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Edition 2

June, 1998

OPERATION AND MAINTENANCE MANUAL FOR MODEL AVC10A1-SH LIGHTWEIGHT RIVETING HAMMERS

NOTICE

Model AVC10A1-SH Lightweight Riveting Hammer is designed for riveting door and window frames, sheet metal, lightweight plate and riveting skin on all types of air and spacecraft.

Ingersoll-Rand is not responsible for customer modification of tools for applications on which Ingersoll-Rand was not consulted.

⚠ WARNING

IMPORTANT SAFETY INFORMATION ENCLOSED.
READ THIS MANUAL BEFORE OPERATING TOOL.

IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PLACE THE INFORMATION
IN THIS MANUAL INTO THE HANDS OF THE OPERATOR.
FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

PLACING TOOL IN SERVICE

- Always operate, inspect and maintain this tool in accordance with American National Standards Institute Safety Code for Portable Air Tools (ANSI B186.1).
- For safety, top performance, and maximum durability of parts, operate this tool at 90 psig (6.2 bar/620 kPa) maximum air pressure at the inlet with 1/2" (13 mm) inside diameter air supply hose.
- Always turn off the air supply and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool, or before performing any maintenance on this tool.
- Do not use damaged, frayed or deteriorated air hoses and fittings.
- Be sure all hoses and fittings are the correct size and are tightly secured. See Dwg. TPD905-1 for a typical piping arrangement.
- Always use clean, dry air at 90 psig maximum air pressure. Dust, corrosive fumes and/or excessive moisture can ruin the motor of an air tool.
- Do not lubricate tools with flammable or volatile liquids such as kerosene, diesel or jet fuel.
- Do not remove any labels. Replace any damaged label.

USING THE TOOL

- Always wear eye protection when operating or performing maintenance on this tool.

- Always wear hearing protection when operating this tool.
- Keep hands, loose clothing and long hair away from impacting end of tool.
- Anticipate and be alert for sudden changes in motion during start up and operation of any power tool.
- Keep body stance balanced and firm. Do not overreach when operating this tool. High reaction torques can occur at or below the recommended air pressure.
- Tool accessory may continue to impact briefly after throttle is released.
- 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.
- Use accessories recommended by Ingersoll-Rand.
- Never operate a Percussion Tool unless an accessory is properly installed and the tool is held firmly against the work.
- Always use a retainer, when furnished, in addition to proper barriers to protect persons in surrounding or lower areas from possible ejected accessories.
- This tool is not designed for working in explosive atmospheres.
- This tool is not insulated against electric shock.

NOTICE

The use of other than genuine Ingersoll-Rand replacement parts may result in safety hazards, decreased tool performance, and increased maintenance, and may invalidate all warranties.

Repairs should be made only by authorized trained personnel. Consult your nearest Ingersoll-Rand Authorized Servicenter.

Refer All Communications to the Nearest
Ingersoll-Rand Office or Distributor.

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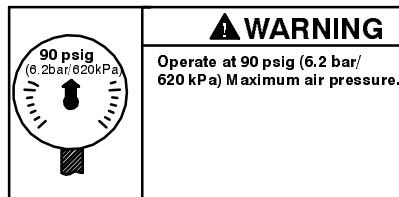
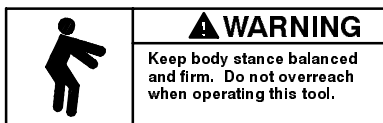
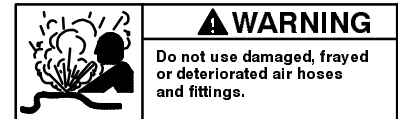
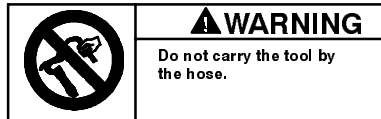
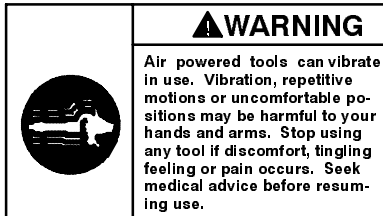
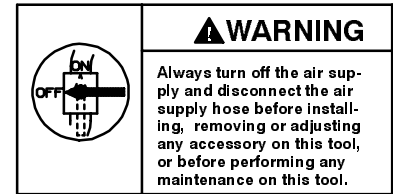
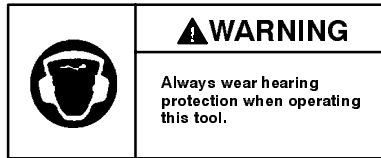
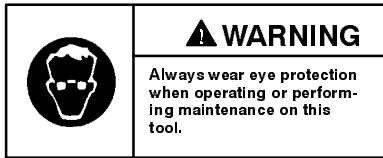
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INGERSOLL-RAND®
PROFESSIONAL TOOLS

WARNING LABEL IDENTIFICATION

⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.



PERCUSSIVE TOOL WARNINGS

⚠ WARNING

FAILURE TO OBSERVE THE FOLLOWING WARNINGS COULD RESULT IN INJURY.

- When wearing gloves and operating models with inside trigger, always be sure that the gloves will not prevent the trigger from being released.
- Wear safety shoes, hard hat, safety goggles, gloves, dustmask and any other appropriate protective clothing while operating the tool.
- Do not indulge in horseplay. Distraction can cause accidents.
- Keep hands and fingers away from the throttle lever until it is time to operate the tool.
- Never rest the tool or chisel on your foot.
- Never point the tool at anyone.
- Compressed air is dangerous. Never point an air hose at yourself or co-workers.
- Never blow clothes free of dust with compressed air.
- Be sure all hose connections are tight. A loose hose not only leaks but can come completely off the tool and while whipping under pressure, can injure the operator and others in the area. Attach safety cables to all hoses to prevent injury in case a hose is accidentally broken.
- Never disconnect a pressurized air hose. Always turn off the air supply and bleed the tool before disconnecting a hose.
- The operator must keep limbs and body clear of the chisel. If a chisel breaks, the tool with the broken chisel projecting from the tool will suddenly surge forward.
- Do not ride the tool with one leg over the handle. Injury can result if the chisel breaks while riding the tool.
- Know what is underneath the material being worked. Be alert for hidden water, gas, sewer, telephone or electric lines.
- Use only proper cleaning solvents to clean parts. Use only cleaning solvents which meet current safety and health standards. Use cleaning solvents in a well ventilated area.
- Do not flush the tool or clean any parts with diesel fuel. Diesel fuel residue will ignite in the tool when the tool is operated, causing damage to internal parts. When using models with outside triggers or throttle levers, take care when setting the tool down to prevent accidental operation.
- Do not operate the tool with broken or damaged parts.
- Never start the tool when it is lying on the ground.
- This tool is not designed for working in explosive atmospheres.
- This tool is not insulated against electric shock.

ADJUSTMENTS

⚠ WARNING

Always turn off the air supply and disconnect the air supply hose before installing, removing, or adjusting any accessory on this tool, or before performing any adjustments of the tool.

NOTICE

Keep the Handle tight on the Barrel.

After the first 24 hours of operation, remove the Exhaust Deflector and Locking Key. Clamp the Barrel flats in a leather-covered or copper-covered vise and using a wrench at least 12" (305 mm) long, draw the handle as tightly as possible. **For aluminum handles**, tighten to 160 ft-lb (216 Nm) torque. **For all other Handles**, tighten to 180 ft-lb (244 Nm) torque.

Do not attempt to pry apart the two sections of the Valve Box. Grasp the front section in the hand and insert a rod that will pass through the Valve and contact the rear section. Lightly strike the rod until the two sections are separated.

Keep the front and rear sections of a Valve Box as a unit. They are factory matched and must not be mismatched.

PLACING TOOL IN SERVICE

CAUTION

Never operate the tool unless an accessory is properly installed and held firmly against the work.

LUBRICATION

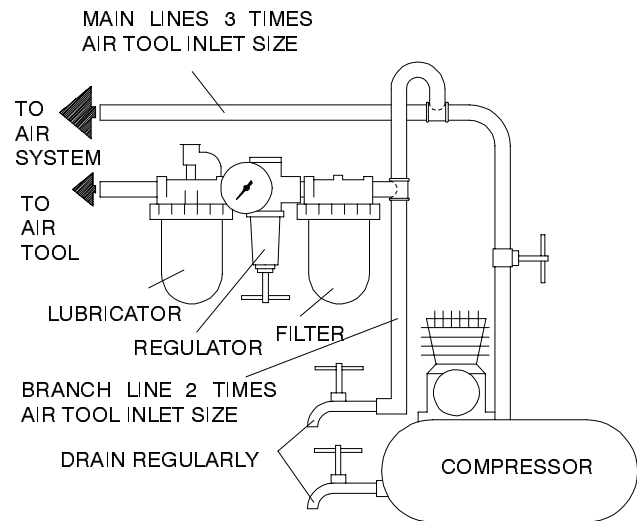


Ingersoll-Rand No. 10

Always use an air line lubricator. We recommend the following Filter-Lubricator-Regulator Unit:

For USA - No. C11-03-G00

Before starting the Riveting Hammer and after each two or three hours of operation, unless the air line lubricator is used, detach the air hose and inject several drops of Ingersoll-Rand No. 10 Oil into the air inlet. **When the Hammer is to be idle** for a period exceeding 24 hours, lubricate it in the regular manner and operate it for 5 seconds to coat the internal parts with the oil to prevent rust.



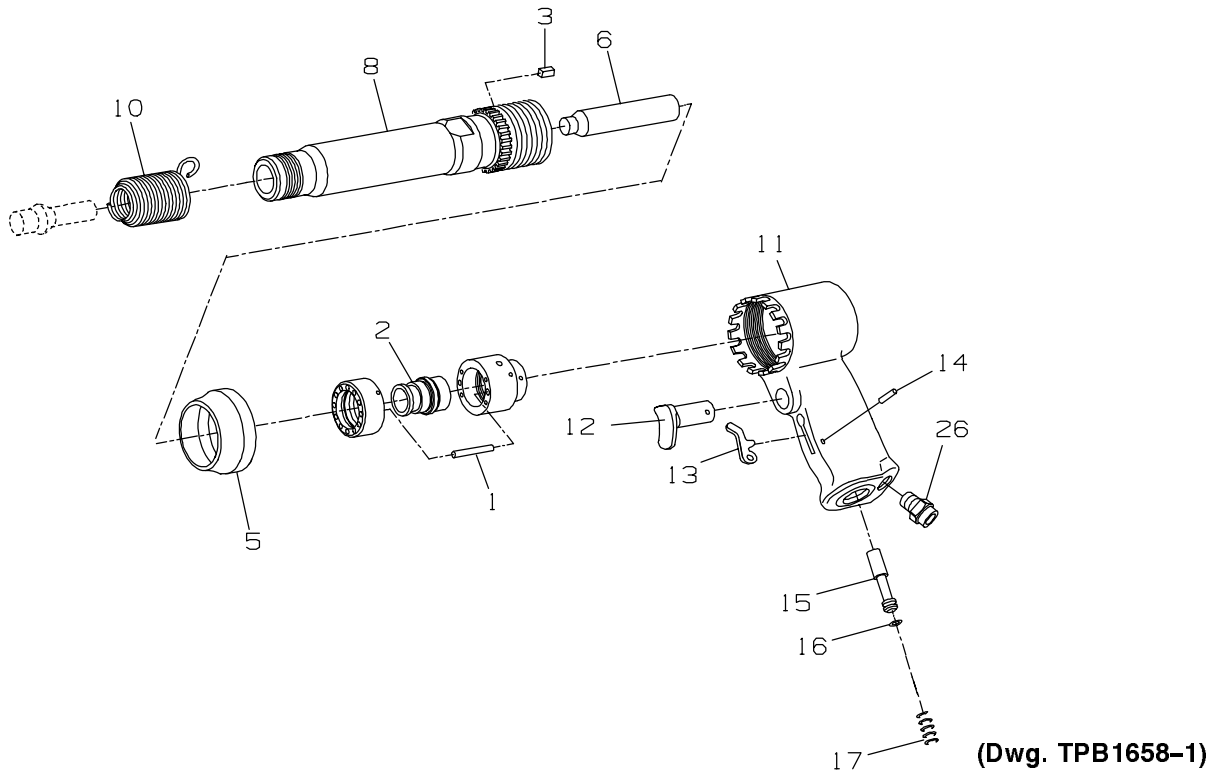
(Dwg. TPD905-1)

SPECIFICATIONS

LIGHTWEIGHT RIVETER WITH OFFSET HANDLE

Model	Blows/min.	Piston Stroke	
		in	mm
AVC10A1-SH	2 900	1-7/8	47

MAINTENANCE SECTION
MODEL AVC10A1-SH RIVETER
WITH OFFSET HANDLE



PART NUMBER FOR ORDERING

	Valve Box Assembly	AV10-A4
◆ 1	Dowel Pin	AV11-32
◆ 2	Valve	AV11-2
*	Oversize Valve (see installation of Oversize Valve on page 7)	
	.001" oversize	AV11-2-10
	.0015" oversize	AV11-2-15
	.002" oversize	AV11-2-20
3	Locking Key	AV11-34
• 5	Exhaust Deflector	AV11-85
• 6	Piston	AV10-5
7	Barrel	VRC-88
*	Warning Label	WARNING-6-99
10	Quick-Change Rivet Set Retainer (for Jacksets with 0.401" diameter Shank)	AVC10-183A

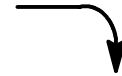
* Not illustrated.

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

◆ Indicates Tune-up Kit part.

MAINTENANCE SECTION

PART NUMBER FOR ORDERING



11	Offset Handle	VRC-126
• 12	Trigger	AV1-93A
• 13	Intermediate Lever	AV1-56
◆ 14	Intermediate Lever Pin	LG2-191
15	Throttle Valve Assembly	AVC10-A302
◆ • 16	Throttle Valve Seal	401-159
◆ 17	Throttle Valve Spring	H80-11
18	Throttle Valve Cap	AV11-109
26	Air Inlet Bushing	N00-82
*	Hose Whip (8' x 5/16" hose)	R0-130
*	Male Hose Nipple (5/16" hose to 1/4" male pipe)	AV1-46
*	Female Hose Nipple (5/16" hose to 3/8" female pipe)	R1-47
*	Tune-Up Kit (includes illustrated items 1, 2, 10, 14, 16 and 17)	AVC10-TK2
*	Comfort Grip	CG-AV10A

* Not illustrated.

• To keep downtime to a minimum, it is desirable to have on hand certain repair parts. We recommend that you stock one (pair or set) of each part indicated by a bullet (•) for every four tools in service.

◆ Indicates Tune-up Kit part.

MAINTENANCE TOOLS

TOOL NUMBER FOR ORDERING	NAME OF TOOL	OPERATION
34SR-54	Exhaust Deflector Pliers	Removing or applying the Exhaust Deflector (5).

MAINTENANCE SECTION

WARNING

Always wear eye protection when operating or performing maintenance on this tool.

Always 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.

LUBRICATION

Each time a Model AVC10A1-SH Riveter is disassembled for maintenance, repair or replacement of parts, lubricate the tool as follows:

Inject a few drops of Ingersoll-Rand No. 50 Oil into the air inlet 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. When 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 Riveting Hammer

1. Clamp the Handle (11) of the Riveting Hammer in leather-covered or copper-covered vise jaws with the accessory end upward.

2. Remove the Set Retainer (10) and any Accessory (10A) from the Barrel (7).
3. Remove the Exhaust Deflector (5) from the Barrel.
4. Remove the Locking Key (3) that keeps the Barrel from unscrewing from the Handle Assembly (11).
5. Carefully unscrew the Barrel from the Handle Assembly.
6. Remove the Piston (6) and the Valve Box Assembly.

Disassembly of the Throttle Mechanism

1. Clamp the handle of the Riveting Hammer in leather-covered or copper-covered vise jaws with the Air Inlet Bushing (26) upward.
2. Remove the Throttle Valve Cap (18).
3. Remove the Throttle Valve Spring (17), and the Throttle Valve Assembly (15) from the Handle.
4. Remove the Air Inlet Bushing.
5. Rotate the Handle in the vise to gain access to the Intermediate Lever Pin (14). Drive out the Pin.
6. Carefully remove the Trigger (12) and the Intermediate Lever (13).

Disassembly of the Valve Box Assembly

1. Separate the two halves of the Valve Box Assembly. A small brass or plastic hammer may be needed to gently tap the Valve Box apart.
2. Carefully remove the Dowel Pin (1) and the Valve (2).

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.

MAINTENANCE SECTION

Assembly of the Valve Box Assembly

Lapping Oversize Valve into Valve Box

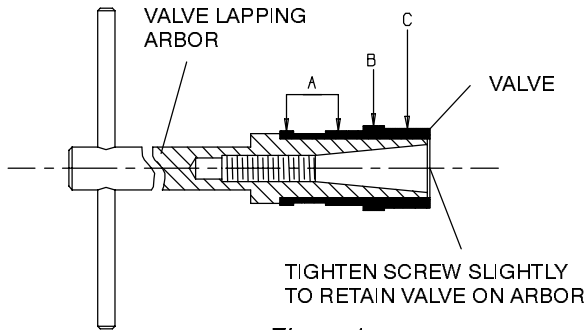


Figure 1

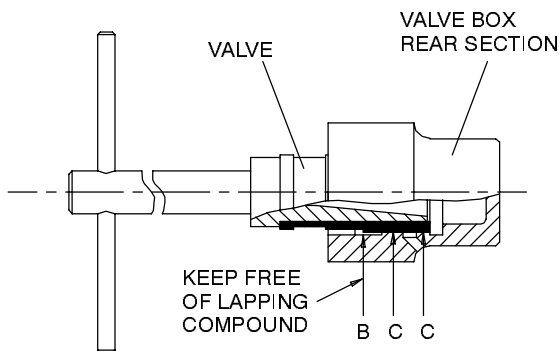


Figure 2

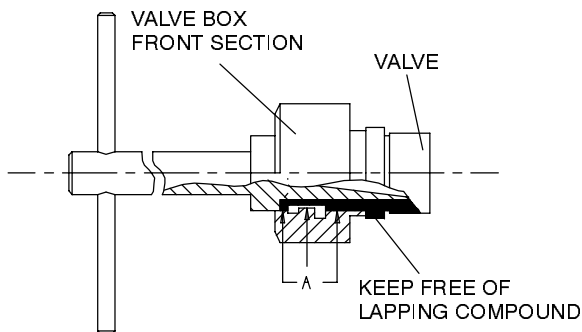


Figure 3

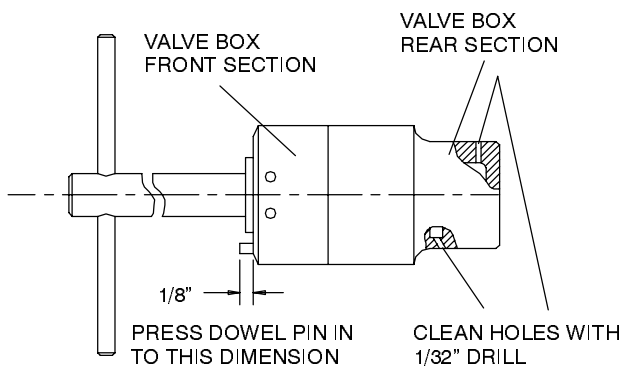


Figure 4

(Dwg. TPB130)

Installation of Oversize Valve

1. An **oversize Valve (2)** must be lapped into the **Valve Box**. Use Grade 320 lapping compound and proceed as follows:
 - a. Install the Valve on the No. 29189 or No. 29407 Valve Lapping Arbor as shown in Figure 1.
 - b. Apply lapping compound to diameter "C" only; keep diameter "B" free of compound at all times. Insert the compound-coated end of the Valve into the rear section of the Valve Box as shown in Figure 2 and lap until a free fit is obtained.
 - c. Wipe all compound from the Valve and from internal diameter "B" in the Valve Box. Allow the compound to remain on internal diameter "C".
 - d. Install the front section of the Valve Box and Valve on the Arbor as shown in Figure 3.
 - e. Apply compound to Valve diameter "A" and lap the small end of the valve to a free fit in the front section.
 - f. Slide the rear section of the Valve Box over the Valve and assemble it on the front section as shown in Figure 4. Lap the Valve until it fits freely in the assembled Valve Box.
2. Disassemble the Valve Box, clean the air ports with a 1/32" drill and wash the Valve and both sections of the Valve Box in suitable solution to remove all trace of the compound.
3. Apply 6 or 8 drops of light oil to the external surface of the Valve and assemble it with the Dowel Pin (1) in the Valve Box. Shake the assembly to see that the Valve moves freely in the Valve Box.

Assembly of the Throttle Mechanism

1. Clamp the Handle (11) of the Riveting Hammer in leather-covered or copper-covered vise jaws with the Air Inlet Bushing (26) upward.
2. With a new Throttle Valve Seal (16) on the Throttle Valve Assembly (15), place the Valve Assembly into the Handle, Seal upward.
3. Install the Throttle Valve Spring (17) making sure that the Spring is located over the end of the Valve.
4. Install the Throttle Valve Cap (18).
5. Reinstall the Air Inlet Bushing (26).

MAINTENANCE SECTION

Assembly of the Riveting Hammer

1. Clamp the Barrel (7) of the Riveting Hammer in leather-covered or copper-covered vise jaws with the threaded end upward.
2. Insert Piston (6) into the barrel bore.
3. Place the Valve Box Assembly into the Barrel aligning the Dowel Pin (1) into the correct hole in the Barrel.
4. Screw the Handle (11) onto the barrel until the valve box is trapped in position.
5. Reposition the Riveter in a vise by clamping onto the Handle with the Barrel pointing upwards. Tighten the barrel to the correct torque.
6. Place the Locking Key (3) into one of the slots in the Handle/Barrel assembly.
7. Secure the Locking Key with the Exhaust Deflector (5).

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.