## How to Make the Machine Safe (Loader Arm Raised)

### Introduction

**⚠ WARNING**

**Raised Equipment**

**Never walk or work under raised equipment unless it is supported by a mechanical device. Equipment which is supported only by a hydraulic device can drop and injure you if the hydraulic system fails or if the control is operated (even with the engine stopped).**

**Make sure that no-one goes near the machine while you install or remove the mechanical device.**

13-2-3-7_3

If you raise the loader arm to get access for maintenance, you must install the maintenance strut on the loader arm.

### Install the Maintenance Strut

**1** Empty the shovel.

**2** Park the machine on hard, level ground.

If necessary, refer to ***Operation, Stopping and Parking the Machine***.

**3** Raise the loader arm sufficiently to install the maintenance strut **A**.

**4** Stop the engine and remove the starter key.

**5** Install the maintenance strut:

**a** Release the latch **B** and remove the maintenance strut from its stowage position.

**b** Put the maintenance strut around the cylinder.

**c** Use the strap **C** to secure the maintenance strut in position.

**6** Start the engine.

**7** Slowly lower the loader arm onto the maintenance strut. Stop the movement immediately the maintenance strut supports the weight of the loader arm.

***Note:*** *Be careful when you lower the loader arm onto the maintenance strut, 'Feather' the lever to lower the loader arm slowly.*

**8** Install the articulation lock.

**9** Stop the engine and remove the starter key.

**10** Disconnect the battery to prevent accidental operation of the engine.

**11** If necessary, put chocks against the two sides of the wheels before you get below the machine.

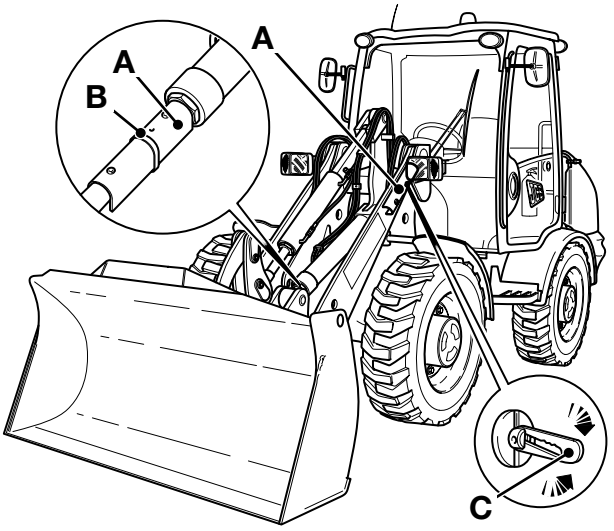


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**Fig 2.**

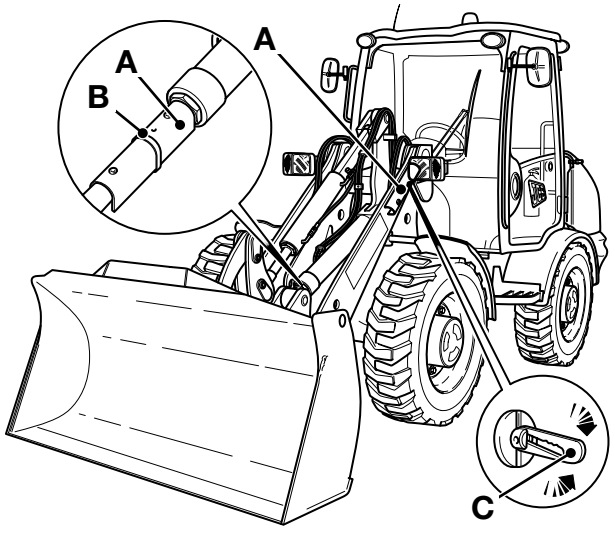


**Fig 3.**

**Remove the Maintenance Strut**

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13-2-3-7_3

**1** Make sure the park brake is engaged and the transmission is in neutral.

**2** Raise the loader arm to remove the weight from maintenance strut **A**. Stop the engine.

**3** Remove the maintenance strut:

**a** Release the strap **C**.

**b** Remove the maintenance strut **A**.

**c** Put the maintenance strut in its stowage position and secure with the latch **B**.

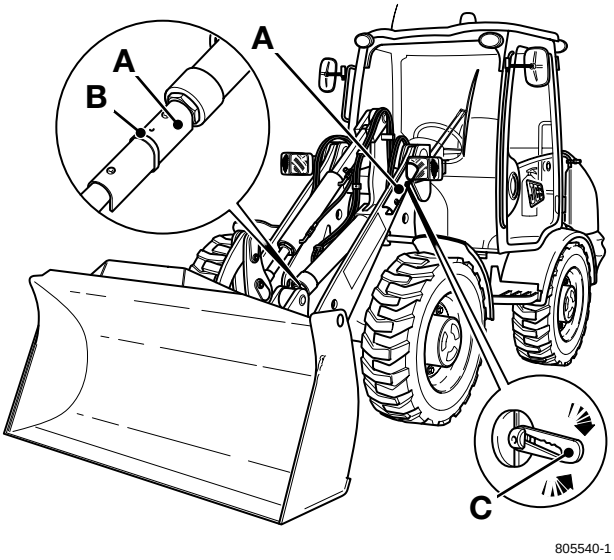


**Fig 4.**

# Cleaning the Machine

## Introduction

T3-062_2

Clean the machine using water and or steam. Do not allow mud, debris etc. to build upon the machine.

Before carrying out any service procedures that require components to be removed:

1 Cleaning must be carried out either in the area of components to be removed or, in the case of major work, or work on the fuel system, the whole engine and surrounding machine must be cleaned.

2 When cleaning is complete move the machine away from the wash area, or alternatively, clean away the material washed from the machine.

***Important:*** *When removing components be aware of any dirt or debris that may be exposed. Cover any open ports and clean away the deposits before proceeding.*

### Detergents

Avoid using full strength detergent - always dilute detergents as per the manufacturer's recommendations, otherwise damage to the paint finish may occur.

Always adhere to local regulations regarding the disposal of debris created from machine cleaning.

### Pressure Washing and Steam Cleaning

**⚠ WARNING**

**When using a steam cleaner, wear safety glasses or a face shield as well as protective clothing. Steam can cause serious personal injury.**

13-3-2-10_2

**⚠ CAUTION**

**The engine or certain components could be damaged by high pressure washing systems; special precautions must be taken if the engine is to be washed using a high pressure system.**

**Ensure that the alternator, starter motor and any other electrical components are shielded and not directly cleaned by the high pressure cleaning system.**

ENG-3-3

***Important:*** *Do not aim the water jet directly at bearings, oil seals or electrical and electronic components such as the engine electronic control unit (ECU), alternator or fuel injectors.*

Use a low pressure water jet and brush to soak off caked mud or dirt.

Use a pressure washer to remove soft dirt and oil.

***Note:*** *The machine must always be greased after pressure washing or steam cleaning.*

## Preparing the Machine for Cleaning

1 Make the machine safe with the loader arm lifted. Refer to ***Prepare the Machine for Maintenance***.

***Important:*** *Stop the engine and allow it to cool for at least one hour. Do not attempt to clean any part of the engine while it is running.*

2 Make sure that all electrical connectors are correctly coupled. If connectors are open fit the correct caps or seal with water proof tape.

# Checking for Damage

## Check the Machine Body and Structure

T3-063_5

Make sure that all guards and protective devices are in place, attached by their locking devices and free from damage.

Inspect all steelwork for damage. Pay particular attention to the following:

- Inspect all lifting point welds.
- Inspect all pivot point welds.
- Inspect the condition of all pivot pins.
- Check pivot pins are correctly in place and secured by their locking devices.

Check steps and handrails are undamaged and secure.

Check for broken, cracked or crazed window glass and mirrors. Replace damaged items.

Check all lamp lenses for damage.

Check all attachment teeth are undamaged and secure.

Check all safety and instructional labels are in place and undamaged. Fit new labels where necessary.

Note damaged paintwork for future repair.

## Check the Tyres

T3-065_2

### ⚠ WARNING

**You could be killed or injured if a machine tyre bursts. Do not use the machine with damaged, incorrectly inflated or excessively worn tyres. Recognise the speed limitation of the tyres fitted and do not operate at more than their recommended maximum speed.**

13-2-1-2

Always drive with consideration for the condition of the tyres. Incorrect tyre pressures will affect the stability of the machine. Check the tyres daily for the correct tyre pressure and signs of damage. For example:

- Signs of distortion (bulges)
- Cuts or wear
- Embedded objects (nails, etc.)

Install the valve caps firmly to prevent dirt from entering the valve. Inspect for leaks when you check the tyre pressures.

Inspect the tyre valve for leaks, when you check the tyre pressures.

## Check the Seat and Seat Belt

T3-008_2

### ⚠ WARNING

**When a seat belt is fitted to your machine replace it with a new one if it is damaged, if the fabric is worn, or if the machine has been in an accident. Fit a new seat belt every three years.**

2-3-1-7_1

Inspect the seat belt for signs of fraying and stretching. Check that the stitching is not loose or damaged. Check that the buckle assembly is undamaged and works correctly.

Check that the belt mounting bolts are undamaged, correctly fitted and tightened.

Check seats are undamaged and secure. Check seat adjustments for correct operation.

## Check the Electrical Circuits

T3-099

Inspect the electrical circuits regularly for:

- Damaged connectors
- Loose connections
- Chafing on wiring harnesses
- Corrosion
- Missing insulation
- Incorrect routing of harness

Do not use the machine if one or more of these faults are found. You must make sure that the electrical circuit is repaired immediately.

## Checking the ROPS Structure

**WARNING**

**You could be killed or seriously injured if you operate a machine with a damaged or missing ROPS/FOPS. If the Roll Over Protection Structure (ROPS)/Falling Objects Protection Structure (FOPS) has been in an accident, do not use the machine until the structure has been renewed. Modifications and repairs that are not approved by the manufacturer may be dangerous and will invalidate the ROPS/FOPS certification.**

INT-2-1-9_6

**1** Check the structure for damage.

**2** Make sure that all the ROPS mounting bolts are in place and are undamaged.

**3** Make sure that the ROPS mounting bolts are tightened to the correct torque setting. This should be 135 Nm (99.5 lbf ft).

## Check the Hydraulic Hoses and Fittings

T3-072

**WARNING**

**Hydraulic Hoses**

**Damaged hoses can cause fatal accidents. Inspect the hoses regularly. Do not use the machine if a hose or hose fitting is damaged.**

INT-3-3-2_4

Inspect the hoses regularly for:

- Damaged hose ends
- Chafed outer covers
- Ballooned outer covers
- Kinked or crushed hoses
- Embedded armouring in outer covers
- Displaced end fittings

Do not use the machine if a hose or hose fitting is damaged. Replace damaged hoses before you use the machine again.

Replacement hoses must be of the same size and standard.