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In this handbook and on the machine there are safety notices. Each notice starts with a signal word. The meanings of the signal words are given below.

⚠ DANGER

Denotes an extreme hazard exists. If proper precautions are not taken, it is highly probable that the operator (or others) could be killed or seriously injured.
INT-1-2-1

⚠ WARNING

Denotes a hazard exists. If proper precautions are not taken, the operator (or others) could be killed or seriously injured.
INT-1-2-2

⚠ CAUTION

Denotes a reminder of safety practices. Failure to follow these safety practices could result in injury to the operator (or others) and possible damage to the machine.
INT-1-2-3

⚠ WARNING

Study This Handbook Before Starting The Machine

You must understand and follow the instructions in this handbook. You must observe all relevant laws and regulations. If you are unsure about anything, ask your JCB distributor or employer. **Do not guess**, you or others could be killed or seriously injured.
INT-1-1-1

⚠ CAUTION

Do not fit an attachment to this machine which is not JCB approved. Consult your JCB distributor before fitting any non approved attachment.
8-4-1-6

MACHINE SECURITY

Vandalism and theft of unattended machines is an ever increasing problem and JCB is doing everything possible to help combat this.

JCB PLANTGUARD is a comprehensive package available to help you safeguard your machine. It includes such devices as vandal proof covers, window etching, immobiliser, concealed serial number, battery isolator, Tracker security system and much more.

Remember that the fitting of any one of these security devices will help to minimise not only the damage or loss of your machine but also subsequent lost productivity. It could also result in reduced insurance premiums.

Your JCB Distributor or Dealer will be pleased to provide information on any of these sensible precautions. ACT NOW!
INT-1-2-4

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DRIVE CONTROLS, SWITCHES AND INSTRUMENTS

Controls

1 Accelerator Pedal

Push this pedal down to increase the engine speed. Let the pedal up to reduce the engine speed. With your foot off the pedal, the engine will idle (700-750 RPM).

2 Brake Pedal

Push down on the brake pedal to slow or stop the machine. Use the brakes to prevent overspeeding down a slope.

3 Parking Brake Lever

Use this lever to engage the parking brake before leaving the machine. With the parking brake engaged, an audible warning will sound, the master warning light will illuminate and the “PARK BRAKE” message will be displayed, when the forward/reverse lever is moved away from neutral (**N**).

To engage the parking brake, pull the lever up as shown. Check that the indicator light comes on.

To release the parking brake, lower the lever as far as it will go. Check that the indicator light goes out.

⚠ CAUTION

The parking 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 parking brake has been used in an emergency, always renew the brake pads.
4-2-1-1-/1

Parking Brake Transmission Disconnect

When fully engaged, the parking brake electrically disconnects the transmission drive; this prevents the machine from being driven with the parking brake on, effective in ranges 1 and 2 only.

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CAB LAYOUT

1 Steering Wheel

2 Display Panel (see Page 35)

3 Steering Column Switch (see Page 30)

4 Engine Starter/Stop Switch (see Page 32)

5 Steering Column Tilt Lock (see Page 33)

6 Accelerator Pedal (see Page 27)

7 Parking Brake Lever (see Page 27)

8 Brake Pedal (see Page 27)

9 Master Warning Light (see Page 37)

10 Forward/Reverse Lever (see Page 29)

11 Gear Change Switch (see Page 28)

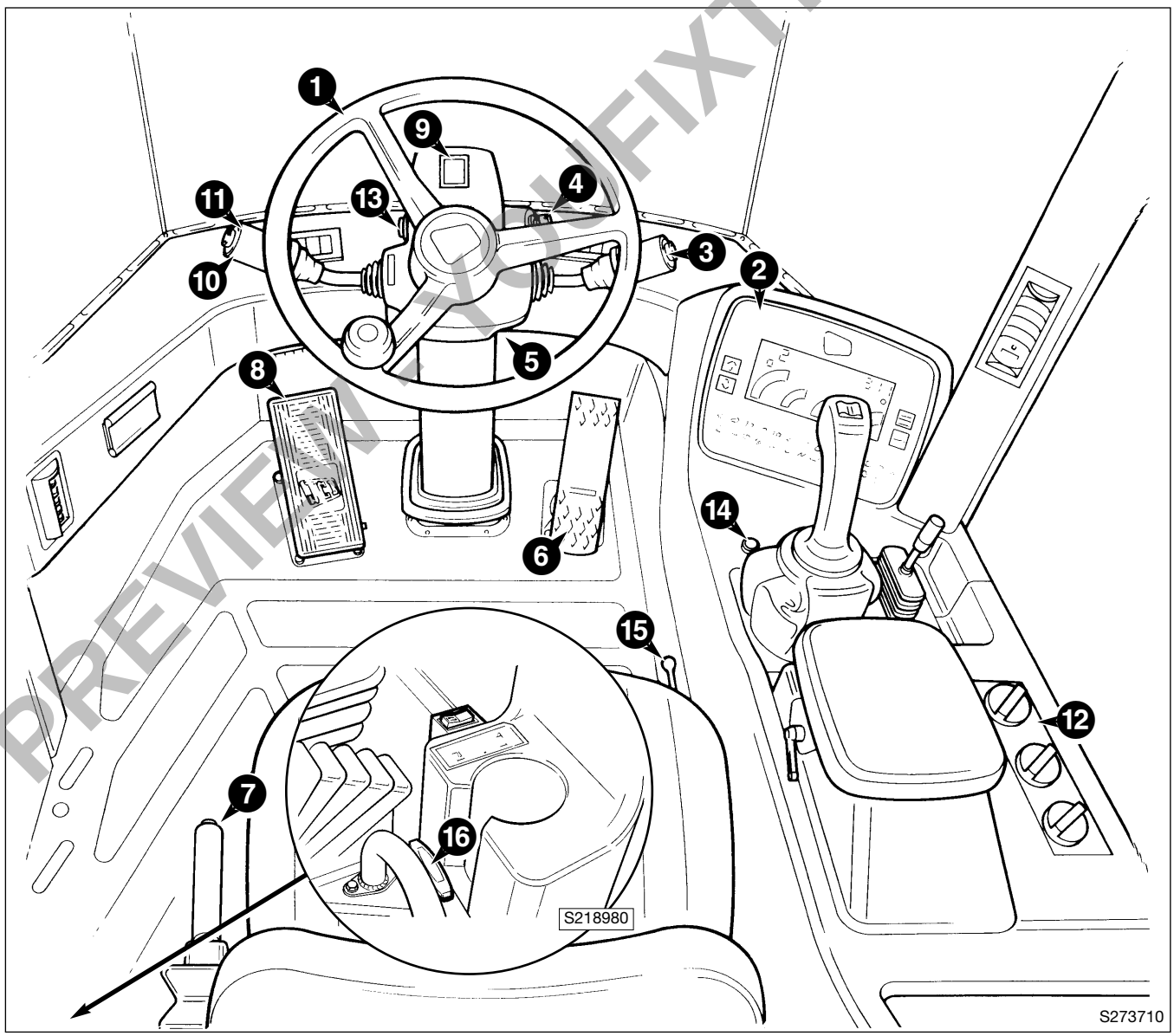
12 Heater Controls (see Page 39)

13 Hazard Light Switch (see Page 31)

14 Warning Light Test Switch (see Page 38)

15 Loader Controls Lock (see Page 34)

16 Tow Hitch Lock (see Page 57)



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INTRODUCTION

This part of the handbook provides information on the optional attachments which are available for the JCB Wheeled Loader.

INTRODUCTION

A wide range of optional attachments is available to increase the versatility of your machine. Only JCB approved attachments can be used with your machine. Consult your JCB Distributor for the full list of approved attachments available.

JCB attachments are designed and manufactured specifically to suit the machine's hydraulic system, mounting arrangements and safe load requirements. Attachments which are not designed for use with this machine may cause damage and create safety hazards for which JCB cannot be held responsible. In addition the machine's warranty will be affected by the use of non-approved attachments and also the "CE" compliance, where applicable, will be invalidated.
2-4-1-13/2

For other JCB attachments this information is provided in the form of a specific handbook supplied with each attachment. General installation and removal procedures for these attachments are, however, included here.

Before installing, using or removing any optional attachment, make sure you read and understand the information provided. If there is anything you do not understand, ask your JCB distributor.

Various attachments are available for the 412S/414S Wheeled Loaders. Install and remove these attachments as described on the following pages.

⚠ CAUTION

If you have an attachment which is not covered in this handbook, don't install it, use it or remove it until you have obtained, read and understood the pertinent information. Install attachments only on the machines for which they were designed.
5-5-1-1

Should you consider fitting an attachment from an alternative manufacturer, we strongly recommend that you first seek the expert advice of your JCB Distributor to ascertain the compatibility of the attachment with the machine.

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TRANSMISSION (continued)

Changing the Oil and Filter (414S)

⚠ WARNING

Make the machine safe before getting beneath it. Lower the attachments to the ground; engage the parking brake; remove the starter key, disconnect the battery.
2-3-2-2

1 Place a container that can hold 20 litres (4.5 gal.) beneath the machine. *(To catch the oil).*

2 Remove dipstick **A** and drain plug **B**. Allow oil to drain into the container.

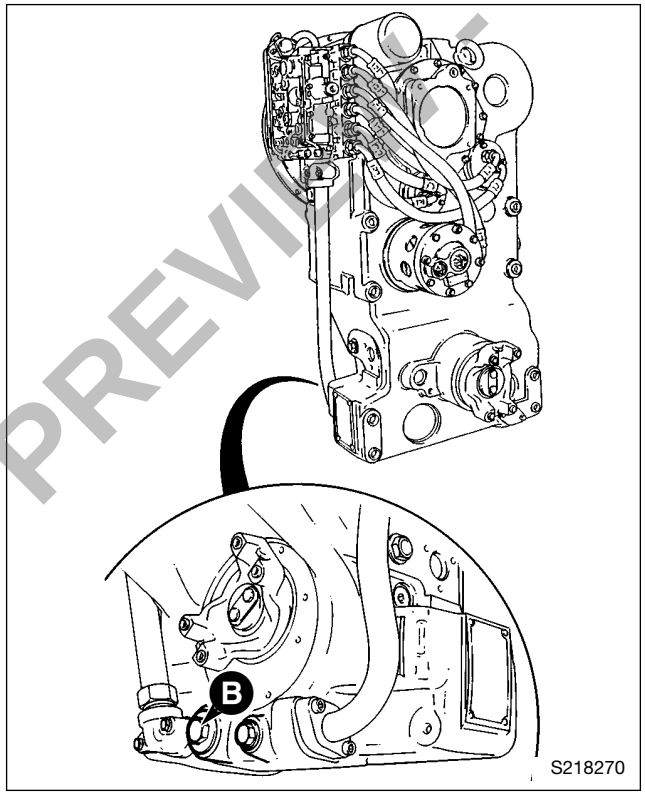
3 Clean and refit plug **B**

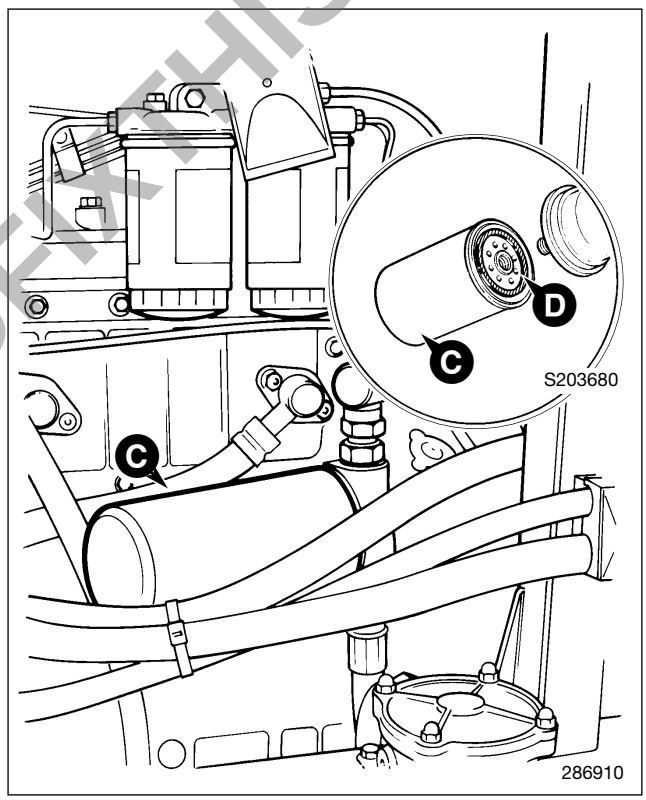
4 Unscrew and discard filter **C**. Clean the mounting face and lubricate the seal **D** on the new filter with clean transmission fluid.

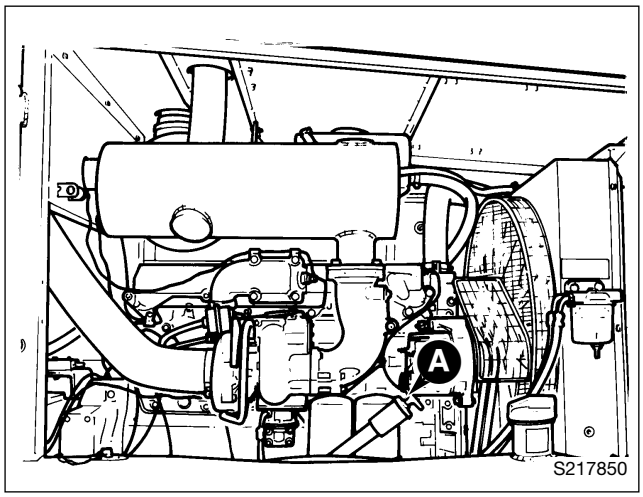
5 Fit the new filter - **hand tight only**.

6 Fill the system with new oil at dipstick/filler point **A**.

***Note: Do not** fill past the top mark on the dipstick.*







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GENERAL SAFETY

When working on a Wheeled Loader, the machine must be made safe before carrying out any servicing.

Position the machine on firm level ground. Engage the parking brake.

Chock both sides of all four wheels.

Make sure the transmission is in neutral.

Lower the loader arms to the ground; make sure that the shovel/attachment is flat on the ground to prevent accidental movement.

Fit the articulation lock.

Switch OFF the engine and remove the starter key.

Operate the controls to vent residual pressure.

If working with the loader arms raised, fit the loader arm safety strut.

If working on an area not reachable when standing on the ground, use a suitable stable working platform.

⚠ WARNING

Maintenance must be done by suitably qualified personnel. Before attempting any maintenance work, make sure the machine is safe. Park on level ground. If it is necessary to work with the loader arm raised, then the loader arm safety strut must be fitted. *See Loader Arm Safety Strut in MAINTENANCE section*. The articulation lock must be fitted if you are inspecting and/or doing any maintenance work in the articulation danger zone. *See Installing the Articulation Lock in MAINTENANCE section.*

4-3-1-1

SERVICE SCHEDULES

A badly maintained machine is a danger to the operator and the people working around him. Make sure that the regular maintenance and lubrication jobs listed in the schedules are done to keep the machine in a safe and efficient working condition.

The schedules are based on machine running hours. Keep a regular check on the hourmeter readings. Do not use a machine which is due for a service. Make sure any defects found during the regular maintenance checks are rectified immediately.

Pre-start Cold Checks Maintenance Points and Fluid Levels	**Operation**	**10 Hr**	**100 Hr**	**250 Hr**	**As and When**	**500 Hr**	**1000 Hr**	**2000 Hr**
ENGINE								
Oil level	- Check	❑	❑					
Oil and Filter	- Change			❑		❑	❑	❑
Air Cleaner Outer Element	- Change				❑			
Air Cleaner Inner Element (Every 3rd Outer Element)	- Change				❑			
Fuel Filter	- Drain				❑			
Fuel Filter	- Change					❑	❑	❑
Coolant Level	- Check	❑	❑	❑		❑	❑	
Antifreeze Strength	- Check				❑			
Coolant	- Change							❑
Fuel Sedimenter	- Drain				❑			
Fan Belt Tension/Condition	- Check			❑		❑	❑	❑
Valve Clearances (412S AB Build/414S YB Build)	- Check and Adjust							❑
Valve Clearances (412S AM Build/414S YH Build)	- Check and Adjust						❑	
Engine Mount Security	- Check					❑	❑	❑
Air Compressor Belt Tension/Condition (if fitted)	- Check			❑		❑	❑	❑

Note: *412S AM Engine build from Machine Serial No. 535353*
414S YH Engine build from Machine Serial No. 537161

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DISPLAY PANEL (continued)

Warning Lights

Visual Warning Only



Direction Indicators
Left or Right flashes with the direction indicators. Both flash when Hazard Warning Lights are on. Use the indicators to signal before turning.



Hazard Warning
Flashes with the hazard warning lights (even with the starter switch at O). Switch the flashers on whenever your machine is a possible hazard.



Side Lights On
Lights up when the side lights are switched on.



Main Beam On
Lights up when the headlight main beams are switched on. Switch the main beams off for on-coming vehicles.



Dip Beam On
Lights up when the headlight dipped lights are switched on.



Front Work Lights On
Lights up when the front work lights are switched on.



Rear Work Lights On
Lights up when the rear work lights are switched on.



Rear Fog Light On
Lights up when the rear fog light is switched on.



Emergency Steer Pump *(If fitted)*
Lights up when the emergency steering system is operating. ie. When the machine is moving.



Parking Brake Engaged
Lights up when the parking brake is engaged.

Visual Warning plus Buzzer and Message

The message associated with these warnings will be displayed on the top line of the display panel.



Battery Voltage Low
Lights up when the battery voltage is low. “BATTERY LOW”



No Charge
Operates when the battery charging circuit fails while the engine is running. The light should go out a few seconds after the engine is started. “ALTERNATOR”



Engine Oil Pressure Low
Operates if the engine oil pressure drops too far. The light should go out when the engine is started. “ENG OIL PRESS”



Brake System Pressure Low
Lights up when the brake system pressure is low. “BRAKE FAILURE”



Transmission Oil Pressure Low
Operates if the transmission oil pressure drops too far. The light should go out when the engine is started. “TRANS OIL PRESS”



Main Steer System *(If fitted)*
Lights up if the main hydraulic system pressure fails. Stop the machine as soon as it is safe to do so and rectify the fault. “STEERING PRESS”



Hydraulic Fluid Temperature High
Operates if the hydraulic fluid temperature rises too high. “HYD OIL TEMP”



Transmission Oil Temperature High
Operates if the transmission oil temperature rises too high. “TRANS OIL TEMP”



Water Temperature High
Operates if the engine coolant temperature rises too high. “COOLANT TEMP”



Air Filter Blocked
Operates if the engine air filter clogs up. “AIR FLTER BLKD”

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