ARO
Tool Products

OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

Released: 6–30–95
Revised:

"2200" SERIES DRILL

Model 7695
325 R.P.M.

⚠ WARNING

READ THIS MANUAL CAREFULLY BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT.

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

Pneumatic tools should always be installed and used in accordance with A.N.S.I. B186.1 "Safety Code For Portable Air Tools."

⚠WARNING

- Operate this tool at 90 p.s.i.g. (6.2 bar) maximum air pressure at the air inlet of the tool.
- Disconnect air supply from tool before removing/installing bit, socket or device attached to tool or performing maintenance procedures.
- Keep hands, clothing and long hair away from rotating end of tool.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Never exceed rated r.p.m. of tool.
- Wear suitable eye and hearing protection while operating tool.
- Tool shaft can continue to rotate briefly after throttle is released.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.
- Use only accessories recommended by ARO.

⚠WARNING

Repeated prolonged operator exposure to vibrations which may be generated in the use of certain hand–held tools may produce Raynaud's phenomenon, commonly referred to as Whitefinger disease. The phenomenon produces numbness and burning sensations in the hand and may cause circulation and nerve damage as well as tissue necrosis. Repetitive users of hand–held tools who experience vibrations should closely monitor duration of use and their physical condition.

NOTICE

- The use of other than genuine ARO replacement parts may result in safety hazards, decreased tool performance and increased maintenance and may invalidate all warranties.
- ARO is not responsible for customer modification of tools for applications on which ARO was not consulted.
- Tool maintenance and repair should be performed by authorized, trained, competent personnel. Consult your nearest ARO authorized servicenter.
- It is the responsibility of the employer to place the information in this manual into the hands of the operator.

For parts and service information, contact your local ARO distributor, or the Customer Service Dept. of the Ingersoll–Rand Distribution Center, White House, TN at PH: (615) 672–0321, FAX: (615) 672–0801.

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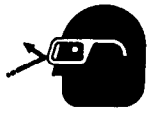
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

⚠ WARNING



Wear eye protection when operating or performing maintenance on this tool.

⚠ WARNING

Wear hearing protection when operating this tool.

⚠ WARNING

Turn off air supply and disconnect air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.

⚠ WARNING

Air powered tools can vibrate in use. Vibration, repetitive motions or uncomfortable positions may be harmful to your hands and arms. Stop using any tool if discomfort, tingling feeling or pain occurs. Seek medical advice before resuming use.

⚠ WARNING

Do not carry the tool by the hose.

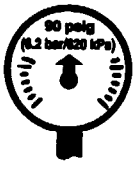
⚠ WARNING

Do not use damaged, frayed or deteriorated air hoses and fittings.

⚠ WARNING

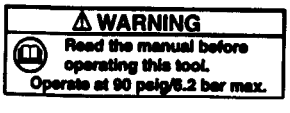
Do not overreach when operating this tool. Keep body stance balanced and firm.

⚠ WARNING



Operate at 90 p.s.i.g. (6.2 bar/620 kPa) maximum air pressure.

NOTICE



PN 48176–1 LABEL

This label must appear on the tool at all times. If it is lost or damaged, a replacement label is available at no cost.

WARNING = Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.

CAUTION = Hazards or unsafe practices which could result in minor personal injury or product or property damage.

NOTICE = Important installation, operation or maintenance information.

ROUTINE LUBRICATION REQUIREMENTS

Lack of or an excessive amount of lubrication will affect the performance and life of this tool. Use only recommended lubricants at below time intervals:

EVERY 8 HOURS OF TOOL OPERATION – Fill lubricator reservoir of recommended F.R.L. with spindle oil (29665). If an in line or air line lubricator is not used, apply several drops of spindle oil (29665) in air inlet.

EVERY 40 HOURS OF TOOL OPERATION – Flush tool with a solution of three (3) parts cleaning solvent to one (1) part spindle oil. After flushing, apply a small amount of spindle oil in air inlet and run tool for one minute to insure proper lubrication. Built–in oiler reservoir should be filled with spindle oil (29665).

EVERY 160 HOURS OF TOOL OPERATION – Lubricate gearing. Pack bearings, coat shafts and lubricate gears with NLGI #1 "EP" grease (33153). Gearing should contain approximately 1/4 oz. (7 g) of grease per reduction.

AIR SUPPLY REQUIREMENTS

For maximum operating efficiency, the following air supply specifications should be maintained to this air tool:

- AIR PRESSURE – 90 p.s.i.g. (6.2 bar)
- AIR FILTRATION – 50 micron
- LUBRICATED AIR SUPPLY
- HOSE SIZE – 5/16" (8 mm) I.D.

An ARO® model C28231–810 air line FILTER/REGULATOR/LUBRICATOR (F.R.L.) is recommended to maintain the above air supply specifications.

RECOMMENDED LUBRICANTS

After disassembly is complete, all parts, except sealed or shielded bearings, should be washed with solvent. To relubricate parts, or for routine lubrication, use the following recommended lubricants:

Where Used	ARO Part #	Description
Air Motor	29665	1 qt Spindle Oil
"O" Rings & Lip Seals	36460	4 oz. Stringy Lubricant
Gears and Bearings	33153	5 lb. "EP" – NLGI #1 Grease

INSPECTION, MAINTENANCE AND INSTALLATION

Disconnect air supply from the tool or shut off air supply and exhaust (drain) line of compressed air before performing maintenance or service to the tool.

It is important that the tools be serviced and inspected at regular intervals for maintaining safe, trouble–free operation of the tool.

Be sure the tool is receiving adequate lubrication, as failure to lubricate can create hazardous operating conditions resulting from excessive wear.

Be sure that the air supply lines and connectors are of proper size to provide a sufficient quantity of air to the tool.

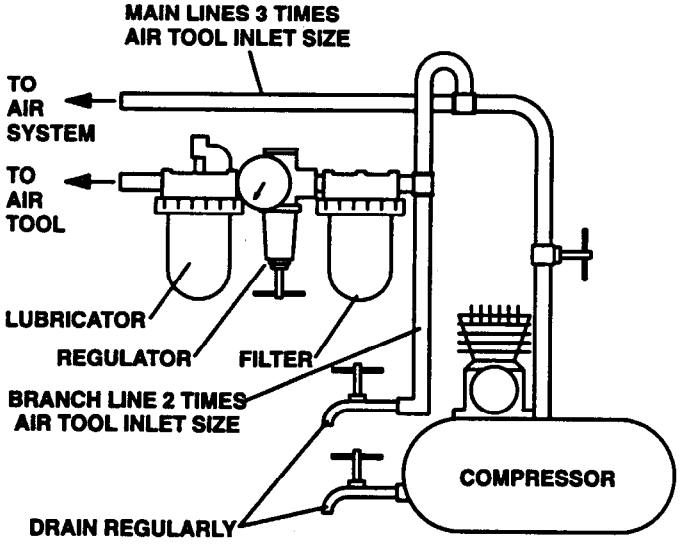
Tool maintenance and repair shall be performed by authorized, trained, competent personnel. Tools, hose and fittings shall be replaced if unsuitable for safe operation and responsibility should be assigned to be sure that all tools requiring guards or other safety devices shall be kept in legible condition. Maintenance and repair records should be maintained on all tools. Frequency of repair and the nature of the repairs can reveal unsafe application. Scheduled maintenance by competent authorized personnel should detect any mistreatment or abuse of the tool and worn parts. Corrective action should be taken before returning the tool for use.

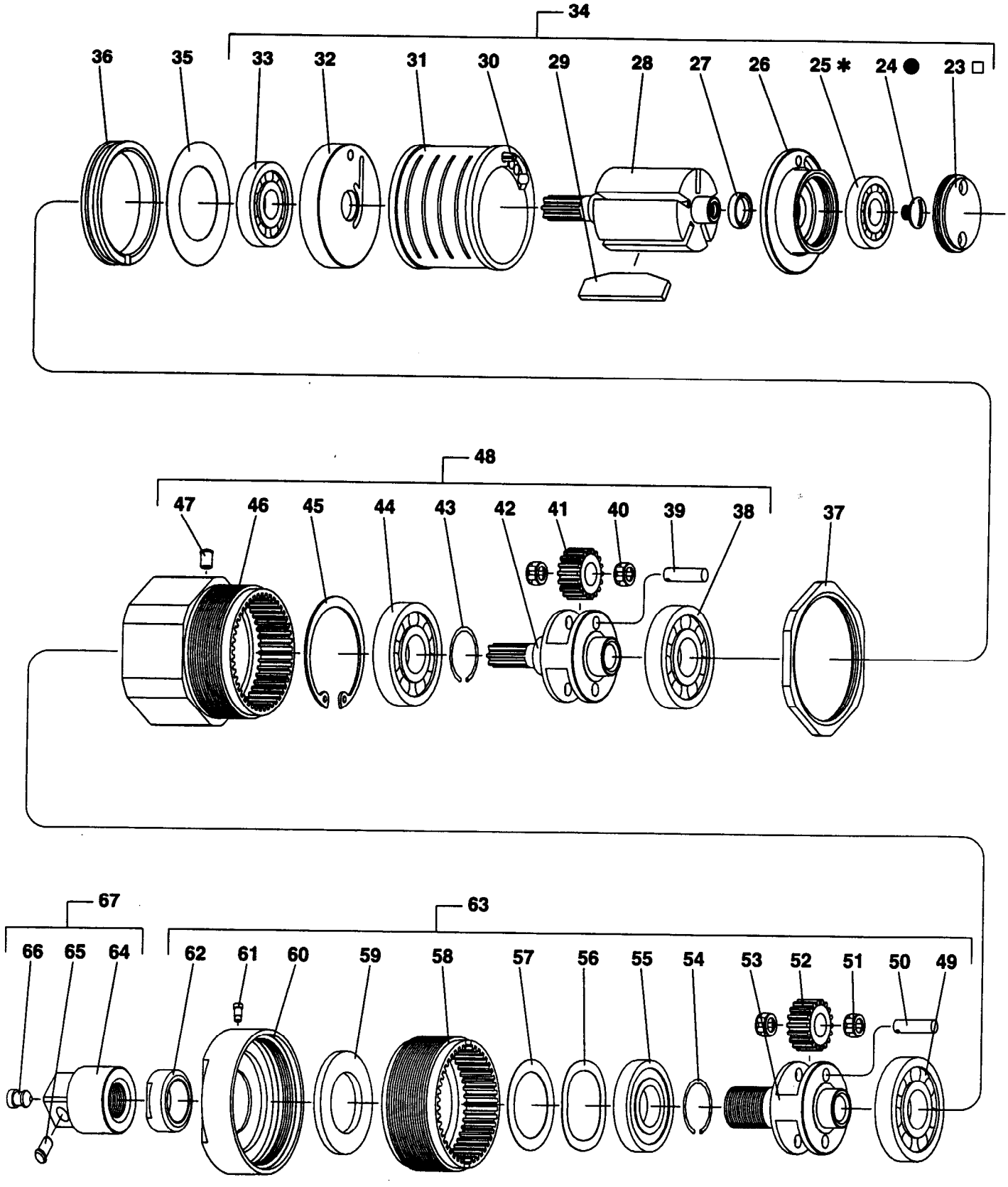
Disassembly should be done on a clean work bench with a clean cloth spread to prevent the loss of small parts. After disassembly is completed, all parts should be thoroughly washed in a clean solvent, blown dry with air and inspected for wear levels, abuse and contamination. Double sealed or shielded bearings should never be placed in solvent unless a good method of re–lubricating the bearing is available. Open bearings may be washed but should not be allowed to spin while being blown dry.

Upon reassembling, lubricate parts where required. Use 33153 grease, or equivalent, in bearings. Use 36460 lubricant for "O" ring assembly. When assembling "O" rings or parts adjacent "O" rings, care must be exercised to prevent damage to the rubber sealing surfaces. A small amount of grease will usually hold steel balls and other small parts in place while assembling.

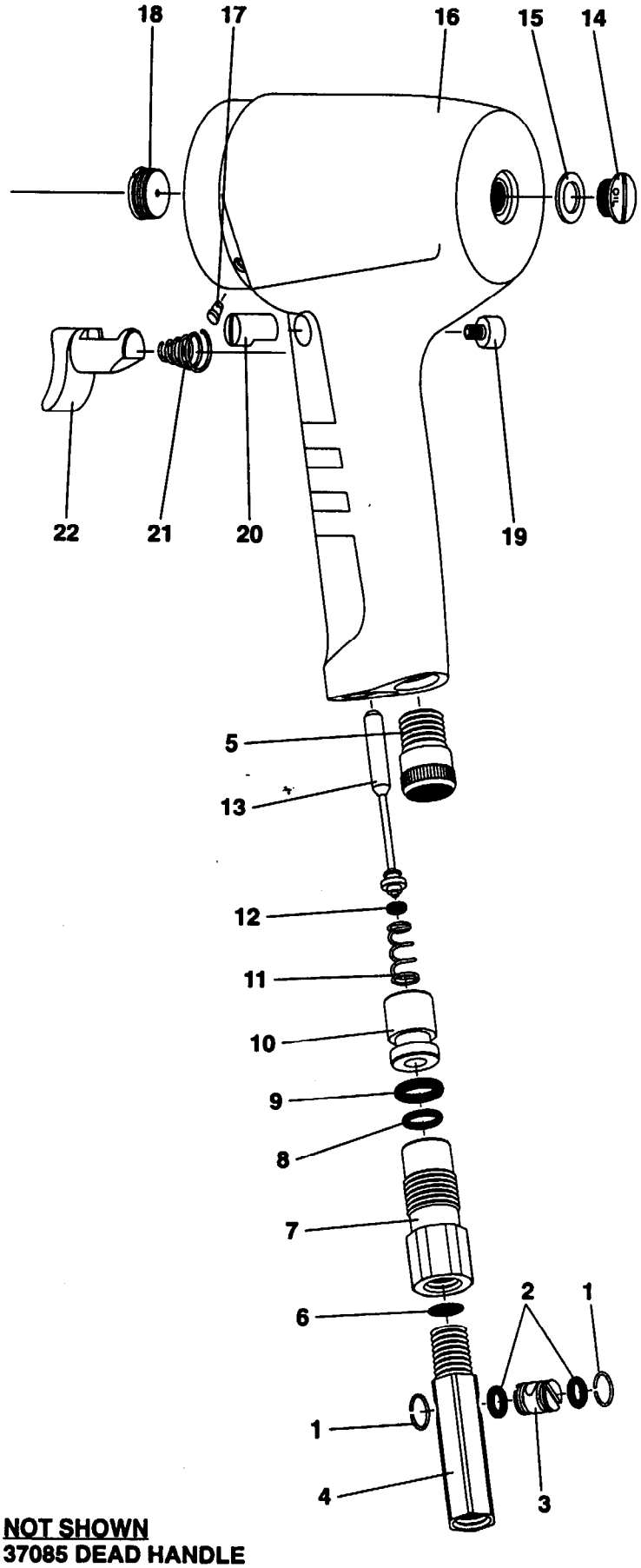
When replacement parts are necessary, consult drawing containing the part for identification.

Always use clean, dry air. Dust, corrosive fumes and/or excessive moisture can damage the motor of an air tool. An air line filter can greatly increase the life of an air tool. The filter removes rust, scale, moisture and other debris from the air lines. Low air pressure (less than 90 p.s.i.g.) reduces the speed of the air tool. High air pressure (more than 90 p.s.i.g.) raises performance beyond the rated capacity of the tool and could cause injury. Shown below is a typical piping arrangement.





□ TORQUE TO 9 – 12 FT LBS.
● TORQUE TO 28 IN. LBS.
✱ FLUSH FACE TYPE BEARING – ASSEMBLE WITH FLUSH FACE TOWARDS END PLATE.



NOT SHOWN
37085 DEAD HANDLE
37167 WRENCH
48176–1 WARNING LABEL

		PART NUMBER FOR ORDERING
1	Snap Ring (2 req'd)	Y111–3
2	"O" Ring (2 req'd)	Y325–8
3	Regulator Valve	36975
4	Regulator Body	37527
	Air Regulator Assembly (includes items 1 thru 4)	37526
5	Muffler Assembly	40192
6	Screen	33911
7	Inlet Adapter	37073
8	"O" Ring	Y325–13
9	"O" Ring	Y325–112
10	Insert	37070
	Insert Assembly (includes items 9 and 10)	37981
11	Spring	33547
12	"O" Ring	Y325–7
13	Valve Stem	39286
14	Oil Screw	30747
15	Washer	31389
16	Housing (includes item 17)	37064
17	Grease Fitting	35967
18	Oilite Casting	33190–1
19	Screw	39769
20	Guide Pin	39768
21	Spring	32858
22	Trigger	39764
	Pistol Grip Housing Assembly (includes items 6 thru 22)	40177
23	Nut	33694
24	Sems Fastener	33700
25	Bearing	33709
26	Rear End Plate	33710
27	Spacer	33701
28	Rotor	41521
29	Blade (5 req'd)	41520
30	Roll Pin (2 req'd)	Y178–20
31	Cylinder (includes item 30)	35679
32	Front End Plate	33712
33	Bearing	33705
34	Motor Assembly	41522
35	Spacer	33699
36	Spacer	33711
37	Lock Nut	35831
38	Bearing	33704
39	Shaft (2 req'd)	40841
40	Needle Bearing (4 req'd)	42271
41	Gear (2 req'd) 18 teeth	46416
42	Spindle	40840
43	Snap Ring	40843
44	Bearing	33704
45	Retaining Ring	33708
46	Ring Gear (includes item 47)	35270
47	Grease Fitting	35323
48	Auxiliary Gearing Assembly (7.43:1)	40826
49	Bearing	33704
50	Shaft (2 req'd)	40841
51	Needle Bearing (4 req'd)	42271
52	Gear (2 req'd) 18 teeth	46416
53	Spindle	40836
54	Snap Ring	40843
55	Bearing	33706
56	Wave Washer	47589
57	Washer	47590
58	Ring Gear	34490
59	Seal	37774
60	Nose Housing (includes item 61)	38379
61	Grease Fitting	35967
62	Spacer	33697
63	Drive Gearing Assembly (7.43:1)	41770
64	Adapter Body (1/2" square drive)	40767
65	Locking Pin	31388
66	Rubber Insert	30890
67	Adapter Assembly (1/2" square drive)	40768

DISASSEMBLY/ASSEMBLY INSTRUCTIONS

NOTICE

- Never apply excessive pressure by a holding device which may cause distortion of a part.
- Apply pressure evenly to parts which have a press fit.
- Apply even pressure to the bearing race that will be press fitted to the mating part.
- Use correct tools and fixtures when servicing this tool.
- Don't damage "O" rings when servicing this tool.
- Use only genuine ARO replacement parts for this tool. When ordering, specify part number, description, tool model number and serial number.

DRIVE GEARING DISASSEMBLY

- Clamp tool in a smooth face vise, clamping on housing (16).
- Place a wrench on adapter body (64) and strike wrench a sharp blow to loosen adapter body.
- Remove adapter body (64) and spacer (62).
- Using wrenches on flats of nose housing (60) and ring gear (46), unthread and remove drive gearing.
- Remove nose housing (60) and seal (59) from ring gear.
- Grasp ring gear (58) in one hand and tap threaded end of spindle (53) with a soft face hammer; spindle and components will loosen from ring gear.
- Do not disassemble further unless damage is evident, as Brinelling of the bearing races may occur, making replacement necessary.
- To disassemble, remove bearing (55).
- Turn snap ring (54) so the open portion allows removal of shaft (50).
- Remove shaft (50), releasing gear (52).
- Repeat for removal of opposite shaft and gear.
- Place shafts (50) into spindle and alternately tap ends to remove bearing (49).

DRIVE GEARING ASSEMBLY

- Assemble snap ring (54) to groove in spindle, aligning open portion of snap ring with hole for shaft.
- Lubricate needle bearings (51) with ARO 33153 grease and assemble to gears (52).
- Lubricate gears (52) liberally with ARO 33153 grease and assemble one gear to spindle, securing with shaft (50).
- Repeat for opposite shaft and gear.
- After assembly of gears and shafts, turn snap ring so open portion is approximately 90° from either shaft.
- Assemble bearing (55) to spindle, pressing on inner race of bearing.
- Pack bearing (49) with ARO 33153 grease and assemble to spindle, pressing on inner race of bearing.
- Assemble washer (57), wave washer (56) and spindle and components into ring gear (58).
- Assemble seal (59) and nose housing (60) to ring gear (58).
- Assemble drive gearing to tool and tighten, using wrenches on flats of nose housing (60) and ring gear (46).
- Assemble spacer (62) and adapter body (64) to spindle.
- Assemble locking pin (65) to adapter body (64), securing with rubber insert (66).

AUXILIARY GEARING DISASSEMBLY

- Remove drive gearing from tool.
- Using a wrench on flats of lock nut (37), loosen lock nut and remove auxiliary gearing from tool.
- Grasp ring gear in one hand and tap drive end of spindle with a soft face hammer; spindle and components will loosen from ring gear.
- Do not disassemble further unless damage is evident, as Brinelling of the bearing races may occur, making replacement necessary.
- To disassemble, remove bearing (44).
- Turn snap ring (43) so the open portion allows the removal of shaft (39).
- Remove shaft (39), releasing gear (41).
- Repeat for removal of opposite shaft and gear.
- Place shafts (39) into spindle and alternately tap ends to remove bearing (38).

AUXILIARY GEARING ASSEMBLY

- Assemble snap ring (43) to groove in spindle, aligning open portion of snap ring with hole for shaft.
- Lubricate needle bearings (40) with ARO 33153 grease and assemble to gears (41).
- Lubricate gears liberally with ARO 33153 grease and assemble one gear to spindle, securing with shaft (39).
- Repeat for opposite shaft and gear.
- After assembly of gears and shafts, turn snap ring so open portion is approximately 90° from either shaft.
- Pack bearings (44 and 38) with ARO 33153 grease and assemble to spindle, pressing on inner race of bearings.
- Assemble spindle and components into ring gear.
- Thread lock nut (37) all the way onto ring gear.
- Assemble auxiliary gearing to tool and tighten, using a wrench on flats of ring gear.
- Tighten lock nut (37) against housing (16), securing auxiliary gearing.
- Assemble drive gearing to tool.

MOTOR DISASSEMBLY

- Remove gearing from tool.
- Remove spacers (36 and 35) and motor assembly from housing (16).
- Using a spanner type wrench, remove nut (23) from end plate (26).
- Grasp cylinder in one hand and tap splined end with a soft face hammer; motor will come apart.
- Remove sems fastener (24), releasing bearing (25) and end plate (26).

MOTOR ASSEMBLY

- Pack bearings with ARO 33153 grease.
- Assemble bearing (25) to end plate (26), pressing on outer race of bearing. NOTE: Assemble bearing to end plate with the identification markings facing out.
- Assemble spacer (27) and end plate (26) to rotor, pressing on inner race of bearing.
- Assemble sems fastener (24) to rotor, securing bearing and end plate. Torque fastener to 28 in. lbs.
- Coat five rotor blades (29) with ARO 29665 spindle oil and assemble to rotor slots – straight side out.
- Coat i.d. of cylinder (31) with ARO 29665 spindle oil and assemble over rotor, aligning roll pin (30) with hole in end plate.
- Assemble bearing (33) to end plate (32), pressing on outer race of bearing.
- Assemble end plate (32) to cylinder, pressing on inner race of bearing.
- Assemble nut (23) to end plate (26) and tighten, using a spanner type wrench. Torque to 9 – 12 ft lbs.
- Be sure rotor does not bind.
- Assemble motor assembly and spacers (35 and 36) to housing (16).
- Assemble gearing assemblies to tool.

HOUSING DISASSEMBLY

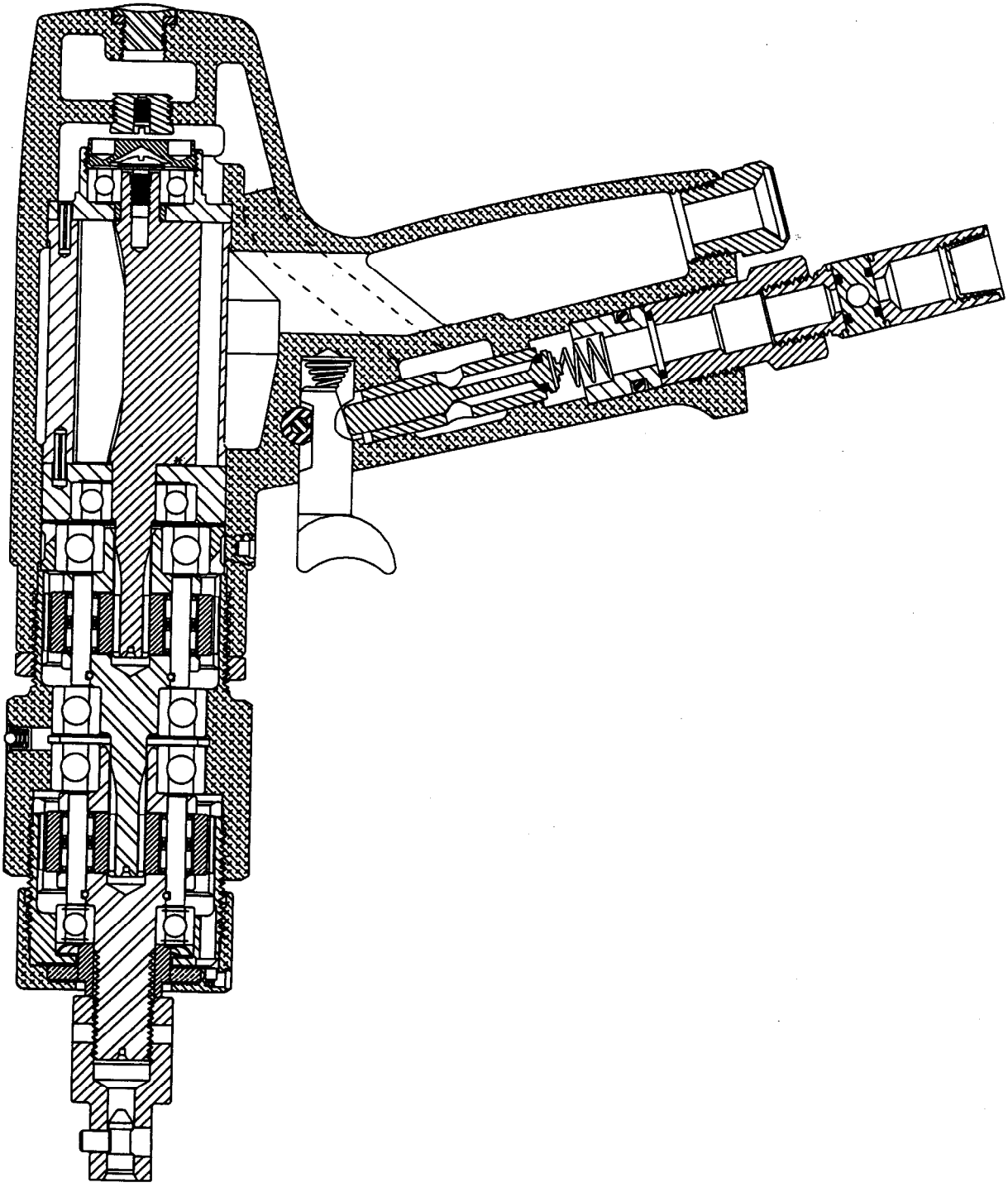
- Remove snap ring (1), releasing regulator valve (3) and "O" rings (2).
- Remove regulator body (4), screen (6), inlet adapter (7), "O" ring (8), insert (10) and spring (11).

DISASSEMBLY/ASSEMBLY INSTRUCTIONS

- Depress trigger (22) to release valve stem (13) and "O" ring (12).
- Remove screw (19) and guide pin (20), releasing trigger (22) and spring (21).
- To remove oilite casting (18), unscrew from "motor" end of housing.

HOUSING ASSEMBLY

- Assemble spring (21) and trigger (22) into housing, securing with guide pin (20) and screw (19).
- Grease "O" ring (12) and assemble to groove in valve stem (13).
- Lubricate valve stem (13) with ARO 29665 spindle oil and assemble into housing.
- Grease "O" ring (9) and assemble to groove in insert (10).
- Assemble spring (11) and insert (10) into housing.
- Grease "O" ring (8) and assemble "O" ring and inlet adapter (7) to housing, securing valve components.
- Clean and replace screen (6) in inlet adapter.
- Grease "O" rings (2) and assemble to grooves in regulator valve (3).
- Assemble regulator valve (3) to regulator body (4), securing with snap rings (1).
- Assemble regulator body (4) to inlet adapter (7).
- Assemble oilite casting (18) into housing.
- Fill cavity in housing (16) with ARO 29665 spindle oil and seal with washer (15) and oil screw (14).



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