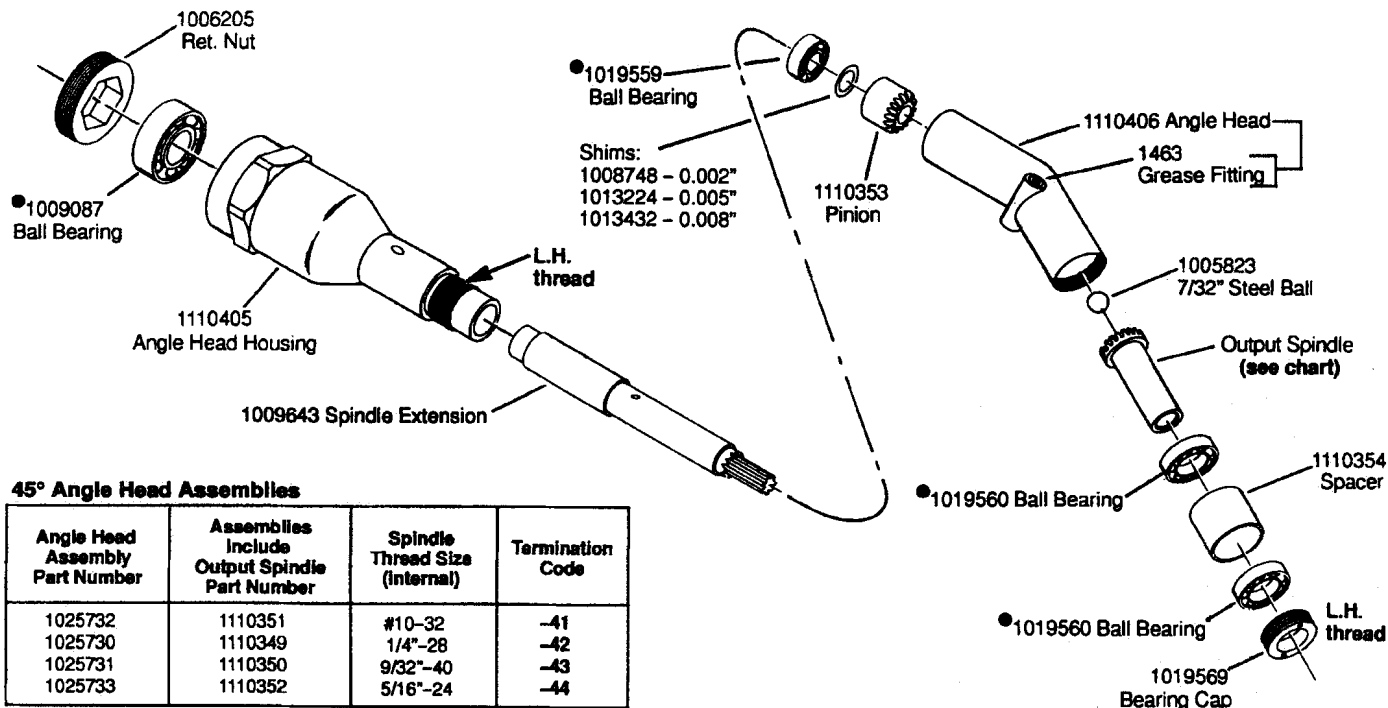
(•) Indicates recommended spare part. Order one (1) or one set for every 6-10 tools. Small, easily lost or low cost parts should also be ordered on the basis of 3-4 per 10 tools.

DOTCO

Model 15LF series (0.4 hp) Angle Heads

(*) 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.

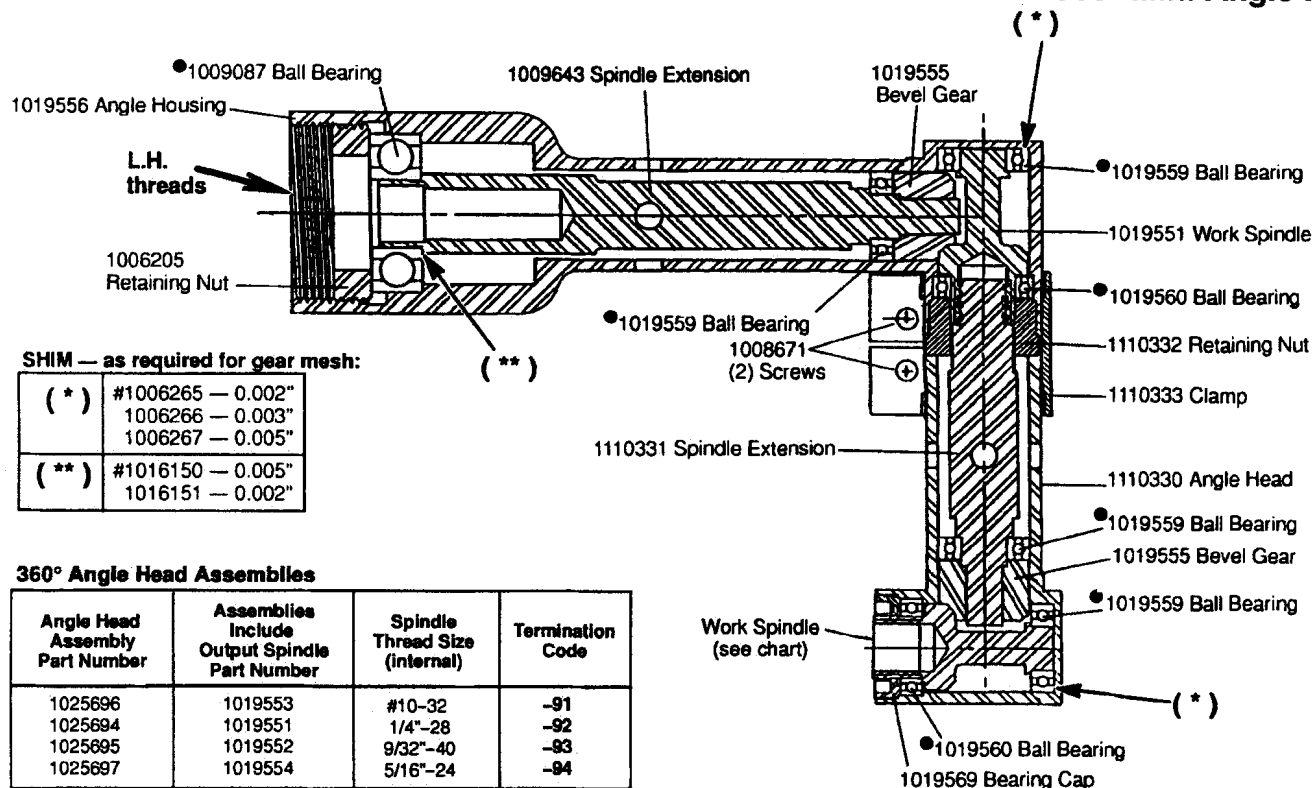
45° Mini Angle Head



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



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

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.

Dallas, TX
**Apex Tool Group
Sales & Service Center**
1470 Post & Paddock
Grand Prairie, TX 75050
Tel: 972-641-9563
Fax: 972-641-9674

Detroit, MI
**Apex Tool Group
Sales & Service Center**
2630 Superior Court
Auburn Hills, MI 48326
Tel: 248-391-3700
Fax: 248-391-7824

Houston, TX
**Apex Tool Group
Sales & Service Center**
6550 West Sam Houston
Parkway North, Suite 200
Houston, TX 77041
Tel: 713-849-2364
Fax: 713-849-2047

Lexington, SC
Apex Tool Group
670 Industrial Drive
Lexington, SC 29072
Tel: 800-845-5629
Tel: 803-951-7544
Fax: 803-358-7681

Los Angeles, CA
**Apex Tool Group
Sales & Service Center**
15503 Blackburn Avenue
Norwalk, CA 90650
Tel: 562-623-4457
Fax: 562-802-1718

Seattle, WA
**Apex Tool Group
Sales & Service Center**
2865 152nd Avenue N.E.
Redmond, WA 98052
Tel: 425-497-0476
Fax: 425-497-0496

York, PA
**Apex Tool Group
Sales & Service Center**
3990 East Market Street
York, PA 17402
Tel: 717-755-2933
Fax: 717-757-5063

Canada
**Apex Tool Group
Sales & Service Center**
5925 McLaughlin Road
Mississauga, Ont. L5R 1B8
Canada
Tel: 905-501-4785
Fax: 905-501-4786

Germany
Cooper Power Tools
GmbH & Co. OHG
a company of
Apex Tool Group, LLC
Industriestraße 1
73463 Westhausen
Germany
Tel: +49 (0) 73 63 81 0
Fax: +49 (0) 73 63 81 222

England
Cooper Power Tools
GmbH & Co. OHG
a company of
Apex Tool Group, LLC
C/O Spline Gauges
Piccadilly, Tamworth
Staffordshire B78 2ER
United Kingdom
Tel: +44 1827 8741 28
Fax: +44 1827 8741 28

France
Cooper Power Tools SAS
a company of
Apex Tool Group, LLC
25 rue Maurice Chevalier
77330 Ozoir-La-Ferrière
France
Tel: +33 1 6443 2200
Fax: +33 1 6443 1717

China
Cooper (China) Co., Ltd.
a company of
Apex Tool Group, LLC
955 Sheng Li Road,
Heqing Pudong, Shanghai
China 201201
Tel: +86-21-28994176
Fax: +86-21-51118446

Mexico
Cooper Tools
de México S.A. de C.V.
a company of
Apex Tool Group, LLC
Vialidad El Pueblito #103
Parque Industrial Querétaro
Querétaro, QRO 76220
Mexico
Tel: +52 (442) 211-3800
Fax: +52 (442) 103-0443

Brazil
Cooper Tools Industrial Ltda.
a company of
Apex Tool Group, LLC
Av. Liberdade, 4055
Zona Industrial - Iporanga
18087-170 Sorocaba
SP Brazil
Tel: +55 15 2383929
Fax: +55 15 2383260

Hungary
Cooper Tools Hungaria Kft.
a company of
Apex Tool Group, LLC
Berkenyefa sor 7
Pf: 640
9027 Győr
Hungary
Tel: +36 96 66 1383
Fax: +36 96 66 1135

Apex Tool Group, LLC
1000 Lufkin Road
Apex, NC 27539
Phone: 919-387-0099
Fax: 919-387-2614
www.apextoolgroup.com

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