

SERVICE MANUAL

DUMPER
10TFT, 9TFT, 9TST

EN - 9813/5350 - ISSUE 2 - 01/2018

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.

Contents

01 - Machine

06 - Body and Framework

09 - Operator Station

15 - Engine

18 - Fuel and Exhaust System

21 - Cooling System

24 - Brake System

25 - Steering System

27 - Driveline

30 - Hydraulic System

33 - Electrical System

72 - Fasteners and Fixings

75 - Consumable Products

78 - After Sales

03 - High Pressure Pipe

Remove and Install

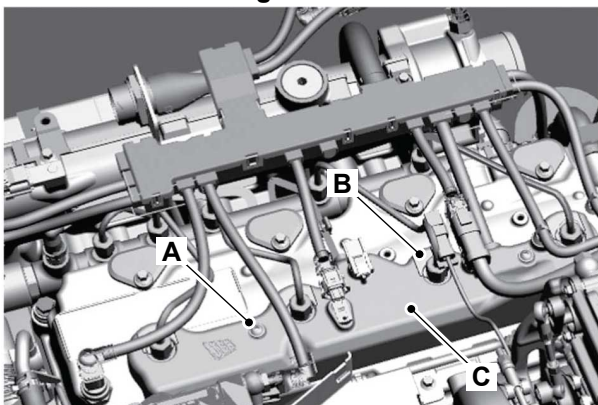
Special Tools

Description	Part No.	Qty.
Socket 17MM Offset - (HP Fuel pipes)	331/27987	1
Torque Wrench (10-100Nm)	993/70111	1

Important. Before disconnecting or removing fuel pipes proceed as follows.

1. Make sure that you have the correct new parts.
 - 1.1. The high pressure fuel pipes **MUST BE REPLACED** with new ones.
 - 1.2. The new fuel pipes must remain sealed inside their bags before use. If a bag is open **DO NOT USE** the fuel pipe, get a new one.
2. Obey all fuel system health and safety information. Refer to (PIL 18-00).
3. Make sure that the engine is safe to work on.
 - 3.1. The engine must cool and pressure in the fuel system must decay before you start work.
 - 3.2. If the engine has been running, wait at least one hour before you start work.
4. Clean the engine. Refer to Engine, Clean (PIL 15-00-00).
5. Remove the protective cover as follows.

Figure 300.



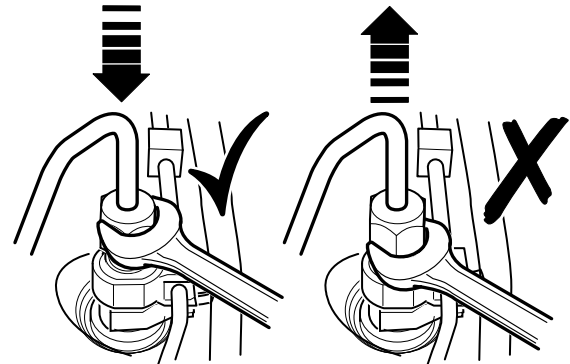
- A Screw
- B Plastic segment
- C Protective cover

- 5.1. Push out the plastic segments.
- 5.2. Remove the screws and lift off the cover.

- 5.3. Remove any dirt or debris that is exposed. Refer to Engine, Clean (PIL 15-00-00).

6. Always use a spanner at the top of the fuel pipe nut (this will prevent damage to the nut).

Figure 301.

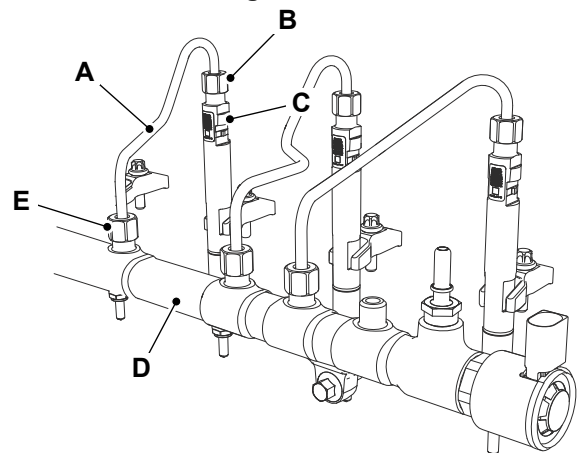


Injector Fuel Pipes

Remove

The procedure describes how to remove one fuel pipe.

Figure 302.



- A Fuel pipe
- B Nut 1
- C Fuel injector
- D Fuel rail
- E Nut 2

1. Remove the fuel pipes one at a time as follows.
 - 1.1. Loosen the nut 2 at the fuel rail. Do not remove the nut at this step.
 - 1.2. Use the 17mm deep socket special tool at the top of nut. This will prevent damage to the nut.

Special Tool: Socket 17MM Offset - (HP Fuel pipes) (Qty.: 1)
Special Tool: Torque Wrench (10-100Nm) (Qty.: 1)

- 1.3. Push the fuel pipe against the injector cone and at the same time remove the nut 1.
- 1.4. Push the fuel pipe against the fuel rail cone and at the same time remove the nut 2.
- 1.5. Make sure that there is no dirt or debris on the fuel pipe or the connectors.
- 1.6. Remove the fuel pipe.
- 1.7. Seal all the open ports, use the correct parts from the service kit.

2. Repeat step 1 to remove the other fuel pipes.
3. Discard the old fuel pipes.

Install

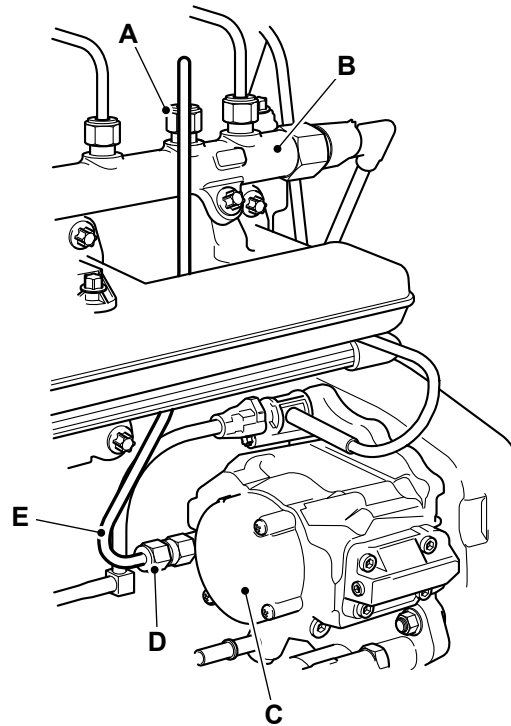
Important: The high pressure fuel pipes must be replaced with new ones. The new fuel pipes must remain sealed inside their bags before use. If a bag is open do not use the fuel pipe, get a new one. Do not open the bag until you are ready to assemble the fuel pipe.

1. Make sure that the bleed-off adaptors are assembled on the injectors before you install the high pressure pipes.
2. Assemble the fuel pipes one at a time. The procedure describes how to assemble one fuel pipe.
 - 2.1. Put the correct end of the fuel pipe against the correct injector cone.
 - 2.2. Tighten the nut 1 with your hand.
 - 2.3. Put the other end of the fuel pipe against the correct fuel rail cone.
 - 2.4. Tighten the nut 2 with your hand.
 - 2.5. Nuts must be tightened in the correct sequence. Tighten nut 1 and then nut 2.
 - 2.6. Use the special tool at the top of nut 1 and tighten it to the correct torque value.
Torque: 27N·m
Special Tool: Socket 17MM Offset - (HP Fuel pipes) (Qty.: 1)
 - 2.7. Put the spanner at the top of nut 2 and tighten it to the correct torque value.
Torque: 27N·m

Injection Pump to Rail Fuel Pipe

Remove

Figure 303.



- A Nut 1
- B Fuel rail
- C Injection pump
- D Nut 2
- E Fuel pipe

1. Remove the fuel pipe as follows.
 - 1.1. Loosen the nut 2. Do not remove the nut at this step.
 - 1.2. Use the 17mm deep socket special tool at the top of nut. This will prevent damage to the nut.
Special Tool: Socket 17MM Offset - (HP Fuel pipes) (Qty.: 1)
Special Tool: Torque Wrench (10-100Nm) (Qty.: 1)
 - 1.3. Push the fuel pipe against the injector cone and at the same time remove the nut 1.
 - 1.4. Push the fuel pipe against the rail cone and at the same time remove the nut 2.
 - 1.5. Make sure that there is no dirt or debris on the fuel pipe or the connectors.
 - 1.6. Remove the fuel pipe.
 - 1.7. Seal all the open ports, use the correct parts from the service kit.
2. Discard the old fuel pipe.

Install

Important: The high pressure fuel pipes must be replaced with new ones. The new fuel pipes must remain sealed inside their bags before use. If a bag is open do not use the fuel pipe, get a new one. Do not open the bag until you are ready to assemble the fuel pipe.

1. To assemble the fuel pipe.
 - 1.1. Put the correct end of the fuel pipe against the correct pump cone at the injection pump.
 - 1.2. Tighten the nut 2 with your hand.
 - 1.3. Put the other end of the fuel pipe against the correct fuel rail cone.
 - 1.4. Tighten the nut 1 with your hand.
 - 1.5. Nuts must be tightened in the correct sequence. Tighten nut 2 and then nut 1.
 - 1.6. Use the special tool at the top of nut 2 and tighten it to the correct torque value.

Torque: 27N·m
[Special Tool: Socket 17MM Offset - \(HP Fuel pipes\) \(Qty.: 1\)](#)
 - 1.7. Put the spanner at the top of nut 1 and tighten it to the correct torque value.

Torque: 27N·m

After Installation

1. Ensure that all pipes are correctly installed and located in retaining clips as applicable. If retaining clips are missing or damaged they must be replaced or renewed
2. Start the engine and check for fuel leaks.

06 - Low Pressure Pipe

Remove and Install

Before Removal

Obey all fuel system health and safety information. Refer to Fuel System, Health and Safety (PIL 18-00).

Low Pressure Fuel Pipes

Remove

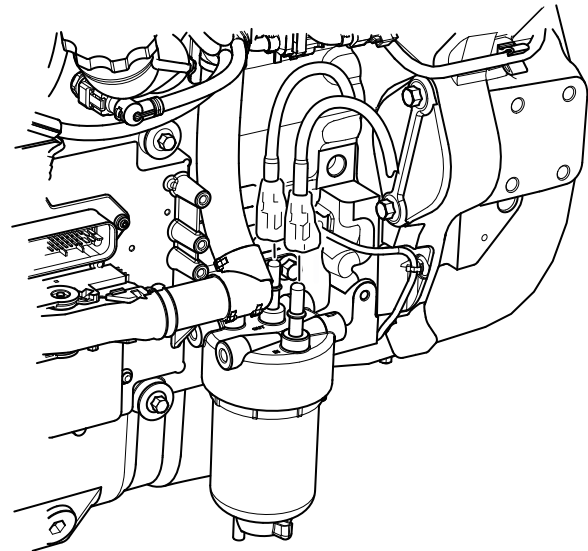
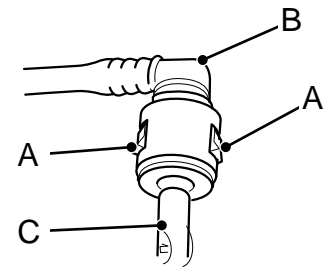
The low pressure fuel pipes have a nylon fitting attached to the pipe that replaces the nut and olive. The fittings are part of the pipe and not a separate item.

1. To release the fuel pipe, first press and hold the release buttons (one each side of the coupler). Push the coupler towards the connector spigot and then withdraw.
2. Cap all open ports to prevent ingress of dirt and debris.

Assemble

1. To install the fuel pipe, press and hold the release buttons. Push the coupler over the connector spigot and release the button. The connector will be heard to click when it is fully home and locked in place.
2. To check that the connection has been fully made, attempt to pull the connector from the connector spigot without releasing the lock mechanism. (A gentle pull is all that is required, if the connection is not correct the connector will release very easily.)

Figure 304.



- A Release Buttons
- B Coupler
- C Spigot

After Assembly

1. Make sure that all the fuel pipes are correctly installed and located in the retaining clips as applicable. If retaining clips are missing or damaged, they must be replaced or renewed.
2. Start the engine and check for fuel leaks.

Injector Bleed-off Pipes

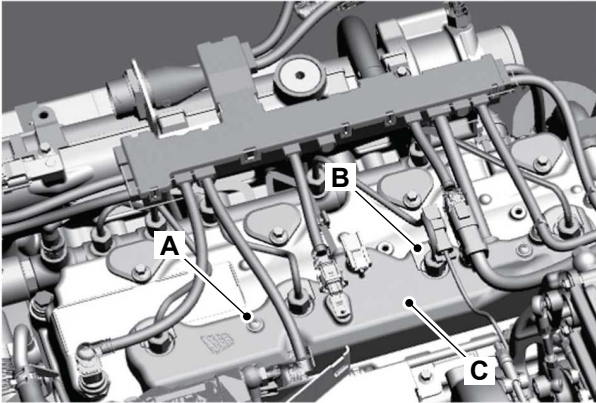
Before Removal

Obey all fuel system health and safety information. Refer to (PIL 18-00).

1. Make sure that the engine is safe to work on. The engine must cool and pressure in the fuel system must decay before you start work. If the engine has been running, wait at least one hour before you start work.
2. Clean the engine. Refer to Engine, Clean (PIL 15-00).
3. Remove the protective cover as follows.

- 3.1. Push out the plastic segments.
- 3.2. Remove the screws and lift off the cover.

Figure 305.



- A** Screw
- B** Plastic segment
- C** Protective cover

- 3.3. Remove any dirt or debris that is exposed. Refer to Engine, Clean (PIL 15-00).
4. To remove the bleed pipe clips, remove the high pressure fuel pipes first. Refer to (PIL 18-96-03).
5. DO NOT try to repair fuel pipes or connectors. Defective fuel pipe assemblies must be replaced.

Remove

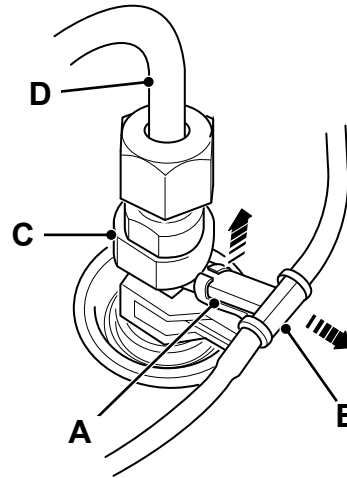
The following details the removal and replacement of one bleed-off connector. The procedure for the remaining connectors is identical.

1. Gently spring the location tabs apart and pull out the bleed pipe connector. DO NOT use excessive force on the tabs.
2. Remove and discard the O-ring.
3. If it is necessary to remove the bleed off pipe assembly, remove the nylon fitting at the high pressure pump.
4. Cap all open ports to prevent ingress of dirt and debris.

Install

1. Install a new O-ring.
2. Push in the bleed pipe connector until the location tabs snap over the connector.
3. If applicable, replace the high pressure fuel pipes with new ones. DO NOT use a high pressure fuel pipe that was removed. Refer to (PIL 18-96-03)

Figure 306.



- A** Location tabs
- B** Bleed pipe connector
- C** Bleed pipe clip
- D** High pressure fuel pipe

After Assembly

1. Make sure that all pipes are correctly installed and located in retaining clips as applicable. If the retaining clips are missing or damaged they must be replaced or renewed.
2. Start the engine and check for fuel leaks.
3. Install the protective cover. Refer to Figure 305.

00 - General

Introduction	24-3
Health and Safety	24-4
Technical Data	24-5
Component Identification	24-6
Fault-Finding	24-7
Bleed	24-8

Introduction

(For: 10TFT, 9TFT)

Under no circumstances allow conventional brake fluid to be added to the system, never purge the system and refill with brake fluid. Otherwise damage will occur to all the rubber sealing components within the brake system. Use only mineral based hydraulic oil.

The machine uses axles with oil immersed totally enclosed multi plate brakes. The machines have front and rear brakes, operating on independent circuits that gives dual circuit safety.

The brake system uses a tandem master cylinder and is filled with mineral oil through a remotely mounted fluid reservoir located behind the access panel on the front of the seat support.

Normally adjustment of the brakes is not necessary as they adjust automatically by design. Bleeding of the system may be necessary if the system pipework is damaged causing system leakage.

The dumper has a park brake system which is integral with the disc and caliper installed to the gearbox output shaft and is operated by a park brake located to the right of the operator seat.

Health and Safety

Brake Fluid

Use of incorrect brake fluid will cause serious damage to the seals of the braking system. This will result in brake failure.

Service Brake Bleeding

Before bleeding the service brake system, park on level ground and set the park brake to on. Put blocks on both sides of the wheels on one axle to prevent the machine rolling. Stop the engine and disconnect the battery so that the engine cannot be started. If you do not take these precautions the machine could run over you.

Park Brake Maintenance

Before working on the park brake, park on level ground and put blocks on both sides of all wheels to prevent the machine rolling. Stop the engine and disconnect the battery so that the engine cannot be started. If you do not take these precautions the machine could run over you.

Working Under the Machine

Make the machine safe before getting beneath it. Make sure that any attachments on the machine are correctly attached. Engage the park brake, remove the ignition key, disconnect the battery. If the machine has wheels use blocks to prevent unintentional movement.

Brake Dust

Brake pads generate dust, which if inhaled may endanger health. Wash off the caliper assemblies before commencing work. Clean hands thoroughly after completing the work.

Brake Dust

Brake shoes generate dust, which if inhaled may endanger health. Make sure that dust is removed correctly, particularly before installing new components. Clean hands thoroughly after completing the work.

Springs

Always wear personal protective equipment when dismantling assemblies containing components under pressure from springs. This will protect against eye injury from components accidentally flying out.

Notice: Using incorrect fluid could damage the system. See *Fluids, Capacities and Lubricants for the correct fluid*. The fluid can harm your skin. Wear rubber gloves. Cover cuts or grazes.

WARNING! Before working on the brake system, make sure that the machine is on solid level ground. Put blocks on all wheels to prevent the machine rolling.

WARNING! Do not use the machine with any part of its brake system disconnected or inoperative. When

the test has been completed, make sure all brake system components are installed and the system is operating correctly.

WARNING! Before testing the park brake make sure the area around the machine is clear of people.

WARNING! If the machine starts to move during the park brake test, immediately apply the foot brake and reduce the engine speed.

WARNING! If the machine starts to move during the service brake test, immediately reduce the engine speed and apply the park brake.

WARNING! Do not use a machine with a faulty park brake.

WARNING! Non approved modifications to drive ratios, machine weight or wheel and tyre sizes may adversely affect the performance of the park brake.

WARNING! Oil on the brake disc will reduce brake effectiveness. Keep oil away from the brake disc. Remove any oil from the disc with a suitable solvent. Read and understand the solvent manufacturer's safety instructions. If the pads are oily, install with the new pads.

WARNING! Faulty brakes can kill. If you have to top up the brake reservoir frequently, get the brake system checked by your JCB Dealer. Do not use the machine until the fault has been put right.

WARNING! The park brake must not be used to slow the machine from travelling speed, except in an emergency, otherwise the efficiency of the brake will be reduced. Whenever the park brake has been used in an emergency the brake friction components must be renewed and the other components inspected.

Notice: Over adjustment or failure to disengage the park brake properly will cause excessive wear of the park brake mechanism.

Technical Data

(For: 10TFT, 9TFT)

Table 124.

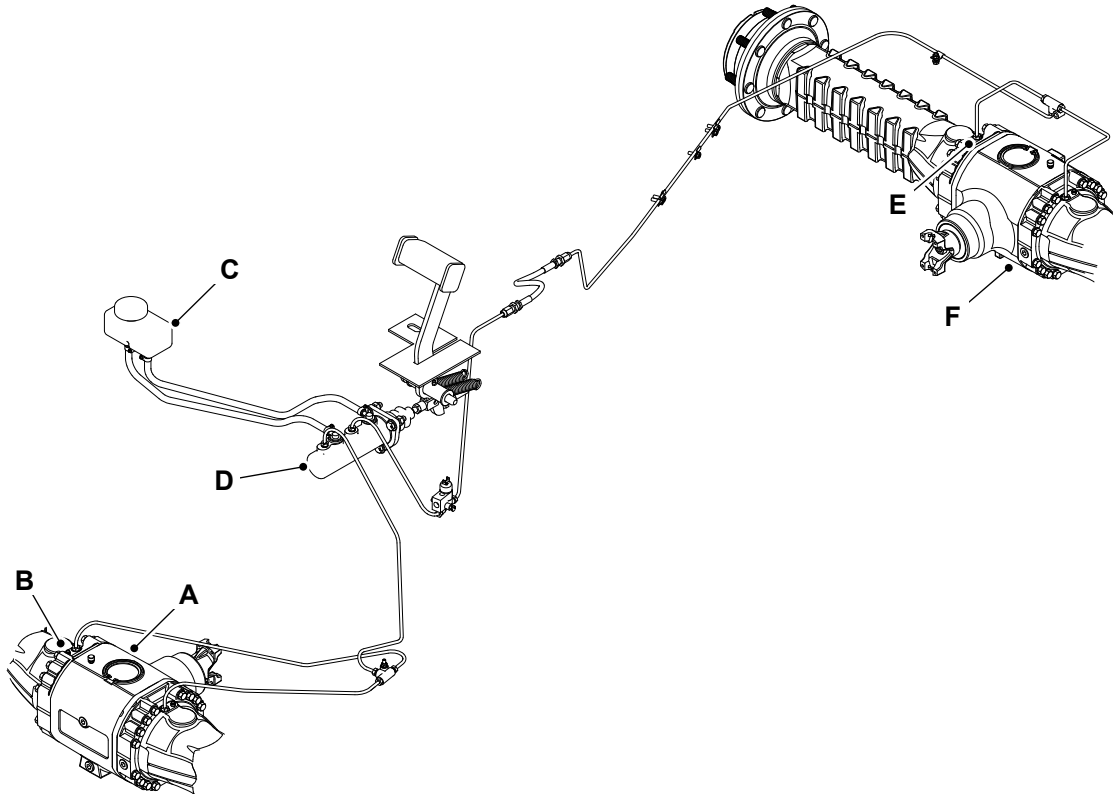
Description	Data
Brakes	
Type	Oil immersed disc type in the axles
Master cylinder diameter	31.75mm
Master cylinder seals	Specific for mineral oil
Brake discs	
Type	Manually adjusted 'Hayes' type caliper, mounted on transmission output shaft
Friction disc diameter	279.4mm
Friction disc minimum thickness	8.89mm
Friction disc maximum thickness	9.65mm
Friction material thickness on new pads ⁽¹⁾	3.18mm
Torque values	
Master cylinder retaining bolts	60N·m
Park brake caliper bolt	230N·m
Park brake caliper bracket bolt	45N·m

(1) Replace at 2mm

Component Identification

(For: 10TFT, 9TFT)

Figure 310.



- A** Front axle
- C** Remote brake fluid tank
- E** Rear axle brake bleed nipple

- B** Front axle brake bleed nipple
- D** Master cylinder
- F** Rear axle

Fault-Finding

Fault

Insufficient braking

Brake pedal is soft

Overheating of the brake system

Table 125.

Page 24-7

Table 126.

Page 24-7

Table 127.

Page 24-7

Table 125. Insufficient braking

Cause	Remedy
Incorrect adjustment	Check the brake disc thickness. Adjust the brakes.
Worn out brake disc	Check the brake disc thickness. Replace the brake discs.
Incorrect brake fluid	Drain the incorrect brake fluid. Replace all the seals and hoses from the brake system. Fill the correct oil.
Loss of brake fluid	Check the outside circuit and the master cylinder for leaks. Repair as necessary. If the leak is to the outside, replace the O-rings between the center and the intermediate housings. If the leak is to the inside, replace the all the O-rings.
Overheated axle causing brake fluid to vaporize	Refer to overheating fault remedy. See Also: Table 127. Overheating of the brake system

Table 126. Brake pedal is soft

Cause	Remedy
Air in the brake system	Bleed the brake system.

Table 127. Overheating of the brake system

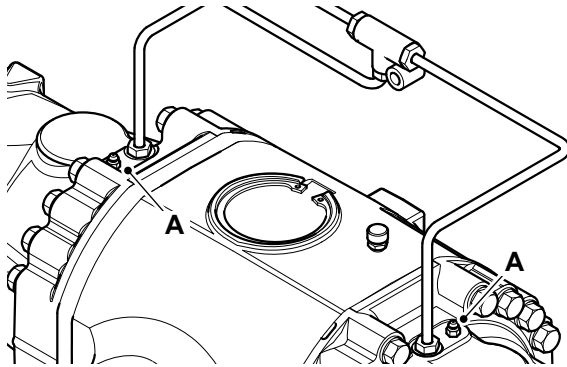
Cause	Remedy
Wrong oil level	Drain, flush and fill the brake oil to the correct level.
Too small brake gap	Adjust the brakes.
Incorrect brake fluid in the system	Drain the incorrect brake fluid. Replace all the seals and hoses from the brake system. Fill the correct oil.
No free play of brake pedal at master cylinder	Adjust the brake pedal free play.
Restrictions in the brake lines	Check the condition of the brake lines. Replace as necessary.

Bleed

(For: 10TFT, 9TFT)

1. Make the machine safe.
Refer to: [PIL 01-03-27](#).
2. Isolate the battery.
Refer to: [PIL 33-03-00](#).
3. Open the engine compartment cover.
Refer to: [PIL 06-06-06](#).
4. Open the bleed nipple.

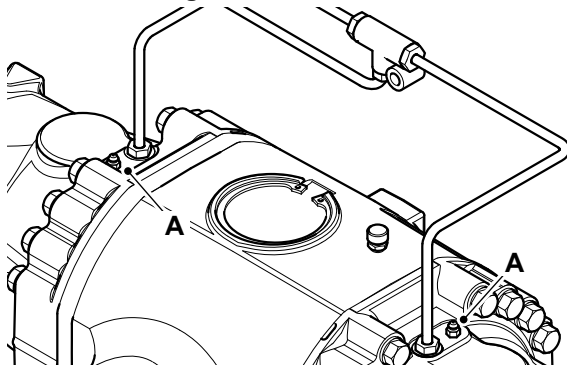
Figure 311. Front axle



A Bleed nipples

5. Press and hold the brake pedal down.
6. Tighten the bleed nipple.
7. Release the brake pedal.
8. Do the steps 4 to step 7 until all of the trapped air is removed from the brake system.
9. Do the steps 4 to step 8 for the RH (Right Hand) side brake.
10. Do the steps 4 to step 9 to bleed the rear brake system.

Figure 312. Rear axle



A Bleed nipples

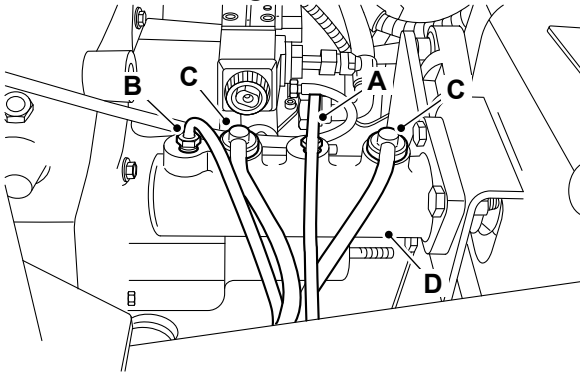
Remove and Install

(For: 10TFT, 9TFT)

Remove

1. Make the machine safe.
[Refer to: PIL 01-03-27.](#)
2. Isolate the battery.
[Refer to: PIL 33-03-00.](#)
3. Remove the floorplate.
[Refer to: PIL 09-78-00.](#)
4. Disconnect the front brake pipe, rear brake pipe and the brake fluid tank from the master cylinder.

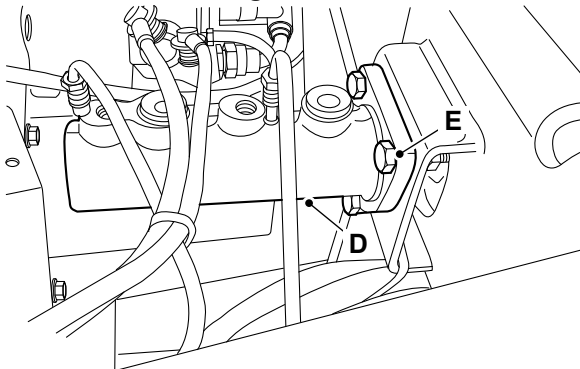
Figure 313.



- A** Front brake pipe
- B** Rear brake pipe
- C** Brake fluid tank
- D** Master cylinder

5. Remove the bolts.
6. Remove the master cylinder from the machine.

Figure 314.



- D** Master cylinder
- E** Bolts

Install

1. The installation procedure is the opposite of the removal procedure. Additionally do the following step.
2. Tighten the bolts to the correct torque value.

Table 128. Torque Values

Item	Description	Nm
E	Bolts	60

06 - Cable

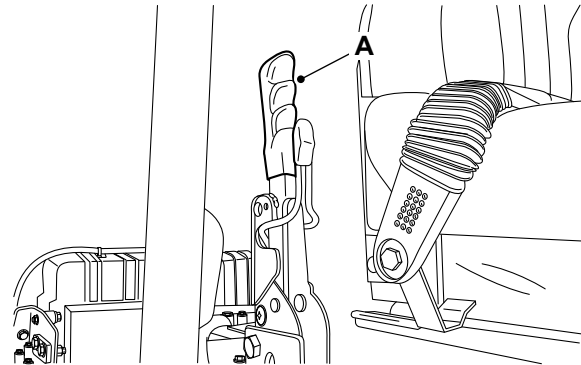
Adjust	24-15
Remove and Install	24-16

Adjust

(For: 10TFT, 9TFT)

1. Make the machine safe.
Refer to: PIL 01-03-27.
2. Remove the floorplate.
Refer to: PIL 09-78-00.
3. Isolate the battery.
Refer to: PIL 33-03-00.
4. Remove the plastic hand grip from the park brake lever.

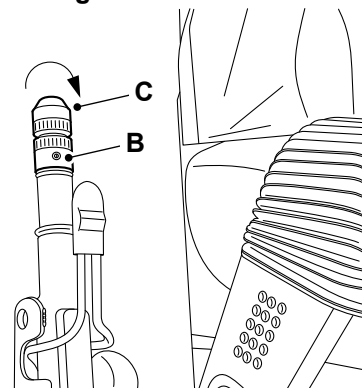
Figure 315.



A Plastic hand grip

5. Loosen the locking grub screw.
6. Rotate the adjusting nut in an anticlockwise direction to give free play in the cable.

Figure 316.



B Grub screw
C Adjusting nut

7. Adjust the cable so that the specified length of thread protrudes through the locknut.
Dimension: 5mm
8. Tighten the nut against the back of the bracket.

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