



SERVICE MANUAL

EXCAVATOR
JCB140

EN - 9823/0350 - ISSUE 1 - 05/2018


This manual contains original instructions, verified by the manufacturer (or their authorized representative).

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Foreword

The Operator's Manual


You and others can be killed or seriously injured if you operate or maintain the machine without first studying the Operator's Manual. You must understand and follow the instructions in the Operator's Manual. If you do not understand anything, ask your employer or JCB dealer to explain it.

Do not operate the machine without an Operator's Manual, or if there is anything on the machine you do not understand.

Treat the Operator's Manual as part of the machine. Keep it clean and in good condition. Replace the Operator's Manual immediately if it is lost, damaged or becomes unreadable.

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Check (Condition)

1. Check all the link bushes and the pivot pins for wear or damage, replace as necessary.
2. Some tipping levers incorporate a lifting eye. This feature is classified as lifting equipment and must be tested and certified to comply with local regulations.

Remove and Install

Special Tools

Description	Part No.	Qty.
Slide Hammer Kit	993/68100	1

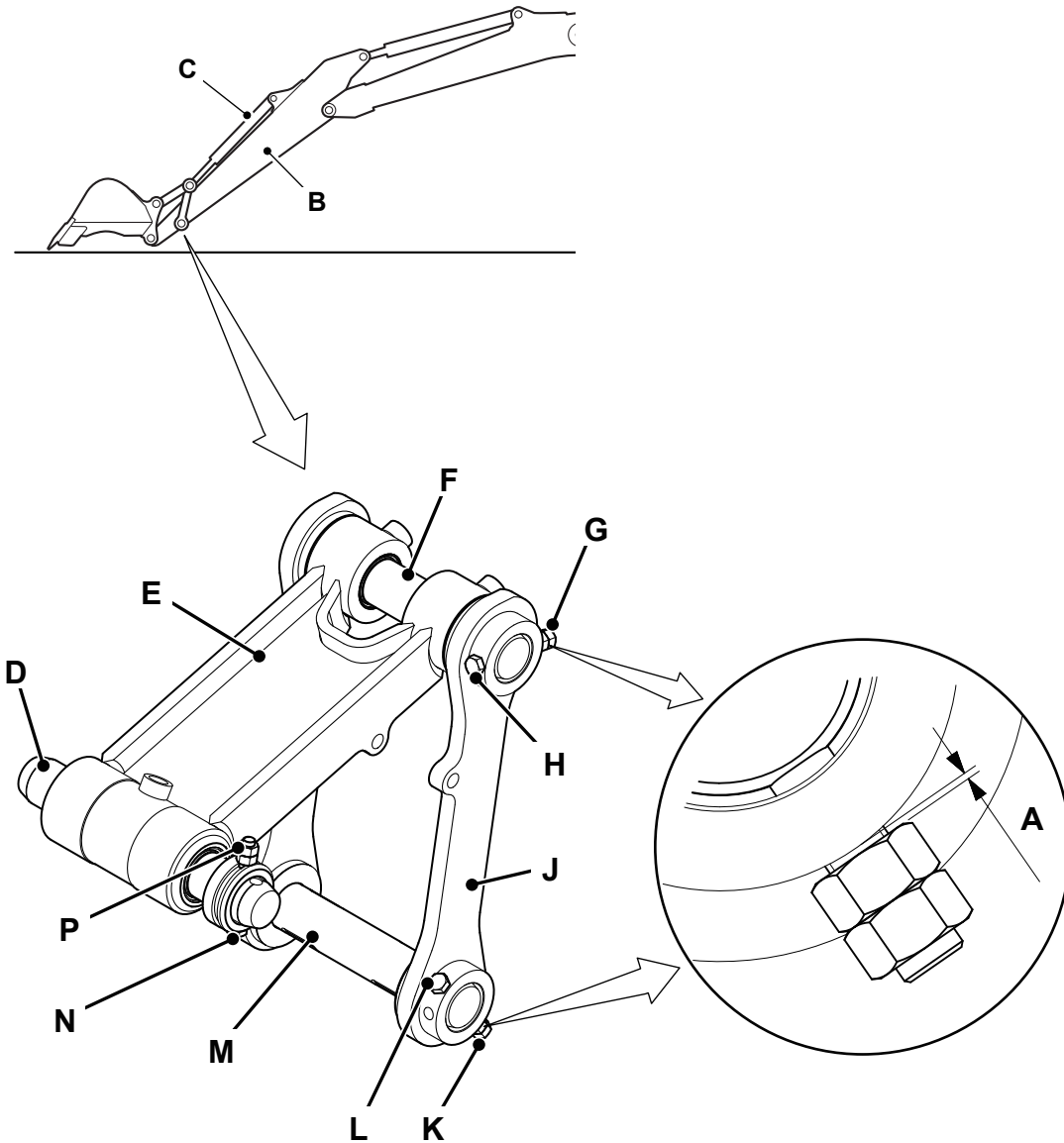
Consumables

Description	Part No.	Size
Special MPL-EP Grease	4003/1501	0.4 kg
	4003/1506	12.5 kg
	4003/1510	50 kg

Remove

1. Make the machine safe with the excavator arm lowered.
[Refer to: PIL 01-03.](#)
2. Remove the bucket.
3. Support the bucket and ram links.
4. Remove the locknuts 1 and bolt 1. Refer to Figure 14.
5. Use a slide hammer to drive out the ram pivot pin 1. Refer to Figure 14.
[Refer to: PIL 06-30-00.](#)
6. Retract the bucket ram clear of the tipping link. Refer to Figure 14.
7. Remove the locknuts 2 and bolt 2. Refer to Figure 14.
8. Use a slide hammer to drive out the dipper pivot pin 2. Refer to Figure 14.
9. Remove the tipping link. Refer to Figure 14.
10. Clean all the links and pivot pins.
[Special Tool: Slide Hammer Kit \(Qty.: 1\)](#)
11. Check all the link bushes and the pivot pins for wear or damage. Replace as necessary.

Figure 14.



- A Bolt clearance dimension
- C Bucket ram
- E Tipping link
- G Locknuts 1
- J Link arm
- L Bolt 2
- N Bolt 3

- B Dipper
- D Pivot pin 3
- F Pivot pin 1
- H Bolt 1
- K Locknuts 2
- M Pivot pin 2
- P Locknuts 3

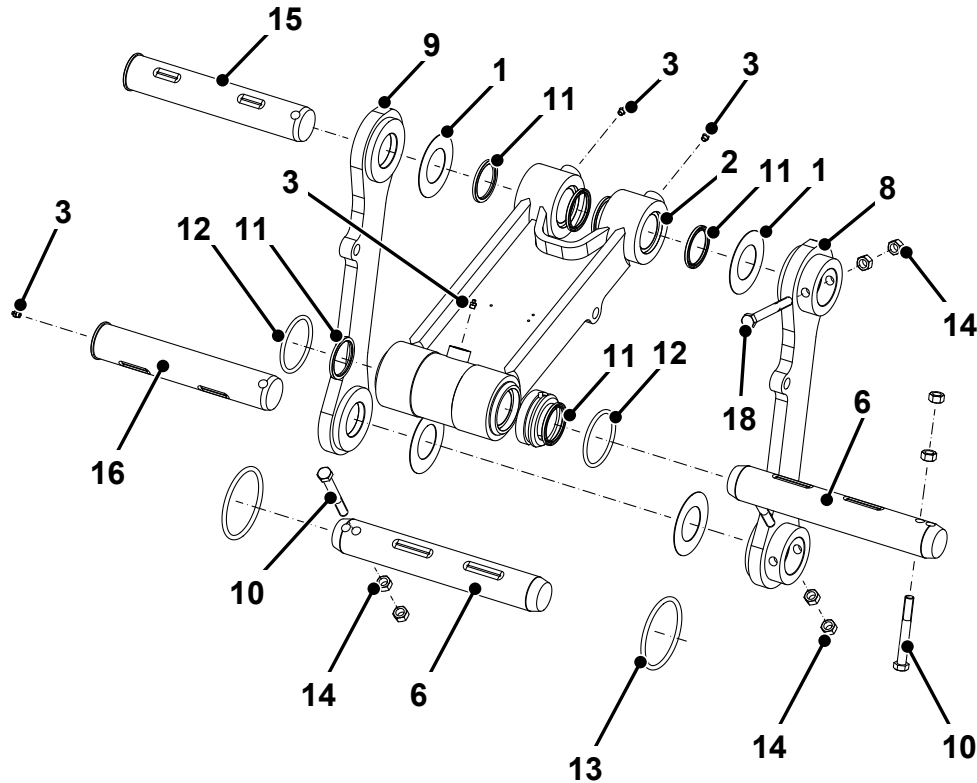
CAUTION! Do not use your fingers through the holes to align the links.

Install

1. The installation procedure is the opposite of the removal procedure. Additionally do the following steps.
2. Replace bushes as required. Refer to Figure 15.

3. Replace all O-rings and seals with new components. Refer to Figure 15.
4. Make sure to install all components correctly. Refer to Figure 15.

Figure 15.



- | | |
|--------------------|-------------------|
| 1 Shim | 2 Tipping link |
| 3 Grease nipple | 4 Label |
| 6 Pivot pin | 8 Link arm - left |
| 9 Link arm - right | 10 Bolt |
| 11 Dust seal | 12 O-ring |
| 13 O-ring | 14 Locknut |
| 15 Pivot pin | 16 Pivot pin |
| 18 Bolt | |

5. Apply grease to all the pivot pins before assembly.

5.1. Apply grease to the pivot points through the grease nipples.

Consumable: Special MPL-EP Grease

6. Make sure to check the bolt and nut clearance dimension. The dimension should be as stated. To adjust this dimension move the locknuts. Refer to Figure 14.

Dimension: 1 –2 mm



24 - Slew Ring

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00 - General

Introduction

The slew ring bearing is a rotational rolling-element bearing that supports the heavy but slow-turning upper structure. They often use three race elements, such as an inner ring and two outer ring halves that clamp together axially. Slew ring bearings are made with gear teeth integral with the inner or outer race, used to drive the platform relative to the base.

03 - Bearing

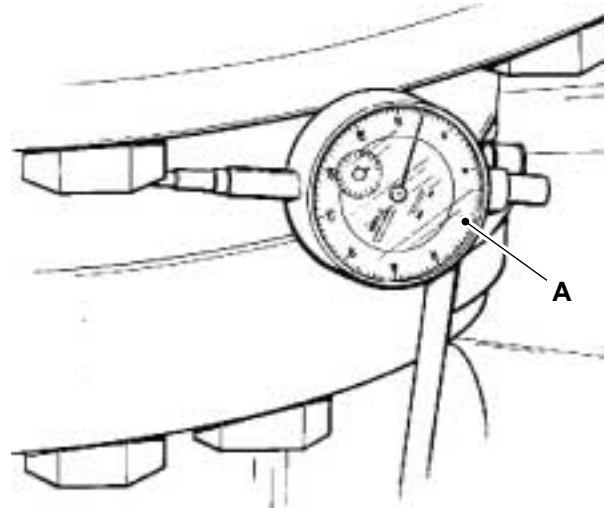
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Check (Condition)

Check slew bearing backlash

1. Fully extend the dipper and set the bucket the specified distance above the ground.
 Length/Dimension/Distance: 1 m
2. Attach a DTI (Dial Test Indicator) to lower the half of the slew bearing and set needle to bolt head on top half of the slew bearing.
3. Stop the engine. By hand push bucket fully to one side and hold whilst dial test indicator is set to zero.
4. By hand push bucket fully to other side and record measurement on the DTI. Check against limits given in the table.

Figure 16.



A DTI

Alternatively

1. Fully extend the dipper and set the bucket the specified distance above the ground.
 Length/Dimension/Distance: 1 m
2. Stop the engine.
3. By hand push bucket fully to one side and hold whilst a mark is made across the two halves of slew bearing.
4. By hand push bucket fully to other side and hold, make a further mark on bottom half of bearing (which is in line with original mark on top half of bearing). Record measurement and check against limits given in the table.

Table 2. Slew backlash limits

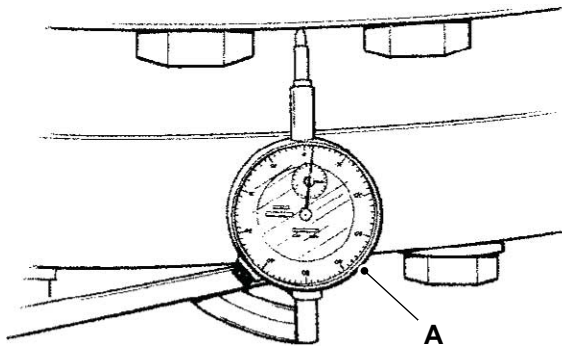
Machines	New machine	Limit of use
100, 200 and 300 series	6 mm	12 mm
70, 80, and 81 series	4 mm	8 mm

Check the slew bearing vertical lift

1. First set the dipper in a perpendicular position and position the bucket to the specified height from above the ground. Stop the engine.

Distance: 200 mm

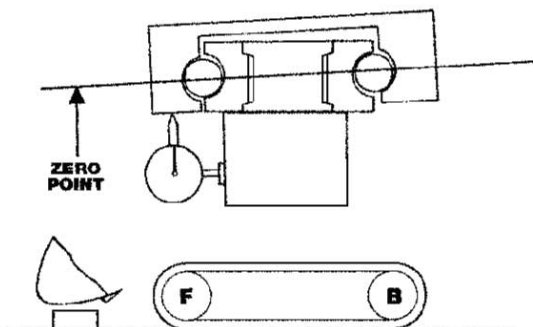
Figure 17.



A DTI

2. Install a DTI and set the needle to the zero point.

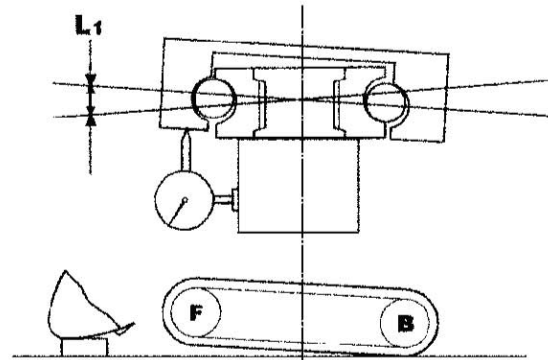
Figure 18. Zero pointing setting



3. Start the engine and lift the main body with the bucket, when the bottom of the shoe is above of the ground at the specified height, note the reading on the DTI.

Distance: 100 mm

Figure 19.

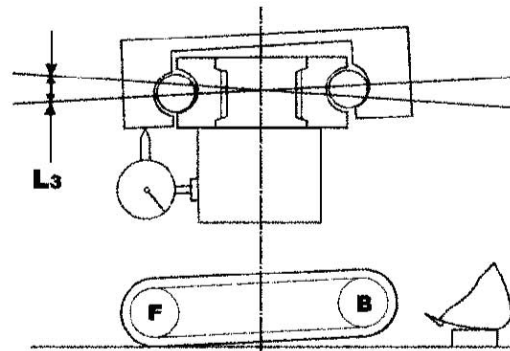


- 3.1. The needle will turn in the counter clockwise direction. This value becomes L1, lower the body to the ground and confirm the needle reads zero.

4. Rotate the main body to the specified angle and repeat the procedure, this time the needle will rotate clockwise. This value becomes L3.

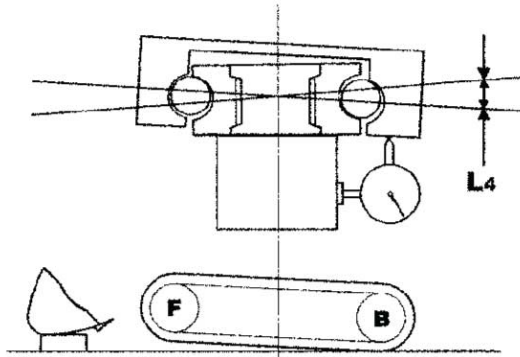
Angle: 180 °

Figure 20.



5. Place a DTI on the rear of the vehicle and do the step 3 and the step 4 again to obtain L2 and L4.

Figure 21.



6. The average lateral movement is, sum of L1,L2,L3 and L4 then divided the sum amount with two.

Figure 22.

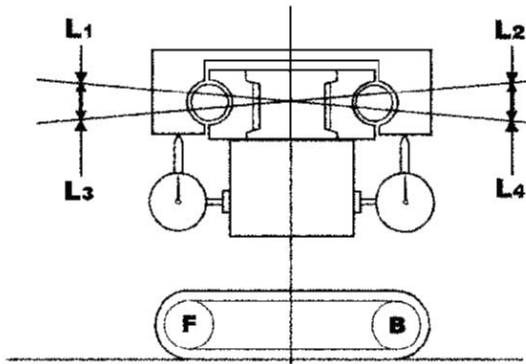


Table 3. Slew vertical lift

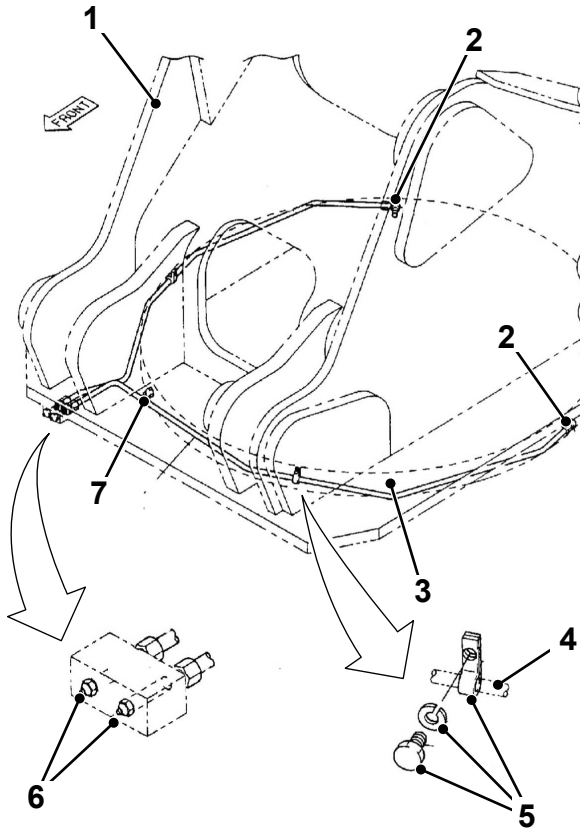
New machine	Limit of use
1.2 mm	3.6 mm

Always stop the engine when installing or removing the dial gauge or reading the dial gauge.

Lubricate

Grease the slew ring bearing at the intervals given in the maintenance schedule. Refer to: PIL 78-24. Use the correct grease. Refer to: PIL 75-00-00.

1. Make the machine safe with the excavator arm lowered.
Refer to: PIL 01-03.
2. Apply grease at the grease points using a suitable grease gun.
 - 2.1. The slew ring bearing has three grease points distributed equally around the slew ring.
 - 2.2. On some machines two of the grease points have remote grease points / nipples connected to the slew ring bearing with grease lines. Make sure that the grease line mountings are installed and secure. Make sure that the grease lines and adaptors are free from defects such as splits or kinks.
 - 2.3. Make sure that grease extrudes from under the seal around all of the circumference of the slew ring bearing. It is not possible to add too much grease.
 - 2.4. Make sure grease is applied at all the grease points.

Figure 23. Typical greasing installation


- 1 Revolving chassis
- 2 Grease point / nipple
- 3 Slew ring bearing
- 4 Grease line (if installed)
- 5 Grease line mountings (if installed)
- 6 Remote grease points / nipples (if installed)
- 7 Grease point / nipple

06 - Gear

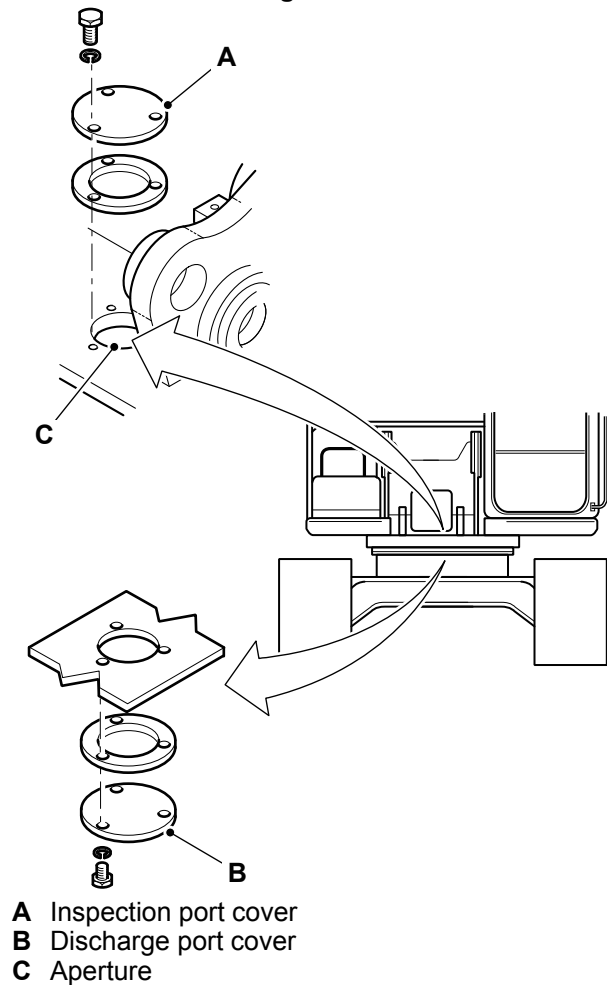
Lubricate

Ensure slew ring is kept full of grease. Always grease whenever the machine has been steam-cleaned.

Lubricate the slew ring pinion and gear teeth as follows.

1. Prepare the machine for maintenance.
Refer to: PIL 01-03.
2. Grease the slew ring as follows.
 - 2.1. Remove the inspection port cover (on the lower centre section).
 - 2.2. Remove the grease discharge port cover (on the lower inner side).
 - 2.3. Remove contaminated grease.
 - 2.4. Replace the discharge port cover.
 - 2.5. Apply grease to the slew ring via aperture.
3. Start the engine and slew the machine a few degrees. Stop the engine, remove the starter key and apply grease again.
 - 3.1. Repeat until the whole ring is greased.
 - 3.2. Check that grease exudes around the entire circumference.
4. Refit the inspection port cover.

Figure 24.





30 - Pivot Pins

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00 - General

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Introduction

Pivot pins are a short shaft or pin that supports something that turns. Pivot pins are installed in numerous positions on the machine. There is usually a greasing point associated with the pivot pin. Make sure that the pivot points are greased at regular intervals. Refer to the Machine Maintenance Schedules. [Refer to: PIL 78-24.](#)

Slide Hammer Kit

The slide hammer kit is used to remove pivot pins that must be extracted, i.e. cannot be 'knocked through'. The purpose of this description is to explain how the kit and the various components are used to remove the pivot pins.

The adaptors that form part of the kit have a screwed thread at each end. One of the threads will always be M20 size, this is to accommodate the end stops. The other end of the adaptor will have varying thread sizes to suit the different size of threads in the pivot pins.

Remove and Install

Special Tools

Description	Part No.	Qty.
Slide Hammer Kit	993/68100	1

Make a note that the illustration shows a typical pivot pin. The actual pivot pin installed on the machine may look different.

1. Prepare the pivot pin for removal, remove the locking device e.g. pivot pin retaining bolt.

2. Prepare the slide hammer kit.

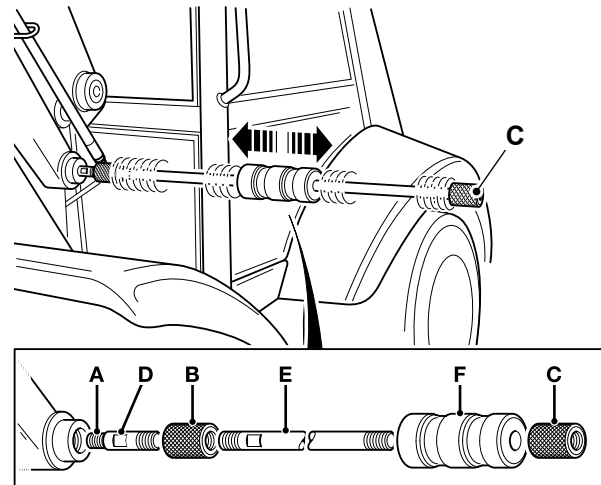
Special Tool: Slide Hammer Kit (Qty.: 1)

- 2.1. Install the slide hammer onto the slide bar.
- 2.2. Determine the thread size of the pivot pin and then install the appropriate adaptor. Use the spanner flats to securely install the adaptor.
- 2.3. Install an end stop onto the other end of the adaptor (M20 thread size), make sure that the adaptor threads are fully engaged.
- 2.4. Install the slide bar into the end stop. Make sure that the threads are fully engaged.
- 2.5. Finally install the other end stop at the end of the slide bar. The slide hammer kit is now ready to use.

3. To extract the pivot pin, slide the hammer along the bar until it contacts the end stop. Repeat this step until the pivot pin is released.

4. To remove the slide hammer kit, reverse steps 2 to 3.

Figure 25. Typical Machine



- A** Adaptor
- B** End stop
- C** End stop
- D** Spanner flats
- E** Slide bar
- F** Slide hammer



63 - Identification Label

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