

OPERATOR'S MANUAL

Form: 2859-2

INCLUDING: OPERATION, INSTALLATION & MAINTENANCE

Released: 12-15-85

1/4" CAPACITY DRILL

Revised: 6-12-89

2500 R.P.M.

MODEL 8520

**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."

CAUTION:

- 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.
- SHUT OFF and DISCONNECT AIR SUPPLY from tool BEFORE performing maintenance, service or disassembly of tool or device attached to tool and also before removing or installing bit, socket, etc.

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.

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 150 HOURS OF TOOL OPERATION — Lubricate gearing. Pack ball bearings, coat shafts and lubricate gears with NLGI #1 "EP" grease (33153). Gearing should contain approximately 1/16 oz. (1.8 g) of grease. Thereafter, repeat procedure **EVERY 300 HOURS OF TOOL OPERATION**.

AIR SUPPLY REQUIREMENTS

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

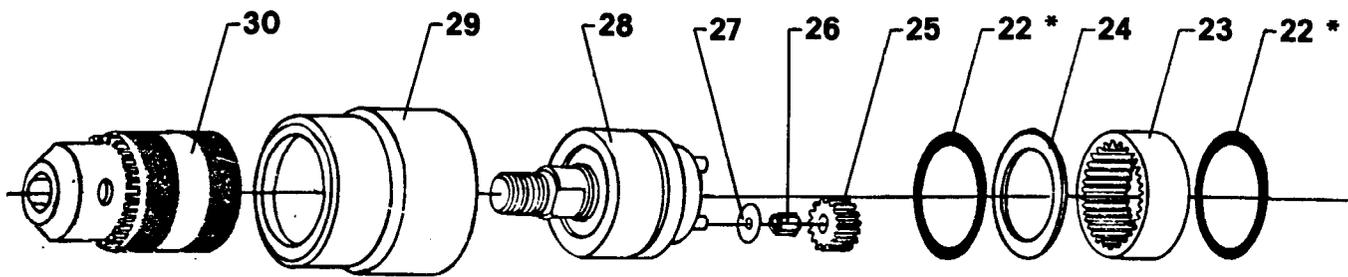
- AIR PRESSURE — 90 PSIG (6 bar)
- AIR FILTRATION — 50 micron
- LUBRICATED AIR SUPPLY
- HOSE SIZE — 5/16" (8 mm) I.D.

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

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 & Lip Seals	36460	4 oz. Stringy Lubricant



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.

GEARING DISASSEMBLY

- Clamp tool in a smooth face vise, clamping on housing (12).
- Remove chuck (30).
- Remove lock nut (29), using a strap wrench.
- Pull spindle (28) and components from housing.
- Pull ring gear (23) from housing.

GEARING ASSEMBLY

- Pack bearings and lubricate gears and shafts with ARO 33153 grease upon assembly. Gearing should contain approximately 1/16 oz. of grease.
- Grease and assemble "O" ring (22) to spindle (28).
- Assemble gasket (24) to spindle.
- Assemble washers (27) to shafts.
- Assemble needle bearings (26) and gears (25) to shafts.
- Assemble ring gear (23) over gears, aligning teeth.
- Assemble spindle (28) and components to tool.
- Assemble lock nut (29) to tool, securing gearing.
- Assemble chuck (30) to tool.

MOTOR DISASSEMBLY

- Remove gearing.
- Tap front of housing to remove motor assembly.
- Remove retaining ring (13), releasing shim (31) and washer (14).

- Grasp cylinder in one hand and tap splined end of rotor with a soft-faced hammer; motor will come apart.
- Remove front end plate from rotor.

MOTOR ASSEMBLY

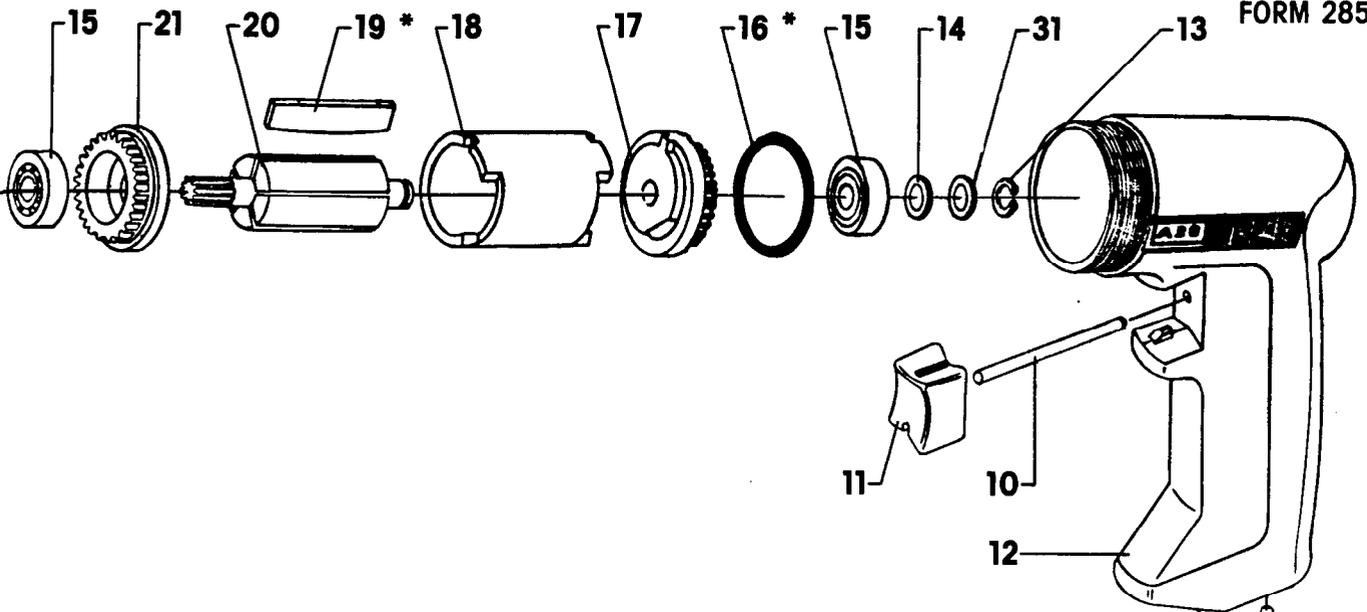
- Assemble bearings to end plates, pressing on outer race of bearings.
- Assemble front end plate (21) to rotor, pressing on inner race of bearing.
- Coat blades with ARO 29665 spindle oil and assemble blades to rotor — straight side out.
- Assemble cylinder over rotor, aligning tabs on end plate with slots in cylinder.
- Assemble end plate (17) to rotor, pressing on inner race of bearing. NOTE: Align tabs on end plate with slots in cylinder.
- Assemble washer (14) and shim (31) to rotor, securing with retaining ring (13).
- Grease and assemble "O" ring (16) to rear end plate (17).
- Assemble motor assembly to housing.
- Grease and assemble "O" ring (22) to end plate (21).
- Assemble gearing to tool.

VALVE DISASSEMBLY

- Remove hose fitting (1), releasing gasket (2), screen (3), spring (4) and valve (5).
- Remove muffler (8), releasing muffler pads (9).

VALVE ASSEMBLY

- Assemble muffler pads (9) to housing, securing with muffler (8).
- Assemble valve gasket (6) to housing.
- Assemble valve (5), with valve stem (7), into housing.
- Assemble spring (4) and screen (3) to housing, securing with gasket (2) and hose fitting (1).
- Coat straight pin (10) with ARO 29665 spindle oil. Assemble pin (10) and trigger (11) to tool.



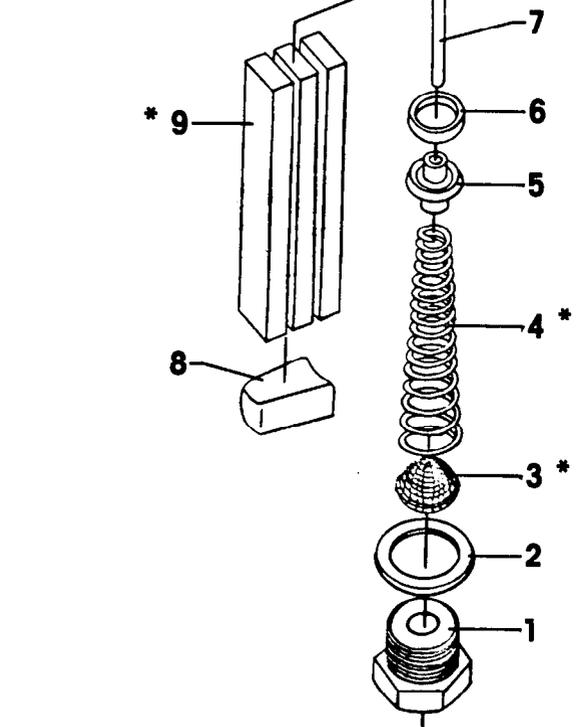
* ITEMS INCLUDED IN SERVICE KIT NO. 47649

PART NUMBER FOR ORDERING

1	Hose Fitting	47979-16
2	Gasket	47979-23
* 3	Screen	47979-17
* 4	Spring	47979-18
5	Valve	47979-19
6	Valve Gasket	47979-24
7	Valve Stem	47979-20
8	Muffler	47979-22
* 9	Muffler Pad (3 req'd)	47979-21
10	Straight Pin	47979-25
11	Trigger	47979-5
12	Housing	
13	Retaining Ring	47979-7
14	Washer	47979-8
15	Bearing (2 req'd)	Y65-8
* 16	"O" Ring	Y325-25
17	Rear End Plate	47979-9
18	Cylinder	47979-10
* 19	Blade (5 req'd)	47979-3
20	Rotor	47979-11
21	Front End Plate	47979-12
* 22	"O" Ring (2 req'd)	Y325-122
23	Ring Gear	47979-4
24	Gasket	47979-6
25	Planet Gear (3 req'd)	47979-13
26	Needle Bearing (3 req'd)	47979-1
27	Washer (3 req'd)	47979-2
28	Spindle	47979-14
29	Lock Nut	47979-15
30	Chuck	47341
31	Shim	47979-26

SERVICE KIT: includes items 3, 4, 9 (3 req'd),
19 (5 req'd), 16 and 22 (2 req'd)

47649



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