

**INSTRUCTION MANUAL**  
For  
"PROMAXX™" Paving Breaker  
Models: MX60 & MX90

Instruktionshåndbog  
for  
"PROMAXX™" Paving Breaker  
Modellerne: MX60 & MX90

**HANDLEIDING**  
"PROMAXX"  
besträttingsbreekhamer  
Modellen: MX60 en MX90

**MANUEL D'INSTRUCTIONS**  
Pour brise-béton "PROMAXX™", du  
type MX60 et MX90

**BETRIEBSANLEITUNG**  
für die  
"PROMAXX™"-Aufbruchhämmer  
Modell MX60 und MX90

**ΟΔΗΓΟΣ ΧΡΗΣΕΩΣ**  
Για  
Κρουστικές Αερόσφυρες  
"PROMAXX™"  
Μοντέλα: MX60 & MX90

**MANUALE DI ISTRUZIONI**  
per i  
Martelli Demolitori Pneumatici  
"PROMAXX™",  
Modelli MX60 e MX90

**INSTRUKSJONSHÅNDBOK**  
For  
"PROMAXX"  
Trykklufthammermodellene:  
MX60 & MX90

**MANUAL DE INSTRUÇÕES**  
Para  
Modelos de Martelos para Quebrar de  
Pavimento "PROMAXX™": MX60 &  
MX90

**MANUAL DE INSTRUCCIONES** Para  
Martillos rompedores "PROMAXX™"  
Modelos: MX60 y MX90

**INSTRUKTIONSBOK**  
för  
"PROMAXX™" tryckluftspett med  
beteckning: MX60 och MX90



Read this instruction manual before  
operating this equipment.

**INGERSOLL-RAND®**



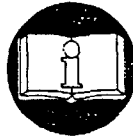
# INSTRUCTION MANUAL

For

## “PROMAXX™” Paving Breaker

### Models: MX60/60S & MX90/90S

# **INGERSOLL-RAND®**



Read this instruction manual before  
operating this equipment.

Designed and Built by Ingersoll-Rand Company  
Roanoke, Va. 24019-5198 U.S.A.



Certified ISO-9001 (ANSI/ASQC Q91)  
Certification No. QSR-80

Refer All Communications To The Nearest Address Listed On The Back Cover.

**“PROMAXX™” Series Paving Breaker**

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INGERSOLL-RAND COMPANY WARRANTS THAT ITS “PROMAXX®” SERIES PAVING BREAKERS ARE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR THE FOLLOWING PERIODS:

- |  |         |
|--|---------|
| A. MAIN BREAKER HOUSING<br>& FRONTHEAD CASTING | 3 YEARS |
| B. ALL OTHER COMPONENTS:                       | 1 YEAR  |

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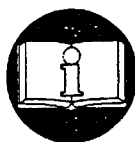
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Read this instruction manual before operating this equipment.

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**1. FOREWORD.**

The contents of this manual are considered to be proprietary and confidential to Ingersoll-Rand® and should not be reproduced for distribution without the prior written consent of Ingersoll-Rand® Company.

Nothing contained in this document is intended to extend any promise, warranty or representation, expressed or implied, regarding the products described herein. Any such warranties or other terms and conditions of sale of products shall be in accordance with Ingersoll-Rand's standard terms and conditions of sale for such products, which are available upon request.

Ingersoll-Rand® Company reserves the right to make changes or add improvements to products without notice and without incurring any obligation to make such changes or add such improvements to products sold previously.

All equipment, regardless of how well built, requires a certain amount of attention. The purpose of this publication is to acquaint an op-

erator with the function and operation of the components to obtain maximum performance and trouble free service from the paving breaker.

Before using the paving breaker, these instructions should be carefully read to obtain a thorough knowledge of the duties to be performed. Take pride in the paving breaker, keep it clean; and in good mechanical condition.

**2. INTRODUCTION.**

This instruction manual contains information on safety, installation, operation, description, and specifications for the "PROMAXX™" Paving Breaker Models MX60/60S & MX90/90S.

**3. REFERENCE MATERIAL.**

The reference materials required to operate and/or maintain the paving breaker are listed in Table 1.


**4. ABBREVIATION LIST.**

Abbreviations listed in this manual that are not common are listed in Table 2 with the proper definition.

**Table 1. Reference Material**

Manual No.	Title of Manual
PL6085	Parts Lists For "PROMAXX™" Paving Breaker Models MX60/60S & MX90/90S.
RM6085	Repair and Maintenance Manual For "PROMAXX™" Paving Breaker Models MX60/60S & MX90/90S.

**Table 2. Abbreviation List**

Abbreviation, Symbol, or Term	Meaning
ft <sup>3</sup> /min	Cubic Feet Per Minute
in.	Inch
kg	Kilogram
lbs.	Pounds
lb–ft	Foot Pounds
M	Meter
mm	Millimeter
m/s <sup>2</sup>	Meters Per Square Second
m <sup>3</sup> /min.	Cubic Meters Per Minute
NPT	National Pipe Tap
psi	Pounds Per Square Inch
rpm	Revolutions Per Minute
scfm	Standard Cubic Feet Per Minute
	Safety Alert Symbol

**NOTICE**

**SAVE THESE INSTRUCTIONS. DO NOT DESTROY.**

*All information, illustrations, and specifications in this manual are based on the latest information available at the time of publication.*

*Product improvement is a continuing goal at Ingersoll–Rand®. Design and specifications are subject to change without notice or obligation.*

*The use of repair parts other than those included within the Ingersoll-Rand® approved parts list may create hazardous conditions over which Ingersoll-Rand® Company has no control. Therefore Ingersoll-Rand® Company cannot be held responsible for equipment in which non-approved repair parts are installed.*

*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.*

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**1. INTRODUCTION.**

This section contains important safety information for "PROMAXX™" Paving Breaker Models MX60/60S & MX90/90S, hereafter referred to as paving breaker.

**▲ DANGER**

**DANGER IS USED TO INDICATE THE PRESENCE OF A HAZARD WHICH WILL CAUSE SEVERE PERSONAL INJURY OR DEATH IF THE WARNING IS IGNORED.**

**2. SAFETY FIRST.**

**SAFETY FIRST** is the primary concern for the protection of both, personnel and the paving breaker during any phase of operation. All personnel must thoroughly understand all safety precautions before operating or doing any work on the paving breaker.

**▲ WARNING**

**WARNING IS USED TO INDICATE THE PRESENCE OF A HAZARD WHICH CAN CAUSE SEVERE INJURY OR DEATH IF THE WARNING IS IGNORED.**

**3. SAFETY ALERT SYMBOL AND SIGNAL WORDS.**

**▲ CAUTION**

**CAUTION IS USED TO INDICATE THE PRESENCE OF A HAZARD WHICH WILL OR CAN CAUSE PERSONAL INJURY, OR PROPERTY DAMAGE IF THE WARNING IS IGNORED.**

**▲** – This is the Safety Alert Symbol. When you see this symbol in this instruction manual, be alert to the presence of a hazard.

**NOTICE**

Notice is used to notify people of installation, operation, or maintenance information which is important but not hazard related.

All personnel must understand the **DANGER, WARNING, CAUTION,** and **NOTICE** used throughout the text of this instruction manual. The **DANGER, WARNING, CAUTION,** and **NOTICE** are defined as follows:


By understanding what **DANGER, WARNING, CAUTION,** and **NOTICE** mean; and using good judgment and common sense; all


personnel can avoid injuring themselves, others and/or damaging the paving breaker.


#### 4. SAFETY PRECAUTIONS.


The Safety Precautions listed are intended to make all personnel aware of the hazards


while working on or near a paving breaker. All personnel must use common sense and a good working practice while operating and maintaining the paving breaker. The safety precautions listed are of a general nature and cannot cover every possible situation:


	<b>⚠ WARNING</b>
	Do not start the paving breaker while it is lying on the ground.


	<b>⚠ WARNING</b>
	Keep your hands off the throttle lever until it is time to start paving breaker operation.

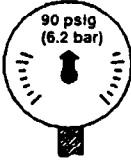
	<b>⚠ CAUTION</b>
	Always wear gloves when operating this tool.


	<b>⚠ WARNING</b>
	Keep legs and feet clear of the paving breaker tool to prevent injury if the tool breaks.

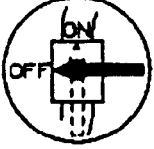
	<b>⚠ WARNING</b>
	Always wear safety shoes when operating this tool.


	<b>⚠ WARNING</b>
	Do not ride the paving breaker with one leg over the handle.


	<b>⚠ CAUTION</b>
	Always wear respirator when operating this tool.


	<b>⚠ WARNING</b>
	Operate at 90-100 psig (6.2-6.9 bar) Maximum air pressure.


	<b>⚠ WARNING</b>
	Always wear approved hard hat when operating this tool.


	<b>⚠ WARNING</b>
	Always turn off the air supply and bleed and disconnect the air supply hose before installing, removing or adjusting any accessory on this tool.


	<b>⚠ WARNING</b>
	Always wear eye protection when operating this tool.


	<b>⚠ WARNING</b>
	Do not operate the paving breaker without a tool locked in the fronthead. Hold the tool firmly against the work.


	<b>⚠ WARNING</b>
	Always wear hearing protection when operating this tool.


	<b>⚠ DANGER</b>
	Know what is underneath the material you are about to break. Be alert for any buried water, gas, sewer, telephone, or electric lines.

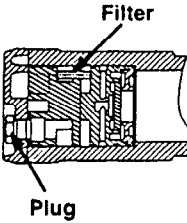
	<b>⚠ WARNING</b>
	Never rest the paving breaker on your foot.


	<b>⚠ WARNING</b>
	Do not use damaged, frayed or deteriorated air hose and fittings.

	<b>⚠ WARNING</b>
	Always keep both hands on the handles while operating the paving breaker.

	<b>⚠ WARNING</b>
	Keep body stance balanced and firm. Do not overreach when operating this tool.

	<b>⚠ WARNING</b>
	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.

 <p>Filter</p> <p>Plug</p>	<b>⚠ CAUTION</b>
	Do not operate tool without a properly installed oil filter and oil fill plug.

	<b>⚠ WARNING</b>
	Do not operate the tool without a safety cable installed on the air supply hose.



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**1. INTRODUCTION.**

This section provides a brief description of the standard and optional equipment for the "PROMAXX™" Paving Breaker Models MX60/60S & MX90/90S, hereafter referred to as paving breaker.

**2. DESCRIPTION.**

The MX60/60S is a medium-duty paving breaker and the MX90/90S is a heavy-duty paving breaker that provide maximum performance at minimum cost. They are designed for general paving breaker work where their size and weight range is necessary. With the two-piece design (breaker housing and fronthead) the paving breaker is easier to maintain and repair.

They are especially suitable for breaking up concrete, asphalt, or stone paving in road construction and maintenance work, breaking up large rocks and boulders in mines and quarries and general demolition work in any industry.

**3. STANDARD EQUIPMENT.**

Each paving breaker is a complete unit ready to be put into service with proper lubrication. There are no extra parts or special fittings required.

**a. MX60/60S Models:**

1. **MX60-STD (51957181).** This paving breaker includes an anvil bushing which accommodates a 1-1/4 in. Hex. x 6 in. long (32mm Hex. x 152mm long) paving breaker tool shank.

2. **MX60S-STD (51988822).** This paving breaker is the same as the standard paving breaker, but includes a muffler. **(Note: This paving breaker is for European customers only.)**

3. **MX60-OPT-A (51957207).** This paving breaker includes an anvil bushing which accommodates a 1-1/8 in. Hex. x 6 in. long (28mm Hex. x 152mm long) paving breaker tool shank.

4. **MX60S-OPT-A (51988830).** This paving breaker is the same as the MX60-OPT-A paving breaker, but includes a muffler. **(Note: This paving breaker is for European customers only.)**

5. **MX60S-OPT-AF (51988855)**. This paving breaker is the same as the MX60-OPT-AF paving breaker, but includes a muffler. **(Note: This paving breaker is for European customers only.)**

6. **MX60-STD-F (51957199)**. This paving breaker includes an anvil bushing which accommodates a 1-1/4 in. Hex. x 6 in. long (32mm Hex. x 152mm long) paving breaker tool shank and flex handles.

7. **MX60S-STD-F (51988848)**. This paving breaker is the same as the MX60-STD-F paving breaker, but includes a muffler. **(Note: This paving breaker is for European customers only.)**

**b. MX90/90S Models:**

1. **MX90-STD (51955110)**. This paving breaker includes an anvil bushing which accommodates a 1-1/4 in. Hex. x 6 in. long (32mm Hex. x 152mm long) paving breaker tool shank.

2. **MX90S-STD (51988632)**. This paving breaker is the same as the MX90-STD paving breaker, but includes a muffler. **(Note: This paving breaker is for European customers only.)**

3. **MX90-OPT-A (51955136)**. This paving breaker includes an anvil bushing which accommodates a 1-1/8 in. Hex. x 6 in. long (28mm Hex. x 152mm long) paving breaker tool shank.

4. **MX90S-OPT-A (51988640)**. This paving breaker is the same as the MX90-OPT-A paving breaker, but includes a muffler. **(Note: This paving breaker is for European customers only.)**

5. **MX90-OPT-AF (51955284)**. This paving breaker includes an anvil bush-

ing which accommodates a 1-1/8 in. Hex. x 6 in. long (28mm Hex. x 152mm long) paving breaker tool shank and flex handles.

6. **MX90S-OPT-AF (51988665)**. This paving breaker is the same as the MX90-OPT-AF paving breaker, but includes a muffler. **(Note: This paving breaker is for European customers only.)**

7. **MX90-STD-F (51955268)**. This paving breaker includes an anvil bushing which accommodates a 1-1/4 in. Hex. x 6 in. long (32mm Hex. x 152mm long) paving breaker tool shank and flex handles.

8. **MX90S-OPT-F (51988657)**. This paving breaker is the same as the MX90-STD-F paving breaker, but includes a muffler. **(Note: This paving breaker is for European customers only.)**

**4. OPTIONAL EQUIPMENT.**

The paving breakers can also be furnished with the following options:

a. **Muffler** – Each paving breaker is equipped with a tapped hole near the exhaust deflector. This hole is used to install the optional muffler which includes the bolt and washer. **(Note: The exhaust deflector must be removed before the muffler can be installed.)** Refer to the available models listed for the model number of the paving breakers with the muffler included for international orders only.

b. **Flex Handles** – These handles are used to reduce the amount of vibration that the operator encounters. The flex handle option may be ordered by specifying one of the model numbers with a “F” in the part number.



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**1. INTRODUCTION.**

This section provides installation and operation requirements for "PROMAXX™" Paving Breaker Models MX60/60S & MX90/90S.

Low or inadequate air pressure at the paving breaker is costly and wasteful, and an insufficient volume of air will not allow it to operate efficiently.

**2. AIR REQUIREMENTS.**

An air compressor of sufficient capacity is needed to provide the necessary volume of air at the most efficient operating pressure to ensure effective and economical operation of the paving breaker. Refer to Section 5, Paragraph 3 for air requirements of the paving breakers.

The figures represent air pressures at the paving breaker inlet and not at the compressor. There is always a certain amount of pressure drop between the compressor and the paving breaker; only the pressure and volume at the tool is effective in doing work. If the hose is relatively short and in good condition, the pressure drop between the compressor (or air receiver) and the paving breaker should not exceed 15 percent of the initial pressure.

**3. AIR HOSE AND FITTINGS.**

Quality hose designed especially for rock drill service should be used. It should be constructed with an outer covering that resists abrasive wear, an oil-resistant inner tube and should be able to withstand the heat of the compressed air. It should have a working pressure safety factor of at least 4 to 1 in relation to burst.

The hose fittings should be kept as tight as possible and should be in good condition. Elimination of leakage involves making the air system tight and then keeping it tight. Air losses through bad connections and worn hose can often reach 10 to 20 percent of the total air compressed. Refer to Section 5 for the size air hose required.

#### 4. BEFORE OPERATION.

- a. Determine the method of lubrication to be used. (Refer to Paragraph 9.)
- b. Fill the oil reservoir with rock drill oil conforming to the physical and chemical properties listed in Section 5, Table 1.
- c. Blow out the main air supply hose to get rid of moisture, rubber particles, and dirt.
- d. When using new air hose, blow lubricated air through the hose to completely coat the inside with oil. This may take 10 to 15 minutes.

#### **▲WARNING**

**COMPRESSED AIR IS DANGEROUS. WHEN BLOWING OUT AN AIR HOSE, HOLD IT FIRMLY, AND POINT IT AWAY FROM PERSONNEL AND EQUIPMENT. NEVER BLOW YOUR CLOTHES FREE OF DUST WITH COMPRESSED AIR.**

- e. An air line filter can be installed in the main air supply line to keep dirt from entering the paving breaker. Air line filters are an accessory item and must be specially ordered.
- f. Connect the leader hose to the air connection on the paving breaker.

#### **▲WARNING**

**BE SURE ALL HOSE CONNECTIONS ARE TIGHT. A LOOSE HOSE NOT ONLY CAUSES LEAKS, BUT CAN COME COMPLETELY OFF THE PAVING BREAKER, WHIP AROUND, AND INJURE PERSONNEL IN THE AREA. ATTACH SAFETY CABLES TO ALL HOSES TO PREVENT INJURY IF A HOSE IS ACCIDENTALLY BROKEN.**

- g. Open the latch by pushing the lever down.
- h. Insert the shank end of the paving breaker tool in the fronthead, and swing the latch up to lock the tool in the paving breaker.

#### **▲CAUTION**

**MAKE SURE THE TOOL IS THE CORRECT HEX. SIZE FOR THE FRONTHEAD. DON'T USE A PAVING BREAKER TOOL THAT IS DULL; IT WON'T DO AN EFFECTIVE JOB AND WILL CAUSE UNNECESSARY WEAR TO THE BREAKER.**

#### 5. CONTROLS.

The paving breaker is controlled by a self-closing, lever-operated, throttle valve that is built into the handle.

When air pressure is directed to the paving breaker, the throttle lever will be in the raised, or off, position. The paving breaker will not start until the lever is depressed. The lever will return to the off position when it is released.

#### 6. OPERATION.

#### **▲DANGER**

**KNOW WHAT IS UNDERNEATH THE MATERIAL YOU ARE ABOUT TO BREAK. BE ALERT FOR ANY EXISTING WATER, GAS, ELECTRICITY, SEWER, OR TELEPHONE LINES.**

**ALWAYS KEEP BOTH HANDS ON THE HANDLE WHILE OPERATING THE PAVING BREAKER.**

**THE OPERATOR MUST KEEP HIS LEGS AND FEET CLEAR OF THE PAVING BREAKER TOOL TO PREVENT INJURY IF THE TOOL BREAKS. WHEN A TOOL BREAKS, THE PAVING BREAKER (WITH A PIECE OF BROKEN TOOL PROJECTING FROM THE FRONTHEAD) WILL SUDDENLY DROP TO THE GROUND.**

### **▲CAUTION**

**DO NOT OPERATE THE PAVING BREAKER WITHOUT A PAVING BREAKER TOOL IN THE ANVIL BUSHING. HOLD THE TOOL FIRMLY AGAINST THE WORK.**

1. Grip the paving breaker handle with both hands. Depress the throttle lever with the palm of the hand, and apply firm steady pressure to the handles. The correct amount of pressure for maximum efficiency can be gained only by experience, but generally the correct pressure is usually recognizable by the rhythmic sound of the exhaust and maximum breaking action. Insufficient pressure will slow down the paving breaker action. Do not “ride” the paving breaker with one leg over the handle.

### **▲DANGER**

**THE OPERATOR WILL BE SERIOUSLY INJURED IF THE TOOL BREAKS WHILE HE IS RIDING THE PAVING BREAKER WITH ONE LEG OVER THE HANDLE.**

### **▲CAUTION**

**RIDING THE PAVING BREAKER HANDLE CREATES EXCESSIVE PRESSURE ON ONE SIDE OF THE PAVING BREAKER, THROWING IT OUT OF ALIGNMENT AND CAUSING UNNECESSARY WEAR ON INTERNAL PARTS.**

2. Immediately after starting the paving breaker, check for the presence of oil mist at the exhaust port and on the paving breaker tool. This is the only assurance that oil is traveling all the way through the breaker. When checking the paving breaker for proper lubrication, always put the tool against the work.

3. Release the throttle lever to shut the paving breaker off.

4. If exhaust freeze-up occurs, add anti-freeze lubricant directly through the air inlet connection. Use an anti-freeze lubricant recommended for air tools.

## **7. OPERATIONAL TIPS.**

For maximum operating efficiency, observe the following suggestions:

a. Never strike the paving breaker with a blunt object; the housing may be broken or damaged.

b. Never attempt major maintenance of the paving breaker on the job; take it to a repair shop.

c. Never drag the paving breaker along the ground; the air ports in the exhaust may fill with dirt.

d. Always blow out the air supply hose before connecting it to the paving breaker to remove any dirt inside the hose.

e. Always be sure the paving breaker is well lubricated. Adjust the air line lubricator so that the paving breaker tool always shows an oil film. There should be a fine mist of oil coming out of the exhaust port during operation.

f. Always keep rock drill oil in a sealed container so it doesn't get contaminated with dust or dirt.

g. Do not operate the paving breaker when the tool is not against the work.

h. In extremely cold weather, keep paving breaker tools wrapped in burlap or cloth until just before you use them. At 0°F (-17.8°C) a hardened steel tool loses about 80% of its normal shock resistance.

i. Always keep plastic caps or plugs in all ports when the paving breaker is not in service.

j. Work to the predetermined line (boundary) and grade (depth). Cut straight and cut neatly. To get the exact grade, use a tape measure or ruler.

k. In certain applications, such as a pipe job where the grade is critical, it pays to over-excavate. If you try to excavate exactly to grade, even a small piece of rock sticking up will throw the pipe off grade. To avoid this problem, excavate a little deeper than grade, then fill and compact to the correct grade. This is easier than having to come back and break out more rock.

l. Always make a slight cut in a sidewalk or portion of a slab before breaking it. This is usually done with a masonry saw, but if it has not been, use the paving breaker to cut along the designated line to ensure a clean break. When cutting asphalt, cut all the way through the asphalt with each cut, as well as all the way around the perimeter of the area, before you break the asphalt out.

m. When excavating to a critical line for installation of a service, square the sides of the excavation as you work down. Otherwise, you'll either under-cut or over-cut.

n. When making an excavation to work in, it's better to make a larger opening than required to provide ample working room. Observe all safety precautions, procedures and regulations.

o. Always break any material to the point of "give". This is accomplished by making sure you're breaking the concrete or rock, not just cracking it; otherwise, you're not working to the point of give. Always clear away the rubble as you're breaking the concrete, rock, or asphalt. Uncleared rubble blocks your point of give.

p. Always take the right sized "bite" with the paving breaker. When starting to work the paving breaker in a material, experiment to find the right sized bite for breaking that material efficiently.

If you take bites that are too big, it will be necessary to pry with the paving breaker tool. This could break the tool or damage the paving breaker. The paving breaker is not designed for prying; it's designed for breaking. Always use a pick to pry material free.

If you take bites that are too small, you'll be working too slowly, and you'll have to pick up and move the paving breaker more than necessary.

q. Do not lift or transport the breaker by the throttle lever. Damage can occur to the breaker.

## 8. LUBRICATION.

The paving breaker is initially supplied with a small amount of lubricating oil in the paving breaker lubrication reservoir, but should be checked and filled before use. Always check

the oil level in the reservoir before each start up.

## 9. METHODS OF LUBRICATION.

Proper lubrication is the most important single factor responsible for the service life of the pneumatic paving breaker. A paving breaker can be severely damaged during the first few minutes of operation if it is not properly lubricated.

The lubrication method depends on the actual operating conditions and customer preference.

### **▲CAUTION**

THE BUILT-IN OIL RESERVOIR IN THE HOUSING PLUG MUST BE CHECKED EVERY TWO HOURS AND REFILLED AS NECESSARY.

a. The oil reservoir built into the housing plug will provide proper lubrication. It must be checked every two hours and refilled as necessary.

b. For intermittent operation with an air supply hose no longer than 50 ft. (15 m), a compressor-mounted lubricator may be used.

c. For continuous operation during an eight hour shift, an Ingersoll-Rand® air line lubricator, or other constant-feed air line lubricator, should be installed in the air-supply line about 11.5 ft. (3.5 m) from the paving breaker. The lubricator listed in the parts list has a capacity of 1 U.S. pint (0.47 liters) and will be furnished when it is specially ordered. To adjust an air line lubricator initially:

1. Turn the lubricator needle valve clockwise until it is completely closed, and then turn the valve counter-clockwise about 3/4 of a turn off its seat.

2. Almost immediately after starting the paving breaker, check for the presence of oil at the exhaust ports and on the paving

breaker tool. When checking the paving breaker for proper lubrication, always put the tool against the work.

3. Fine-tune the lubricator needle valve to provide a light film of oil on the paving breaker tool and a fine oil mist coming from the exhaust ports. If there is blue smoke coming from the exhaust port or oil running down the tool, the paving breaker is getting too much oil. Adjust the lubricator for proper rate of feed.

- d. Regardless of the method of lubrication, the lubricating oil reservoir must be filled with the correct grade of rock drill oil as frequently as is necessary to prevent any possibility of the paving breaker running dry.

- e. The oil level in the air line lubricator should be checked at the beginning of each eight-hour shift and once during the shift.

- f. Every effort must be made to avoid oil contamination from dirt or other impurities. Oil should be kept in covered containers and stored in an area that is relatively dust free.

- g. Before filling the air line lubricator, the area around the filler plug should be wiped clean.

## 10. LUBRICATING OIL SPECIFICATIONS.

Ingersoll-Rand® offers a complete line of rock drill oil formulated in all types of rock drill equipment. These oils exceed the oil specifications listed in Section 5, Table 1.

### **▲CAUTION**

NEVER ALLOW THE LUBRICATOR TO BECOME EMPTY AS THE PARTS WILL BE DAMAGED IF THE PAVING BREAKER IS OPERATED WITHOUT LUBRICATION.

Use Section 5, Table 2 for the correct viscosity grade selection to meet your requirements and Section 5, Table 3 for selecting the correct rock drill oil part number.



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1. LUBRICATING OIL CHART.

Table 1. Rock Drill Oil Specifications

Characteristic	Test Procedure	Below 20°F (-7°C)	20°F to 90°F (-7°C to 32°C)	Above 90°F (32°C)
Viscosity:				
SUS at 100°F (38°C)	ASTM-D2161	175 Min.	450 Min.	750 Min.
SUS at 210°F (99°C)	ASTM-D2161	46 Min.	65 Min.	85 Min.
cST at 104°F (40°C)	ASTM-D445	37 Min.	105 Min.	160 Min.
cST at 212°F (100°C)	ASTM-D445	6 Min.	11 Min.	16 Min.
Pour Point, °F (°C) Max.	ASTM-D97	-10°F (-23°C)	-10°F (-23°C)	0°F (-18°C)
Flash Point, °F (°C) Min.	ASTM-D92	370°F (188°C)	400°F (204°C)	450°F (232°C)
Viscosity Index, Min.	ASTM-D2270	90	90	90
Steam Emulsion No. Min.	ASTM-1935-65	1200	1200	1200
Consistency	.....	Stringy	Stringy	Stringy
Falex Load Test lbs (kg) [Min]	ASTM-D2670	2000 lbs (907 kg)	2000 lbs (907 kg)	2000 lbs (907 kg)
Timken E.P. Test lbs (kg) [Min]	ASTM-D2782	30 lbs (14 kg)	30 lbs (14 kg)	30 lbs (14 kg)

Table 2. Selection Chart

Typical Operating Conditions	20°F to 90°F (-7°C to 32°C)	Above 90°F (32°C)
90-100 psi (6.2 to 6.9 bar)	Light	Medium

**Table 3. Ingersoll-Rand Rock Drill Oil Part Numbers**

<b>Grade</b>	<b>1 Gallon (3.8 Liter)</b>	<b>5 Gallon (18.9 Liter)</b>	<b>55 Gallon (208 Liter)</b>
Light	51378701	51378727	51378743
Medium	51378693	51378719	51378735
Heavy	51378784	51378792	51378800

**2. VIBRATION AND NOISE DATA.**

**NOTICE**

In compliance with **EC Directive 84/537/EEC on Noise** at the workplace, the following data is supplied:

The following are average sound power (Lw) levels:

MX60/60F	117 dB(A)
MX60S/60SF	111 dB(A)

**NOTICE**

In compliance with **Weighted RMS Acceleration ISO 8662, Part 5 on Vibration**, the following data is supplied:

MX60/60S	24,6 m/s <sup>2</sup>
MX60F/60SF	19,7 m/s <sup>2</sup>
MX90/90S	23.5 m/s <sup>2</sup>
MX90F/90SF	20,6 m/s <sup>2</sup>

**3. PAVING BREAKER SPECIFICATIONS.**

**a. Net Weight (less tool):**

MX60	70 lbs	31.8 kg
MX90	87 lbs	39.5 kg

**b. Shipping Weight (less tool):**

MX60	73 lbs	33 kg
MX90	90 lbs	41 kg

**c. Overall Length (less tool):**

All Models	27.5 in.	698.5mm
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**d. Bore of Cylinder:**

MX60	2.06 in.	52.3mm
MX90	2.62 in.	66.5mm

**e. Working Stroke:**

All Models	5.75 in.	146mm
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**f. Recommended Air Supply:**

90 -100 psi (6.2 - 6.9 bar) @ breaker inlet

**g. Air Inlet Size:**

All Models	3/4 NPT
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**h. Size Air Hose Recommended:**

All Models	3/4 in.	19 mm
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**i. Air Consumption @ 85 psi (5.8 bar):**

MX60	65-70 ft <sup>3</sup> /min	1.84-1.98 m <sup>3</sup> /min
MX90	83-87 ft <sup>3</sup> /min	2.35-2.46 m <sup>3</sup> /min

**j. Blows Per Minute:**

All Models	1200 – 1400
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**k. Anvil Bushing Hex. Sizes (Refer to Section 4, Paragraph 3)**





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