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# Air Paving Breaker

**MX60 & MX90**

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## Maintenance Information



Save These Instructions

**IR** Ingersoll Rand®

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## 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).

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## Maintenance

### General Instructions

To ensure maximum life and top performance of the equipment, it is necessary that the maintenance be made before serious damage occurs. It is important to be cautious when performing any service work. A general knowledge of the system and/or components is important before the removal or disassembly of any components. The following is a list of basic precautions that must always be observed:

- a. Never attempt major maintenance of the paving breaker on the job; always send the paving breaker to a repair shop.
- b. Clean the exterior of the paving breaker before disassembling.
- c. Provide a clean work area for disassembling the paving breaker.
- d. Handle parts carefully. Hardened parts might chip or break if dropped on a hard surface.
- e. Place small parts in a clean box to prevent loss.
- f. Keep your hands and the paving breaker clean and free of dirt, while assembling.
- g. Wipe a film of clean oil over the working parts as they are assembled.
- h. Do not allow dirt or chips from soft drifts and hammers to enter the paving breaker.
- i. With the exception of pressed-in parts, all the parts should fit together easily. If excessive force is required, the part is probably cocked and should be removed and realigned.
- j. If necessary, use a rubber mallet to loosen the fronthead and backhead.

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### Disassembly

1. Set the breaker vertically on the floor.
2. If equipped with a muffler, remove bolt (210) and washer (400). Slide the muffler off of the housing (1).
3. Remove the backhead bolts (205) and the backhead washers (400) from the housing (1). Lift the backhead (3) off the housing.
4. If damaged, remove the oil fill plug (21) from the backhead (3), and the oil fill plug o-ring (300).
5. Remove the throttle lever (10) from the housing plug (6).
6. Remove the backhead o-ring (305) from the housing plug (6).
7. Using a pair of adjustable pliers, pull the housing plug (6) out of the housing bore.
8. Remove the housing plug o-rings (315) from the housing plug.
9. If damaged or dirty, remove the filter (20) from the housing plug (6).
10. Using the adjustable pliers, remove the valve chest assembly (7) from the housing bore.
11. Remove the valve chest o-rings (315) from the valve chest.
12. Remove the valve cover o-ring (330) from the housing bore.
13. To remove the throttle valve kit (11), use adjustable pliers and pull the throttle valve kit from the housing.
14. Remove the throttle body o-rings (310) from the throttle valve kit (11).
15. Remove the throttle valve spring (26) from the housing.
16. If the handle sleeves (25) need replacing, remove them from the housing.
17. Although there should never be a need to, the rubber plug (22) may be removed by inserting a screw driver between the plug and the hole bore and prying the plug out.
18. If it becomes necessary to remove any of the air connection parts, unscrew the air connection cap (13) from the housing (1). Slide the air connection nipple (14) back through the cap. If damaged, remove o-rings (320 & 325).
19. If required, use a screw driver to pry the exhaust deflector (19) out of the housing (1).
20. Carefully lay the housing horizontally on the floor. From the fronthead end, tilt the housing so that the piston will come out of the backhead end of the housing. Remove the piston (4) from the housing.

### NOTICE

**A lifting device is recommended for lifting the paving breaker and putting it into a vise.**

21. Position and secure the paving breaker in a vise horizontally.

### CAUTION

**Clamp the Paving Breaker housing in the area of the exhaust. Clamp it firmly, but carefully. The housing can be cracked if the vise is over tightened.**

22. Remove the fronthead bolt (200), fronthead washer (28) and fronthead nut (500) which retain the fronthead to the housing.

### NOTICE

**The fronthead assembly is a tight fit in the housing bore. It may be necessary to drive a wedge into the housing slot to open the housing bore enough to allow the fronthead assembly to be easily removed.**

23. Remove the fronthead assembly (2) from the housing (1).
24. Remove the anvil bushing spring (27) and the spring seat (31) from the fronthead end of the housing (1).
25. If damaged, the piston seat (5) may be removed by:
  - a. Using a hacksaw, place the saw into the slot in the fronthead end of the housing (1). Cut the piston seat retainer (30). Rotate the retainer with a screwdriver and saw the retainer again. Remove the retainer. Refer to Figure 1.
  - b. The piston seat (5) is pressed into the housing (1), so the seat will have to be pressed out. Remove the seat through the fronthead end of the housing.

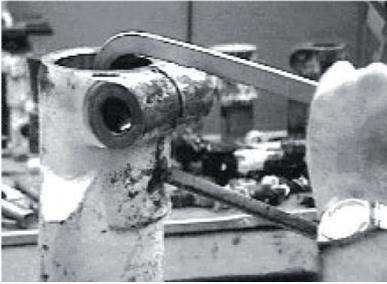


Figure 1

## Assembly

1. If the piston seat (5) was removed, a new seat will have to be pressed into the housing (1) from the fronthead end of the housing.
2. After pressing the piston seat into the housing, install the piston seat retainer (30).
3. Set the housing in a vertical position so that the fronthead end of the housing is resting on the floor.
4. Install the piston (4), stem end first, into the backhead end of the housing bore. The piston may require some initial line up before dropping all the way into position.
5. The valve cover o-ring (330) is installed next.
6. Install new valve chest o-rings (315) into the grooves on the valve chest assembly (7) O. D.
7. Install the valve chest assembly (7), stem end pointing up, into the housing.
8. Install new valve chest o-rings (315) on the O. D. of the housing plug (6).
9. If the filter (20) was removed from the housing plug, insert a new filter. The filter should protrude from the bottom of the housing plug 3/16 - 1/4 in. (4.8 - 6.4 mm).
10. Install the housing plug (6) into the housing, making sure to line up the slot in the plug with the slot in the side of the housing bore.
11. Install a new backhead o-ring (305) onto the top of the housing plug (6).
12. If the rubber plug (22) was removed, put a thin film of oil on a new plug and insert into the cavity until flush with the top of the hole.
13. Install the throttle valve spring (26) into the throttle valve hole in the housing (1).
14. Install new throttle body o-rings (310) on the throttle valve kit (11).
15. Install the throttle valve into the throttle valve body.
16. Insert the throttle valve kit (11) into the housing (1). Make sure that the slot in the top of the throttle body lines up with the slot in the housing (1) and the housing plug (6).
17. Place the throttle lever (10) into the grooves of the housing plug (6) and throttle valve kit (11).
18. Install the backhead (3) onto the top of the housing and attach with backhead bolts (205) and backhead washers (400). Torque the bolts to 140 ft-lbs (190 Nm).
19. If the oil fill plug (21) was removed from the backhead (3), install a new oil fill plug o-ring (300) and screw the plug back into the backhead.
20. Secure the housing (1) in a vise with soft jaws. Position the housing with the handles pointing up.
21. Install a new connection cap o-ring (325) into the groove on the air connection cap (13).
22. Install a new connection nipple o-ring (320) in the groove on the air connection nipple (14). Install the air connection nipple (14) through the air connection cap (13). Screw the assembled air connection cap into the housing (1).
23. If the fronthead assembly was disassembled, perform the following:
  - a. Install the anvil bushing (15) into the fronthead head end of the fronthead (2), making sure to line up the slots on the bushing O. D. with the holes through the sides of the fronthead.
  - b. Install the plunger spring (29) and plunger (18) into the plunger hole in the fronthead (2).
  - c. Line up the hole in the latch (17) with the hole in the fronthead ear and install the roll pin kit (23).
  - d. Insert the anvil bushing retainers (16) into the fronthead holes.
  - e. Install anvil bushing retainer (32) into the fronthead (2).
24. Install spring seat (31) into the fronthead end of the housing (1).
25. Install the anvil bushing spring (27).
26. Install the second spring seat (31) into the fronthead, opposite the latch end.
27. The fronthead can now be installed into the housing (1). The latch on the fronthead should be on the same side of the housing as the air connection.
28. Install the fronthead bolt (200), fronthead washer (28) and fronthead nut (500). Lubricate the bolt threads and torque the bolt to:
  - MX60 – 250 ft-lb (339 Nm) (3/4in.)
  - MX60 – 240 ft-lb (325 Nm) (7/8in.)
  - MX90 – 375 ft-lb (508 Nm)
29. Install either the exhaust deflector (19) with a screw driver or install the muffler (100) and retain with the muffler bolt (210) and muffler bolt washer (400).
30. Install new handle sleeves (25) or the flex handles (25) if so furnished.

## NOTICE

**Make sure that the anvil bushing retainers (16) are removed before removing the anvil bushing (15).**

28. If equipped with flex handles (25) that require removal, unscrew the flex handles from the housing (1). If damaged, remove the flex handle connectors (33).

## NOTICE

**The anvil bushing retainers (16) will have to be held in place while installing the fronthead into the housing.**

27. The fronthead can now be installed into the housing (1). The latch on the fronthead should be on the same side of the housing as the air connection.
28. Install the fronthead bolt (200), fronthead washer (28) and fronthead nut (500). Lubricate the bolt threads and torque the bolt to:
  - MX60 – 250 ft-lb (339 Nm) (3/4in.)
  - MX60 – 240 ft-lb (325 Nm) (7/8in.)
  - MX90 – 375 ft-lb (508 Nm)
29. Install either the exhaust deflector (19) with a screw driver or install the muffler (100) and retain with the muffler bolt (210) and muffler bolt washer (400).
30. Install new handle sleeves (25) or the flex handles (25) if so furnished.

## CAUTION

**Clamp the housing firmly but carefully. The housing can be cracked if the vise is over tightened.**

20. Secure the housing (1) in a vise with soft jaws. Position the housing with the handles pointing up.

## Inspection and Repair

### WARNING

When using any solvent to clean parts, make sure that it meets current safety and health standards, and that it is used in an area that is adequately ventilated.

1. Clean all parts in a suitable solvent.
2. All parts in the housing (1), including the valve chest assembly (7) and housing plug (6) must be examined, and all dust or dirt particles removed.
3. Check the valve chest assembly (7) for cracks or chipping. If damaged, replace it.

4. Replace the piston (4) when a .007 in. (.178 mm) feeler gauge can be inserted between the piston and the housing bore.
5. Check the throttle valve parts for wear. Make sure the throttle valve moves freely.

## Performance Testing

A reconditioned paving breaker should be tested before it is sent back to the job. Before connecting the air hose, check to see that the lubricator used with the breaker is filled with the proper lubricating oil. Refer to Product Information Manual 51955631 for Air Paving Breaker Models MX60 & MX90, Lubrication, for the correct lubricating oil specifications.

Pour a small amount (2 to 3 oz. [.06 to .09 L]) of SAE oil into the breaker for initial lubrication. With the breaker against the work surface, the breaker should start with less than 20 psi (1.4 bar) air pressure and with the piston reciprocating smoothly. Let the breaker run in slowly at reduced pressure long enough to see that it is in good working order. If the breaker stalls, turn off the air immediately. Stalling indicates binding caused by tight fits.

After a short period of operation, a definite rhythm should develop and an even exhaust note will be heard. The breaker may become warm, but should not overheat. If erratic operation continues or stalling persists, disassemble the breaker and check for binding of parts.

After an initial period of low pressure operation, check the performance of a reconditioned breaker with that of a new one by comparing both under similar conditions and with normal air pressure. Once testing is completed, place plastic caps or plugs in all parts to keep out dirt until the breaker is put back into service.

## Troubleshooting Guide

Trouble	Probable Cause	Solution
Paving breaker will not start.	<ol style="list-style-type: none"><li>1. Plugged exhaust port or air passages caused by dirt or hose particles.</li><li>2. Stuck valve due to gummy oil or incorrect assembly.</li><li>3. Frozen piston due to improper lubrication.</li></ol>	<ol style="list-style-type: none"><li>1. Dismantle breaker, clean out all ports and air passages. Keep the air hose in good condition; never use a soft deteriorated hose.</li><li>2. Remove valve chest parts from the breaker. Clean parts. Never use dirty oil or oil that does not conform to the recommended specifications.</li><li>3. Dismantle breaker to remove piston. Repair piston by placing in a high speed lathe and dressing with fine emery cloth. Never run breaker without the proper lubricating oil in the lubricating oil reservoir.</li></ol>
Paving breaker loses power rapidly.	<ol style="list-style-type: none"><li>1. Restriction in air supply line.</li><li>2. Air supply line too long.</li><li>3. Diameter of air supply line too small.</li></ol>	<ol style="list-style-type: none"><li>1. Never allow the air supply to kink or make sharp bends.</li><li>2. As a general rule keep the air supply line under 50 ft. (15 m).</li><li>3. A 3/4 in. (19.1 mm) diameter air supply is recommended for the breaker.</li></ol>
Freezing at exhaust ports.	<ol style="list-style-type: none"><li>1. Excessive moisture in the air supply line.</li></ol>	<ol style="list-style-type: none"><li>1. Install moisture traps in the air supply line or add anti-freeze lubricant directly through the air inlet. Use "KILFROST" anti-freeze lubricant or equivalent.</li></ol>
Paving breaker lacks power.	<ol style="list-style-type: none"><li>1. Low air supply pressure.</li><li>2. Running on fronthead cushion.</li><li>3. Plugged air passages.</li><li>4. Lack of lubricating oil.</li><li>5. Sticking valve.</li></ol>	<ol style="list-style-type: none"><li>1. The air supply pressure at the tool should be 90 to 100 psi (6.2 to 6.9 bar).</li><li>2. Keep shank fed-up to the work. Always maintain a constant pressure when operating the breaker.</li><li>3. Dismantle the breaker and clean out all ports and passages.</li><li>4. Maintain the proper oil level in the lubricating oil reservoir. Steel shank must show a film of oil.</li><li>5. Remove valve chest parts from the breaker. Clean parts. Never use dirty oil or oil that does not conform to the recommended specifications.</li></ol>
Overheating of the piston seat on a new machine.	<ol style="list-style-type: none"><li>1. Breaker not properly broken in.</li></ol>	<ol style="list-style-type: none"><li>1. Stop operating the breaker and perform initial servicing. Never run a new breaker at full throttle until a proper break-in period has been completed.</li></ol>
Overheating of the paving breaker after break-in period.	<ol style="list-style-type: none"><li>1. Running on fronthead cushion.</li><li>2. Piston not hitting the shank because of short shank.</li><li>3. Pulling steel at full throttle.</li><li>4. Lack of lubrication or improper lubricating oil.</li></ol>	<ol style="list-style-type: none"><li>1. Keep shank fed-up to work. Always maintain constant pressure when operating the breaker.</li><li>2. Remove shank piece from breaker.</li><li>3. When pulling steels, always use minimum throttle.</li><li>4. Before operating the breaker make sure the lubricating oil reservoir is full of proper lubricant.</li></ol>

Trouble	Probable Cause	Solution
Erratic or sluggish operation.	<ol style="list-style-type: none"> <li>1. Lubricating oil too heavy, slowing down valve action.</li> <li>2. Gummed oil or dirt in operating parts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use only the recommended lubricating oil.</li> <li>2. Dismantle breaker and clean out dirt and gummy residue. Service the breaker with clean oil. Protect the tool from dirt when idle.</li> </ol>
Fogging.	<ol style="list-style-type: none"> <li>1. Excessive moisture in the air supply line.</li> <li>2. Over lubrication.</li> </ol>	<ol style="list-style-type: none"> <li>1. Blow out air lines. If moisture traps are installed in the air supply line, drain the moisture.</li> <li>2. Clean lubricating oil reservoir and adjust for proper rate of feed.</li> </ol>

**Related Documentation**

For additional information refer to:  
 Product Safety Information Manual 04581450.  
 Product Information Manual 51955631.  
 Parts Information Manual 51955623.

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













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