



16574212

Edition 2

May 2014

Air Percussive Digger

93 and 95 Series

Maintenance Information



Save These Instructions

IR *Ingersoll Rand®*

Product Safety Information

WARNING

- **Failure to observe the following warnings, and to avoid these potentially hazardous situations, could result in death or serious injury.**
- **Read and understand this and all other supplied manuals before installing, operating, repairing, maintaining, changing accessories on, or working near this product.**
- **Always wear eye protection when operating or performing maintenance on this tool. The grade of protection required should be assessed for each use and may include impact-resistant glasses with side shields, goggles, or a full face shield over those glasses.**
- **Always turn off the air supply, bleed the air pressure and disconnect the air supply hose when not in use, before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool or any accessory.**

Note: When reading the instructions, refer to exploded diagrams in parts Information Manuals when applicable (see under Related Documentation for form numbers).

Lubrication

Each time the 93 and 95 Series Diggers are disassembled for maintenance, repair or replacement of parts, lubricate the tool as follows:

- Inject approximately 3 cc of oil into the air inlet of the Grip Handle Digger before attaching the air hose.

Disassembly

General Instructions

1. Do not disassemble the tool any further than necessary to replace or repair damaged parts.
2. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws to protect the surface of the part and help prevent distortion. This is particularly true of threaded members and housings.
3. Do not remove any part which is a press fit in or on a subassembly unless the removal of that part is necessary for repairs or replacement.
4. Do not disassemble the tool unless you have a complete set of new gaskets and O-rings for replacement.

Disassembly of the Digger

1. Clamp the Barrel (33) of the Digger in leather-covered or copper-covered vise jaws with the Handle (1, 31) upward.
2. Remove the Handle Bolt (25), Handle Bolt Lock Washer (26), and the Handle Bolt Nut (27).
3. Carefully remove the Handle and the Valve Box (28).
4. After removing the Barrel from the vise, tip it to allow the Piston (32) to slide out.
5. Regrasp the Barrel in the vise, accessory end upward.
6. Remove the Sleeve Locking Spring (36).
7. Loosen the Retaining Sleeve (37).

8. Remove the Retaining Sleeve and the Accessory (41) along with the Buffer Spacer (39), Buffer Washer (40), and the Buffer (38).
9. If required, drive the Nozzle (35) and/or the Barrel Bushing (34) from the Barrel Assembly (33).
10. If required, remove the Spacer, Washer, and Buffer from the Sleeve.

Disassembly of the Handle Assembly

1. Clamp the Handle Assembly in leather-covered or copper-covered vise jaws with the Valve Box (28) upward.
2. Carefully remove the Valve Box, Valve Box Dowel (30), Valve (31), and the Valve Dowel (29).
3. Drive the Throttle Lever Pin (11) from the Handle and remove the Throttle Lever (10).
4. Remove the Throttle Valve Cap (3) and the Throttle Valve Spring (2).
5. From the throttle lever end, push the Throttle Valve (5), Throttle Valve Bushing (12), and the Throttle Valve Plunger (13) from the Handle.
6. If required, remove the Throttle Valve Face Cap Nut (6), the Throttle Valve Face Cap (7), the Throttle Valve Face (8), and the Throttle Valve Face Lock Washer (9) from the Throttle Valve.
7. Unscrew the Inlet Bushing (4).

Assembly

General Instructions

1. Whenever grasping a tool or part in a vise, always use leather-covered or copper-covered vise jaws. Take extra care with threaded parts and housings.
2. Always clean every part and wipe every part with a thin film of oil before installation.
3. Apply a film of O-ring lubricant to all O-rings before final assembly.

Assembly of the Handle Assembly

1. Clamp the Inside Trigger Handle Assembly (1) in leather-covered or copper-covered vise jaws with the inlet valve bore upward.
2. Place the Throttle Valve Face Lock Washer (9) on the threaded end of the Throttle Valve (5).
3. Follow the Lock Washer with the Throttle Valve Face (8) and Throttle Valve Face Cap (7).
4. Secure the assembly with the Throttle Valve Face Cap Nut (6).
5. Place the Throttle Valve, long end first, into the Handle.
6. Follow the Throttle Valve with the Throttle Valve Spring (2) and secure with the Throttle Valve Cap (3).

7. Install the Inlet Bushing (4).
8. Rotate the Handle in the vise to allow installation of the Throttle Lever (10).
9. Install the Throttle Valve Plunger (13) into the throttle valve bore.
10. From the inside of the Handle, install the Throttle Lever.
11. Secure the Throttle Lever with the Throttle Lever Pin (11) making sure that the Lever actuates the Throttle Valve.

Assembly of the Digger

1. If required, press the Barrel Bushing (34) and/or the Nozzle (35) into the Barrel Assembly (33).
2. Place the Piston (32), long end first, into the Barrel.
3. Clamp the Handle Assembly (1, 31) in leather-covered or copper-covered vise jaws with the top downward.
4. Carefully place the Valve Box Dowel (30) into the dowel hole in the handle.
5. Place the Valve (31) and the Valve Dowels (29) into the Valve Box (28).
6. Place the assembled Valve Box onto the handle, aligning the Valve Box Dowel with the dowel hole.

7. Clamp the Barrel in leather-covered or copper- covered vise jaws with the accessory end downward.
8. Carefully place the Valve Box/Handle Assembly on the Barrel and secure it with the two Handle bolts (25), two Handle Bolt Lock Washers (26), and two Handle Bolt Nuts (27).

Assembly of the Accessory Retainers

Assembly of the Model 93 Digger with 3/4" Square Nozzle

1. Place the Accessory through the Retaining Sleeve (37).
2. Place the Buffer Spacer (39), the first Buffer Washer (40), Buffer (38), and the second Buffer Washer (40) between the Sleeve and the shoulder on the accessory shaft.
3. Screw the Retainer onto the Barrel.
4. Replace the Sleeve Locking Spring (36).

Assembly of the Model 95 Digger with 7/8" Hexagon Nozzle

1. Place the Accessory through the Retaining Sleeve (37).
2. Place the first Buffer Washer (40), the Buffer (38), the second Buffer Washer (40), and the Buffer Spacer (39) between the Sleeve and the shoulder on the accessory shaft.
3. Screw the Retainer onto the Barrel.
4. Replace the Sleeve Locking Spring (36).

Troubleshooting Guide

Trouble	Probable Cause	Solution
Sluggish operation	Dirt or oil gum accumulation on internal parts	Pour about 3 cc of a clean, suitable, cleaning solution into the air inlet and operate for 30 seconds. After flushing, pour about 3 cc of oil into the air inlet and operate the tool for 5 seconds to coat the internal parts with oil.
Loss of power	Worn Valve	Replace the Valve.
Loss of efficiency	Worn Piston and/or accessory	Replace Piston and or accessory.

Related Documentation

For additional information refer to:

Product Safety Information Manual 04581450.

Product Information Manual 16574139.

Parts Information Manual 16574295.

Manuals can be downloaded from ingersollrandproducts.com

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