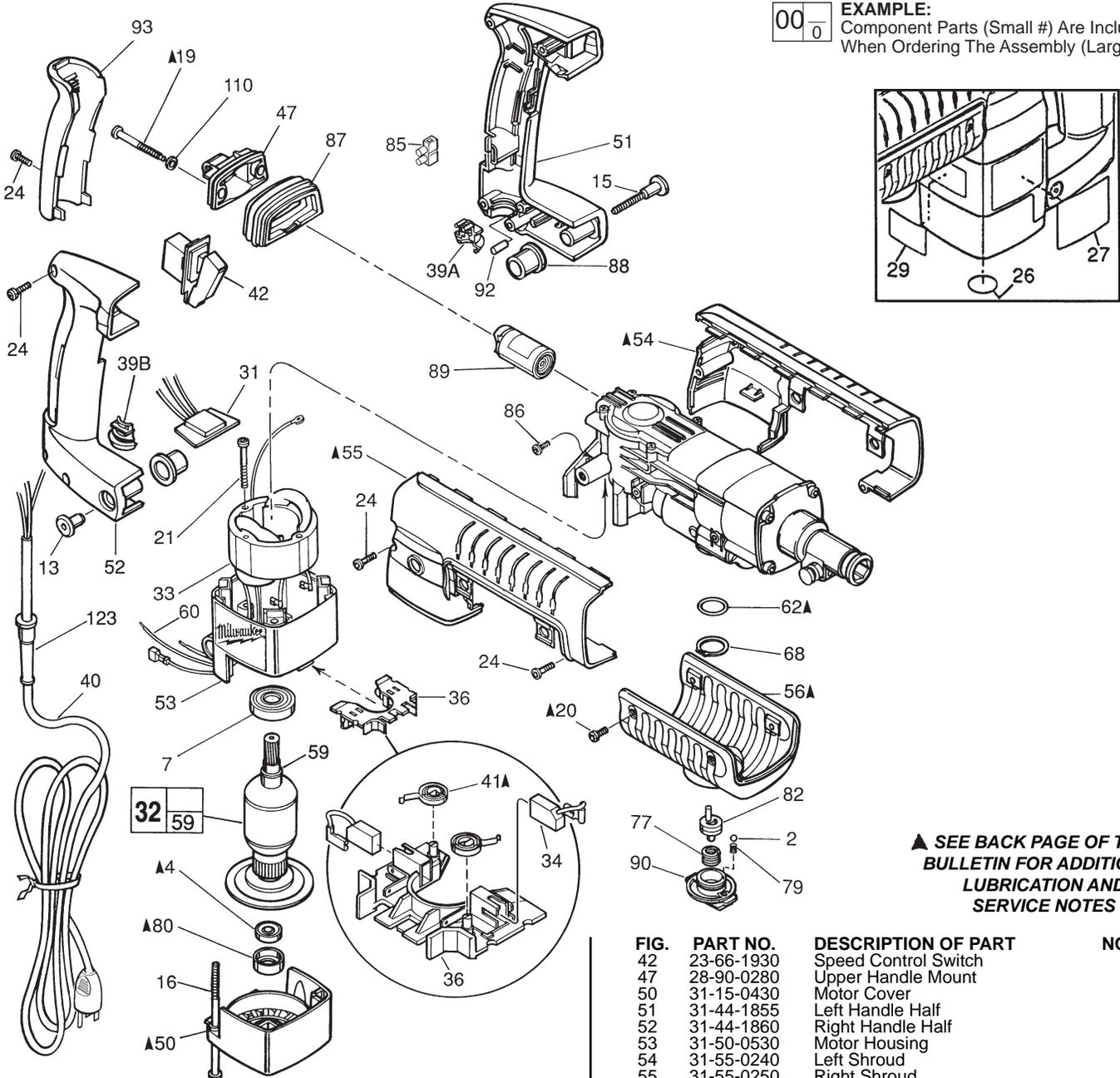




SERVICE PARTS LIST

| | | | |
|--|---------------------------------|---|-----------|
| SPECIFY CATALOG NO. AND SERIAL NO. WHEN ORDERING PARTS | | REVISED BULLETIN | DATE |
| 1-1/2" THUNDERBOLT™ ROTARY HAMMER | | | Sept. '98 |
| CATALOG NO. 5309-21 | STARTING SERIAL NO. 927A | WIRING INSTRUCTION 58-01-1556 | |

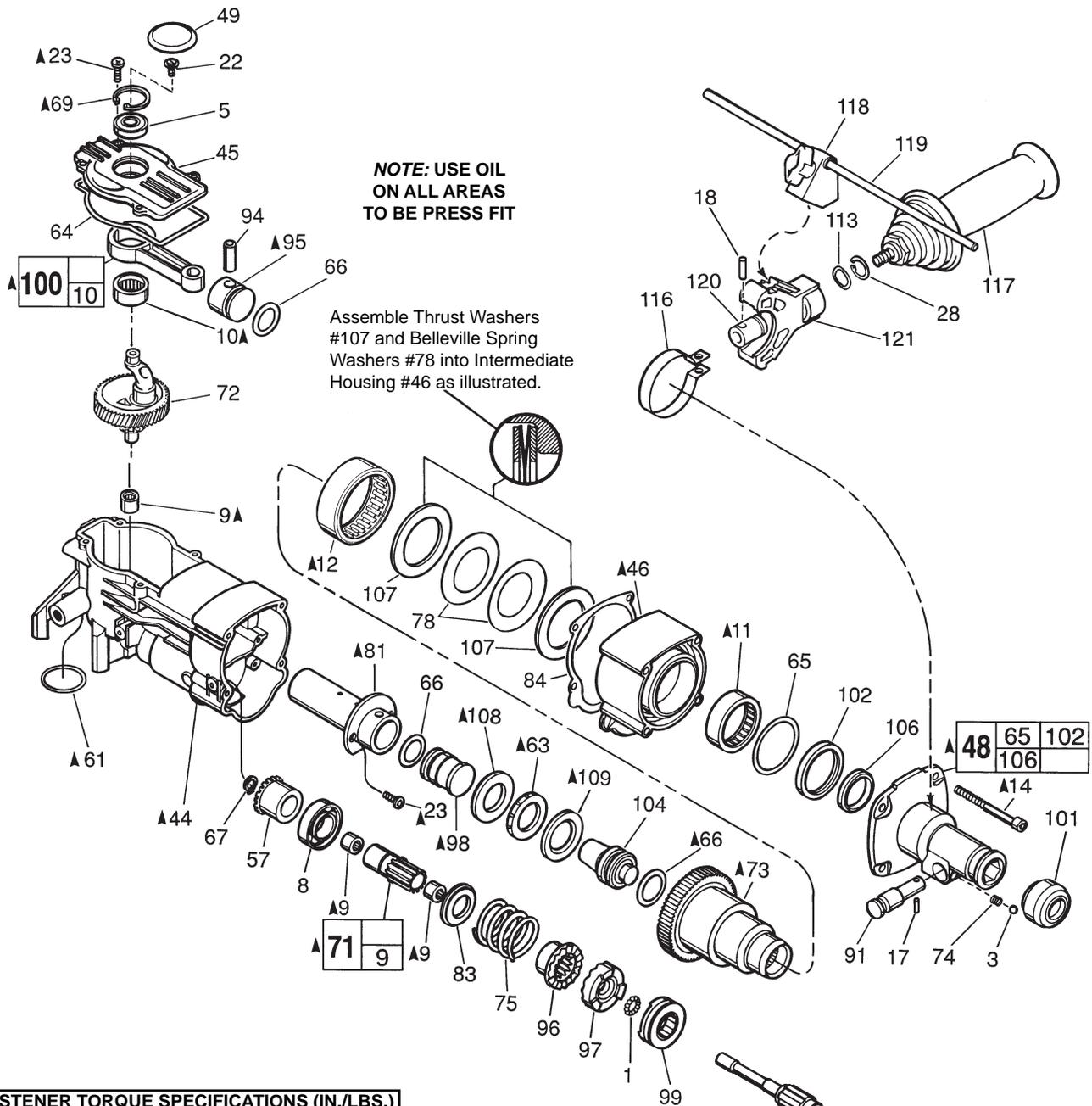
EXAMPLE:
Component Parts (Small #) Are Included
When Ordering The Assembly (Large #).



▲ SEE BACK PAGE OF THIS BULLETIN FOR ADDITIONAL LUBRICATION AND SERVICE NOTES

| FIG. | PART NO. | DESCRIPTION OF PART | NO. REQ. |
|------|----------|---|----------|
| | 2 | 3/16" Steel Ball | (2) |
| | 4 | Ball Bearing | (1) |
| | 7 | Ball Bearing | (1) |
| | 13 | Pivot Nut | (1) |
| | 15 | Pivot Bolt | (1) |
| | 16 | M6 x 1.0 x 120 Pan Hd. Slit. Tapt. T-27 | (4) |
| | 19 | Special Screw | (2) |
| | 20 | 8-32 x 3/8" Pan Hd. Slit. Tapt. T-20 | (2) |
| | 21 | 8-16 x 2" Pan Hd. Slit. Plast. T-20 | (4) |
| | 24 | M5 x 2.24 x 18 Pan Hd. Slit. PT T-20 | (7) |
| | 26 | Milwaukee Label | (1) |
| | 27 | Product Label | (1) |
| | 29 | Service Nameplate Kit | (1) |
| | 31 | Remote Trigger Speed Control | (1) |
| | 32 | 120 Volt Armature | (1) |
| | 33 | 120 Volt Field | (1) |
| | 34 | 120 V Carbon Brush (2) Kit | (1) |
| | 36 | Brush Carrier Assembly | (1) |
| | 39A | Lower Cord Clamp | (1) |
| | 39B | Upper Cord Clamp | (1) |
| | 40 | Cord | (1) |
| | 41 | Brush Spring | (2) |

| FIG. | PART NO. | DESCRIPTION OF PART | NO. REQ. |
|------|----------|----------------------------------|----------|
| | 42 | Speed Control Switch | (1) |
| | 47 | Upper Handle Mount | (1) |
| | 50 | Motor Cover | (1) |
| | 51 | Left Handle Half | (1) |
| | 52 | Right Handle Half | (1) |
| | 53 | Motor Housing | (1) |
| | 54 | Left Shroud | (1) |
| | 55 | Right Shroud | (1) |
| | 56 | Belly Shroud | (1) |
| | 59 | Retaining Ring | (1) |
| | 60 | Ground Wire Assembly | (1) |
| | 62 | O-Ring | (1) |
| | 68 | Retaining Ring | (1) |
| | 77 | Torsion Spring | (1) |
| | 79 | Compression Spring | (2) |
| | 80 | Bearing Cup | (1) |
| | 82 | Shift Disk Assembly | (1) |
| | 85 | Terminal Block | (1) |
| | 86 | M4 x .7 10mm Metric Ground Screw | (1) |
| | 87 | Isolation Bellows | (1) |
| | 88 | Pivot Isolator | (2) |
| | 89 | Isolation Module Assembly | (1) |
| | 90 | Rotostop Knob | (1) |
| | 92 | Foam Slug Kit (Bag of 10) | (1) |
| | 93 | Handle Cushion | (1) |
| | 110 | Rubber Washer | (2) |
| | 123 | Cord Protector | (1) |



FASTENER TORQUE SPECIFICATIONS (IN./LBS.)

| FIG. NO. | SEATING TORQUE | |
|----------|----------------|---------|
| | MINIMUM | MAXIMUM |
| 14 | 120 | 140 |
| 15 | 20 | 25 |
| 16 | 30 | 35 |
| 19 | 30 | 35 |
| 20 | 25 | 30 |
| 21 | 20 | 25 |
| 22 | 25 | 30 |
| 23 | 30 | 35 |
| 24 | 20 | 25 |
| 25 | 35 | 45 |

22-18-0870 CARBON BRUSH SERVICE KIT

THIS KIT CONTAINS:

- 2 ----- Carbon Brush

● 14-46-9070 1-1/2" HAMMER SERVICE KIT

THIS KIT CONTAINS:

- 1 31-12-0270 Cap-Cover
- 1 34-40-4310 Rubber Damping Washer
- 1 34-40-4320 Seal-Cover
- 1 34-40-4330 O-Ring
- 3 34-40-4350 O-Ring
- 1 42-96-0130 Bearing Cup
- 1 43-44-0970 Gasket
- 1 45-06-0540 Dust Seal-Hex
- 45-06-0550 Dust Seal-Round
- 1 49-08-4230 5 Oz. Tube "N" Grease

▲ SEE BACK PAGE OF THIS BULLETIN FOR ADDITIONAL LUBRICATION AND SERVICE NOTES

| FIG. | PART NO. | DESCRIPTION OF PART | NO. REQ. |
|-------|------------|--|----------|
| 1 | 02-02-0120 | 1/8" Steel Ball | (12) |
| 3 | 02-02-0250 | 1/4" Steel Ball | (1) |
| 5 | 02-04-0911 | Ball Bearing | (1) |
| 6 | 02-04-1510 | Ball Bearing | (1) |
| 8 | 02-04-2000 | Ball Bearing | (1) |
| 9 | 02-50-2470 | Needle Bearing | (3) |
| 10 | 02-50-4020 | Needle Bearing | (1) |
| 11 | 02-50-9000 | Needle Bearing | (1) |
| 12 | 02-50-9985 | Needle Bearing | (1) |
| 14 | 05-81-0830 | M6 x 1.0 x 70 Pan Hd. Screw T-27 | (4) |
| 17 | 06-65-0828 | Groove Pin | (1) |
| 18 | 06-65-1660 | Dowel Pin | (1) |
| 22 | 06-82-8842 | 8-32 x 3/8" Pan Hd. Slit. Taptite T-20 | (1) |
| 23 | 06-95-6280 | M4 x 0.7 x 14 Pan Hd. Slit. Taptite T-20 | (8) |
| 28 | 34-60-2580 | External Retaining Ring | (1) |
| 43 | 28-12-0360 | Bearing Retainer | (1) |
| 44 | 28-14-2295 | Crankcase | (1) |
| 45 | 28-20-1325 | Crankcase Cover | (1) |
| 46 | 28-50-6445 | Intermediate Housing | (1) |
| 48 | 14-52-0020 | Nose Assembly | (1) |
| 49 | 31-12-0270 | Cap-Cover | (1) |
| 57 | 32-05-2250 | Bevel Gear | (1) |
| 58 | 32-60-2590 | Clutch Pinion | (1) |
| 61 | 34-40-1375 | O-Ring | (1) |
| 63 | 34-40-4310 | Rubber Damping Washer | (1) |
| 64 | 34-40-4320 | Seal-Cover | (1) |
| 65 | 34-40-4330 | O-Ring | (1) |
| 66 | 34-40-4350 | O-Ring | (3) |
| 67 | 34-60-0700 | Retaining Ring | (1) |
| 69 | 34-80-5090 | Retaining Ring-Beveled | (1) |
| 70 | 36-14-0760 | Clutch Shaft | (1) |
| 71 | 36-14-0770 | Hollow Clutch Shaft | (1) |
| 72 | 14-09-0140 | Crankshaft Assembly | (1) |
| 73 | 38-50-6030 | Spindle | (1) |
| 74 | 40-50-8420 | Bit Lock Spring | (1) |
| 75 | 40-50-8575 | Compression Spring | (1) |
| 78 | 40-50-8590 | Belleville Spring | (2) |
| 81 | 42-98-0200 | Barrel | (1) |
| 83 | 43-34-0740 | Spring Flange | (1) |
| 84 | 43-44-0970 | Gasket | (1) |
| 91 | 44-20-0222 | Bit Lock | (1) |
| 94 | 44-60-1400 | Wrist Pin | (1) |
| 95 | 44-62-0210 | Piston | (1) |
| 96 | 44-66-6030 | Splined Clutch Plate | (1) |
| 97 | 44-66-6045 | Fixed Clutch Plate | (1) |
| 98 | 44-82-0170 | Ram | (1) |
| 99 | 44-90-4400 | Shift Ring | (1) |
| 100 | 44-94-0395 | Connecting Rod Assembly | (1) |
| 101 | 49-62-0095 | Dust Seal-Hex (5/pkg.) | (1) |
| 101 | 49-62-0105 | Dust Seal-Round (5/pkg.) | (1) |
| 102 | 45-06-0560 | Oil Seal | (1) |
| 104 | 45-56-2610 | Striker | (1) |
| 105 | 45-76-0490 | Clutch Tube | (1) |
| 106 | 45-88-5176 | Felt Seal | (1) |
| 107 | 45-88-8520 | Thrust Washer | (2) |
| 108 | 45-88-8530 | Barrel Thrust Washer | (1) |
| 109 | 45-88-8535 | Striker Cushion Washer | (1) |
| 113 | 45-88-8730 | Wave Washer | (1) |
| ★ 116 | 42-16-0150 | Side Handle Band | (1) |
| 117 | 14-34-0516 | Side Handle Assembly | (1) |
| 118 | 14-34-0551 | Depth Rod Mount Assembly | (1) |
| 119 | 44-94-0165 | Depth Gauge Rod | (1) |
| 120 | 44-86-0620 | Band Retainer | (1) |
| ★ 121 | 31-44-2020 | Side Handle Housing | (1) |

61-10-0670 Nose Service Tool

NOTE: Check the clutch torque. Clutch must slip at 30 to 40 ft.-lbs. at the spindle, checked clockwise as viewed from the front of the tool.

▲ SEE BACK PAGE OF THIS BULLETIN FOR ADDITIONAL LUBRICATION AND SERVICE NOTES

LUBRICATION NOTES: (TYPE "N" GREASE, NO. 49-08-4230)

Fill Piston #95 with grease and assemble to Connecting Rod #100 with Wrist Pin #94. Front surface of Piston to be free of grease.

Lubricate O-Ring #66 with grease.

Place 1.5 oz. grease here.

Place a total of 1.0 oz. grease in the barrel cavity in the crankcase #44. Place .5 oz. in each corner in barrel chamber.

Place 1.5 oz. grease in bottom of crankcase prior to installing crankshaft assembly.

FRONT OF CRANKCASE

Apply grease to lobed surface #97.

Apply grease to spline surface #71.

Apply grease to lobed surface #96.

Spacer (5311 only)

Apply grease to radius and spline surface #70.

Apply .5 oz. grease on clutch assembly, filling the spring coils.

Seal to be installed with garter spring to left as shown.

Dip Felt Washer #106 into light oil. Press Oil Seal #102 and Felt Washer into Nose #48 to dimension shown using Nose Service Tool 61-10-0670.

.75±.015

102

106

Lightly grease Spring #74 and bit lock #92.

Lubricate O-Ring #66 with grease. Install O-Ring onto Ram #98. Assemble Ram into Barrel #81, O-Ring end first. Set end of Ram flush with end of Barrel. Do not push Ram deep into Barrel.

Place .5 oz. grease in lower clutch pinion cavity.

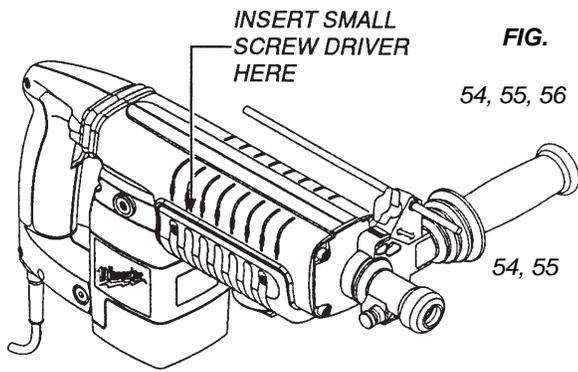


FIG.
54, 55, 56

NOTES

TO REMOVE BELLY SHROUD #56 FROM TOOL, INSERT SMALL SCREW DRIVER INTO GROOVE BETWEEN BELLY AND SIDE SHROUDS #54 AND #55, ABOUT 1/3 OF THE WAY FROM THE MOTOR END, AS SHOWN. PRY OUT AND DOWN ON BOTH SIDES OF THE TOOL.

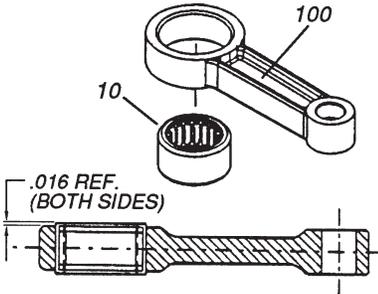
TO INSTALL THE SIDE SHROUDS #54 AND #55, THE TOP HINGE OF THE SHROUDS MUST BE COMPLETELY INTERLOCKED, THEN THE BACK SIDE ROTATED CLOSED AROUND THE TOOL.

73

LUBRICATE ALL BORES IN SPINDLE #73 WITH A MEDIUM COATING OF GREASE.

63, 108, 109

LUBRICATE RUBBER DAMPING WASHER #63, BARREL THRUST WASHER #108 AND STRIKER CUSHION WASHER #109 WITH A MEDIUM COATING OF GREASE BEFORE ASSEMBLY.



10, 100

PRESS NEEDLE BEARING #10 IN ROD #100 SO THAT THE SAME AMOUNT STICKS OUT ON BOTH SIDES OF THE ROD, AS SHOWN.

9, 71

PRESS (2) NEEDLE BEARINGS #9 INTO HOLLOW CLUTCH SHAFT #71, FLUSH WITH THE ENDS OF THE SHAFT.

58, 70

PRESS CLUTCH PINION #58 FLUSH WITH THE END OF THE CLUTCH SHAFT #70.

11, 12, 46

PRESS NEEDLE BEARINGS #11 AND #12 FLUSH TO THE MACHINED FACES ON BOTH ENDS OF THE INTERMEDIATE HOUSING #46.

9, 44

PRESS NEEDLE BEARING #9 INTO CRANKCASE #44, FLUSH WITH TOP OF BORE, AS SHOWN.

81

LIGHTLY GREASE INSIDE OF BARREL #81 BEFORE ASSEMBLY.

48, 73

SMALL OUTSIDE DIAMETER OF SPINDLE #73 IS TO BE LUBRICATED WITH A LIGHT COAT OF GREASE BEFORE ASSEMBLING THE NOSE ASSEMBLY #48 TO THE TOOL.

48, 73, 102

NOSE ASSEMBLY #48 MUST BE PLACED SQUARELY OVER SPINDLE #73, WHEN ASSEMBLING, TO PREVENT DAMAGE TO OIL SEAL #102.

14, 19, 20, 23

FASTENERS #14, #19, #20 AND #23 ARE TO BE RE-ASSEMBLED USING BLUE LOCTITE.

48, 102

LUBRICATE BORE IN NOSE ASSEMBLY #48 BEFORE PRESSING OIL SEAL #102 INTO PLACE.

61, 62, 66

LUBRICATE O-RINGS #61, #62 AND #66 WITH GREASE.

69

INSTALL BEVEL SNAP RING #69 WITH BEVEL SIDE UP.

4, 50, 80

PLACE BEARING CUP #80 ON SMALL ARMATURE BEARING #4 BEFORE INSTALLING MOTOR COVER #50.

41

BRUSH SPRINGS #41 ARE TO BE WOUND 1/2 TURN TO ENGAGE BRUSHES.

4

RUBBER SEAL SIDE OF BALL BEARING #4 TO FACE FAN.

95, 98

FACES OF PISTON #95 AND RAM #98 ARE TO BE FREE OF GREASE.

