



OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

50 SERIES POWER UNIT

Form 49999-055

Edition 4

Nov. 2003

10589471

Model 8133
3200 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 motor at 90 p.s.i.g. (6.2 bar) maximum air pressure at the air inlet of the motor.
- Disconnect air supply from motor before removing / installing bit, socket or device attached to motor or performing maintenance procedures.
- Keep hands, clothing and long hair away from rotating end of motor.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power motor.
- Never exceed rated r.p.m. of motor.
- Wear suitable eye and hearing protection while operating motor.
- Motor shaft can continue to rotate briefly after throttle is released.
- Do not lubricate motor 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 motors 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 motors 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 motor performance and increased maintenance and may invalidate all warranties.
- ARO is not responsible for customer modification of motors for applications on which ARO was not consulted.
- Motor 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

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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 motor.

WARNING



Wear hearing protection when operating this motor.

WARNING



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

WARNING



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

WARNING



Do not carry the motor by the hose.

WARNING



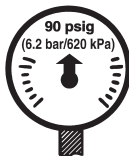
Do not use damaged, frayed or deteriorated air hoses and fittings.

WARNING



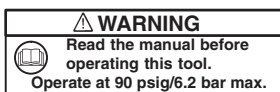
Do not overreach when operating this motor. Keep body stance balanced and firm.

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 motor 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 motor. Use only recommended lubricants at below time intervals:

EVERY 8 HOURS OF MOTOR 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 MOTOR OPERATION – Lubricate gearing. Pack bearings, coat shafts and lubricate gears with NLGI #1 “EP” grease (33153). Gearing should contain approximately 1/8 oz. (3.5 g) of grease.

AIR SUPPLY REQUIREMENTS

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

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

It is important that the motors be serviced and inspected at regular intervals for maintaining safe, trouble-free operation of the motor.

Be sure the motor 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 motor.

Maintenance and repair shall be performed by authorized, trained, competent personnel. Hose and fittings shall be replaced if unsuitable for safe operation. Responsibility should be assigned to ensure that guards or other safety devices are installed and being used properly on certain motors. Maintenance and repair records should be maintained on all motors. Frequency of repair and the nature of the repairs can reveal unsafe application.

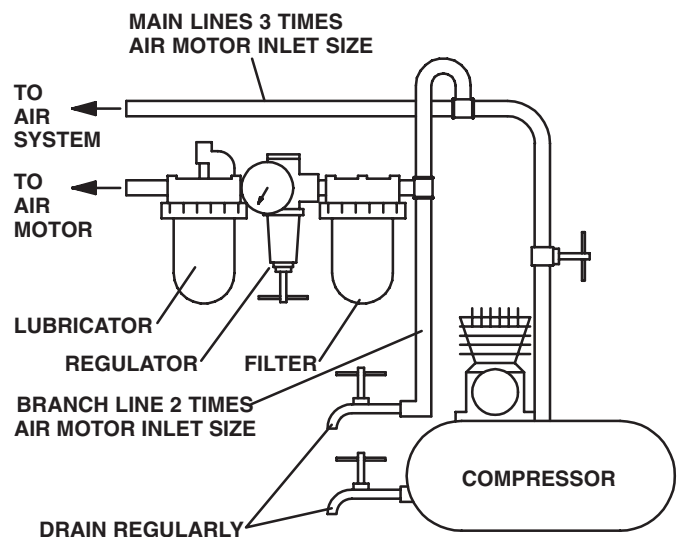
Scheduled maintenance by competent authorized personnel should detect ant mistreatment or abuse of the motor and worn parts. Corrective action should be taken before returning the motor for use.

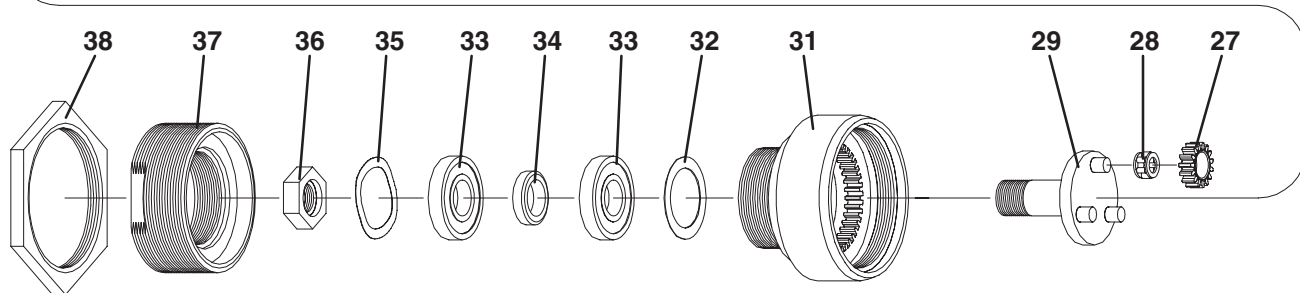
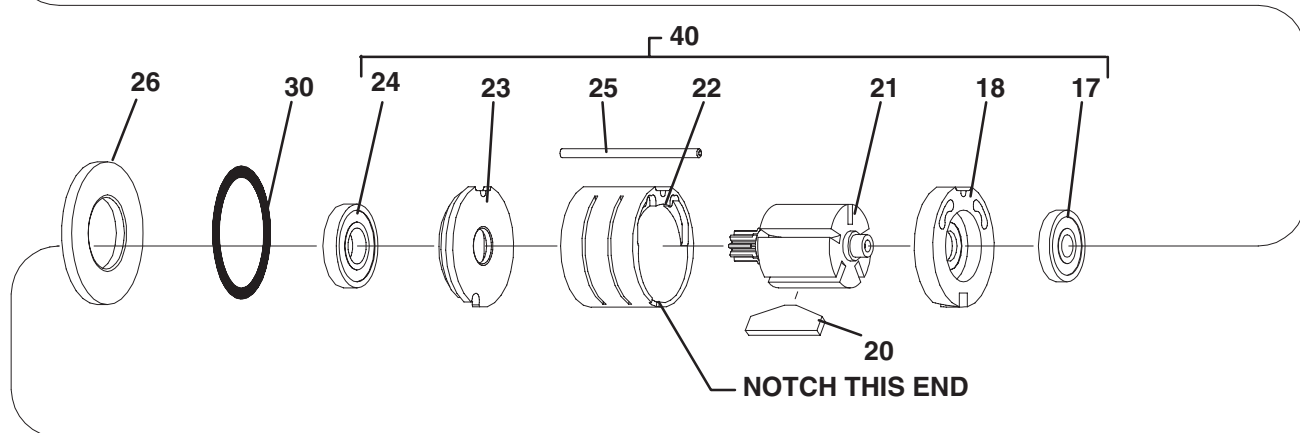
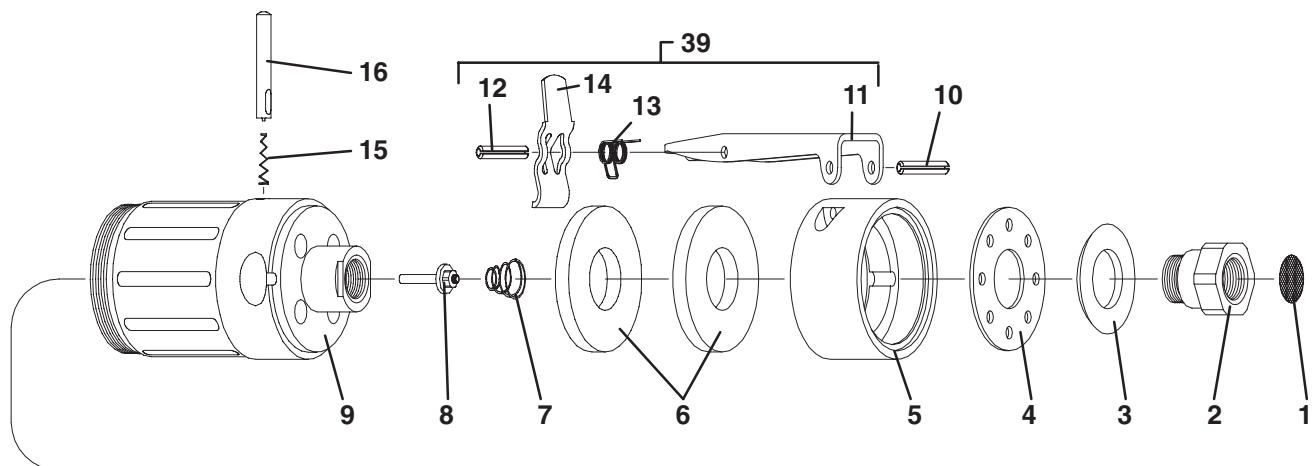
Disassembly should be done on a clean work bench with a clean cloth spread to prevent the loss of small parts. After disassembly is completed, all parts should be thoroughly washed in a clean solvent, blown dry with air and inspected for wear levels, abuse and contamination. Double sealed or shielded 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. 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 motor. High air pressure (more than 90 p.s.i.g.) raises performance beyond the rated capacity of the motor and could cause injury. Shown below is a typical piping arrangement.





NOT SHOWN
48176-1 WARNING LABEL

PART NUMBER FOR ORDERING

PART NUMBER FOR ORDERING

1	Screen	33911	22	Cylinder	48201-1
2	Inlet Adapter	46778	23	Front End Plate	47722
3	Washer	47586	24	Bearing	Y65-13
4	Diffuser	47605	25	Locating Pin	47723-2
5	Muffler Housing	46752	26	Spacer	46412
6	Filler (2 req'd)	46452	27	Gear (3 req'd)	46899
7	Spring	41654	28	Needle Bearing (3 req'd)	42315
8	Valve Rod Assembly	46354	29	Spindle Assembly	47759
9	Housing Assembly	47460	30	"O" Ring	Y325-214
10	Roll Pin	Y178-45	31	Ring Gear	47470
11	Lever	47473	32	Spacer	46496
12	Roll Pin	Y178-45	33	Bearing (2 req'd)	Y65-13
13	Spring	46291-1	34	Spacer	46706
14	Arm	47474	35	Wave Washer	47682
15	Spring	46374	36	Nut	42047
16	Throttle Pin	46296-2	37	Adapter	47471
17	Bearing	47724	38	Lock Nut	47472
18	Rear End Plate	46312-1	39	Lever Assembly (includes items 11 thru 14)	47475
20	Blade (5 req'd)	46413	40	Motor Assembly (includes items 17 thru 24)	48227-1
21	Rotor	46470			

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 motor.
- Use only genuine ARO replacement parts for this motor. When ordering, specify part number, description, model number and serial number.

GEARING DISASSEMBLY

- Remove nut (36) from spindle.
- Unthread and remove ring gear (31) and components from motor.
- Remove spindle assembly (29).
- Do not disassemble further unless damage is evident.
- Heat adapter (37) lightly and remove.
- To remove bearings and spacers from ring gear, press on spacer (32) from inside splined end of ring gear.

GEARING ASSEMBLY

- Assemble spacer (32) and one bearing (33) to ring gear (31). NOTE: Press on outer race of bearing.
- Coat shafts of spindle (29) with ARO 33153 grease and assemble gears (27), containing needle bearings (28), to shafts.
- Lubricate gears liberally with ARO 33153 grease (approximately 1/8 oz.).
- Assemble spindle to ring gear, aligning gear teeth with splines of ring gear.
- Assemble spacer (34) and bearing (33) to ring gear. NOTE: Press on outer race of bearing.
- Assemble wave washer (35) to ring gear.
- Assemble nut (36) to spindle, securing components. NOTE: Tighten nut (36) to 17 - 19 ft lbs (23 - 26 Nm) on final assembly.
- Apply a good grade thread adhesive (such as Loctite 271) to internal threads of adapter (37) and assemble to ring gear.
- Apply 2 - 3 drops of Loctite Threadlocker #242 (blue) to mating threads of ring gear (31) and housing assembly (9) before assembly.
- Assemble spacer (26) to ring gear and assemble ring gear to housing assembly (9). Tighten ring gear (31) to housing assembly (9) to 25 ft lbs (34 Nm). Allow 24 hours for Loctite to cure.

MOTOR DISASSEMBLY

- Remove gearing from motor.
- Remove spacer (26) and "O" ring (30).
- Tap front edge of housing to remove motor assembly (40). Locating pin (25) should also come out.

- Grasp cylinder in one hand and tap splined end of rotor with a soft face hammer; motor will come apart.
- Remove end plate (18) and bearing (17) from rotor.

MOTOR ASSEMBLY

- Pack bearing (17) with ARO 33153 grease and assemble to end plate (18), pressing on outer race of bearing.
- Assemble end plate (18) to rotor, pressing on inner race of bearing.
- Coat five rotor blades (20) with ARO 29665 spindle oil and assemble to rotor slots – straight side out.
- Coat i.d. of cylinder (22) with ARO 29665 spindle oil and assemble over rotor. NOTE: Air inlet slots in end of cylinder must be aligned with two air inlet holes in end plate (18).
- Assemble bearing (24) to end plate (23), pressing on outer race of bearing.
- Assemble end plate (23) to rotor, pressing on inner race of bearing. Be sure rotor turns without binding.
- Insert locating pin (25) 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 (25).
- Lubricate and assemble "O" ring (30) to end plate (23).
- Assemble spacer (26) and gearing to motor.

THROTTLE DISASSEMBLY

- Clamp air inlet adapter (2) in a smooth face vise.
- Unthread housing (9) with a strap type wrench.
- Remove washer (3), diffuser (4), muffler housing (5), two fillers (6), spring (7) and valve rod (8). CAUTION: Do not remove or adjust rubber portion of valve rod (8), as it is preset at the factory. However, if air leakage occurs due to wear, unscrew rubber portion of valve rod **NOT** more than one complete turn (counterclockwise).
- Remove throttle pin (16) and spring (15).
- Remove screen (1) from inlet adapter.

THROTTLE ASSEMBLY

- Install spring (15) and throttle pin (16) into housing, aligning slot in throttle pin with air inlet holes in housing.
- Install valve rod assembly (8) into housing. NOTE: Throttle pin (16) should not pull out when throttle rod (8) is seated properly.
- Install two fillers (6) to muffler housing (5).
- Install muffler housing (5) to housing, aligning lever (11) with throttle pin (16).
- Assemble spring (7) into housing.
- Assemble diffuser (4) and washer (3) to housing, securing with inlet adapter (2).
- Clean and replace screen (1) in inlet adapter.

