



OPERATOR'S MANUAL

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE
20 SERIES POWER MOTOR

Released: 6-12-87
Revised: 5-4-92
Form: 3120-2

MODEL: 8665

**IMPORTANT: READ THIS MANUAL CAREFULLY BEFORE INSTALLING,
OPERATING OR SERVICING THIS TOOL.**

OPERATING AND SAFETY PRECAUTIONS

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

- Keep hands and clothing away from rotating end of tool.
- Wear suitable eye protection while operating tool.
- Use tool only for purposes for which it was intended.
- Disconnect air supply from tool before removing/installing driven accessories or performing other maintenance procedures.

AIR SUPPLY REQUIREMENTS

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

- AIR PRESSURE – 90 PSIG (6 Bar)
- AIR FILTRATION – 50 micron
- LUBRICATED AIR SUPPLY
- HOSE SIZE – 5/16" (8 mm) I.D.

An ARO® model 128231-800 air line FILTER/REGULATOR/LUBRICATOR (F.R.L.) is recommended to maintain the above air supply specifications.

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. unit 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 gearing. Pack bearings, coat shafts and lubricate gears with NLGI#1 "EP" grease (33153). Gearing should contain approximately 3/64 oz. of grease.

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 |
| Gears and Bearings | 33153 | 5 lb. "EP" – NLGI#1 Grease |
| "O" Rings and Lip Seals | 36460 | 4 oz. Stringy Lubricant |

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) 672-0601

ARO Tool & Hoist Products

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INGERSOLL-RAND®
PROFESSIONAL TOOLS

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

GEARING DISASSEMBLY

- ___ Remove spacer (27) from spindle.
- ___ Unthread and remove ring gear (21) from head assembly (6).
- ___ Remove spacer (17), carrier assembly (19), spindle assembly (20) and gears (18).
- ___ Do not remove bearings (23) or spacers (22 and 24) from ring gear (21) unless damage is evident.
- ___ To remove bearings (23) and spacers from ring gear, remove adapter (26) and press on spacer (22) from splined end of ring gear.

GEARING ASSEMBLY

- ___ Assemble spacer (22) into ring gear.
- ___ Press bearing (23) into ring gear. NOTE: Press on outer race of bearing.
- ___ Coat shafts of spindle with ARO 33153 grease.
- ___ Assemble gears (18) to shafts of spindle and carrier.
- ___ Assemble carrier assembly to spindle assembly.
- ___ Lubricate sets of gears liberally with ARO 33153 grease (approx. 1/32 oz. grease).
- ___ Assemble spindle, carrier and gearing into ring gear. Rotate spindle and gears to align gear teeth with splines of ring gear.
- ___ Assemble spacer (24) to spindle.
- ___ Press bearing (23) into ring gear.
- ___ Assemble spring washer (25) and adapter (26) to ring gear.
- ___ Thread ring gear to tool and tighten with strap wrench.
- ___ Assemble spacer (27) to spindle.

MOTOR DISASSEMBLY

- ___ Remove gearing from tool.

- ___ Tap front edge of housing to remove motor assembly. Locating pin (16) should also come out.
- ___ Tap splined end of rotor (11) with a soft face hammer; motor will come apart. NOTE: Bearings are light press fit in end plates. Bearing (7) is press fit on rotor.
- ___ Remove end plate (8) and bearing (7) from rotor.

MOTOR ASSEMBLY

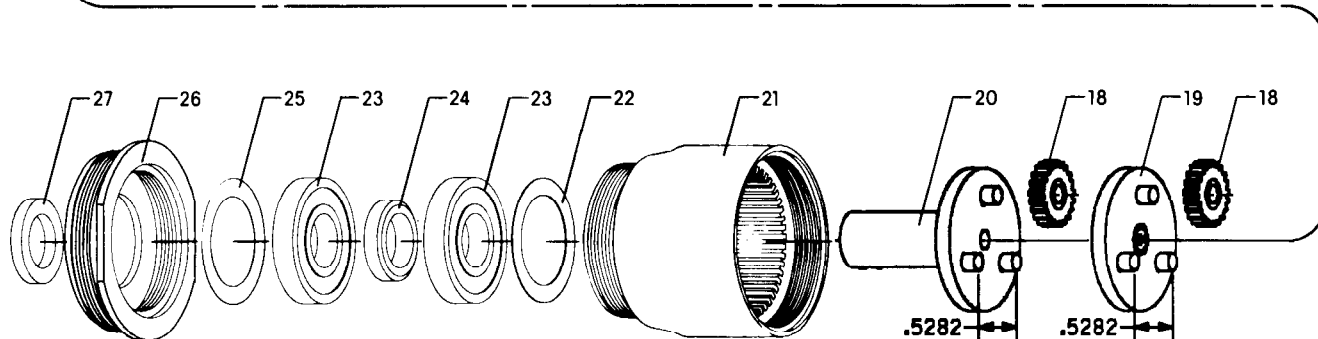
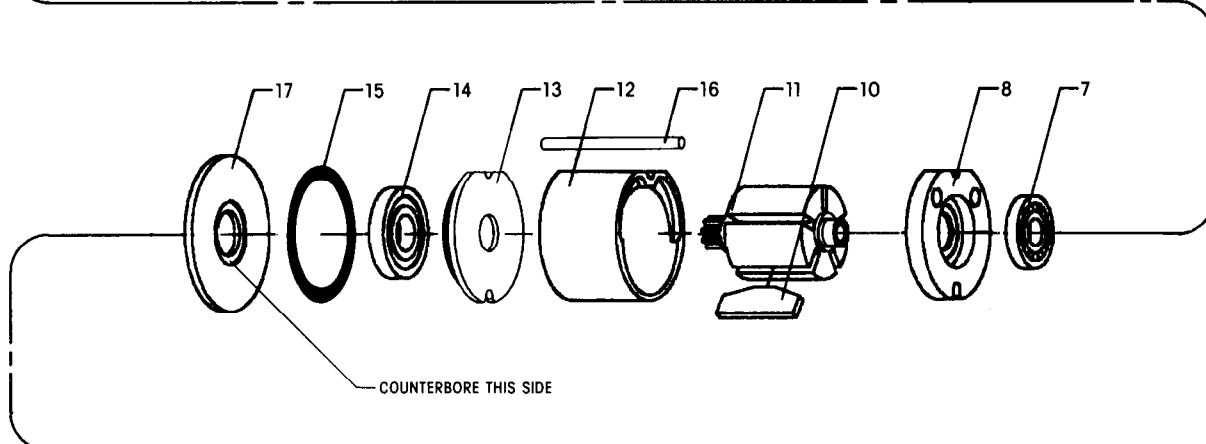
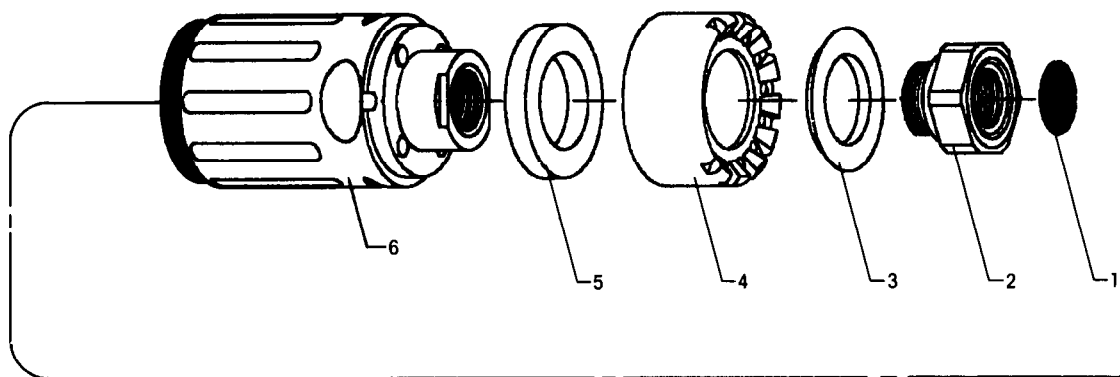
- ___ Assemble end plate (8) to rotor (11).
- ___ Lubricate bearing (7) with ARO 33153 grease.
- ___ Press bearing (7) on rotor and into end plate (8). NOTE: Press on inner race of bearing.
- ___ Coat five rotor blades (10) with ARO 29665 spindle oil and assemble to rotor slots – straight side out.
- ___ Coat i.d. of cylinder (12) 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 (8).
- ___ Assemble bearing (14) to end plate (13) and press to rotor (11). NOTE: Press on inner race of bearing. Be sure rotor turns without binding.
- ___ Insert pin (16) into .081 diameter blind hole at bottom of motor cavity in housing.
- ___ Align notches of end plate and cylinder and install motor into housing aligning notches with pin (16).
- ___ Grease and assemble "O" ring (15) to end plate (13).
- ___ Assemble spacer (17) to motor with counterbore facing motor.
- ___ Assemble gearing to tool.

HEAD DISASSEMBLY

- ___ Unthread and remove inlet adapter (2).
- ___ Remove diffuser washer (3), exhaust cap (4) and filler (5).
- ___ Remove and clean screen (1).

HEAD ASSEMBLY

- ___ Assemble filler (5) and exhaust cap (4) to head.
- ___ Assemble diffuser washer (3) to exhaust cap (4) and secure parts to head with inlet adapter (2).
- ___ Assemble screen (1) to inlet adapter.



400 R.P.M. (44.49:1)

NOT SHOWN
48176-1 WARNING LABEL

PART NUMBER FOR ORDERING

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| | | | | |
|----|---------------------------|---------|---|----------|
| 1 | Screen | 33911 | MOTOR ASSEMBLY (includes items 7 thru 14) | 47721 |
| 2 | Inlet Adapter | 46377 | 15 "O" Ring | Y325-116 |
| 3 | Diffuser Washer | 46371 | 16 Locating Pin | 47719-2 |
| 4 | Exhaust Cap | 46352 | 17 Spacer | 46305 |
| 5 | Filler | 46375 | 18 Gear Assembly (6 req'd.) 6.67:1 ratio (21 teeth) | 46875 |
| 6 | Head and Bushing Assembly | 47507 | 19 Carrier Assembly 6.67:1 ratio | 46720 |
| 7 | Bearing | 41643 | 20 Spindle Assembly 6.67:1 ratio | 47943 |
| 8 | Rear End Plate | 46245 | 21 Ring Gear | 46703 |
| 10 | Blade (5 req'd.) | 46301 | 22 Spacer | 46496 |
| 11 | Rotor | 46338-2 | 23 Bearing (2 req'd.) | Y65-13 |
| 12 | Cylinder | 46244 | 24 Spacer | 46706 |
| 13 | Front End Plate | 47718 | 25 Spring Washer | 47682 |
| 14 | Ball Bearing | Y65-10 | 26 Adapter | 47228-1 |
| | | | 27 Spacer | 46705 |

