

## OPERATING PRECAUTIONS

**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.

## AIR AND LUBE REQUIREMENTS

Air pressure of 90 p.s.i.g. (6.2 bar) at the air inlet of the tool is required for maximum motor efficiency. If necessary, an air regulator should be installed to maintain this air pressure when the tool is in operation.

Filtered and oiled air will allow the tool to operate more efficiently and yield a longer life to operating parts and mechanisms. A line filter capable of filtering particles larger than 50 microns should be used with a line oiler.

Filter-Regulator-Lubricator (F-R-L) assembly model C28231-810 is recommended for use with this air tool. The capacity of this F-R-L is adequate to provide clean (40 micron) oiled

and regulated air for the tool.

Flush tool with a solution of three parts cleaning solvent and one part light oil after each 40 hours of operation. After flushing, apply a small amount of spindle oil in air inlet and run free for one minute to insure proper lubrication.

Recommended hose size - 5/16" (8 mm) nominal inside diameter. Recommended lubricants: spindle oil 29665, 1 qt. (.9 liter) container for oiler and air inlet; grease 33153, 5 lb. (2.3 kg) can for gears and bearings, "O" ring lubricant 36460, 4 oz. (113 g) tube for lubrication and installation of "O" rings.

## MAINTENANCE

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

Air tools are made of precision parts and should be handled with reasonable care when servicing. Excessive pressure exerted by a holding device may cause distortion of a part. Apply pressure evenly when disassembling (or assembling) parts which have a press fit. When removing or installing bearings, apply pressure to the bearing race that will be press fit to the mating part; if this is not practiced, Brinelling of the bearing races will occur, making replacement necessary. It is important that the correct tools and fixtures are used when servicing this air tool.

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 relubricating the bearing is available. Open bearings may be washed but should not be allowed to spin while being blown dry. When replacement parts are necessary, consult drawing containing the part for identification.

Before reassembling, lubricate parts where required. Use 33153 grease, or equivalent, in bearings. Use 36460 lubricant for "O" ring assembly. When assembling "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 ordering parts, be sure to list **part number, part name, model number and serial number of tool.** Use only genuine ARO® replacement parts

## DISASSEMBLY AND ASSEMBLY OF TOOLS

### DISASSEMBLY

**RIGHT-ANGLE ATTACHMENT** - Remove chuck. Loosen lock ring (35617) completely and pull right-angle from gearing. Remove lock nut (38272) and pull shaft and components from housing. To remove gear, remove nut (38228). Remove lock nut (35622-1) to remove pinion and bearing (33706) from housing.

**GEARING** - Remove right-angle attachment. Hold motor housing with a strap wrench and with a wrench on flats of gear housing, unthread and remove. If tool has both drive and auxiliary gearing, separate gearing assemblies by using wrenches on flats of gearing housing. Hold gear housing in one hand and tap splined end of spindle with a soft face hammer; spindle and components will loosen from housing. Remove bearing. Rotate snap ring so the open portion of ring will allow the removal of one shaft. Remove shaft, releasing gear from spindle. Repeat for opposite shaft and gear.

**MOTOR** - After removal of gearing, the motor assembly may be removed from housing. Remove nut (33694) and sems fastener (33700). Grasp cylinder in one hand and tap splined end of rotor with a soft face hammer; motor will come apart.

**HEAD** - Secure head in a suitable holding device. Using a strap wrench on motor housing, unthread and remove housing. To remove valve parts, remove plug (35641).

### ASSEMBLY

**HEAD** - Assemble "O" ring (Y325-7) to valve stem (35643) and assemble into head. Assemble spring (30609), regulator (35642) and seal (35675) to head and secure with "O" ring (Y325-16) and

plug (35641). Assemble head to motor housing.

**MOTOR** - Assemble bearings into end plates. NOTE: Assemble bearing (33709) into end plate (33710) with the lettered face outward. Assemble end plate (33710) with spacer (33701) to rotor and secure with sems fastener. NOTE: Torque fastener to 28 in. lbs. Assemble cylinder over rotor and to end plate, aligning roll pin with hole in end plate. Assemble blades to rotor and assemble end plate (33712) to rotor and cylinder, aligning roll pin with hole in end plate. Assemble nut (33694) to end plate (33710). NOTE: Torque nut to 9 - 12 ft lbs. Insure motor does not bind and assemble to housing with spacers (33699 and 33711).

**GEARING** - Assemble snap ring to spindle if removed, and rotate opening in ring to allow shaft to be inserted and assemble one gear and shaft to spindle. Repeat for assembly of other shaft and gear. After both gears and shafts are assembled to spindle, rotate opening of ring to insure both shafts are secured by ring. Assemble bearings to spindle and assemble to gear housing with washer (47590) and wave washer (47589) or retaining ring (33708). Gearing should contain approximately 1/4 oz. grease per set of planetary gearing. Assemble gearing to tool.

**RIGHT-ANGLE ATTACHMENT** - Assemble bearing (33706) to pinion and assemble to housing. Secure pinion to housing with lock nut (35622-1). Assemble bearing (35629) and gear to shaft and secure with nut (38228). Assemble shaft and spacer (32797) to housing and secure with lock nut (38272). Assemble splined coupling (35621) and right-angle to tool. Assemble chuck to shaft. NOTE: Right-angle assembly should contain approximately 1/8 oz. of grease.