

## 60,000 R.P.M. PENCIL GRINDER

Models: GH011A-600-1  
GH011A-600-2  
GH011A-600-3  
GH011A-600-EU



### **⚠ WARNING**

**READ THIS MANUAL CAREFULLY BEFORE INSTALLING,  
OPERATING OR SERVICING THIS EQUIPMENT.**

### **FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.**

To aid the operator's understanding of proper and safe use of grinders, the publications, "Use, Care and Protection of Abrasive Wheels", A.N.S.I. B7.1, and "Safety Code for Portable Air Tools", A.N.S.I. B186.1, can be purchased from:

American National Standards Institute, Inc.  
1430 Broadway  
New York, New York 10018

#### **⚠ 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 mounted wheel or performing other 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.
- Use tool only for purposes for which it was intended.
- Never use mounted stone or carbide burr with speed rating lower than r.p.m. rating of tool.

- Do not use excessive work pressure.
- Allow only people who have received training in "proper grinder operation" to operate grinder.
- 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 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**

Ingersoll-Rand Company  
1725 U.S. No. 1 North • P.O. Box 8000 • Southern Pines, NC 28388-8000  
©1997 INGERSOLL-RAND COMPANY • PRINTED IN U.S.A.

**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**



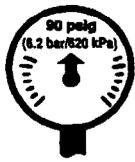
Do not use damaged, frayed or deteriorated air hoses and fittings.

**⚠ 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**

**⚠ WARNING**

Read the manual before operating this tool.  
Operate at 90 psig/6.2 bar max.



PN 48176-1 LABEL (NON-EU MODELS)      PN 49883 LABEL (-EU MODELS)

This label must appear on the tool 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 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 40 HOURS OF TOOL OPERATION** – Flush tool with a solution of three (3) parts cleaning solvent to one (1) part spindle oil.

## 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 – 7/32" (6 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	36460	4 oz. Stringy Lubricant
Bearings	33153	5 lb. "EP" – NLGI #1 Grease

## MOUNTING INSTRUCTIONS

- Be sure collet is in good condition and properly secured to grinder spindle.
- Insert shaft of mounted wheel to the full depth of gripping jaws of collet. At least one-half of shaft length shall be inserted into collet jaws.
- Be sure mounted stone or carbide bur is compatible with the speed of the grinder.

## CAPACITIES (MAXIMUM)

- Carbide Bur – 1/4"
- Mounted Stone – 1/4"

## 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.

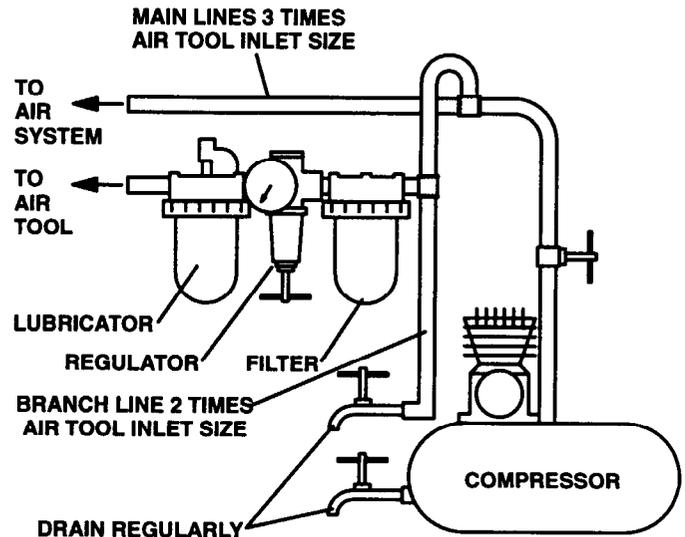
Tool maintenance and repair shall be performed by authorized, trained, competent personnel. Tools, hose and fittings shall be replaced if unsuitable for safe operation and responsibility should be assigned to be sure that all tools requiring guards or other safety devices shall be kept in legible condition.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

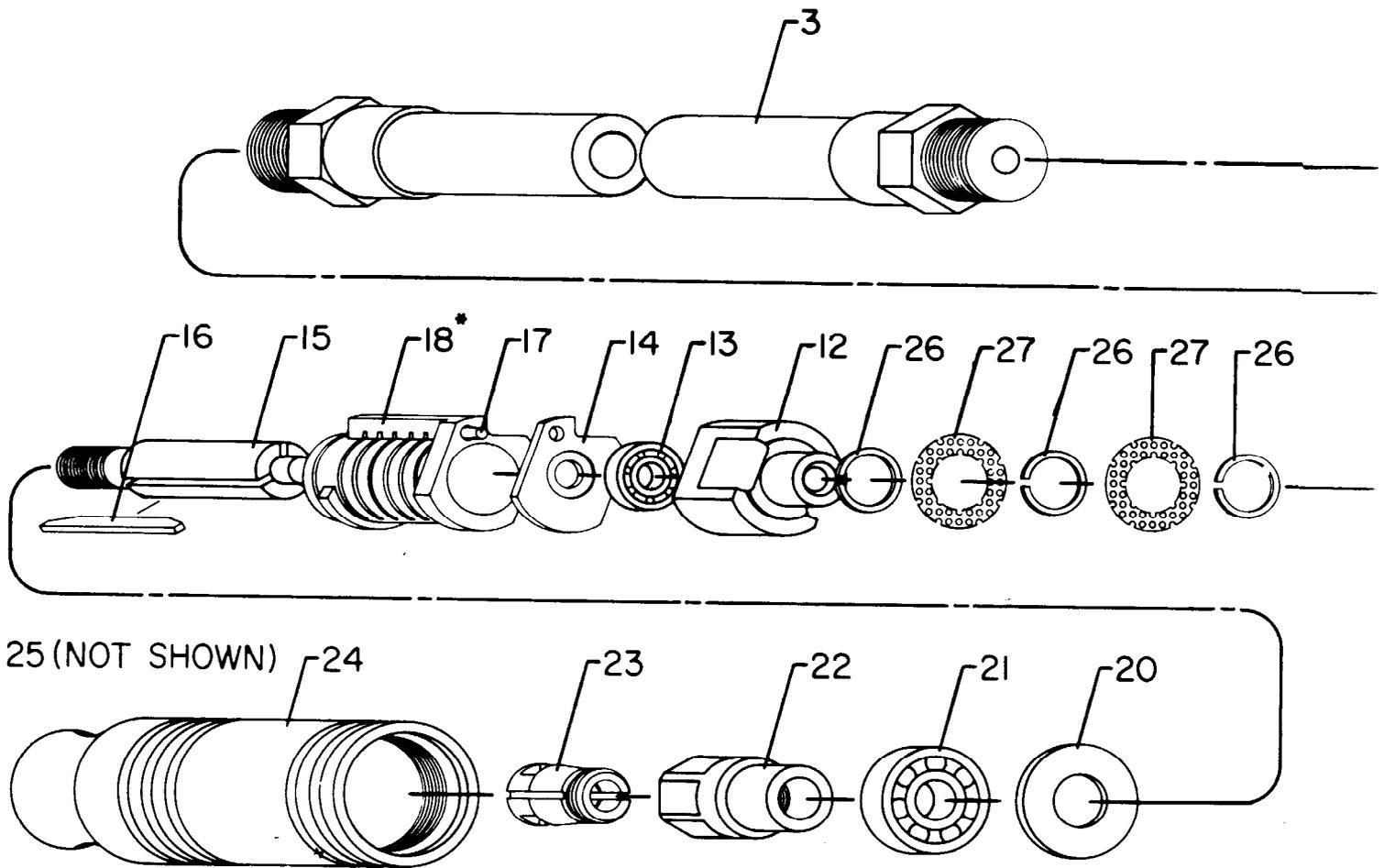
Disassembly should be done on a clean work bench with a clean cloth spread to prevent the loss of small parts. After disassembly is completed, all parts should be thoroughly washed in a clean solvent, blown dry with air and inspected for wear levels, abuse and contamination. Double sealed or shielded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

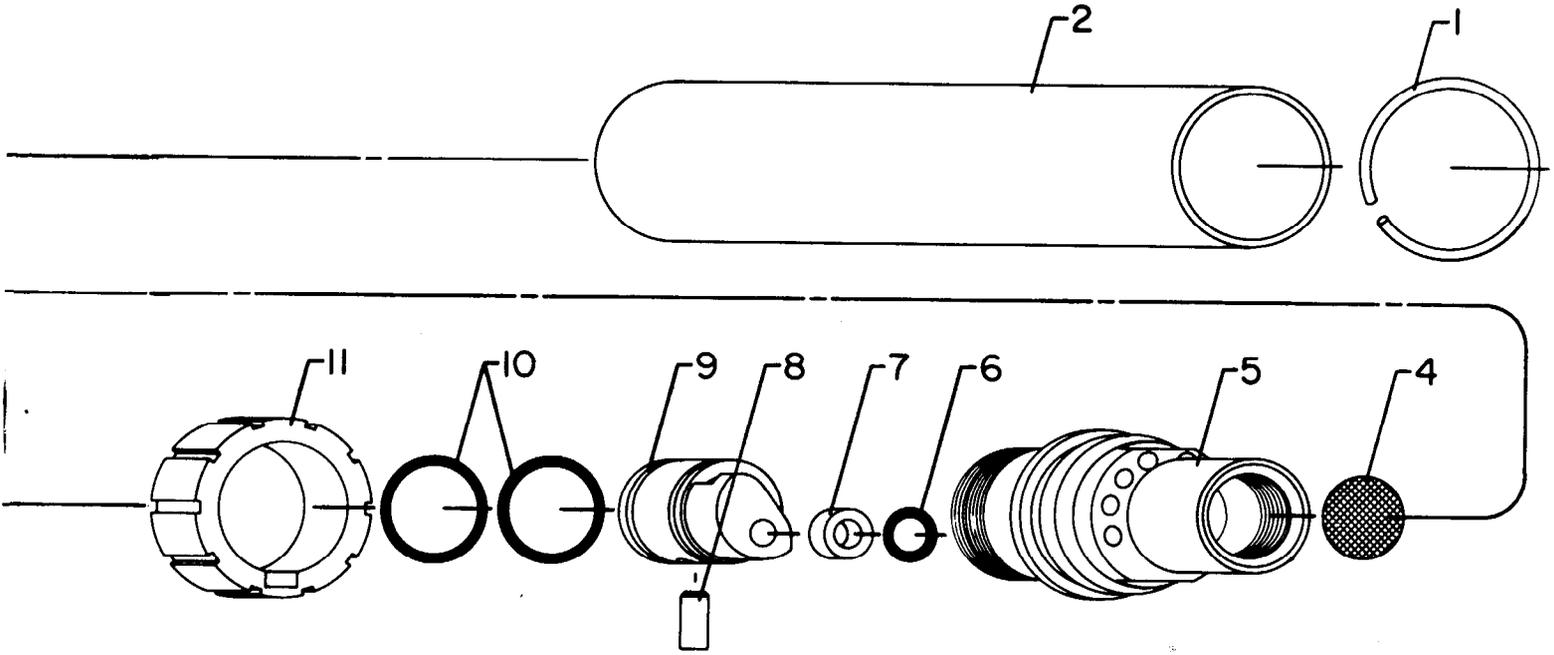
Always use clean, dry air. Dust, corrosive fumes and/or excessive moisture can damage the motor of an air tool. An air line filter can greatly increase the life of an air tool. The filter removes rust, scale, moisture and other debris from the air lines. Low air pressure (less than 90 p.s.i.g.) reduces 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.





\* INCLUDES ITEM 17

PART NUMBER FOR ORDERING		PART NUMBER FOR ORDERING			
1	Snap Ring .....	37272	16	Blade (3 req'd) .....	46102
2	Exhaust Sleeve .....	47571-1-F	17	Pin .....	Y124-31
3	Hose Assembly .....	39907-7	18	Cylinder (includes item 17) .....	47573
4	Screen .....	47577	20	End Plate .....	47560
5	Valve Body .....	47569	21	Ball Bearing .....	47559
6	"O" Ring .....	47615	22	Collet Body .....	47570
7	Bushing .....	47572	23	Insert	
8	Plug .....	31637		1/8" capacity .....	47568-1
9	Valve .....	47563		3 mm capacity .....	47568-2
10	"O" Ring .....	47576		3/32" capacity .....	47568-3
	Valve Assembly (includes items 4 thru 10) .....	47574	24	Motor Housing	
11	Throttle .....	47567		for standard models .....	47566
12	Air Block Assembly (includes items 26 and 27) ..	46619		for "-EU" models .....	49913
13	Ball Bearing .....	46110	25	Sleeve (not shown) .....	47550
14	End Plate .....	47564	26	Snap Ring (3 req'd) .....	Y110-2
15	Rotor .....	04334884	27	Screen (2 req'd) .....	47497



**NOT SHOWN**  
47579 WRENCH  
47580 WRENCH

MODEL NUMBER	COLLET CAPACITY
GH011A-600-1	1/8"
GH011A-600-2	3 mm
GH011A-600-3	3/32"
GH011A-600-EU	3 mm

MODELS WITH -EU SUFFIX ARE "EC" COMPLIANT MODELS.

## DISASSEMBLY/ASSEMBLY INSTRUCTIONS

### DISASSEMBLY

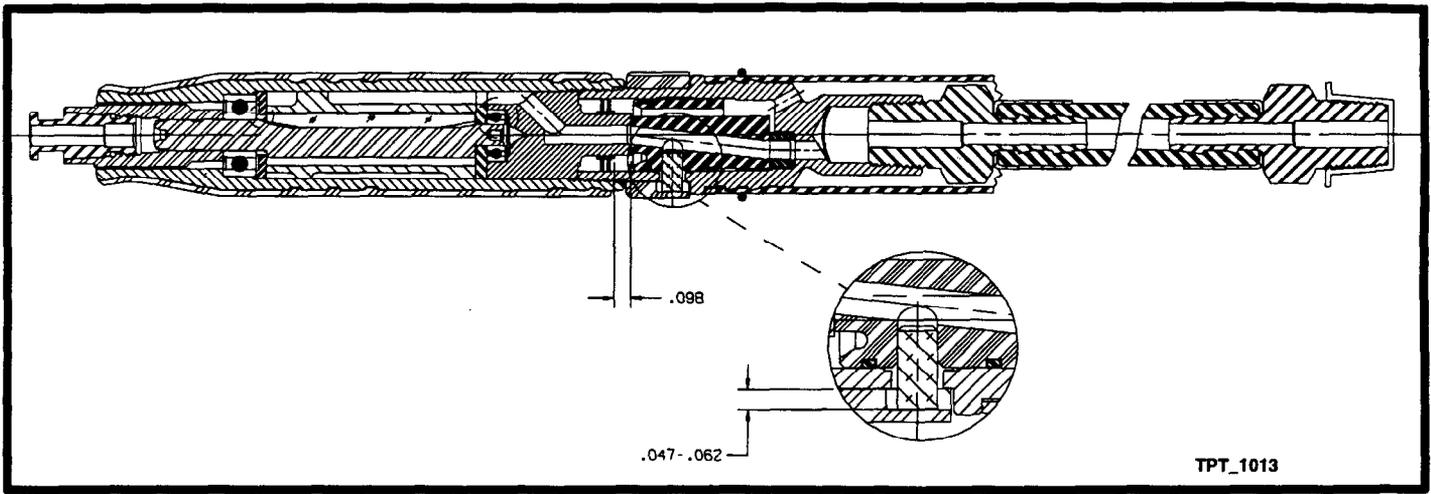
- Remove snap ring (1) and exhaust sleeve (2), allowing removal of hose assembly (3).
- Remove screen (4).
- Place motor housing in a suitable holding device.
- Using a wrench on flats of valve body (5), unthread and remove valve assembly and components from tool.
- Remove throttle (11).
- Disassembly of valve assembly is not necessary, except for replacement of "O" rings (6 and 10).
- Remove motor components from motor housing.
- Using brass blocks (1/4" diameter) in a vise, clamp on rotor (15) and remove collet body (22), insert (23) and bearings (13 and 21), releasing components.

### ASSEMBLY

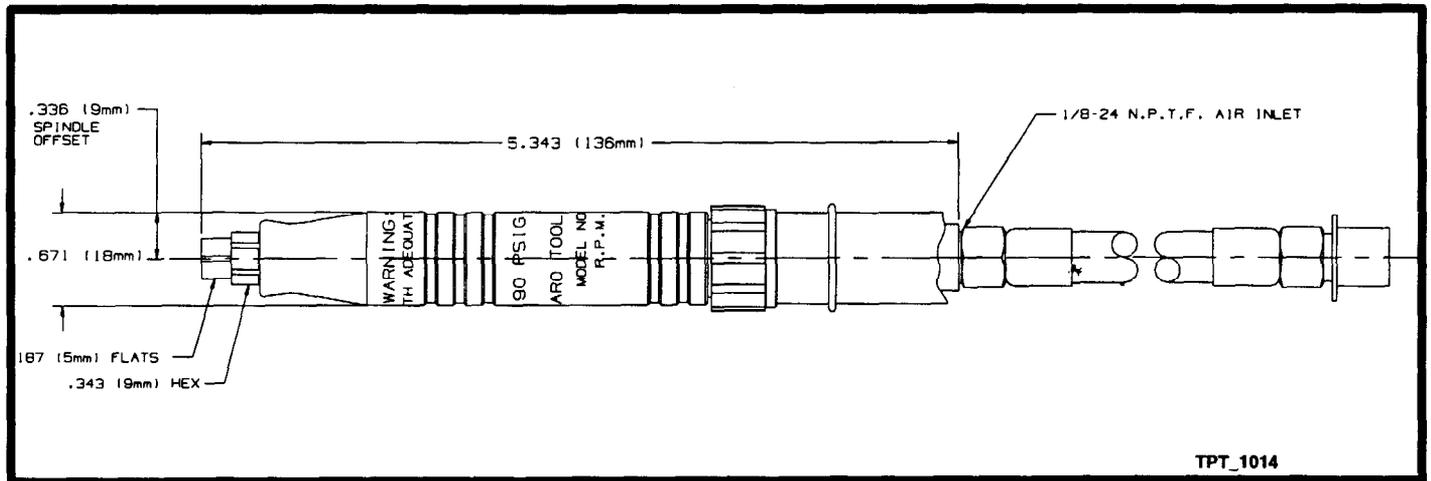
- Assemble end plate (20) to rotor (15).
- Lubricate bearing (21) with ARO 33153 grease and press onto rotor, pressing on inner race of bearing.
- Using brass blocks in a vise, clamp on rotor and assemble collet body (22) to rotor.
- Coat three rotor blades (16) with ARO 29665 spindle oil and assemble to rotor slots - straight side out.

- Coat i.d. of cylinder (18) with ARO 29665 spindle oil and assemble over rotor.
- Assemble end plate (14) to rotor, aligning hole in end plate with roll pin (17).
- Lubricate bearing (13) with ARO 33153 grease and press onto rotor, pressing on inner race of bearing. NOTE: Install bearing with retainer towards end plate.
- Assemble three snap rings (26) and two screens (27) to air block (12)(see dimension on cross section view, page 6).
- Assemble air block (12) to motor, aligning hole in block with pin (17), and assemble components to motor housing (24).
- Grease and assemble "O" rings (10) to valve (9).
- Grease and assemble "O" ring (6) to valve body (5).
- Assemble bushing (7) and valve (9) to valve body (5), securing with plug (8). NOTE: Press plug (8) to dimension shown on cross section (see page 6).
- Assemble throttle (11) to valve body.
- Assemble valve body to motor housing.
- Assemble screen (4) to valve body.
- Assemble hose assembly (3) to tool.
- Assemble exhaust sleeve (2) to tool, securing with snap ring (1).
- Assemble sleeve (25) to motor housing (24).

# TYPICAL CROSS SECTION OF TOOL



# DIMENSIONAL DATA



**ARO.**