



Tool Products

OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

Released: 9-9-91

Revised: 12-8-95

Form: 3933-2

50 SERIES POWER UNIT

Model 7768-()



⚠ 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 servicer.
- 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.

ARO Tool Products

Ingersoll-Rand Company

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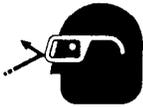
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Part of worldwide Ingersoll-Rand

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

<p>⚠ WARNING</p> <p> Read the manual before operating this tool. Operate at 90 psig/6.2 bar max.</p>	<p>This label must appear on the tool at all times. If it is lost or damaged, a replacement label is available at no cost.</p>
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PN 48176-1 LABEL

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 160 HOURS OF TOOL OPERATION – Lubricate clutch parts with molybdenum grease (40036-1). Lubricate gearing. Pack bearings, coat shafts and lubricate gears with NLGI #1 "EP" grease (33153). Gearing should contain approximately 1/16 oz. (1.8 g) of grease. Clutch should contain approximately 1/16 oz. (1.8 g) of grease.

AIR SUPPLY REQUIREMENTS

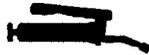
For maximum operating efficiency, the following air supply specifications should be maintained to this air tool:

- 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
Clutches	40036-1	1 lb. "EP" Molybdenum Disulfide

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.

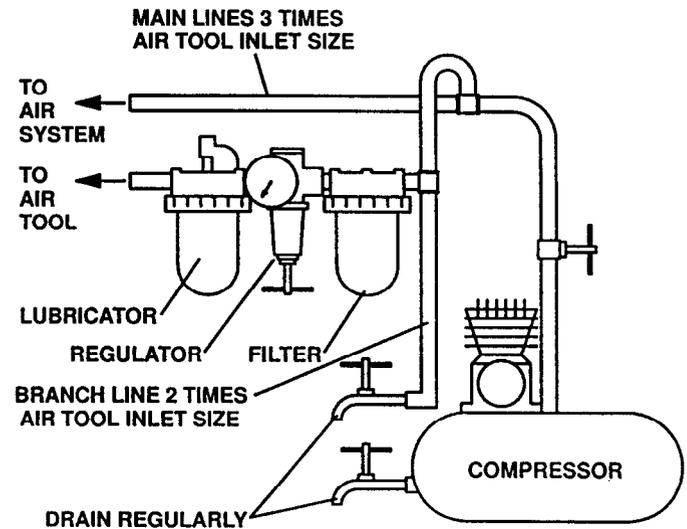
Tool maintenance and repair shall be performed by authorized, trained, competent personnel. Tools, hose and fittings shall be replaced if unsuitable for safe operation and responsibility should be assigned to be sure that all tools requiring guards or other safety devices shall be kept in legible condition. 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.

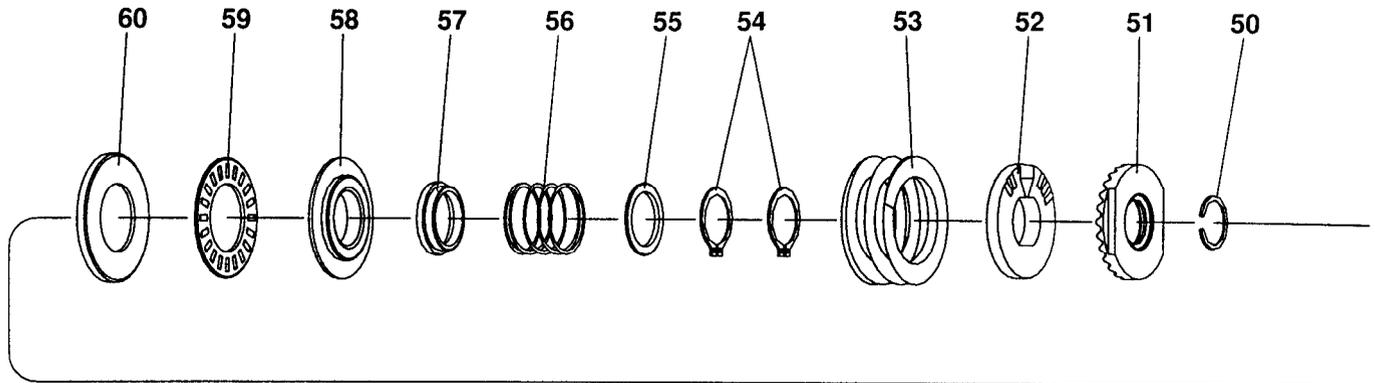
Disassembly should be done on a clean work bench with a clean cloth spread to prevent the loss of small parts. After disassembly is completed, all parts should be thoroughly washed in a clean solvent, blown dry with air and inspected for wear levels, abuse and contamination. Double sealed or shielded 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.

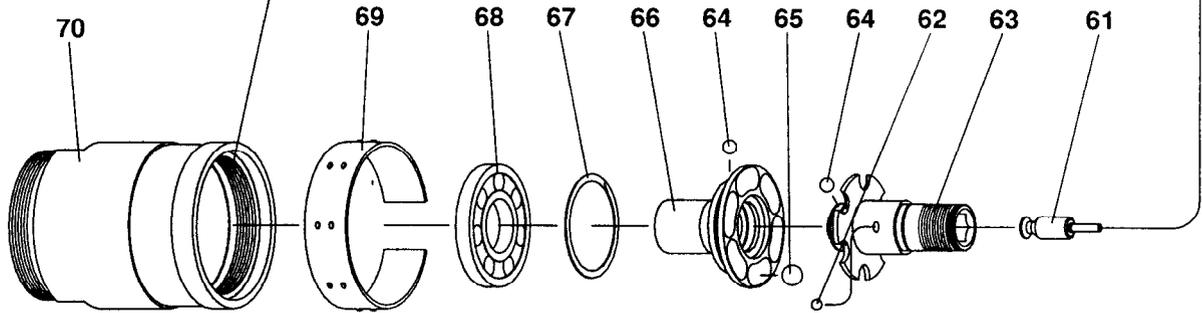
When replacement parts are necessary, consult drawing containing the part for identification.

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.





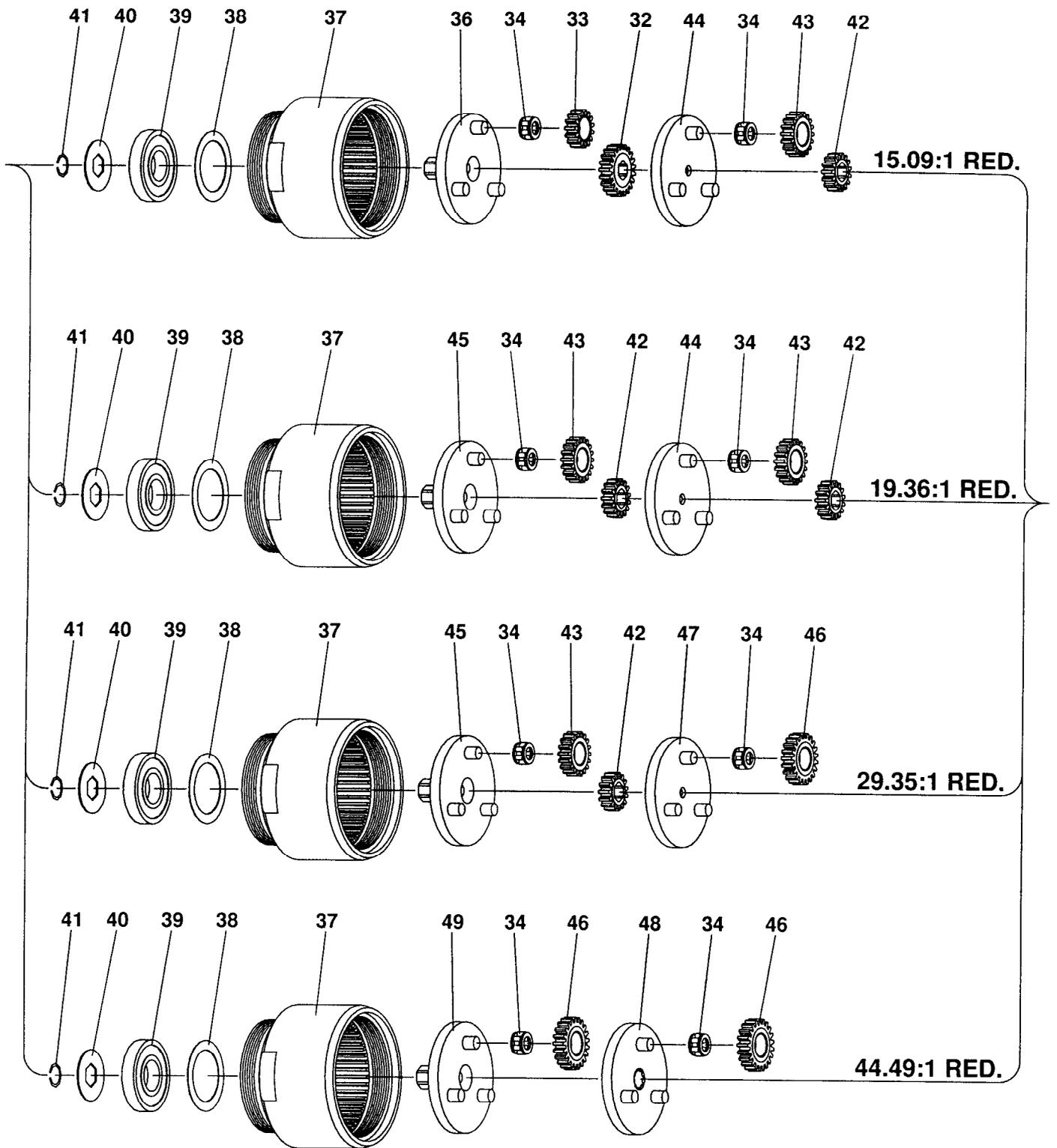
LEFT HAND THREADS



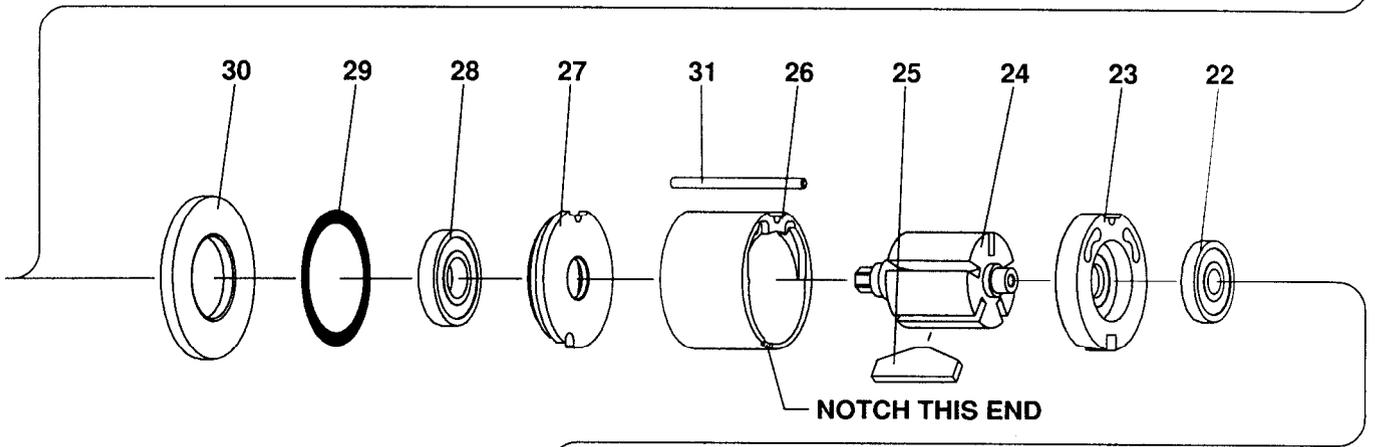
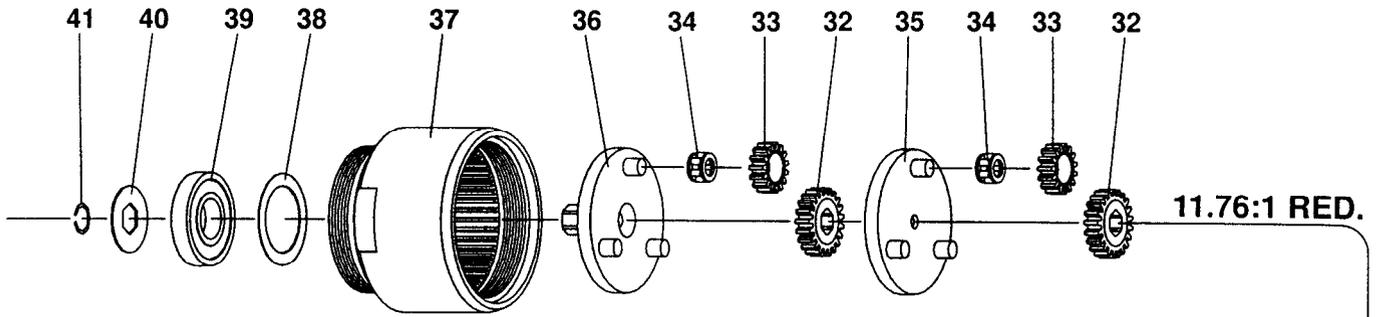
PART NUMBER FOR ORDERING

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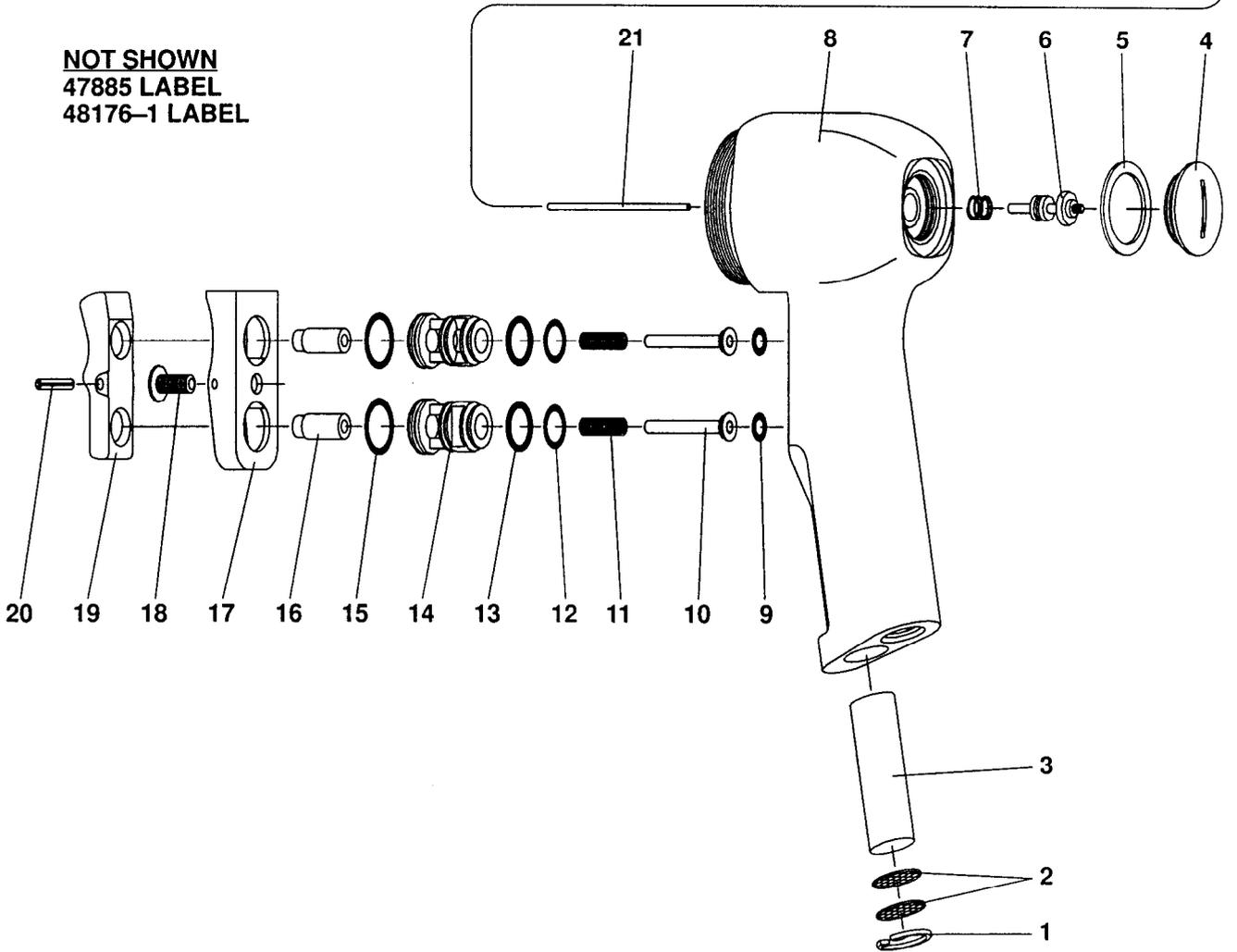
1	Retaining Ring	Y147-68	36	Spindle Assembly	47752
2	Screen (2 req'd)	42911	37	Ring Gear	46467
3	Muffler	See table	38	Spacer	46496
4	Plug	48812-1	39	Ball Bearing	Y65-13
5	Washer	31842	40	Washer	47694
6	Valve Assembly (includes "O" ring Y325-6)	48411-1	41	Snap Ring	Y142-2
7	Spring	47587	42	Sun Gear (1 or 2 req'd) 15 teeth	46466
8	Housing Assembly	48811-1	43	Planet Gear (3 or 6 req'd) 18 teeth	46900
9	"O" Ring (2 req'd)	Y325-7	44	Carrier Assembly	46522
10	Valve Assembly (2 req'd)	47880	45	Spindle Assembly	47753
11	Spring (2 req'd)	48806-1	46	Planet Gear (3 or 6 req'd) 21 teeth	46901
12	"O" Ring (2 req'd)	Y325-11	47	Carrier Assembly	46721
13	"O" Ring (2 req'd)	Y325-12	48	Carrier Assembly	47544
14	Bushing (2 req'd)	45465	49	Spindle Assembly	47750
15	"O" Ring (2 req'd)	Y325-13	50	Snap Ring	Y110-105
16	Plunger (2 req'd)	47879	51	Adjustment Nut	46895
17	Shroud	45468	52	Adjustment Washer	48093
18	Screw	Y222-156-C	53	Clutch Spring	48047
19	Trigger	45469	54	Retaining Ring (2 req'd)	Y145-18
20	Roll Pin	Y178-25	55	Guide	48295-1
	Housing Assembly (includes items 1 thru 20)	See table	56	Spring	47064
21	Throttle Rod	46511-408	57	Ball Sleeve	48294-1
22	Ball Bearing	47724	58	Thrust Race	48094
23	Rear End Plate	46312-1	59	Thrust Bearing	38995
24	Rotor	See table	60	Thrust Race	48301-1
25	Blade (5 req'd)	46413	61	Plunger	48293-2
26	Cylinder	46311	62	Ball (6 req'd)	Y16-203
27	Front End Plate	47722	63	Spindle	48299-1
28	Ball Bearing	Y65-13	64	Ball (23 req'd)	Y16-204
	Motor Assembly (includes items 22 thru 28)	See table	65	Ball (6 req'd)	Y16-206
29	"O" Ring	Y325-214	66	Driven Jaw	48386-1
30	Spacer	46412	67	Retaining Ring	48300-1
31	Locating Pin	47723-1	68	Ball Bearing	Y65-12
32	Sun Gear (1 or 2 req'd) 21 teeth	46465		Auto Shut-Off Clutch Assembly (includes items 50 thru 68)	48407-3
33	Planet Gear (3 or 6 req'd) 15 teeth	46899	69	External Adjustment Sleeve	46534
34	Needle Bearing (6 req'd)	42315	70	Clutch Housing	48373-1
35	Carrier Assembly	46521			



MODEL NUMBER	R.P.M.	MUFFLER (ITEM 3)	HOUSING ASSEMBLY	ROTOR (ITEM 24)	MOTOR ASSEMBLY	GEARING REDUCTION	CLUTCH TORQUE RANGE (IN. LBS)
7768-2	200	48944	48946	46469	47725	44.49:1	25 - 90
7768-3	300	47984-2	48813-1	46469	47725	44.49:1	25 - 90
7768-5	500	47984-2	48813-1	46469	47725	29.35:1	25 - 90
7768-8	800	47984-2	48813-1	46453	47726	19.36:1	25 - 90
7768-10	1000	47984-2	48813-1	46453	47726	15.09:1	25 - 90
7768-12	1200	47984-2	48813-1	46453	47726	11.76:1	25 - 70



NOT SHOWN
47885 LABEL
48176-1 LABEL



DISASSEMBLY/ASSEMBLY INSTRUCTIONS

- 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.

CLUTCH DISASSEMBLY

- Clamp handle of tool in a smooth face vise.
- Remove clutch housing (70) using a wrench on flats – LEFT HAND THREADS.
- Remove clutch assembly from tool.
- Clamp driven jaw (66) in a smooth face vise, being careful not to damage driven jaw.
- Remove snap ring (50).
- Remove adjustment nut (51), using a 7/8" wrench.
- Remove adjustment washer (52) and clutch spring (53).
- Remove retaining rings (54).
- Slide off guide (55), spring (56), ball sleeve (57), thrust race (58) and thrust bearing (59). NOTE: Removal of ball sleeve (57) releases six balls (62) and plunger (61).
- Remove thrust race (60), releasing six balls (65).
- Remove retaining ring (67), then rotate driven jaw to remove twelve balls (64). Separate driven jaw (66) and spindle (63), releasing eleven balls (64).

CLUTCH ASSEMBLY

- For clutch part lubrication, use ARO 40036–1 clutch lube on parts as pointed out in this section.
- Lubricate ball grooves of spindle (63).
- Install eleven balls (64) into groove.
- Slide spindle into driven jaw (66), securing balls.
- Assemble twelve balls (64) into driven jaw, securing with retaining ring (67).
- Lubricate bearing (68) with ARO 33153 grease and assemble to driven jaw, pressing on inner race of bearing.
- Lubricate ball pockets of driven jaw and install six balls (65) into pockets, securing with thrust race (60).
- Lubricate and assemble thrust bearing (59) and thrust race (58) to spindle.
- Coat plunger (61) with ARO 29665 spindle oil and assemble to spindle, securing with balls (62). NOTE: Assemble two balls per hole.
- Secure balls with ball sleeve (57).
- Assemble spring (56) and guide (55) to spindle, securing with retaining rings (54).
- Install clutch spring (53).
- Lubricate face of adjustment washer (52) and install on spindle.
- Thread adjustment nut (51) onto spindle, securing with snap ring (50).
- Assemble clutch assembly to tool.
- Assemble clutch housing (70) to tool – LEFT HAND THREADS.
- See "Clutch Adjustment".

CLUTCH ADJUSTMENT

CAUTION: DISCONNECT AIR SUPPLY BEFORE ADJUSTING CLUTCH.

EXTERNAL:

- Rotate sleeve (69) until opening in housing is visible.
- Rotate driven jaw until notch in adjustment washer (52) is visible.
- Insert a no. 1 Phillips screwdriver into notch to turn gear teeth on adjustment nut (51).
- Clockwise = decrease torque.

- Counterclockwise = increase torque.

INTERNAL:

- Remove clutch housing (70) and clutch assembly from tool. NOTE: Clutch housing has LEFT HAND THREADS.
- Clamp drive end of driven jaw in a smooth face vise, being careful not to damage driven jaw.
- Engage jaws, hold clutch assembly from turning, then rotate adjustment nut (51) using a 7/8" wrench.

GEARING DISASSEMBLY

- Remove clutch from tool (see "Clutch Disassembly").
- Using a wrench on flats, remove ring gear (37).
- Remove snap ring (41) and washer (40).
- Remove spindles and gears from ring gear. NOTE: Keep gears grouped with mating spindle.
- Do not remove bearing (39) or spacer (38) unless damage is evident.
- To remove bearing (39) and spacer (38) from ring gear, press on spacer (38) from inside splined end of ring gear.
- Do not remove gear (32 or 42) from carrier assembly unless damage is evident. Gears are press fit onto carrier assemblies.

GEARING ASSEMBLY

- Assemble spacer (38) and bearing (39) into ring gear, pressing on outer race of bearing.
- Coat shafts of spindles with ARO 33153 grease.
- Assemble gears and bearings (34) to shafts of mating spindle.
- Assemble carrier assembly to spindle assembly.
- Lubricate sets of gears liberally with ARO 33153 grease. NOTE: Gearing should contain approximately 1/16 oz. (1.8 g) of grease.
- Assemble spindles and gearing into ring gear. Rotate spindles and gears to align gear teeth with splines of ring gear.
- Assemble washer (40) and snap ring (41) to spindle.
- Thread ring gear to tool and tighten, using a wrench on flats.
- Assemble clutch to tool.

MOTOR DISASSEMBLY

- Remove clutch and gearing from tool.
- Remove spacer (30), "O" ring (29) and throttle rod (21).
- Tap front edge of housing to remove motor assembly. Locating pin (31) should also come out.
- Grasp cylinder in one hand and tap drive end of rotor with a soft face hammer; motor will come apart.
- Remove end plate (23) and bearing (22) from rotor.

MOTOR ASSEMBLY

- Lubricate bearing (22) with ARO 33153 grease and assemble into end plate (23), pressing on outer race of bearing.
- Assemble end plate (23) to rotor, pressing on inner race of bearing.
- Coat five rotor blades (25) with ARO 29665 spindle oil and assemble to rotor slots – straight side out.
- Coat i.d. of cylinder (26) with ARO 29665 spindle oil and assemble over rotor. NOTE: Air inlet slots in end of cylinder must be aligned with two air inlet slots in end plate (23).
- Assemble bearing (28) into end plate (27), pressing on outer race of bearing.
- Assemble end plate (27) to rotor, pressing on inner race of bearing. Be sure rotor turns without binding.
- Insert locating pin (31) into .096" diameter blind hole at bottom of motor cavity in housing.
- Align notches of end plates and cylinder and install motor into housing, aligning notches with locating pin (31).
- Grease and assemble "O" ring (29) to end plate.
- Assemble spacer (30) to motor.

DISASSEMBLY/ASSEMBLY INSTRUCTIONS

- Coat throttle rod (21) with ARO 29665 spindle oil and insert into rotor.
- Assemble gearing and clutch to tool.

HOUSING DISASSEMBLY

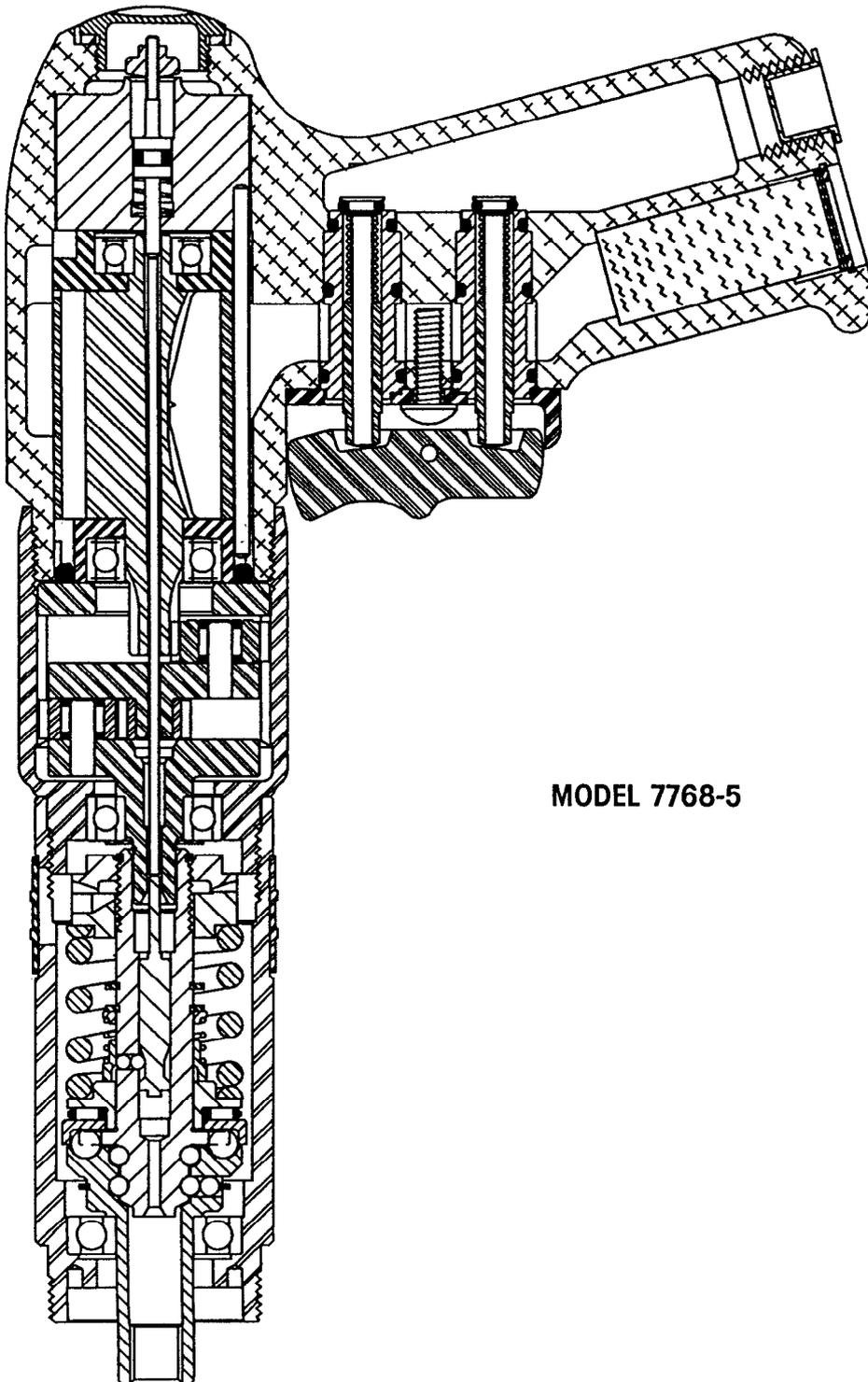
- Remove roll pin (20), releasing trigger (19).
- Remove screw (18), releasing shroud (17).
- Grasp end of valve (10) and pull to remove valve assembly with bushing (14).
- Remove retaining ring (1) and screens (2) to remove muffler (3).
- Remove plug (4) and washer (5), releasing valve assembly (6) and spring (7).

HOUSING ASSEMBLY

- NOTE: When a part containing "O" rings has been removed from the tool, it is recommended that the "O" rings be replaced

upon assembly. Lubricate all "O" rings with ARO 36460 "O" ring lube when assembling.

- Assemble "O" rings (15, 13 and 12) to bushings (14).
- Assemble "O" rings (9) to valves (10).
- Lubricate plungers (16) and valves (10) with ARO 29665 spindle oil.
- Assemble springs (11) to valves (10).
- Assemble plungers (16) and valves (10) to bushings (14).
- Assemble bushings and shroud (17) to tool, securing with screw (18). NOTE: Flats of bushings must be aligned with flats of shroud (17).
- Assemble trigger (19) to tool, securing with roll pin (20).
- Assemble spring (7) and valve assembly (6) to tool, securing with washer (5) and plug (4).
- Assemble muffler (3) and two screens (2) to tool, securing with retaining ring (1).



MODEL 7768-5