



**Part No. 49999-498**

Edition 2

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## **2200 Series Drill**

**Model 7695 (325 rpm)**

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# **Operation and Maintenance Information**



**Save These Instructions**

 **Ingersoll Rand**

## Product Safety Information

### Intended Use:

These Air Drills are designed for drilling, honing, reaming and hole sawing.

For Additional information refer to Air Drills Product Safety Information Manual Form 04580353.

Manuals can be downloaded from [www.irtools.com](http://www.irtools.com).

### 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.

### 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 - 5/16" (8 mm) i. d.

### 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:

**Every 40 hours of tool operation,** Flush tool with a solution of three (3) parts cleaning solvent to one (1) part spindle oil. After flushing, apply small amount of spindle oil in air inlet and run tool for one minute to insure proper lubrication. Built-in oiler reservoir should be filled with spindle oil (29665).

**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 114 oz. (7 g) of grease per reduction.

A model C28221-800 air line FILTER/REGULATOR/LUBRICATOR (F.R.L.) is recommended to maintain the above air supply specifications.

Where Used	Ingersoll Rand 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 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.

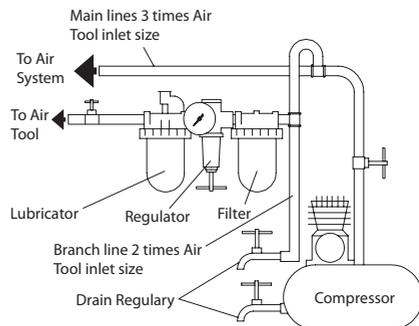
Upon reassembling, lubricate parts where required. Use 33153 grease, or equivalent, in bearings. Use 36460 lubricant for O-ring assembly. When assembling O-rings or parts adjacent O-rings, care must be exercised to prevent damage to the rubber sealing surfaces.

A small amount of grease will usually hold steel balls and other small parts in place while assembling.

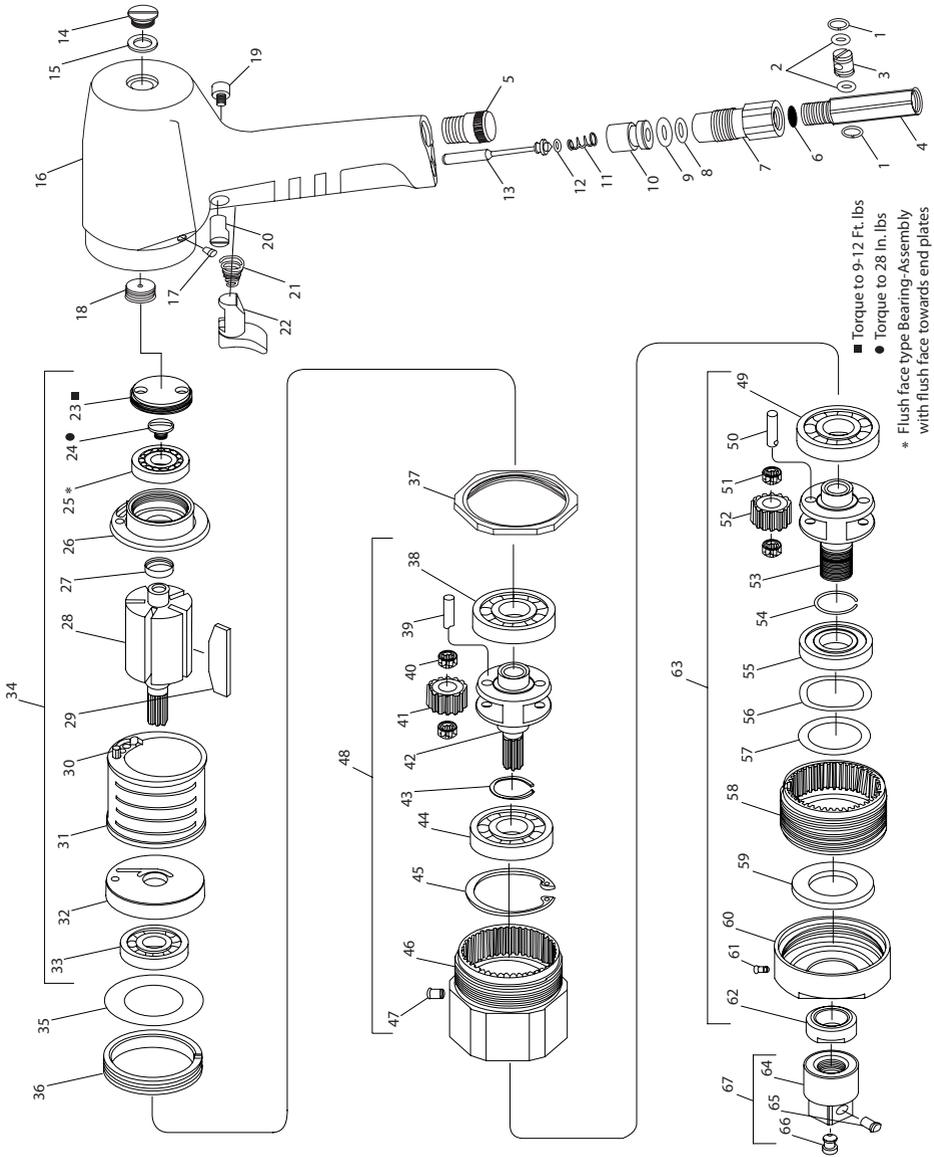
When replacement parts are necessary, consult drawing containing the part for identification.

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.



## 2200 Series Drill Model 7695 (325 rpm)- Exploded View



### Parts and Maintenance

When the life of the tool has expired, it is recommended that the tool be disassembled, degreased and parts be separated by material so that they can be recycled.

Tool repair and maintenance should only be carried out by an authorized Service Center.

Refer all communications to the nearest **Ingersoll Rand** Office or Distributor.

## 2200 Series Drill Model 7695 (325 rpm) Parts List

Item	Part Description	Part Number	Item	Part Description	Part Number
1	Snap Ring (2 Required)	Y111-3	33	Bearing	33705
2	O-Ring (2 Required)	Y325-8	34	Motor Assembly	41522
3	Regulator Valve	36975	35	Spacer	33699
4	Regulator Body	37527	36	Spacer	33711
---	Air Regulator Assembly (Includes items 1 thru 4)	37526	37	Lock Nut	35831
38			Bearing	33704	
5	Muffler Assembly	40192	39	Shaft (2 Required)	40841
6	Screen	33911	40	Needle Bearing (4 Required)	42271
7	Inlet Adapter	37073	41	Gear, 18 teeth (4 Required)	46416
8	O-Ring	Y325-13	42	Spindle	40840
9	O-Ring	Y325-112	43	Snap Ring	40843
10	Insert	37070	44	Bearing	33704
---	Insert Assembly (Includes items 9 and 10)	37981	45	Retaining Ring	33708
46			Ring Gear (Includes item 47)	35270-ARO	
11	Spring	33547	47	Grease Fitting	35323
12	O-Ring	Y325-7	48	Auxiliary Gearing Assembly (7.43:1)	40826
13	Valve Stem	39286	49	Bearing	33704
14	Oil Screw	30747	50	Shaft (2 Required)	40841
15	Washer	31389	51	Needle Bearing (4 Required)	42271
16	Housing (Includes item 17)	37064	52	Gear, 18 teeth (2 Required)	46416
17	Grease Fitting	35967	53	Spindle	40836
18	Oilite Casting	33190-1	54	Snap Ring	40843
19	Screw	39769	55	Bearing	33706
20	Guide Pin	39768	56	Wave Washer	47589
21	Spring	32858	57	Washer	47590
22	Trigger	39764	58	Ring Gear	34490
---	Pistol Grip Housing Assembly (Includes items 6 thru 22)	40177	59	Seal	37774
60			Nose Housing (Includes item 61)	38379	
23	Nut	33694	61	Grease Fitting	35967
24	Sems Fastener	33700	62	Spacer	33697
25	Bearing	33709	63	Drive Gearing Assembly (7.43:1)	41770
26	Rear End Plate	33710	64	Adapter Body (1/2" square drive)	40767
27	Spacer	33701	65	Locking Pin	31388
28	Rotor	41521	66	Rubber Insert	30890
29	Blade (5 Required)	41520	67	Adapter Assembly (1/2" square drive)	40768
30	Roll Pin (2 Required)	Y178-20	*	Dead Handle	37085
31	Cylinder (Includes item 30)	35679	*	Wrench	37167
32	Front End Plate	33712	*	Warning Label	48176-1

\* Included But Not Shown.

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## 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 tool.
  - Use only genuine **Ingersoll Rand** replacement parts for this tool. When ordering, specify part number, description, tool model number and serial number.
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## Disassembly

### Drive Gearing Disassembly

- Clamp tool in a smooth face vise, clamping on housing (16).
- Place a wrench on adapter body (64) and strike wrench a sharp blow to loosen adapter body.
- Remove adapter body (64) and spacer (62).
- Using wrenches on flats of nose housing (60) and ring gear (46), unthread and remove drive gearing.
- Remove nose housing (60) and seal (59) from ring gear.
- Grasp ring gear (58) in one hand and tap threaded end of spindle (53) with a soft face hammer; spindle and components will loosen from ring gear.
- Do not disassemble further unless damage is evident, as Brinelling of the bearing races may occur, making replacement necessary.
- To disassemble, remove bearing (55).
- Turn snap ring (54) so the open portion allows removal of shaft (50).
- Remove shaft (50), releasing gear (52).
- Repeat for removal of opposite shaft and gear.
- Place shafts (50) into spindle and alternately tap ends to remove bearing (49).

### Housing Disassembly

- Remove snap ring (1), releasing regulator valve (3) and O-rings (2).
- Remove regulator body (4), screen (6), inlet adapter (7), O-ring (8), insert (10) and spring (11).
- Depress trigger (22) to release valve stem (13) and O-ring (12).
- Remove screw (19) and guide pin (20), releasing trigger (22) and spring (21).
- To remove oilite casting (18), unscrew from "Motor" end of Housing.

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## Assembly

### Drive Gearing Assembly

- Assemble snap ring (54) to groove in spindle, aligning open portion of snap ring with hole for shaft.
- Lubricate needle bearings (51) with 33153 grease and assemble to gears (52).
- Lubricate gears (52) liberally with 33153 grease and assemble one gear to spindle, securing with shaft (50).
- Repeat for opposite shaft and gear.
- After assembly of gears and shafts, turn snap ring so that open portion is approximately 90° from either shaft.
- Assemble bearing (55) to spindle, pressing on inner race of bearing.
- Pack bearing (49) with 33153 Grease and assemble to spindle, pressing on inner race of bearing.
- Assemble washer (57), wave washer (56) and spindle and components into ring gear (58).
- Assemble seal (59) and nose housing (60) to ring gear (58).
- Assemble drive gearing to tool and tighten, using wrenches on flats of nose housing (60) and ring gear (46).
- Assemble spacer (62) and adapter body (64) to spindle.
- Assemble locking pin (65) to adapter body (64), securing with rubber insert (66).

### Auxiliary Gearing Disassembly

- Remove drive gearing from tool.
- Using a wrench on flats of lock nut (37), loosen lock nut and remove auxiliary gearing from tool.
- Grasp ring gear in one hand and tap drive end of spindle with a soft face hammer; spindle and components will loosen from ring gear.
- Do not disassemble further unless damage is evident, as Brinelling of the bearing races may occur, making replacement necessary.
- To disassemble, remove bearing (44).
- Turn snap ring (43) so the open portion allows the removal of shaft (39).
- Remove shaft (39), releasing gear (41).
- Repeat for removal of opposite shaft and gear.
- Place shafts (39) into spindle and alternately tap ends to remove bearing (38).

### Motor Disassembly

- Remove gearing from tool.
- Remove spacers (36 and 35) and motor assembly from housing (16).
- Using a spanner type wrench, remove nut (23) from end plate (26).
- Grasp cylinder in one hand and tap splined end with a soft face hammer; motor will come apart.
- Remove sems fastener (24), releasing bearing (25) and end plate (26).

### Housing Assembly

- Assemble spring (21) and trigger (22) into housing, securing with guide pin (20) and screw (19).
- Grease O-ring (12) and assemble to groove in valve stem (13).
- Lubricate valve stem (13) with 29665 spindle oil and assembly into housing.
- Grease O-ring (9) and assemble to groove in insert (10).
- Assemble the spring (11) and insert (10) into housing.
- Grease O-ring (8) and assemble O-ring and inlet adapter (7), to housing, securing valve components.
- Clean and replace screen (6) in inlet adapter.
- Grease O-rings (2) and assemble to grooves in regulator valve (3).
- Assemble regulator valve (3) to regulator body (4), securing with snap rings (1).
- Assemble regulator body (4) to inlet adapter (7).
- Assemble oilite casting (18) into housing.
- Fill cavity in housing (16) with 29665 spindle oil and seal with washer (15) and oil screw (14).

## Auxiliary Gearing

- Assemble snap ring (43) to groove in spindle, aligning open portion of snap ring with hole for shaft.
- Lubricate needle bearings (40) with 33153 grease and assemble to gears (41).
- Lubricate gears liberally with 33153 grease and assemble one gear to spindle, securing with shaft (39).
- Repeat for opposite shaft and gear.
- After assembly of gears and shafts, turn snap ring so open portion is approximately 90° from either shaft.
- Pack bearings (44 and 38) with 33153 grease and assemble to spindle, pressing on inner race of bearings.
- Assemble spindle and components into ring gear.
- Thread lock nut (37) all the way onto ring gear.
- Assemble auxiliary gearing to tool and tighten, using a wrench on flats of ring gear.
- Tighten lock nut (37) against housing (16), securing auxiliary gearing.
- Assemble drive gearing to tool.

## Motor Assembly

- Pack bearings with 33153 grease.
- Assemble bearing (25) to end plate (26), pressing on outer race of bearing.  
**NOTE:** Assemble bearing to end plate with the identification markings facing out.
- Assemble spacer (27) and end plate (26) to rotor, pressing on inner race of bearing.
- Assemble sems fastener (24) to rotor, securing bearing and end plate. Torque fastener to 28 in. lb.
- Coat five rotor blades (29) with 29665 spindle oil and assemble to rotor slots - straight side out.
- Coat i.d. of cylinder (31) with 6 5 spindle oil and assemble over rotor, aligning roll pin (30) with hole in end plate.
- Assemble bearing (33) to end plate (32), pressing on outer race of bearing.
- Assemble end plate (32) to cylinder, pressing on inner race of bearing.
- Assemble nut (23) to end plate (26) and tighten, using a spanner type wrench. Torque to 9-12 ft. lbs.
- Be sure rotor does not bind.
- Assemble motor assembly and spacers (35 and 36) to housing (16).
- Assemble gearing assemblies to tool.

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## Related Documentation

For additional information refer to:

Air Drill Product Safety Information Manual 04580353.

Manuals can be downloaded from [www.irttools.com](http://www.irttools.com).

**Notes:**

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[www.irtools.com](http://www.irtools.com)

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