ARO
Tool Products

OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

Released: 4-3-92
Revised: 11-10-95

50 SERIES POWER MOTOR REVERSE ROTATION

Model 7769-( )-R

⚠ 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.

ARO Tool Products
Ingersoll-Rand Company
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ARO®
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.

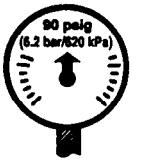
⚠ WARNING

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

⚠ WARNING

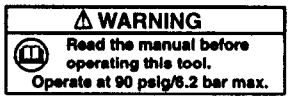
Do not overreach when operating this tool. Keep body stance balanced and firm.

⚠ WARNING



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

NOTICE



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

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 3/32 oz. (2.7 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.

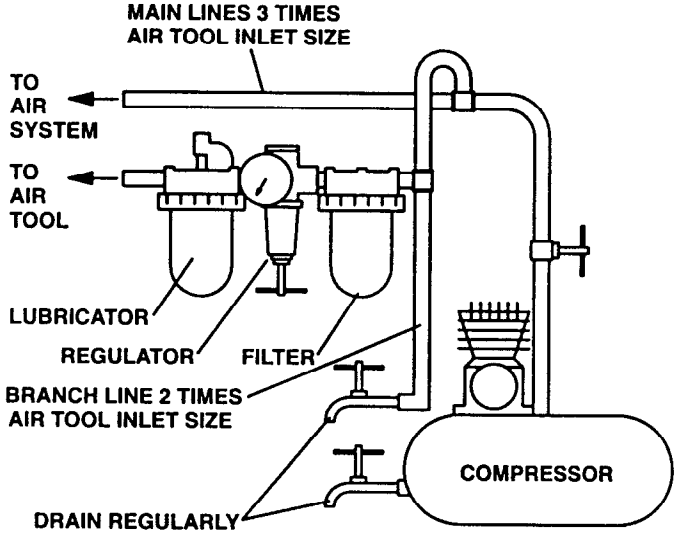
Tool maintenance and repair shall be performed by authorized, trained, competent personnel. Tools, hose and fittings shall be replaced if unsuitable for safe operation and responsibility should be assigned to be sure that all tools requiring guards or other safety devices shall be kept in legible condition.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

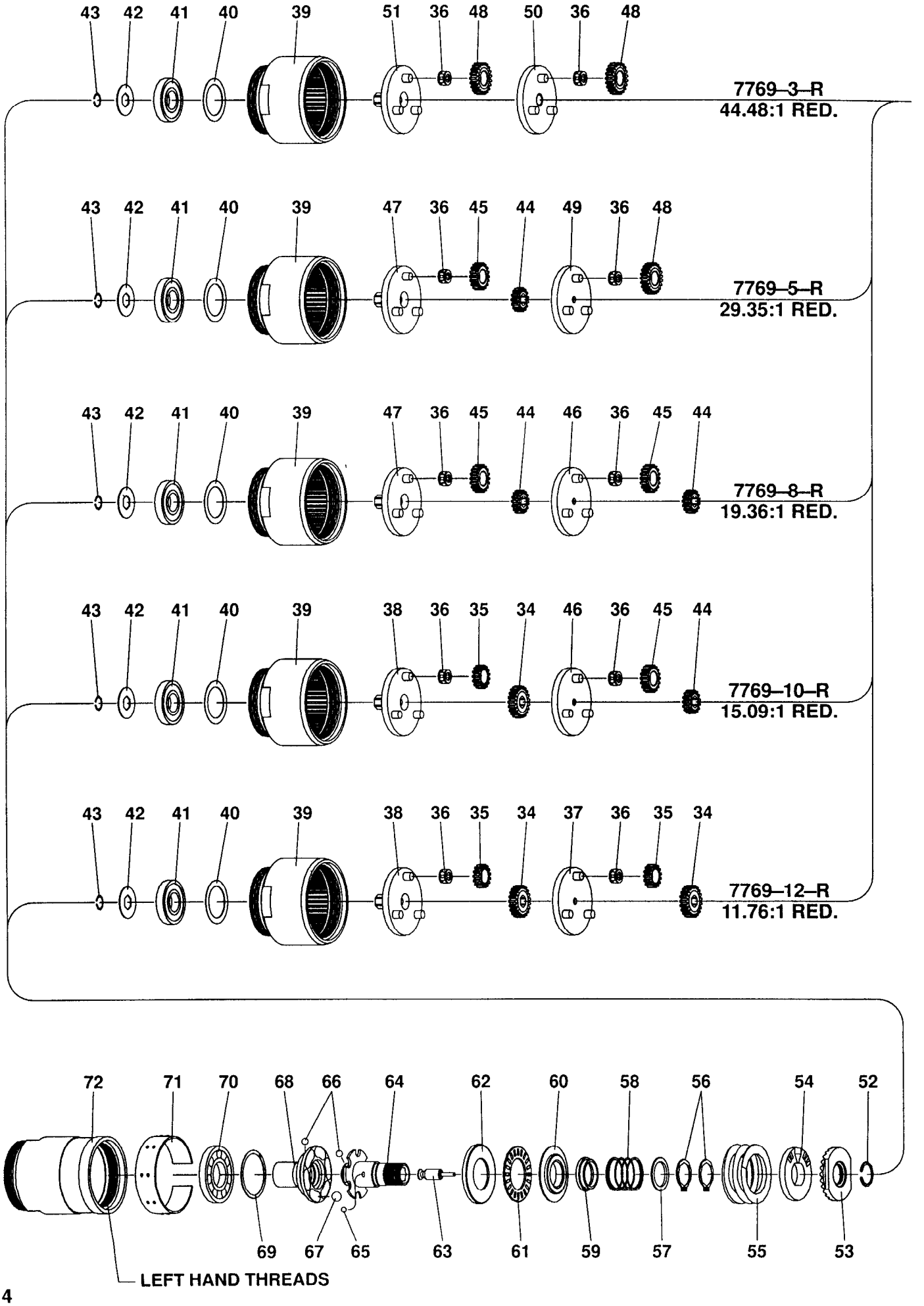
Disassembly should be done on a clean work bench with a clean cloth spread to prevent the loss of small parts. After disassembly is completed, all parts should be thoroughly washed in a clean solvent, blown dry with air and inspected for wear levels, abuse and contamination. Double sealed or shielded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

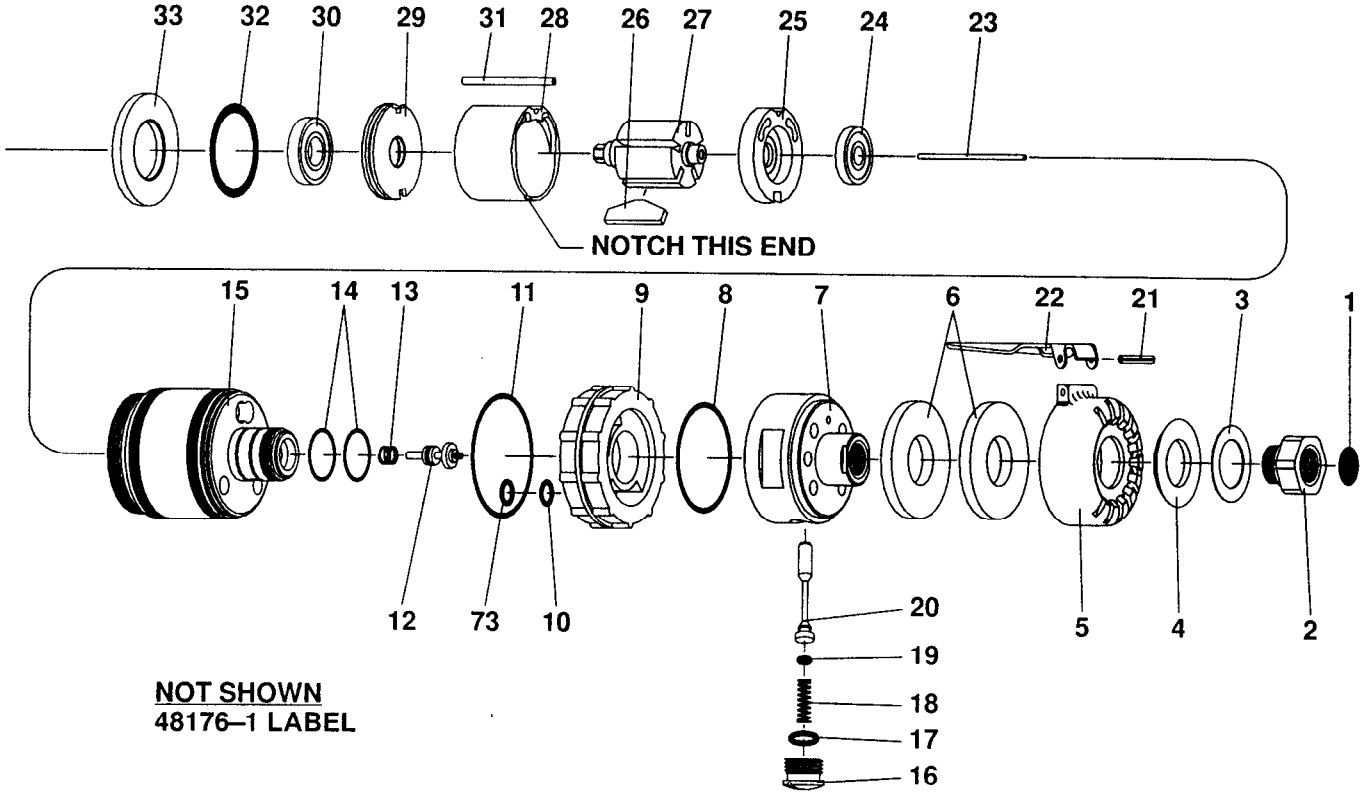
Upon reassembling, lubricate parts where required. Use 33153 grease, or equivalent, in bearings. Use 36460 lubricant for "O" ring assembly. When assembling "O" rings or parts adjacent "O" rings, care must be exercised to prevent damage to the rubber sealing surfaces. A small amount of grease will usually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




43 42 41 40 39 51 36 48 50 36 48
7769–3–R
44.48:1 RED.
43 42 41 40 39 47 36 45 44 49 36 48
7769–5–R
29.35:1 RED.
43 42 41 40 39 47 36 45 44 46 36 45 44
7769–8–R
19.36:1 RED.
43 42 41 40 39 38 36 35 34 46 36 45 44
7769–10–R
15.09:1 RED.
43 42 41 40 39 38 36 35 34 37 36 35 34
7769–12–R
11.76:1 RED.
72 71 70 68 66 64 62 60 58 56 54 52
69 67 65 63 61 59 57 55 53
LEFT HAND THREADS



		PART NUMBER FOR ORDERING			PART NUMBER FOR ORDERING
1	Screen	33911	37	Carrier Assembly	46521
2	Inlet Adapter	46377	38	Spindle Assembly	47752
3	Spacer	47139	39	Ring Gear	46467
4	Diffuser Washer	46449	40	Spacer	46496
5	Exhaust Cap	46448	41	Ball Bearing	Y65–13
6	Filler (2 req'd)	46452	42	Washer	47694
7	Head	48387–1	43	Snap Ring	Y142–2
8	"O" Ring	Y325–27	44	Sun Gear (1 or 2 req'd) 15 teeth	46466
9	Reverse Ring	48229–1	45	Planet Gear (3 or 6 req'd) 18 teeth	46900
10	"O" Ring	Y325–9	46	Carrier Assembly	46522
11	"O" Ring	Y325–29	47	Spindle Assembly	47753
12	Valve Assembly (includes "O" ring Y325–6)	48411–1	48	Planet Gear (3 or 6 req'd) 21 teeth	46901
13	Spring	47587	49	Carrier Assembly	46721
14	"O" Ring (2 req'd)	48882	50	Carrier Assembly	47544
15	Motor Housing (includes Roll Pin Y178–19)	48394–1	51	Spindle Assembly	47750
16	Screw	37776	52	Snap Ring	Y110–105
17	"O" Ring	Y325–13	53	Adjustment Nut	46895
18	Spring	47709	54	Adjustment Washer	48093
19	"O" Ring	Y325–7	55	Clutch Spring	48047
20	Throttle Valve Stem	36602	56	Retaining Ring (2 req'd)	Y145–18
21	Roll Pin	Y178–28	57	Guide	48295–1
22	Lever	48246–1	58	Spring	47064
23	Throttle Rod	46511–408	59	Ball Sleeve	48294–1
24	Ball Bearing	47724	60	Thrust Race	48094
25	Rear End Plate	48856	61	Thrust Bearing	38995
26	Blade (5 req'd)	46413	62	Thrust Race	48301–1
27	Rotor (see chart, page 7)		63	Plunger	48293–2
	spline drive	46469	64	Spindle	48850
	hex drive	46453	65	Ball (6 req'd)	Y16–203
28	Cylinder	46311	66	Ball (23 req'd)	Y16–204
29	Front End Plate	48857	67	Ball (6 req'd)	Y16–206
30	Ball Bearing	Y65–13	68	Driven Jaw	48849
	MOTOR ASSEMBLY (includes items 24 thru 30)(see chart, page 7)		69	Retaining Ring	48300–1
			70	Ball Bearing	Y65–12
31	Locating Pin	47723–1		AUTO SHUT–OFF CLUTCH (includes items 52 thru 70	48848
32	"O" Ring	Y325–214	71	External Adjustment Sleeve	46534
33	Spacer	46412	72	Clutch Housing	48373–1
34	Sun Gear (1 or 2 req'd) 21 teeth	46465	73	"O" Ring	Y328–9
35	Planet Gear (3 or 6 req'd) 15 teeth	46899			
36	Needle Bearing (6 req'd)	42315			

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 tool in a smooth face vise, clamping on inlet adapter (2).
_ Remove clutch housing, using a strap type wrench – LEFT HAND THREADS.
_ Remove clutch assembly from tool.
_ Clamp drive end of driven jaw (68) in a smooth face vise, being careful not to damage driven jaw.
_ Remove snap ring (52).
_ Using a 7/8" wrench, remove adjustment nut (53).
_ Remove adjustment washer (54) and clutch spring (55).
_ Remove retaining rings (56).
_ Slide off guide (57), spring (58), ball sleeve (59), thrust race (60) and thrust bearing (61). NOTE: Removal of ball sleeve (59) releases six balls (65) and plunger (63).
_ Remove thrust race (62), releasing six balls (67).
_ Remove retaining ring (69), then rotate driven jaw to remove twelve balls (66). Separate driven jaw and spindle (64), releasing eleven balls (66).

CLUTCH ASSEMBLY

_ For clutch part lubrication, use Molycote G–N grease on parts as pointed out in this section.
_ Lubricate ball grooves of spindle (64).
_ Install eleven balls (66) into groove.
_ Assemble spindle into driven jaw (68), securing balls.
_ Assemble twelve balls (66) into driven jaw, then secure with retaining ring (69).
_ Lubricate ball pockets of driven jaw and install six balls (67) into pockets, securing with thrust race (62).
_ Lubricate and assemble thrust bearing (61) and thrust race (60) to spindle.
_ Coat plunger (63) with spindle oil 29665 and assemble to spindle, securing with balls (65). NOTE: Assemble two balls per hole.
_ Secure balls with ball sleeve (59).
_ Assemble spring (58) and guide (57) to spindle, securing with retaining rings (56).
_ Install clutch spring (55).
_ Lubricate face of adjustment washer (54) and install on spindle.
_ Thread adjustment nut onto spindle, securing with snap ring (52).
_ Lubricate bearing (70) with ARO 33153 grease and assemble to driven jaw, pressing on inner race of bearing.
_ Assemble clutch assembly to tool.
_ Assemble clutch housing (72) to tool – LEFT HAND THREADS.
_ See "Clutch Adjustment".

CLUTCH ADJUSTMENT

EXTERNAL:

_ Rotate sleeve (71) until opening in housing is visible.
_ Rotate driven jaw (68) until notch in adjustment washer (54) is visible.
_ Insert no. 1 Phillips screwdriver into notch to turn gear teeth on nut (53).
_ Clockwise = decrease torque.
_ Counterclockwise = increase torque.

INTERNAL:

_ Remove clutch housing 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.
_ Hold clutch assembly from turning, then rotate adjustment nut (53), using a 7/8" wrench.

GEARING DISASSEMBLY

_ Remove clutch assembly from tool.
_ Remove ring gear (39), using a wrench on flats.
_ Remove snap ring (43) and washer (42).
_ Remove spindles and gears from ring gear. NOTE: Keep gears grouped with mating spindle.
_ Do not remove bearing (41) or spacer (40) unless damage is evident.
_ To remove bearing (41) and spacer (40) from ring gear, press on spacer (40) from inside splined end of ring gear.
_ Do not remove gear (34 or 44) from carrier assembly unless damage is evident. Gears are press fit onto carrier assemblies.

GEARING ASSEMBLY

_ Assemble spacer (40) and bearing (41) into ring gear (39), pressing on outer race of bearing.
_ Coat shafts of spindles with ARO 33153 grease.
_ Assemble gears and bearings (36) to shafts of mating spindle.
_ Assemble carrier assembly to spindle assembly.
_ Lubricate sets of gears liberally with ARO 33153 grease (see "Routine Lubrication Requirements", page 1).
_ Assemble spindles and gearing into ring gear. Rotate spindles and gears to align gear teeth with splines of ring gear.
_ Assemble washer (42) and snap ring (43) to spindle.
_ Thread ring gear to tool, tightening with wrench on flats.
_ Assemble clutch assembly to tool.

MOTOR DISASSEMBLY

_ Remove clutch assembly and gearing from tool.
_ Remove spacer (33), "O" ring (32) and throttle rod (23).
_ Tap front edge of housing to remove motor assembly. Locating pin (31) should also come out.
_ Tap drive end of rotor (27) with a soft face hammer; motor will come apart. NOTE: Bearing (30) is light press fit on rotor.
_ Remove end plate (25) and bearing (24) from rotor.

MOTOR ASSEMBLY

_ Lubricate bearing (24) with ARO 33153 grease.
_ Assemble bearing (24) to end plate (25), pressing on outer race of bearing.
_ Assemble end plate (25) to rotor, pressing on inner race of bearing.
_ Coat five rotor blades (26) with ARO 29665 spindle oil and assemble to rotor slots – straight side out.
_ Coat i.d. of cylinder (28) with ARO 29665 spindle oil and assemble over rotor. NOTE: Assemble cylinder with notch in end of cylinder toward gearing.
_ Assemble bearing (30) to end plate (29), pressing on outer race of bearing.
_ Assemble end plate (29) to rotor, pressing on inner race of bearing. Be sure rotor turns without binding.
_ Insert 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 pin (31).

DISASSEMBLY/ASSEMBLY INSTRUCTIONS

- _ Grease and assemble "O" ring (32) to end plate.
- _ Assemble spacer (33) to motor.
- _ Coat throttle rod (23) with ARO 29665 spindle oil and insert into rotor.
- _ Assemble gearing and clutch assembly to tool.

HOUSING DISASSEMBLY

- _ Clamp air inlet (2) in a smooth face vise.
- _ Unthread head (7), using a wrench on flats.
- _ Remove spacer (3), diffuser washer (4), exhaust cap (5) and fillers (6).
- _ Remove screen (1) from inlet adapter.
- _ Remove screw (16) and "O" ring (17), releasing spring (18) and valve stem (20).
- _ Clamp head (7) in a smooth face vise.
- _ Using a strap type wrench, unthread and remove housing (15) from head.
- _ Remove reverse ring (9) and "O" rings (73 and 10), allowing removal of "O" rings (11 and 14).
- _ Remove valve assembly (12) and spring (13).

HOUSING ASSEMBLY

- _ Grease "O" ring of valve assembly (12) and assemble spring (13) and valve assembly to housing (15).
- _ Grease and assemble "O" rings (11 and 14) to housing.
- _ Grease and assemble "O" rings (10 and 73) to reverse ring (9) and assemble reverse ring to housing.
- _ Grease and assemble "O" ring (8) to head.
- _ Assemble housing (15) to head (7), tightening with a wrench on flats of head and a strap wrench on housing.
- _ Grease and assemble "O" ring (19) to valve stem (20).
- _ Lubricate valve stem (20) with ARO 29665 spindle oil and assemble to head (7).
- _ Assemble spring (18) to head, securing with "O" ring (17) and screw (16).
- _ Install two fillers (6) into exhaust cap (5).
- _ Assemble exhaust cap (5) to head, aligning lever with valve stem (20).
- _ Assemble diffuser washer (4) and spacer (3) to head, securing with inlet adapter (2).
- _ Clean and replace screen (1) in inlet adapter.

MODEL NUMBER	R.P.M.	ROTOR (ITEM 27)	MOTOR ASSEMBLY	GEARING RED.
7769–3–R	300	46469	48854	44.48:1
7769–5–R	500	46469	48854	29.35:1
7769–8–R	800	46453	48855	19.36:1
7769–10–R	1000	46453	48855	15.09:1
7769–12–R	1200	46453	48855	11.76:1