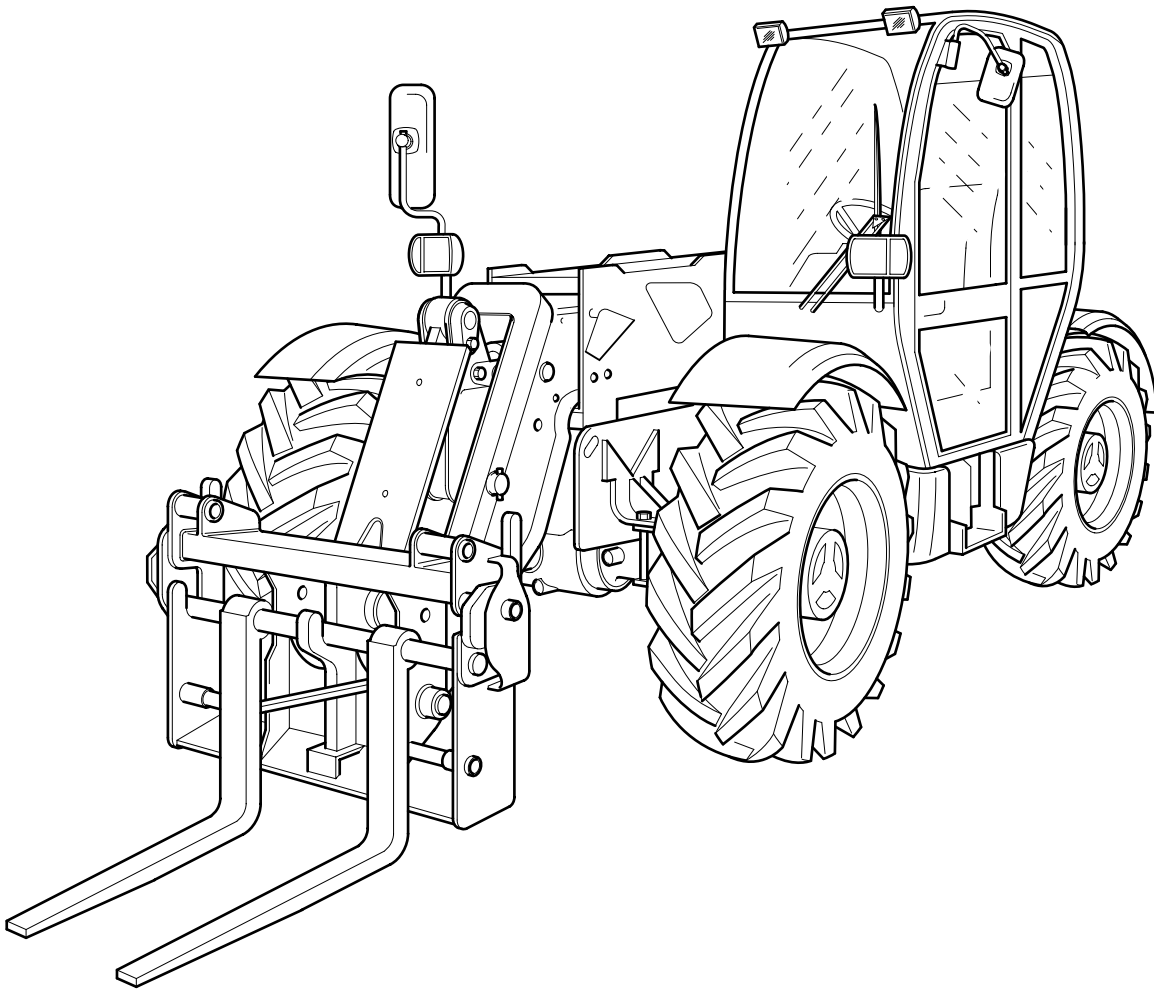


Operator Handbook



**530, 532, 533, 535, 537,
540**

⚠ THIS HANDBOOK MUST BE KEPT IN THE MACHINE AT ALL TIMES ⚠

SAFETY NOTICES

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

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

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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ABOUT THIS HANDBOOK

Machine Model and Serial Number

This handbook provides information for the following models in the JCB machine range.

530 from Serial No. 768740
 530FS Plus
 530FS Super (530SXL France)
 532 from Serial No. 768700
 533-105
 535 from Serial No. 777362
 537 from Serial No. 768700
 540-70 from Serial No. 771026
 540-170
 540FS Plus
 540FS Super (540SXL France)

Using this Handbook

The illustrations in this handbook are for guidance only. Where the machines differ, the text and/or the illustration will specify.

This handbook is arranged to give you a good understanding of the machine and its safe operation. It also contains maintenance information and specification data. Read this handbook from front to back before using the machine for the first time. Particular attention must be given to all the safety aspects of operating and maintaining the machine.

General warnings in this chapter are repeated throughout the book, as well as specific warnings. Read all the safety statements regularly, so you do not forget them. Remember that the best operators are the safest operators.

Finally, treat this handbook as part of the machine. Keep it clean and in good condition. Do not operate the machine without a handbook in the cab. If there is anything you are not sure about, ask your JCB distributor or employer. Do not guess, you or others could be killed or seriously injured.

The manufacturer's policy is one of continuous improvement. The right to change the specification of the machine without notice is reserved. No responsibility will be accepted for discrepancies which may occur between specifications of the machine and the descriptions contained in this publication.

INT-1-2-5/1

Units of Measurement

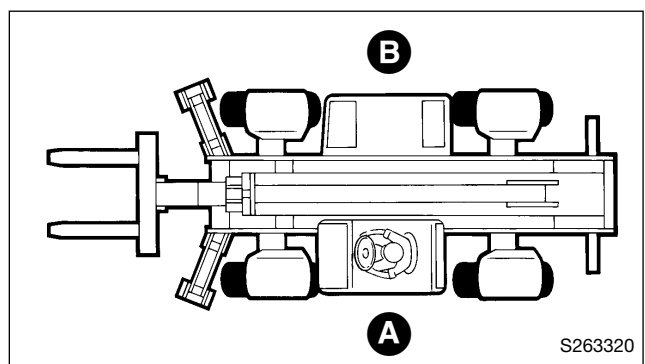
In this handbook, the S.I. system of units is used. For example, liquid capacities are given in litres. The Imperial units follow in parenthesis () eg 28 litres (6 gal).

Page Numbering

The page numbering system in this handbook is not continuous. There is a gap of about ten pages between sections. This allows for the insertion of new pages in later issues of the handbook.

Left Side, Right Side

In this handbook, 'left' **A** and 'right' **B** mean your left and right when you are seated correctly in the machine.



Using the Machine

To use the machine efficiently **and safely** you must know the machine and have the skill to use it. You must abide by all relevant laws, health and safety regulations that apply to the country you are operating in. This handbook instructs you on the machine, its controls and its safe operation. It is not a training manual on the art of loading. If you are a new operator, get yourself trained in the skills of using a machine before trying to work with it. If you don't, you will not do your job well, **and you will be a danger to yourself and others.**

Page Cross References

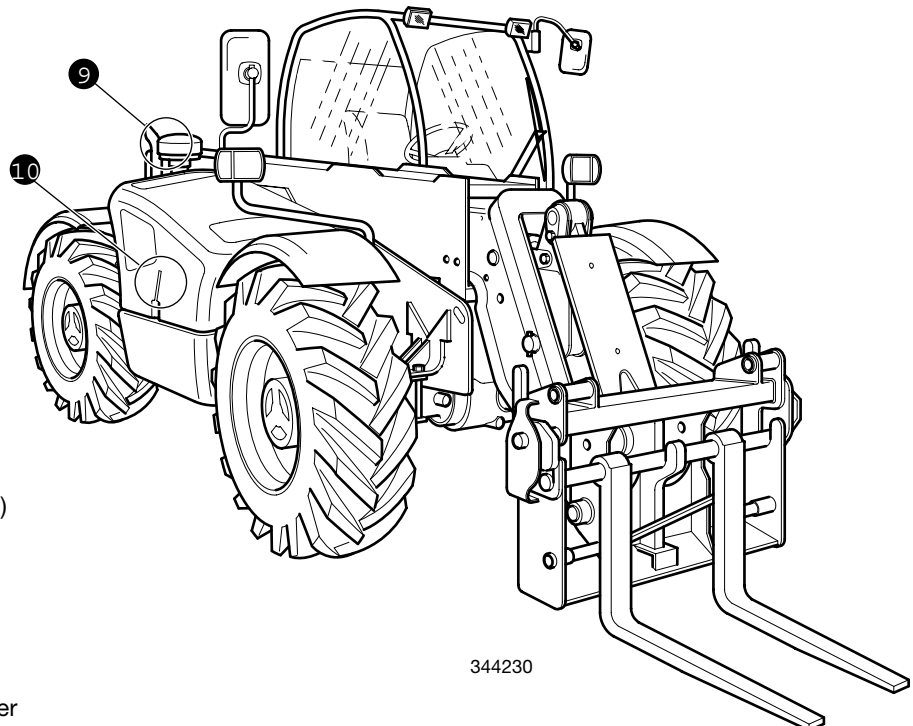
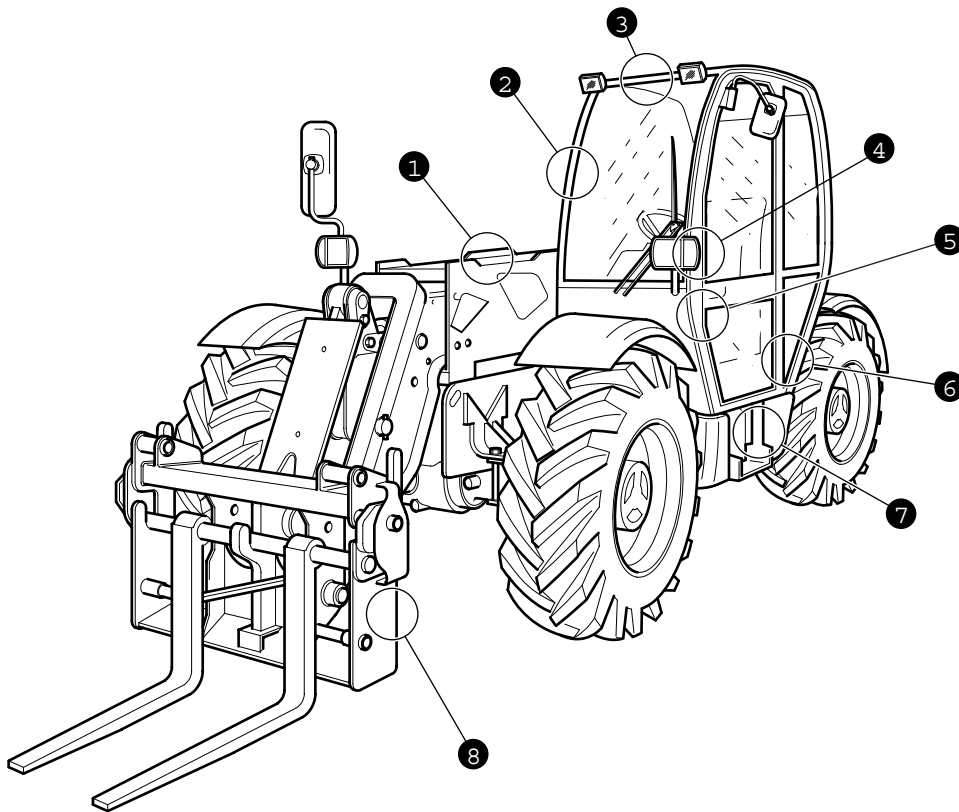
In this handbook, page cross references are made by presenting the subject title printed in bold and italic to signify a cross reference. (This is followed by the title of the section containing the subject). For example:

Make sure the tyres are correctly inflated, see ***Tyre Pressures*** (*SPECIFICATION section*) for the correct tyre pressures and ***Inflating the Tyres*** (*MAINTENANCE section*) for a safe procedure for inflating the tyres.

MACHINE DESCRIPTION

Self propelled, seated operator, wheeled machine for operation on unimproved natural terrain and disturbed terrain. A main structural support is designed to carry an extending boom with a carriage mounted on the front to which forks or an approved attachment can be fitted.

When used normally the machine lifts and places loads by extending/retracting, raising/lowering the boom.



Component Locations

- | | |
|----|---------------------------------|
| 1 | 2, 3 or 4 Stage Boom |
| 2 | Load Moment Indicator (LMI) |
| 3 | ROPS/FOPS Cab |
| 4 | Brake Fluid Reservoir |
| 5 | Fuses & Relays |
| 6 | Fuel Filter |
| 7 | Battery & Fuel Sediment |
| 8 | Quick-Fit Carriage |
| 9 | Optional Air Filter Pre-Cleaner |
| 10 | Side Mounted Engine |

344230

SAFETY - YOURS AND OTHER PEOPLE'S

All construction and agricultural equipment can be hazardous. When the machine is correctly operated and properly maintained, it is a safe machine to work with. But when it is carelessly operated or poorly maintained it can become a danger to you (the operator) and others.

In this handbook and on the machine you will find warning messages. Read and understand them. They tell you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your employer or JCB distributor to explain them.

But safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking what hazards there might be and how to avoid them.

Do not work with the machine until you are sure that you can control it.

Do not start any job until you are sure that you and those around you will be safe.

If you are unsure of anything, about the machine or the job, ask someone who knows. Do not assume anything.

Remember

**BE CAREFUL
BE ALERT
BE SAFE**

INT-1-31/1

SAFETY - CHECK LIST

As well as the warnings in this chapter, specific warnings are given throughout the book. This section is designed to give a safety code for use of the machine generally and for operation and maintenance practices.

General Safety

WARNING

Handbook

You and others can be injured if you operate or maintain the machine without first studying this handbook. Read the safety instructions before operating the machine. If you do not understand anything, ask your employer or JCB distributor to explain it. Keep this handbook clean and in good condition. Do not operate the machine without a handbook in the cab, or if there is anything on the machine you do not understand.

INT-1-3-2

WARNING

Decals

You can be injured if you do not obey the decal safety instructions. Keep decals clean. Replace unreadable or missing decals with new ones before operating the machine. Make sure replacement parts include warning decals where necessary.

INT-1-3-4

CAUTION

Hazardous Atmospheres

This machine is designed for use in normal out door atmospheric conditions. It should not be used in an enclosed area without adequate ventilation. Do not use the machine in a potentially explosive atmosphere, ie. combustible vapours, gas or dust, without first consulting your JCB Distributor.

INT-2-1-14

WARNING

Clothing

You can be injured if you do not wear proper clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are: a hard hat, safety shoes, safety glasses, a well-fitting overall, ear-protectors and industrial gloves. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained.

INT-1-3-6

WARNING

Care and Alertness

All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be alert for hazards.

INT-1-3-5

DANGER

Lightning

Lightning can kill you. Do not use the machine if there is lightning in your area.

5-1-1-2

WARNING

Raised Boom

A raised boom can fall or be lowered accidentally. Do not walk under a raised boom which is not fitted with a safety strut, or you could be injured.

5-1-1-1

WARNING

Lifting Equipment

You can be injured if you use faulty lifting equipment. Make sure that lifting equipment is in good condition. Make sure that lifting tackle complies with all local regulations and is suitable for the job. Make sure the lifting equipment is strong enough for the job.

INT-1-3-7

SAFETY CHECK LIST (continued)

Operating Safety

WARNING

Practice

You and others can be killed or seriously injured if you do unfamiliar operations without first practising them. Practice away from the work site on a clear area. Keep other people away. Do not perform new operations until you are sure you can do them safely.

INT-2-1-1

WARNING

Machine Condition

A defective machine can injure you or others. Do not operate a machine which is defective or has missing parts. Make sure the maintenance procedures in this handbook are completed before using the machine.

INT-2-1-2

WARNING

Machine Limits

Operating the machine beyond its design limits can damage the machine, it can also be dangerous. Do not operate the machine outside its limits. Do not try to upgrade the machine performance with unapproved modifications.

INT-2-1-4

CAUTION

Work Site

Work sites can be hazardous. Inspect the site before working on it. Check for potholes, weak ground, hidden rocks etc. Check for utilities (*electric cables, gas and water pipes etc.*) Mark the positions of underground cables and pipes. Make sure you have enough clearance beneath overhead cables and structures. See **Working With the Loadall** (OPERATION section) for more information about the danger of electrical cables.

5-1-3-1/1

DANGER

Sparks

Explosions and fire can be caused by sparks from the exhaust or the electrical system. Do not use the machine in closed areas where there is flammable material, vapour or dust.

INT-2-2-10

WARNING

Safe Working Loads

Overloading the machine can damage it and make it unstable. Study the lifting and/or digging specifications in this handbook before using the attachments

INT-2-2-11/1

WARNING

ROPS/FOPS Structure

The machine is fitted with a Roll Over Protection Structure (ROPS) and a Falling Objects Protection Structure (FOPS). You could be killed or seriously injured if you operate the machine with a damaged or missing ROPS/FOPS. If the ROPS/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-2-1-9/3

WARNING

Engine/Steering Failure

If the engine or steering fails, stop the machine as quickly as possible. Do not operate the machine until the fault has been corrected.

INT-2-1-5

WARNING

Passengers

Passengers in or on the machine can cause accidents. The JCB Loadall is a one man machine. Do not carry passengers.

INT-2-2-2

WARNING

Exhaust Gases

Breathing the machine exhaust gases can harm and possibly kill you. Do not operate the machine in closed spaces without making sure there is good ventilation. If possible, fit an exhaust extension. If you begin to feel drowsy, stop the machine at once. Get out of the cab into fresh air.

INT-2-1-10

WARNING

Communications

Bad communications can cause accidents. Keep people around you informed of what you will be doing. If you will be working with other people, make sure any hand signals that may be used are understood by everybody. Work sites can be noisy, do not rely on spoken commands.

INT-2-2-3

WARNING

Visibility

Accidents can be caused by working in poor visibility. Keep windows clean and use your lights to improve visibility. Do not operate the machine if you can not see properly.

INT-2-1-11

SAFETY CHECK LIST (continued)

WARNING

Scaffolding

Overloaded scaffolding can collapse. Never load scaffolding beyond the regulation capacity.
5-1-4-6

DANGER

Forks/Working Platform

Using the forks alone as a working platform is hazardous; you can fall off and be killed or injured. Never use the forks as a working platform.
5-1-5-3

CAUTION

Regulations

Obey all laws, work site and local regulations which affect you or your machine.
INT-1-3-3

WARNING

Forks/Turning

The forks extend beyond the end of the boom. Make sure there is enough clearance for the forks when making turns.
5-1-5-4

WARNING

Fires

If your machine is equipped with a fire extinguisher, make sure it is checked regularly. Keep it in the operators cab until you need to use it.

Do not use water to put out a machine fire, you could spread an oil fire or get a shock from an electrical fire. Use carbon dioxide, dry chemical or foam extinguishers. Contact your nearest fire department as quickly as possible. Firefighters should use self-contained breathing apparatus
INT-3-2-7/1

Maintenance Safety

WARNING

Repairs

Do not try to do repairs or any other type of maintenance work you do not understand. Get a Service Manual from your JCB distributor, or get the work done by a specialist engineer.
INT-3-1-1

WARNING

Modifications and Welding

Non-approved modifications can cause injury and damage. Parts of the machine are made from cast iron; welds on cast iron can weaken the structure and break. Do not weld cast iron. Contact your JCB distributor for advice before modifying the machine.
INT-3-1-2/1

WARNING

Metal Splinters

You can be injured by flying metal splinters when driving metal pins in or out. Use a soft-faced hammer or drift to remove and fit metal pins. Always wear safety glasses.
INT-3-1-3

WARNING

Asbestos

Asbestos dust can damage your lungs. Some engine gaskets contain asbestos. Do not dismantle the engine or exhaust system; get these jobs done by a qualified person who has a copy of the engine service manual.
5-1-6-1

WARNING

Boom Safety Strut

A raised boom can drop suddenly and cause serious injury. Before working under a raised boom, fit the boom safety strut. See **Boom Safety Strut (MAINTENANCE section)**.
5-1-5-7

WARNING

Communications

Bad communications can cause accidents. If two or more people are working on the machine, make sure each is aware of what the others are doing. Before starting the engine make sure the others are clear of danger areas; examples of danger areas are: the rotating blades and belt on the engine, the attachments and linkages, and anywhere beneath or behind the machine. People can be killed or injured if these precautions are not taken.
INT-3-1-5

WARNING

Oil

Oil is toxic. If you swallow any oil, do not induce vomiting, seek medical advice. Used engine oil contains harmful contaminants which can cause skin cancer. Do not handle used engine oil more than necessary. Always use barrier cream or wear gloves to prevent skin contact. Wash skin contaminated with oil thoroughly in warm soapy water. Do not use petrol, diesel fuel or paraffin to clean your skin.
INT-3-2-3

SAFETY CHECK LIST (continued)

WARNING

Hydraulic Fluid

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help immediately.

INT-3-1-10/1

WARNING

Hydraulic Pressure

Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses, stop the engine and operate the controls to release pressure trapped in the hoses. Make sure the engine cannot be started while the hoses are open.

INT-3-1-11/1

WARNING

Jacking

A machine can roll off jacks and crush you unless the wheels have been chocked. Always chock the wheels at the opposite end of the machine that is to be jacked. Do not work underneath a machine supported only by jacks. Always support a jacked-up machine on axle stands before working underneath it.

INT-3-2-8

WARNING

Hydraulic Hoses

Damaged hoses can cause fatal accidents. Inspect the hoses regularly for:

Damaged end fittings
Chafed outer covers
Ballooned outer covers
Kinked or crushed hoses
Embedded armouring in outer covers
Displaced end fittings.

INT-3-3-2

WARNING

Petrol

Do not use petrol in this machine. Do not mix petrol with the diesel fuel; in storage tanks the petrol will rise to the top and form flammable vapours.

INT-3-1-6

WARNING

Fluoroelastomeric Materials

Certain seals and gaskets (e.g. crankshaft oil seal) on JCB machines contain fluoroelastomeric materials such as Viton, Fluorel and Technoflon. Fluoroelastomeric materials subjected to high temperatures can produce highly corrosive hydrofluoric acid. THIS ACID CAN SEVERELY BURN.

New fluoroelastomeric components at ambient temperature require no special safety precautions.

Used fluoroelastomeric components whose temperatures have not exceeded 300°C require no special safety precautions. If evidence of decomposition (e.g. charring) is found, refer to the next paragraph for safety instructions **DO NOT TOUCH COMPONENT OR SURROUNDING AREA.**

Used fluoroelastomeric components subjected to temperatures greater than 300°C (e.g. engine fire) must be treated using the following safety procedure. Make sure that heavy duty gloves and special safety glasses are worn:

- 1 Ensure that components have cooled then remove and place material into plastic bags.
- 2 Thoroughly wash contaminated area with 10% calcium hydroxide or other suitable alkali solution, if necessary use wire wool to remove burnt remains.
- 3 Thoroughly wash contaminated area with detergent and water.
- 4 Contain all removed material, gloves etc. used in this operation in sealed plastic bags and dispose of in accordance with Local Authority Regulations.

DO NOT BURN FLUOROELASTOMERIC MATERIALS.

If contamination of skin or eyes occurs, wash the affected area with a continuous supply of clean water or with calcium hydroxide solution for 15-60 minutes. Get medical attention immediately.

INT-3-3-5/1

CAUTION

'O' rings, Seals and Gaskets

Badly fitted, damaged or rotted 'O' rings, seals and gaskets can cause leakages and possible accidents. Renew whenever disturbed unless otherwise instructed. Do not use Trichloroethane or paint thinners near 'O' rings and seals.

INT-3-2-12

SAFETY CHECK LIST (continued)

WARNING

Counterweights

Your machine may be fitted with counterweights. They are extremely heavy. Do not attempt to remove them.

INT-3-2-5

WARNING

Raised Machine

NEVER position yourself or any part of your body under a raised machine which is not properly supported. If the machine moves unexpectedly you could become trapped and suffer serious injury or be killed.

INT-3-3-7/1

CAUTION

Arc Welding

Before carrying out arc welding on the machine, disconnect the battery and alternator to protect the circuits and components.

The battery must still be disconnected even if a battery isolator is fitted.

Make sure that the welding earth return path is kept as short as possible. This prevents high currents being induced in the machine chassis or wiring harness.

If the machine is equipped with electronic control units (ECUs), then disconnect them before welding. Failure to disconnect the ECUs could result in irreparable damage to the electronic components.

INT-3-1-15

CAUTION

Under no circumstances must the engine be run with the transmission in gear and only one driving wheel jacked clear of the ground, since the wheel on the ground will move the machine.

INT-3-1-16

CAUTION

Cleaning

Cleaning metal parts with incorrect solvents can cause corrosion. Use only recommended cleaning agents and solvents.

INT-3-2-11

CAUTION

Machine Modifications

This machine is manufactured in compliance with legislative and other requirements. It should not be altered in any way which could affect or invalidate any of these requirements. For advice consult your JCB Distributor.

Reference should also be made to Optional Attachments section where appropriate.

INT-1-3-10

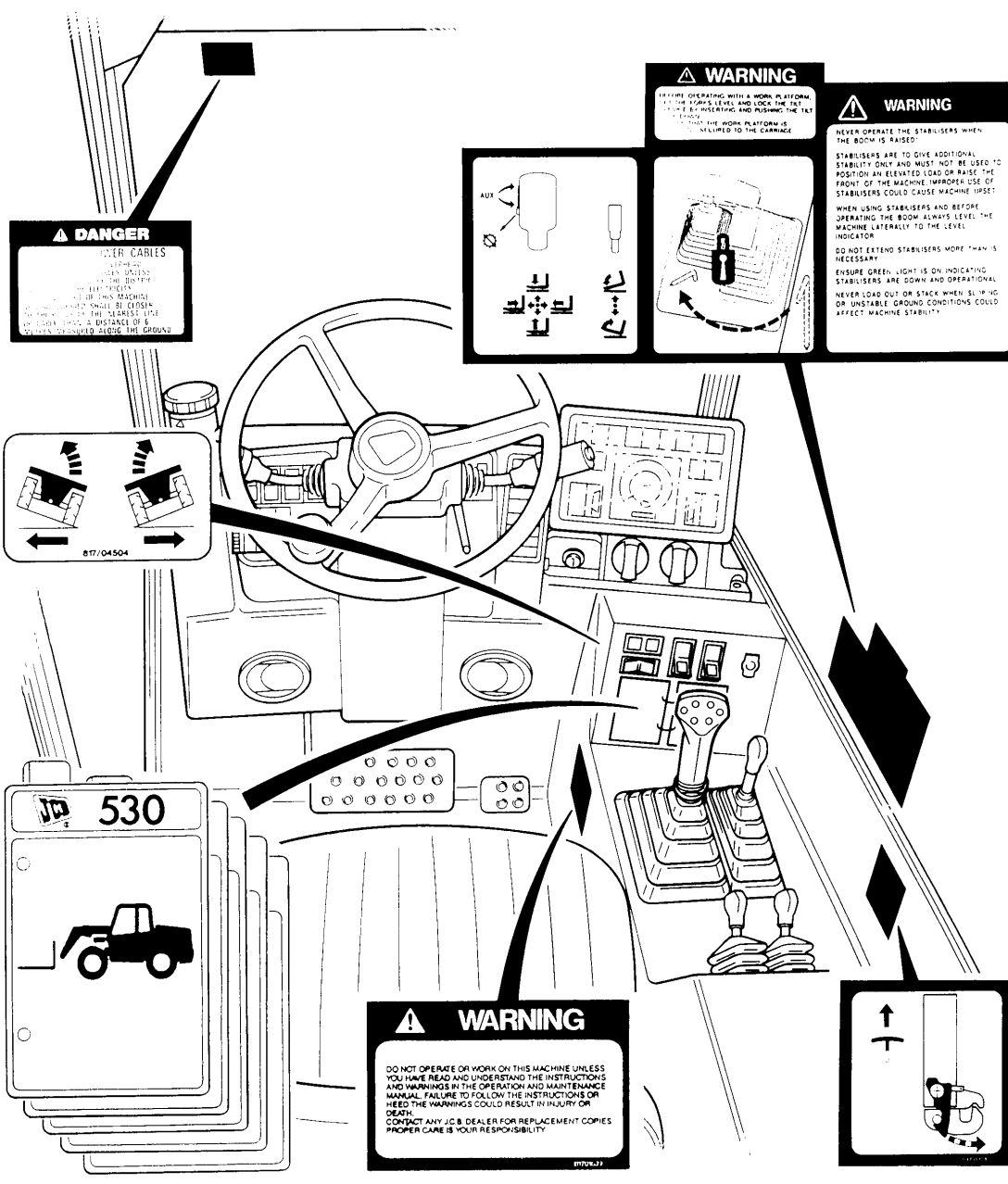
CAUTION

When carrying out welding or grinding operations near soundproofing materials, shield the material from direct flame or sparks as this could cause material to burn.

0084

⚠ WARNING

INT-3-3-3



S278211

IDENTIFYING YOUR MACHINE

Identification Plate

Your machine has an identification plate **V** mounted as shown. The serial numbers of the machine and its major units are stamped on the plate.

The serial number of each major unit is also stamped on the unit itself. If a major unit is replaced by a new one, the serial number on the identification plate will be wrong. Either stamp the new number of the unit on the identification plate, or simply stamp out the old number. This will prevent the wrong unit number being quoted when replacement parts are ordered.

The machine and engine serial numbers can help identify exactly the type of equipment you have.

Typical Machine Identification Number

532 754001

A B

A 500 Series machine range

B Machine Serial number

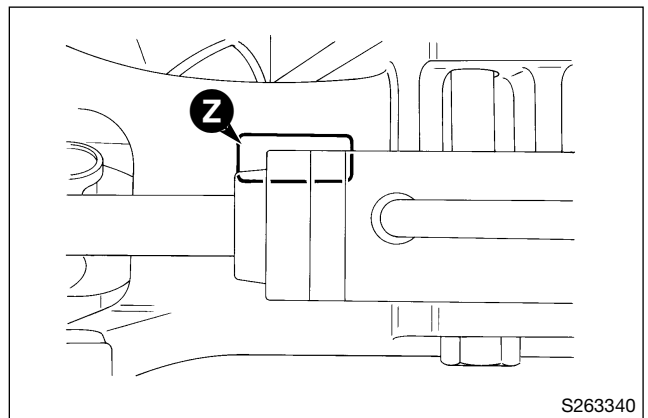
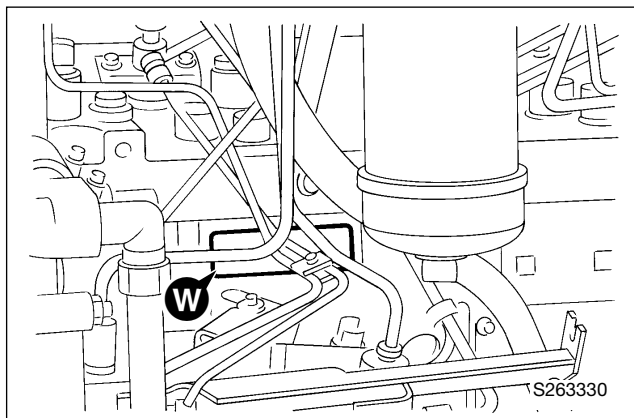
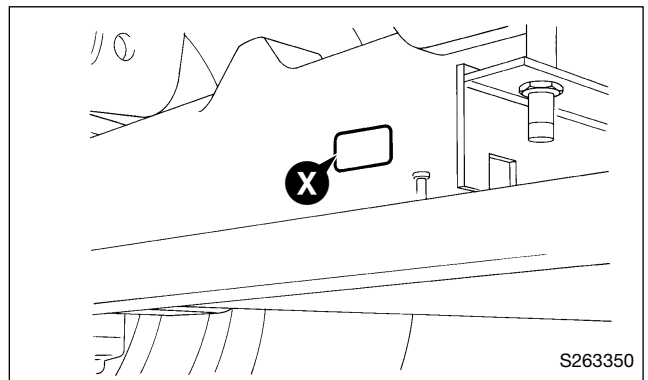
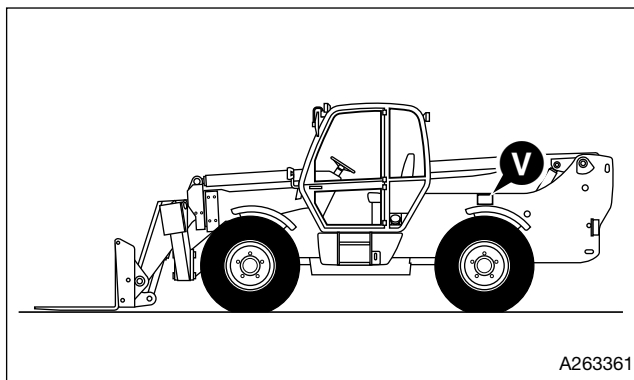
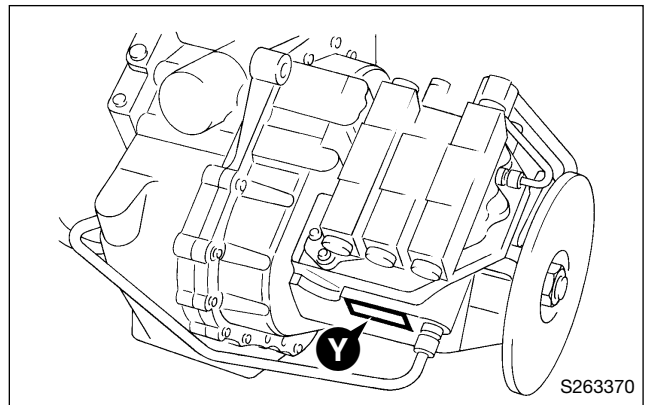
Unit Identification

The engine serial number is stamped on label **W** which is fastened to the right side of the cylinder block, near the fuel filter.

The transmission serial number is stamped on label **Y** which is mounted on the side face.

The rear axle serial number is stamped on plate **X** mounted to the front face of the axle.

The front axle serial number is stamped on plate **Z** mounted to the rear face of the axle.



JCB IMMOBILISER OPTION

Operating Instructions

The JCB Immobiliser incorporates latest Electronic Immobiliser technology and is operated by an Electronically coded key.

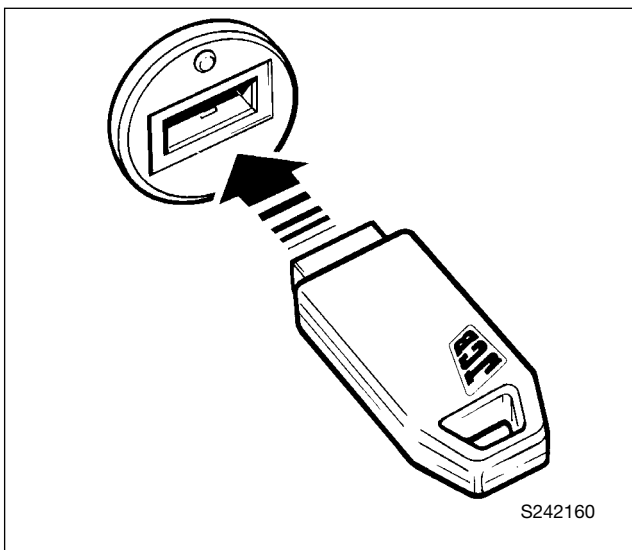
The components required to operate the JCB Immobiliser are:

Yellow JCB Immobiliser Electronically coded key.
Instrument panel mounted Immobiliser key receptacle.

Follow the instructions below to Activate and Deactivate the JCB Immobiliser system.

Activation

The vehicle is automatically immobilised 15 seconds after switching off the engine ignition system.
The L.E.D. (Light Emitting Diode) in the JCB Immobiliser key receptacle flashes when the immobiliser is activated.



Deactivation

To start the vehicle engine the JCB Immobiliser Electronic key must be inserted and removed from the Immobiliser key receptacle, the L.E.D. will then extinguish indicating the Immobiliser has deactivated. The vehicle ignition key is operated to start the engine in the normal way but within 10 to 15 seconds otherwise the system will reactivate itself.

If the Immobiliser key remains inserted in the receptacle the engine will not start.

If the Immobiliser key is inserted in the receptacle for longer than 15 seconds the L.E.D. in the Immobiliser key receptacle will begin to flash indicating activation of the system. To deactivate the Immobiliser first remove the electronic key from the receptacle, then re-insert the key and remove it within 5 to 10 seconds.

NEVER TURN OR ATTEMPT TO TURN THE JCB IMMOBILISER ELECTRONIC CODED KEY WHEN IT HAS BEEN INSERTED INSIDE THE KEY RECEPTACLE.

Additional and/or replacement Immobiliser Electronic keys (Maximum of 5 keys) can be supplied on request from your approved installing JCB distributor provided that one of the two Electronic keys originally supplied with the Immobiliser is still available.

INTRODUCTION

This chapter is arranged to guide you step-by-step through the task of learning how to use the machine. Read it through from beginning to end. By the end of the chapter you should have a good understanding of the machine and how to operate it.

Pay particular attention to all safety messages. They are there to warn you of possible hazards. Do not just read them; think about what they mean. Understand the hazards and how to avoid them.

If there is anything you do not understand, ask your JCB distributor. He will be pleased to advise you.

When you have learned where the driving controls are and what they do, practice using them. Practice driving the machine in a safe, open space clear of other people.

Get to know the 'feel' of the machine and its driving controls. Move on to the attachment controls only when you can drive the machine confidently and safely.

Take great care when practicing with the attachment controls. Practice in an open space. Keep people clear. Do not jerk the controls; operate them slowly until you understand the effect they have on the machine.

Finally, do not rush the job of learning. Take your time and take it safely.

Remember

BE CAREFUL

BE ALERT

BE SAFE

BEFORE ENTERING THE CAB

The following checks should be made each time you return to the machine after leaving it for any period of time. We advise you also to stop the machine occasionally during long work sessions and do the checks again.

All these checks concern the serviceability of the machine. Some concern your safety. Get your service engineer to check and correct any defects.

WARNING

Walking or working under a raised boom can be hazardous. You could be crushed if the boom falls or is inadvertently lowered.

Lower the boom fully before doing these checks. If you are new to this machine, get an experienced operator to lower it for you.

If there is nobody to help you, study this handbook until you have learned how to lower the boom. Also make sure that the parking brake is engaged before doing these checks.

5-2-1-1

- 1 Check for cleanliness:
 - a Clean the windows, light lenses and rear view mirrors.
 - b Remove dirt and debris, especially from around the linkages, rams, pivot points and radiator.
 - c Make sure the cab step and handholds are clean and dry.
 - d Clean all safety decals. Replace any that are missing or cannot be read.
- 2 Check for damage:
 - a Inspect the machine generally for damaged and missing parts.
 - b Make sure that all pivot pins are secured correctly in place.
 - c Inspect the windows for cracks and damage.
 - d Check for oil, fuel and coolant leakages beneath the machine.

BEFORE ENTERING THE CAB (continued)

WARNING

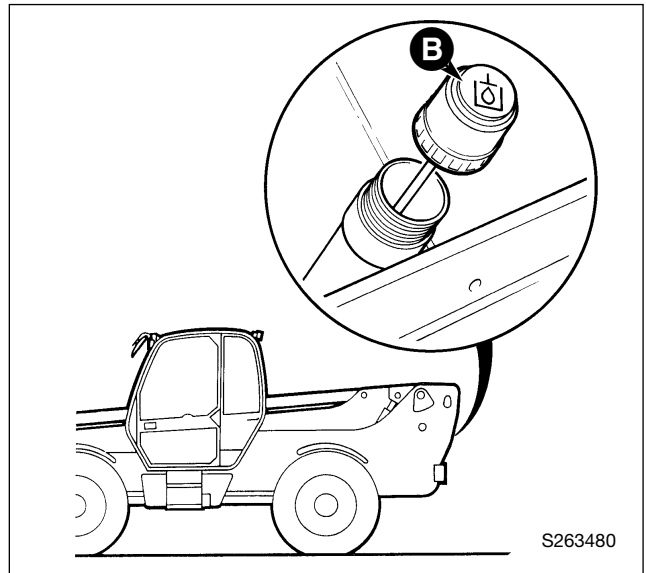
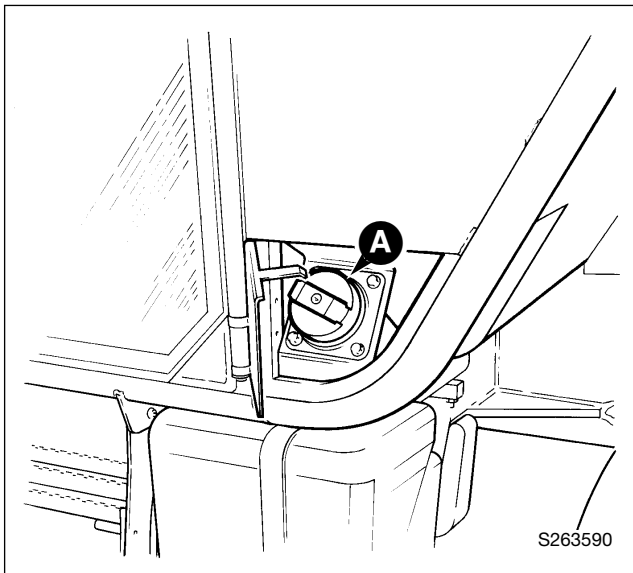
You could be killed or injured if a machine tyre bursts. Do not use the machine with damaged, incorrectly inflated or excessively worn tyres.

2-2-1-2

- 3 Make sure the tyres are correctly inflated. See **Tyre Inflation** in *MAINTENANCE* section for a safe procedure for inflating the tyres.

Check for cut rubber and penetration by sharp objects. Do not use a machine with damaged tyres.

- 4 Make sure the engine cover is closed and secure. (We also recommend that you lock it.)
- 5 Make sure the fuel filler cap **A** is tight. (We also recommend that you lock it.)
- 6 Make sure the hydraulic oil filler cap **B** is tight and the rear cover is closed and secure.



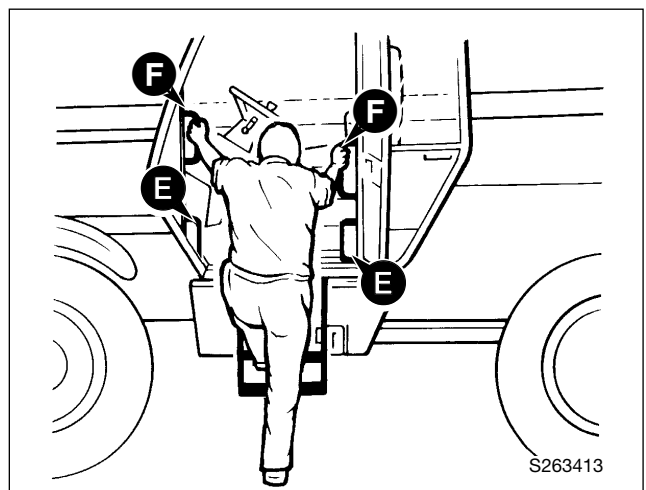
ENTERING & LEAVING THE CAB, DOORS AND WINDOWS

WARNING

Entering or leaving the cab or canopy must only be made where steps and handrails are provided. Always face the machine when entering and leaving. Make sure the step(s), handrails and your boot soles are clean and dry. Do not jump from the machine. Do not use the machine controls as handholds, use the handrails.

INT-2-1-7/1

Use the handholds **E** (if fitted) and **F** when entering or leaving the cab. Do not use the steering wheel as a handhold.



ENTERING & LEAVING THE CAB, DOORS AND WINDOWS (continued)

Opening and Closing the Door

To open the door from the outside, unlock it with the key provided and lift latch **A**.

Close the door from the inside by pulling it firmly; it will latch itself.

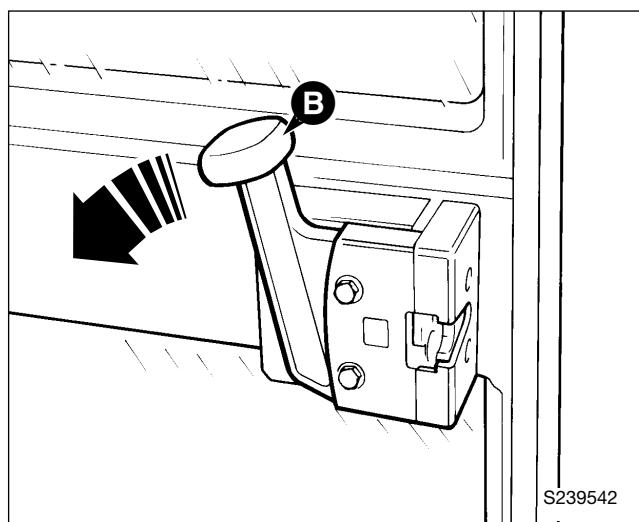
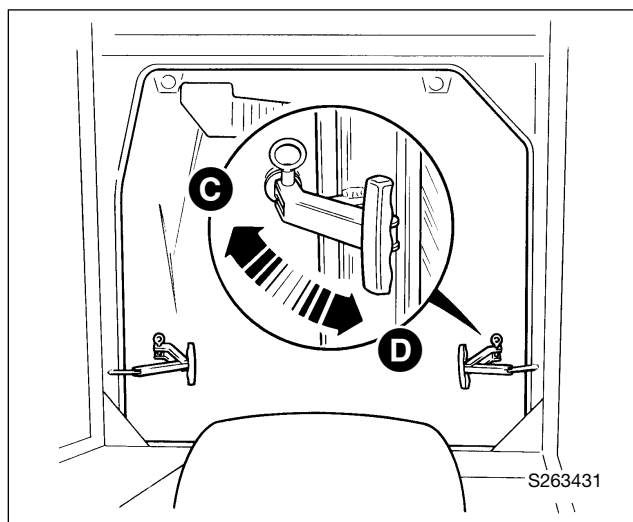
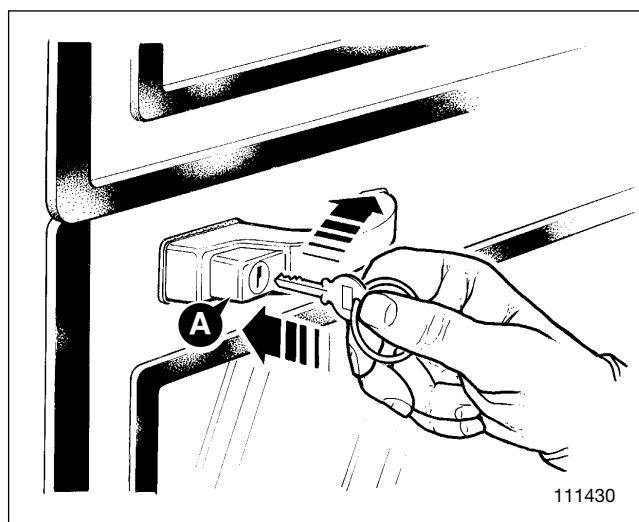
To open the door from the inside, pull lever **B**.

Note: Do not drive the machine with the door unlatched.

Opening and Closing the Rear Window

To open the window, swing catch **C** in the direction shown, as far as required.

To close the window, swing catch **D** in the direction shown until it 'locks' in position.

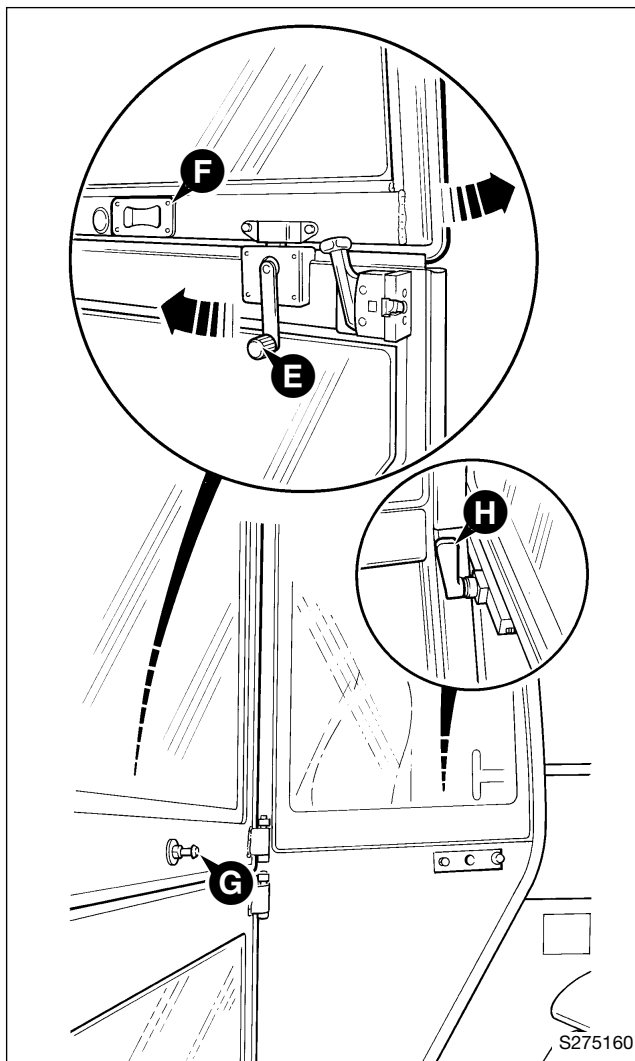


ENTERING & LEAVING THE CAB, DOORS AND WINDOWS (continued)

Opening and Closing the Upper Door Section

With the door closed, release the upper section by pulling lever **E** to the rear. Using hand hold **F**, swing the door fully open until it latches onto the catch **G**.

To close the upper door section, pull lever **H** up and swing the door closed using hand hold **F**. Ensure the upper door latches onto the lower door.



Emergency Exit

The rear window can be quickly fully opened in the event of an emergency. To fully open the window, do the following:-

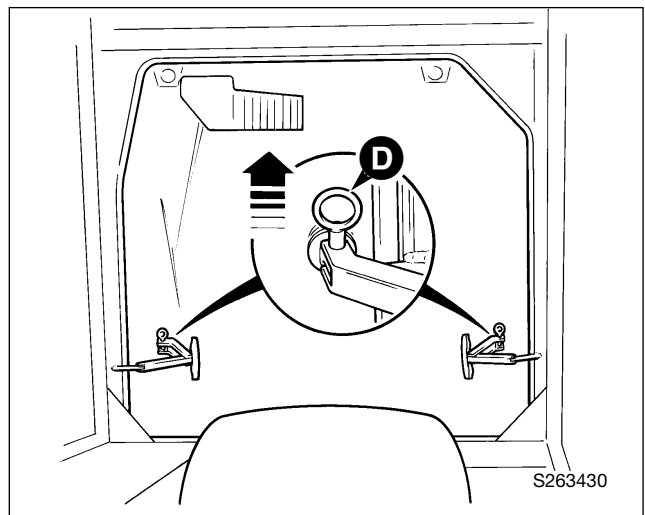
⚠ WARNING

Do not obstruct the rear cab window, this is an Emergency Exit.

5-2-1-9

- 1 Remove pins **D** and open the window fully.

Note: Pins **D** should only be removed in the event of an emergency exit. Do not remove simply to increase the rear window opening.



SEAT CONTROLS

Adjusting the Seat

The operators seat can be adjusted for your comfort. A correctly adjusted seat will reduce operator fatigue. Position the seat so that you can comfortably reach the machine controls. For driving the machine, adjust the seat so that you can depress the brake pedals fully with your back against the seat back.

Seat Type 1

Fore/Aft

Move lever **4** upwards and slide the seat to the position you want. Release lever **4**. Make sure the seat is locked in position.

Height/Weight

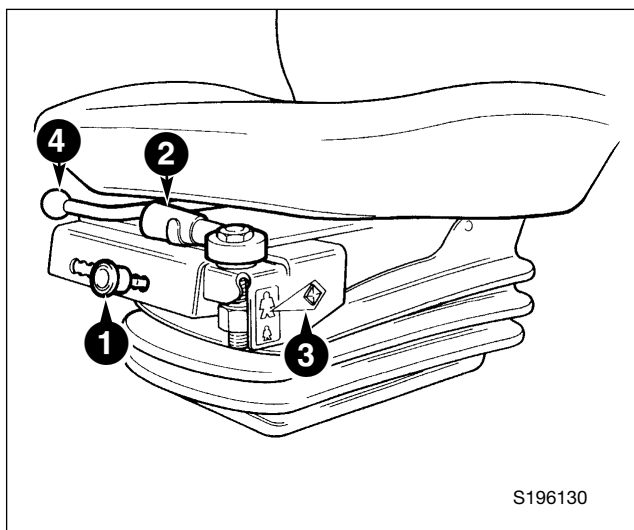
Sit on the seat. Pull knob **1** forward to disengage and slide it fully horizontal in the + direction.

Operate ratchet handle **2** to adjust the seat up or down to the desired height.

A light driver will require the pointer **3** to be close to the 'small person' symbol. To adjust the pointer in this direction operate the ratchet handle **2** with its - sign adjacent to the metal lug.

For a heavier driver, reverse the ratchet handle **2** by pulling and twisting through 180° so the + sign is adjacent to the lug and then operate the handle to bring the pointer close to the 'large person' symbol.

If the upwards travel of the seat is excessive, adjust the control knob **1** in the - direction to restrict the upwards motion.



Seat Type 2

Fore/Aft

Lift bar **1** and slide the seat to the position you want. Release the lever. Make sure the seat is locked in position.

Backrest Angle

Press your back firmly against the backrest. Press down either of the two levers **2** and put the backrest at the angle you want. Release lever **2**.

Height

To raise or lower the front of the seat, pull bar **3** up and raise or lower the seat cushion. Release the bar at the height you want. *(There are five settings.)*

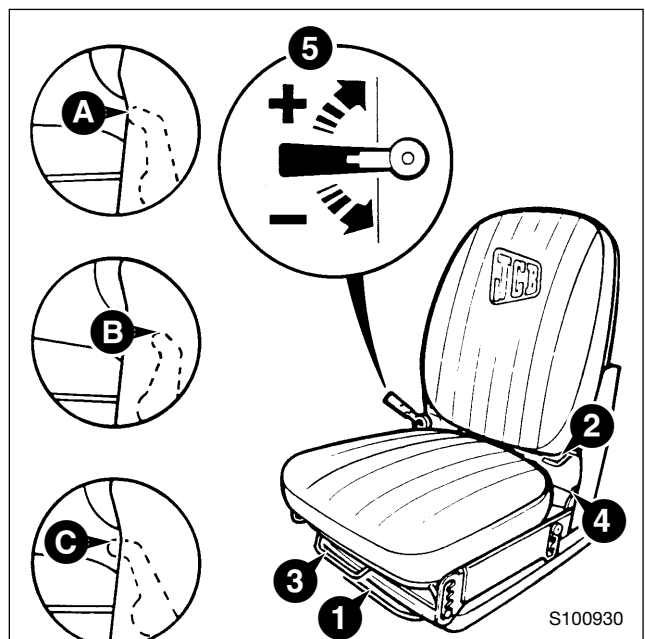
To raise or lower the rear of the seat, lift the rear of the seat cushion and push backwards, then set it into one of the three notches provided.

Weight

Sit in the seat and check the position of indicator **4**. It should be level with the front edge of the side frame as shown in **A**.

If the indicator is behind the frame as shown in **B**, turn the handle **5** so that + is uppermost. If the indicator is in front of the frame as in **C**, turn handle **5** so that - is uppermost.

Stay in the seat. Pump handle **5** until the indicator is level as in **A**.



SEAT CONTROLS (continued)

Seat Type 3 (Air Suspension)

Fore/Aft

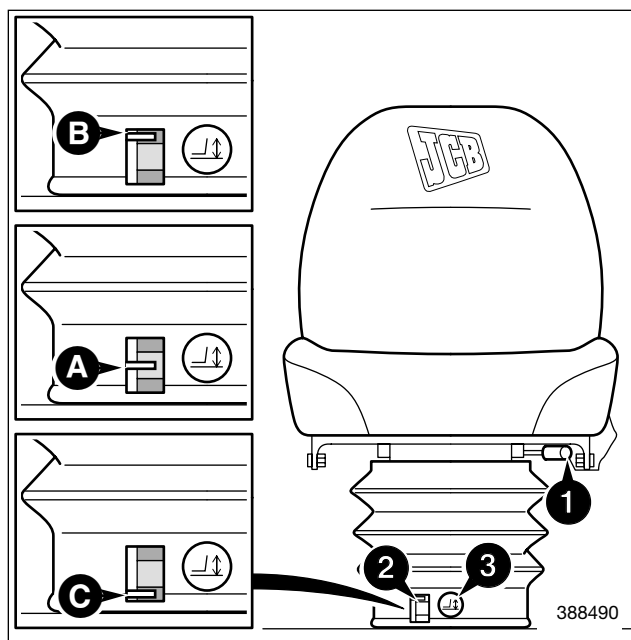
Move lever **1** upwards and slide the seat to the position you want. Release lever **1**. Make sure the seat is locked in position.

Height/Weight

Sit on the seat and check the position of indicator **2**. It should be in the green zone as shown at **A**.

If the indicator is above the green zone, as shown at **B**, pull knob **3** to deflate the air suspension unit.

If the indicator is below the green zone, as shown at **C**, push knob **3** to inflate the air suspension unit.



SEAT BELT

Fasten the Seat Belt

WARNING

If the seat belt does not 'lock' when you check if the seat belt is operating correctly, do not drive the machine. Get the seat belt repaired or replaced immediately.

2-2-2-1

- 1 Sit correctly in the seat. Make sure the belt is not twisted. Push the male end **A** into the buckle **B** until it latches.
- 2 Make sure the seat belt is across your hips not over your stomach.

Release the Seat Belt

- 1 Press button **C** and pull the male fitting **A** from the buckle.

Adjust the Seat Belt

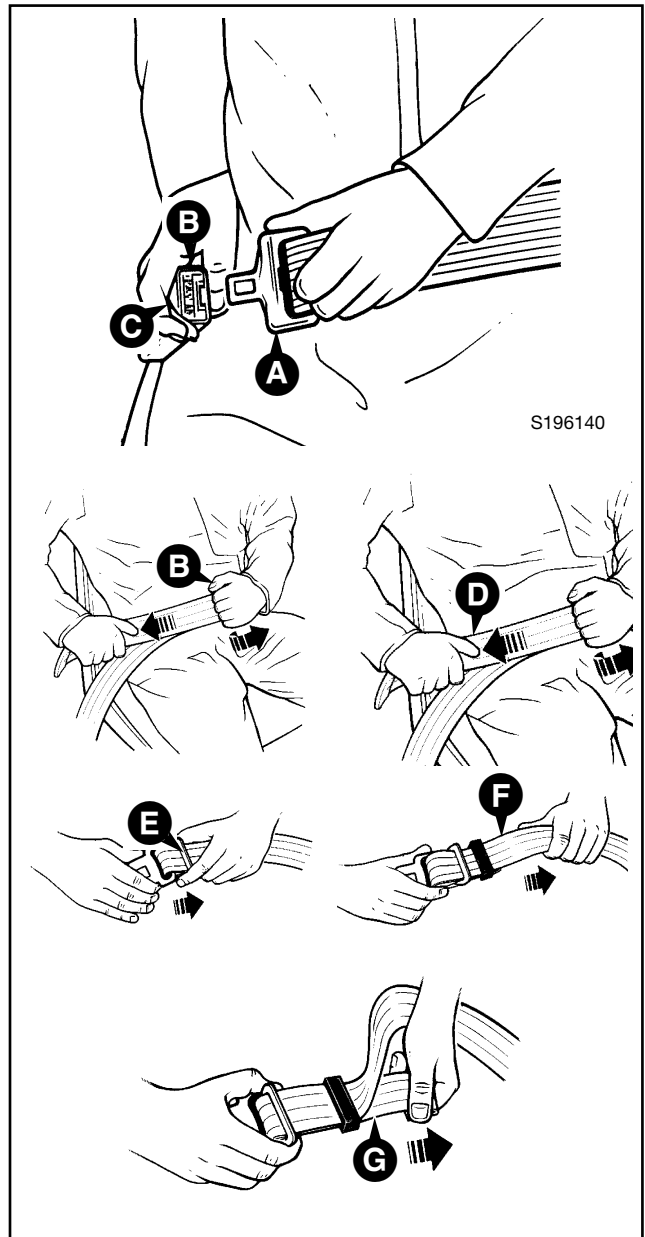
Make sure the belt is across your hips and not over your stomach. Each side of the belt can be adjusted separately. Keep the buckle **B** central.

To adjust the buckle side:

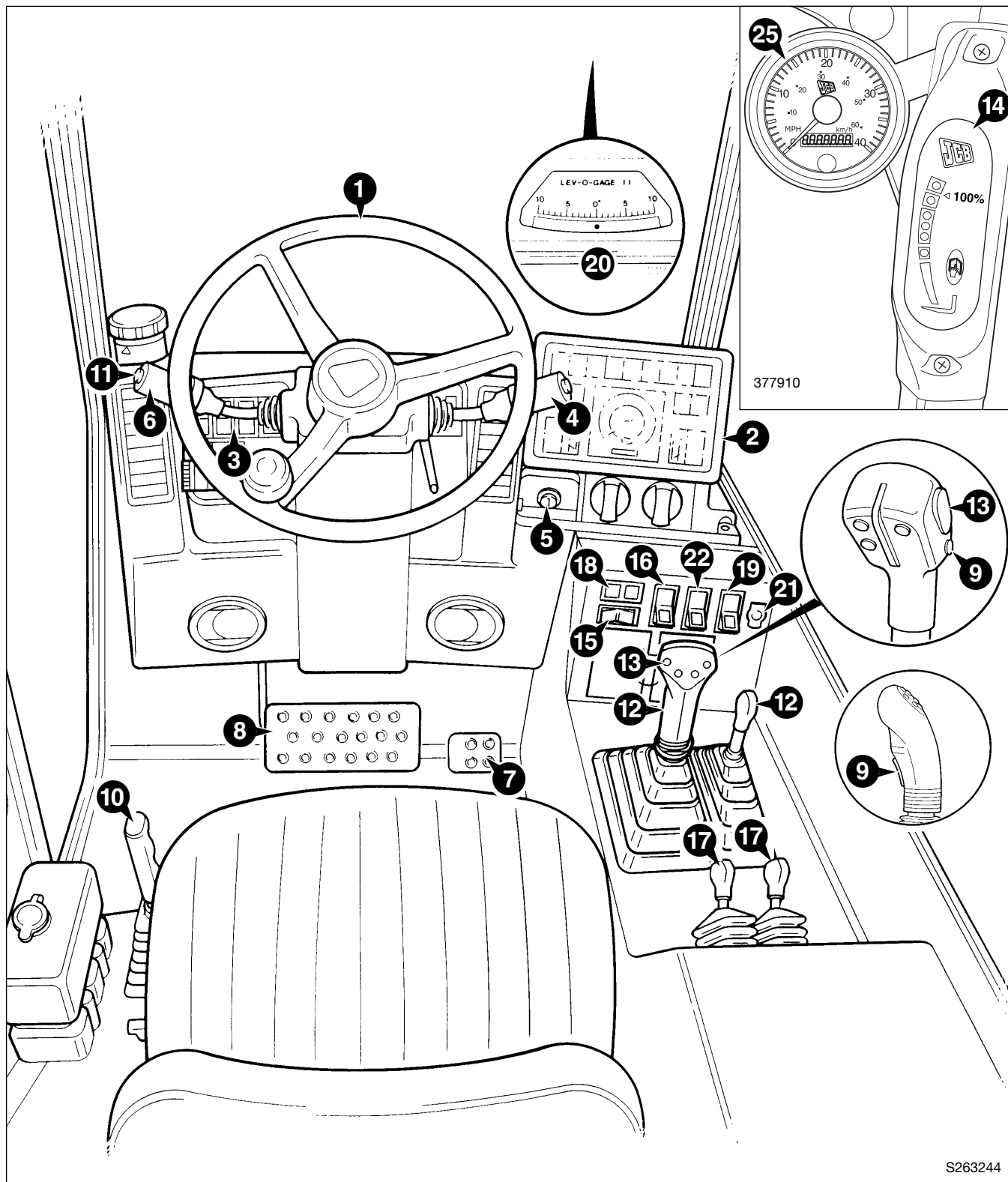
- a Hold buckle **B** as shown.
- b To make the strap longer, pull on the buckle.
- c To make the strap shorter, pull end **D**.

To adjust the male fitting:

- a Pull toggle **E** down the strap by the required distance.
- b To make the strap longer, pull end **F** as far as it will go.
- c To make the strap shorter, pull end **G** as far as it will go.



CAB LAYOUT AND CONTROLS



S263244

CAB LAYOUT AND CONTROLS (continued)

1 Steering Wheel

Turn the wheel in the direction you want to go. Note this machine is a four wheel steer machine.

2 Instrument Panel

See **Cab Switches and Instruments** (OPERATION section).

3 Instrument Panel Switches

See **Cab Switches and Instruments** (OPERATION section).

4 Steering Column Switch

See **Cab Switches and Instruments** (OPERATION section).

5 Starter Switch

See **Cab Switches and Instruments** (OPERATION section).

6 Gear Change Switch

See **Getting the Machine Moving** (OPERATION section).

7 Accelerator Pedal

Push this pedal down to increase engine speed. Let the pedal up to reduce engine speed. With your foot off the pedal the engine will idle.

8 Brake Pedal

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

The stop lights should come on when the brakes are applied. Do not drive the machine unless both stop lights work correctly.

9 Transmission Dump Switch

You do not need to press the dump switch to change gear.

The dump switch can be used to momentarily dump the transmission pressure to improve the hydraulic performance and reduce engine load.

The position of switch 9 varies with machine. Check your machine.

10 Parking Brake Lever

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 both brake pads.

4-2-1-1/2

Use this lever to engage the parking brake before leaving the machine. With the parking brake engaged, an audible warning will sound and the Parking Brake Engaged indicator will light when the forward/reverse lever is moved away from neutral. (See this page.)

To engage the parking brake, pull the lever up as shown. To release the parking brake, simply lower the lever all the way.

To release the parking brake on machines fitted with a release lever under the hand grip, squeeze the release lever and lower the parking brake forward.

11 Forward/Reverse Lever

See **Cab Switches and Instruments** (OPERATION section).

12 Boom and Carriage Control Lever(s)

See **Boom and Carriage Controls** (OPERATION section).

13 Auxiliary Control Switch

See **Boom and Carriage Controls** (OPERATION section).

The position of switch 13 varies with machine. Check your machine.

14 Safe Load Indicator or Load Moment Indicator (LMI)

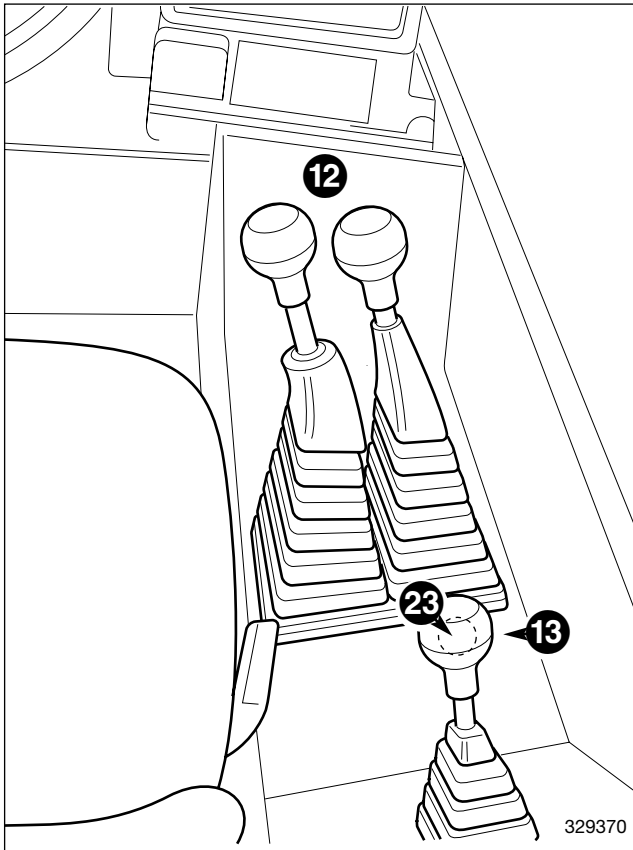
See **Safe Load Indicator or Load Moment Indicator** (OPERATION section).

15 Sway Switch or Fan Reverse Switch

For sway switch, see **Chassis Levelling (Sway) Option** (OPERATION section).

For fan reverse switch, see **Cab Switches and Instruments** (OPERATION section).

CAB LAYOUT AND CONTROLS (continued)



16 Stabiliser Isolation Switch, Trailer Switch or Auxiliary Switch (530, 533, 535 & 540 only)

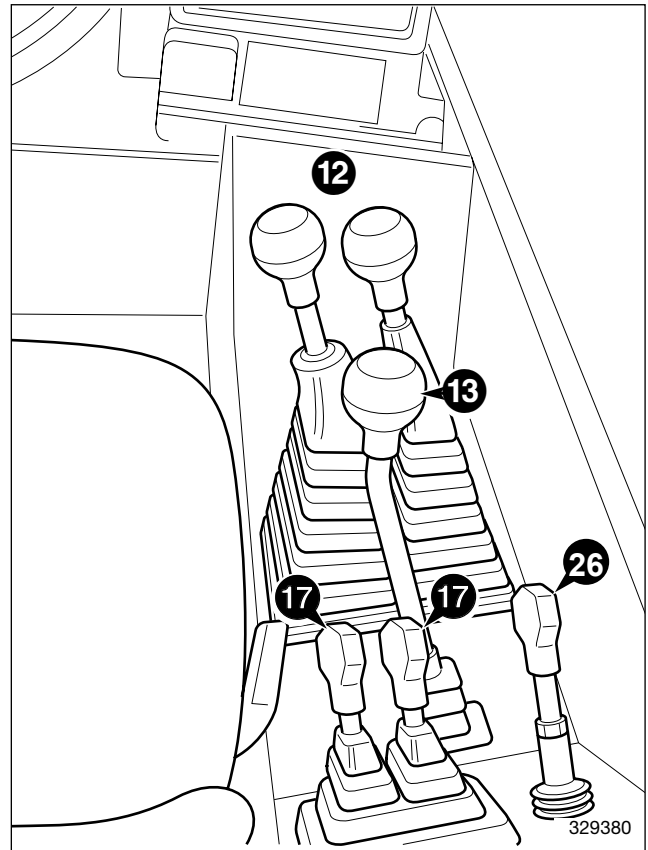
For stabiliser isolation switch, see **Control Locks** (OPERATION section). For trailer switch, see **Mechanical Tow Hitch Option** or **Hydraulic Tow Hitch Option** (OPERATION section). For auxiliary switch, see **Boom and Carriage Controls** (OPERATION section).

17 Stabiliser Control Levers

See **Stabiliser Controls** (OPERATION section).

18 Stabiliser Indicators (if fitted). Trailer Direction Indicators or Smooth Ride System Indicator.

See **Stabiliser Controls** (OPERATION section). For trailer direction indicators, see **Mechanical Tow Hitch Option** or **Hydraulic Tow Hitch Option** (OPERATION section). For Smooth Ride System, see **Smooth Ride System** (OPERATION Section)



19 Smooth Ride System Switch, or Inner Boom Extension Switch (540-170 only).

For Smooth Ride System, see **Smooth Ride System** (OPERATION Section). For Inner Boom Extension Switch, see **Extend/Retract Boom** 540-170 Machines (OPERATION Section).

20 Inclinometer

Fitted to machines with Sway or Stabiliser Options. See **Sway Control** or **Stabiliser Controls** (OPERATION section).

21 Auxiliary Power Socket

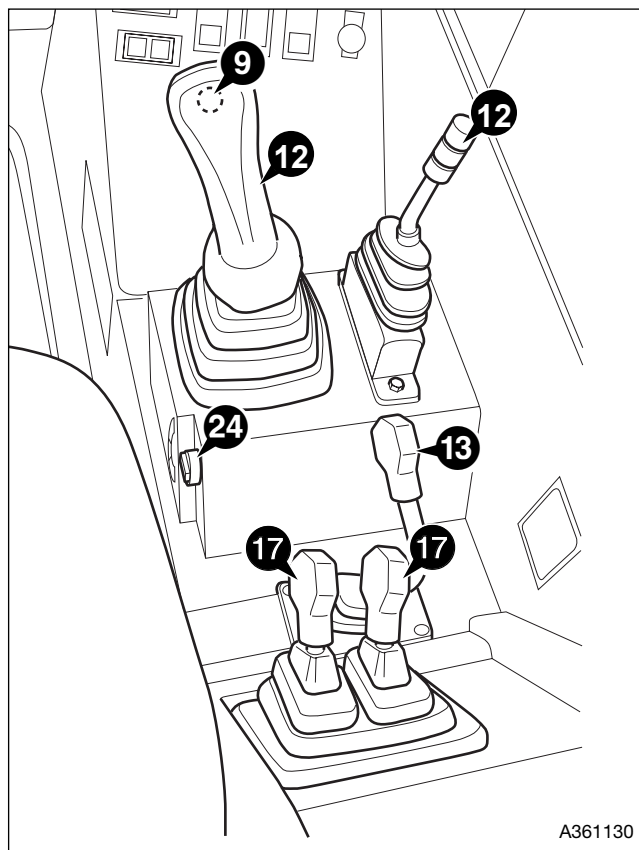
22 Joystick Isolation Switch (Not 540-170)

For Joystick Isolation Switch, see **Control Locks** (OPERATION section).

23 Aux 1/Aux 2 Selector Switch (530, 540 Only)

See **Boom and Carriage Controls** (OPERATION section).

CAB LAYOUT AND CONTROLS (continued)



24 Control Lever Locks (540-170 only)

See **Control Locks - Servo Control** (*OPERATION* section).

25 Speedometer (if fitted)

Indicates the machine speed in miles per hour (MPH) on the outer scale and in kilometres per hour (kph) on the inner scale. The digital readout shows total machine mileage.

26 Steer Mode Selection Lever

Fitted to machines with manual steer mode selection. See **Manual Steer Mode Selection** (*OPERATION* section).

CAB SWITCHES AND INSTRUMENTS

Starter Switch

This is operated by the starter key. It has four positions. The key can be removed only with the switch set to off.

A Off/Stop Engine

Turning the key to this position will stop the engine. Make sure the transmission is in neutral, the boom has been retracted/lowered and the parking brake is engaged before stopping the engine.

B On

Putting the switch to this position connects the battery to all the electrical circuits except the lights and the hazard warning circuit. (*The lights and hazard warning circuits are permanently live.*) It also opens the fuel shut-off valve. The starter key will spring back to this position when it is released from positions **C** and **D**.

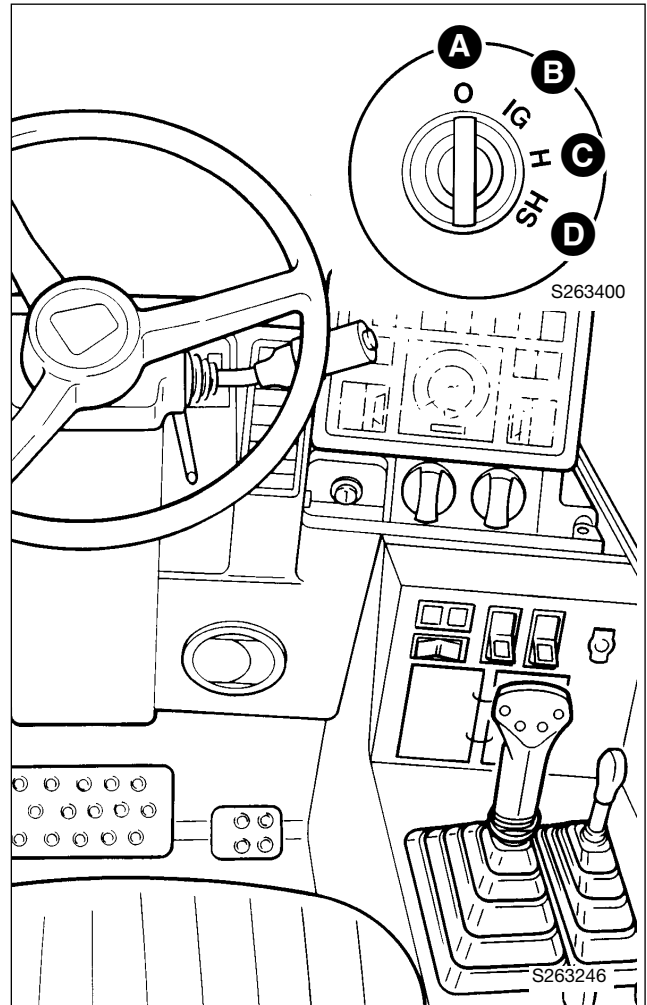
C Heat Position

Holding the key in the heat position warms the engine induction manifold for cold weather starting. Do not hold in this position for more than 15 seconds.

D Start position

Operates the starter motor to turn the engine.

Note: Do not operate the starter motor for more than 20 seconds at one time. Let the starter motor cool for at least two minutes between starts.



CAB SWITCHES AND INSTRUMENTS (continued)

Steering Column Switches

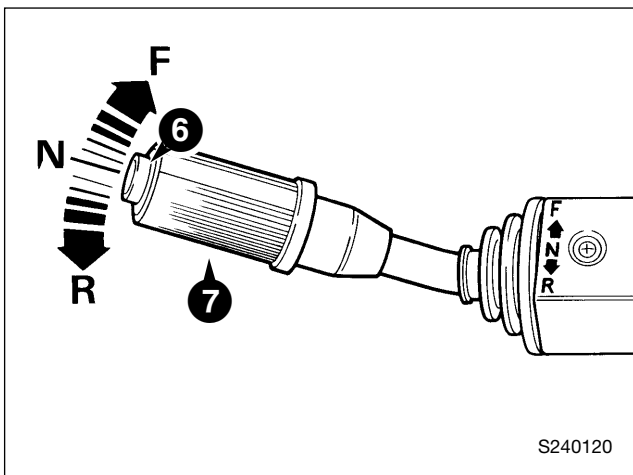
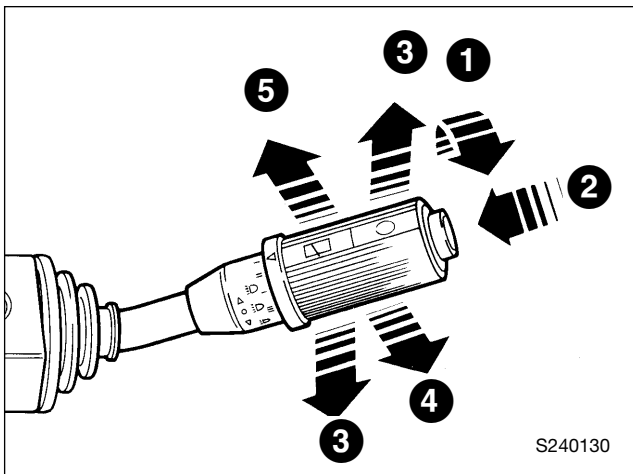
1 Windscreen Wiper

Rotate the barrel **1** as follows to switch the windscreen wiper on and off. Functions only with the starter switch set to on.

- O** Windscreen wiper off
- I** Windscreen wiper on

2 Windscreen Wash

Press button **2** to operate the windscreen washer. Functions only with the starter switch set to on.



3 Direction Indicators

Pull the lever towards you to indicate a right turn. Push the lever away from you to indicate a left turn. Switch the indicators off when you have completed the turn. Functions only with the starter switch set to on.

4 Headlights

With the side/headlights switched on, push the lever down (away from you) for main beam. Centre position is dipped beam.

5 Headlight Flash

Pull the lever towards the steering wheel to flash the headlights.

6 Horn (on Forward/Reverse Lever)

The horn button is at the end of the forward/reverse lever. Push the button to operate the horn. It functions only with the starter switch set to on.

7 Forward/Reverse Lever

⚠ WARNING

You and others can be killed or injured if you operate the forward/reverse lever while travelling. The machine will immediately reverse direction without warning to others. Follow the recommended procedure for proper use of this lever.

2-2-2-4

Stop the machine before moving this lever. To select forward, reverse or neutral, 'lift' and move the lever to the required position. All four gears are available in both forward and reverse. When reverse is selected an alarm will sound. The engine will only start if the lever is at neutral.

The lever has 'detent' positions in forward, reverse and neutral. To move the lever from the detent position pull the lever towards you.

Procedure for reversing direction:

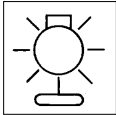
- a** Stop the machine: keep the foot brakes applied.
- b** Let the engine speed drop to idle.
- c** Select the new direction.
- d** Release the foot brakes and accelerate away.

If the parking brake is engaged when the forward/reverse lever is moved away from neutral an audible warning will sound and the *Parking Brake Engaged Indicator* will light.

CAB SWITCHES AND INSTRUMENTS (continued)

Instrument Panel Switches

Each switch has an insert with a graphic symbol, this symbol and the switch descriptions are detailed below.



Side Lights and Headlights

Rocker Switch. Press down for side lights only. Press further down for side lights and headlights.

⚠ WARNING

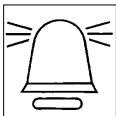
Do not drive on the road with the work lights switched on. You can dazzle other drivers and cause an accident.

2-2-2-5



Working Lights

Rocker Switch. Press to switch on the work lights. The work lights will come on only after the side lights are switched on.



Warning Beacon

Rocker switch. Press to switch on the warning beacon when the beacon is plugged in, see **Warning Beacon** in OPERATION section.



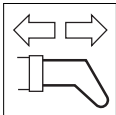
Hazard Warning Lights

Rocker switch. Press to switch on the hazard warning lights. A light on the instrument panel flashes with the outside lights.



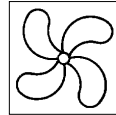
Joystick Isolation

Rocker switch. Press to isolate the button functions on the joystick. See **All Lever Lock** in OPERATION section.



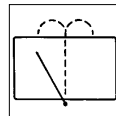
Inner Boom Extend/Retract (540-170 only)

Rocker switch. Press to activate the inner boom section. See **Boom And Carriage Controls** in OPERATION section.



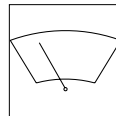
Heater Fan

See **Heater** (OPERATION section).



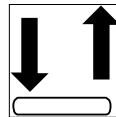
Rear Wiper

Rocker switch. Press to switch on the rear wiper. Functions only with the starter switch set to on.



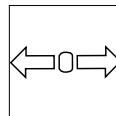
Roof Wiper

Rocker switch. Press down to switch on the roof wiper. Press further down for the washers. Functions only with the starter switch set to on.



Trailer Hitch

See **Trailer Pickup Hitch and Tow Hitch** in OPERATION section.



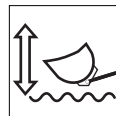
Trailer Direction Indicator Lights

See **Trailer Pickup Hitch and Tow Hitch** in OPERATION section.



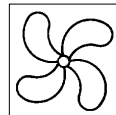
Air Conditioning (if fitted)

See **Air Conditioning** in OPERATION section.



Smooth Ride System (if fitted)

Fully lower the boom. Press fully down to switch on Smooth Ride System. The switch will spring back to the ON position. An indicator lamp illuminates when the system is activated. See **Smooth Ride System** in OPERATION section.



Fan Reverse (if fitted)

Press down to reverse the cooling fan. If necessary, increase engine speed whilst the fan is reversed to help to clear grilles. Release to revert to normal operation.

Note: To avoid damage to the machine, make sure that the engine is at less than 1000rpm before changing the direction of the fan. **ALWAYS** reduce engine speed before releasing the switch.

CAB SWITCHES AND INSTRUMENTS (continued)

Steer Mode Selector

The selector is a three-position rotary switch **A**, which is equipped with a hinged lockplate **B**. This enables the selector switch to be locked into the 2-wheel steer mode when the machine is driven on public highways. Use the selector switch to select the mode of steering which is most suitable for the terrain and the work you are doing. Indicator lights on the instrument panel tell you what steer mode the machine is in.

IMPORTANT: Never change from 4-wheel steer to crab steer (or vice versa) without first selecting 2-wheel steer for approximately 5 seconds.

C 4-Wheel Steer **D** 2-Wheel Steer **E** Crab Steer

Sensors on the axles prevent the steer mode from changing until all wheels straighten up or pass through the 'straight ahead' position. Because of this, there will be a short period when the indicator lights do not agree with the switch position.

If you have any doubt about what steer mode the machine is in, always remember that it is the indicator light which is correct.

Phasing 4 Wheel Steer

WARNING

Failure to phase 4-wheel steer at least once per day may mean a reduction in steering effectiveness.

5-2-1-6

At the start of each working period and at least once per day or when having difficulty in steering do the following:

- 1 Select 2-wheel steer, the indicator lights will still show 4-wheel steer.
- 2 Operate the machine until the rear wheels straighten up. When the rear wheels straighten up the machine will go into 2-wheel steer. The indicator lights will show when 2-wheel steer has engaged.
- 3 Select 4-wheel steer again. The front and rear wheels are now back in phase.

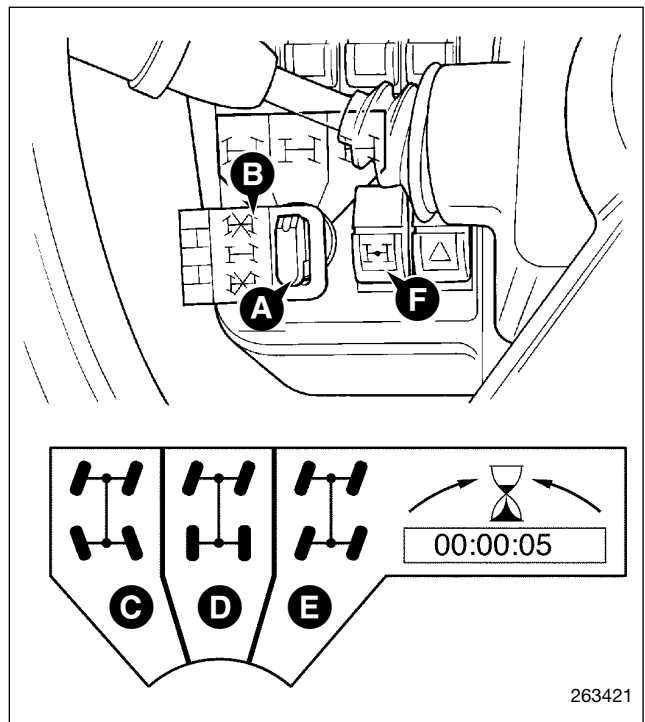
Four Wheel Drive Disconnect Switch Option

Use 2-wheel drive where possible, only select 4-wheel drive on soft uneven ground when traction is limited.

For towing, see **Mechanical Tow Hitch, Hydraulic Tow Hitch Options** (this section).

- 1 Press switch **F** to disengage 4-wheel drive. The switch will illuminate when 2-wheel drive is selected.

Note: When the brake pedal is pressed the machine will automatically go into 4-wheel drive and the indicator light will go out.



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CAB SWITCHES AND INSTRUMENTS (continued)

Manual Steer Mode Selection

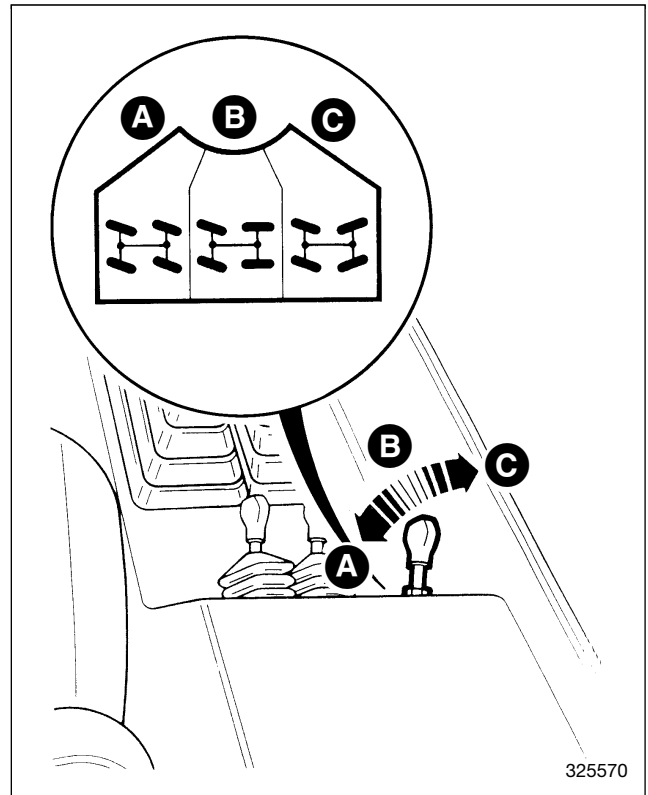
WARNING

Over a long period of time, the front and rear axles may get slightly out of phase. At the start of each working period, before travelling on public roads and at least once a day, or if having difficulty in steering, check and, if necessary, re-align the road wheels. Failure to re-align the road wheels at least once per day may mean a reduction in steering effectiveness. This can lead to tyre scuffing and difficulty in steering a straight line.

5-2-6-4

Some machines may be fitted with a manual steer mode selection control. At the start of each working period, and at least once per day or when having difficulty in steering do the following:

- 1 Stop the machine. Select the neutral position on the forward reverse lever.
- 2 Select four-wheel steering **A**. Turn the steering wheel until the rear wheels are pointing in the straight ahead position.
- 3 Select two-wheel steering **B**. Turn the steering wheel until the front wheels are pointing in the straight ahead position.
- 4 All wheels are now pointing straight ahead, select the steer mode required and continue in the normal manner.

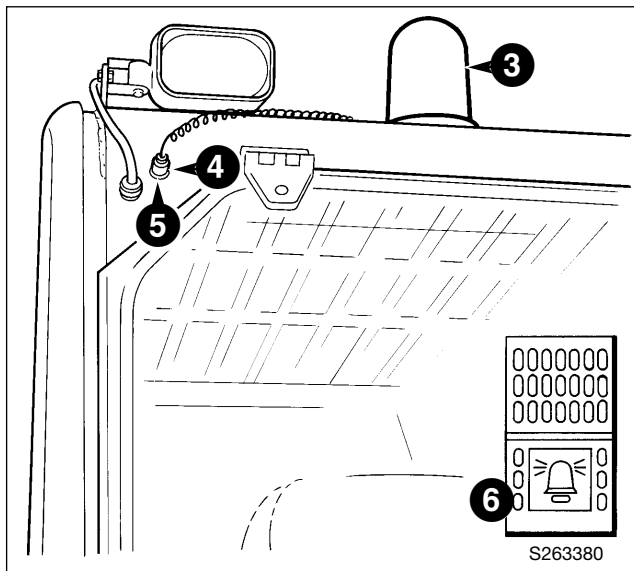


CAB SWITCHES AND INSTRUMENTS (continued)

Warning Beacon

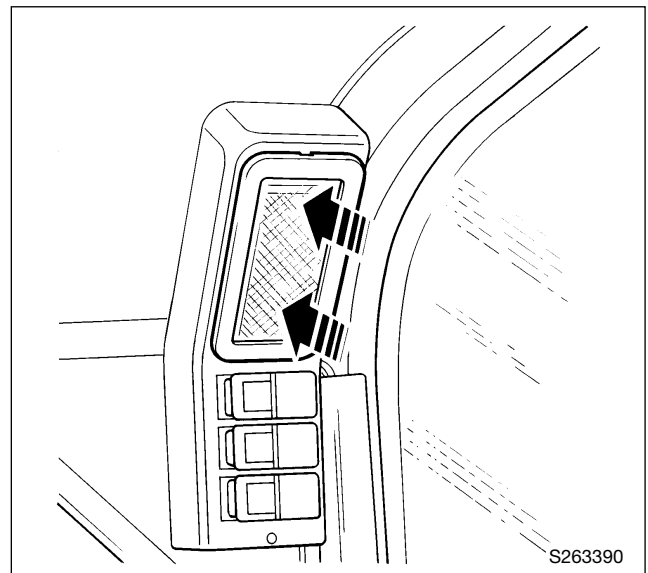
It is a legal requirement in certain countries for the machine to have a warning beacon operating on some public roads. A yellow or amber warning beacon kit is available as an option.

The beacon **3** has a magnetic base for mounting on the roof. The beacon's plug **4** connects into a socket **5** in the cab. Switch the beacon on by pressing switch **6**. An indicator light in the switch lights when the beacon is operating.



Cab Light

Press either end of the light unit to switch it on. Pressing the other end to make the light unit flush with the housing will switch it off.



CAB SWITCHES AND INSTRUMENTS (continued)

Instruments

The instruments and indicator lights are grouped together on an instrument panel. Instruments provided are a tachometer/speedometer/hourmeter, a coolant temperature gauge and a fuel level gauge.

As well as indicator lights for the direction indicators, main beam etc. there are warning lights for various fault conditions. When a warning light comes on an alarm will sound. The only way to cancel the alarm is to set the starter to 'off'.

Do not use the machine if it has a fault condition, or you might damage the engine and/or the transmission.

All instruments and indicators will be turned off when the starter switch is set to off. (But the hazard warning indicator will still operate if the hazard warning lights are switched on.)

1 Coolant Temperature Gauge

Indicates the temperature of the engine coolant. The gauge pointer will gradually swing upwards as the coolant temperature rises.

Note: The machine can be operated until the red warning light illuminates then stop the engine. See **Warnings (Audible/Visual)** this section.

2 Fuel Level Gauge

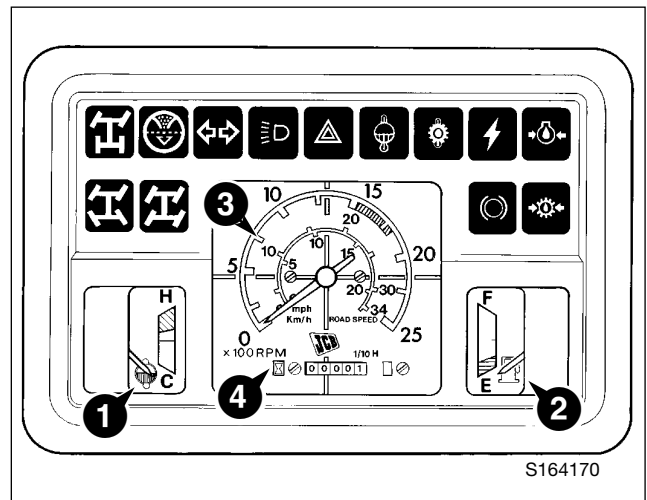
Indicates the level of diesel fuel in the tank. See **Fuel System** in **MAINTENANCE** section for the type of fuel to be used. Do not let the tank run dry, or air will enter the fuel system.

3 Tachometer

Indicates the engine speed in revolutions per minute (**RPM**). The RPM is shown on the outer ring. Each division is 100 RPM. A green band on the scale indicates the RPM which gives best fuel economy. Operate within that band whenever possible.

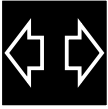
4 Hourmeter

Records the total running time of the engine. Use it to keep a check of running hours during maintenance intervals.



CAB SWITCHES AND INSTRUMENTS (continued)

Warnings (Visual only)



Direction Indicators On - Green Flashing Light

Flashes with the left and right direction indicators. Use the direction indicators to signal before turning the machine.



Main Beam On - Blue Light

Lights when the headlight main beams are switched on. Switch the main beam off for oncoming vehicles.



Hazard Warning Lights On - Red Flashing Light

Flashes with the hazard warning lights (even with the starter switch at 'off').



4-Wheel Steer Engaged - Red Light

Lights when 4-wheel steer mode is engaged. Note that the light may sometimes temporarily disagree with the position of the steer mode selector (see **Steer Mode Selector** in OPERATION section).



Crab Steer Engaged - Red Light

Lights when crab steer mode is engaged. Note that the light may sometimes temporarily disagree with the position of the steer mode selector (see **Steer Mode Selector** in OPERATION section).



2-Wheel Steer Engaged - Red Light

Lights when 2-wheel steer mode is engaged. Note that the light may sometimes temporarily disagree with the position of the steer mode selector (see **Steer Mode Selector** in OPERATION section).

Warnings (Audible/Visual) - Red Light and Audible Alarm

CAUTION

If any of the audible/visual warnings operate whilst the engine is running, stop the engine as soon as it is safe to do so and rectify the fault.

4-2-1-2



Air Filter Blocked

Lights if the engine air filter blocks up. (See **Engine Air Filter** in MAINTENANCE section.)



Engine Coolant Temperature High

Lights if the engine coolant temperature rises too far. The engine cooling fan is driven by a hydraulic motor.



Transmission Oil Temperature High

Lights if the transmission oil temperature rises too far.



No Charge

Lights if the battery charging circuit fails while the engine is running. The light should go out a few seconds after the engine is started.



Engine Oil Pressure Low

Lights if the engine oil pressure falls too far. The light should go out a few seconds after the engine is started.



Parking Brake Engaged

Lights if Forward or Reverse drive is selected while the parking brake is engaged.



Transmission Oil Pressure Low

Lights if the transmission oil pressure falls too far. The light should go out a few seconds after the engine is started.

HEATER & AIR CONDITIONING

Heater

Heated or unheated air is provided from a heater unit which includes a two-speed fan. Air can be drawn in from the outside or recirculated inside the cab. The air can be directed to the windscreen and/or the cab interior.

Heater On-Off

Turn knob **A** in direction **B** to increase the temperature. To reduce the temperature turn in direction **C**.

Fresh or Recirculated Air

Turn knob **D** to **E** for fresh air. To recirculate select **F**.

Cab/Windscreen Heating

Position vents **G** and **H** as required to direct air.

Heater Fan

Press to switch **J** to turn the heater fan on. Press further for fast speed. Functions only with the starter switch set to on.

Air Conditioning Option

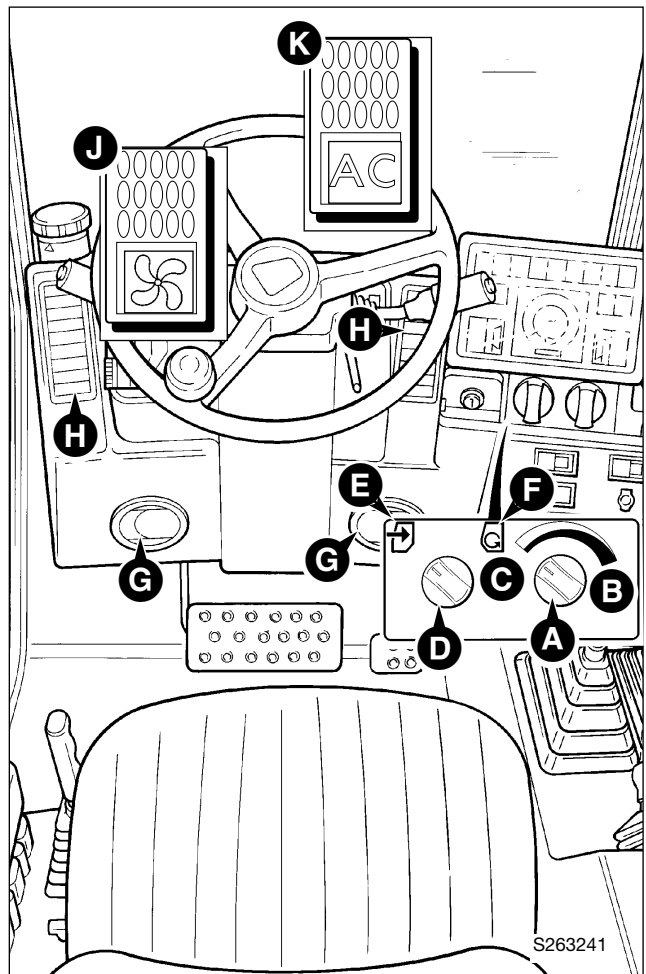
To provide cool air in warm climates and during hot seasons the air conditioning system delivers cool dehumidified air into the cab.

Before starting the engine make sure the air conditioning is switched off.

Press down switch **K** to turn the air conditioning on.

Operate the heater controls as previously described for operator comfort.

Note: In dusty conditions it is recommended that air is recirculated within the cab, otherwise the filter may become clogged.



BOOM AND CARRIAGE CONTROLS

Introduction

WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

5-2-2-9

Control levers and switches may vary on machines. The machine may be fitted with any of the following control layouts.

- (a) Single lever control.
- (b) Dual lever control with loading and placing control pattern options.
- (c) Dual lever control with loading and placing pattern options and manual auxiliary control levers.
- (d) Servo controls for 540-170 machines only.

Decals near the levers and switches show by symbols, which levers and switches cause what actions. Before operating control levers and switches, check the decal to make sure you select the desired action.

The following pages describe the operation of the various control patterns.

BOOM AND CARRIAGE CONTROLS

Single Lever Control

Raise Boom/Lower Boom

⚠ WARNING

You or others can be killed or seriously injured if you operate the control levers from outside the cab. Operate the control levers only when you are correctly seated inside the cab

INT-2-1-3

⚠ WARNING

Operating the boom while travelling can cause accidents. You will not have total control of the machine. Never operate the boom while travelling.

5-1-5-2

⚠ DANGER

You can be electrocuted if you get your machine too close to live electrical power lines. Before starting work, find out if there are electrical power lines on the jobsite. If there are, contact the local electricity supplier and ask what safety precautions you must take. Also find out if there are any local laws and regulations concerned with work near electrical power lines.

When you have found out what safety precautions, laws and regulations apply to the jobsite, make sure they are all obeyed.

5-1-5-6

⚠ WARNING

Make sure it is clear overhead before raising the boom. Keep an adequate safe distance from all electrical power lines. Contact your local power company for safety procedures.

5-2-1-5/1

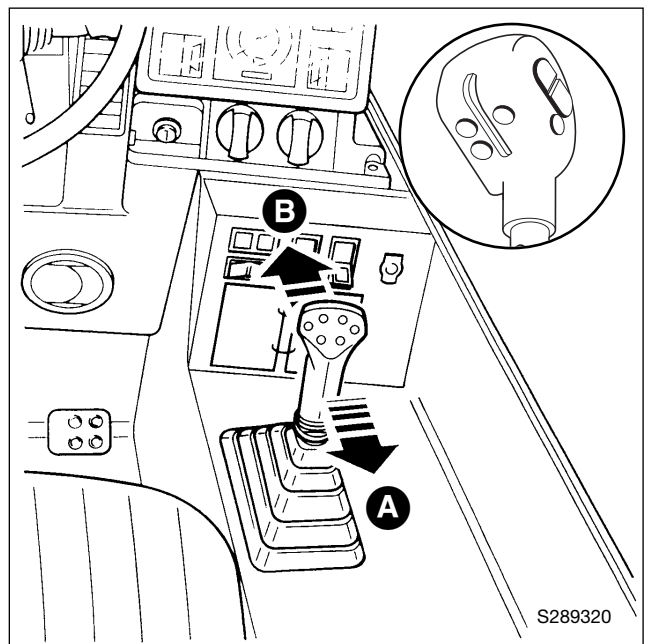
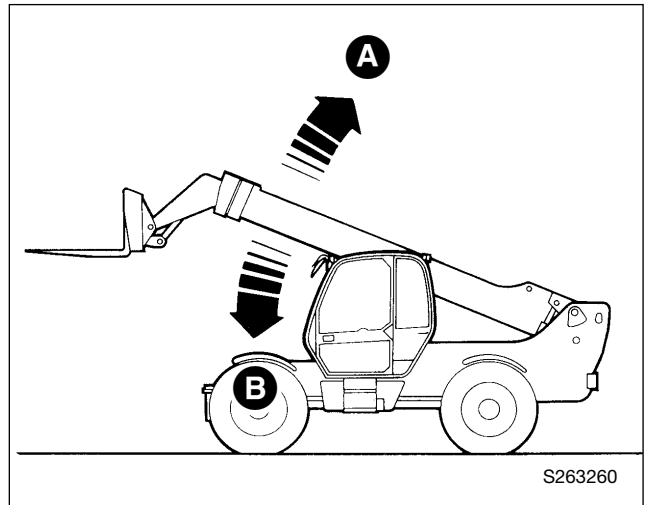
⚠ WARNING

Release the boom raise lever as soon as the boom is fully raised. Holding the control in the lift position can result in the carriage slowly crowding back.

5-2-1-11

The levers are spring-loaded to their central hold positions. The speed of movement of the associated hydraulic rams depends on how far you move a lever - the further you move the lever, the faster the ram action.

The rams will stay in any position until you move them with the levers or switches.



- A** Raise Boom
- B** Lower Boom

BOOM AND CARRIAGE CONTROLS

Single Lever Control

Extend Boom/Retract Boom

WARNING

Make sure it is clear overhead before extending a raised boom. Keep an adequate safe distance from all electrical power lines. Contact your local power company for safety procedures.

5-2-2-1/1

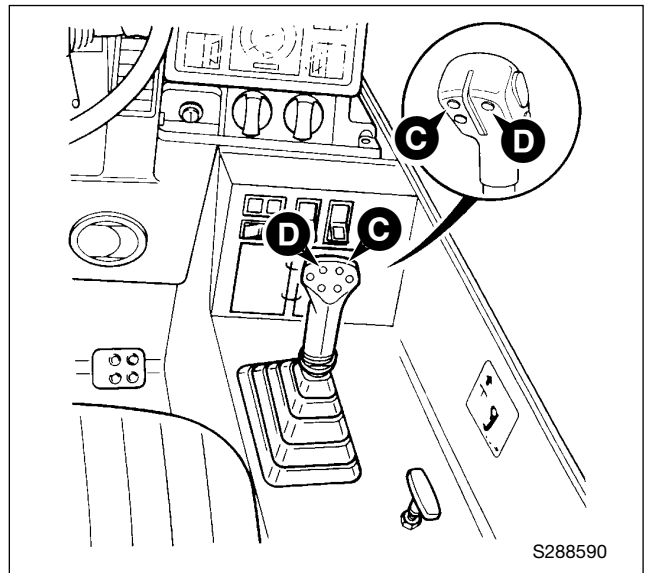
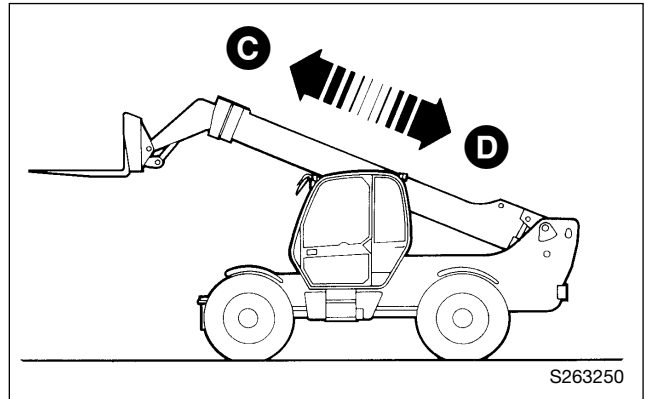
WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

5-2-2-9

Note: Three stage booms can go out of phase if the hydraulic cylinders are not **fully** retracted regularly. Fully retract the boom at least once every day.

To re-phase the boom sections - hold the control in the retract position with the engine at high idle speed until the boom sections are fully retracted.



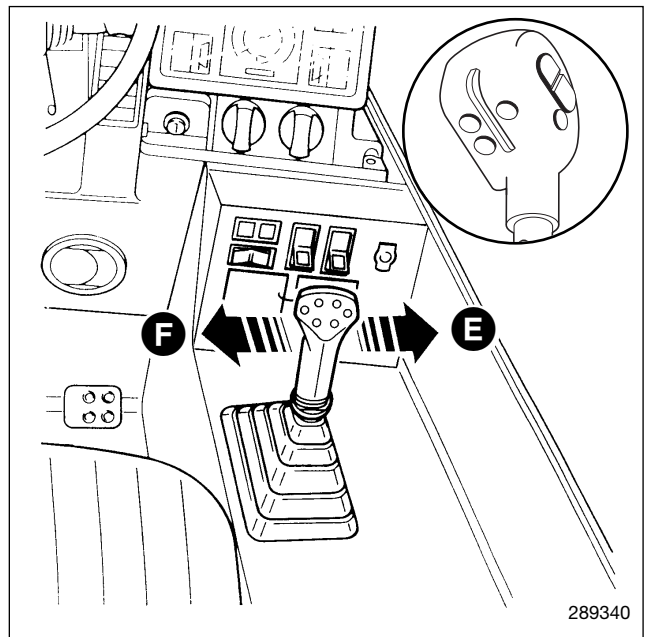
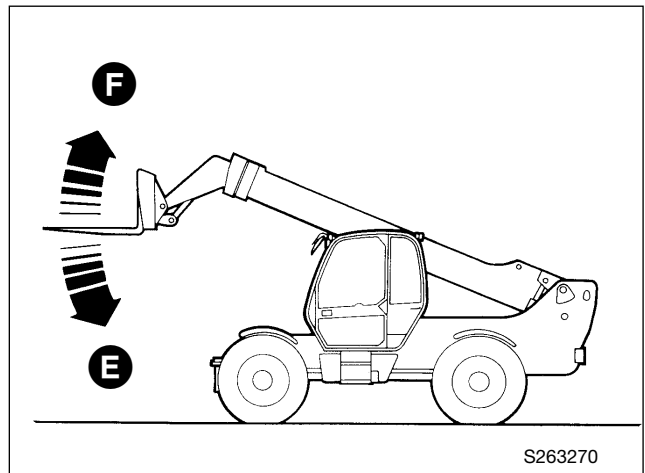
- C** Extend Boom
- D** Retract Boom

BOOM AND CARRIAGE CONTROLS

Single Lever Control

Tilt Carriage Forward/Back

- E** Forward.
F Back.



BOOM AND CARRIAGE CONTROLS

Single Lever Control

Auxiliary Operation

Note: To fit an attachment, see **INSTALLING AND REMOVING Q-FIT ATTACHMENTS** (OPTIONAL ATTACHMENTS section).

WARNING

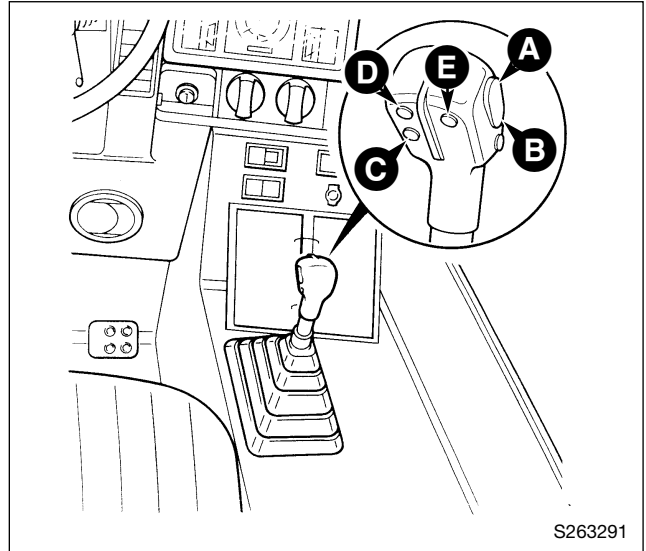
Before operating the Auxiliary control system make sure that you are aware of all **WARNINGS** and **CAUTIONS** that apply to the attachment you are using. Also make sure you have fitted the attachment correctly. (see **OPTIONAL ATTACHMENT** section).

5-2-2-6

AUXILIARY 1 - **A** or **B** depending on the attachment fitted and the function required.

AUXILIARY 2 - Hold **C** in then **A** or **B** depending on the attachment fitted and the function required.

Buttons **D** and **E** are not fitted on all machines.



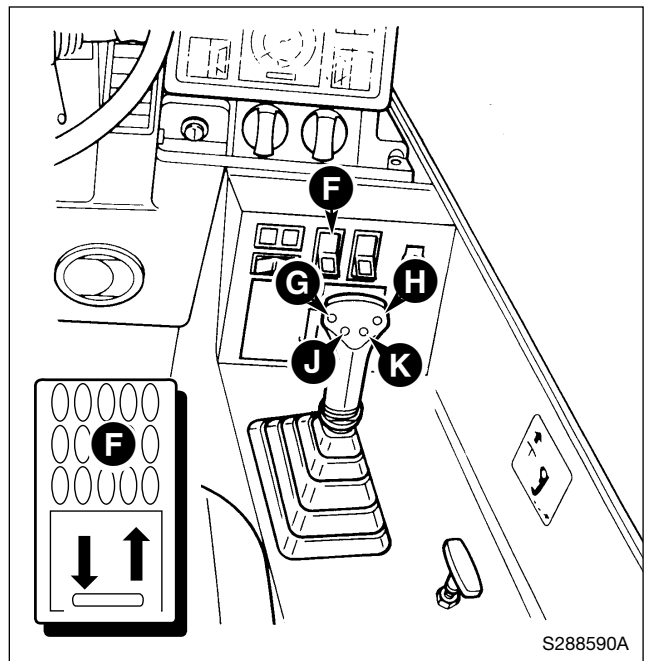
Hitch Switch or Auxiliary Switch (if fitted)

The machine is fitted with one auxiliary circuit (AUX 1). A second auxiliary circuit (AUX 2) is available as an option. An optional trailer pickup hitch, trailer brakes and trailer tip circuit is also available. In all cases there is only one auxiliary switch; selection of AUX 2 and the trailer circuits is made by means of switches.

AUX 1 - Ensure the Hitch/Auxiliary selector switch **F**, if fitted, is set to **ON**, the switch light is illuminated. Press **G** or **H** depending on the attachment fitted and the function required.

AUX 2 - Ensure the Hitch/Auxiliary selector switch **F**, if fitted, is set to **ON**, the switch light is illuminated. Press **J** or **K** depending on the attachment fitted and the function required.

HITCH OPERATION - See **Hydraulic Tow Hitch Option** in **OPERATION** Section.



BOOM AND CARRIAGE CONTROLS

Single Lever Control

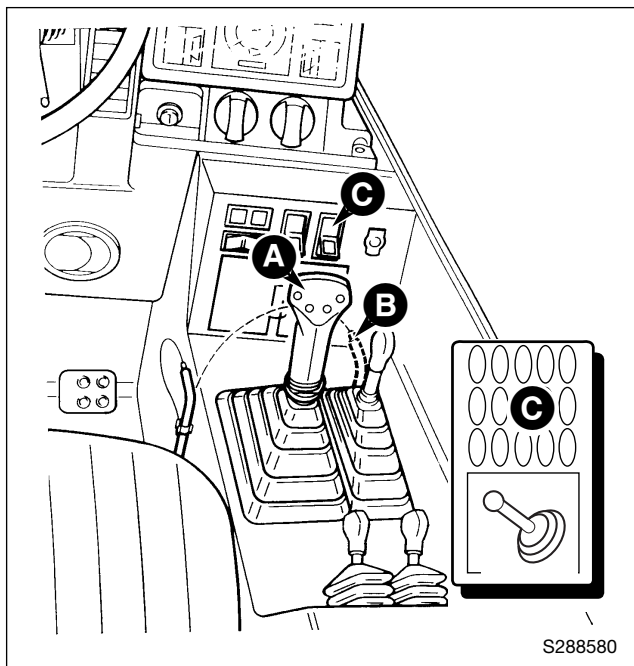
Control Locks

The requirement for control lever lock/isolation varies according to local legislation. You must comply with local legislation at all times. The locks/switches are designed to lock or isolate the control(s) in the neutral position. Refer to the illustration applicable to your machine

All Lever Lock

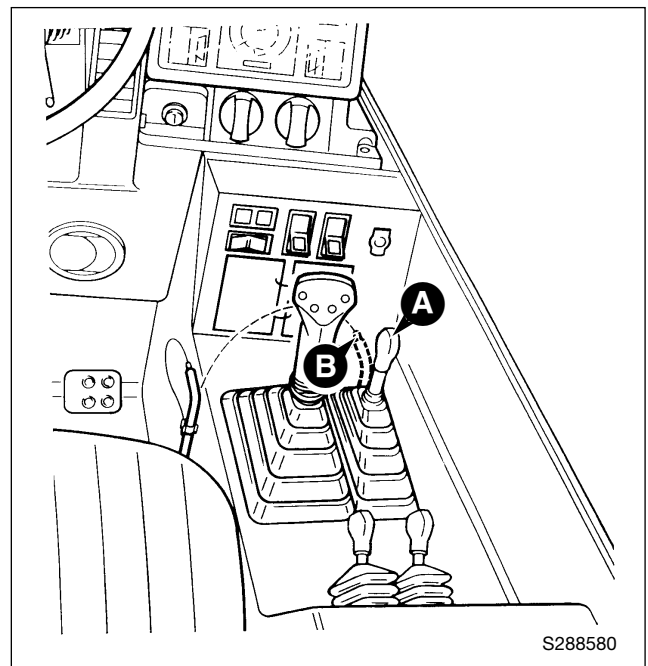
Lock all the controls before travelling on public roads. To lock the controls, ensure the lever **A** is in the neutral position, then press down pin **B** as far as it will go. Before starting the engine make sure the controls are locked. To release the lock raise the pin fully.

Isolate the joystick button functions before travelling on public roads. To isolate the buttons, operate the Joystick Isolation Switch **C**.



Tilt Lever Lock

This lock **MUST** be fitted when using a platform, see **Working with a Platform** (this section). To lock the controls ensure the lever **A** is in the neutral position, then press down pin **B** as far as it will go. Before starting the engine make sure the controls are locked. To release the lock raise the pin fully.



BOOM AND CARRIAGE CONTROLS

Dual Lever Control

Raise Boom/Lower Boom

⚠ WARNING

You or others can be killed or seriously injured if you operate the control levers from outside the cab. Operate the control levers only when you are correctly seated inside the cab

INT-2-1-3

⚠ WARNING

Operating the boom while travelling can cause accidents. You will not have total control of the machine. Never operate the boom while travelling.

5-1-5-2

⚠ DANGER

You can be electrocuted if you get your machine too close to live electrical power lines. Before starting work, find out if there are electrical power lines on the jobsite. If there are, contact the local electricity supplier and ask what safety precautions you must take. Also find out if there are any local laws and regulations concerned with work near electrical power lines.

When you have found out what safety precautions, laws and regulations apply to the jobsite, make sure they are all obeyed.

5-1-5-6

⚠ WARNING

Make sure it is clear overhead before raising the boom. Keep an adequate safe distance from all electrical power lines. Contact your local power company for safety procedures.

5-2-1-5/1

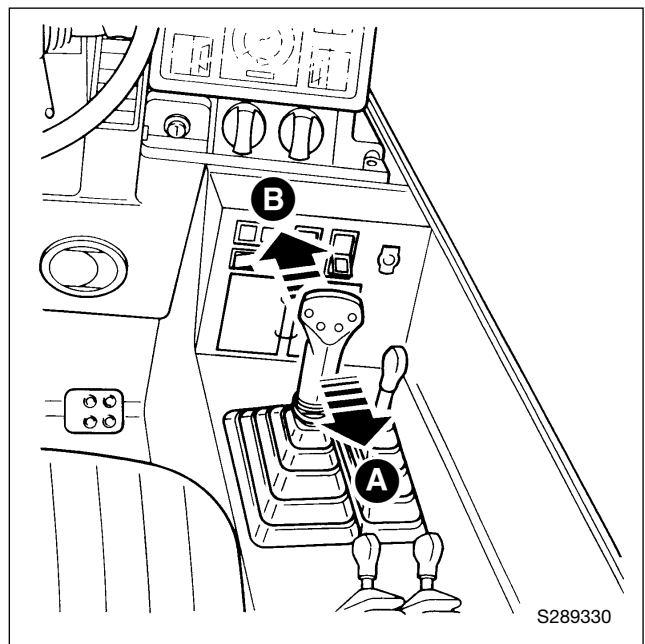
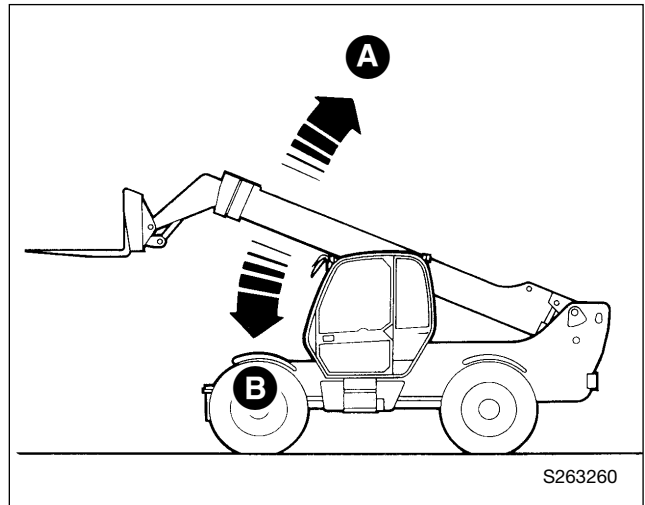
⚠ WARNING

Release the boom raise lever as soon as the boom is fully raised. Holding the control in the lift position can result in the carriage slowly crowding back.

5-2-1-11

The levers are spring-loaded to their central hold positions. The speed of movement of the associated hydraulic rams depends on how far you move a lever - the further you move the lever, the faster the ram action.

The rams will stay in any position until you move them with the levers or switches.



- A** Raise Boom
- B** Lower Boom

BOOM AND CARRIAGE CONTROLS

Dual Lever Control

Extend Boom/Retract Boom

WARNING

Make sure it is clear overhead before extending a raised boom. Keep an adequate safe distance from all electrical power lines. Contact your local power company for safety procedures.

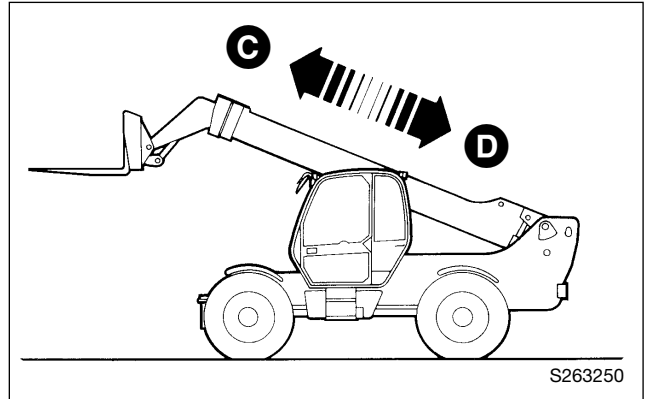
5-2-2-1/1

WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

5-2-2-9

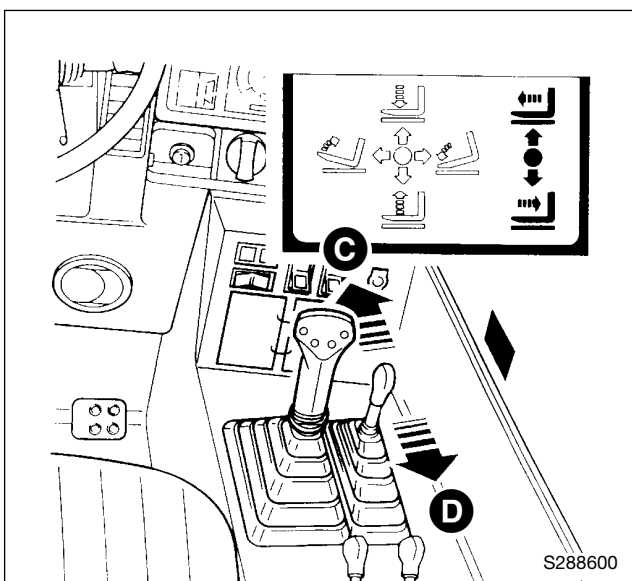
- C Extend Boom
- D Retract Boom



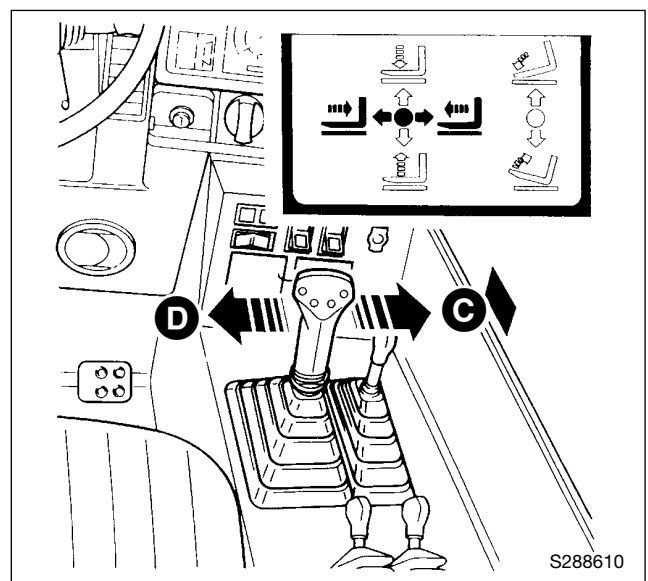
Note: Three stage booms can go out of phase if the hydraulic cylinders are not **fully** retracted regularly. Fully retract the boom at least once every day.

To re-phase the boom sections - hold the control in the retract position with the engine at high idle speed until the boom sections are fully retracted.

Loading Pattern



Placing Pattern



BOOM AND CARRIAGE CONTROLS

Dual Lever Control

Tilt Carriage Forward/Back

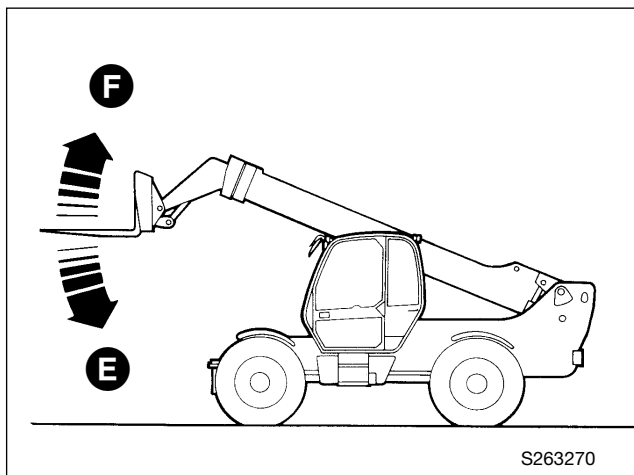
WARNING

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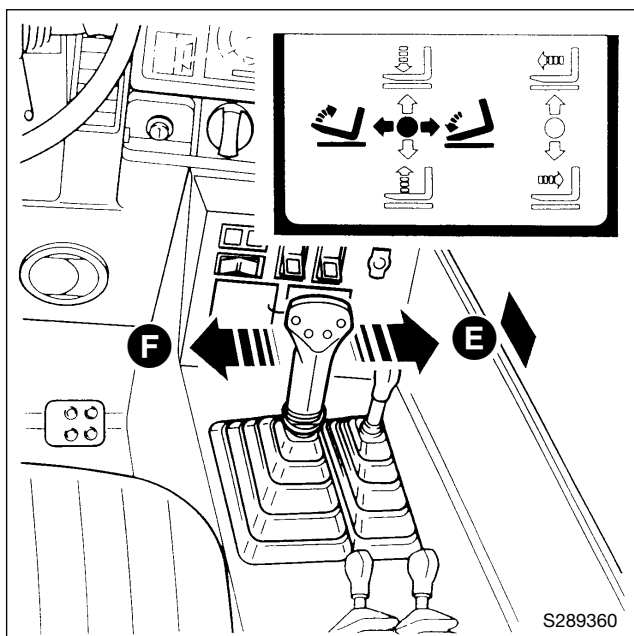
5-2-2-9

E Forward.

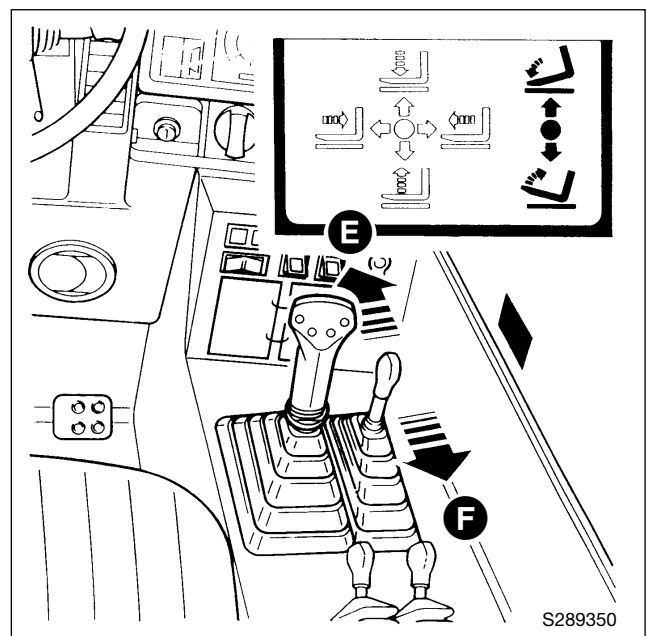
F Back.



Loading Pattern



Placing Pattern



BOOM AND CARRIAGE CONTROLS

Dual Lever Control

Auxiliary Operation

Note: To fit an attachment, see **INSTALLING AND REMOVING Q-FIT ATTACHMENTS** (OPTIONAL ATTACHMENTS section).

WARNING

Before operating the Auxiliary control system make sure that you are aware of all **WARNINGS** and **CAUTIONS** that apply to the attachment you are using. Also make sure you have fitted the attachment correctly. (see **OPTIONAL ATTACHMENT** section).

5-2-2-6

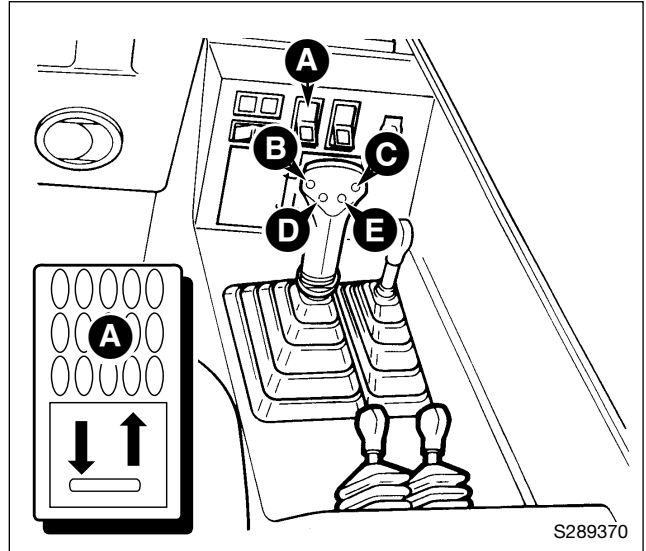
Hitch Switch or Auxiliary Switch (If fitted)

The machine is fitted with one auxiliary circuit (AUX 1). A second auxiliary circuit (AUX 2) is available as an option. An optional trailer pickup hitch, trailer brakes and trailer tip circuit is also available. In all cases there is only one auxiliary switch; selection of AUX 2 and the trailer circuits is made by means of switches.

AUX 1 - Ensure the Hitch/Auxiliary selector switch **A**, if fitted, is set to **ON**, the switch light is illuminated. Press **B** or **C** depending on the attachment fitted and the function required.

AUX 2 - Ensure the Hitch/Auxiliary selector switch **A**, if fitted, is set to **ON**, the switch light is illuminated. Press **D** or **E** depending on the attachment fitted and the function required.

HITCH OPERATION - See **Hydraulic Tow Hitch Option** in **OPERATION** Section.



BOOM AND CARRIAGE CONTROLS

Dual Lever Control

Control Locks

The requirement for control lever lock/isolation varies according to local legislation. You must comply with local legislation at all times. The locks/switches are designed to lock or isolate the control(s) in the neutral position. Refer to the illustration applicable to your machine

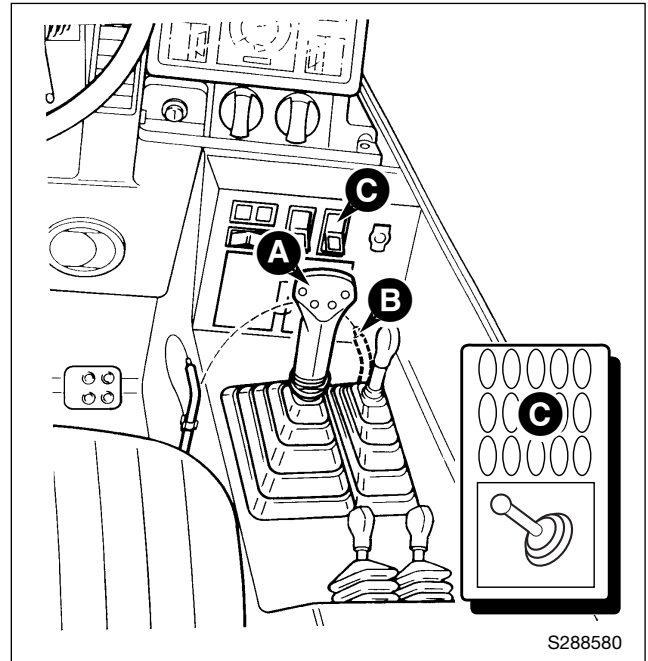
All Lever Lock

Lock all the controls before travelling on public roads. To lock the controls, ensure the lever **A** is in the neutral position, then press down pin **B** as far as it will go. Before starting the engine make sure the controls are locked. To release the lock raise the pin fully.

Isolate the joystick button functions before travelling on public roads. To isolate the buttons, operate the Joystick Isolation Switch **C**.

Tilt Lever Lock

This lock **MUST** be fitted when using a platform, see **Working with a Platform** (this section). To lock the controls ensure the tilt lever is in the neutral position, then press down pin **B** as far as it will go. Before starting the engine make sure the controls are locked. To release the lock raise the pin fully.



BOOM AND CARRIAGE CONTROLS

Manual Auxiliary Control

Raise Boom/Lower Boom

⚠ WARNING

You or others can be killed or seriously injured if you operate the control levers from outside the cab. Operate the control levers only when you are correctly seated inside the cab.

INT-2-1-3

⚠ WARNING

Operating the boom while travelling can cause accidents. You will not have total control of the machine. Never operate the boom while travelling.

5-1-5-2

⚠ DANGER

You can be electrocuted if you get your machine too close to live electrical power lines. Before starting work, find out if there are electrical power lines on the jobsite. If there are, contact the local electricity supplier and ask what safety precautions you must take. Also find out if there are any local laws and regulations concerned with work near electrical power lines.

When you have found out what safety precautions, laws and regulations apply to the jobsite, make sure they are all obeyed.

5-1-5-6

⚠ WARNING

Make sure it is clear overhead before raising the boom. Keep an adequate safe distance from all electrical power lines. Contact your local power company for safety procedures.

5-2-1-5/1

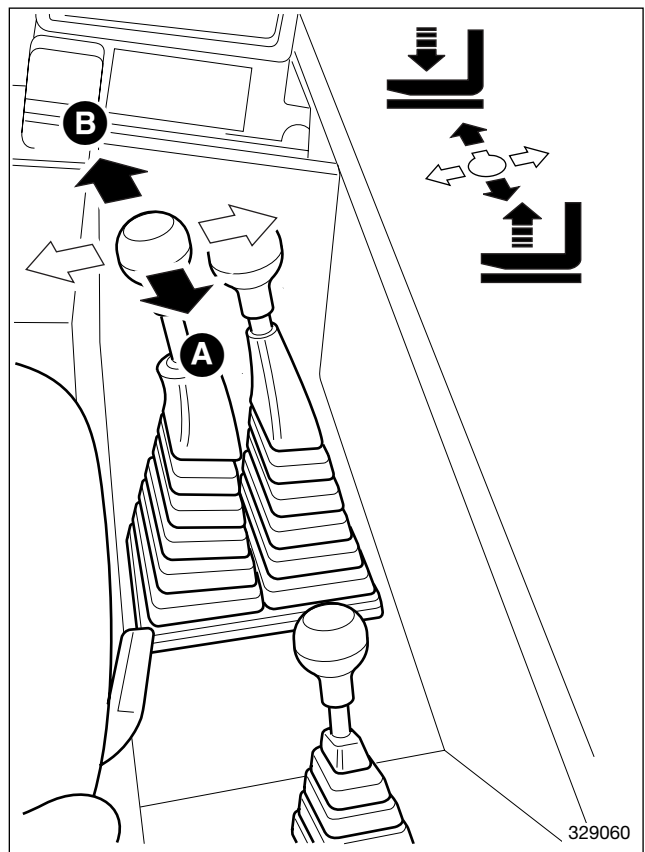
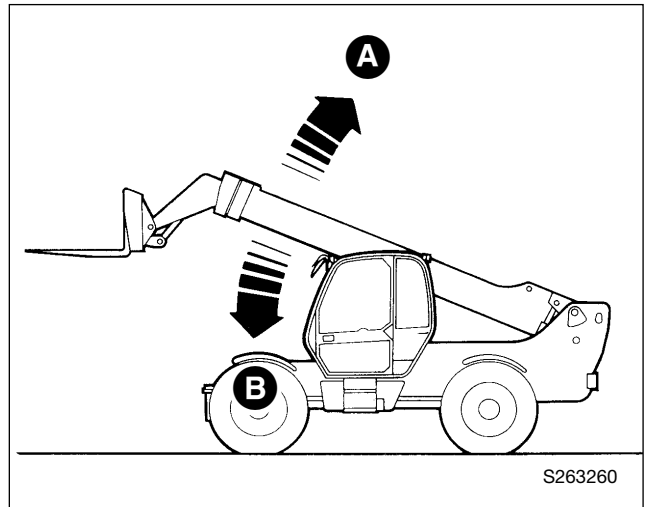
⚠ WARNING

Release the boom raise lever as soon as the boom is fully raised. Holding the control in the lift position can result in the carriage slowly crowding back.

5-2-1-11

The levers are spring-loaded to their central hold positions. The speed of movement of the associated hydraulic rams depends on how far you move a lever - the further you move the lever, the faster the ram action.

The rams will stay in any position until you move them with the levers or switches.



- A Raise Boom
- B Lower Boom

BOOM AND CARRIAGE CONTROLS

Manual Auxiliary Control

Extend Boom/Retract Boom

WARNING

Make sure it is clear overhead before extending a raised boom. Keep an adequate safe distance from all electrical power lines. Contact your local power company for safety procedures.

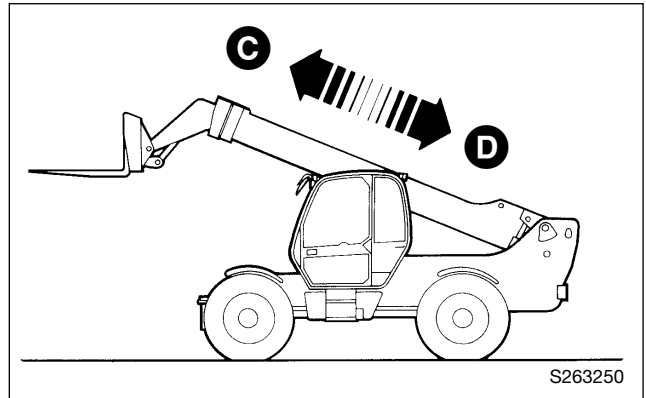
5-2-2-1/1

WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

5-2-2-9

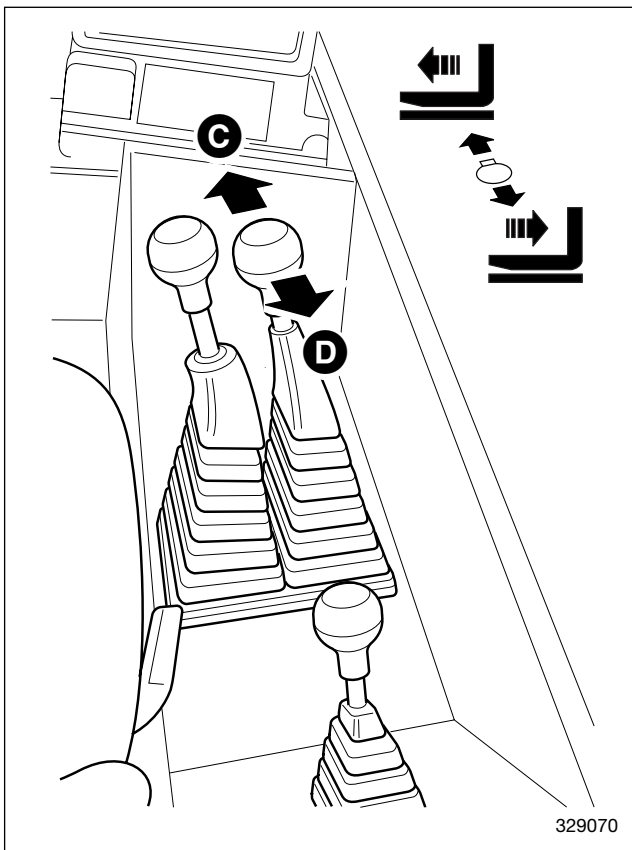
- C** Extend Boom
- D** Retract Boom



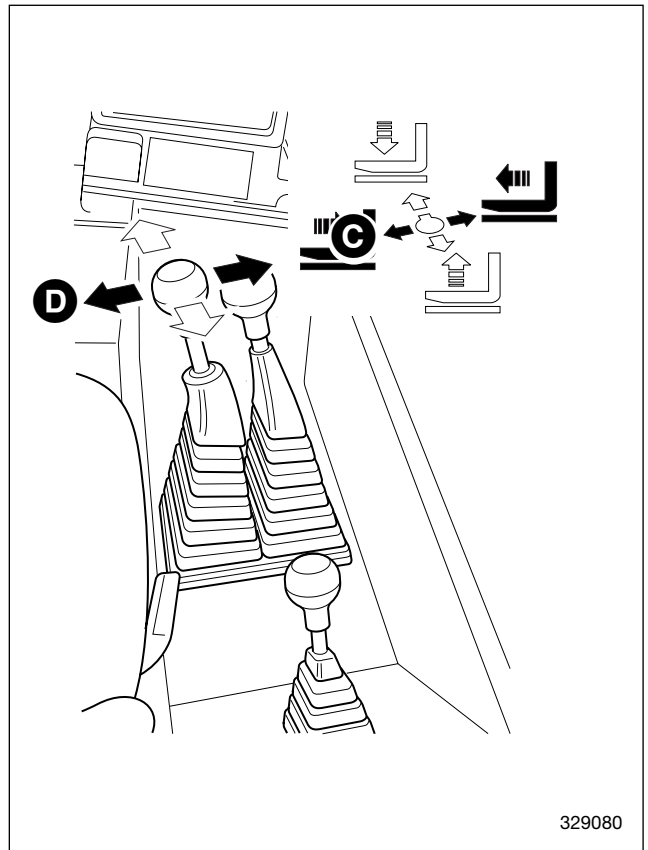
Note: Three stage booms can go out of phase if the hydraulic cylinders are not **fully** retracted regularly. Fully retract the boom at least once every day.

To re-phase the boom sections - hold the control in the retract position with the engine at high idle speed until the boom sections are fully retracted.

Loading Pattern



Placing Pattern



BOOM AND CARRIAGE CONTROLS

Manual Auxiliary Control

Tilt Carriage Forward/Back

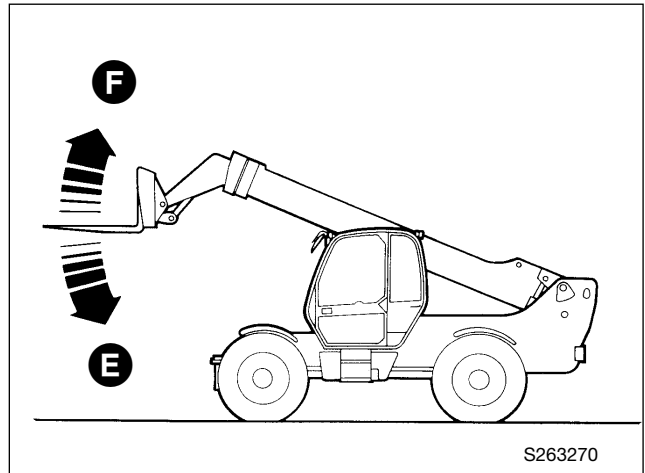
WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

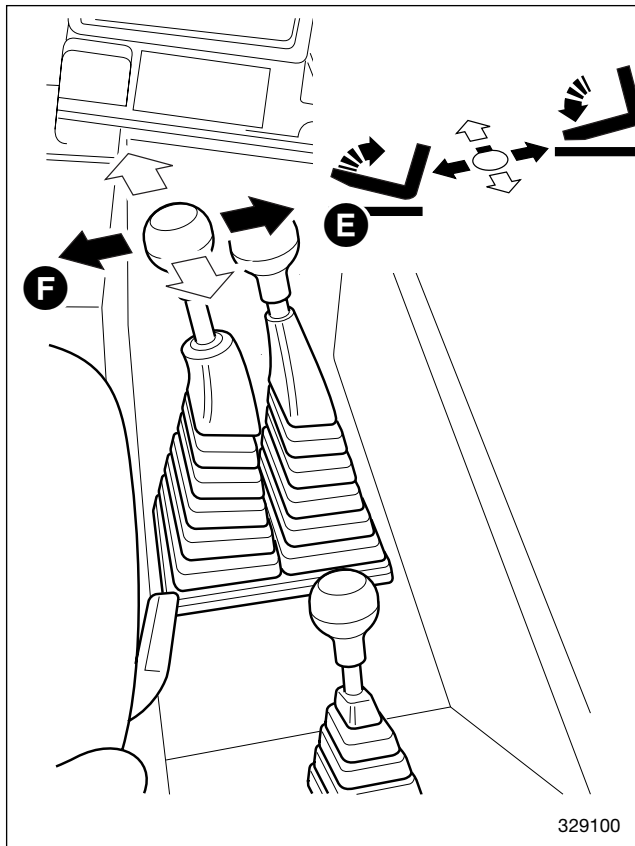
5-2-2-9

E Forward.

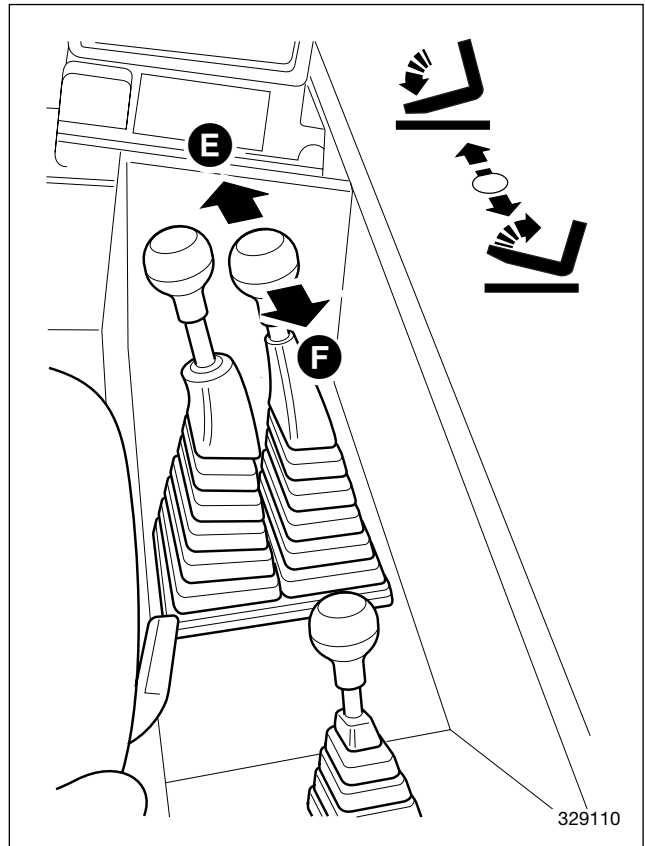
F Back.



Loading Pattern



Placing Pattern



BOOM AND CARRIAGE CONTROLS

Manual Auxiliary Control

Auxiliary Operation

Note: To fit an attachment, see **INSTALLING AND REMOVING Q-FIT ATTACHMENTS** (OPTIONAL ATTACHMENTS section).

WARNING

Before operating the Auxiliary control system make sure that you are aware of all **WARNINGS** and **CAUTIONS** that apply to the attachment you are using. Also make sure you have fitted the attachment correctly. (see **OPTIONAL ATTACHMENT** section).

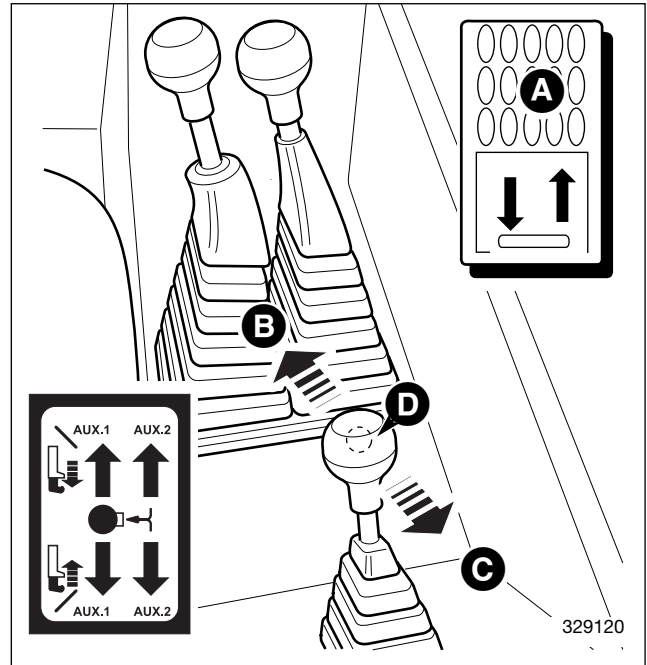
5-2-2-6

530 and 540 Machines

The machine is fitted with one auxiliary circuit (AUX 1). A second auxiliary circuit (AUX 2) is available as an option. An optional trailer pickup hitch, trailer brakes and trailer tip circuit is also available. In all cases there is only one auxiliary switch; selection of AUX 2 and the trailer circuits is made by means of switches.

AUX 1 - Ensure the Hitch/Auxiliary selector switch **A**, is set to **ON**, the switch light is illuminated. Move control lever in direction **B** or **C** depending on the attachment fitted and the function required.

AUX 2 - Ensure the Hitch/Auxiliary selector switch **A**, is set to **ON**, the switch light is illuminated. Press and hold button **D**. Move the control lever in direction **B** or **C** depending on the attachment fitted and the function required.

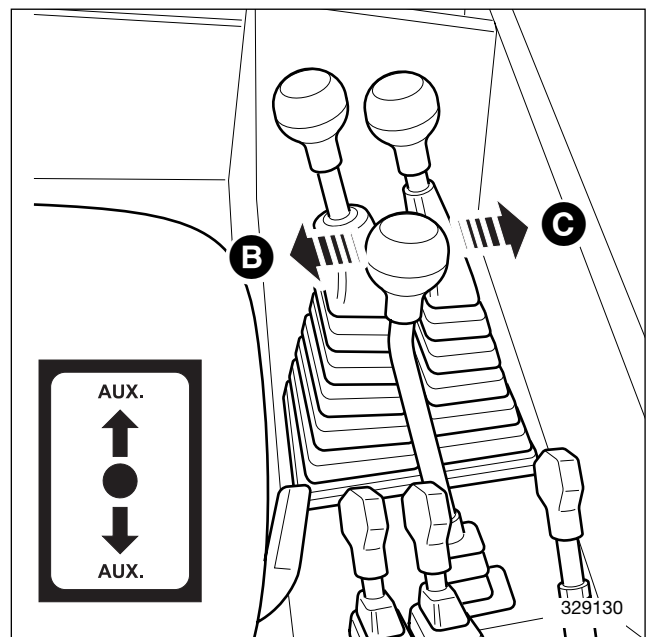


532 and 537 Machines

The machine is fitted with one auxiliary circuit (AUX 1).

AUX 1 - Move control lever in direction **B** or **C** depending on the attachment fitted and the function required.

HITCH OPERATION - See **Hydraulic Tow Hitch Option** in **OPERATION** Section.



BOOM AND CARRIAGE CONTROLS

Manual Auxiliary Control

Control Locks

The requirement for control lever lock/isolation varies according to local legislation. You must comply with local legislation at all times. The locks/switches are designed to lock or isolate the control(s) in the neutral position.

All Lever Lock

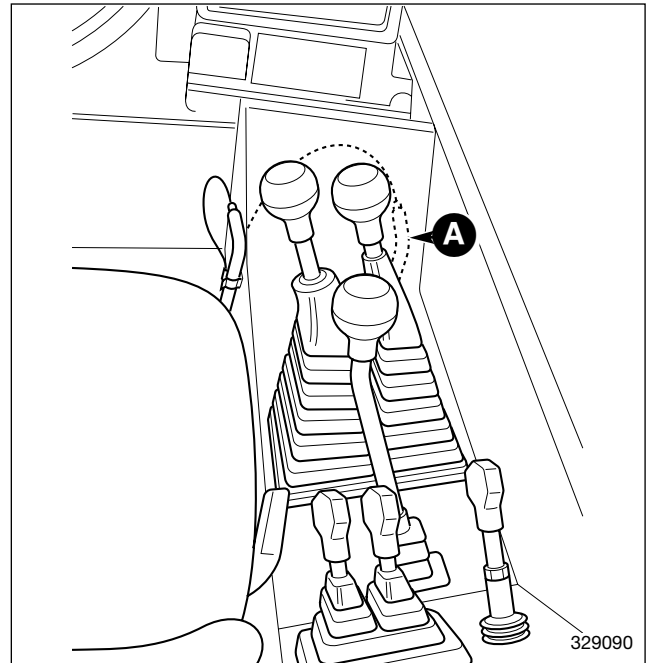
Lock all the controls before travelling on public roads. To lock the controls, ensure the levers are in the neutral position, then press down pin **A** as far as it will go. Before starting the engine make sure the controls are locked. To release the lock raise the pin fully.

Tilt Lever Lock

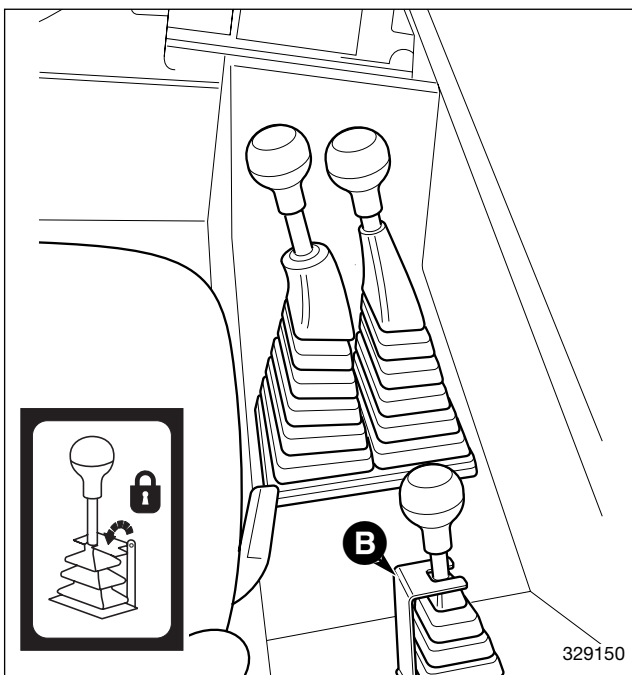
This lock **MUST** be fitted when using a platform, see **Working with a Platform** (this section). To lock the controls ensure the lever tilt lever is in the neutral position, then press down pin **A** as far as it will go. Before starting the engine make sure the controls are locked. To release the lock raise the pin fully.

Auxiliary Lever Lock

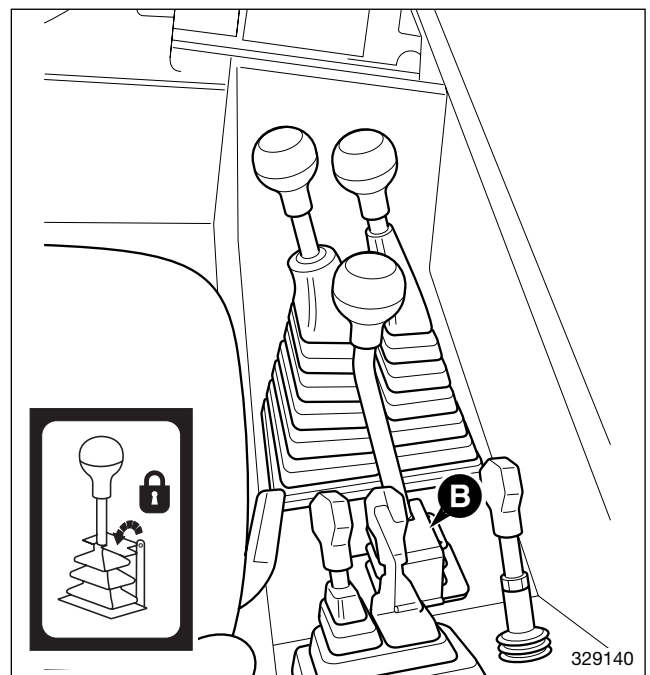
To lock the controls, ensure the auxiliary lever is in the neutral position and move the mechanical lock **B** to the lock position. Before starting the engine make sure the lever is locked. Move the lock away from the lever to release.



530 & 540 Machines



532 & 537 Machines



BOOM AND CARRIAGE CONTROLS

Servo Control

Raise Boom/Lower Boom

WARNING

You or others can be killed or seriously injured if you operate the control levers from outside the cab. Operate the control levers only when you are correctly seated inside the cab

INT-2-1-3

WARNING

Operating the boom while travelling can cause accidents. You will not have total control of the machine. Never operate the boom while travelling.

5-1-5-2

DANGER

You can be electrocuted if you get your machine too close to live electrical power lines. Before starting work, find out if there are electrical power lines on the jobsite. If there are, contact the local electricity supplier and ask what safety precautions you must take. Also find out if there are any local laws and regulations concerned with work near electrical power lines.

When you have found out what safety precautions, laws and regulations apply to the jobsite, make sure they are all obeyed.

5-1-5-6

WARNING

Make sure it is clear overhead before raising the boom. Keep an adequate safe distance from all electrical power lines. Contact your local power company for safety procedures.

5-2-1-5/1

WARNING

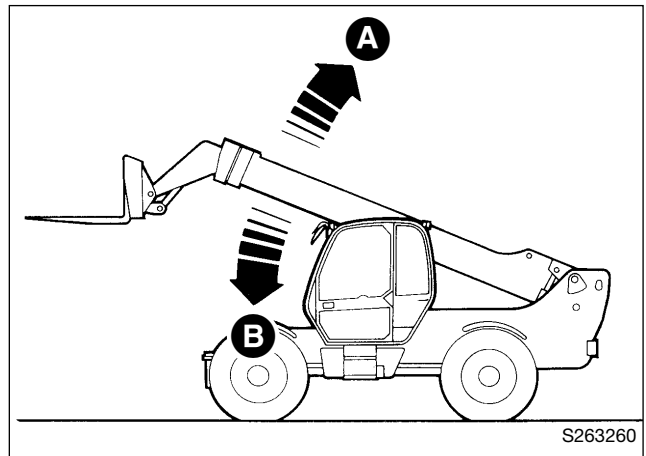
Release the boom raise lever as soon as the boom is fully raised. Holding the control in the lift position can result in the carriage slowly crowding back.

5-2-1-11

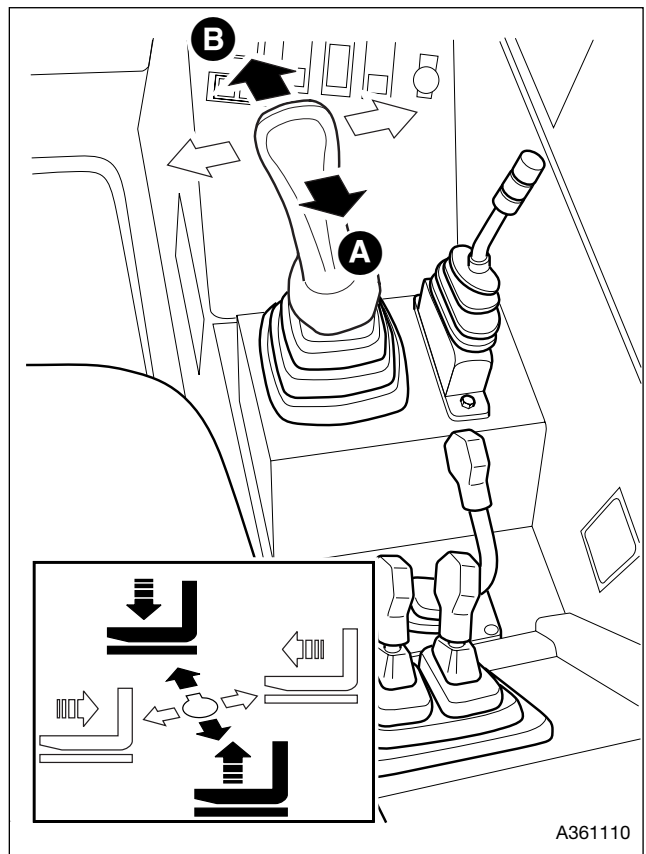
The levers are spring-loaded to their central hold positions. The speed of movement of the associated hydraulic rams depends on how far you move a lever - the further you move the lever, the faster the ram action.

The rams will stay in any position until you move them with the levers or switches.

The boom cannot be raised above 57° without lowering the stabiliser legs. See **Using the Stabilisers** (OPERATION Section).



S263260



A361110

- A Raise Boom
- B Lower Boom

BOOM AND CARRIAGE CONTROLS

Servo Control

Extend Boom/Retract Boom

⚠ WARNING

Make sure it is clear overhead before extending a raised boom. Keep an adequate safe distance from all electrical power lines. Contact your local power company for safety procedures.

5-2-2-1/1

⚠ WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

5-2-2-9

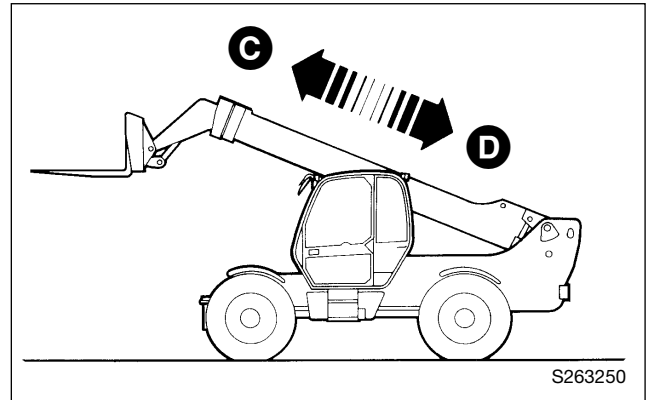
⚠ CAUTION

Do not extend the boom whilst an attachment is connected to the high flow auxiliary connectors (if fitted). Severe damage to the hoses will result.

0054

C Extend Boom

D Retract Boom



Extend Boom/Retract Inner Boom

⚠ CAUTION

Do not extend the inner boom section until all intermediate sections are fully extended. This will reduce load on the boom. Always extend the intermediate boom sections first for routine operation of the machine.

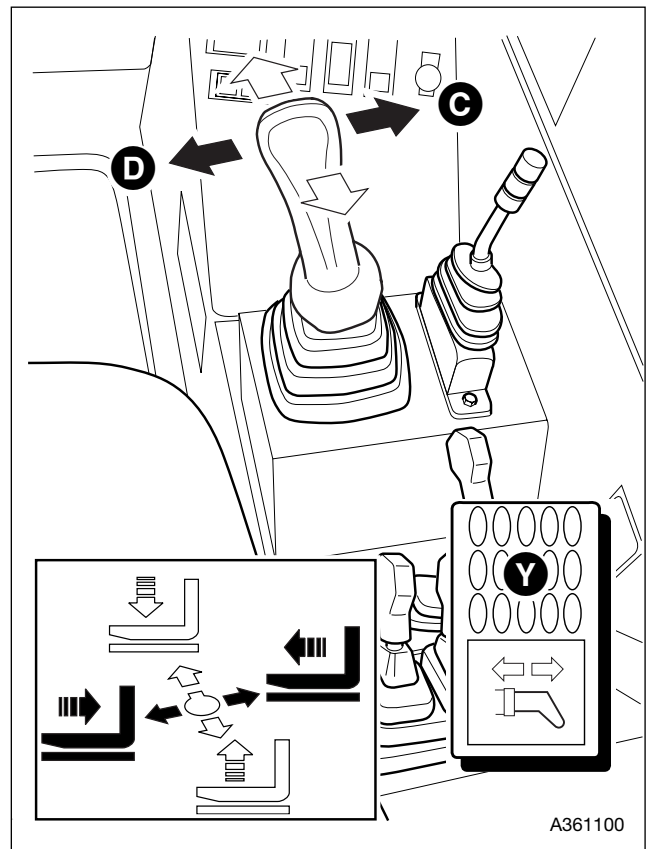
0052

The inner boom section will not operate until the stabiliser legs are lowered.

- 1 Lower the stabilisers. See *Using the stabilisers* (OPERATION Section).
- 2 Press switch **Y** to activate the inner boom section,
- 3 Operate main control lever as required.

C Extend Inner Boom

D Retract Inner Boom



BOOM AND CARRIAGE CONTROLS

Servo Control

Tilt Carriage Forward/Back

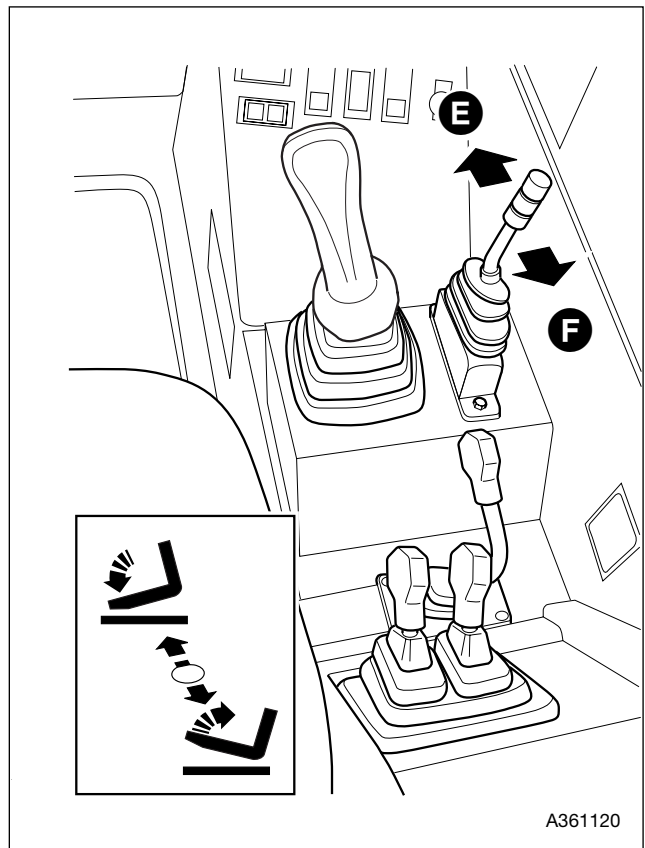
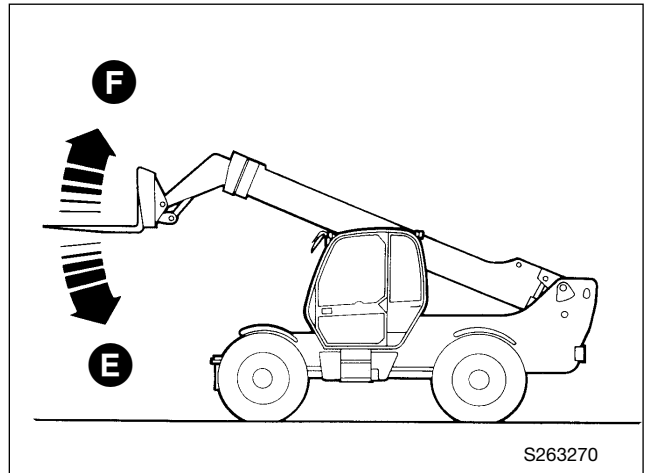
WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

5-2-2-9

E Forward.

F Back.



BOOM AND CARRIAGE CONTROLS

Servo Control

Auxiliary Operation

Note: To fit an attachment, see **INSTALLING AND REMOVING Q-FIT ATTACHMENTS** (OPTIONAL ATTACHMENTS section).

⚠ WARNING

Before operating the Auxiliary control system make sure that you are aware of all **WARNINGS** and **CAUTIONS** that apply to the attachment you are using. Also make sure you have fitted the attachment correctly. (see **OPTIONAL ATTACHMENT** section).

5-2-2-6

The machine is fitted with one auxiliary circuit (AUX 1). This circuit has standard couplings **D** at the end of the boom and (if fitted) a set of high flow couplings **E** on the outer boom. High flow will only operate if the standard couplings are not connected.

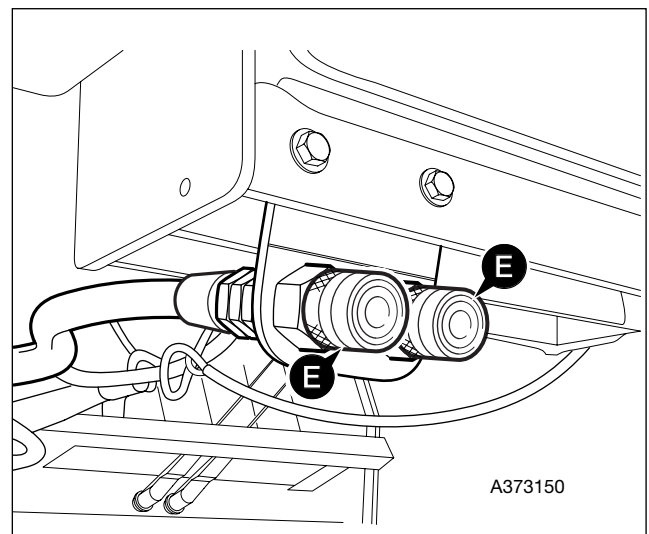
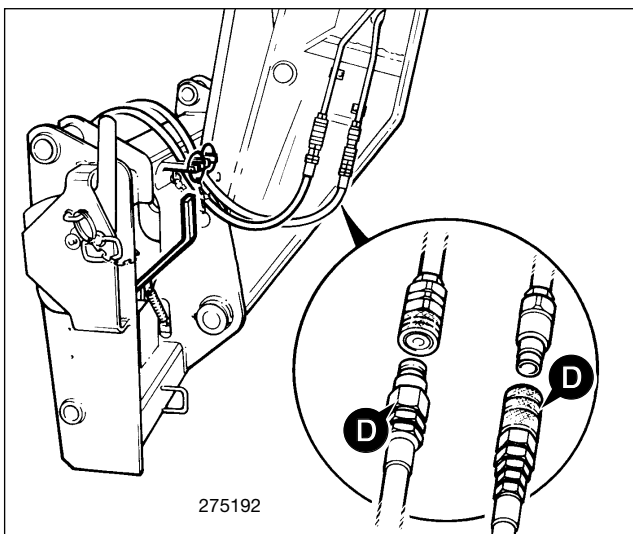
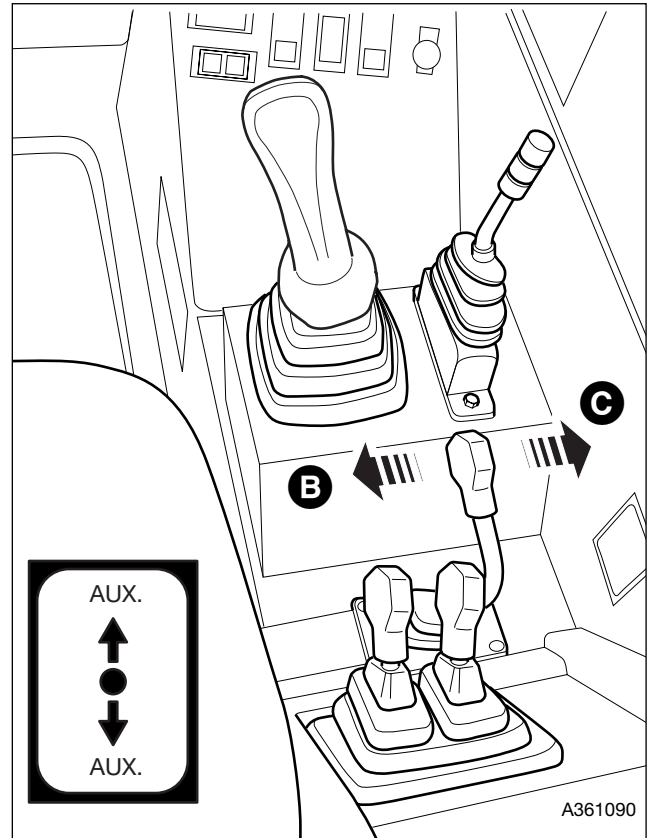
⚠ CAUTION

Do not extend the boom whilst an attachment is connected to the high flow auxiliary connectors (if fitted). Severe damage to the hoses will result.

0054

Standard and high flow attachments use the same controls.

AUX 1 - Move control lever in direction **B** or **C** depending on the attachment fitted and the function required.



BOOM AND CARRIAGE CONTROLS

Servo Control

Control Locks

The requirement for control lever lock/isolation varies according to local legislation. You must comply with local legislation at all times. The locks/switches are designed to lock or isolate the control(s) in the neutral position.

All Lever Lock

Lock all the controls before travelling on public roads. To lock the controls:

- 1 Ensure the levers are in the neutral position
- 2 Turn switch **A** to position **B**.

Before starting the engine make sure the controls are locked.

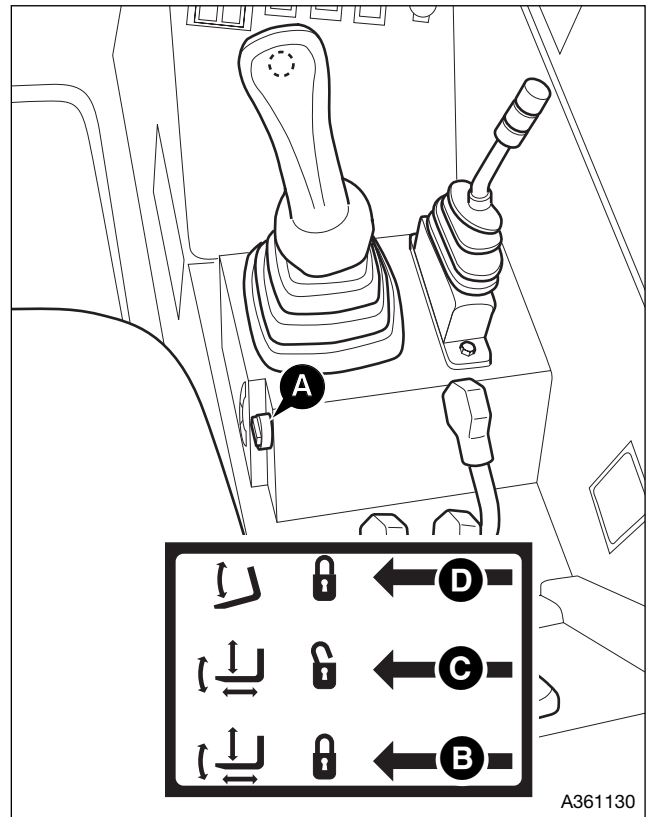
Turn the switch to the central position **C** to release the lock.

Tilt Lever Lock

This lock **MUST** be fitted when using a platform, see **Working with a Platform** (this section). To lock the controls:

- 1 Ensure the levers are in the neutral position
- 2 Turn switch **A** to position **D**.

Turn the switch to the central position **C** to release the lock.



CHASSIS LEVELLING (SWAY) OPTION

The chassis levelling (sway) control switch allows the machine to be levelled from side to side before loading and unloading. The switch must also be used to level the machine from side to side before travelling.

The ram will stay in any position until you move it with the switch.

The switch movements and chassis levelling movements are indicated on a decal.

Chassis levelling (sway) cannot be operated once the boom is higher than 10° above the horizontal.

WARNING

Never operate the chassis levelling (sway) control when the boom is above the horizontal position. Never operate the boom if the machine is not level.

Use chassis levelling (sway) to level the machine before operating the boom. Reposition the machine if a level position cannot be achieved.

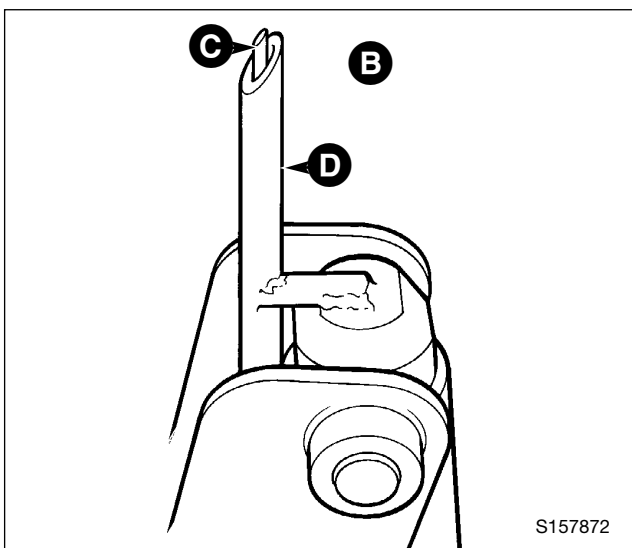
**Never operate chassis levelling (sway) when the machine is moving.
The machine could tip over if you do not obey these safety rules.**

5-2-2-5/3

WARNING

You or others can be killed or seriously injured if you operate the control levers from outside the cab. Operate the control levers only when you are correctly seated in the cab.

INT-2-1-3

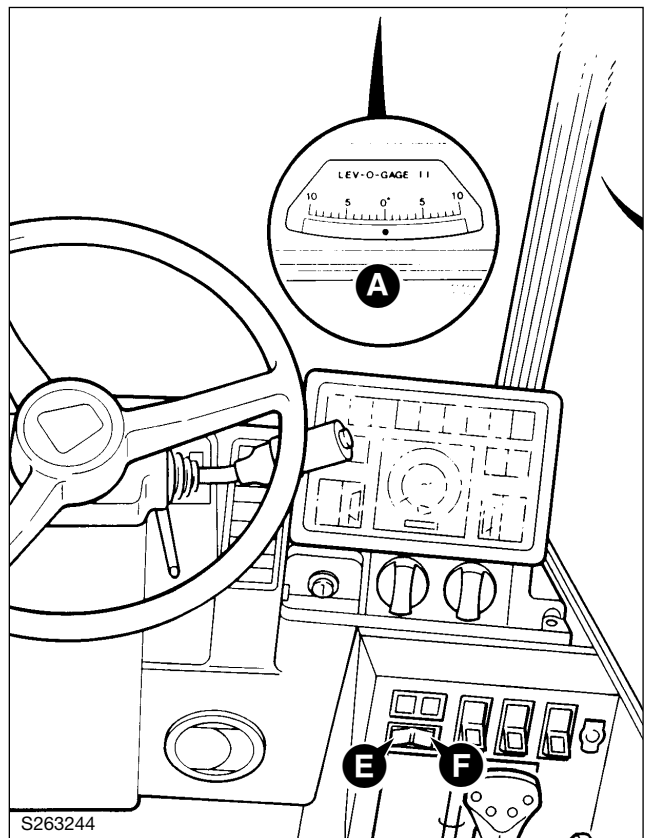


Use inclinometer **A** to check that the machine is level before operating the boom. The machine is level when the inclinometer shows zero degrees (0°).

Use indicator **B** to check that the body of the machine is square to the axles before driving the machine. The machine is square to the axles when rod **C** is level with the top end of tube **D**. When the rod is above the tube, the machine is swayed to the right. When the rod is down inside the tube, the machine is swayed to the left.

Sway Left/Sway Right

- E** Left.
- F** Right.



STABILISER CONTROL OPTION

Using the Stabilisers

WARNING

Do not allow debris to accumulate in the cavity between the ram and the stabiliser leg. Remove and clean away all debris that may have built-up.

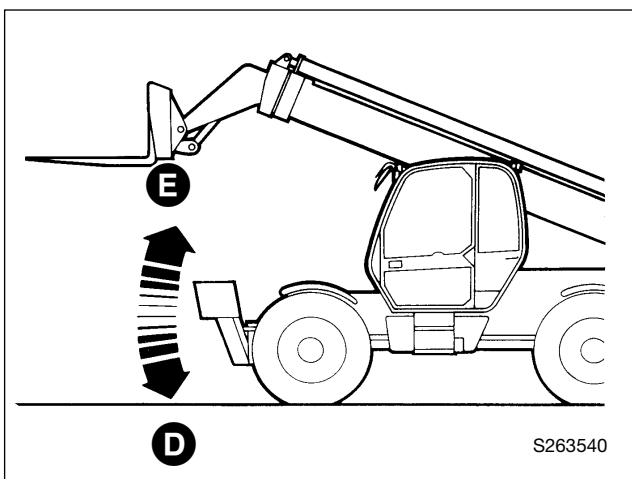
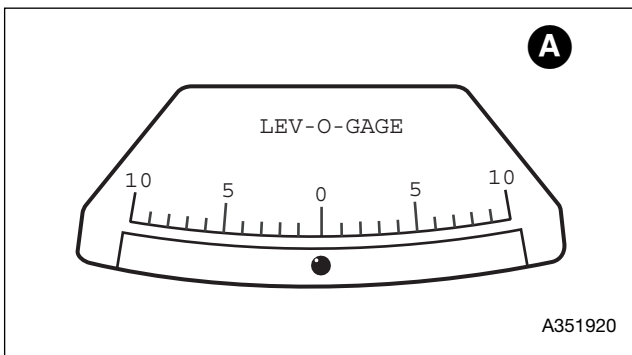
0001

The use of stabilisers increases the stability of the machine when lifting.

The lateral position of the machine is indicated by an inclinometer **A** fitted in the cab. Use inclinometer to check that the machine is level before operating the boom. The machine is level when the inclinometer shows zero degrees (0°).

Reposition the machine if a level position cannot be achieved.

Ensure the stabiliser legs are in the down position and the weight of the machine is supported. Do not extend the boom more than necessary. Isolate the stabiliser control levers before operating the machine.



Some machines are fitted with optional stabiliser indicator lights **B**. The lights will illuminate when both stabiliser legs are in the down position and the weight of the machine is supported.

If fitted, ensure both indicator lights illuminate when the stabiliser legs are in the down position. If the lights do not illuminate **do not use the machine** until the fault is investigated and corrected.

As a safety feature, the stabilisers cannot be operated once the boom is higher than 45° above the horizontal.

Lower and Raise Stabilisers

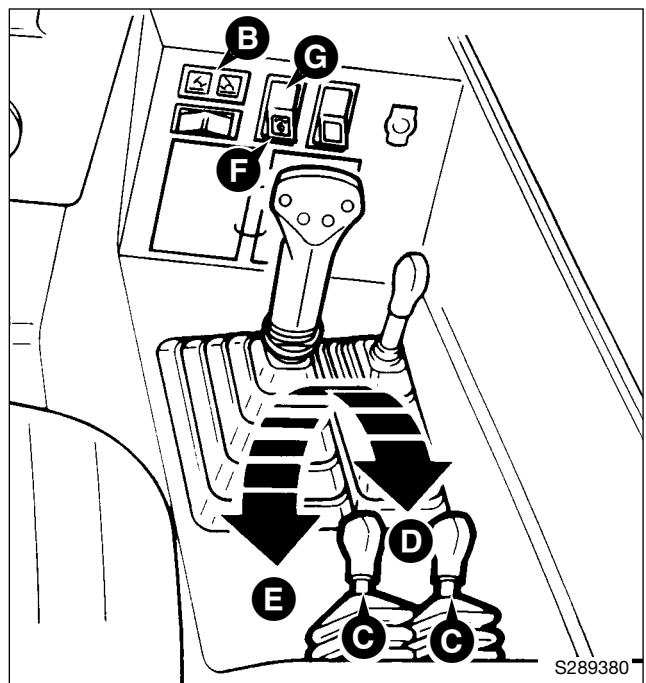
On 540-170 machines, the stabilisers cannot be raised until all the boom sections are fully retracted.

To isolate the control levers **C** press lock on switch **F**. To make the control levers operable press opposite switch **G**.

Before travelling on the public highway, fully raise both stabiliser legs and isolate control levers **C**.

When working with the stabilisers lowered isolate the control levers **C** before operating the boom controls.

- D** Lower
- E** Raise



BEFORE STARTING THE ENGINE

Note: Read *Operating in Low Temperatures* or *Operating in High Temperatures* in OPERATION section if you will be using the machine in very cold or very hot climates.

- 1 The parking brake should have been engaged when the machine was last parked. But if it is not already engaged, engage it now. The engine will not start unless the parking brake is engaged.

DANGER

Before lowering the carriage to the ground, make sure that the machine and the area around it are clear of other people. Anyone on or close to the machine could fall and be crushed by the carriage, or get caught in the linkages.

5-2-2-2

- 2 The carriage should have been lowered to the ground when it was last parked. If not, start the engine, see **Starting the Engine** this section, and lower the carriage to the ground. Then stop the engine before continuing with Step 3.
- 3 For your own safety (and others) and for a maximum service life of your machine, do a pre-start inspection before starting the engine.
 - a If you haven't already done it, do a walkround inspection of the outside of the machine. See **Before Entering the Cab** OPERATING Section.
 - b Remove dirt and rubbish from the cab interior, especially around the pedals and control levers.

WARNING

Keep the machine controls clean and dry. Your hands and feet could slide off slippery controls. If that happens you will lose control of the machine.

2-2-3-6

- c Remove oil, grease and mud from the pedals, control levers and the steering wheel.
- d Make sure that your hands and shoes are clean and dry.

WARNING

Loose articles can fall and strike you or roll on the floor. You could be knocked unconscious, or the controls could get jammed. If that happens you will lose control of the machine.

2-2-3-7/1

- e Remove or secure all loose articles in the cab - such as lunch boxes, tools etc.
- f Inspect the ROPS/FOPS structure for damage. Get your JCB distributor to repair any damage.
- g Check round the cab for loose or missing bolts, screws etc. Fit new ones or tighten where necessary.

WARNING

Do not use a seat belt which is damaged or excessively worn.

Do not use a seat belt that has been in an accident.

A worn, damaged or already stressed seat belt could break or give way in a collision. If that happens you could be killed or injured.

2-2-3-8

WARNING

Do not drive the machine without wearing the seat belt, properly fastened and adjusted.

2-2-3-9

- h Inspect the seat belt and its mountings for damage and excessive wear.
- 4 Check that the following are in working order:

Lights, Warning Lights, All switches, Direction Indicators, Hazard Warning Lights, Windscreen Washer and Wipers, Reverse Alarm.
- 5 Adjust the seat so that you can comfortably reach all the driving controls. You should be able to apply full brake pedal travel with your back against the seat back.
- 6 Set the rear view mirror(s) to give you a good view close behind the machine when you are correctly seated.

STARTING THE ENGINE

- 1 Read **Before Starting the Engine** on the previous page.
- 2 The parking brake should have been engaged when the machine was last parked. If it is not engaged, engage it now.
- 3 Put the Forward/Reverse lever in neutral. The engine will not start unless the forward/reverse lever is in neutral.
- 4 The battery isolator key must be fitted and switched on before attempting to start the engine, see **Battery** (MAINTENANCE section).

WARNING

The ROPS cab is designed to give you protection in an accident. If you do not wear your seat belt you could be thrown about inside the cab, or thrown out of the machine and crushed. You must wear a seat belt when using the machine. Fasten the seat belt before starting the engine.

2-2-1-9

- 5 If the machine is fitted with Immobiliser Option, insert and remove immobiliser key to deactivate the system. See **Immobiliser Option** (INTRODUCTION section).
- 6 Fully depress the accelerator pedal and hold it down. Turn the starter switch to position **D** and hold it there until the engine has started. Once the engine has started, release the starter key. The switch will return to position **B**. Ease off on the accelerator pedal to reduce engine speed.

If the outside temperature is low, say 0°C (32°F) or below, turn the starter switch key to the 'heat' position **C** for 15-30 seconds to warm the engine induction manifold.

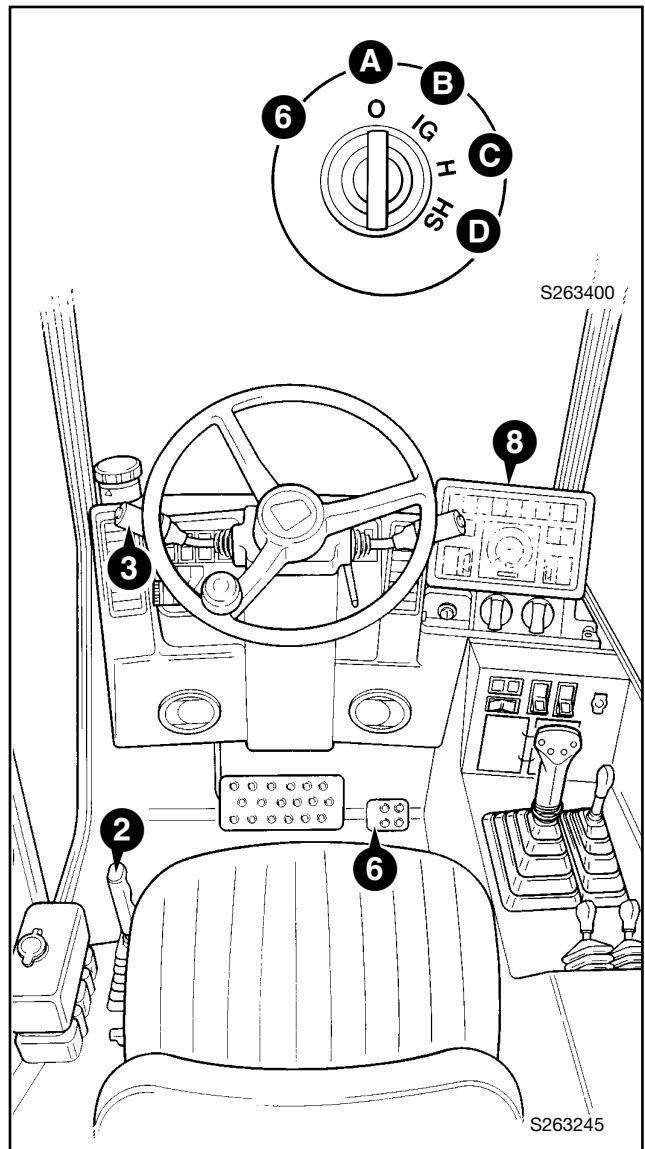
If the engine has not started after 20 seconds, release the starter key. Wait two minutes before attempting another start. This will allow the starter motor to cool down.

Note: New engines DO NOT require a running-in period. The engine/machine should be used in a normal work cycle immediately; glazing of the piston cylinder bores resulting in excessive oil consumption could occur if the engine is gently run-in. Under no circumstances should the engine be allowed to idle for extended periods; (e.g. warming up without load).

- 7 Allow the engine to warm up above idle speed and operate the boom a few times to help warm up the hydraulic system.
- 8 Once the engine has started, check that all the warning lights have gone off. Do not race the engine until the **engine oil pressure low light** has gone out. Racing the engine too soon could damage the turbo-charger due to under-lubrication. Check that the audible alarm is silent.

Note: If any warning lights fail to go off, or come on while the engine is running, stop the engine as soon as it is safe to do so.

If the battery is not fully charged and the engine fails to start, see **Jump-Starting the Engine** (MAINTENANCE section).



PREPARING FOR ROAD TRAVEL

IMPORTANT NOTE: Whilst this information is believed to be correct, JCB cannot be aware of all circumstances in which the JCB machine may be operated on a Public Highway and it is the responsibility of the user to ensure compliance with the regulations.

Make sure you will be obeying all pertinent laws and regulations before you take the machine on public roads.

- 1 In certain countries ie. Italy, legislation requires the front windscreen guard (if fitted) is removed before travelling on public roads.
- 2 Use the chassis levelling (sway) switch, (if fitted) to set the body of the machine square to the axles. See **Chassis Levelling (Sway) Option** (this section).
- 3 Ensure both stabiliser legs, (if fitted) are fully raised and isolated. See **Stabiliser Control Option** (this section).
- 4 Fully retract the boom. Lower the boom fully then raise it slightly. Tilt the carriage back, to keep the heel of the forks **A** 100-150 mm (4-6 in) above the ground.

WARNING

Forks are heavy. Take care when spacing forks or folding back the forks.

0002

- 5 In certain countries legislation requires the forks to be folded back before travelling on public roads. Fit fork retention brackets **B** (as required) and secure with retaining pin **C** and locking pin **D**.
- 6 In certain countries ie. Germany, legislation requires the forks to be removed and safety guard **E** fitted. Check local requirements.
- 7 In certain countries ie. Italy, legislation requires safety marker plate **F** to be fitted before travelling on public roads.

In the UK, before travelling on public roads, it is your responsibility as a user to comply with The Road Vehicles (Construction and Use) (Amendment) Regulations 1997 ('Bridge Bashing Regulations'). By way of guidance only, the following steps may be taken to comply:

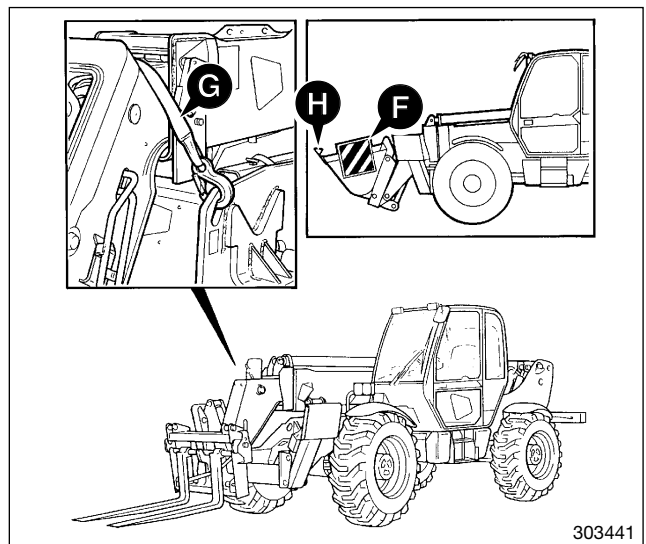
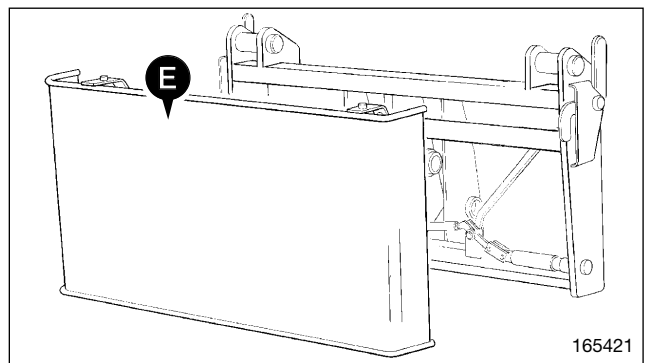
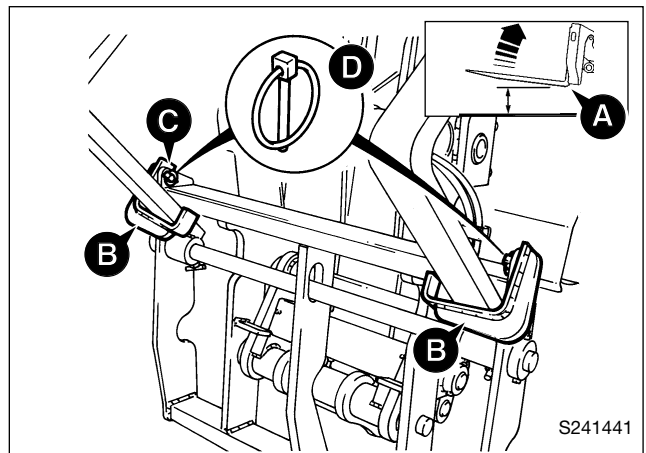
- i Always assess your route for overhead structures, such as bridges, which could be damaged by your machine.
- ii Utilize the restraining device (Described) to ensure the equipment is in the travelling position.

- 8 With the boom in the travel position, fit restraining strap **G** over the boom and attach to the lifting lugs on the chassis side plates.

CAUTION

In low visibility or at night, we recommend removing the forks before travelling on public roads. Transport the forks on a suitable vehicle.

5-2-3-2



PREPARING FOR ROAD TRAVEL (continued)

- 9 If any optional attachments are fitted, make them safe as detailed in **OPTIONAL ATTACHMENTS** section.
- 10 When travelling with a bucket, tooth guard **H** must be fitted.

CAUTION

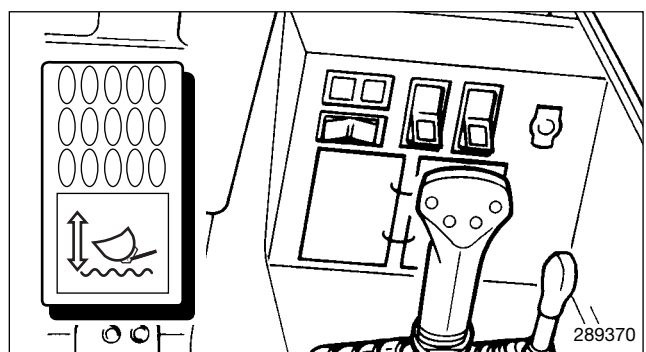
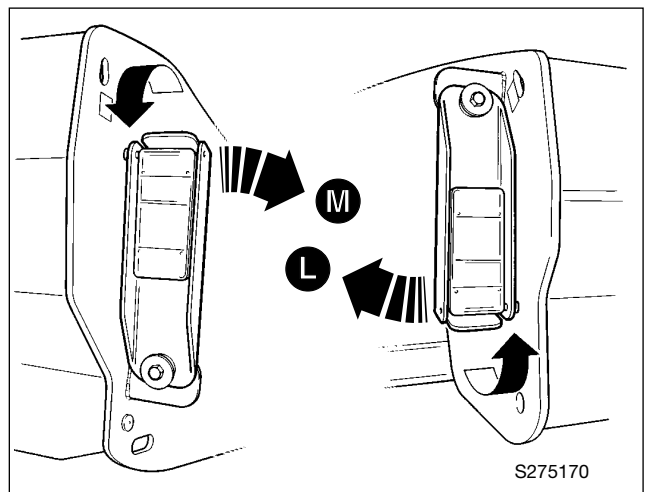
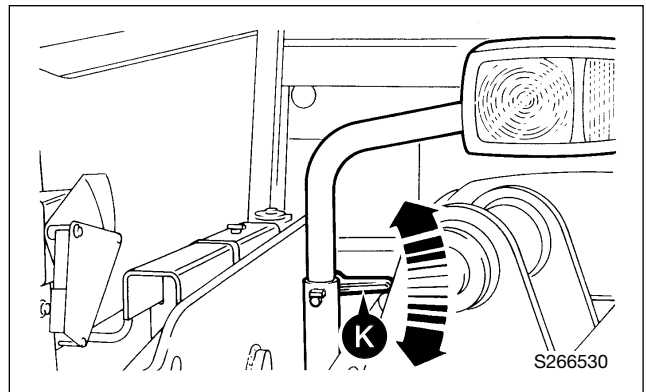
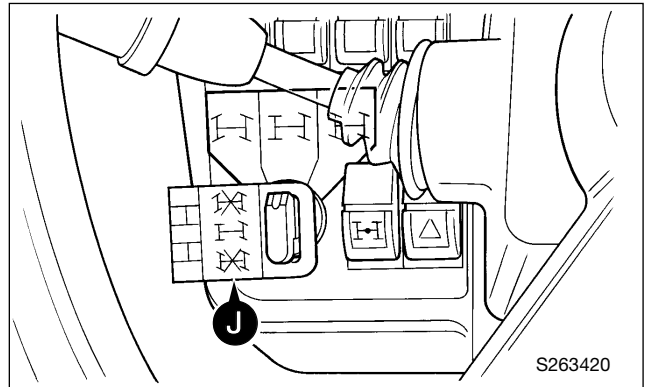
Do not travel on public roads with the machine loaded.
5-2-3-1

- 11 Lock the controls (as required), see **Control Locks** (this section).
- 12 Phase the road wheels, see **Phasing 4 Wheel Steer** (this section).

WARNING

When travelling on public highways select 2-wheel steer and lower the hinged lockplate over the selector switch. Do not use crab steer or 4-wheel steer on public highways.
5-1-5-8

- 13 Select 2 wheel steer, do not use crab steer or 4-wheel steer on public roads. Lock the steer mode selector by lowering the hinged flap **J**.
- 14 Raise both front headlights to the road travel position. Undo handle **K** and raise the front headlights to highest position. Refit handle **K** and tighten to secure in position. Check that all road lights are working correctly.
- 15 Move the rear light cluster to the horizontal position. The cluster is spring loaded by its rubber mounting bush. To swing it up **L** or down **M**, whichever is applicable to your machine, pull the cluster slightly rearward to disengage, then swing it to the new position.
- 16 The traffic regulations may require you to have a warning beacon operating on some public roads. See **Warning Beacon** (this section).
- 17 If towing, see **Mechanical Tow Hitch, Hydraulic Tow Hitch Options** (this section).
- 18 Switch on Smooth Ride System (if fitted). See **Smooth Ride System** (this section).

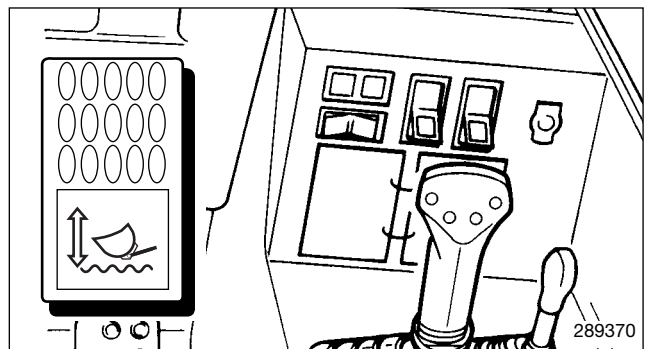
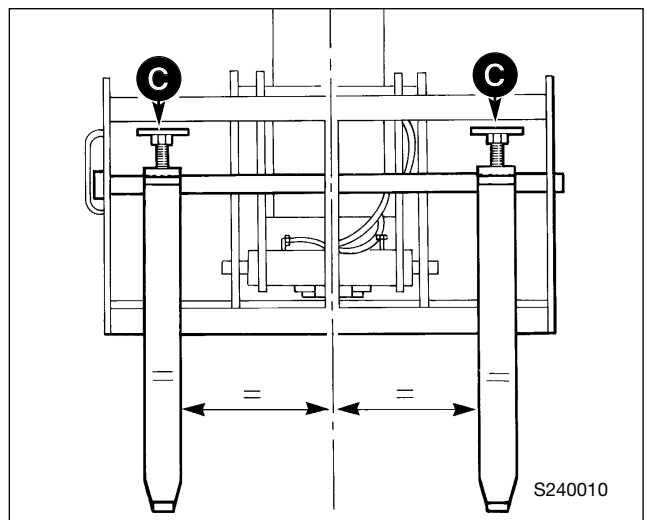
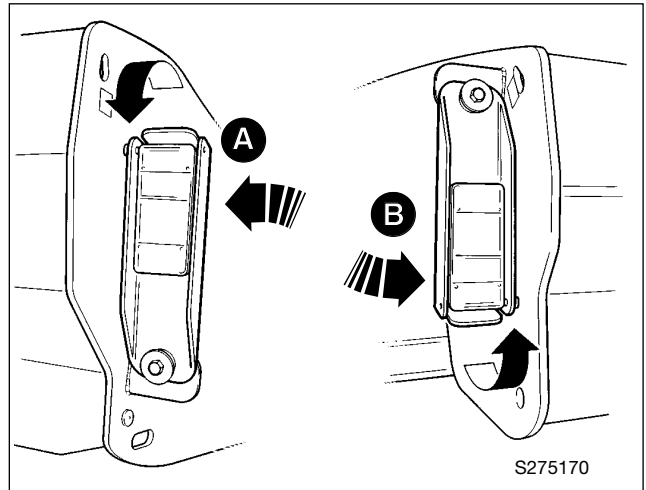


PREPARING FOR SITE TRAVEL

- 1 Use the chassis levelling (sway) switch, (if fitted) to set the machine body level with the axles.
- 2 Ensure both stabiliser legs, (if fitted) are fully raised and isolated.
- 3 Fully retract the boom. Lower the boom fully then raise it slightly. Tilt the carriage back, to keep the heel of the forks 100 - 150 mm (4 - 6 in) above the ground.

Note: When attachments are fitted, position the boom in the 'low carry' position so that the right hand mirror is not hidden from the operators view.

- 4 To prevent damage raise **A** or lower **B** the rear light cluster, whichever is applicable to your machine. The cluster is spring loaded by its rubber mounting bush. To swing it up or down, pull the cluster slightly rearward to disengage, then swing it to the new position.
- 5 Fully tighten the clamping screws **C** to prevent side movement of the forks.
- 6 If any optional attachments are fitted, make them safe as detailed in **OPTIONAL ATTACHMENTS** section.
- 7 Switch on Smooth Ride System (if fitted). See **Smooth Ride System** (this section).



SMOOTH RIDE SYSTEM

The Smooth Ride System (SRS) will enhance machine operation by smoothing the ride across uneven surfaces.

It is intended for use whilst travelling, but will also enhance machine operation when used in loading and rehandling operations.

The boom will move up and down independently of the machine with SRS selected. Make sure there is adequate ground clearance below the boom and attachment to allow for this movement.

Note: The boom must be fully lowered, or the weight supported on the ground, before the system will engage.

- 1 Lower the boom to the ground.
- 2 Press switch **A** fully down to activate the system. The switch will spring back to the ON position. Indicator light **B** will illuminate when SRS is engaged.

If light **B** does not illuminate, make sure the boom is fully lowered and repeat step 2.

- 3 Switch off SRS before placing loads where greater precision is needed.

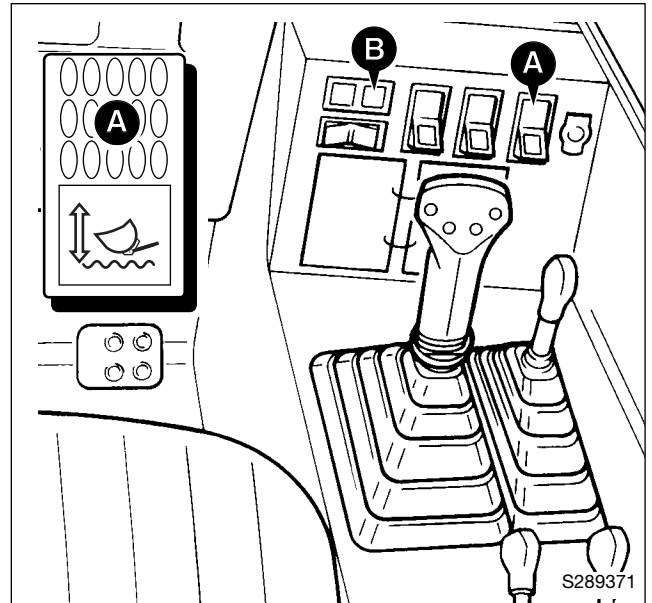
The SRS system will need to be re-selected every time the starter key is switched off, or the power supply is interrupted.

DANGER

Do not attempt to use the boom to raise the front of the machine. With the Smooth Ride System activated, the machine will drop suddenly when the control lever is released or returned to the neutral position.

Switch off SRS before working on the machine.

0032



TESTING THE PARKING BRAKE

SAFETY NOTICE: Ensure all routine health and safety precautions are observed before operating machines.

⚠ WARNING

Before testing the parking brake make sure the area around the machine is clear of people.

2-2-4-5

- 1 Enter the machine. Fasten your seat belt (if fitted) and park the machine on a level dry surface.
- 2 Fully apply parking brake 1.
- 3 Start the engine and raise the attachments to the appropriate travelling position.
- 4 Select fourth gear 2.
- 5 Push down hard on foot brake pedal 3.
- 6 Select forward drive 2.

⚠ WARNING

If the machine starts to move during the following test, immediately apply the foot brakes and reduce the engine speed.

2-2-5-1

Test the parking brake as follows:

- 7 Move the parking brake lever fractionally forward until the warning light 4 is just extinguished.
- 8 Slowly release the foot brake pedal 3.
- 9 If the machine has not moved, use the accelerator to gradually increase the engine speed to approximately 1500 RPM. The machine should not move.
- 10 Do not do this test for longer than 20 seconds.
- 11 Reduce engine speed to idle and select neutral 2.
- 12 Return park brake lever 1 to the fully on position from its partially applied position.
- 13 Lower attachments and stop the engine.
- 14 If the machine moved during the test, adjust the parking brake and repeat the test. See **Parking Brake Adjustment** (MAINTENANCE section).

If you have any queries concerning this test procedure or parking brake adjustment, consult your local JCB distributor.

⚠ WARNING

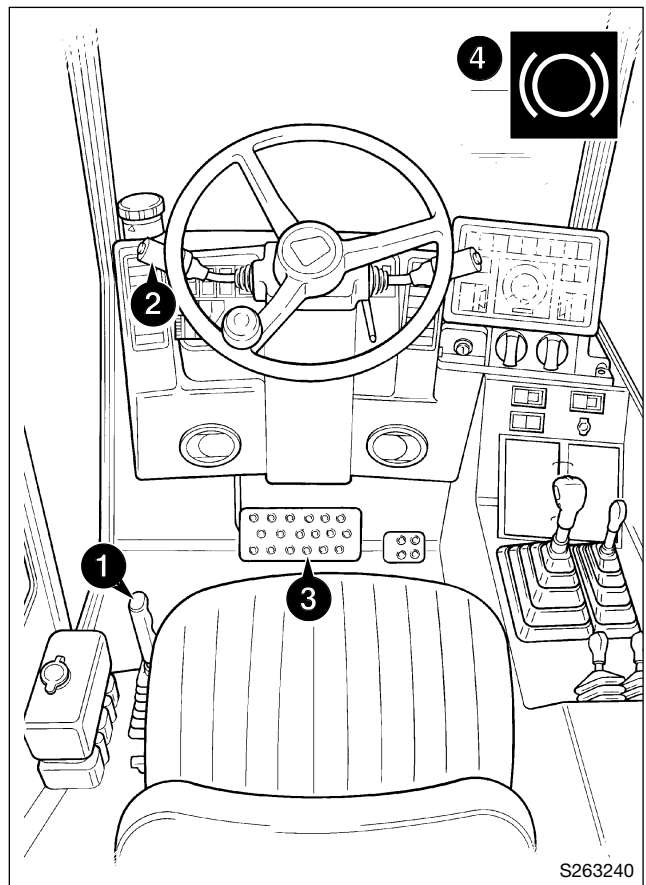
Do not use a machine with a faulty parking brake.

3-2-3-10

⚠ CAUTION

Non approved modifications to axle ratios, machine weight or wheel and tyre sizes may adversely affect the performance of the parking brake.

3-2-3-11



S263240

GETTING THE MACHINE MOVING

After you have warmed up the engine and tested the parking brake, move off as described. *Read the **Operating Practices** and **WARNINGS** first.*

Operating Practices

WARNING

Operating the machine on hillsides can be dangerous if proper precautions are not taken. Ground conditions can be changed by rain, snow, ice etc. Check the site carefully. Operate in first gear on hillsides, when applicable keep all attachments low to the ground. Never coast down a hill with the engine off or the transmission in neutral.

INT-2-2-7

The machine can be put in motion in any gear. But do not overwork the engine unnecessarily, by using too high a gear on a hill for example. Operating in too high a gear will overheat the torque converter fluid.

When moving the machine, keep it under control at all times. Stay alert for obstructions and possible hazards.

CAUTION

Do not dismount a moving machine.

3-2-3-12

Do not use the brake pedal as a footrest.

Do not coast the machine in neutral, you will not have full control. Also, coasting the machine will damage the transmission.

Do not turn on or drive across a slope.

WARNING

Always drive a LOADED machine FORWARD UPHILL and in REVERSE DOWNHILL.

9-1-3-7

Select the necessary gear **before** starting down a slope. Use the same gear you would use to go up the slope. Do not change gear on the slope.

Always select first gear before travelling downhill with a heavy load. Use the brake pedal to prevent overspeeding.

Approach deep mud in first gear with the wheels straight.

Take particular care when reversing. Make sure your view of **both** rear mirrors is not obstructed. Ensure that the way behind is clear before reversing. Ensure that the reverse alarm is functioning correctly and can be heard clearly by people around the machine.

Note: Various types of reverse alarm can be installed on your machine, to suit different operating environments. There may be local regulations which control the type of reverse alarm which may be used in particular areas. Make sure the correct type of reverse alarm is installed on your machine.

WARNING

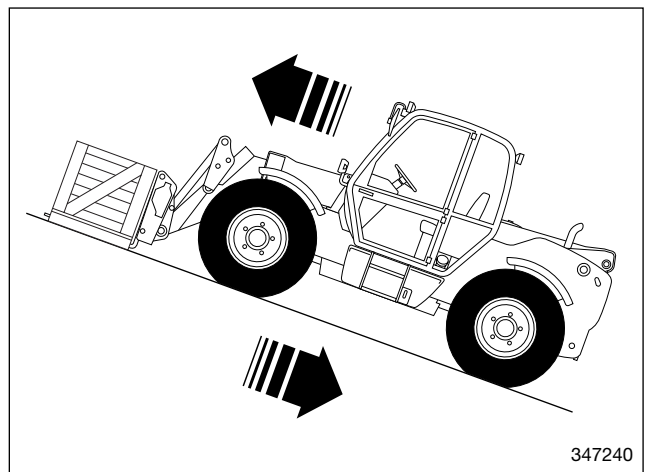
Should the machine start to roll over, you can be crushed if you try to leave the cab. If the machine starts to roll over, DO NOT TRY TO JUMP FROM THE CAB. STAY IN THE CAB, WITH YOUR SEAT BELT FASTENED.

INT-2-1-12

Limited Slip Differential (LSD)

This is an option which can be specified on some machines to enhance traction in difficult conditions. This is achieved by transferring a high proportion of the available driving torque from the spinning wheel to the gripping wheel. The limited slip differential operates automatically and should not be confused with differential locks.

Wheel slip is an indication that the limited slip limit has been reached. On high traction surfaces (concrete etc.) noise and judder may be experienced when the LSD is operating, particularly on full steering lock. The level of noise depends on the weight of the machine, the ground conditions and steering angles. Noise in the LSD is not an indication of axle damage.



GETTING THE MACHINE MOVING (continued)

Some machines are fitted with a five speed transmission. See also **Operation of Five Speed Transmission** (this section).

- 1 Check that the boom is in the travel position.
- 2 Select the required steer mode, remember that the steering may temporarily remain in the last selected mode until the rear wheels pass through the 'straight ahead' position.
- 3 Select a gear, rotate the barrel **A** so that the arrow marked on the barrel aligns with the required gear.

Some machines are protected by an electronic control unit (ECU). This prevents downward gear changes and forward/reverse direction changes until a predetermined speed is achieved. The following warning and caution apply to machines with ECU controlled transmission.

CAUTION

Gear or direction changes on this machine will only occur at a predetermined speed, this may result in gear/direction change delays. To prevent unexpected gear changes only select gears or direction as they are required.

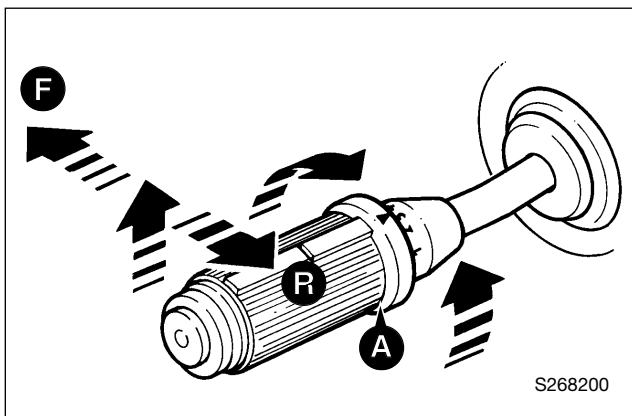
2-1-1-14

WARNING

If 4th gear fails to engage it could indicate a failure of the transmission electronic protection system. You can continue to use the machine but do not select forward/reverse or change from a high gear to a low gear (for instance, 3rd to 1st) in one sudden movement whilst the machine is moving.

2-1-1-13

If the transmission electronic protection system fails contact your nearest JCB Distributor to get the fault rectified as soon as possible.



To change gear when the machine is moving rotate the barrel **A** so that the arrow marked on the barrel aligns with the required gear, you do not need to depress the dump pedal.

A lower gear will not engage if the machine is travelling too fast.

The machine can be moved off in any gear, depending on ground conditions.

When the machine is stationary, make sure the forward/reverse lever is in neutral position and the engine at idle speed before selecting a gear.

Now that you have engaged a gear, the road wheels will be connected to the engine as soon as you move the forward/reverse lever away from neutral.

Depending on the ground condition and the gear you have selected, the machine may then try to move off before you are ready. The following procedure makes sure you keep full control of the machine.

- 4 Push the brake pedal hard down.
- 5 Release the parking brake.

Note: If forward or reverse drive is selected before the parking brake is released, an audible alarm will sound to remind you that the parking brake is still engaged.

- 6 Select forward/reverse, lift the lever and move the lever to the position required **F** forward, **R** reverse.
- 7 **MAKE SURE IT IS SAFE TO MOVE OFF**, then release the brake pedal and push down on the accelerator pedal. The machine will move smoothly away.

WARNING

Reversing at high speeds can cause accidents. Do not reverse in a high gear with full throttle. Always drive at a safe speed to suit working conditions.

INT-2-2-9/1

- 8 While the machine is travelling slowly, check the steering and brakes. Do not drive the machine unless the steering and brakes are working correctly. If you are not sure, assume they are faulty.

WARNING

In 4-wheel steer, the back end of the machine will swing out when you make a turn. Check for clearance before making a turn.

5-2-3-3

GETTING THE MACHINE MOVING (continued)

Operation of Five Speed Transmission

530FS Super and 540FS Super machines are fitted with a five speed transmission which is controlled by an electronic control unit (ECU). Gears 1 to 4 are selected by rotating barrel **A**.

Fourth position is labelled 'A' on Super machines. This mode is recommended for road travel only. Use positions 1, 2 and 3 for on-site work.

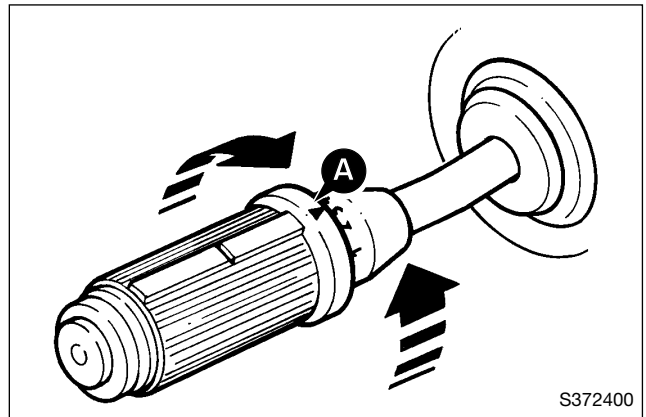
The transmission will change from fourth gear to fifth gear automatically once a pre-set speed is reached in fourth gear.

Maximum road speed in 5th gear is increased to 40 km/hr (25 mph) where legislation allows. Fifth gear is not available in reverse.

Downshift Protection

The ECU will protect the transmission when changing down. If the speed is too high, two audible bleeps will sound when a lower gear is selected. The transmission will remain in the currently selected gear until the speed has reduced sufficiently for the downshift to occur.

This feature must not be used to pre-select a lower gear.



STOPPING AND PARKING THE MACHINE

Where possible, stop the machine on dry and level ground.

- 1 Ease up on the accelerator pedal and down on the brake pedal to bring the machine to a smooth stop. Keep the foot brakes on until the parking brake has been engaged and the drive disengaged. (*Steps 2 and 3*).
- 2 Engage the parking brake.

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 both brake pads.

4-2-1-1/2

Note: An audible alarm will sound when the parking brake is engaged with the machine in forward or reverse drive. The alarm will stop when the drive is disengaged (see Step 3).

- 3 Set the forward/reverse lever to neutral.
- 4 Retract and lower the boom, rest the forks flat on the ground.

Note: Do not leave a 3-stage boom machine with the boom fully elevated and at full extension. This can allow oil to seep past one of the makeup valves and cause the boom sections to become out of phase. This will damage the boom hose management system when the boom is retracted.

CAUTION

The efficiency of the rams will be affected if they are not kept free of solidified dirt. Clean dirt from around the rams regularly. When leaving or parking the machine, close all rams if possible to reduce the risk of weather corrosion.

INT-3-2-10

- 5 Lock the controls, see **Control Lever Lock Options** (this section).

- 6 If you are leaving the machine, make sure that all switches are set to off. If necessary, leave the hazard warning lights and/or side lights switched on. Remove the starter key.

It is recommended that turbo-charged engines are run at 1000 RPM (approx) and reduced load for 2-3 minutes before shut down. This will allow the turbo-charger to cool.

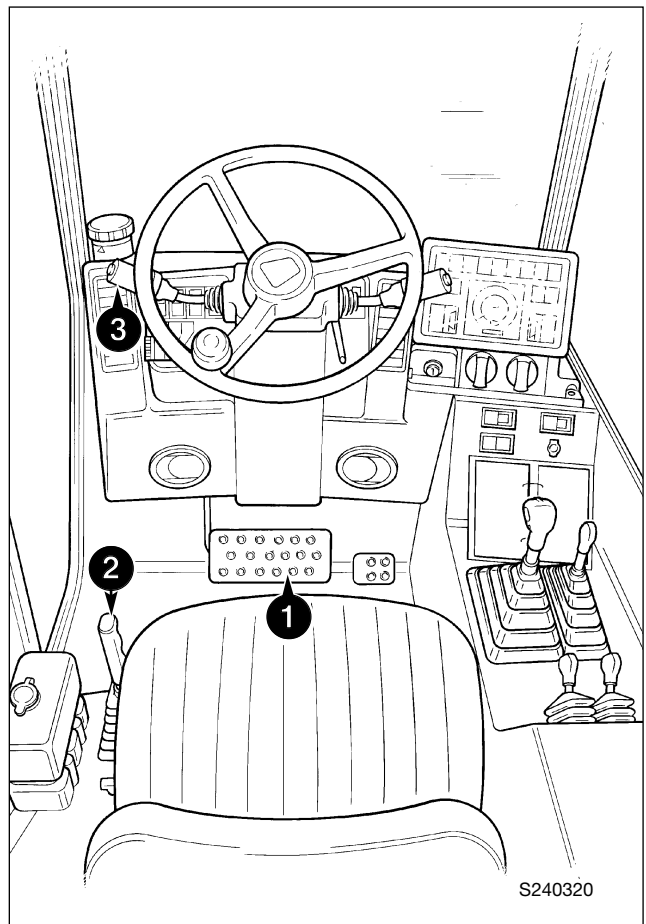
- 7 Use the handholds and steps when you climb down from the machine. If you are leaving the machine, close and latch all windows and lock the door. We also recommend that the fuel filler cap is locked on.

WARNING

Always face the machine when entering (and leaving) the cab. Make sure your shoes and hands are clean and dry. Otherwise you could slip and fall.

2-2-1-3

- 8 At the end of a working cycle or if the machine is being left unattended, provided the lights are not required remove the battery isolator key, see **Battery** (MAINTENANCE section).



USING THE LOAD CHARTS AND BOOM INDICATORS

The Safe Working Load (SWL) of the machine depends on how far the boom is extended and the angle it is raised to.

The machine is fitted with boom indicators **A** and **B**. The machine may also be fitted with a Safe Load Indicator (SLI) or Load Moment Indicator (LMI). See **Safe Load Indicator** or **Load Moment Indicator** (OPERATION section).

The following explanation is for the Boom indicators and load charts.

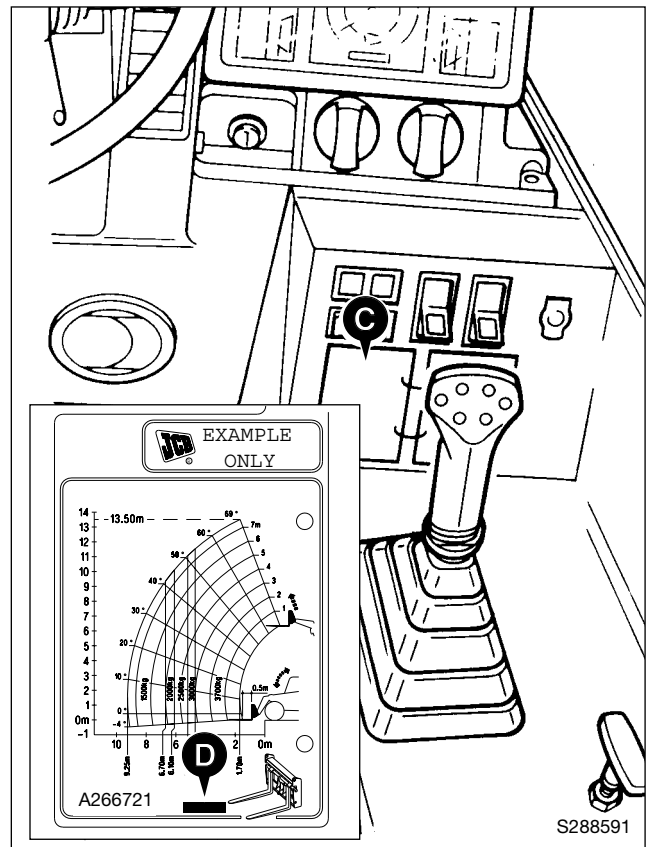
The SWL at different boom positions is shown on the load charts **C** in the cab. Boom angle and extension indicators are installed on the boom itself. Boom extension is indicated by numbered labels **A**. The numbers represent boom extension in metres. Boom angle is indicated by an indicator **B**. It has a scale marked in degrees.

The load charts show how far you can raise and extend a load without exceeding the safe working load. Each machine model has its own load chart for a standard fork carriage, and alternative charts for use when stabilisers or chassis levelling (sway) options are used. There may be other load charts for use when a different carriage or attachment is fitted on the boom.

Load charts are shown in this book for reference only. ALWAYS refer to the charts in the cab before lifting or placing a load. See **Load Charts** (SPECIFICATIONS section).

Check the relevant load chart is available for any alternative carriage or attachment. Where appropriate, the load chart shows the part number **D** of the carriage or attachment it refers to. If you are unsure of the correct load chart to use, contact your JCB distributor for advice.

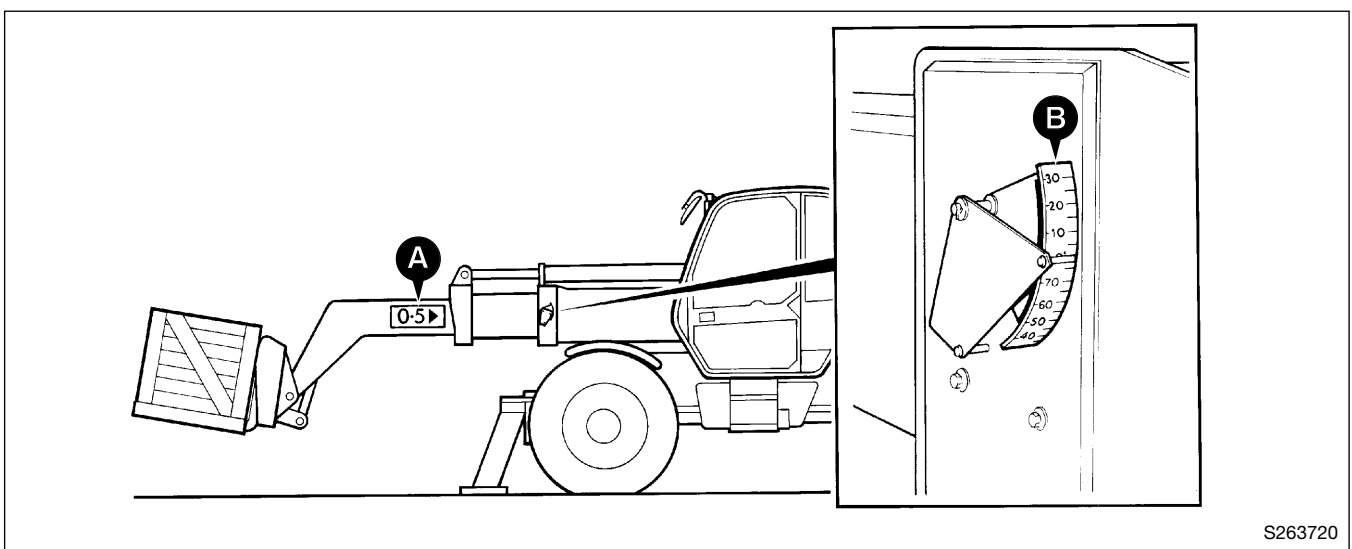
Renew any damaged or missing charts.



CAUTION

The Load Chart shown is only an example. Do not use it to find the loading limits on your machine. Before lifting or placing loads, refer to the Load Charts in the cab of your machine.

5-2-4-2



USING THE LOAD CHARTS AND BOOM INDICATORS (continued)

⚠ CAUTION

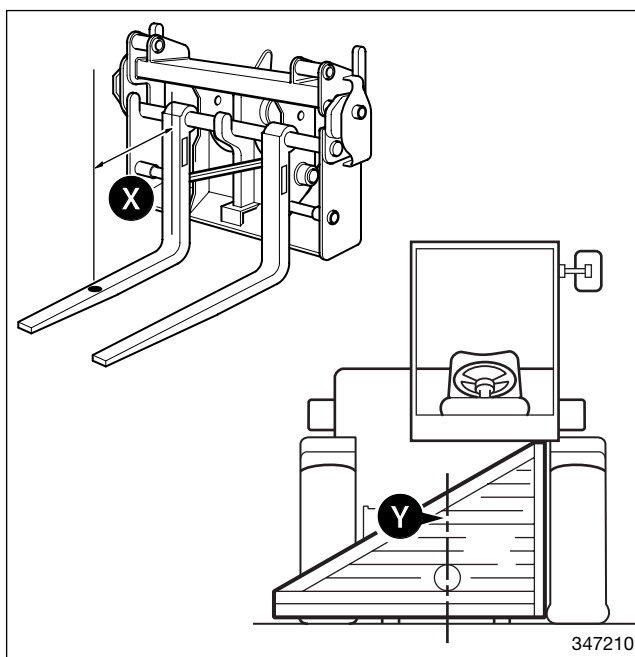
The limits shown on the Load Charts are for a stationary level machine. Do not raise or extend the boom while the machine is moving. Retract the boom fully and lower it as far as possible before travelling with a load.

5-2-4-3/1

- 1 Check what boom attachment is fitted to your machine, then turn to the correct Load Chart in the cab.
 - 2 You must know the weight of a load before picking or placing it. Check that the loads Centre of Gravity **X** will not be more than 500 mm (20 in) in front of the fork uprights.
- Note:** the load's centre of gravity **Y** may not be in the middle of the load. You will have to find out where it is.
- 3 When you know the weight of the load, look on the Load Chart and find the coloured segment with the next highest weight.

For example, on the example Load Chart shown, if your load weight is 1800 kg, find the 2000 kg segment. This is the Maximum Load Segment for your load.

The left-hand edge **D** and the upper edge **E** of this segment show the machine stability limits for your load. You must not angle or extend the boom beyond these limits.



- 4 After inserting the forks beneath the load, **and before lifting the load**, check the readings on the boom angle and extension indicators. Find the same readings on the Load Chart.

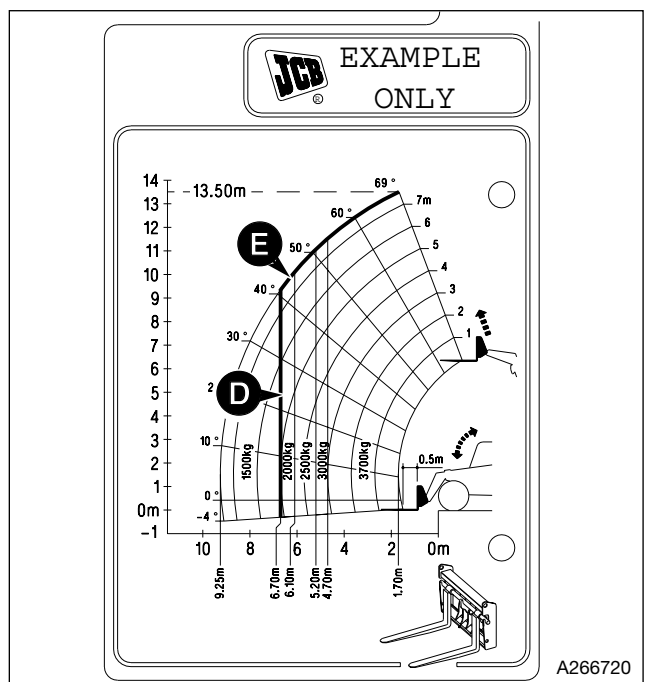
You will see on the chart that lines run from the boom angle and extension scales, through the coloured area of the chart. Find where the lines for your readings cross. If they cross inside your Maximum Load Segment or to the right of it (see Step 3) the load is within safe limits.

If the lines cross above or on the left of the segment, do not try to pick up the load. Withdraw the forks, retract the boom and try again. **If, even with the boom fully retracted, the boom angle and extension readings still cross outside your Maximum Load Segment do not try to lift the load.**

- 5 When the load is on the forks, **retract the boom before raising or lowering it.** This will reduce the risk of getting the machine unstable. While moving the boom, watch the boom angle and extension indicators. Keep inside the limits for your load.

Note that when the load is high up (say on a scaffolding) you will have to get it clear before fully retracting the boom.

- 6 Before placing a load, use the Load Chart to find how close you should get the machine to the unload point. You must be able to place the load without crossing the left-hand or upper boundaries of your Maximum Load Segment.



SAFE LOAD INDICATOR

Your machine may be fitted with a Safe Load Indicator (SLI). The SLI warns the operator when the machine is nearing its safe working limit (ie, when it could tip forward).

A sensor measures the pressure exerted on the rear axle and sends a signal to the indicator. The indicator then converts the signal into a display (in the form of a row of green **A**, amber **B** and red **C** lights).

As the effect of the load/reach increases, more of the green lights are illuminated. So the more lights that are showing, the closer the machine is to the safe working limit.

When all green and amber lights are lit, this means that the safe working limit has been reached. When the second amber light is illuminated, the whole display flashes. The first red light indicates when the Maximum Stability Limit is exceeded; the second red light will sound an audible alarm.

If this happens when a load is being lifted, move the load into a stable position. Then either move the machine closer (retracting the boom) or lighten the load.

⚠ WARNING

Look at the indicator lights frequently while lifting or handling loads. As more lights show, take extra care with control lever movements. Do not jerk the levers or make sudden changes of direction.

5-2-4-4

⚠ WARNING

The Safe Load Indicator shows only forward machine stability. Do not use it as a guide to the weight being lifted. Refer to the Load Charts in the cab.

5-2-4-5

⚠ WARNING

The readout display will be affected by extreme steer lock and extreme axle pivot angles. Before lifting a load, always ensure that the steering is not on full lock and that the rear axle is not fully pivoted.

5-2-4-13

Checking the Indicator

⚠ WARNING

The safe Load Indicator shows only forward machine stability. Do not use it as a guide to the weight being lifted. Refer to the Load Charts in the cab.

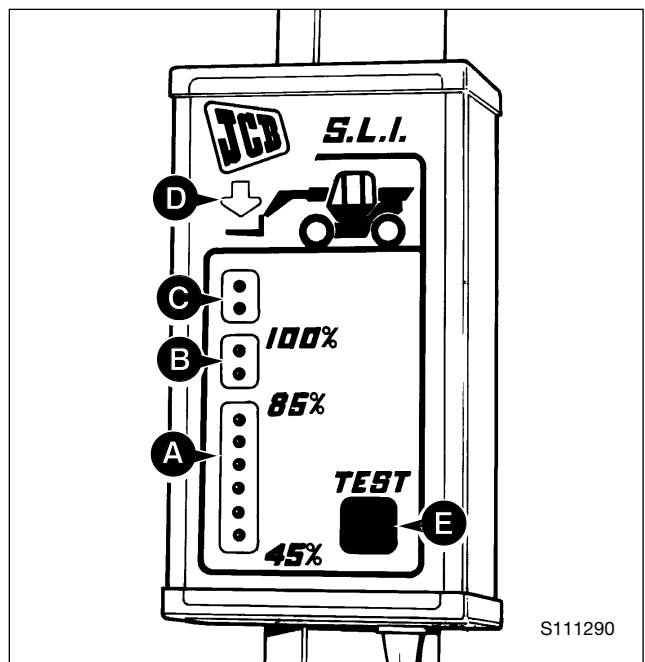
5-2-4-5

- 1 Stand the machine (unloaded) on level ground.
- 2 Set the starter switch to on. The red arrow **D** on the indicator should be lit.
- 3 With the engine running, press the test button **E**. All the lights should flash and the alarm should sound.

⚠ WARNING

If the Safe Load Indicator is faulty, contact your JCB Distributor. Do not try to repair it yourself.

5-2-4-6



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LOAD MOMENT INDICATOR

The machine may be fitted with a Load Moment Indicator (LMI). The LMI warns the operator when the machine is nearing its maximum working limit (ie, when it could tip forward).

A sensor measures the load exerted on the rear axle and sends a signal to the indicator. The indicator converts the signal into a display in the form of three green LEDs **A**, one amber LED **B** and one red LED **C**. The LEDs will illuminate progressively as the load increases.

All LEDs will flash as the load nears the maximum working limit. If this happens, move the load into a stable position by reducing the load, or retracting the boom.

If the load exceeds the maximum working limit, the red LED **C** will illuminate and an audible warning will activate.

If a system fault is detected, various combinations of LEDs will indicate a fault code. See **Diagnostic Fault Codes**.

The following checks and adjustments must only be done while the engine is running. Apply the parking brake and set the forward/reverse lever to neutral.

WARNING

Look at the indicator lights frequently while lifting or handling loads. As more lights show, take extra care with control lever movements. Do not jerk the levers or make sudden changes of direction.

5-2-4-4

WARNING

The Load Moment Indicator shows forward machine stability only. Do not use it as a guide to the weight being lifted. Refer to the load charts in the cab. The maximum working load indicated by the load moment indicator does not correspond to the SWL specified on the load charts in the cab.

5-2-4-14

WARNING

The readout display will be affected by extreme steer lock and extreme axle pivot angles. Before lifting a load, always ensure that the steering is not on full lock and that the rear axle is not fully pivoted.

5-2-4-13

Checking the Indicator

The Load Moment Indicator shows forward machine stability only. Do not use it as a guide to the weight being lifted. Refer to the load charts in the cab. The maximum working load indicated by the load moment indicator does not correspond to the SWL specified on the load charts in the cab.

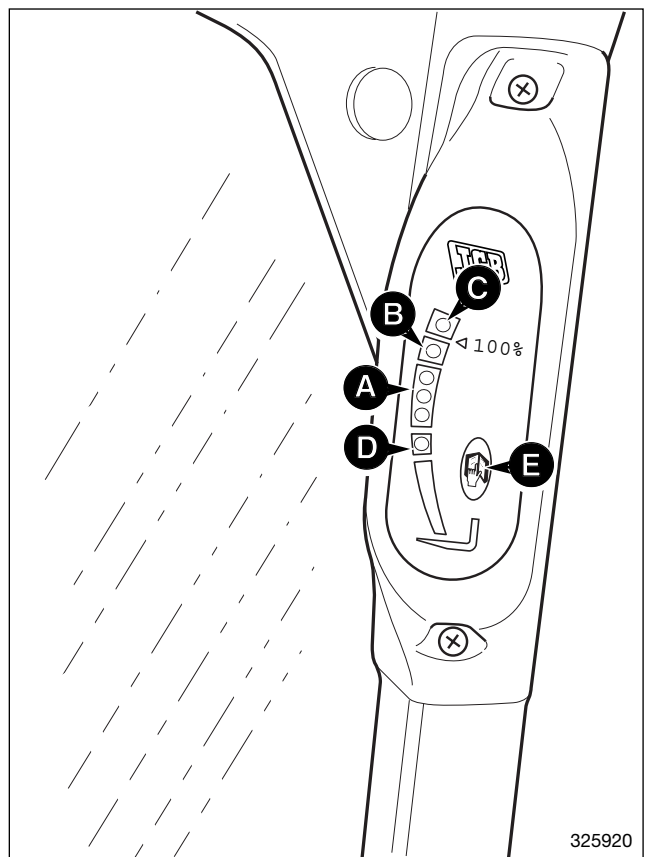
5-2-4-14

- 1 Park the machine (unloaded) on level ground with the engine running. Apply the parking brake and place the forward/reverse lever in the neutral position.
- 2 The green LED **D** at the bottom of the display will illuminate to show that the indicator is receiving power.
- 3 Press the display button **E** and release.
- 4 All LEDs on the indicator will flash and the audible alarm will sound if the unit is functioning correctly.

WARNING

If the Load Moment Indicator is faulty, contact your JCB distributor. Do not try to repair it yourself.

5-2-4-6



LOAD MOMENT INDICATOR

Setting the Volume and Brightness

The volume of the audible alarm, and the brightness of the display LEDs can be set by the operator using display button **E**. This allows the volume and brightness to be reduced for night time use. The possible options are:

- (a) Full volume and full brightness (default setting)
- (b) Reduced volume and full brightness
- (c) Full volume and reduced brightness
- (d) Reduced volume and reduced brightness

- 1 Park the machine (unloaded) on level ground with the engine running. Apply the parking brake and place the forward/reverse lever in the neutral position.
- 2 The green light **D** at the bottom of the display will illuminate to show that the indicator is receiving power.

- 3 Press and hold the display button **E**.

The display will cycle through the volume and brightness options, pausing for approximately three seconds to demonstrate each option.

- 4 Release the button during the required demonstration to select the option.

Note: the system will reset to the default setting when the starter key is switched to the off position.

Diagnostic Fault Codes

When the system detects a fault, the audible alarm will sound and various combinations of lights on the display will indicate a fault code for approximately 10 seconds.

The audible alarm and the fault code display cancel after 10 seconds and **ALL** LEDs on the display will flash continuously as long as the fault remains. Press and release display button **E** to show the fault code for a further 10 seconds.

When the fault clears, the display will return to normal.

WARNING

If the Load Moment Indicator is faulty, contact your JCB distributor. Do not try to repair it yourself.

5-2-4-6

Error Code 1 - Transducer signal fault

Transducer disconnected or wiring damaged.



Error Code 2 - Calibration out of range

System is incorrectly calibrated.



Error Code 3 - Calibration required

System not calibrated.



Error Code 4 - Display unit faulty

The display box has detected an internal error.



Error Code 5 - Low battery voltage

Battery voltage is below 9 Volts.



325590

If any of the above fault codes are displayed, switch the starter key off and on again. Contact your JCB distributor if the fault does not clear.

WORKING WITH THE MACHINE

Introduction

This section explains some techniques and procedures for using the machine efficiently and safely.

However, there are a wide variety of situations in which a JCB Loadall may be used. Consequently, in all cases, the applicability of these notes must be determined by the person seeking to apply them, on the basis of his/her own judgement, in the light of the conditions in which use is intended and subject to all relevant statutory requirements.

Whilst the information in this section is given in good faith and in light of the best information available, JCB can accept no responsibility for the recommendations, advice, statements, opinions and conclusions expressly or by implication set out below and gives no warranty or representation of assurance in respect of the accuracy of the same.

Make sure that you have had adequate training and that you are confident in your ability to operate the machine safely before you use it.

With a careful, well trained and experienced operator, a JCB Loadall is a safe and efficient machine. With an inexperienced or careless operator, it can be dangerous. Do not put your life, or the lives of others, at risk by using the machine irresponsibly.

DANGER

Factors affecting machine stability include size and type of load, angle of elevation, the distance the boom is extended, ground condition and wind speed and direction.

It is the responsibility of the operator to assess the wind conditions and size of load before operating the machine.

It is the responsibility of the operator to assess the terrain, surface roughness, firmness of ground (remember that when wet, the ground will not support the same loads as when dry) before operating the machine.

0075

Read and understand this section and **Using the Load Charts and Boom Indicators** before you start working with your machine. Practice with it until you know exactly where the controls are and what they do.

Practice with palletted loads first. Do not handle awkward loads until you can handle palletted loads safely and confidently.

This section deals with machines fitted with standard fork carriages. Operating information for other attachments is given in *OPTIONAL ATTACHMENTS* section.

Before using any attachment, consider how the attachment is going to affect operational safety. With the attachment fitted, there may be changes in the machine's centre of gravity or overall dimensions. This could have an effect on, for example, machine stability, the gradients on which it is safe to operate or the safe distance from power lines.

The maximum wading depth of this machine is 400mm (16in). Water can enter the engine and axles, and the cooling fan can be damaged if the machine is operated in deeper water.

Before doing any job not covered in this handbook, find out the correct procedure. Your local JCB distributor will be glad to advise you.

Read **Operating Safety** in *INTRODUCTION* section, plus the following information.

Safety Practices

Clothing & Safety Equipment

Do not wear loose clothing or jewellery that can get caught on controls or moving parts. Wear protective clothing and personal safety equipment issued or called for by the job conditions, local regulations or as specified by your employer.

Carrying a Load

Make sure that any location where a load is to be placed is strong enough to hold the weight of the load.

Look in the direction of travel and keep a clear view of the way ahead. Seek assistance if forward vision is obscured by a bulky load.

Particular care is required when driving off level ground, see **Use of Machines on Gradients or Slopes** (*OPERATION* section).

Do not carry stacked loads that are higher than the fork carriage.

Drive at a speed consistent with conditions. Slow down when travelling on wet, slippery or loose surfaces.

Drive with care to minimise bouncing over rough surfaces. This can result in loss of load.

WORKING WITH THE MACHINE

Risk Assessment

It is the responsibility of the competent people planning the job and operating the machine to make judgement as to the safe use of the machine, having taken into account the specific application and conditions of use at the time.

It is essential that a risk assessment of the work to be done is completed and that the operator complies with any safety precautions that the assessment identifies.

If you are unsure of the suitability of the machine for a specific task, contact your JCB distributor who will be pleased to advise you.

Some, but by no means all, of the factors to take into consideration are listed below.

General

An area selected as a loading/unloading area should be large enough to accommodate all the wheels of the Loadall and stabilisers (if fitted). It should not be necessary for the machine to make tight turns with an elevated load.

The area should be of consolidated firm ground, capable of accepting the weight of the machine and its load without significant deformation. Ideally, it should be substantially level in both planes, that is no gradient of more than 2.5% (1 in 40) in either plane.

However, a Loadall may safely be used for loading/unloading operations in areas which are not substantially level provided that its design capabilities are not exceeded and that the operator is satisfied that no part of the operation is outside the scope of his/her training and experience.

The capabilities of the Loadall are extended if the machine is fitted with stabilisers or sway control.

Traffic routes should be of consolidated firm ground with no gradient more severe than the following:

Maximum up slope	15% (1 in 7)
Maximum down slope	15% (1 in 7)
Maximum lateral slope	15% (1 in 7)

These figures apply only to a Loadall in its normal travelling mode, that is with boom retracted and with the upper surface of the heels of the fork arms not more than 500mm (20in) above mean ground level, and travelling no faster than walking pace. Particularly in the case of a lateral slope, some form of restraint on the load may be necessary.

Personnel

Are all persons who are going to take part in the operation adequately trained, experienced and competent? Are they fit and adequately rested? A sick or tired operator is a dangerous operator.

Is supervision needed? Is the supervisor adequately trained and experienced?

As well as the machine operator, are any assistants or lookouts needed?

The machine

Is it in good working order?

Have any reported defects been rectified?

Have the daily checks been carried out?

Are the tyres still at the correct pressure and in good condition and is there sufficient fuel to complete the job?

The load

How heavy is it? Is it within the capabilities of the machine?

How bulky is it? The greater the surface area, the more affected it will be by wind speeds.

Is it an awkward shape? How is the weight distributed? Uneven loads are more difficult to handle.

Is there a possibility of the load shifting whilst being moved? If so, can it be secured on the forks?

Loading/unloading area

Is it level? Any gradient of more than 2.5% (1 in 40) should be carefully considered.

Is more than one direction of approach to the load possible? Approaching across the gradient should be avoided, if possible.

Is the ground firm? Will it support the weight of the machine when loaded?

How rough is the ground? Are there any sharp projections which could cause damage, particularly to the tyres?

Are there any obstacles or hazards in the vicinity, for example, debris, excavations, man-hole covers, power lines?

Is the space adequate for safe manoeuvring?

Are any other vehicles or persons likely to be in or to enter the area whilst operations are in progress?

WORKING WITH THE MACHINE

Risk Assessment (continued)

The route to be traversed

How firm is the ground, will it provide adequate traction and braking?

How steep are any gradients, up/down/across? Cross gradients are particularly hazardous, is it possible to detour to avoid them?

Weather

How windy is it? High wind will adversely affect the stability of a loaded machine, particularly if the load is bulky.

Is it raining or is rain likely? The ground that was firm and smooth when dry will become uneven and slippery when wet, and it will not offer the same conditions for traction, steering or braking.

The above considerations are intended as suggestions of some of the factors to be taken into account when making a risk assessment. Other factors may need to be considered.

An adequate risk assessment depends on the TRAINING and EXPERIENCE of the operator. DO NOT put your life or the lives of others at risk.

Lifting and Loading Operations

Ensure that all local and national legislation governing operations such as lifting and loading are fully satisfied before operating the machine. This should include the selection of the correct model of machine for the operation, and the planning of the lifting operation itself.

As an example, in the United Kingdom, the following publications are relevant (this list is not exhaustive):

Safety in working with lift trucks (HS66) HSE 1999 ISBN 0-7176-1781-5

Rider operated lift trucks - Operator training Approved Code of Practice and Guidance HSE 1999 ISBN 0-7176-2455-2

Hand signals

BS 5744:1979	Code of practice for safe use of cranes
BS 6736:1986	Code of practice for hand signalling in agricultural operations
BS 7121:1989	Code of practice for safe use of cranes
CP 3010:1972	Code of practice for safe use of cranes

BITA Operators Safety Code for Rough Terrain RTTHs

BITA Stability Awareness Guidance for Powered Industrial and Rough Terrain RTTHs

Provision and Use of Work Equipment Regulations 1998, Regulation 9

Health and Safety at Work Act 1974

Management of Health and Safety at Work Regulations 1992

Construction (Health, Safety and Welfare) Regulations 1996

Construction (Design and Management) Regulations 1996

Lifting Operations and Lifting Equipment Regulations 1998 (LOLER 98)

Working platforms on fork-lift RTTHs - HSE Guidance Note PM 28 Second Edition

Note: HSE Guidance Note PM 28 states that Rough Terrain trucks with a lift height of more than 6 metres are not suitable for Working Platforms unless they meet the safety requirements similar to a Mobile Elevated Work Platforms made to BS 7171 or equivalent. As this requirement is open to interpretation, we advise that users intending to use a working platform on a Loadall should contact their local HSE inspector for advice.

Further information concerning the safe use of lifting and other equipment in the UK is available from the HSE information line on **0541 545500** or on the world wide web at:

<http://www.open.gov.uk/hse/hsehome.htm>

Other countries and territories have their own legislation similar to the above. Be sure that you are aware of all local and national legislation governing lifting and loading operations where you are operating.

WORKING WITH THE MACHINE

Safety Warnings

WARNING

Before you start using the machine, inspect the job site. You could be killed or injured if the ground gives way under your machine or if piled material collapses onto it. Check for potholes and hidden debris, logs, ironwork etc. Any of these could cause you to lose control of your machine.

5-2-3-4

DANGER

Under no circumstances should personnel be lifted into the air without using an approved and properly secured platform. Failure to follow this warning could result in death or serious injury.

0004

CAUTION

Travelling too fast or with the load too high can make the machine tip over. Keep the load close to the ground when travelling.

Do not go faster than walking pace when the machine is carrying a load. **DRIVE CAREFULLY OVER BUMPS AND CURBS**

Do not operate the boom/carriage controls while the machine is moving.

5-2-3-5

WARNING

Banked material and trenches can collapse. Do not work or drive too close to banks and trenches where there is a danger of collapse.

INT-2-2-5

WARNING

Unguarded machines in public places can be dangerous. In public places, or when your visibility is reduced, place barriers around the work area to keep people away.

INT-2-2-8

CAUTION

Make sure you know the weight of the load before trying to lift it. Raise the load only a few centimetres at first, to check that the machine is stable. Lower the load straight away if the machine begins to feel unstable.

If the machine feels unstable when the boom is raised and extended, always retract the boom before lowering it.

Do not exceed the loading limits shown on the Load Charts (see *Using the Load Chart and Boom Indicators*, in OPERATION section).

5-2-3-6

CAUTION

Loading and unloading on soft or uneven ground can be hazardous. The machine could tip over and you could be killed or injured. Make sure that the ground is level and firm before loading and unloading. Whenever possible, avoid soft or uneven ground when carrying a load.

5-2-3-7

DANGER

You can be electrocuted if you get your machine too close to live electrical power lines. Before starting work, find out if there are electrical power lines on the job site. If there are, contact the local electricity supplier and ask what safety precautions you must take. Also find out if there are any local laws and regulations concerned with work near electrical power lines.

When you have found out what safety precautions, laws and regulations apply to the job site, make sure they are all obeyed.

5-2-4-1/1

CAUTION

Loads can fall off incorrectly spaced forks. Always space the forks correctly for the load. Make sure the forks are completely under the load before lifting.

5-1-4-2

CAUTION

A load lifted on one fork can slip off. Never lift a load with one fork.

5-1-4-3

CAUTION

Never unload the forks by stopping the machine suddenly. Follow the procedures in this handbook for unloading.

5-1-4-4

WARNING

DO NOT exceed the total rated load capacity of the forks being used. Forks can break resulting in a loss of load and possible injury.

0003

WARNING

Maintain correct tyre pressures to avoid upsetting the lateral stability of the machine. Inspect tyres daily for signs of damage, cuts or embedded objects which could cause loss of pressure.

0005

WORKING WITH THE MACHINE

Fork Ratings

WARNING

DO NOT exceed the total rated load capacity of the forks being used. Forks can break resulting in a loss of load and possible injury.

0003

JCB approved forks for this machine are marked with a maximum load capacity rating **A**. The rating shows the maximum load capacity in kilograms (kg) that the forks can carry safely at the maximum load centre **B** of 500mm (20 inches).

The total load rating for two forks will be the addition of their single rated capacity.

Forks must be used in matched pairs.

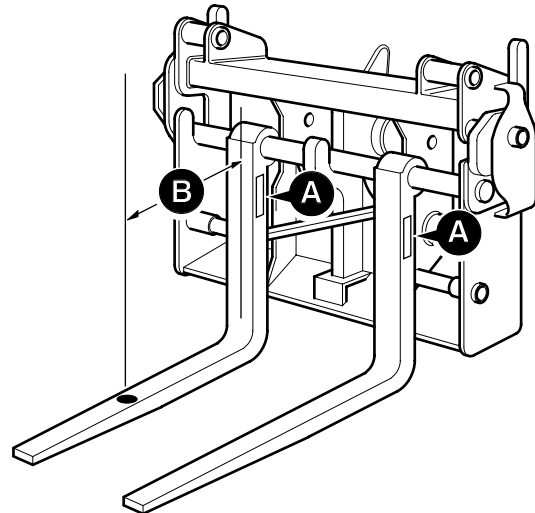
The maximum rated load capacity of the machine is shown in **Performance Dimensions** (SPECIFICATIONS). The forks used on this machine must have a total load rating which is equal to, or exceeds the rated load capacity of the machine.

If the load rating of the machine is different to the load capacity of the forks, the lower value must be used as the overall load capacity.

IMPORTANT: All lifting equipment, including forks and their mountings, may need regular inspection and testing by a competent person to ensure they are fit for purpose.

This may be needed every six months or at least annually in some countries to meet and comply with local legislation and for insurance purposes.

Check with your local JCB distributor for further advice.



346990

WORKING WITH THE MACHINE

Handling Palletted Loads

CAUTION

Load and unload on firm, level ground. Always be alert for possible hazards. Take special care when turning or reversing.

5-2-4-7

WARNING

Make sure you know the weight of the load before lifting or placing it.

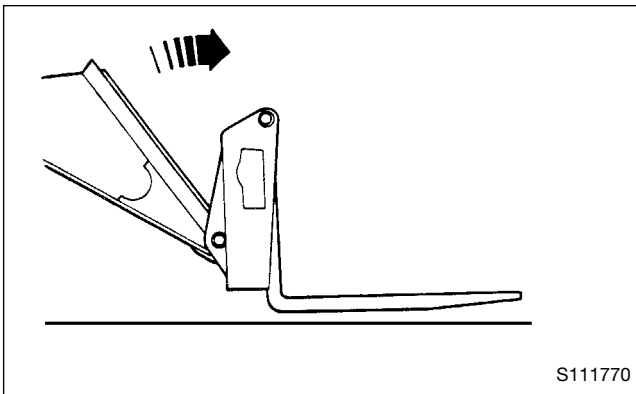
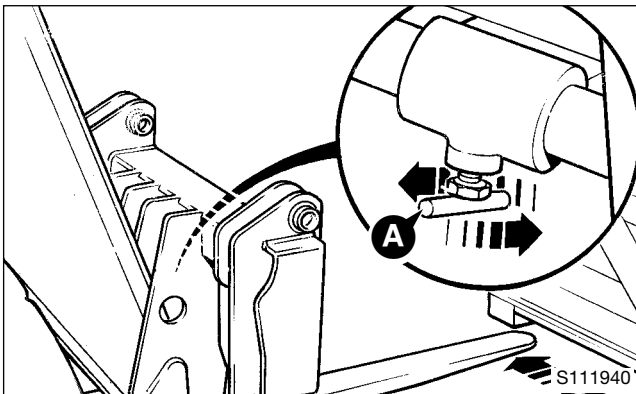
Do not exceed the Safe Working Load of your machine. Do not angle or extend the boom outside the limits shown on the Load Charts in the cab. See *Using the Load Charts and Boom Indicators* (in OPERATION section).

5-2-4-8

WARNING

Forks are heavy. Take care when spacing the forks or folding the forks back.

0002



Loading

- 1 Space the forks as wide as possible to suit the load. Tighten the fork clamping screws **A**.
- 2 Put the forks in the horizontal position. Fully retract the boom.
- 3 Approach the load straight-on, not at an angle, with all wheels straight. Stop the machine, leaving enough room to manoeuvre the boom. Engage the parking brake. Put the transmission in neutral.

Note: If the load is on a high platform you may have to raise the boom to allow you to get the machine close enough to the load.

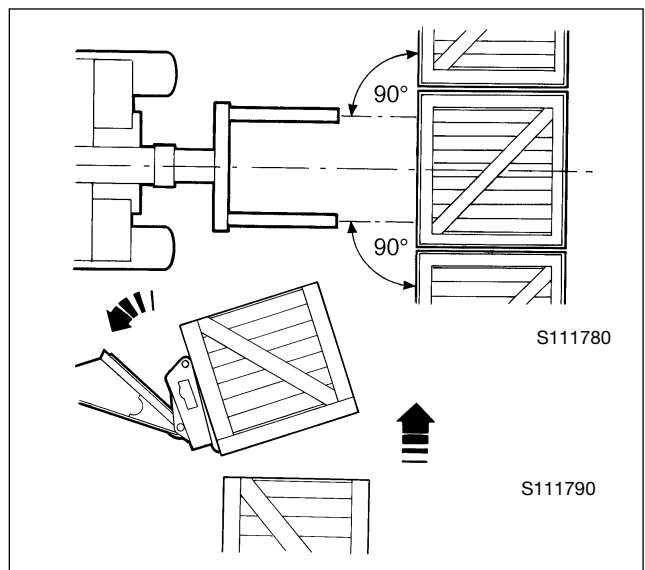
- 4 Extend the boom, or drive the machine, to insert the forks under the load. Stop when the carriage just touches the load. Check the boom extension/angle, make sure they are in limits.

WARNING

If the machine starts to feel unstable when you begin lifting the load, lower the load immediately.

5-2-4-9

- 5 Raise the load slightly. Tilt the carriage back. Retract the boom fully and lower it into the travel position.
- 6 Carefully drive the machine to the unloading point.



WORKING WITH THE MACHINE

Handling Palletted Loads (continued)

Unloading

CAUTION

Load and unload on firm, level ground. Always be alert for possible hazards. Take special care when turning or reversing.

5-2-4-7

WARNING

Make sure you know the weight of the load before lifting or placing it.

Do not exceed the Safe Working Load of your machine. Do not angle or extend the boom outside the limits shown on the Load Charts in the cab. See *Using the Load Charts and Boom Indicators* (in OPERATION section).

5-2-4-8

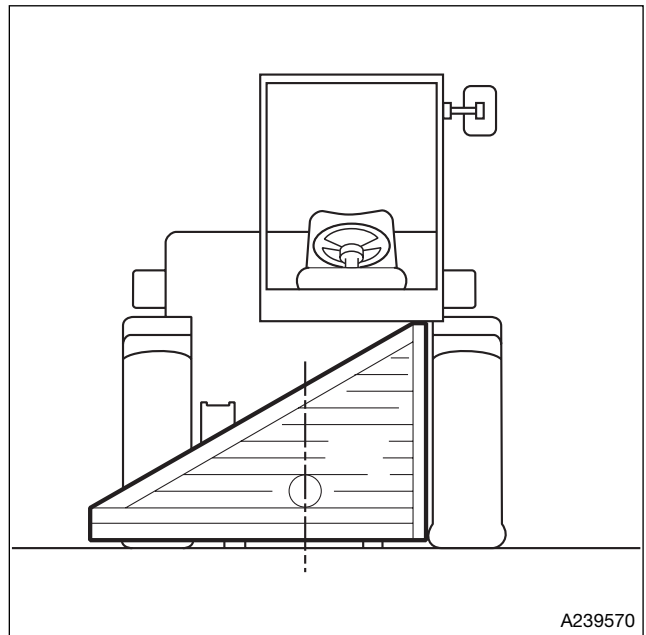
- 1 Approach the unload area on centre, with all wheels straight. Stop the machine, leaving enough room to manoeuvre the boom. Make sure you will not exceed the loading limits shown on the Load Chart.
- 2 Engage the parking brake. Put the transmission in neutral.
- 3 Position the load just above its required position. If stacking box pallets, ensure that the stack is straight and square. For extra stability, stagger the top row.
- 4 Lower the load into position. Make sure the load is level.
- 5 Carefully withdraw the forks. Depending on the height of the load, you may have to raise or lower the boom as the forks come out.
- 6 When the forks are clear of the load, fully retract the boom. Lower the boom into the travel position.

Uneven Loads

- 1 Find the load's Centre of Gravity. On packaged loads it may be marked on the box.
- 2 Position the machine so that the load's centre of gravity is halfway between the forks.
- 3 Pick/Place the load, this will depend on what kind of load it is. If it is palletted, follow the procedure for palletted loads. If it is not palletted, it may be necessary to secure the load to the forks using suitable chains. Stop the engine before allowing anyone to approach the forks.

Note: If you cannot find out the load's centre of gravity, do the following: Make trial lifts at different positions until you are sure the load is stable on the forks. Do not raise the load more than a few centimetres when you make the trial lifts.

Use extra caution when operating the boom and carriage with an uneven load.



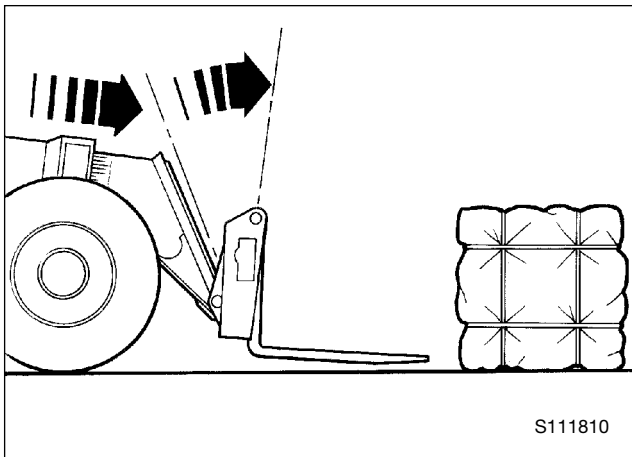
A239570

WORKING WITH THE MACHINE

Lifting Bales

Handle bales only after you fully understand how to handle palletized loads. The basic procedure is the same, but remember the following points:

- 1 Lower the boom and tilt the carriage forward as shown.
- 2 Extend and slightly raise the boom to insert the forks under the load. Tilt the carriage back. Put the boom in the travel position.



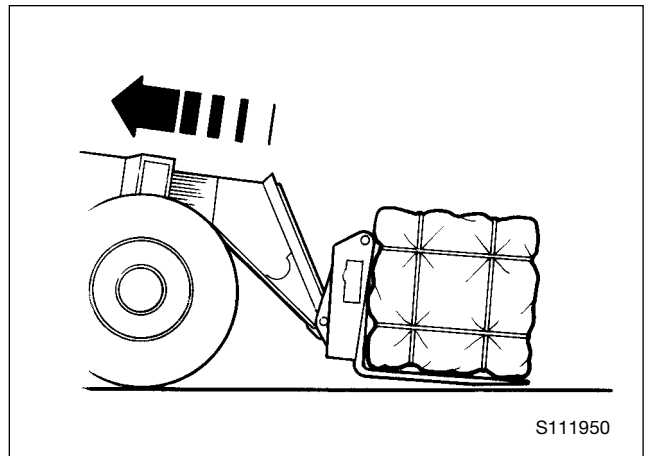
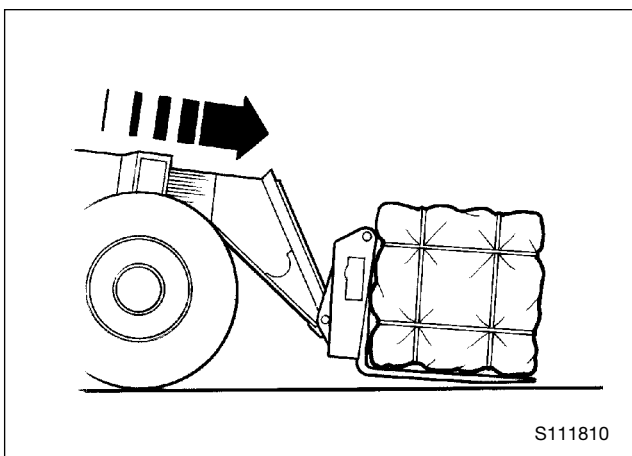
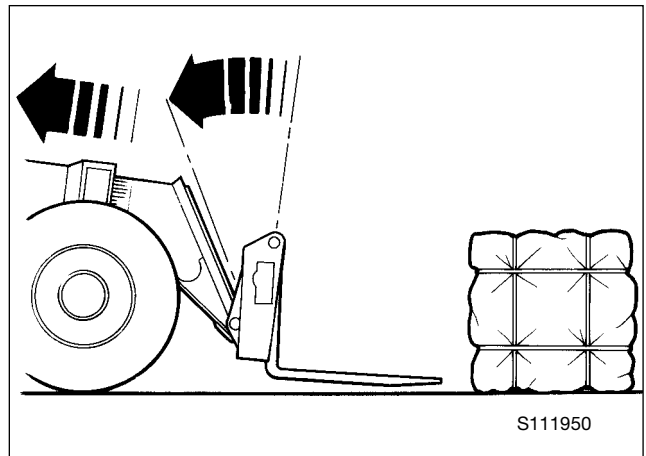
Placing Bales

- 1 Position the boom so that the bale is directly above its required position. Lower the boom and tilt the carriage forward slightly, so that the forward edge of the bale rests on the ground.
- 2 Retract the boom, withdrawing the forks from under the bale. When the forks are clear, return the boom and carriage to the travelling position.

⚠ WARNING

The bale may have to be manhandled off the forks. If so, stop the engine before allowing anyone to approach the forks.

5-2-4-10



WORKING WITH THE MACHINE

Working With a Shovel

WARNING

Make sure you know the weight of the load before lifting or placing it.

Do not exceed the Safe Working Load of your machine. Do not angle or extend the boom outside the limits shown on the Load Charts in the cab. See *Using the Load Charts and Boom Indicators* (in OPERATION section).

5-2-4-8

WARNING

When loading with material from a high bank or pile, remove any overhang first. Watch out for sliding material. If overhanging material falls, you and your machine could be buried.

2-2-6-3

CAUTION

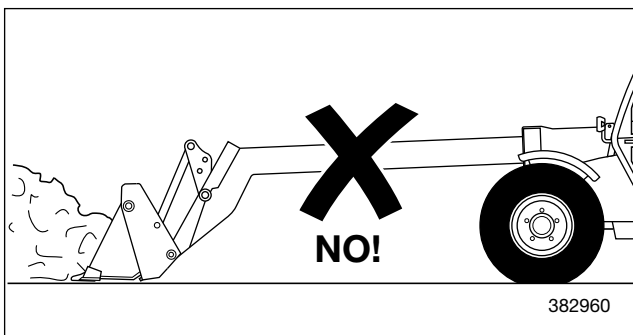
Load and unload on firm, level ground. Always be alert for possible hazards. Take special care when turning or reversing.

5-2-4-7

CAUTION

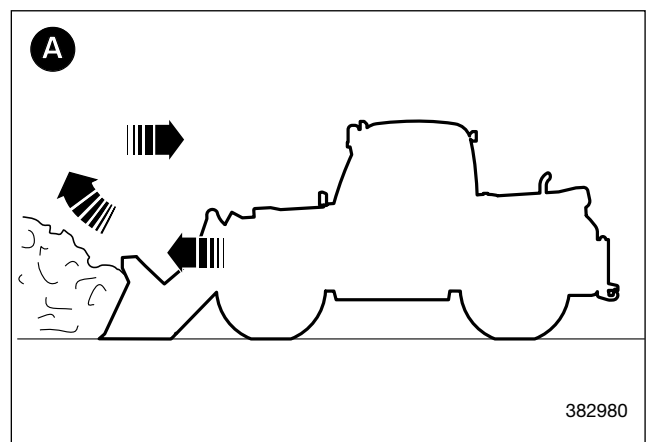
Do not load a shovel with the boom extended. This may cause serious damage to the boom.

0070



The JCB Loadall may be used with a wide variety of attachments, including shovels, see **Optional Attachments**. The following paragraphs are intended to bring some of the relevant considerations to your attention. They are not intended to be comprehensive, nor to be a substitute for adequate training. Make sure you are trained before using any attachment.

As the shovel enters the pile, start rolling the shovel back while raising it at the same time. This will sweep the shovel up the pile, gathering material as it goes.



Pressing the transmission dump switch will give more power to the loader and speed the operation. Try to fill the shovel in one pass. Half full shovels are less productive.

When moving with the load, roll the shovel right back to prevent spillage.

When you are loading from a pile of loose material, start at the bottom and follow up the face as shown at **A**. Approach the pile with the shovel level and skimming the ground.

In tightly packed material, start at the top and work down.

When removing material from a stockpile, start at a shovel's height from the base. Once the height of the stockpile has been reduced, begin loading from the base.

WORKING WITH THE MACHINE

Working With a Shovel (continued)

Loading a Truck

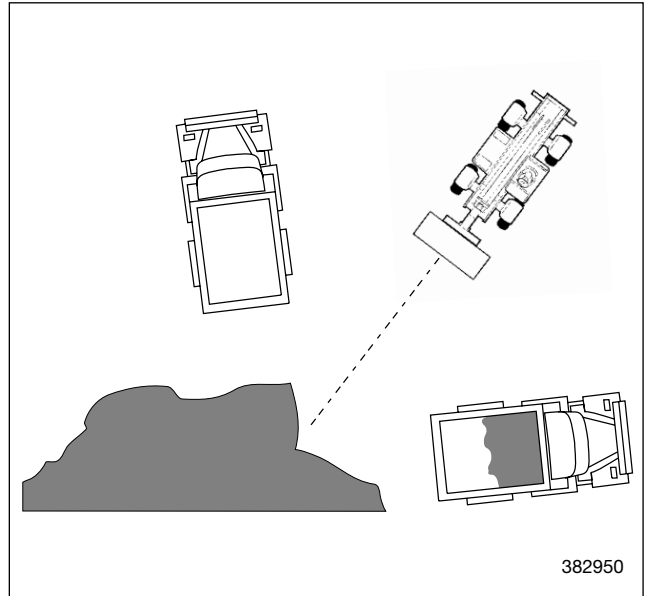
Put the truck(s) at an angle of about 45° to the pile, as shown. This cuts out unnecessary manoeuvring. Allow enough distance for the shovel to reach its unloading height while you are travelling, without slowing down.

Keep the wind on your back. This keeps dust away from you and your machine.

Move your machine as close as possible to the truck before unloading.

If the truck body is about as long as a shovel's width, tip the load into the centre of the truck. If the truck is two shovel-widths long or more, load the front of the truck first.

Do not dump the material in one sudden movement. Roll the shovel forward in stages until it is empty. Use the control lever to rock the shovel back and forth to loosen any sticky material



WORKING WITH THE MACHINE

Use of Machines on Gradients or Slopes

WARNING

Ensure that you have been trained and are familiar with the use of machines on gradients, and understand the adverse affects that gradients and site conditions can have on stability. Never use the machine on a gradient if you do not understand the recommended practices for the use of machines in such applications.

0017

There are a number of factors which can adversely affect the stability of the machine and the safety of the machine and operator when used on a gradient.

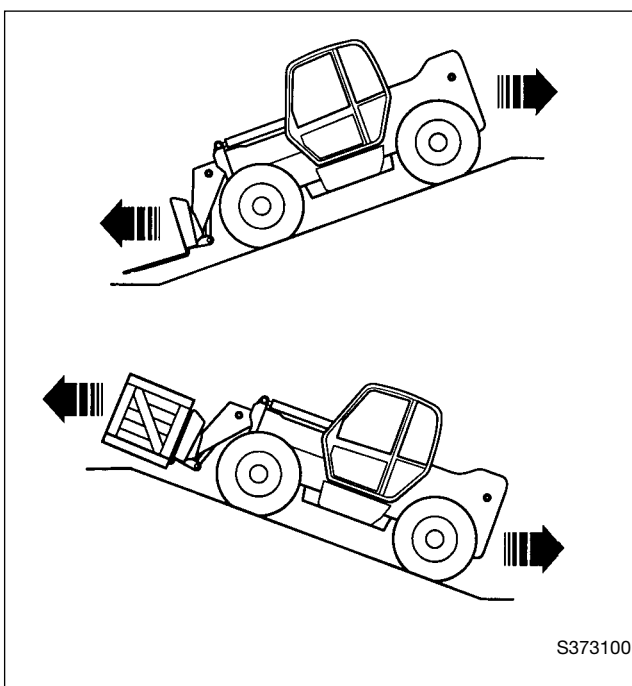
It is essential that a risk assessment of the work to be done is completed, see **Risk Assessment OPERATION** section, and that the operator complies with any safety precautions that the assessment identifies.

Driving Up and Down Gradients

To ensure maximum traction do the following when driving on a gradient.

Drive an unladen machine forward down a gradient and in reverse up a gradient .

Drive a laden machine forward up a gradient and in reverse down a gradient.



Driving Across Gradients

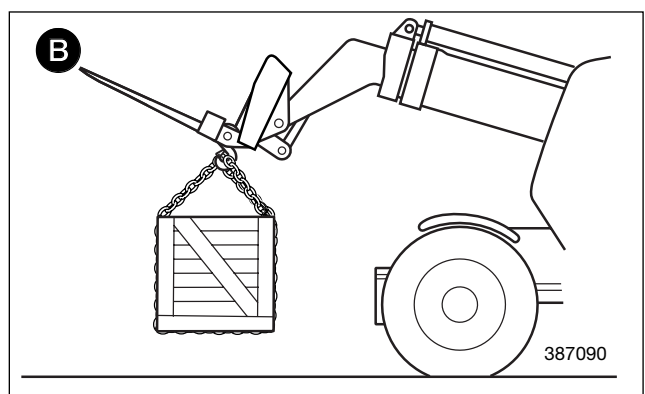
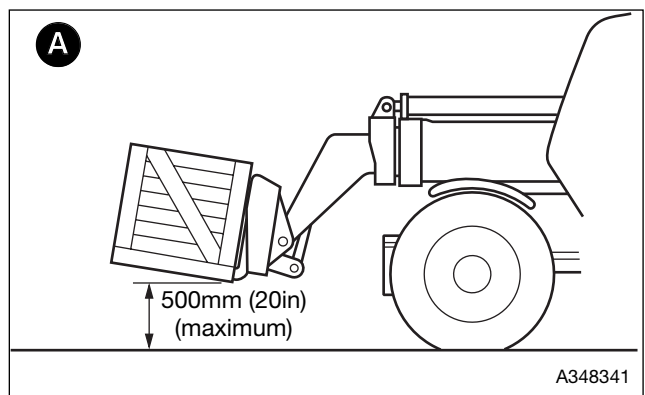
Read and understand the instructions in this handbook before travelling across a gradient.

Maximum stability is achieved when the machine is operated on firm level ground. Stability will be reduced when the machine is operated on a cross gradient.

When travelling across a gradient, fully retract the boom and travel slowly at walking pace.

Do not raise the carriage higher than necessary. This would normally be that the lowest point of the load is not more than 500mm (20in) above the ground, with a load which is carried on top of the forks, as shown at **A**. Some loads may be carried suspended below the forks, as shown at **B**. In this case, assess the risk involved before raising the carriage sufficiently to achieve ground clearance.

Remember, be CAREFUL, be SAFE. Your life, or the lives of others could be in DANGER if you take unnecessary risks.



WORKING WITH THE MACHINE

Lifting Operations on Gradients

WARNING

Conducting lifting operations on gradients can be dangerous. The machine can become laterally unstable and tip over if the instructions in this section are not followed and understood. You and others can be seriously injured or killed. Ensure you follow and fully understand the guidelines given in this handbook.

0019

Lifting operations should not be undertaken on gradients unless the machine is level across its width (ie. laterally level).

WARNING

Stop the machine and apply the parking brake before conducting any lifting operations.

0020

Longitudinal and lateral stability are two important safety factors that must be considered if the boom is to be extended, or raised by more than 500mm (20in) above the ground with the machine on a gradient.

Longitudinal Stability

Longitudinal (forward) stability is measured and shown by the Safe Load Indicator (SLI) or Load Moment Indicator (LMI), if fitted, in the cab. Read and understand the section describing the operation of the SLI or LMI before lifting with the machine. See **Safe Load Indicator or Load Moment Indicator** (OPERATION section).

Always operate the machine within the longitudinal stability limits indicated by the load moment indicator (if fitted) or load chart.

Lateral Stability

Ensure you have taken into account all factors that may affect machine stability before a lifting operation is started when working on a gradient. See **Use of Machines on Gradients And Slopes** (OPERATION section). Make sure the machine is level across its width to maintain lateral (sideways) stability.

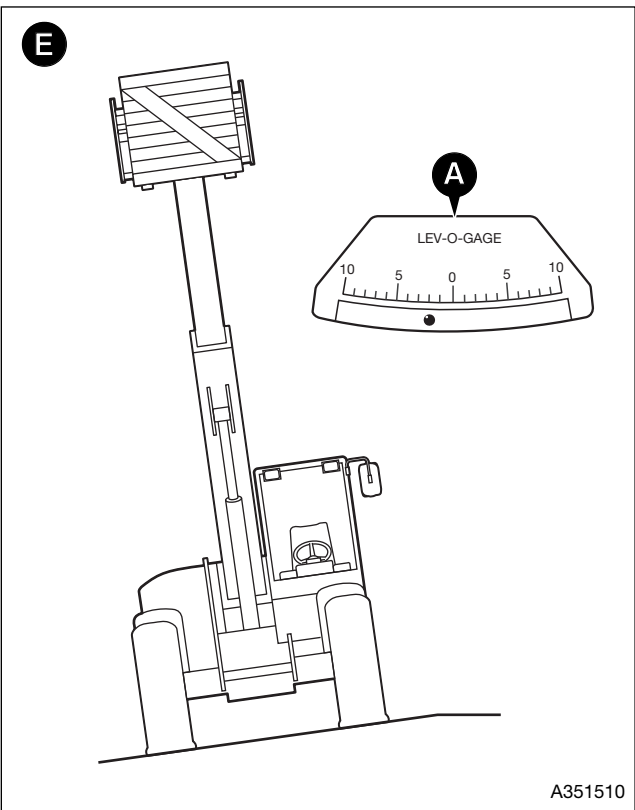
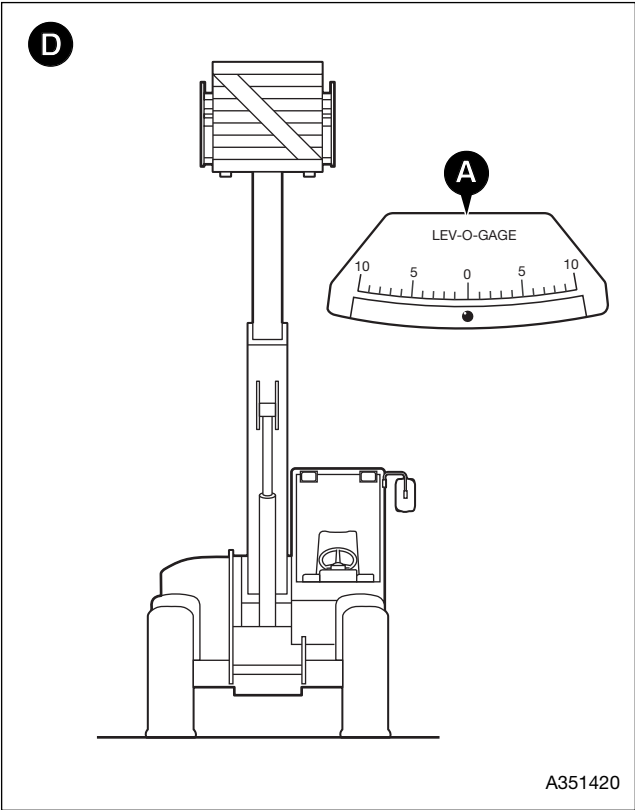
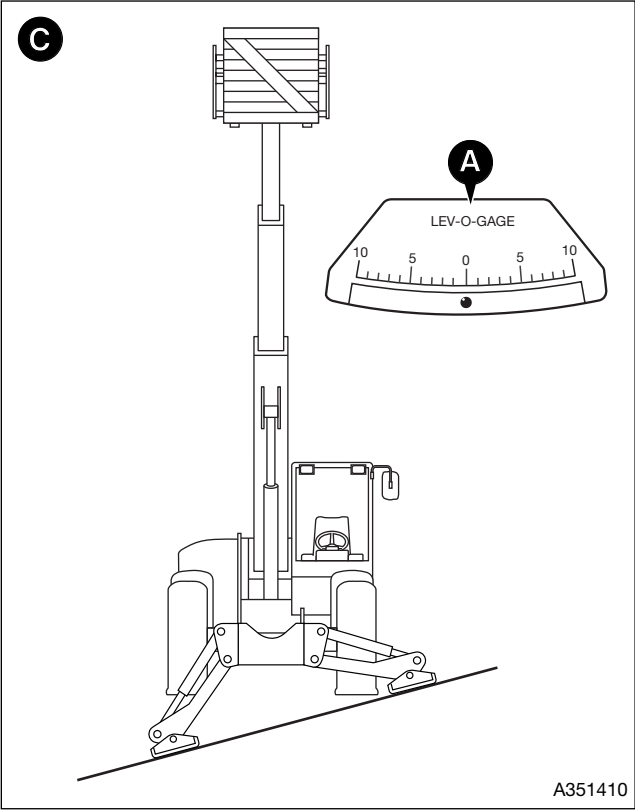
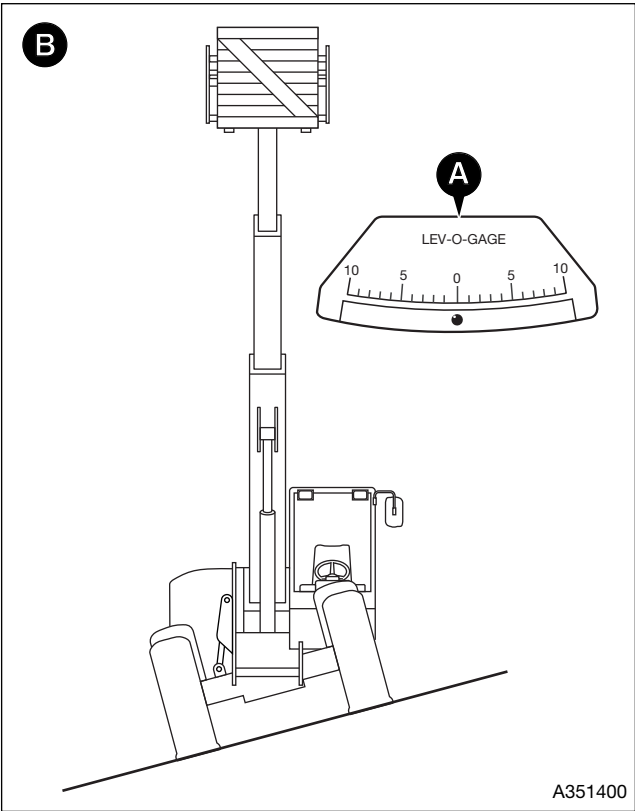
Inclinometer **A** (if fitted) can be used to check if the machine is level. Some early machines were not fitted with an inclinometer on build. In view of the importance of machine lateral stability, JCB recommends that such machines have an inclinometer fitted at the earliest opportunity. See your JCB Distributor for details.

Level the machine by one of the following methods, depending on machine model and specification.

- 1 530, 532, 535, 537, 540-70 and 540-170 machines can be made level across their width using the sway control facility **B** (if fitted). See **Chassis Levelling (Sway) Option** (OPERATION section).
- 2 532, 537 and 540-170 machines can be made level across their width using the stabilisers **C**. See **Stabiliser Control Option** (OPERATION section).
- 3 If the machine is not fitted with either sway or stabilisers, reposition the machine, if possible, onto firm level ground as shown at **D**.

It is recommended that the machine should be operated on firm, level ground wherever possible for maximum machine stability. Where this is not possible, as shown at **E**, a risk assessment must be carried out by the operator before attempting a lifting operation, see **Risk Assessment** (OPERATION section).

WORKING WITH THE MACHINE



OPERATING IN LOW TEMPERATURES

In low temperature situations, take the following precautions. They will make for easier starting and prevent possible damage to your machine

CAUTION

Do not use ether or other starting fluids to assist cold starting. Using these fluids may result in an explosion causing possible injury and/or damage to the engine.

3-2-1-9

- 1 Use the correct viscosity engine lubricating oil. See **Fluids and Lubricants - Capacities and Specifications** in MAINTENANCE section.
- 2 Use a low temperature diesel fuel, if available. See **Fuel System** in MAINTENANCE section.
- 3 Use the correct coolant mixture. See **Coolant Mixtures** in MAINTENANCE section.
- 4 Keep the battery at full charge.
- 5 Fill the fuel tank at the end of each work period, to prevent condensation forming in the tank as it cools down.

- 6 Protect the machine when not in use. Park the machine inside a building or cover it with a tarpaulin.
- 7 In very low temperatures, say -18°C (0°F) and below, additional starting aids may be needed. Examples are fuel, oil and coolant heaters and extra batteries. Ask your JCB distributor for advice.

Note: Do not connect two batteries in series to give 24 volts for starting. This could burn out the induction manifold heater and starter motor.

- 8 Remove snow from around the engine compartment before starting otherwise snow could get into the air cleaner.

WARNING

A battery with frozen electrolyte can explode if it is used or charged. Do not use a machine with a frozen battery. To help prevent the battery from freezing, keep the battery fully charged.

INT-3-1-7

OPERATING IN HIGH TEMPERATURES

In high temperature situations, take the following precautions to prevent possible damage to the machine.

- 1 Use the correct viscosity engine lubricating oil. See **Fluids and Lubricants - Capacities and Specifications** in MAINTENANCE section.
- 2 Use the correct coolant mixture. See **Coolant Mixtures** in MAINTENANCE section.
- 3 Check the coolant system regularly. Keep the coolant at the correct level. Make sure there are no leaks.

- 4 Regularly remove dirt and debris from the radiator and the engine.
- 5 Check the engine pre-cleaner regularly. To remove dust and check the dust valve, see **Engine Air Filter** in MAINTENANCE section.

TOWING A MACHINE

Do not tow a machine unless there is no alternative. Remember that more damage might be caused to the machine by towing it. If at all possible repair the machine where it stands.

CAUTION

Towing a machine too far or too fast can damage the transmission. Do not tow the machine further than one mile. Use a trailer for greater distances. When towing do not travel faster than 25 km/h (15 mph).

Use a rigid drawbar. If you must use towing chains, then use two towing vehicles. One towing vehicle should be coupled to the front of the disabled machine. The other towing vehicle should be coupled to the rear of the disabled machine, to provide braking power.

The towing vehicle(s) must have enough pulling and braking power to move and stop the machine.

2-2-7-3

Preparation for Towing

- 1 Set the gear lever to neutral.
- 2 Prepare the machine for travel, see **Preparing For Road Travel** in OPERATION section.

If the engine cannot be run, the boom may have to be hoisted into the transport position and secured. The procedure for doing this will depend on the machine's condition and its hydraulic circuits.

For this reason you should contact your JCB distributor for help and advice before attempting this work.

- 3 Attach the drawbar to the front lifting eyes. The machine is now ready for towing. If you will be steering the machine, make sure you understand what the towing driver will be doing. Obey his instructions and all relevant regulations.

Remember that the steering will be heavier if the engine is not running.

RECOVERY HITCH

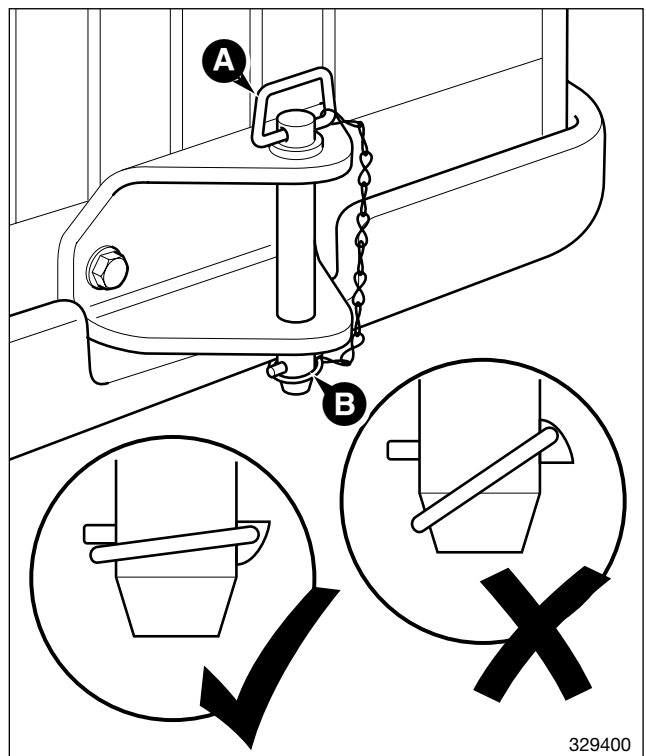
The recovery hitch is only suitable for occasional off highway towing with a maximum pay load of 1 ton. It is not approved as a permanent towing hitch. Make sure you will be obeying all pertinent laws and regulations before towing.

WARNING

Using the recovery hitch for towing may exceed the capability of the recovery hitch. This could damage or weaken the recovery hitch or pin which can result in the trailer becoming detached from the machine.

2-2-4-10

- 1 Fit pin **A** and secure in position with locking ring **B**.



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MECHANICAL TOW HITCH OPTION

Make sure you will be obeying all pertinent laws and regulations before towing.

Make sure that the trailer draw bar is suitable for your machine and has sufficient clearance to enable the machine to turn without fouling.

⚠ WARNING

Examine the tow hitch and the trailer draw bar towing ring for signs of wear before each use. A badly fitting or worn hitch or towing ring could cause loss of the trailer and injury to yourself or other people.

0067

Use the following procedure to attach a trailer to the tow hitch.

- 1 Check the trailer weights and tyre pressures. The maximum towing capacity and correct tyre pressures for your machine are shown on a warning label in the cab. Make sure your tyre pressures are correct and that the loaded trailer does not exceed the maximum gross trailer weight of:

10 tonne (10,000 Kg.) - maximum 2 tonne (2,000 kg) imposed load on the hitch.

8 tonne (8,000 Kg.) - maximum 1.2 tonne (1,200 kg) imposed load on the hitch (Germany only).

⚠ WARNING

Do not exceed the permitted limits on trailer gross weight or hitch load. The machine may become unstable.

0068

- 2 Engage the parking brake, see **Cab Layout and Controls** in OPERATION section.
- 3 Adjust the mirror(s) to obtain a good view of the tow hitch area.
- 4 If your machine is fitted with a switch-operated 2/4 wheel drive selector, you can tow in 2-wheel drive if required. But before towing in 2-wheel drive, you must check that the transmission changes automatically to 4-wheel drive when the brake pedal is pressed (i.e. that the **2-wheel drive selected indicator light** goes out).
- 5 The procedure for engaging the trailer to the tow hitch will depend on the type of trailer. In all cases observe the following precautions:
 - a Ensure that the trailer and its draw bars are correctly positioned for engagement before the machine begins to approach it.

b If a helper is available to manoeuvre the trailer he should stand well clear of the machine until the tow hitch is correctly aligned with the trailer towing eye.

c The helper should not approach the trailer or machine until the machine has been stopped, with the parking brake engaged and the engine switched off.

d Once the trailer has been engaged, fit pin **A** and lock in position as shown. The machine operator must not start the engine until the helper is clear of the machine and trailer.

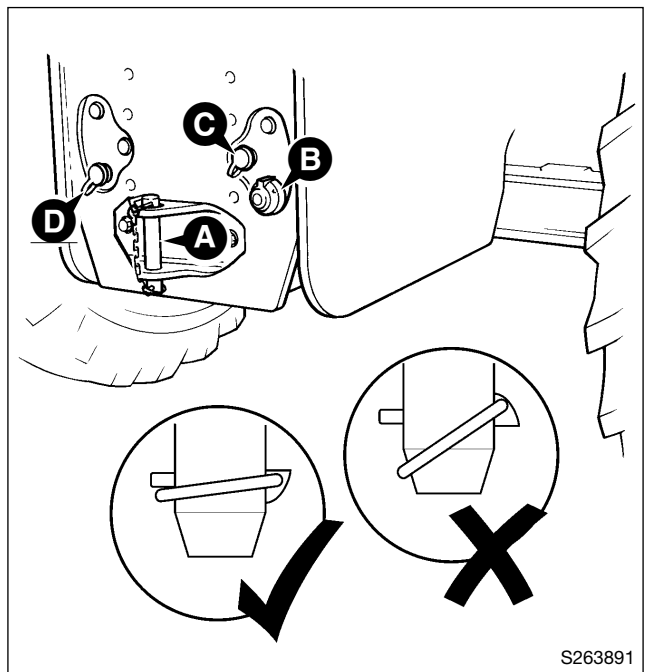
- 6 Connect the trailer lights into socket **B**. Make sure that all the trailer lights are working correctly and are visible by other road users.

Make sure the trailer lights and the direction indicator lights are working correctly.

- 7 Connect the trailer brakes option into socket **C**. Trailer braking is operated by the brake pedals.

Before travelling on the public highway check that the brakes work correctly and get used to the braking effect.

- 8 Connect auxiliary hose **D**.



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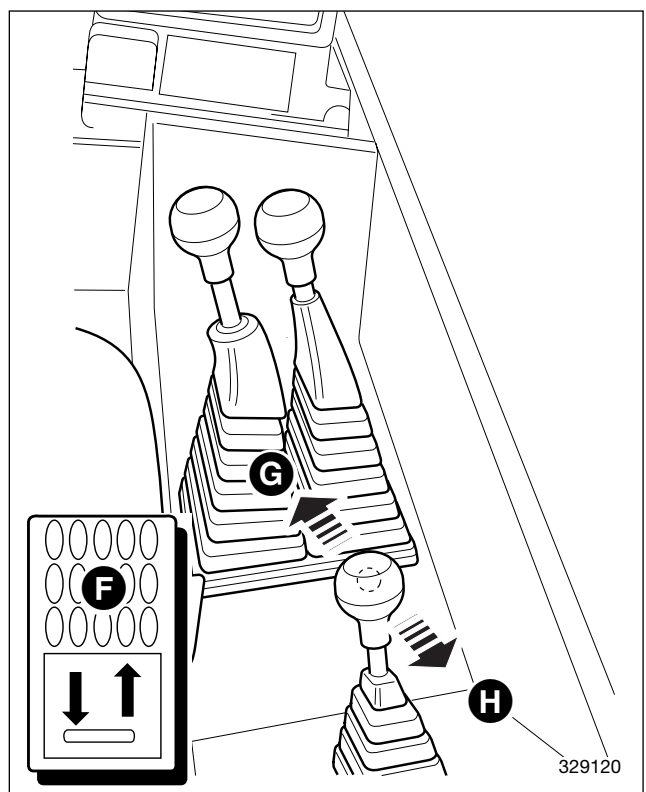
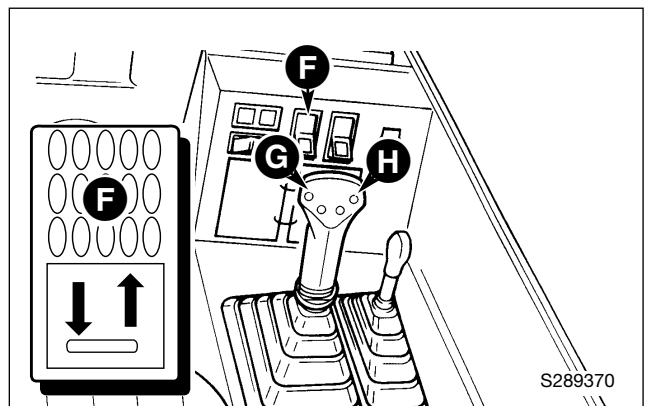
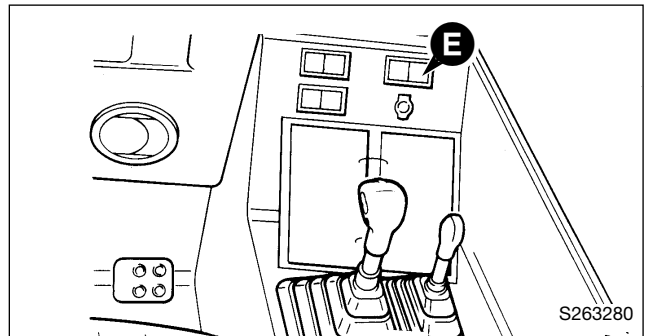
MECHANICAL TOW HITCH OPTION

- 9 Hitch/Auxiliary selector switch **F** is fitted on later machines. If fitted, operate to select the hitch circuit, the switch lamp should extinguish.

Note: make sure the Hitch/Auxiliary switch lamp is working, ie. select **ON**.

For auxiliary operation, ie. trailer tipping, operate either **G/H** or **E** depending on the attachment fitted and the function required.

- 10 To prevent contamination of the machine hydraulics, when using a tipping trailer leave the trailer flat before disconnecting the hydraulic service to exhaust the trailer ram of oil.
- 11 Select 2-wheel steer if towing on Public Roads. Make sure the indicator shows that 2-wheel steer has engaged. See **Preparing For Road Travel** in **OPERATION** section.



HYDRAULIC TOW HITCH OPTION

Make sure you will be obeying all pertinent laws and regulations before towing on public roads.

Make sure that the trailer draw bar is suitable for your machine and has sufficient clearance to enable the machine to turn without fouling. It is essential that the tow bar is parallel with the machine when the pickup hitch is raised and locked.

Check that the hitch locking lever, the release cable and return spring are not worn or damaged and operate smoothly.

⚠ WARNING

Examine the tow hitch and the trailer draw bar towing ring for signs of wear before each use. A badly fitting or worn hitch or towing ring could cause loss of the trailer and injury to yourself or other people.

0067

Use the following procedure to operate the pickup hitch.

- 1 Check the trailer weights and tyre pressures. The maximum towing capacity and correct tyre pressures for your machine are shown on a warning label in the cab. Make sure your tyre pressures are correct and that the loaded trailer does not exceed the maximum gross trailer weight of:

10 tonne (10,000 Kg.) - maximum 2 tonne (2,000 kg) imposed load on the hitch.

(Germany only)

8 tonne (8,000 Kg.) - maximum 1.2 tonne (1,200 kg) imposed load on the hitch.

⚠ WARNING

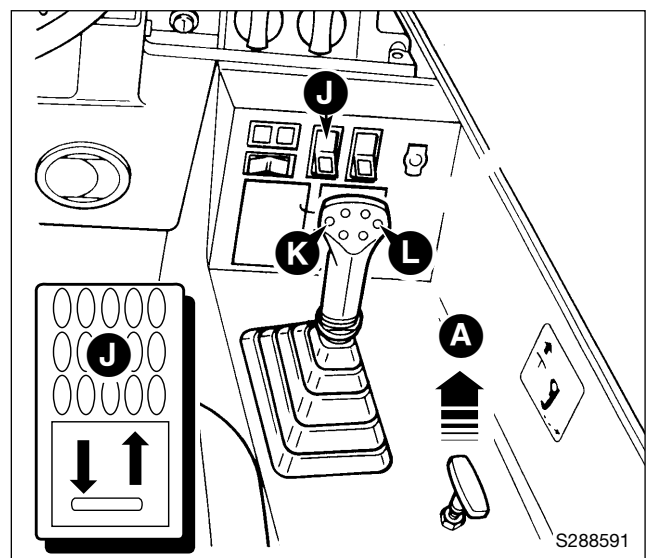
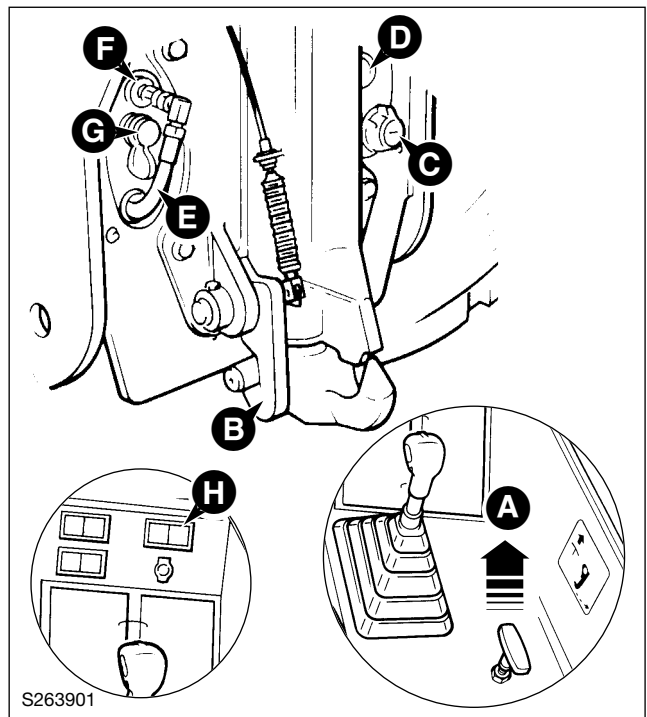
Do not exceed the permitted limits on trailer gross weight or hitch load. The machine may become unstable.

0068

- 2 Engage the parking brake, see **Cab Layout and Controls** in OPERATION section.
- 3 Adjust mirror(s) to obtain a good view of the pickup hitch.
- 4 Your machine is fitted with a switch-operated 2/4 wheel drive selector, you can tow in 2-wheel drive if required. But before towing in 2-wheel drive, you must check that the transmission changes automatically to 4-wheel drive when the brake pedal is pressed (i.e. that the **2-wheel drive selected indicator light** goes out).

- 5 To lower the hitch, first raise the hitch by operating switch either **H** or **K/L**. Pull up and hold release handle **A** to release locking lever **B**, and lower the hitch by operating switch either **H** or **K/L**. The locking lever **B** will automatically spring back to the engaged position when the hitch is raised.

Operate trailer switch **H** or **K/L** to lower and raise the hitch.



HYDRAULIC TOW HITCH OPTION

- 6** Hitch/Auxiliary selector switch **J** is fitted on later machines. If fitted, operate to select the hitch circuit, the switch lamp should be extinguished.

Note: make sure the Hitch/Auxiliary switch lamp is working, ie. select **ON**.

- 7** Operate **K/L** to lower and raise the hitch.
- 8** In certain conditions you may have to drive forward when raising the hitch to prevent the pickup hitch overriding the trailer towing hitch.
- 9** Connect the trailer lights into socket **C**. Make sure that all the trailer lights are working correctly and are visible by other road users.

Make sure the trailer direction indicator lights are working correctly.

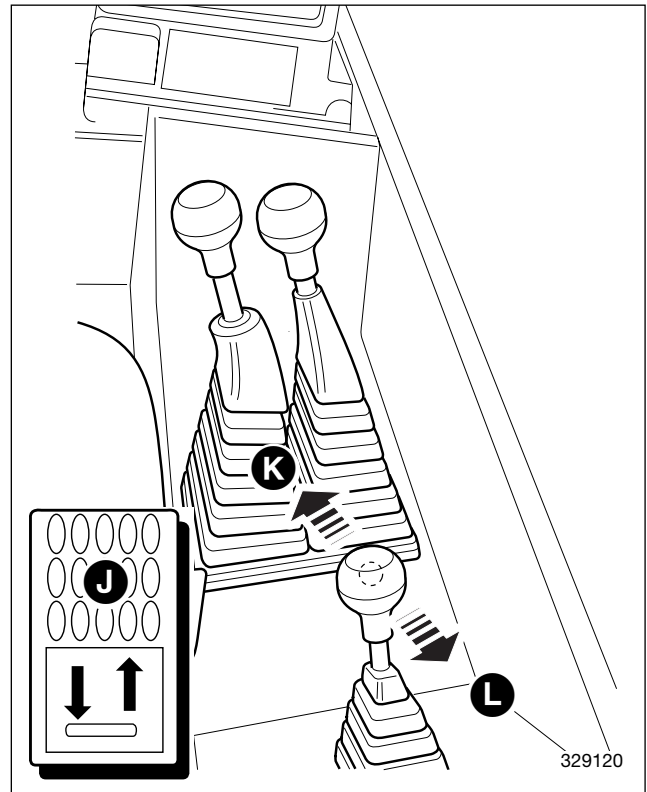
- 10** If an optional trailer brake valve is fitted, connect the trailer brakes into socket **D**. Trailer braking is operated by the brake pedals.

Before travelling on the public highway check that the brakes work correctly and get used to the braking effect.

- 11** To operate trailer auxiliary services disconnect hydraulic hitch hose **E** from socket **F** and reconnect to stowage socket **G**. Connect trailer auxiliary hose to socket **F**. Operate trailer switch **H** or **K/L** depending on the attachment fitted and the function required.

Before the hitch can be operated again connect the hoses in their original positions.

To prevent contamination of the machine hydraulics, when using a tipping trailer leave the trailer flat before disconnecting the hydraulic service to exhaust the trailer ram of oil.



WARNING

Make sure the trailer hitch has correctly engaged and locked before driving off.

5-5-4-10

- 12** Select 2-wheel steer if towing on Public Roads. Make sure the indicator shows that 2-wheel steer has engaged. See **Preparing For Road Travel** in **OPERATION** section.

TRANSPORTING THE MACHINE

The safe transit of the load is the responsibility of the transport contractor and driver. Any machine, attachments or parts that may move during transit must be adequately secured.

5-2-5-9

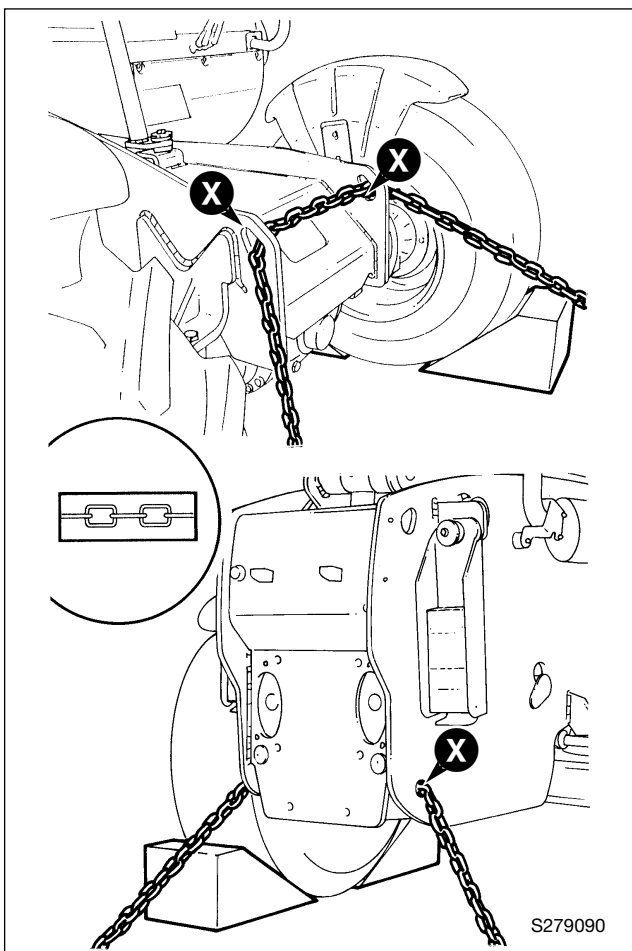
Note: Before transporting the machine make sure you will be obeying the rules and laws of all the areas that the machine will be carried through.

Make sure that the transporting vehicle is suitable. See SPECIFICATION section for the dimensions and weight of your machine.

WARNING

Before moving the machine onto the trailer, make sure that the trailer and ramp are free from oil, grease and ice. Remove oil, grease and ice from the machine tyres. Make sure the machine will not foul on the ramp angle. See SPECIFICATION section for the minimum ground clearance for your machine.

2-2-7-5



- 1 Place chocks at the front and rear of the trailer wheels.

Note: Before moving the machine on the trailer, make sure that the machine will not foul on the ramp/trailer angle. See SPECIFICATION section for your machine's ground clearance.

- 2 Make sure the ramps are correctly in place and secure.
- 3 Set the boom as in **Preparing For Road Travel** in OPERATION section.
- 4 Carefully drive the machine onto the trailer.
- 5 When the machine is safely in position, engage the parking brake and set the drive to neutral.
- 6 Lower the carriage onto the trailer.
- 7 Secure the stabilisers in the raised position.
- 8 Switch off the engine and remove the starter key. Secure the cab. Cover the exhaust stack.
- 9 Check that the overall height of the load is within regulations. Adjust if necessary.
- 10 Put chocks at the front and rear of all four tyres. Anchor the machine to the trailer with chains. The anchor points **X** are shown on the illustration.
- 11 Measure the maximum height of the machine from the ground. Try to make sure the truck driver knows the clearance height before he drives away.

LIFTING A MACHINE

Carry out the following procedure when lifting a machine:

Retract the boom and lower to the ground.

Remove all attachments.

Switch OFF the engine, remove the key, shut window(s), vacate the machine and shut the door.

Remove all loose equipment from machine exterior.

Check the unladen weight of the machine, see **Static Dimensions** (SPECIFICATIONS section).

WARNING

You can be injured if you use faulty lifting equipment. Make sure that lifting equipment is in good condition. Make sure that lifting tackle complies with all local regulations and is suitable for the job. Make sure that lifting equipment is strong enough for the job.

INT-1-3-7

Attach lifting equipment to lifting points as shown.

Take the weight of the machine. If the lifting equipment is fouling on the machine use spreader bars to prevent damage.

Check that the lifting eye is positioned directly above the machine centre of gravity, see **Static Dimensions** (SPECIFICATIONS section).

DANGER

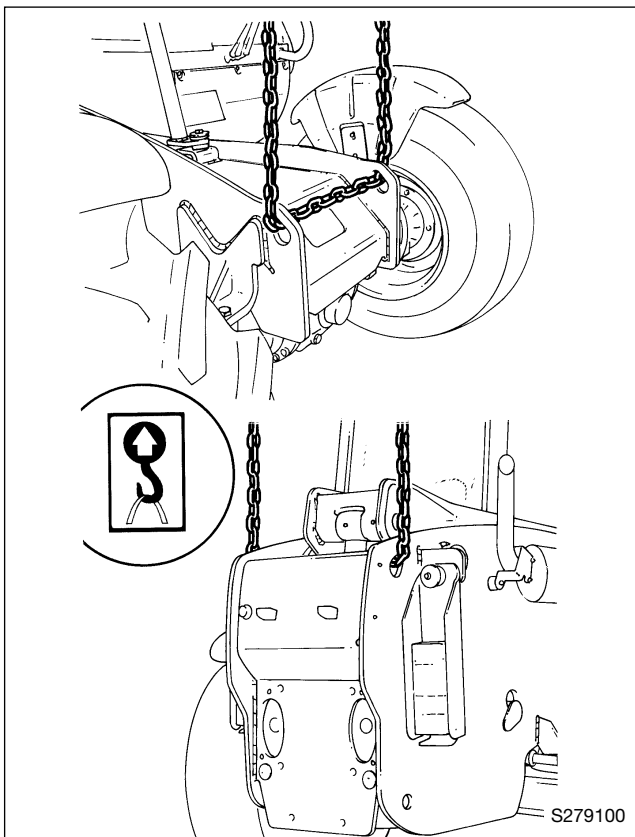
Do not stand underneath a raised load. Stand clear and to one side until the load has been safely lowered. Make sure that the area is clear of other people before lowering the load. If you do not follow these precautions you or others could be killed or seriously injured.

2-3-5-3

WARNING

Bad communications can cause accidents. Keep people around you informed of what you will be doing. If you will be working with other people, make sure any hand signals that may be used are understood by everybody. Work sites can be noisy, do not rely on spoken commands.

INT-2-2-3



LUBRICANTS - HEALTH AND SAFETY

It is most important that you read and understand this information and the publications referred to. Make sure all your colleagues who are concerned with lubricants read it too.

Hygiene

JCB lubricants are not a health risk when used properly for their intended purposes.

However, excessive or prolonged skin contact can remove the natural fats from your skin, causing dryness and irritation.

Low viscosity oils are more likely to do this, so take special care when handling used oils, which might be diluted with fuel contamination.

Whenever you are handling oil products you should maintain good standards of care and personal and plant hygiene. For details of these precautions we advise you to read the relevant publications issued by your local health authority, plus the following.

Storage

Always keep lubricants out of the reach of children.

Never store lubricants in open or unlabelled containers.

Waste Disposal

All waste products should be disposed of in accordance with all the relevant regulations.

The collection and disposal of used engine oil should be in accordance with any local regulations. Never pour used engine oil into sewers, drains or on the ground.

Handling

New Oil

There are no special precautions needed for the handling or use of new oil, beside the normal care and hygiene practices.

Used Oil

Used engine crankcase lubricants contain harmful contaminants.

Here are precautions to protect your health when handling used engine oil:

- 1 Avoid prolonged, excessive or repeated skin contact with used engine oils.

- 2 Apply a barrier cream to the skin before handling used engine oil.
- 3 Note the following when removing engine oil from skin:
 - a Wash your skin thoroughly with soap and water.
 - b Using a nail brush will help.
 - c Use special hand cleansers to help clean dirty hands.
 - d Never use petrol, diesel fuel, or paraffin for washing.
 - e Avoid skin contact with oil soaked clothing.
 - f Don't keep oily rags in pockets.
 - g Wash dirty clothing before re-use.
 - h Throw away oil-soaked shoes.

First Aid - Oil

Eyes

In the case of eye contact, flush with water for 15 minutes. If irritation persists, get medical attention.

Swallowing

If oil is swallowed do not induce vomiting. Get medical advice.

Skin

In the case of excessive skin contact, wash with soap and water.

Spillage

Absorb on sand or a locally approved brand of absorbent granules. Scrape up and remove to a chemical disposal area.

Fires

Extinguish with carbon dioxide, dry chemical or foam extinguishers. **Do not use water.** Fire-fighters should use self-contained breathing apparatus.

SERVICE REQUIREMENTS

Introduction

Your machine has been designed and built to give maximum performance, economy and ease of use under a wide variety of operating conditions. Prior to delivery, your machine was inspected both at the Factory and by your Distributor to ensure that it reaches you in optimum condition. To maintain this condition and ensure trouble free operation it is important that the routine services, as specified in this Handbook, are carried out by an approved JCB Distributor at the recommended intervals.

Maintenance

This section of the Handbook gives full details of the service requirements necessary to maintain your JCB machine at peak efficiency.

To further protect your machine's performance it is essential your JCB Distributor carries out an initial service and inspection when the machine is one month old or when it has completed 100 hours of operation (whichever occurs first). You should notify your Distributor in advance to allow the necessary arrangements to be made.

JCB regularly updates its Distributors advising them of any product developments, changes in specifications and procedures. Therefore only a JCB Distributor is fully able to maintain and service your machine.

At the rear of this Handbook is a Service Record Sheet which will enable you to plan your service requirements and keep a service history record. This record sheet should be dated, signed and stamped by your Distributor each time your machine is serviced.

Remember, if your machine has been correctly maintained, not only will it give you improved reliability but its resale value will be greatly enhanced.

Owner/Operator Support

JCB together with your Distributor wants you to be completely satisfied with your new JCB machine. If you do encounter a problem however, you should contact your Distributor's Service Department which is there to help you!

You will have been given the names of the relevant service contacts at your Distributor when the machine was installed.

To get the most from your Distributor please help the staff to satisfy you by:

- 1 Giving your name, address and telephone number.
- 2 Quoting your machine model and serial number.
- 3 Date of purchase and hours of work.
- 4 Nature of the problem.

Remember, only your JCB Distributor has access to the vast resources available at JCB to help support you. In addition, your Distributor is able to offer a variety of programmes covering Warranty, Fixed Price Servicing, Safety Inspections, including weight tests, covering both legal and insurance requirements:

Service/Maintenance Agreements

To help plan and spread the costs of maintaining your machine, we strongly recommend you take advantage of the many Service and Maintenance Agreements your Distributor can offer. These can be tailor made to meet your operating conditions, work schedule etc.

Please consult your JCB Distributor for details.

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 service schedules are done to keep the machine in a safe and efficient working condition.

Apart from the daily jobs, the schedules are based on machine running hours. Keep a regular check on the hourmeter readings to correctly gauge service intervals. Do not use a machine which is due for a service. Make sure any defects found during the regular maintenance checks are rectified immediately.

WARNING

Maintenance must be done by suitably qualified personnel. If it is necessary to work with the boom raised, then the boom safety strut must be installed. See Boom Safety Strut (MAINTENANCE section).

5-3-1-1

SERVICE SCHEDULES (continued)

		Daily	Weekly	First	6 Monthly	Yearly	2 Yearly
		10	50	100	500	1000	2000
		Hr	Hr	Hr	Hr	Hr	Hr
Pre-start Cold Checks							
Service Points and Fluid Levels							
ENGINE							
Engine Air Filter Pre-cleaner	Clean	•	•	•	•	•	•
Oil Level and Condition	Check	•	•	•	•	•	•
Oil and Filter	(1) Change			•	•	•	•
Air Cleaner Dust Valve	Clean			•	•	•	•
Air Cleaner Outer Element	Change				•	•	•
Air Cleaner Inner Element	Change						•
Fuel System For Leaks and Contamination	Check	•	•	•	•	•	•
Fuel Filter	Drain		•	•	•	•	•
Fuel Filter	Change			•	•	•	•
Coolant Level and Antifreeze Strength	Check	•	•	•	•	•	•
Fuel Sedimenter	Drain and clean		•	•	•	•	•
Fan Belt Tension/Condition	Check			•	•	•	•
Valve Clearances (AA - AC codes)	*Check and Adjust						•
Valve Clearances (AJ - AS codes)	*Check and Adjust					•	
Engine Mount Security	Check			•	•	•	•
Rain Cap/Pre-cleaner Installed if fitted	Check			•			
Radiator	Clean				•	•	•
TRANSMISSION AND AXLES							
Transmission Oil Level	Check	•	•	•	•		
Transmission Oil	(2) Change					•	•
Transmission Oil Filter	Change			•	•	•	•
Axle(s) Oil Level	Check		•	•	•	•	•
Axle(s) Oil	Change				•	•	•
Hub Oil Level	Check		•				
Hub Oil	(3) Change			•	•	•	•
Drive Shafts and Universal Joints	Security/Grease			•	•	•	•
Axle Pivots and Linkages	Grease		•	•	•	•	•
Axle Breather(s)	Check			•	•	•	•
Tyre Pressures/Condition	Check	•	•	•	•	•	•
Hub Wheel Bearings	Check			•	•	•	•
Transmission Strainer	Clean					•	•
Wheel Nut Security	Check	•	•	•	•	•	•
Wheel Alignment	Check	•	•		•	•	•
Trunnion Bearings	*Check/Adjust			•	•	•	•
Steering Stops (if fitted)	Security			•	•	•	•
Transmission Mount Security	Check			•			
Axle Mount Security	Check			•			

(1) In arduous conditions (eg. refuse re-handling, waste paper reclamation etc.) change the oil and filter after every **250 Hours** or three months (whichever comes first).

(2) After a major transmission repair, the new oil should be run to operating temperature and changed again to remove any contamination which entered during the repair. Change the oil and filter after a further 100 hours if the oil was heavily contaminated because of, or from the failure (eg. water contamination).

(3) After a hub repair, the new oil should be run to temperature and changed again to remove any contamination which entered during the repair. Change the oil again after a further 100 hours to remove any bedding-in wear. This is particularly important if new brake plates have been fitted.

Note: Jobs which should be done by a specialist are shown by *.
First 100 hrs service only to be completed by JCB Distributor.

SERVICE SCHEDULES (continued)

Pre-start Cold Checks Service Points and Fluid Levels		Operation	Daily 10 Hr	Weekly 50 Hr	First 100 Hr	6 Monthly 500 Hr	Yearly 1000 Hr	2 Yearly 2000 Hr
HYDRAULICS								
Oil Level		Check		•	•	•	•	
Oil		*Sample/Change						•
Oil Filter		Change			•	•	•	•
Suction Strainer		*Clean						•
BRAKES								
Brake System Fluid		Check Level	•	•	•	•	•	•
Brake System Fluid		Change						•
Brake Plate Condition		Check					•	•
ELECTRICS								
Battery Terminals for Condition & Tightness		Check			•	•	•	•
Wiring for Chaffing		Check			•	•	•	•
BODYWORK AND CAB								
Lift/Displacement/Tilt/Steer Ram Pivot Pins		Grease		•		•	•	•
Fire Extinguisher		Check	•	•		•	•	•
Wing Mirrors Condition & Security		Check	•	•		•	•	•
ROPS/FOPS Structure		Check	•					
All Pivot Pins		Grease			•	•	•	•
Doors and Hinges		Lubricate			•	•	•	•
Wear Pad Runways		Waxoyl				•	•	•
Inner Boom Hoses		Grease				•	•	•
Boom Wear Pad Clearance		Check/Adjust				•	•	•
		Replace if required						
Control Lever Linkages		Lubricate			•	•	•	•
Wear Pad Condition/Security		Change as required			•	•	•	•
Windscreen Washer Fluid Level		Check	•	•	•	•	•	•
Cab Heater Filter (if fitted)		Clean				•	•	•
ATTACHMENTS								
Carriage Lock Pins		Grease		•		•	•	•
Hydraulic Tow Hitch (if fitted)								
Inner Leg		Waxoyl				•	•	•
Pivot Pin		Grease				•	•	•
Release Cable/Return Spring		Check		•		•	•	•

Note: Jobs which should be done by a specialist are shown by *.

SERVICE SCHEDULES (continued)

Functional Test and Final Inspection	Operation	10 Hr	50 Hr	100 Hr	500 Hr	1000 Hr	2000 Hr
ENGINE							
Idle Speed	*Check and Adjust			•	•	•	•
Torque Converter Stall Speed	*Check			•	•	•	•
Max. No Load Speed	*Check and Adjust			•	•	•	•
Throttle System and Control Cable	Check/Adjust			•	•	•	•
Exhaust Smoke	Check	•	•	•	•	•	•
Exhaust System Security	Check			•	•	•	•
Air Inlet System Security	Check			•	•	•	•
Engine for Vibration/Noise	Check			•	•	•	•
TRANSMISSION, AXLES & STEERING							
Transmission Operation	Check	•	•		•	•	•
Steer Operation/Phasing	Check	•	•	•	•	•	•
Torque Converter Mainline Pressure	*Check			•	•	•	•
Clutch Disconnect/Dump Pedal/Button	Check			•	•	•	•
2WD/4WD Selection (if fitted)	Check			•	•	•	•
Forward/Reverse/Gear - Selection/Operation	Check			•	•	•	•
Neutral Start Operation	Check			•	•	•	•
HYDRAULICS							
Operation Of All Services	Check	•	•	•	•	•	•
Hose Burst Protection Valves (if fitted)	Check			•	•	•	•
MRV Pressure at Max rpm	Check/Adjust			•	•	•	•
ARV Pressure at 750 rpm.	Check/Adjust			•	•	•	•
Steer Circuit MRV Pressure	Check/Adjust			•	•	•	•
Fan Motor Speed (if fitted)	Check/Adjust				•	•	•
Attachment Operation/Remote Servo (if fitted)	Check			•	•	•	•
Piston Rods Chrome	Check			•	•	•	•
Boom Extension/Phasing (3 stage boom)	Check			•	•	•	•
Parallel Lift/Lower	Check			•	•	•	•
Stabiliser Leg & Chassis Levelling (Sway) Cut-Out (if fitted)	Check			•	•	•	•
BRAKES							
Foot Brake Operation	Check	•	•	•	•	•	•
Parking Brake	Check/Adjust	•	•	•	•	•	•
ELECTRICS							
Starter Motor	*Check			•	•	•	•
Alternator	*Check Output			•	•	•	•
All Electrical Equipment Operation (warning lights, beacon, alarms, horn, wipers)	Check	•	•	•	•	•	•
Safe Load Indicator	Check/Calibrate	•	•	•	•	•	•
Stabiliser Indicators	Check	•	•	•	•	•	•
BODYWORK AND CAB							
Inclinometer (if fitted)	Check			•	•	•	•
Glazing for Correct Fit/Leaks	Check			•			
Seat/Seat Belts	Check	•	•	•	•	•	•
Air Conditioning (if fitted)	Check			•	•	•	•
Forks	Fit and Check Security	•	•	•	•		
Generally for damage, leaks & wear	Check	•	•	•	•		

Note: Jobs which should be done by a specialist are shown by *.

BOOM SAFETY STRUT

WARNING

You could be killed or injured if the boom drops while you are working under it. Install the safety strut as instructed below before doing any maintenance work with the boom raised.

5-3-1-2

CAUTION

You will have to climb onto the machine to fit or remove the strut. Take care, especially if the machine is wet. Remove mud and oil before climbing onto the machine. Do not use the exhaust as a handhold. It can burn you.

5-3-1-4/1

WARNING

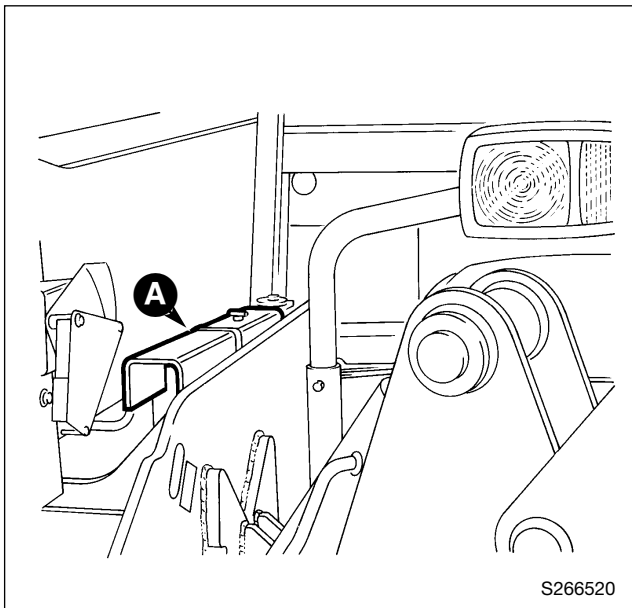
You could be killed or injured if the boom is lowered while you are under it. Keep people away from the machine while you fit or remove the strut.

5-3-1-3/1

Before fitting the safety strut remove any load on the forks and empty buckets or attachments.

Installing

- 1 Fully retract the boom (unless it needs to be extended for maintenance). Turn the steering wheel to the right to allow access to the stowage position. Raise the boom just far enough to install the strut.
- 2 Stop the engine. Make sure the parking brake is engaged and the transmission is in neutral. Remove the starter key.
- 3 Remove the strut from its stowage position **A**.

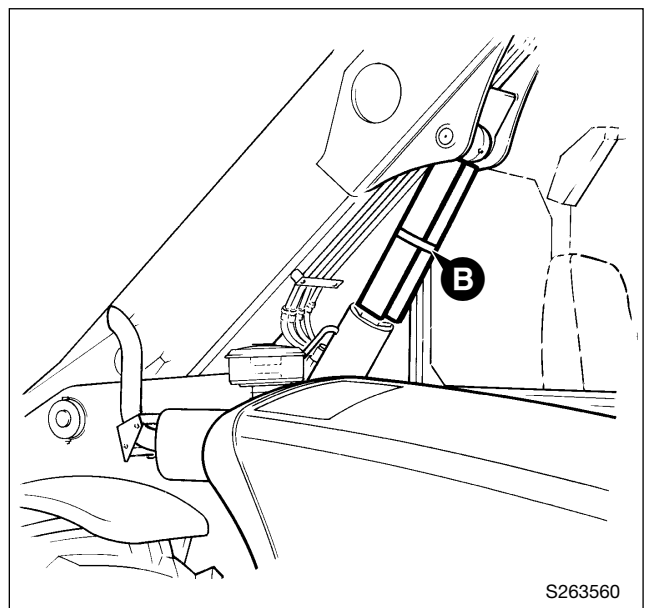


- 4 Place the strut around the lift ram piston rod **B**. Secure it in position.
- 5 To prevent any chance of the boom creeping down and trapping your fingers, the boom should be lowered onto the strut.

Note: Lower the boom carefully, to prevent possible damage to the strut. Stop as soon as the weight of the boom is on the strut.

Removing

- 1 Raise the boom to take the weight off of the strut.
- 2 Stop the engine. Make sure the parking brake is engaged and the transmission is in neutral. Remove the starter key.
- 3 Remove the strut.
- 4 Secure the strut in its stowage position **A**.



ENGINE COVER

Opening/Closing the Cover

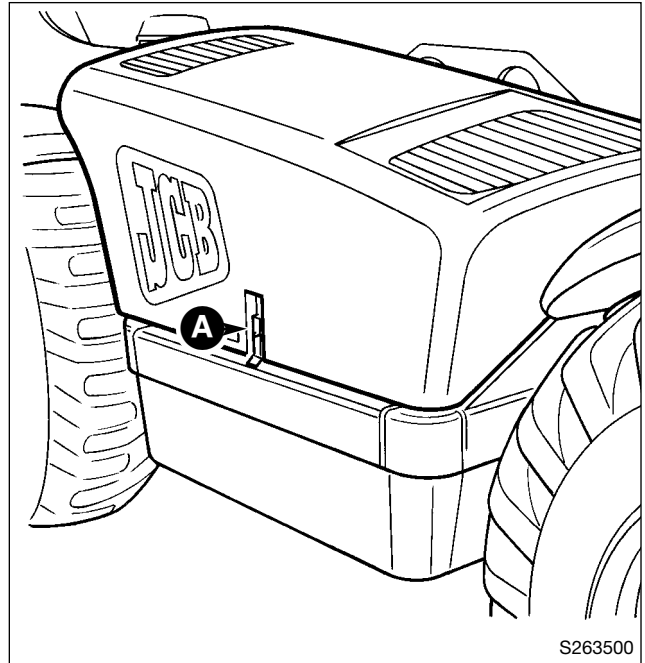
Access to the engine is by opening the cover.

WARNING

The engine has exposed rotating parts. Do not open the engine cover while the engine is running. Do not use the machine with the cover open.

INT-2-1-6/1

- 1** Stop the engine. Make sure the parking brake is engaged and the transmission is in neutral. Remove the starter key.
- 2** Unlock and release catch **A**. Allow the cover to raise on its gas strut. Keep hold of the cover while it rises.
- 3** Pull the cover down and engage catch **A**. We recommend you lock the engine cover



CLEANING THE MACHINE

Clean the machine using water and/or steam. Avoid using neat detergent - always dilute detergents as per the manufacturer's recommendations, otherwise damage to the paint finish may occur. **Always grease the machine after pressure washing or steam cleaning.**

Note: Excessive power washing can damage seals and bearings. Do not direct high power water jets directly at oil seals or universal joints.

Pay particular attention to the following:

- 1 If the radiator tubes/fins get clogged the radiator will be less efficient.

Brush off all debris from the cooler tubes and fins using a soft bristle brush. Make sure the loosened material is brushed out of the cooler enclosure.

Open the engine cover to clean both sides of radiator **A**.

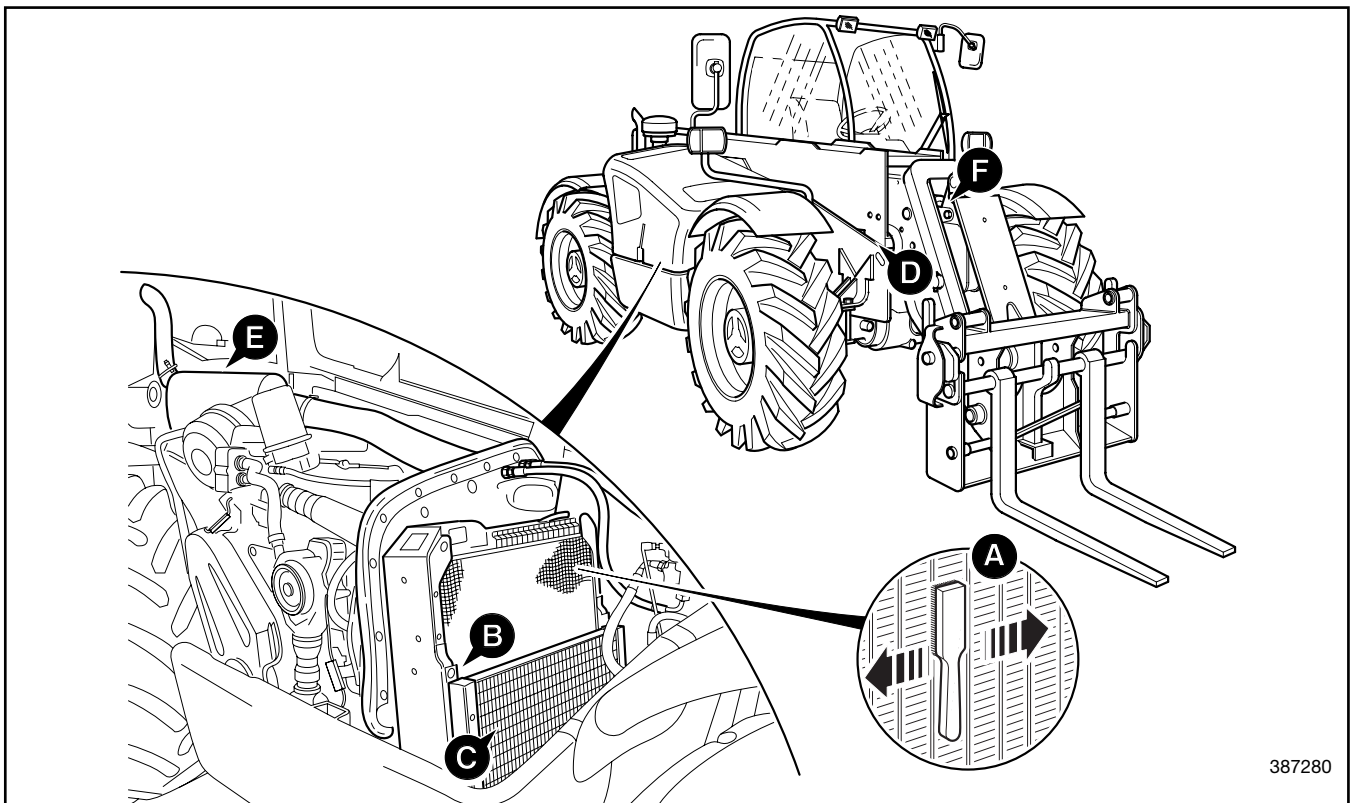
On machines with air conditioning, release fastener **B** and hinge the condenser away from the radiator. Clean both sides of condenser **C**.

- 2 Debris can collect under the boom **D**. Remove especially all combustible material.
- 3 Do not allow debris to accumulate around the engine, pay particular attention to the exhaust area **E**, remove all combustible material.
- 4 Do not allow debris to accumulate in the cavity **F** at the end of the boom on 530 and 540 machines. Remove and clean away all debris that may have built up around the tilt ram.

WARNING

Airborne particles of light combustible material such as straw, grass, wood shavings, etc. must not be allowed to accumulate within the engine compartment or in the propshaft guards (when fitted). Please inspect these areas frequently and clean at the beginning of each work shift or more often if required. Before opening the engine cover, ensure that the top is clear of debris.

5-3-1-12/2



387280

CHECKING FOR DAMAGE

Inspect steelwork for damage. Note damaged paintwork for future repair.

Make sure all pivot pins are correctly in place and secured by their locking devices.

Ensure that the steps and handrails are undamaged and secure.

Check for broken or cracked window glass. Replace damaged items.

Check all bucket teeth for damage and security.

Check all lamp lenses for damage.

Inspect the tyres for damage and penetration by sharp objects.

Check that all safety decals are in place and undamaged. Fit new decals where necessary see **Safety Decals** (INTRODUCTION section).

SEAT BELT

Checking the Seat Belt Condition and Security

WARNING

A JCB approved 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 regardless of condition.

2-3-1-8/1

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.

GREASING

WARNING

You must grease the machine regularly to keep it working efficiently, particularly after pressure washing. Regular greasing will also lengthen the machine's working life. Grease the following areas daily. Greasing should be done with a grease gun. Normally, two strokes of the gun should be enough. Stop greasing when fresh grease appears at the joint. Use **JCB HP Grease** or equivalent.

In the following illustrations the grease points are numbered. Count them off as you grease them.

Note: Some optional attachments may need greasing more often. See **OPTIONAL ATTACHMENTS** section.

All 50 hour greasing operations must be carried out at 10 hour intervals if JCB MPL Grease is used.

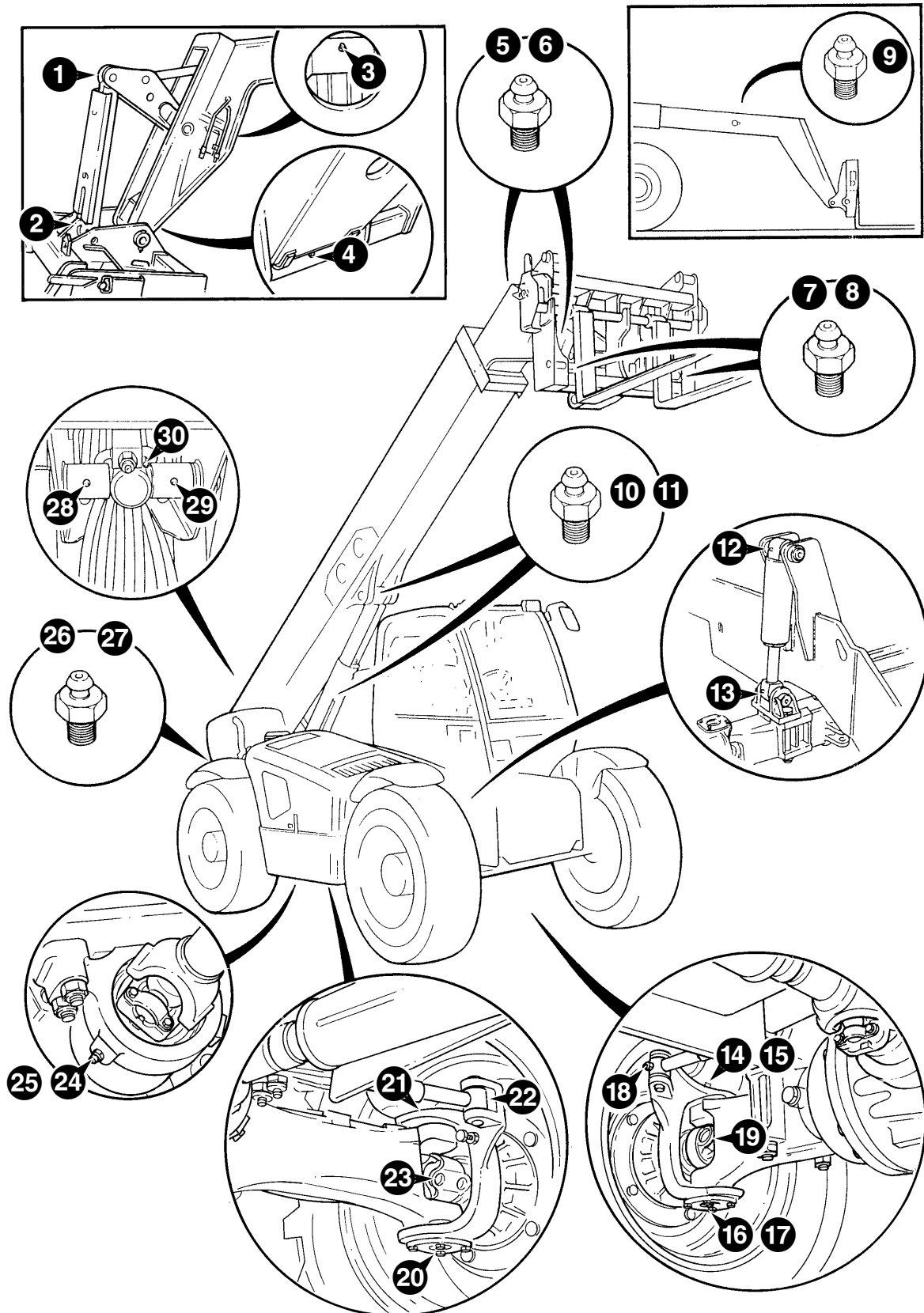
All 500 hour greasing operations must be carried out at 50 hour intervals if JCB MPL Grease is used.

You will be working close into the machine for these jobs. Lower the boom if possible. Remove the starter key and disconnect the battery. This will prevent the engine being started. Make sure the parking brake is engaged.

Chock all four wheels before getting under the machine.

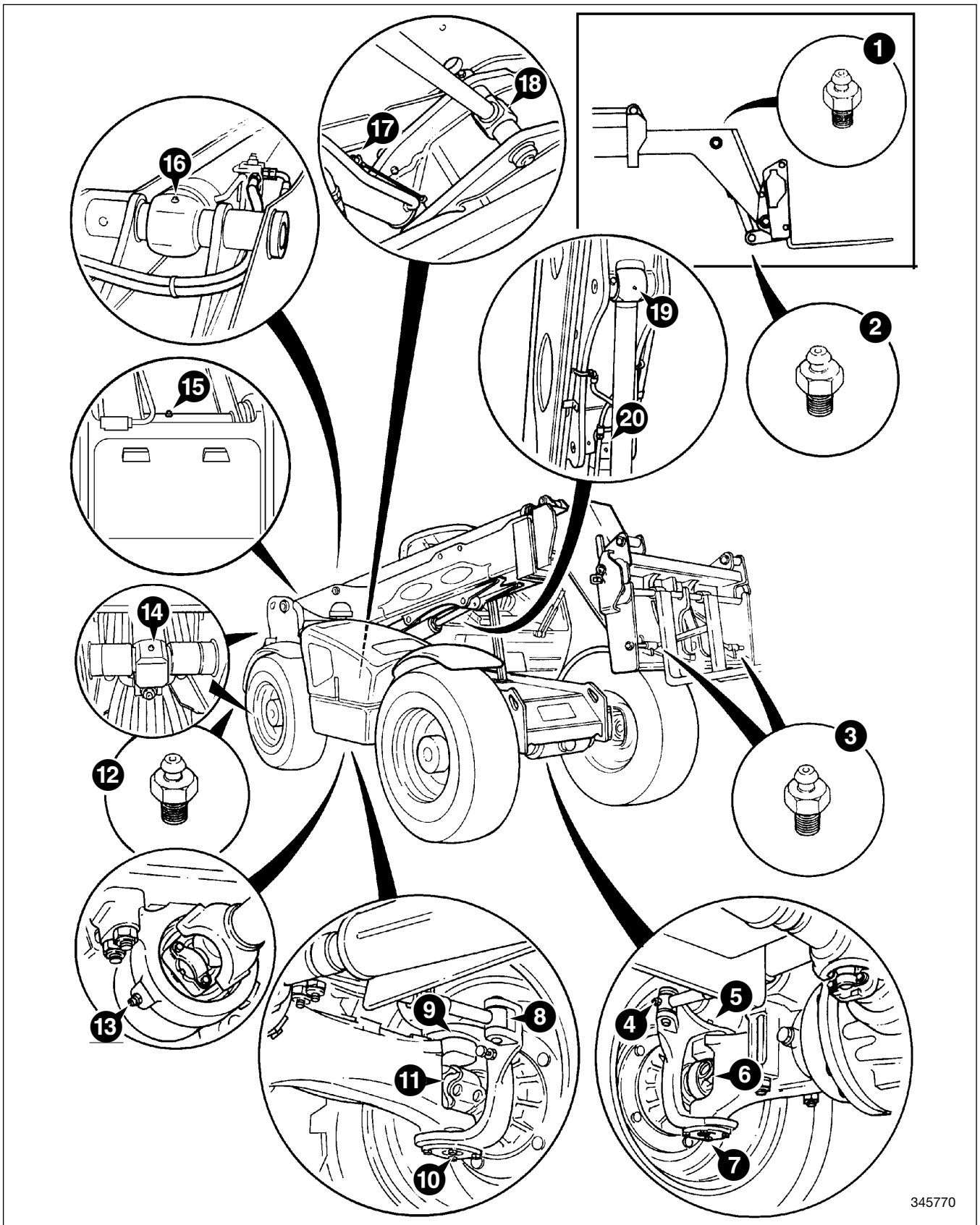
5-3-1-8

**GREASING (EVERY 50 HOURS)
(530, 540)**



266510

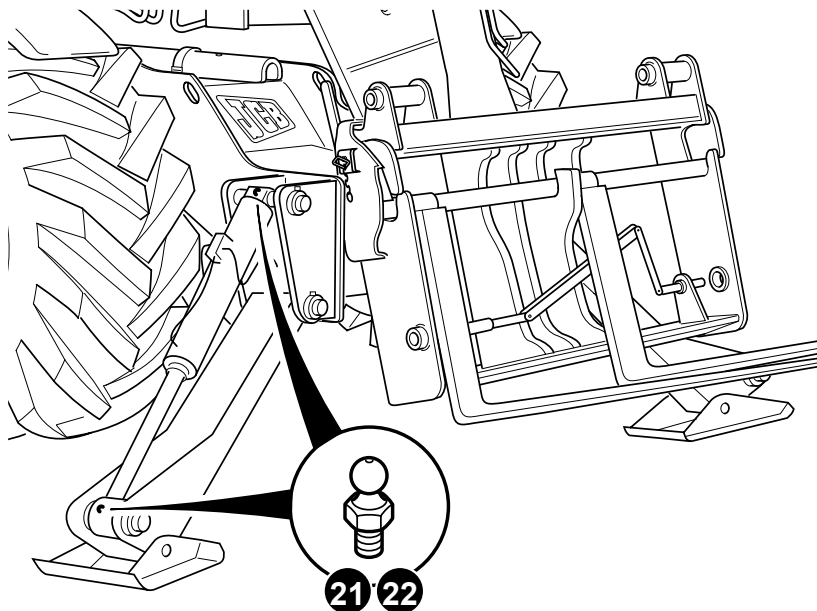
**GREASING (EVERY 50 HOURS)
(535)**



345770

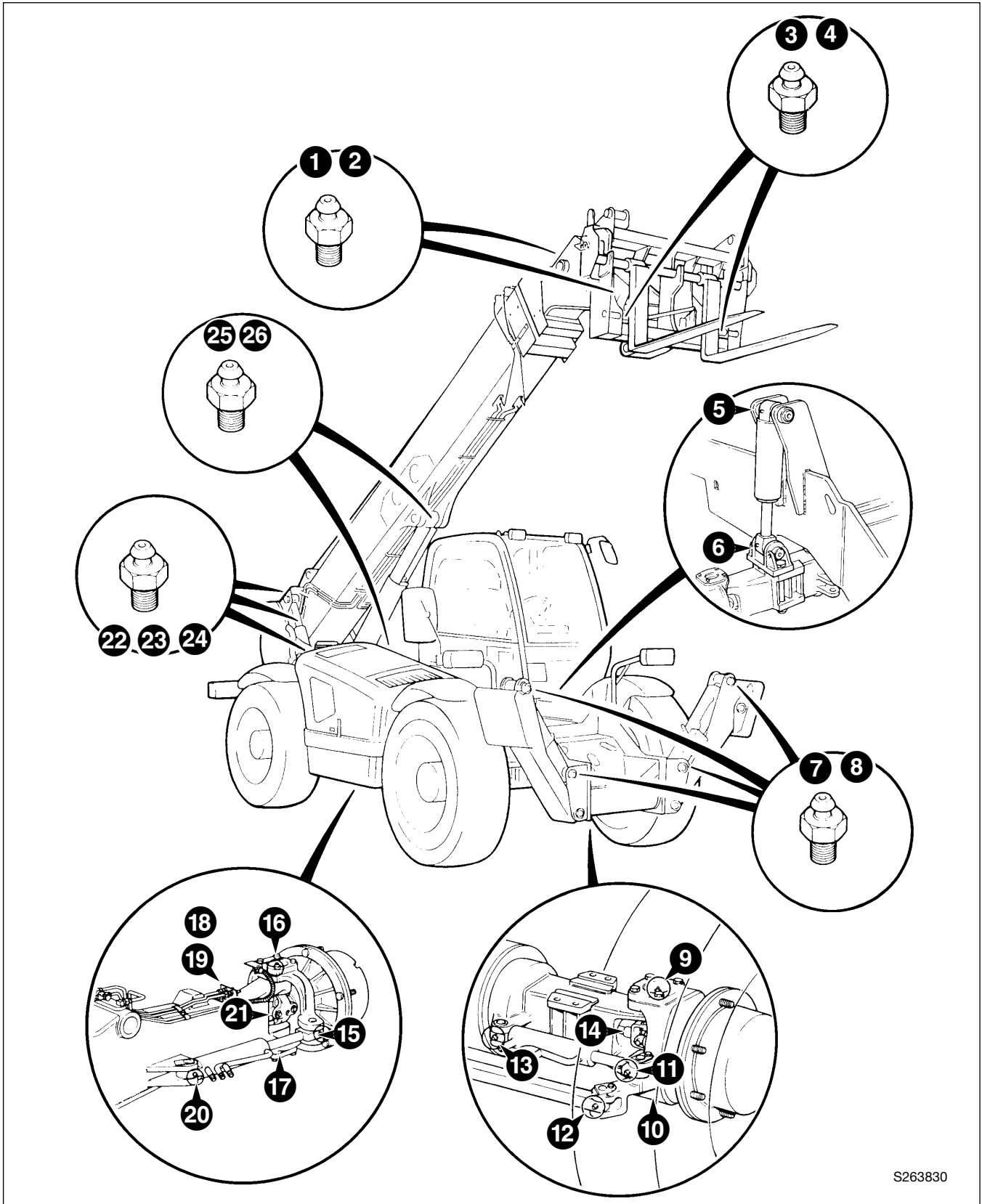
GREASING (EVERY 50 HOURS) (533)

Grease as shown for 535 plus the following (on both sides):



416030

**GREASING (EVERY 50 HOURS)
(532, 537, 540-170)**



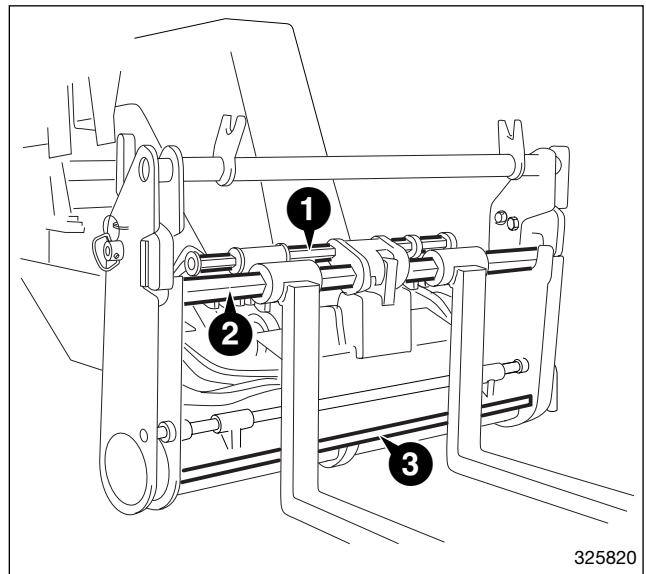
S263830

GREASING (EVERY 50 HOURS)

Greasing the Optional Sideshift Carriage

Note: Protective cover removed for clarity.

Grease the side shift carriage in three places. Use **JCB HP Grease** or equivalent.



GREASING (EVERY 500 HOURS)

CAUTION

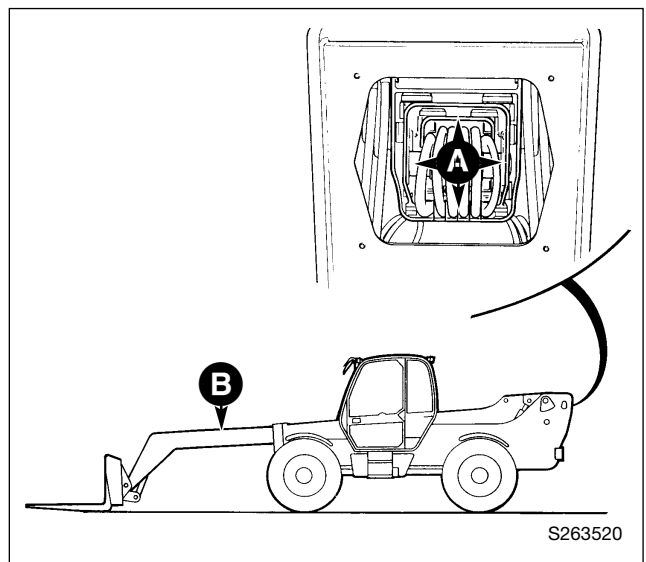
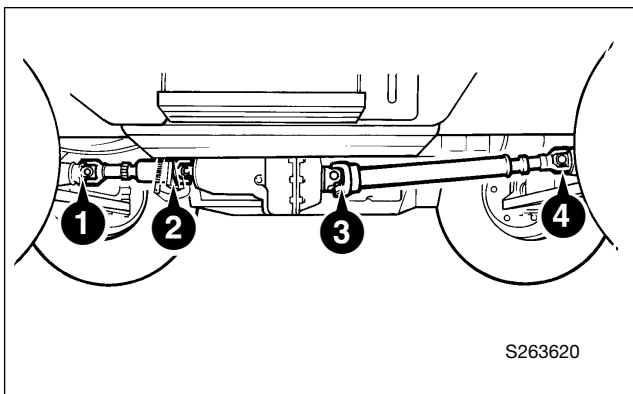
Waxoyl contains turpentine substitute, which is flammable. Keep flames away when applying Waxoyl. Waxoyl can take a few weeks to dry completely. Keep flames away during the drying period.

Do not weld near the affected area during the drying period. Take the same precautions as for oil to keep Waxoyl off your skin. Do not breathe the fumes. Apply in a well-ventilated area.

5-3-1-9

See Greasing (Daily) for general information on greasing.

Extend the boom fully. Spray Waxoyl evenly over the surfaces **A** and **B** as shown. Allow 2-3 hours drying time before retracting the boom.



GREASING (EVERY 500 HOURS)

Greasing the Hydraulic Tow Hitch

⚠ CAUTION

Waxoyl contains turpentine substitute, which is flammable. Keep flames away when applying Waxoyl. Waxoyl can take a few weeks to dry completely. Keep flames away during the drying period.

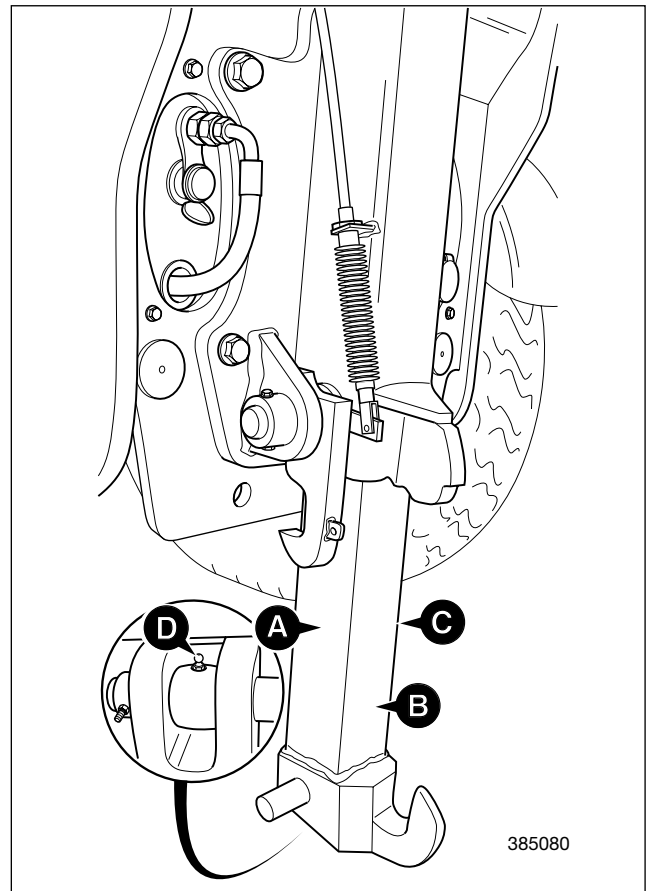
Do not weld near the affected area during the drying period. Take the same precautions as for oil to keep Waxoyl off your skin. Do not breathe the fumes. Apply in a well-ventilated area.

5-3-1-9

See Greasing (Daily) for general information on greasing.

Extend the hydraulic tow hitch fully. Spray Waxoyl evenly over the surfaces **A**, **B** and **C** as shown. Allow 2-3 hours drying time before retracting the hitch.

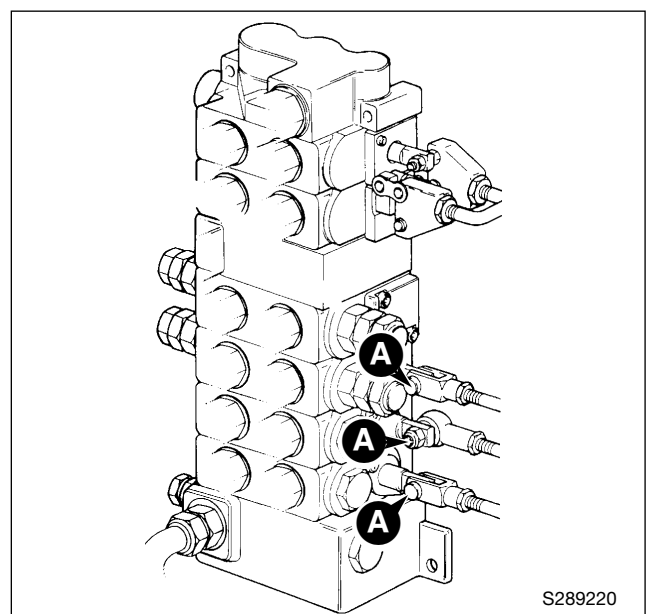
Grease the hitch pivot pin at grease nipple **D**. Use **JCB HP Grease** or equivalent.



OILING

The following points should be lightly oiled with engine oil at the periods stated in the Service Schedules:

- 1 Lightly oil all hinges.
- 2 Oil the clevis at the bottom of each control lever, as shown at **A**.



BRAKES

Checking the Foot Brake Fluid Level

WARNING

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

2-3-2-5/1

WARNING

Using incorrect brake fluid could damage the system. See the Fluids, Capacities and Lubricants chart in this handbook for the correct fluid. The fluid can harm your skin. Wear gloves. Cover cuts and grazes.

2-3-2-6/1

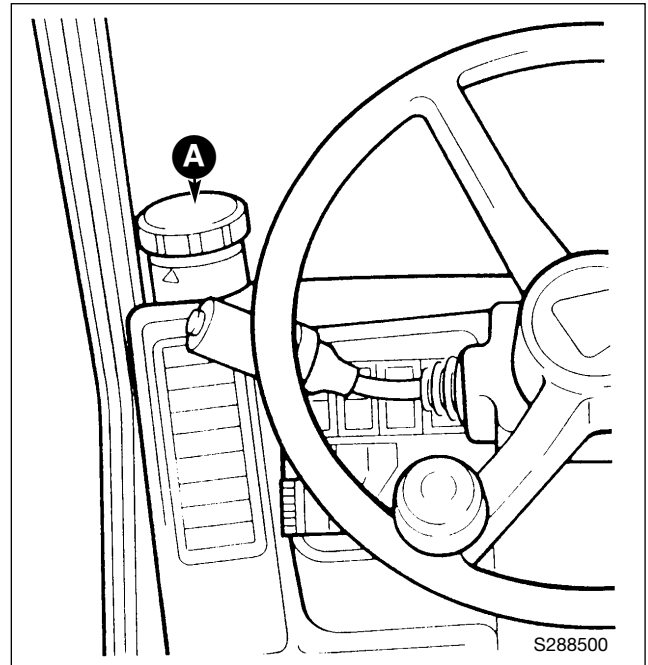
The brake master cylinder is in the cab.

1 Check the fluid level

The correct fluid level is marked on the reservoir. If necessary, add fluid as in step 2.

2 Add Fluid

Remove the reservoir cap **A**. DO NOT USE ORDINARY BRAKE FLUID. Carefully pour in the fluid until it reaches the **FLUID LEVEL** mark. Avoid spilling the fluid. Wipe up any spillage.



BRAKES

Parking Brake Adjustment

530, 535 & 540 Machines to 772032
532 & 537 Machines to 778686

If you are not confident or technically qualified to carry out this procedure, contact your JCB distributor.

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 both brake pads.

4-2-1-1/2

WARNING

Before working on the parking brake, make sure that the machine is on level ground. Put chocks each side of all four wheels. Disconnect the battery so that the engine cannot be started. If you do not take these precautions the machine could run over you.

2-3-2-4/1

The parking brake should be fully engaged when the lever is vertical. The parking brake indicator light should light when the brake is engaged with the forward/reverse lever away from neutral (starter switch at IGN).

1 Check and Adjust the Pad Position

Measure the pad thickness. If the friction material **A** is 3mm (0.125in) or less always fit a new set of pads. Check that the pads just touch the disc, shown at **B**, with the parking brake disengaged (lever horizontal).

If necessary, adjust the pad position by turning nut **C**. Turn the nut clockwise to close the pads onto the disc.

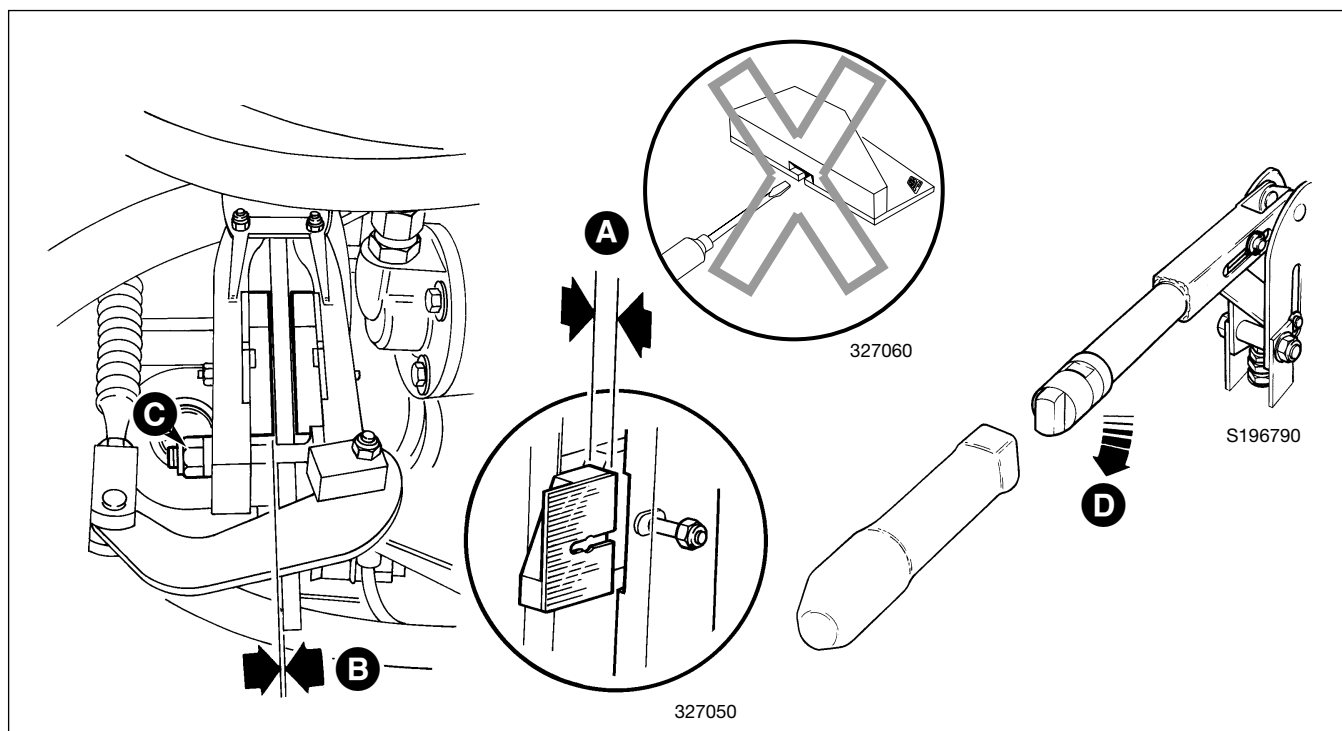
2 Take Up the Cable Slack

- a Disengage the parking brake (lever horizontal).
- b Turn handle grip **D** clockwise, half a turn.
- c Test the parking brake; see **Testing the Parking Brake** (OPERATION section).
- d If the brake fails the test, repeat Steps **2a**, **2b** and **2c**.

WARNING

Over adjustment of the parking brake could result in the parking brake not fully releasing.

0011



BRAKES

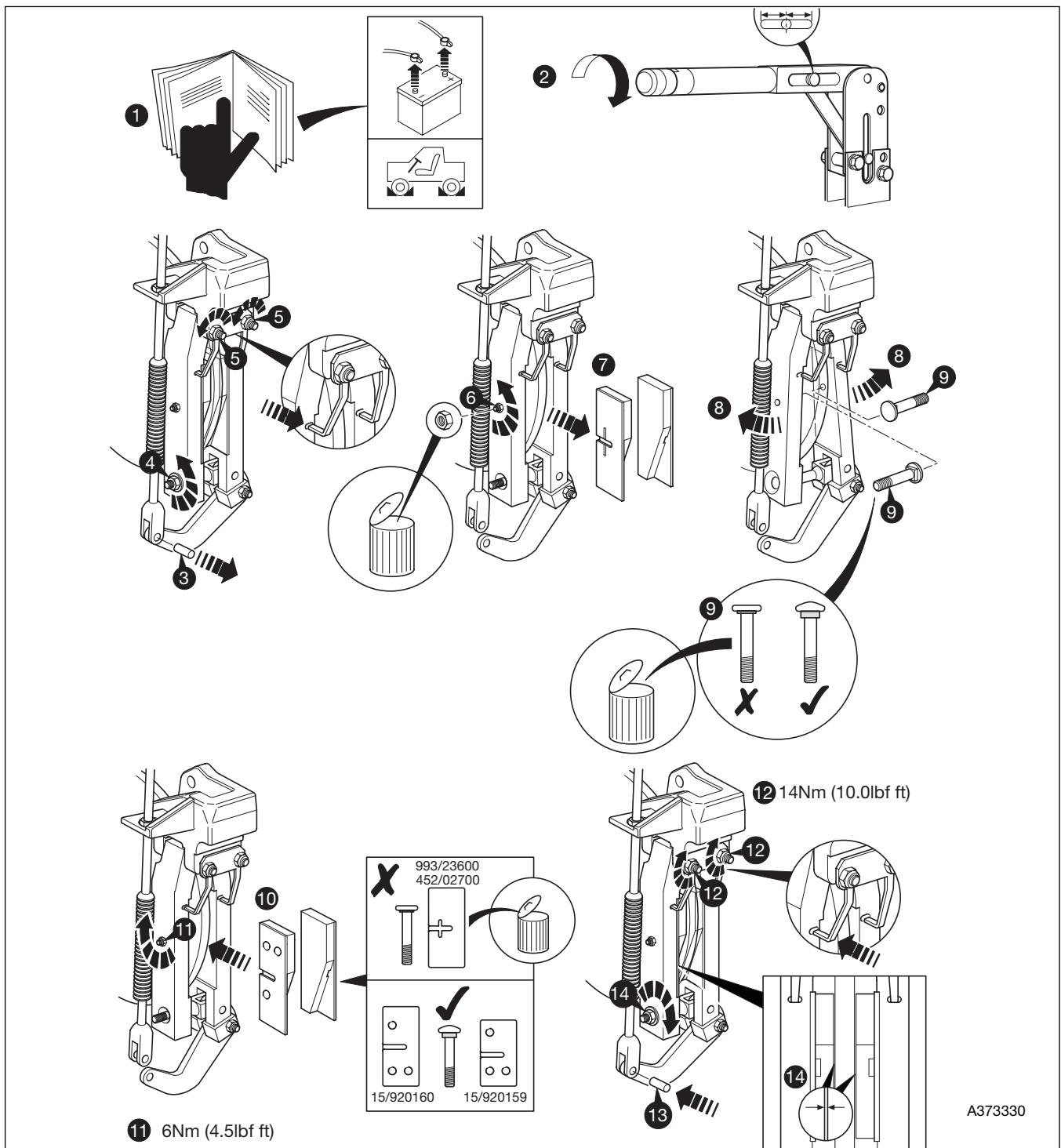
Parking Brake Adjustment (continued)

3 Renewing the Brake Pads

Change the pads as detailed on the illustrated fitting instructions with each kit or as shown below.

Test the parking brake; see **Testing the Parking Brake** (OPERATION section).

Note: If after completing the above steps, the parking brake does not pass the testing procedure, do not use the machine, contact your JCB Distributor.



BRAKES

Parking Brake Adjustment (continued)

530 & 540 Machines from 772033
 532 & 537 Machines from 778687
 533-105 Machines
 540-170 Machines
 530FS Plus Machines
 540FS Plus Machines
 530FS Super (530SXL France)
 540FS Super (540SXL France)

⚠ 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 both brake pads.

4-2-1-1/2

⚠ WARNING

Over adjustment of the parking brake could result in the parking brake not fully releasing.

0011

The parking brake should be fully engaged when the lever is vertical. The parking brake indicator light should light when the brake is engaged with the forward/reverse lever away from neutral (starter switch at IGN).

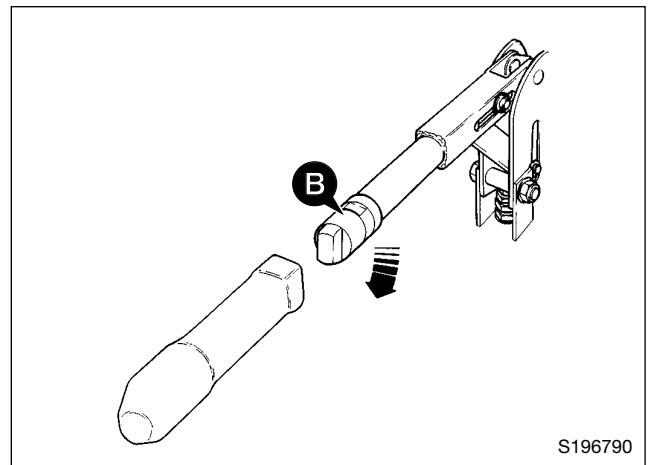
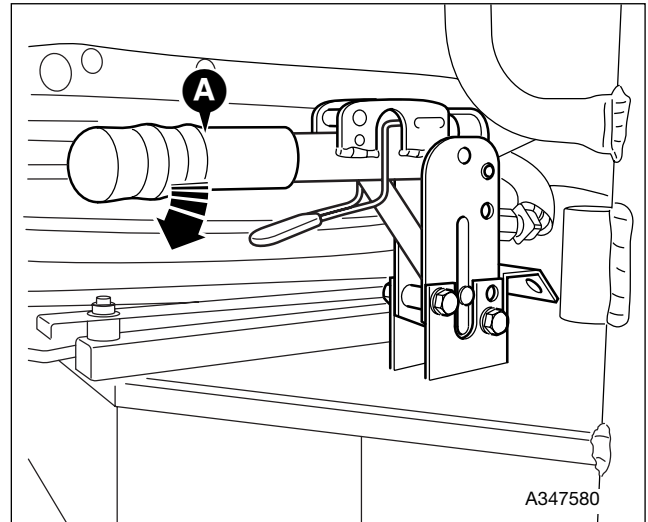
Later machines may be fitted with alternative parking brake lever **A**. Squeeze the release lever under the handgrip and lower the parking brake forward to release.

- 1 Disengage the parking brake (lever horizontal).

Note: Failure to disengage the parking brake fully will result in excessive wear of the handbrake mechanism.

- 2 Turn handle grip **A** or **B** half a turn in the direction shown.
- 3 Test the Parking Brake; see **Testing the Parking Brake** (OPERATION section).
- 4 If the brake fails the test, repeat Steps 1, 2 and 3.

Note: If, after completing the above steps, the parking brake does not pass the testing procedure, do not use the machine, contact your JCB Distributor.



TYRES AND WHEELS

Tyre Inflation

⚠ WARNING

Over-inflated or overheated tyres can explode. Do not cut or weld the rims. Get a tyre/wheel specialist to do any repair work.
5-3-2-4

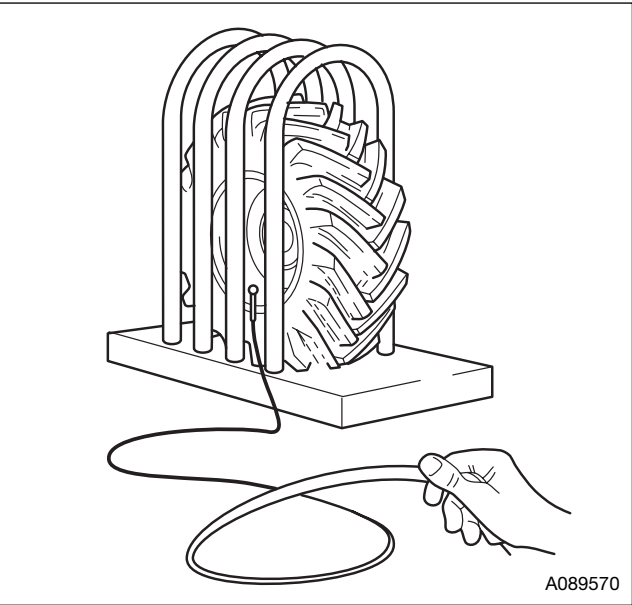
These instructions are for adding air to a tyre which is already inflated. If the tyre has lost all its air pressure, call in a qualified tyre mechanic. The tyre mechanic should use a tyre inflation cage and the correct equipment to do the job.

- 1 Before you add air to the tyre, make sure it is correctly fitted on the machine or installed in a tyre inflation cage.
- 2 Use only an air supply system which includes a pressure regulator. Set the regulator no higher than 1.38 bar (20 lbf/in²) above the recommended tyre pressure. See the chart at the end of *MAINTENANCE* section for recommended tyres and pressures for your machine. (The tyre pressures are also given on the Flip Chart mounted in the cab.)

Use an air hose fitted with a self-locking air chuck and remote shut-off valve.

- 3 Make sure that the air hose is correctly connected to the tyre valve. Clear other people from the area. Stand behind the tread of the tyre while adding the air.

Inflate the tyre to the recommended pressure. Do not over-inflate.



Checking Roadwheel Tightness

On new machines, and whenever a wheel has been removed, check the wheel nut torques every two hours until they stay correct.

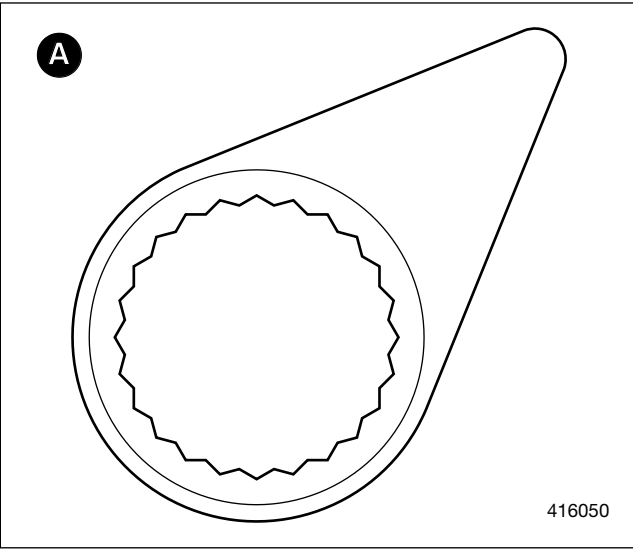
Every day, before starting work, check that the wheel nuts are tight. If wheelnut torque indicators **A** are fitted, check each day that they have not moved.

If wheelnut torque indicators are not fitted, check that the torques are correct as shown in the table below.

Front		Rear	
Nm	lbf ft	Nm	lbf ft
680	500	680	500

⚠ WARNING

If, for whatever reason, a wheel stud is renewed, all the studs for that wheel must be changed as a set, since the remaining studs may have been damaged.
2-3-2-8



ENGINE AIR FILTER

Changing the Elements

⚠ CAUTION

The outer element must be renewed immediately if the warning light on the instrument panel illuminates.

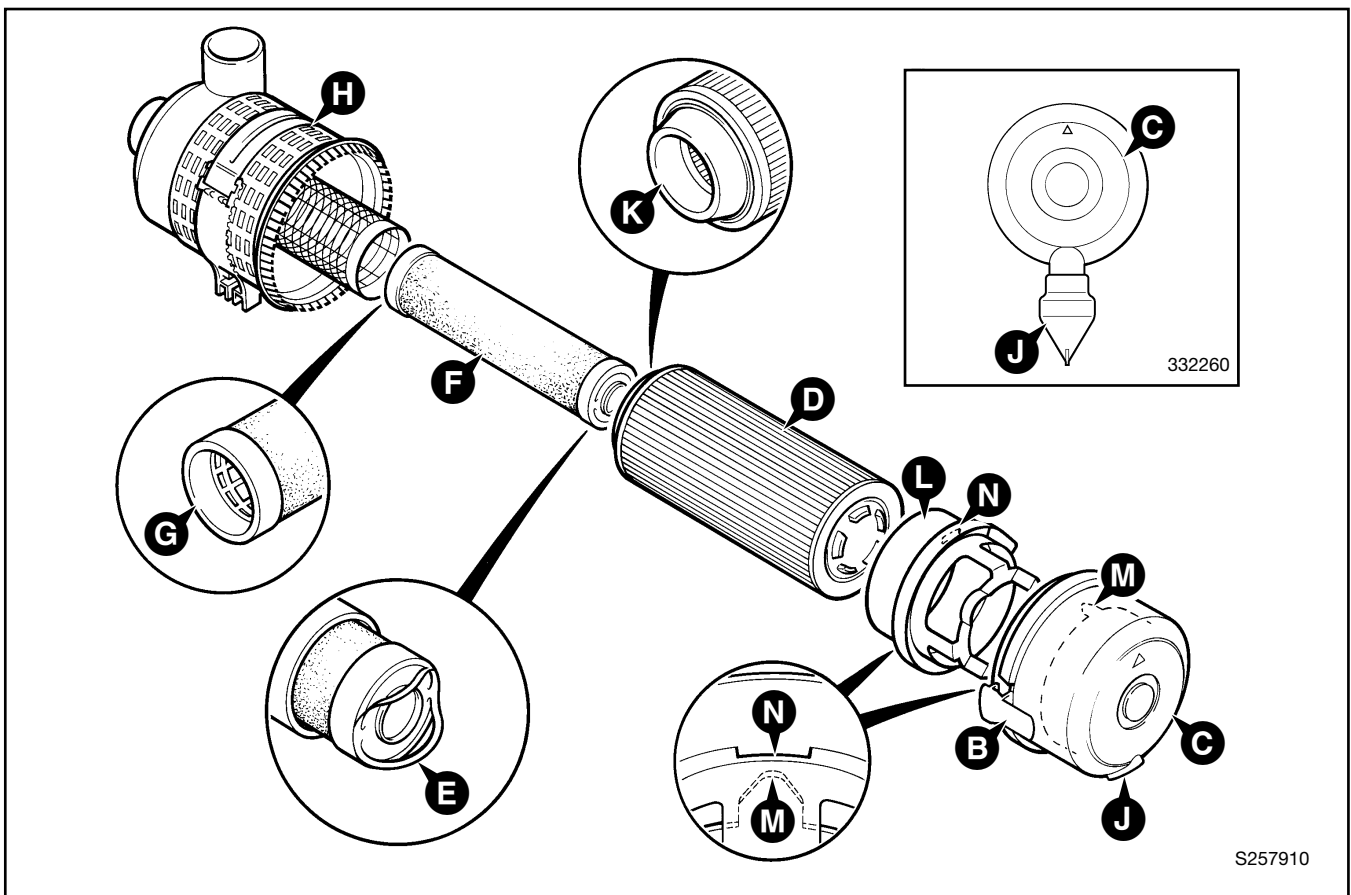
2-3-3-1

Note: Do not attempt to wash or clean the elements - they must only be renewed.

Note: Do not run the engine with the dust valve **J** removed.

Note: A new inner element must be fitted at least every third time the outer element is changed. As a reminder, mark the inner element with a felt tipped pen each time the outer element is changed.

- 1 Stop the engine.
- 2 Open the engine cover, see **Engine Cover** (this section).
- 3 Depress clips **B** and lift off cover **C**. Remove outer element **D**. Take care not to tap or knock the element. If the inner element is to be changed, lift up pulls **E** and remove inner element **F**. On turbocharged engines, remove pulsation ring **L**.
- 4 Clean inside the canister **H**, pulsation ring **L**, cover **C** and dust valve **J**.
- 5 Insert the new elements into the canister, pushing them firmly in so that seals **G** and **K** are fully seated. On turbocharged engines, assemble the pulsation ring **L** into the cover, making sure that tongue **M** fits into slot **N**. Fit cover **C** with dust valve **J** at the bottom. Push the cover firmly into position and make sure it is secured by clips **B**.
- 6 Make sure that the wire is connected to the **Air Filter Blocked** switch.



ENGINE OIL AND FILTER

Checking the Oil Level

- 1 Park the machine on firm level ground. Lower the forks to the ground.
- 2 Remove the starter key and make sure the parking brake is engaged.
- 3 Open the engine cover. See **Engine Cover** (this section).
- 4 Make sure dipstick **A** is fully screwed in before removing it. Check the oil level is between the two marks on the dipstick. Add oil if necessary, through filler **B**. Use only the recommended oil (see **Fluids and Lubricants**). Make sure that the dipstick and filler cap are screwed fully in.

Changing the Oil and Filter

WARNING

Make the machine safe before getting beneath it. Do the following: Park on level ground. Engage the parking brake. Lower the forks to the ground. Stop the engine, remove the starter key. Disconnect the battery. Chock the wheels.

9-3-2-1

Note: Drain the oil when the engine is warm as contaminants held in suspension will be drained with the oil.

- 1 Place a container of suitable size beneath the engine. See the chart at the end of this section for capacity.

WARNING

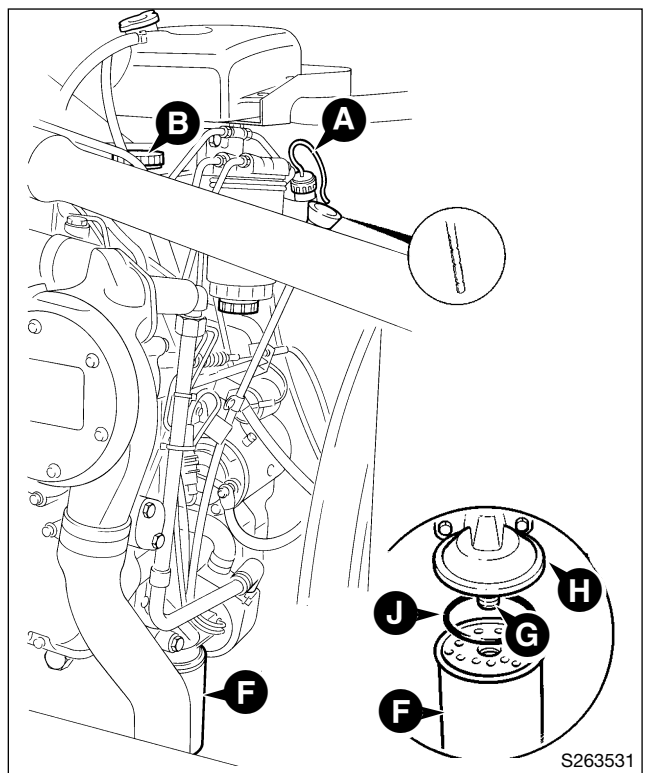
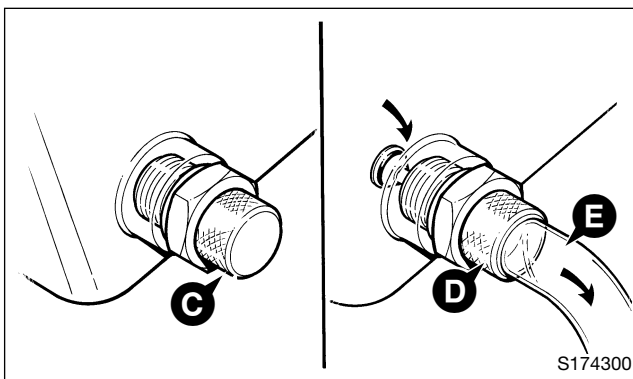
Oil will gush from the hole when the drain plug is removed. Hot oil and engine components can burn you. Keep to one side when you remove the plug.

13-3-1-15

- 2 Remove the drain plug and allow oil to flow into the container. Clean and refit the drain plug and new o-ring. Tighten to 34 Nm (25 lbf ft).

Remove dust cap **C** if a drain plug kit is fitted. With the free end of the clear plastic tube in the oil container, screw on the drain coupling **D** and tube **E**. This will open the valve.

- 3 Change the filter:
 - a Unscrew the filter canister **F**. Remember that it will be full of oil.
 - b Check that adaptor **G** is secure.
 - c Clean filter head **H**.
 - d Add clean engine lubricating oil to the new filter canister. Allow enough time for the oil to pass through the filter element.
 - e Smear the seal **J** on the new filter with oil. Screw in the new filter canister - hand tight only.
- 4 Fill the engine, to the upper mark on the dipstick, with new oil through the filler. See the chart in this Section for recommended oil grades. Wipe off any spilt oil. Make sure the filler cap is correctly refitted.
- 5 Start the engine. Check for leaks. When the engine has cooled, check the oil level.



ENGINE COOLING SYSTEM

Checking the Coolant Level

WARNING

The cooling system is pressurised when the engine is hot. Hot coolant can spray out when you remove the filler cap. Let the system cool before removing the filler cap. To remove the cap; turn it to the first notch and let the system pressure escape, then remove the cap.

INT-3-2-9/1

- 1 Stop the engine. Make sure the parking brake is engaged and the transmission is in neutral. Remove the starter key.
- 2 Open the engine cover, see **Opening the Cover** (this section).
- 3 Check that the coolant level, in expansion bottle **A** is $\frac{1}{3}$ full.

Note: If the level in the expansion bottle is low, then continue with steps 4 to 6.

- 4 Top-up the expansion bottle, through the filler cap **B**, using the necessary mix of clean, soft water and antifreeze. See **Coolant Mixtures**. The bottle should be $\frac{1}{3}$ full.

Note: Check the quality of the antifreeze mixture every year - before the cold weather starts. Change it every two years.

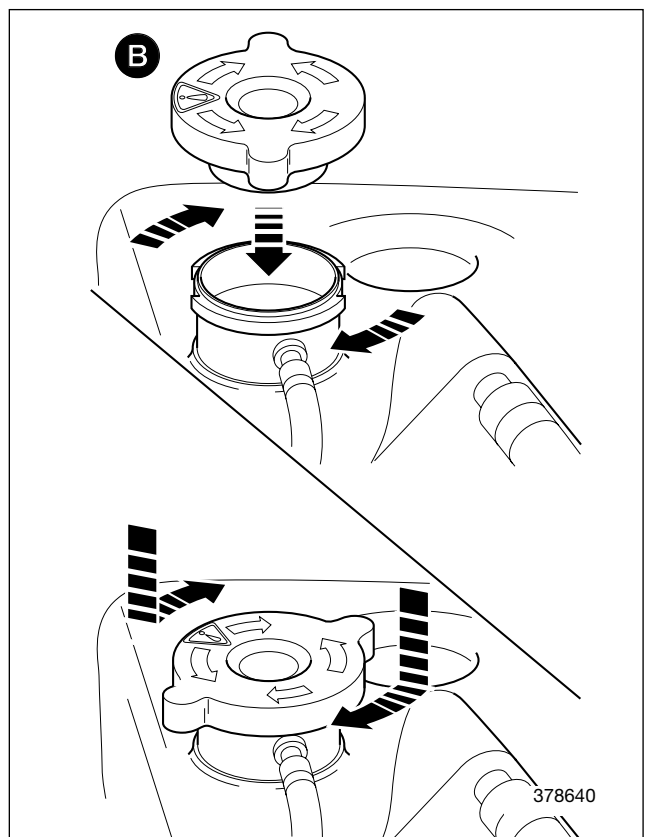
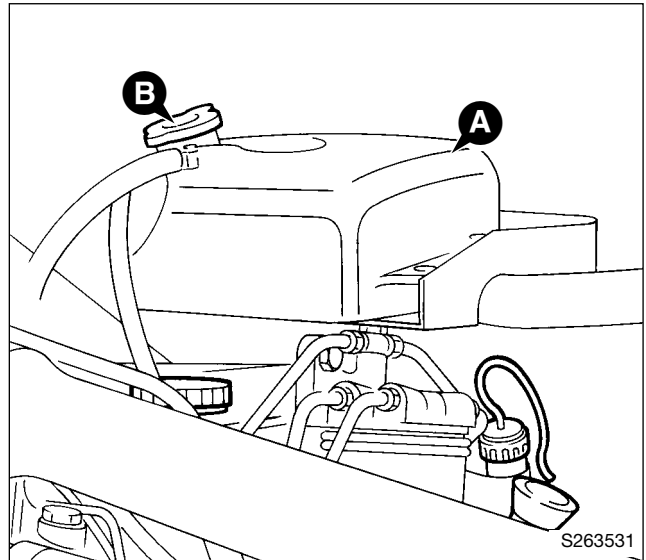
- 5 Refit the filler cap. Make sure the filler cap **B** is tight, see WARNING below.

WARNING

When fitting the coolant filler cap, ensure that the cap is correctly fitted. Turn the cap clockwise to the first notch, then press down and continue turning clockwise until the cap is tight. Failure to do this will result in inefficient cooling and may result in injury when the cap is removed.

0059

- 6 Run the engine for a while to raise the coolant to working temperature and pressure. Stop the engine and check for leaks.



ENGINE COOLING SYSTEM
(continued)

Coolant Mixtures

The protection provided by JCB Four Seasons Anti-freeze and Summer Coolant is shown below. If any other anti-freeze is used, refer to the manufacturer's instructions and ensure that a corrosion inhibitor is included.

DO NOT use solutions of more than 60%, or less than 50% or damage to the cooling system will occur.

Solution	Maintains Circulation Down To	Protects Against Damage Down To
55%	-36°C (-33°F)	-41°C (-42°F)

Check the strength of the antifreeze solution at least once a year, preferably at the start of the cold period.

It is an advantage to leave the anti-freeze in all year round as it gives continuous protection against corrosion. Always renew the antifreeze every two years.

A 50% antifreeze mixture should be used even if frost protection is not needed. This gives protection against corrosion and raises the boiling point of the coolant.

 WARNING

Antifreeze can be harmful. Obey the manufacturer's instruction when handling neat or diluted antifreeze.
7-3-4-4

Changing the Coolant

 WARNING

The cooling system is pressurised when the engine is hot. Hot coolant can spray out when you remove the filler cap. Let the system cool before removing the filler cap. To remove the cap; turn it to the first notch and let the system pressure escape, then remove the cap.
INT-3-2-9/1

- 1 Stop the engine. Make sure the parking brake is engaged and the transmission is in neutral. Remove the starter key.
- 2 Open the engine cover, see **Engine Cover** (MAINTENANCE section).
- 3 Carefully loosen filler cap **A**.

 CAUTION

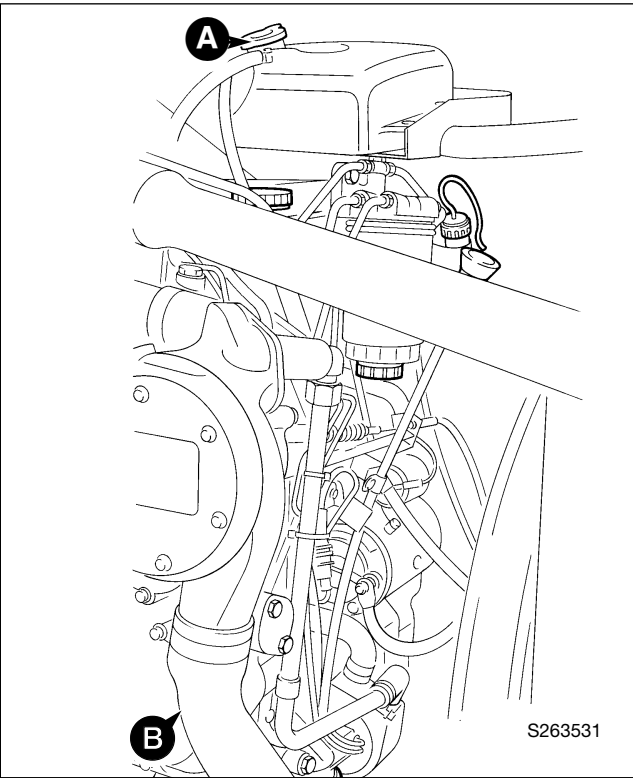
Keep your face away from the hose while disconnecting it.
5-3-3-1

- 4 Disconnect hose **B** and let the coolant drain out.
- 5 Flush the system, if necessary. Use clean water.
- 6 Refit radiator hose **B**.
- 7 Fill the system, using the necessary mix of clean, soft water and antifreeze. See the Chart at the end of MAINTENANCE section.
- 8 Refit the filler cap. Make sure the cap **A** is tight, see WARNING below.

 WARNING

When fitting the coolant filler cap, ensure that the cap is correctly fitted. Turn the cap clockwise to the first notch, then press down and continue turning clockwise until the cap is tight. Failure to do this will result in inefficient cooling and may result in injury when the cap is removed.
0059

- 9 Run the engine for a while, to raise the coolant to working temperature and pressure. Stop the engine. Check for leaks.
- 10 Top-up the expansion bottle, through the filler cap **A**. The bottle should be 1/3 full.



S263531

CAB HEATER FILTER

For air conditioning filter, see **Air Conditioning Option** (MAINTENANCE section).

Cleaning the Cab Heater Filter

CAUTION

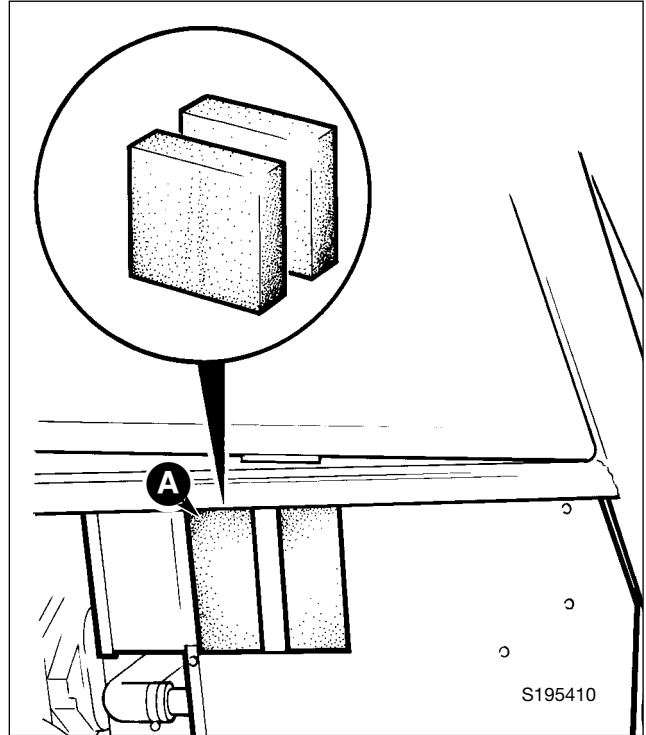
The filter may be filled with dust. Wear goggles and a face mask when removing the filter.

2-3-3-6

- 1 Park the machine on level ground. Engage the parking brake. Raise the boom and fit the safety strut, see **Boom Safety Strut** (MAINTENANCE section). Remove the starter key.
- 2 Isolate the battery, see **Battery Isolator** (MAINTENANCE section).
- 3 Carefully extract the filter **A** from its housing.
- 4 Knock loose dust off the filter. Wash the filter in clean water. Allow to dry.

Note: Do not squeeze the filter to dry it. Shake off the bulk of the water, then let the rest drain off. If the filter was clogged, clean it more often.

- 5 Carefully replace the filter into its housing.



FUEL SYSTEM

Types of Fuel

Use good quality diesel fuel to get the correct power and performance from your engine. The recommended fuel specification is given below.

Cetane Number:	45 (minimum)
Viscosity:	2.5/4.5 centistokes at 40 °C (104 °F)
Density:	0.835/0.855 kg/litre (0.872/0.904 lb/pint)
Sulphur:	0.5% of mass (maximum)
Distillation:	85% at 350 °C (662 °F)

Cetane Number

Indicates ignition performance. Fuel with a low cetane number can cause cold start problems and affect combustion.

Viscosity

Is the resistance to flow. If this is outside limits, the engine performance can be affected.

Density

Lower density will reduce engine power. Higher density will increase both engine power and exhaust smoke.

Sulphur

High sulphur content can cause engine wear. (High sulphur fuel is not normally found in North America, Europe or Australia.) If you have to use high sulphur fuel you must also use a highly alkaline engine lubricating oil; or change the normal oil more frequently.

Distillation

This indicates the mixture of different hydrocarbons in the fuel. A high ratio of lightweight hydrocarbons can affect the combustion characteristics.

Fuel Standards

Consult your fuel supplier or JCB distributor about the suitability of any fuel you are unsure of.

Low Temperature Fuels

Special winter fuels may be available for engine operation at temperatures below 0°C (32°F). These fuels have a lower viscosity. They also limit wax formation in the fuel at low temperatures. *(Wax forming in the fuel can stop the fuel flowing through the filter.)*

Flow improvers may also be available. These can be added to the fuel to reduce wax formation.

Petrol

WARNING

Do not use petrol in this machine. Do not mix petrol with the diesel fuel. In storage tanks the petrol could rise to the top and form flammable vapours.

INT-3-1-6

Advice

If you have to use non-standard fuels, contact your JCB distributor for advice on engine adjustments and oil change periods.

WARNING

Diesel fuel is flammable; keep naked flames away from the machine. Do not smoke while refuelling the machine or working on the engine. Do not refuel with the engine running. There could be a fire and injury if you do not follow these precautions.

INT-3-2-2

Fatty Acid Methyl Ester Fuels as a Replacement for Diesel Fuels

Fuel resources such as Rape Methyl Ester and Soybean Methyl ester, collectively known as Fatty Acid Methyl Esters are being used as alternatives and extenders for mineral oil.

Fatty Acid Methyl Esters must conform to certain standards to be of acceptable quality, just as mineral oils do at present.

Consult your JCB distributor for advice about the use of Fatty Acid Methyl Ester fuels, as improper application may impair engine performance.

FUEL SYSTEM (continued)

Filling the Tank

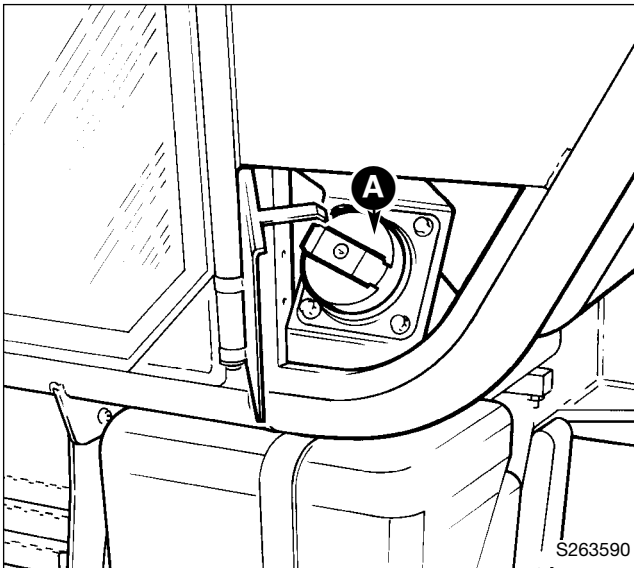
At the end of every working day, remove cap **A** and fill the tank with the correct type of fuel. This will prevent overnight condensation from developing in the fuel.

We recommend that you lock the fuel cap to prevent theft and tampering.

WARNING

Diesel fuel is flammable; keep naked flames away from the machine. Do not smoke while refuelling the machine or working on the engine. Do not refuel with the engine running. There could be a fire and injury if you do not follow these precautions.

INT-3-2-2



Prime the System

Machines with Type AA or AB Engines

Air in the fuel system could cause misfiring or failure to start. Air will enter the fuel system if any part of the system has been drained or disconnected.

CAUTION

Running the engine with air in the system could damage the fuel injection pump. After maintenance, remove air from the system as detailed below.

2-3-3-7

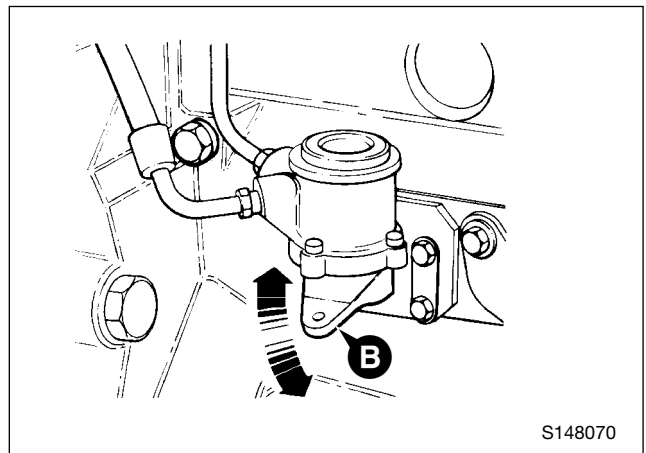
- 1 Park the machine on level ground. Engage the parking brake. Remove the starter key.
- 2 Open the engine cover, see **Engine Cover** (MAINTENANCE section).

WARNING

Hot oil and engine components can burn you. Make sure the engine is cool before doing this job.

2-3-3-2

- 3 Prime the fuel system. Operate the fuel lift pump priming lever **B** slowly, for approximately two minutes.



Note: If no fuel is moved when the fuel lift pump priming lever **B** is operated, then the pump diaphragm may have rested in a 'maximum lift' position. To move the diaphragm, use the starter key to turn the engine, then try the priming lever again.

- 4 The engine is now ready to start. If the engine runs smoothly for a short time, and then begins to run roughly or stops, check again for air in the fuel system. Check all seals and connections, especially in the low pressure side of the system.

Machines with Type AR, AK or AM Engines

These engines are self priming. If just the sedimenter bowl is empty, turn the engine with the starter and the engine will self prime.

If the sedimenter bowl, fuel pipes and fuel filter are empty, turn the engine with the starter for 30 seconds. Wait 60 seconds. Repeat this procedure three or four times and the engine will self prime.

Note: Filling the filter element bowl with fuel will greatly reduce the time taken to prime the engine.

FUEL SYSTEM (continued)

Draining the Filter

- 1 Park the machine on level ground. Engage the parking brake. Remove the starter key.
- 2 Open the engine cover, see **Engine Cover** (MAINTENANCE section).
- 3 Drain off any water in the element **A** by turning tap **B**.

CAUTION

Running the engine with air in the system could damage the fuel injection pump. After maintenance, the system must be bled to remove any air.

2-3-3-11

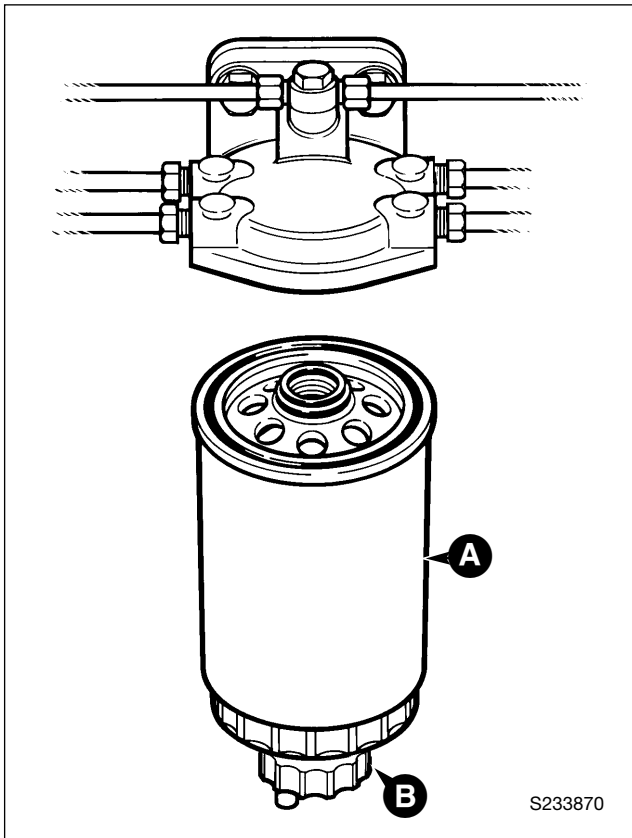
Changing the Filter Element

- 1 Unscrew the filter element **A**, the element is hand tight but may require a strap wrench to remove. The filter will be full of fuel.
- 2 To assist with bleeding fill the filter element with fuel before fitting. Install filter element **A**, hand tight only. Check for leaks.
- 3 Prime the system.

CAUTION

Running the engine with air in the system could damage the fuel injection pump. After maintenance, the system must be bled to remove any air.

2-3-3-11



FUEL SYSTEM (continued)

Draining the Sediment Bowl

- 1 Park the machine on level ground. Engage the parking brake. Remove the starter key.
- 2 Look in the bowl **A**. If it contains sediment, see **Cleaning the Sediment Bowl**. If there is water but no sediment, drain off the water by opening tap **B**.

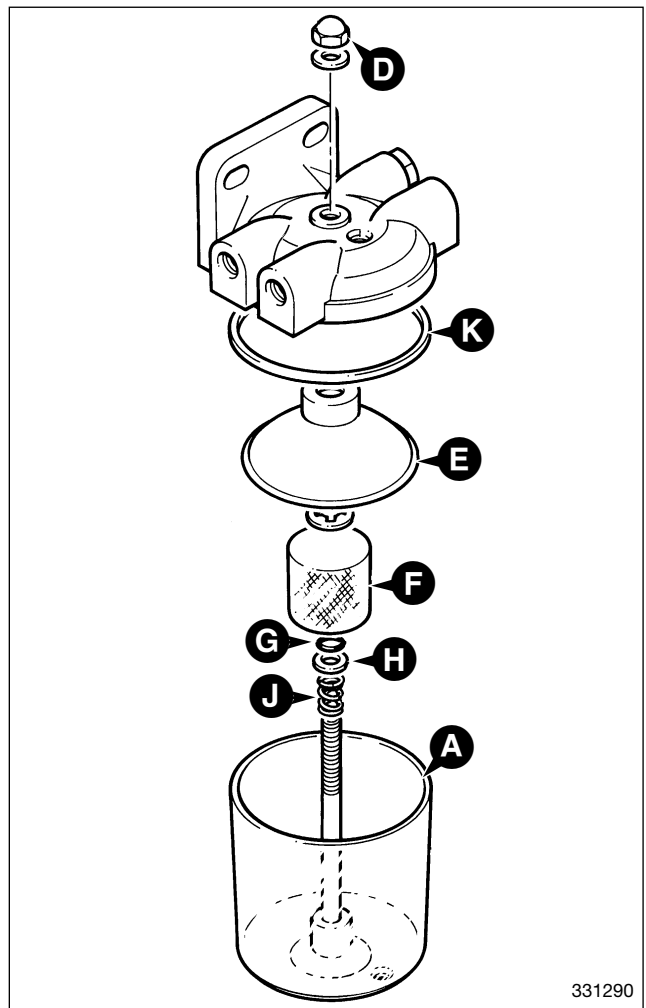
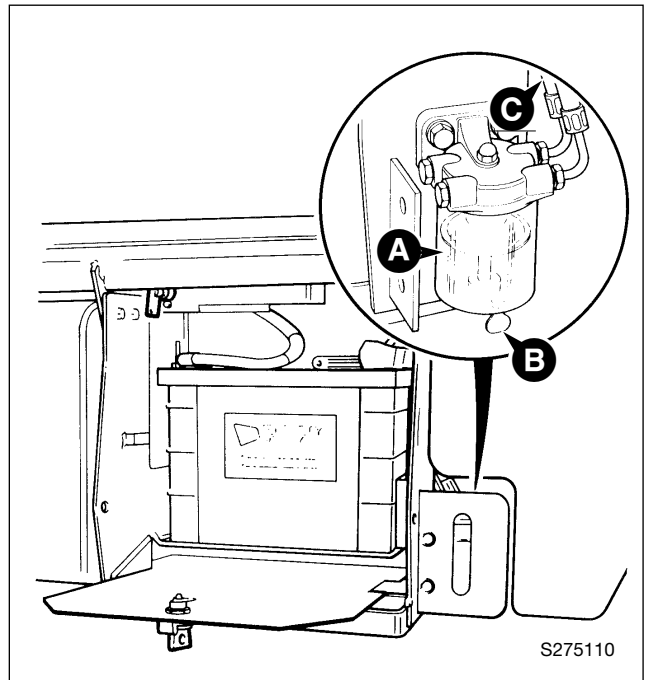
⚠ CAUTION

Running the engine with air in the system could damage the fuel injection pump. After maintenance, remove air from the system.

2-3-3-7/1

Cleaning the Sediment Bowl

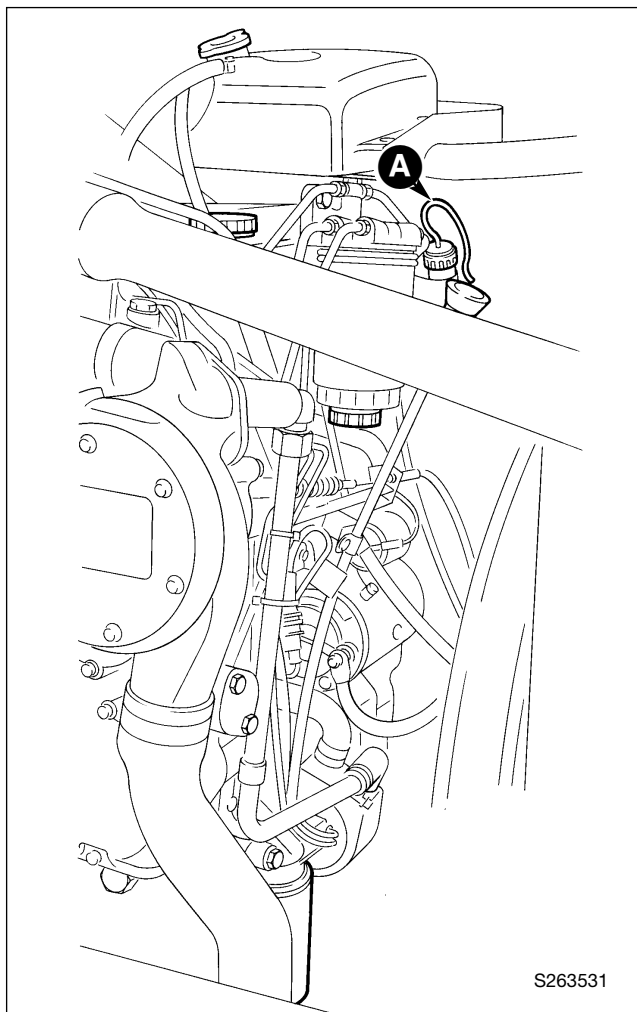
- 1 Raise the engine cover.
- 2 Disconnect the battery.
- 3 Clamp the fuel inlet hose **C** to prevent loss of fuel.
- 4 Support the bowl **A** and unscrew nut **D**. Remove the bowl and element **E**; also strainer **F**, o-ring **G**, washer **H** and spring **J** if these items are fitted.
- 5 Wash the bowl and internal components. Use clean fuel.
- 6 Refit the bowl and element, strainer, o-ring, washer and spring. Make sure gasket **K** is seated correctly. Remove the clamp from fuel inlet hose **C**.
- 7 Prime the system. See **Priming the System** (this section).



TRANSMISSION

Check Transmission Oil Level

- 1 Stop the machine and remove the starter key. Check oil is above the minimum level on dipstick **A**. Use only the recommended oil.
- 2 Start and run the engine slowly for a period of five minutes. This allows the oil to fill the filter, pump, torque converter, oil cooler and hoses.
- 3 Stop engine, wait one minute. Check oil level and fill to maximum dipstick level.



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TRANSMISSION (continued)

Changing the Oil and Filter

The transmission oil should be drained through the orifice for the suction strainer. This will flush out any particles which fall off the strainer during its removal.

- 1 Park the machine on level ground. Make sure the parking brake is engaged. Fully retract the boom and lower to the ground. Stop the engine. Remove the starter key. Isolate the battery, see **Battery Isolator** (*Maintenance section*), to make sure the engine cannot be started.

WARNING

You will have to get beneath the machine to drain the oil and change the filter. Make sure that the engine cannot be moved or started while you do these jobs.
5-3-2-3

- 2 Place a container of suitable size beneath the machine.

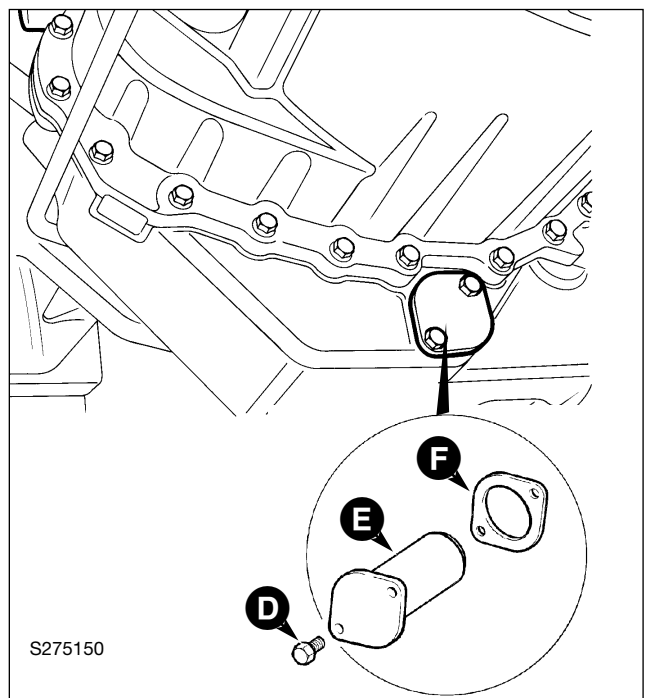
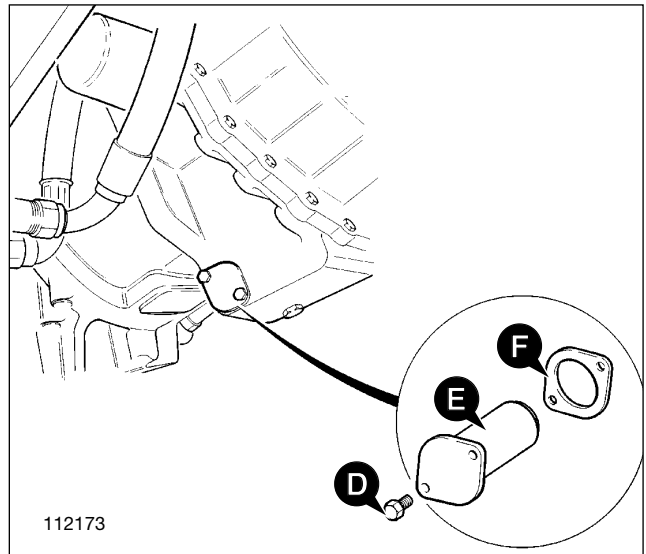
CAUTION

When the strainer is removed, oil will gush out. Keep to one side when you remove the strainer.
2-3-4-1

- 3 Refer to the illustration which shows the filter installation on your machine.

Remove bolts **D**. Pull out the strainer **E** and its gasket **F**.

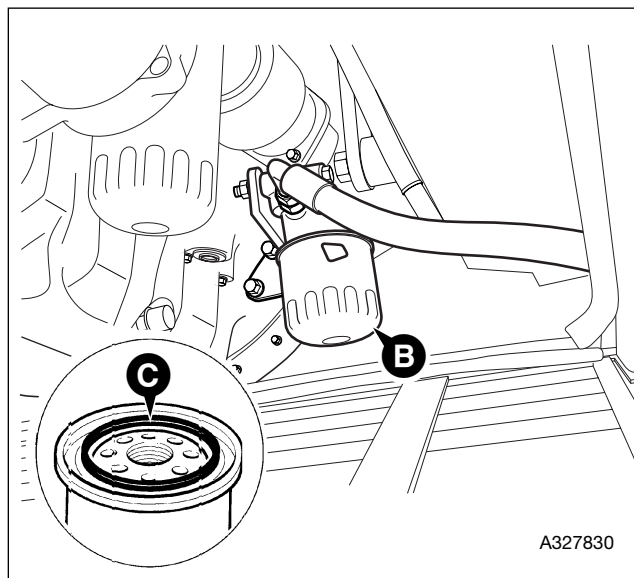
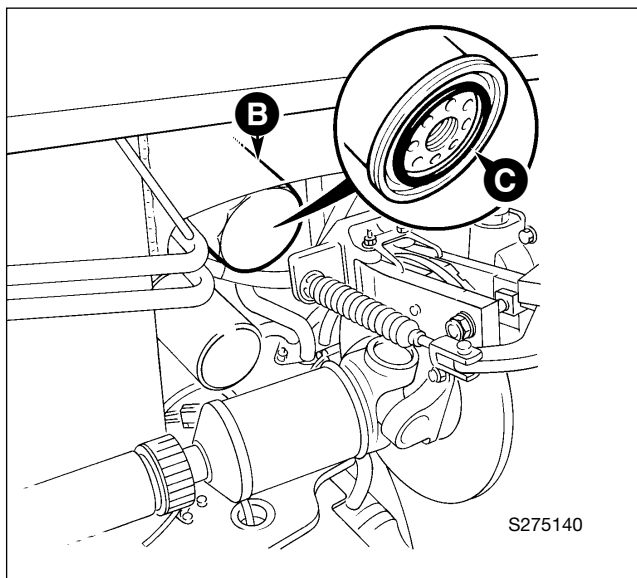
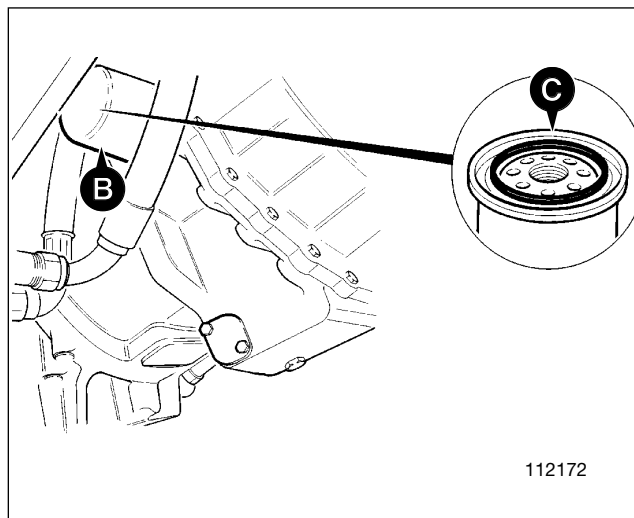
- 4 Clean the strainer with a suitable solvent. Follow the solvent manufacturer's instructions on safety.
- 5 Fit the strainer and a new gasket **F**. Apply Threadlocker and Sealer to bolts **D** before fitting and tightening them.



TRANSMISSION (continued)

Changing the Oil and Filter (continued)

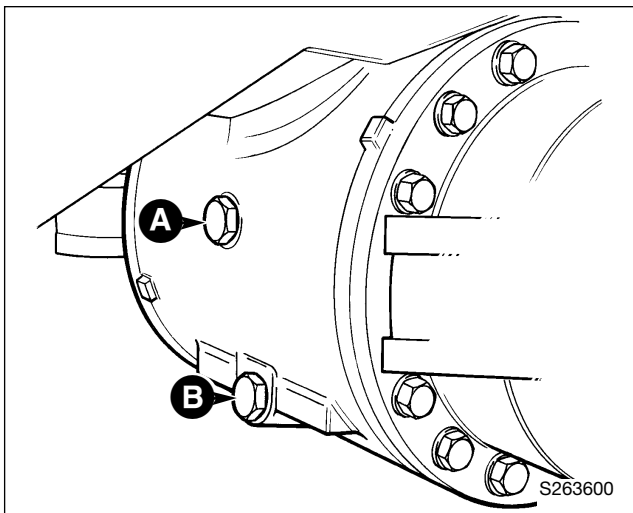
- 6 Renew the filter: refer to the illustration which shows the filter installation on your machine.
- a Unscrew and remove the filter **B**.
 - b On the new filter, smear seal **C** with transmission oil.
 - c Screw the new filter in place until it just contacts the filter head, screw in a further $\frac{3}{4}$ of a turn.
- 7 Fill the system with new oil through the dipstick/filler. See the chart at the end of *MAINTENANCE* section for recommended oil.



FRONT AND REAR AXLE

Checking the Axle Oil Level

- 1 Park the machine on level ground. Engage the parking brake. Remove the starter key.
- 2 Clean the area around the fill/level plug **A**, then remove the plug. Oil should be level with the bottom of the hole. Add recommended oil if necessary. (See the chart at the end of MAINTENANCE section for capacity.) Clean the plug before refitting it.



Changing the Axle Oil

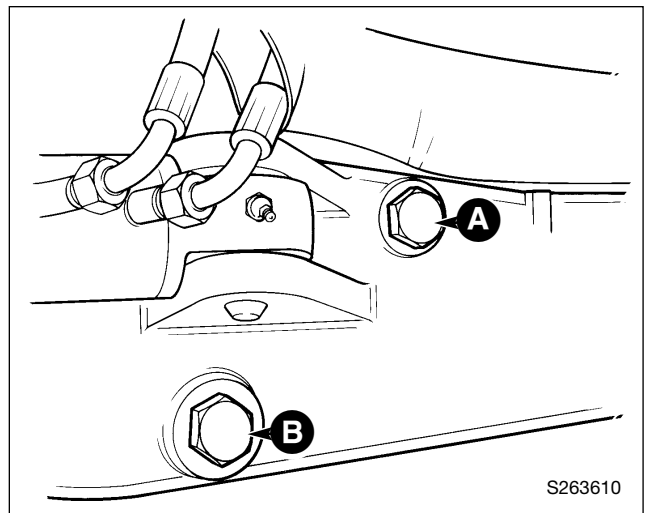
- 1 Park the machine on level ground. Engage the parking brake. Remove the starter key.
- 2 Drain the oil:
 - a Place a container of suitable size beneath plug **B**. (To catch the oil, see the chart at the end of MAINTENANCE section for capacity.)

CAUTION

Oil will gush from the hole when the drain plug is removed. Keep to one side when you remove the plug.

2-3-4-2

- b Remove plug **B** and its washer. Allow the oil to drain out. The drain plug is magnetic. Wipe it clean. (Metallic particles should be carefully removed.)
 - c Fit plug **B** and its washer.
- 3 Fill with recommended oil through fill/level hole **A**. (See the chart at the end of MAINTENANCE section.) Clean the plug before refitting it. Tighten to 79 Nm (60 lbf ft).



FRONT AND REAR HUB

Checking the Hub Oil Levels

Hubs must be checked separately.

- 1 Park the machine on level ground with the OIL LEVEL mark **A** horizontal as shown. There is a tolerance of 5mm (0.2 in) above or below the horizontal. Engage the parking brake. Lower the forks to the ground. Stop the engine. Remove the starter key.
- 2 Clean the area around plug **B**. Remove the plug. Oil should be level with the bottom of the hole. If necessary add oil, see the chart at the end of *MAINTENANCE* section for capacity and recommended oil. Clean the plug before refitting it.

Oil Immersed Brakes

The axle oil is used to lubricate the brake components, and to cool the brake plates.

It is important that the oil is changed regularly as specified in the service schedule - the lubricating properties of the oil will reduce as a result of brake wear.

Consult your JCB Distributor for advice if necessary.

Changing the Hub Oil

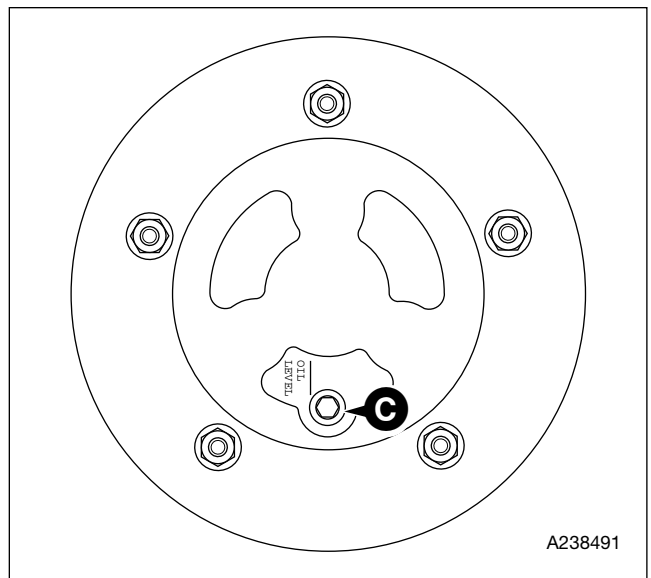
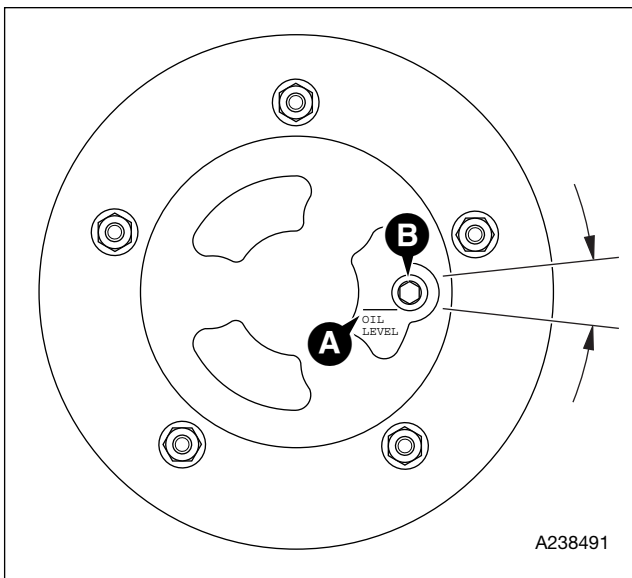
- 1 Park the machine on level ground, with plug **C** at the bottom as shown. Engage the parking brake. Lower the forks to the ground. Stop the engine. Remove the starter key.
- 2 Drain the oil:
 - a Place a container of suitable size beneath plug **C**. (To catch the oil, see the chart at the end of *MAINTENANCE* section for capacity.)

CAUTION

Oil will gush from the hole when the drain plug is removed. Keep to one side when you remove the plug.

2-3-4-2

- b Remove plug **C**. Allow the oil to drain out. The drain plug is magnetic. Wipe it clean. (Metallic particles should be carefully removed).
- 3 Refit plug **C** and its seal.
 - 4 Fill with new oil, see **Checking the Hub Oil Levels**.



HYDRAULIC SYSTEM

⚠ WARNING

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help immediately.

INT-3-1-10/1

Checking the Fluid Level

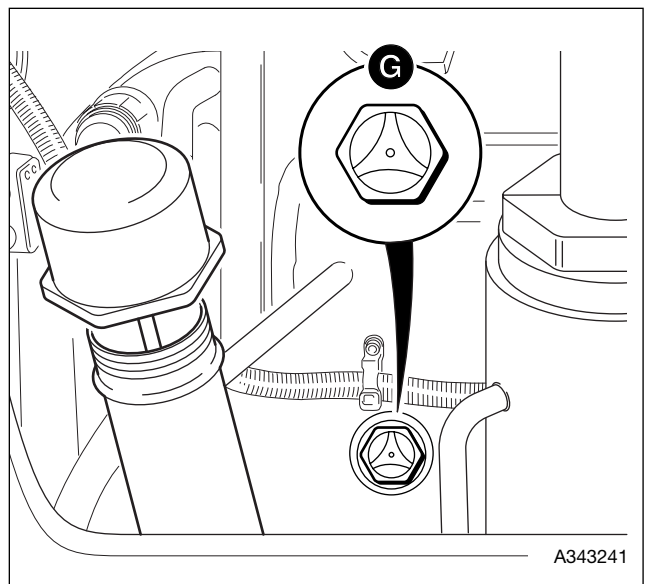
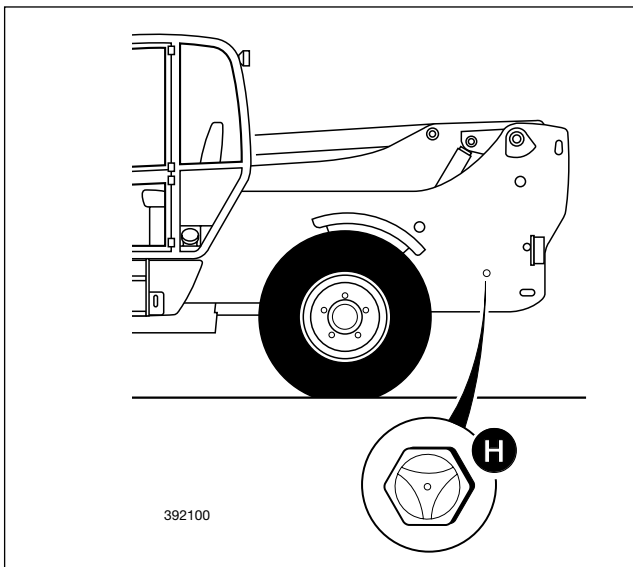
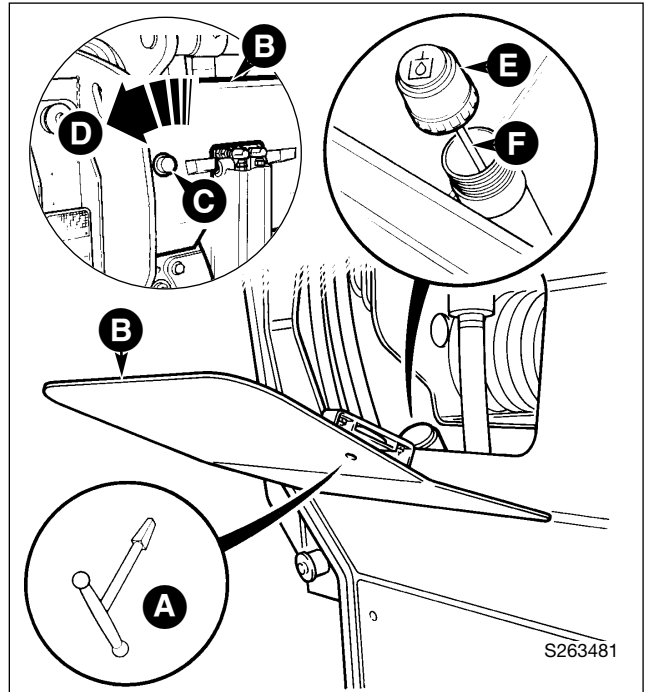
- 1 Park the machine on level ground. Retract the boom. Set the forks on the ground. Stop the engine. Remove the starter key.
- 2 Open rear cover **B**, either use key **A** to unlock and lower carefully to avoid damage, or turn knob **C** one click in direction **D** and pull to open.
- 3 Remove the filler cap **E**. The fluid level should be between the two marks on dipstick **F** or on sight gauge **G** or **H**, if fitted. If necessary, add recommended fluid through the filler. (See the chart at the end of MAINTENANCE section.)

⚠ CAUTION

Do not run the engine with the hydraulic tank filler cap removed.

5-3-4-1

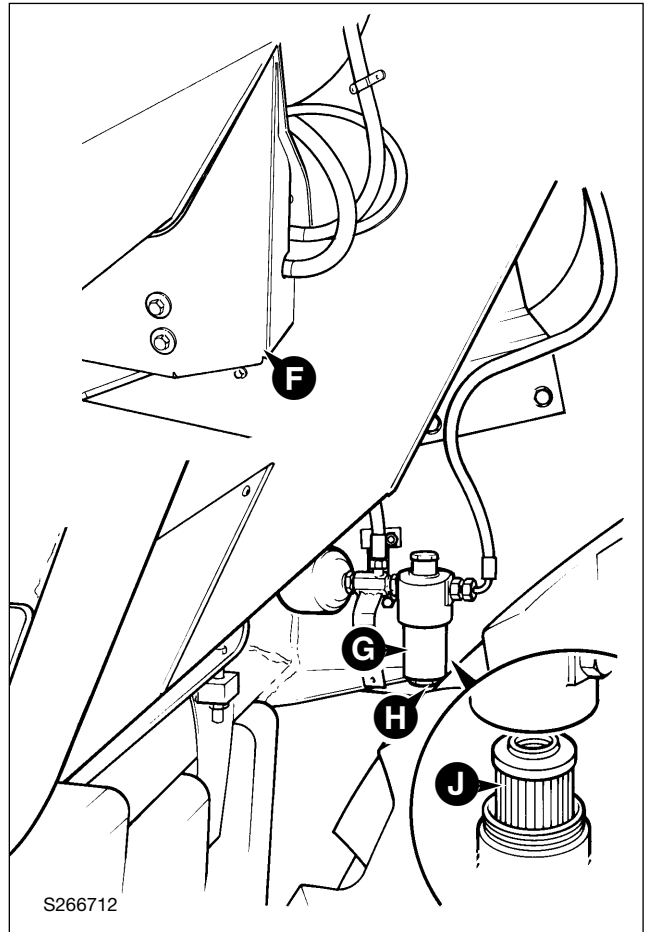
- 4 Refit filler cap **E**, either close rear cover **B** and secure with key **A** or push shut.



HYDRAULIC SYSTEM

Changing the Pilot Filter Element

- 1 Park the machine on level ground and lower the boom to the ground. Engage the parking brake.
- 2 With the engine stopped, turn the starter switch to ON.
- 3 Operate the auxiliary switch to vent residual pressure, see **Auxiliary Operation** (OPERATION section).
- 4 Turn the starter switch to OFF, remove the starter key and battery isolator key, see **Battery Isolator** (MAINTENANCE section).
- 5 Remove the cover **F**.
- 6 Unscrew filter bowl **G**. The bowl should be hand tight, if necessary use a spanner on flats **H**.
- 7 Remove element **J**, wash the bowl, use clean fuel.
- 8 Fit new element **J**. Screw bowl **G** in place, hand tight only.
- 9 Refit cover **F**.



HYDRAULIC SYSTEM (continued)

Changing the Filter Element

There are two types of hydraulic filter, one is mounted on the top of the hydraulic tank while the other is a canister type in the tank return under the chassis. Carry out the procedure that is applicable to your machine.

For tank mounted filter see next page.

Park the machine on level ground. Make sure the parking brake is engaged. Fully retract the boom and lower to the ground. Stop the engine. Remove the starter key. Isolate the battery, see **Battery Isolator** (Maintenance section), to make sure the engine cannot be started.

Operate the controls and remove the tank cap to vent residual pressure.

CAUTION

Ensure that dirt etc. does not enter the hydraulic system during this job.

5-3-4-4

Canister Filter

- 1 Clean the area around the filter body.

WARNING

You will have to get beneath the machine to drain the oil and change the filter. Make sure that the engine cannot be moved or started while you do these jobs.

5-3-2-3

- 2 Place a container of suitable size beneath the machine to catch the oil.
- 3 From under the machine, unscrew and remove the element **A**. The element will contain hydraulic fluid; keep your face clear of spilling fluid.

CAUTION

When the strainer is removed, oil will gush out. Keep to one side when you remove the strainer.

2-3-4-1

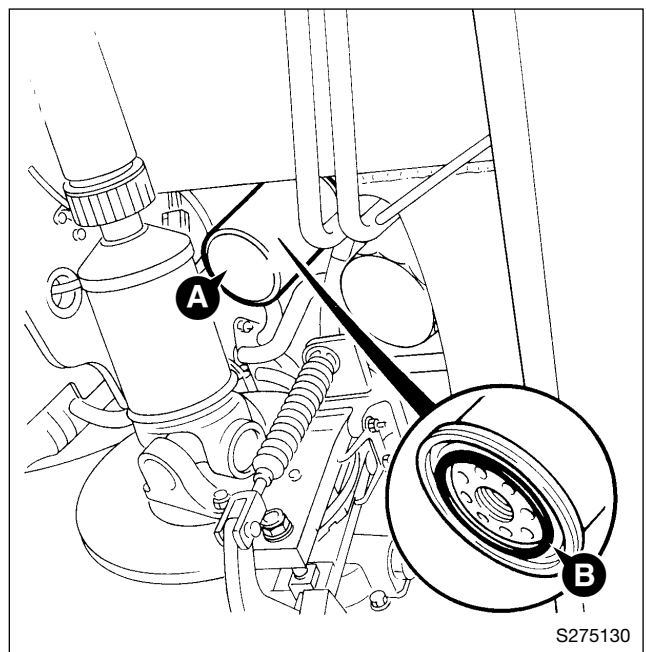
- 4 Fit the new element:
 - a Clean the mating faces on the new element and filter holder.
 - b Smear the seal **B** with hydraulic fluid.
 - c Screw the new element in place, hand-tight only.
- 5 Add hydraulic fluid, see **Checking the Fluid Level**.

WARNING

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help immediately.

INT-3-1-10/1

- 6 Check for leaks:
 - a Make sure the filler cap is replaced, then run the engine for a few minutes.
 - b Make the machine safe.
 - c Check for leaks at the filter.



HYDRAULIC SYSTEM (continued)

Changing the Filter Element (continued)

For canister filter see previous page.

Park the machine on level ground. Make sure the parking brake is engaged. Raise the boom and fit the safety strut, see **Boom Safety Strut** (MAINTENANCE section).

Stop the engine. Remove the starter key. Isolate the battery, see **Battery Isolator** (Maintenance section), to make sure the engine cannot be started.

Operate the controls and remove the tank cap to vent residual pressure.

Tank Mounted Filter

- 1 Open the rear cover, see **Checking the Fluid Level**, clean the top of the tank around the filter.

CAUTION

Ensure that dirt etc. does not enter the hydraulic system during this job.

5-3-4-4

- 2 Either disconnect hose **K** or undo clip **L** to enable cover plate removal.
- 3 Remove the element assembly:
 - a Remove screws **A**. Remove the cover plate **B** and gasket **C**, discard the gasket.
 - b Remove spring **D**.
 - c Hold handle **E** and pull the element assembly from the hydraulic tank.

- 4 Remove the element from its canister:
 - a Hold canister **F**.
 - b Hold handle **E** and rotate the element **G** 90°.
 - c Pull on handle **E**, the element **G** should separate from its canister **F**. Discard the old element.
 - d Remove and discard seal **H**.

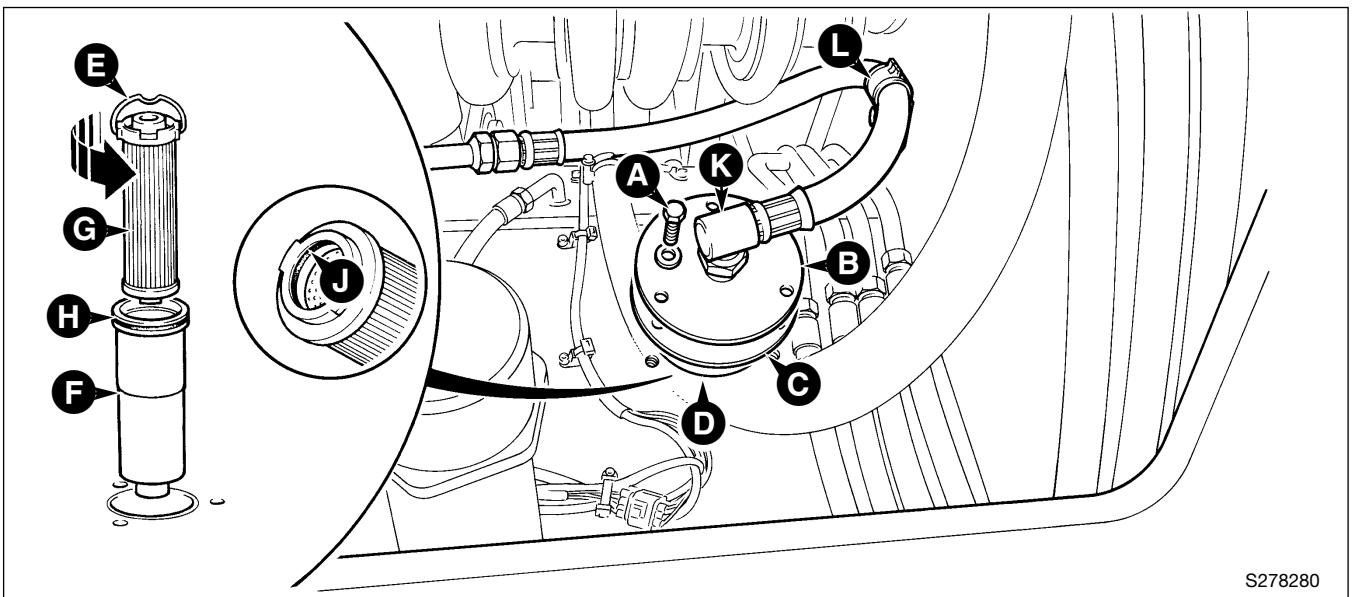
- 5 Fit the new element:
 - a Fit a new seal **H**.
 - b Make sure that seal **J** is fitted in the new element.
 - c Push the element **G** into its canister **F** and rotate the element 90° to lock it into position. Check that the element has locked into position by pulling on handle **E**.
 - d Install the element assembly in the hydraulic tank.
 - e Fit spring **D** and a new gasket **C**.
 - f Fit cover plate **B** and tighten screws **A** to 7 Nm (5 lbf ft).

WARNING

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks and then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help immediately.

INT-3-1-10/1

- 6 Check for leaks:
 - a Make sure the filler cap is replaced, then run the engine for a few minutes.
 - b Make the machine safe.
 - c Check for leaks at the filter.



S278280

HOSE BURST PROTECTION VALVES

Checking the Hose Burst Protection Valves

The hose burst protection valves 'lock' to prevent uncontrolled movement of the ram pistons if hydraulic pressure fails or a hose bursts. The valves are mounted directly on the rams.

WARNING

Keep people clear of the machine while you do these checks.

5-3-4-2

Check each movement in turn.

1 Boom Lift Rams:

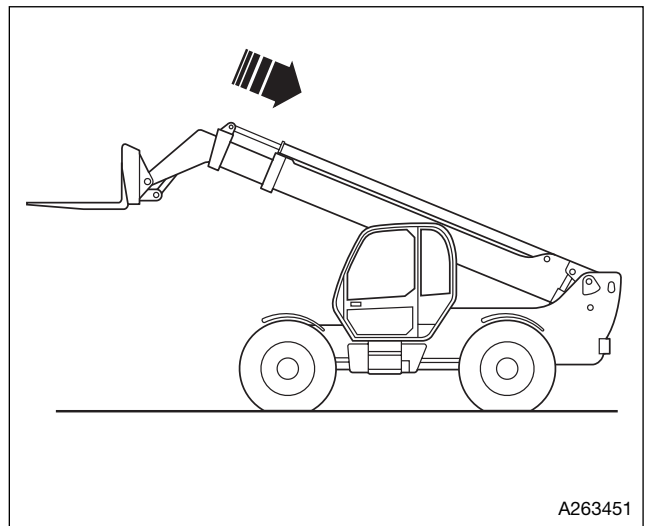
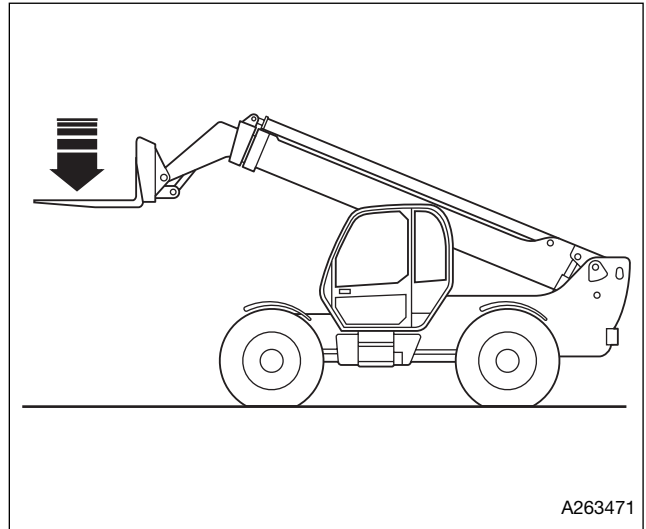
- a** Start the engine. Make sure the parking brake is engaged, the transmission is in neutral and the Smooth Ride System (if fitted) is switched off.
- b** Raise the boom to about 45°.
- c** With the engine running at mid speed, operate the control lever to lower the boom. While the boom is moving, switch off the engine. Boom movement should slow as the engine slows and stop as the engine stops.

If the boom continues moving after the engine has stopped, both boom hose burst protection valves are faulty. Do not use the machine until the fault has been put right.

2 Boom Extension Ram

- a** Start the engine. Make sure the parking brake is engaged and the transmission is in neutral.
- b** Raise the boom fully. Extend the boom fully.
- c** With the engine running at mid speed, operate the control lever to retract the boom. While the boom is retracting, switch off the engine. Boom movement should slow as the engine slows and stop as the engine stops.

If the boom continues moving after the engine has stopped, the hose burst protection valve is faulty. Do not use the machine until the fault has been put right.



HOSE BURST PROTECTION VALVES (continued)

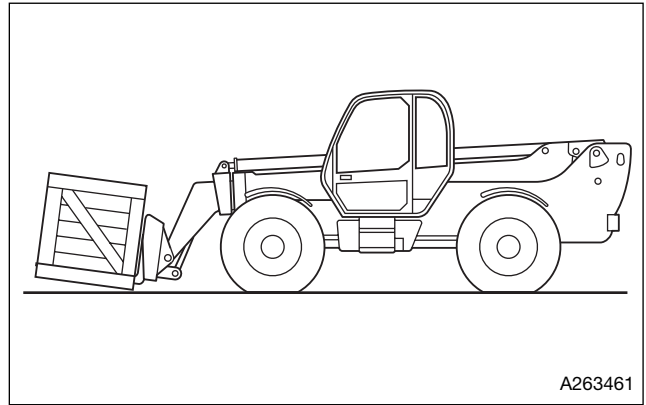
Checking the Hose Burst Protection Valves (continued)

See previous page for general information on hose burst protection valves.

3 Carriage Tilt Ram:

- a Pick up a load on the forks. (*For example a pack of bricks or some hay bales.*) Tilt the carriage fully back. Make sure the parking brake is engaged and the transmission is in neutral.
- b Position the boom clear of the ground, just far enough to allow the carriage to be tilted forward.
- c With the engine running at mid speed, operate the control lever to tilt the carriage forward. While the carriage is moving, switch off the engine. Carriage movement should slow as the engine slows and stop as the engine stops.

If the carriage continues moving after the engine has stopped, the hose burst protection valve is faulty. Do not use the machine until the fault has been put right.



BATTERY

Warning Symbols

The following warning symbols may be found on the battery.

Symbol	Meaning
 A289230	Keep away from children.
 A289260	Shield eyes.
 A289280	No smoking, no naked flames, no sparks.
 A289250	Explosive Gas.
 A289240	Battery acid.
 A289270	Note operating instructions.

 CAUTION

Do not disconnect the battery while the engine is running, otherwise the electrical circuits may be damaged.
INT-3-1-14

 WARNING

Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.
INT-3-1-4

 DANGER

Battery electrolyte is toxic and corrosive. Do not breathe the gases given off by the battery. Keep the electrolyte away from your clothes, skin, mouth and eyes. Wear safety glasses.
INT-3-2-1/3

 CAUTION

Damaged or spent batteries and any residue from fires or spillage should be put in a closed acid proof receptacle and must be disposed of in accordance with local environmental waste regulations.
INT-3-1-12

 WARNING

Batteries give off explosive gases. Keep flames and sparks away from the battery. Do not smoke close to the battery. Make sure there is good ventilation in closed areas where batteries are being used or charged. Do not check the battery charge by shorting the terminals with metal; use a hydrometer or voltmeter.
INT-3-1-8

BATTERY (continued)

WARNING

Batteries give off an explosive gas. Do not smoke when handling or working on the battery. Keep the battery away from sparks and flames.

Battery electrolyte contains sulphuric acid. It can burn you if it touches your skin or eyes. Wear goggles. Handle the battery carefully to prevent spillage. Keep metallic items (watches, rings, zips etc) away from the battery terminals. Such items could short the terminals and burn you.

Set all switches in the cab to OFF before disconnecting and connecting the battery. When disconnecting the battery, take off the earth (-) lead first.

When reconnecting, fit the positive (+) lead first.

Re-charge the battery away from the machine, in a well ventilated area. Switch the charging circuit off before connecting or disconnecting the battery. When you have installed the battery in the machine, wait five minutes before connecting it up.

First Aid - Electrolyte

Do the following if electrolyte:

GETS INTO YOUR EYES

Immediately flush with water for 15 minutes, always get medical help.

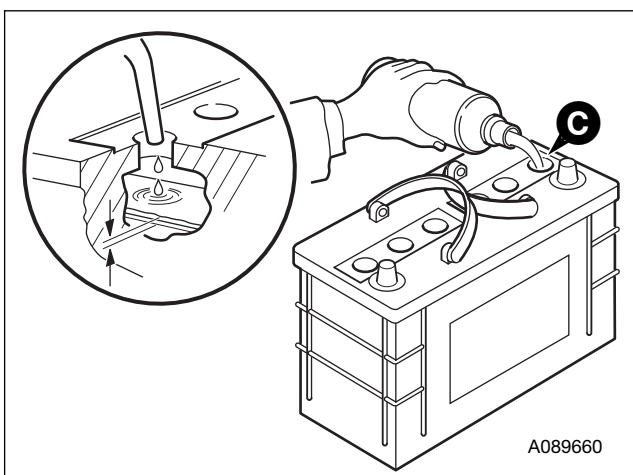
IS SWALLOWED

Do not induce vomiting. Drink large quantities of water or milk. Then drink milk of magnesia, beaten egg or vegetable oil. Get medical help.

GETS ONTO YOUR SKIN

Flush with water, remove affected clothing. Cover burns with a sterile dressing then get medical help.

5-3-4-3/1



Checking the Electrolyte Level

Maintenance free batteries used in normal temperate climate applications should not need topping up. However, in certain conditions (such as prolonged operation at tropical temperatures or if the alternator overcharges) the electrolyte level should be checked as described below.

- 1 With key unlock and open the battery compartment cover **B**.

WARNING

Keep metal watch straps, and any metal fasteners on your clothes, clear of the positive (+) battery terminal. Such items can short between the terminal and nearby metal work. If this happens you can get burned.

5-2-2-4

- 2 Disconnect and remove battery.

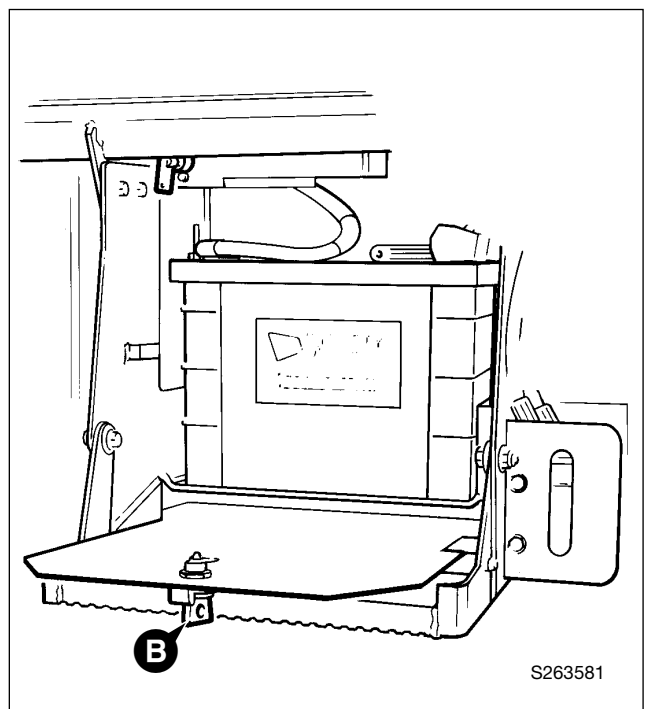
WARNING

Do not top the battery up with acid. The electrolyte could boil out and burn you.

2-3-4-6

- 3 Remove covers **C**. Look at the level in each cell. The electrolyte should be 6 mm ($\frac{1}{4}$ in) above the plates. Top up if necessary with distilled water or de-ionized water.

- 4 Refit battery, close and lock the battery compartment.



BATTERY (continued)

Battery Isolator

To disconnect the battery from the machine electrics a battery isolator has been fitted.

⚠ CAUTION

Except in an emergency, do not use the battery isolator to switch OFF the engine. Failure to comply may result in damage to the electrical circuits.

INT-3-2-13

It is not necessary to isolate the battery at the end of each working cycle. The battery isolator is intended to enhance safety during certain machine maintenance operations, not as an anti-theft device.

Note: *If the battery is isolated, the clock will need to be reset and the radio/cassette player may lose its preset memories.*

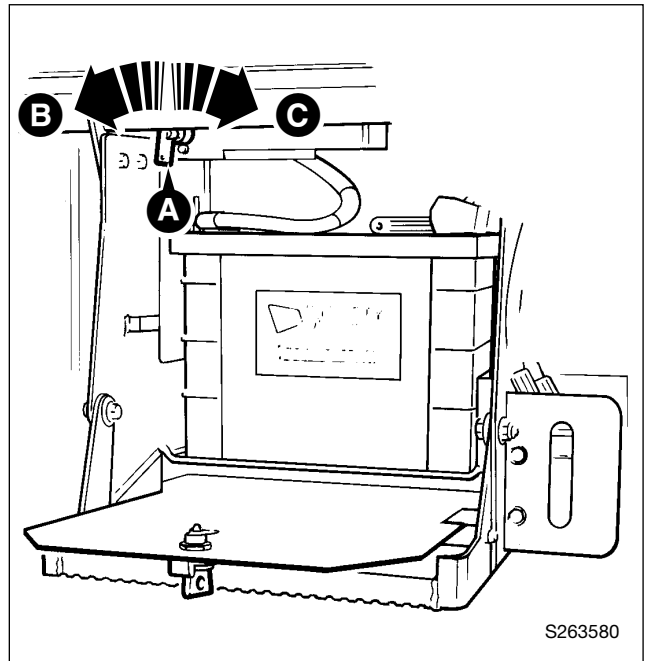
- 1 To isolate the battery turn the battery isolator key **A** in an anti-clockwise direction **B** and remove. Keep the key in a safe place and available for when the machine is next required.
- 2 To connect the battery insert the key **A** and turn in a clockwise direction **C**.

⚠ CAUTION

Before carrying out arc welding on the machine disconnect the battery and alternator to protect the circuits and components.

The battery must still be disconnected even if the battery isolator is fitted.

INT-3-1-13



JUMP-STARTING THE ENGINE

WARNING

If you try to charge a frozen battery, or jump-start and run the engine, the battery could explode

Do not use a battery if its electrolyte is frozen. To prevent the battery electrolyte from freezing, keep the battery at full charge.

Batteries give off a flammable gas that can explode.

Do not smoke when checking the battery electrolyte levels. When starting from another machine, make sure the two machines do not touch. This prevents any chance of sparks near the battery. Sparks could ignite the battery gas. If that happens the battery could explode.

Even with the starter switch set to off some circuits will be energised when the external power supply is connected. Set all the machine switches to their OFF positions before connecting the external power supply.

Do not connect a booster supply directly across the starter motor. Doing this could bypass the neutral safety switch and the engine can start with the transmission in gear. The machine could then run away and kill or injure bystanders.

Use only booster cables which are in good condition with securely attached connectors. Connect both ends of one booster cable before connecting the other one.

5-2-2-3

Note: Follow the instructions to start the engine using booster cables. Your machine has a 12 volt starting system. The negative (-) terminal on the battery is connected to frame earth.

The booster supply should not be higher than 12 volts. Using a welder or higher voltage supply will damage your machine's electrical system.

Do not connect two batteries together to give 24 volts. This could burn out the induction manifold heater and damage the starter motor.

1 The parking brake should have been engaged when the machine was last parked. If it is not engaged, engage it now. The engine will not start unless the parking brake is engaged.

2 Set all switches in the cab to off.

3 Connect the booster cables as follows:

a Unlock and open the battery cover, see **Battery** (MAINTENANCE section).

WARNING

Keep metal watch straps, and any metal fasteners on your clothes, clear of the positive (+) battery terminal. Such items can short between the terminal and nearby metal work. If this happens you can get burned.

5-2-2-4

b Connect the positive booster cable to the positive (+) terminal on the machine battery. Connect the other end of this cable to the positive (+) terminal of the booster supply.

c Connect the negative (-) booster cable to a good frame earth on the machine, away from and below the battery.

Note: A good frame earth is part of the main frame, free from paint and dirt. Do not use a pivot pin for an earth.

d Connect the other end of this cable to the negative (-) terminal on the booster supply.

4 Do the Pre-Start Checks, see **Before Starting the Engine** (OPERATION section).

5 Start the engine, see **Starting the Engine** (OPERATION section).

6 Disconnect the negative booster cable from the machine frame earth. Then disconnect it from the booster supply.

Disconnect the positive booster cable from the positive (+) terminal on the battery. Then disconnect it from the booster supply.

7 Close and lock the battery cover, see **Battery** (MAINTENANCE section).

ELECTRICAL SYSTEM

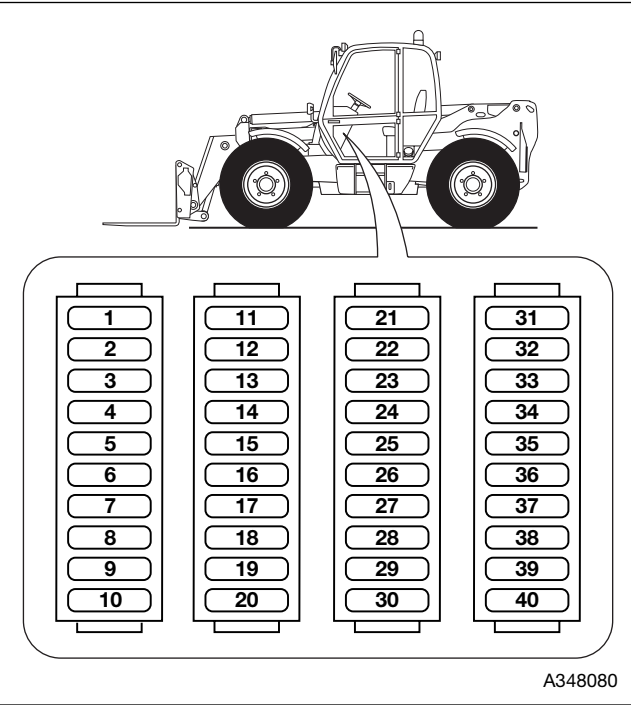
Fuse Identification

This illustration shows a typical fuse installation.

The electrical circuits are protected by fuses. The fuses are located in a fuse box, as shown. If a fuse blows, find out why before fitting a new one.

Additional fuse links are fitted at the battery positive terminal.

Note: The radio fuse may have a higher rating, depending on the type of radio fitted. Check radio fitting instructions.



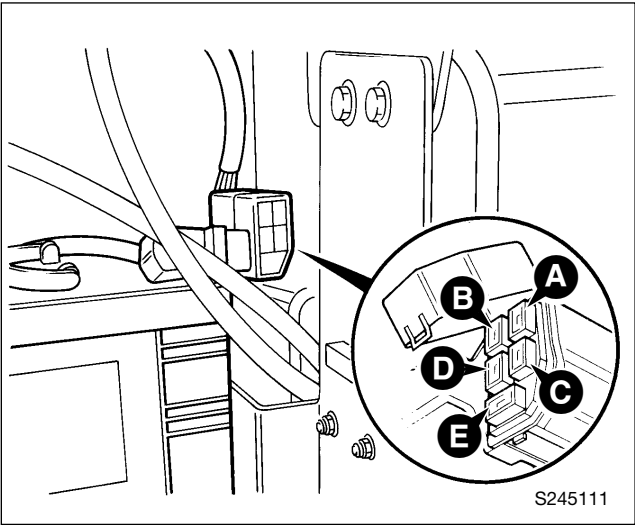
All Machines Except 540-170:

Circuit	Rating
1 Boom isolator	7.5
2 Auxiliary controls	10
Joystick controls (530, 540)	10
3 Load Moment Indicator (LMI)	5
4 Heater	15
5 Air conditioning, face fan	15
6 Wipers	15
7 Radio, Clock	5
8 Instrument panel	7.5
9 Direction Indicators	10
10 Auxiliary Hydraulics (530, 540)	7.5
11 Starter relay	5
12 Engine shut-off solenoid (ESOS)	5
13 Steer mode selector	7.5
14 Powershift	15
15 2/4 Wheel drive selector	5
2/4 Wheel drive with trailer electrics (if fitted)	10
16 Auxiliary socket	10
17 Brake lights	10
18 Rear work light	7.5
19 Reverse lights & Reverse Alarm	7.5
20 BLANK	
21 Right hand side light	10
22 Left hand side light	10
23 Dip beam lights	10
24 Main beam lights	10
25 Front working light	10
26 Rear fog light	5
27 BLANK	
28 Horn, Headlight flash	10
29 Warning beacon, Interior light	5
30 Hazard lights	15
31 Smooth Ride System (if fitted)	5
32 SPARE	
33 SPARE	
34 Air Suspension Seat (if fitted)	15
35 SPARE	
36 BLANK	
37 BLANK	
38 BLANK	
39 BLANK	
40 BLANK	

ELECTRICAL SYSTEM

540-170 Machines:

Circuit	Rating
1 Boom isolator (sway/stabilizers)	7.5
2 BLANK	
3 Load Moment Indicator (LMI)	5
4 Heater	15
5 Air conditioning, face fan	15
6 Wipers	15
7 Radio, Clock & Heated Seat	5
8 Instrument panel	7.5
9 Direction Indicators	10
10 BLANK	
11 Starter Relays & Road Light Switch Illumination	5
12 Engine shut-off solenoid (ESOS)	5
13 Steer mode selector	7.5
14 Powershift Transmission	15
15 Brake Lights or Two-Wheel Drive	5
16 Auxiliary Power socket	10
17 Two-Wheel Drive Relay Coil	10
18 Rear work light	7.5
19 Reverse lights & Reverse Alarm	7.5
20 BLANK	
21 Right hand side lights & Illumination	10
22 Left hand side lights	10
23 Dip beam lights	10
24 Main beam lights	10
25 Front working lights	10
26 Rear fog light	5
27 BLANK	
28 Horn, Headlight flash	10
29 Warning beacon, Interior light, Clock, Radio	5
30 Hazard lights	15
31 Hydraulics	15
32 BLANK	
33 BLANK	
34 Air Suspension Seat (if fitted)	15
35 BLANK	
36 Boom work light	5
37 BLANK	
38 BLANK	
39 BLANK	
40 BLANK	



Fuse Links

From serial number 768700 - 770053

Circuit	Rating
A Horn, Hazard warning lights, Beacon, Interior light	30
B Road lights, Working lights	30
C Not used	
D ESOS, Forward/reverse switch, Brake lights	40
E SLI, Heater, Wipers, Radio, Instruments	80

From serial number 770054

Circuit	Rating
A Horn, Hazard warning lights, Beacon, Interior light	40
B Road lights, Working lights	40
C SLI, Heater, Wipers, Radio, Instruments	40
D ESOS, Forward/reverse switch, Brake lights	40
E Not used	80

ELECTRICAL SYSTEM
(continued)

Bulbs

Bulb	Rating
Headlights - main/dip (Great Britain only)	60/37.5 W
Headlights - main/dip	45/40 W
Work lights	55 W Halogen
Front side lights	5 W
Stop/tail lights	21/5 W
Turn indicators	21 W
Warning lights	1.2 W
Interior light	18 W
Beacon	55 W Halogen

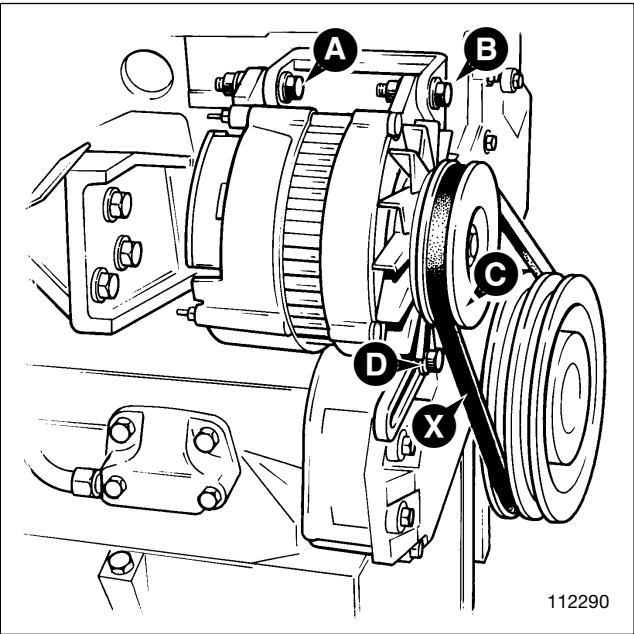
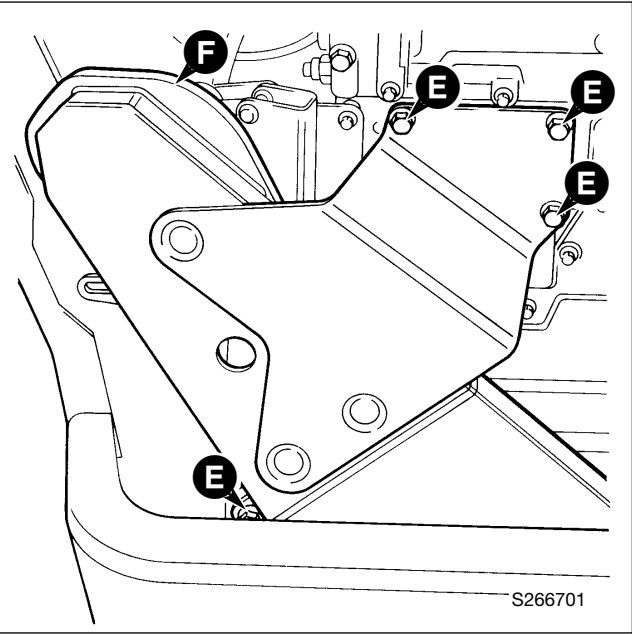
Adjusting the Alternator Drive Belt

- 1 Park the machine on level ground. Lower the boom to the ground. Engage the parking brake. Remove the starter key.
- 2 Isolate the battery, see **Battery Isolator** (MAINTENANCE section).
- 3 Open the engine cover, see **Engine Cover** (MAINTENANCE section).
- 4 Undo bolts **E** and remove the drive belt cover **F**.
- 5 Loosen pivot fastening bolts **A** and **B**. Loosen adjustment link fastening bolts **C** and **D**.
- 6 Position the alternator so that there is 10 mm ($\frac{3}{8}$ in) slack at point **X**.
- 7 Secure the alternator, tighten bolts **C** and **D**, then bolts **A** and **B**.
- 8 Refit the drive belt cover **F**, secure with bolts **E**.

⚠ WARNING

You or others could be seriously injured by rotating parts if the alternator drive belt cover plate is not fitted. Always refit the cover plate before starting the engine.
5-3-4-5

Note: If a new belt is fitted, the belt tension must be checked again after the first 20 hours of operation.



AIR CONDITIONING OPTION

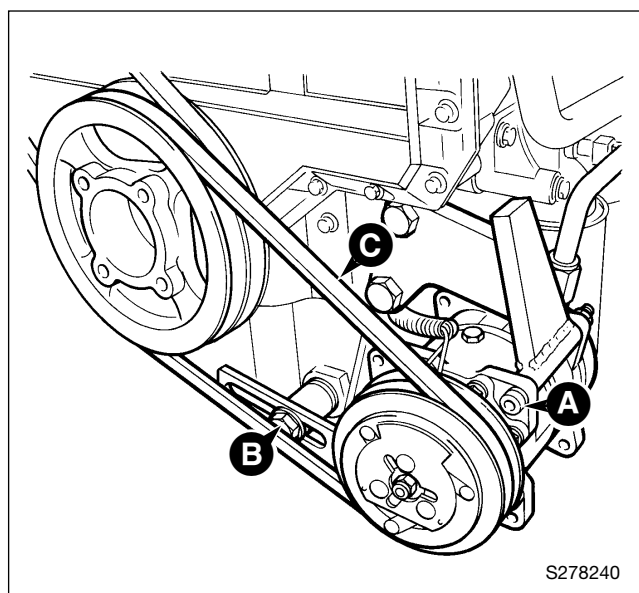
WARNING

The air conditioning system is a closed loop system and contains pressurised refrigerant. No part of the system must be disconnected except by a qualified refrigeration engineer. You can be severely frostbitten or injured by escaping refrigerant.

4-3-4-1/1

Adjusting the Air Conditioning Compressor Drive Belt

- 1 Park the machine on level ground. Lower the boom to the ground. Engage the parking brake. Remove the starter key.
- 2 Isolate the battery, see **Battery Isolator** (MAINTENANCE section).
- 3 Open the engine cover, see **Engine Cover** (MAINTENANCE section).
- 4 Loosen bolts **A**, and **B**. Position the compressor so that there is 10 mm ($\frac{3}{8}$ in) slack at point **C**.
- 5 Tighten bolt **A**, then bolt **B**.



Cleaning the Air Conditioning Filter

In dusty conditions the filter will require cleaning/changing more often.

CAUTION

The filter may be filled with dust. Wear goggles and a face mask when removing the filter.

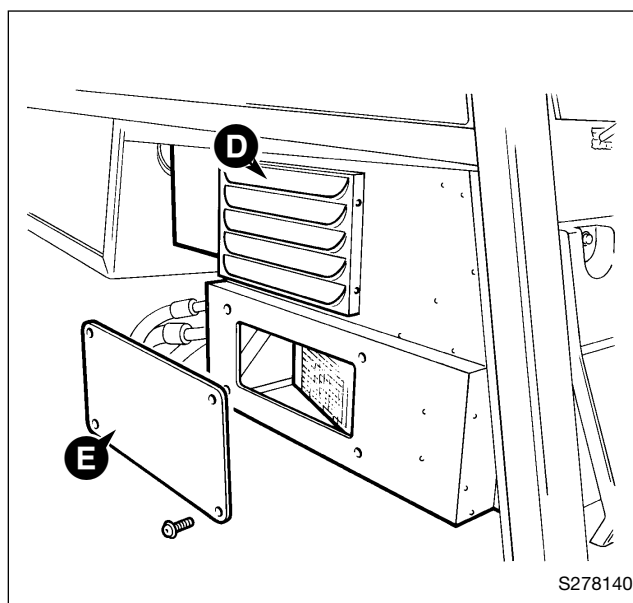
2-3-3-6

- 1 Park the machine on level ground. Engage the parking brake. Raise the boom and fit the safety strut, see **Boom Safety Strut** (MAINTENANCE section). Remove the starter key.
- 2 Isolate the battery, see **Battery Isolator** (MAINTENANCE section).
- 3 Remove cover plate **D**.
- 4 Sponge type filter, knock loose dust off the filter. Wash the filter in clean water. Allow to dry.

Note: Do not squeeze the filter to dry it. Shake off the bulk of the water, then let the rest drain off. If the filter was clogged, clean it more often.

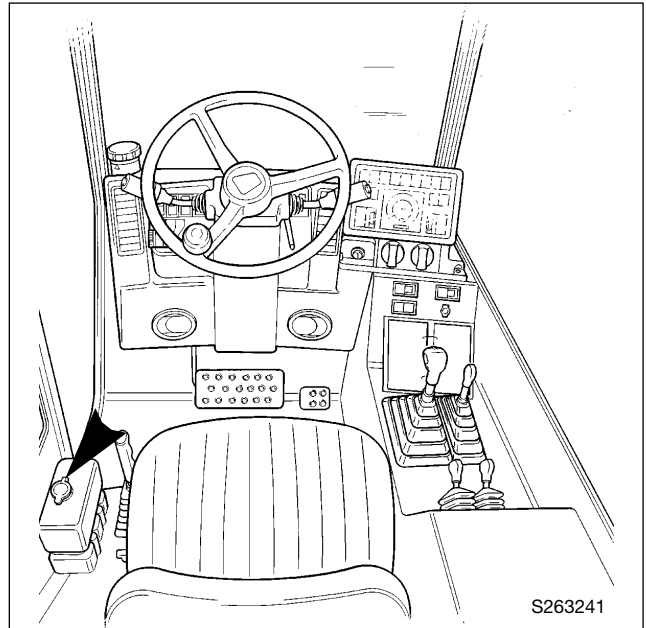
Paper type filter, fit a new filter.

- 5 Remove cover plate **E**, brush debris from the evaporator fins. Make sure loosened material is brushed out of the heater enclosure.
- 6 Refit cover plates **D** and **E**.



WINDSCREEN WASHER

Fill the windscreen washer bottle with a suitable liquid. The liquid should contain a de-icing fluid to prevent freezing. Do not use engine coolant antifreeze.



OBTAINING REPLACEMENT PARTS

We recommend you fit only JCB Genuine Parts. A Parts Book will help you to identify parts and order them from your JCB distributor.

Your distributor will need to know the exact model, build and serial number of your machine. (See **Identifying Your Machine** in **INTRODUCTION** section.)

The data plate also shows the serial numbers of the engine, transmission and drive axle(s). But remember if any of these units have been changed, the serial number on the data plate may be wrong. Check on the unit itself.

WARNING

Some parts of your machine have Warning Decals attached. Before you fit a replacement part, make sure it has its warning decal, fixed in its correct position. (See *Safety Decals* in **INTRODUCTION section.) Contact your dealer if the decal is missing.**

2-3-5-2/1

FLUIDS, LUBRICANTS, CAPACITIES AND SPECIFICATIONS

530, 533, 535, 540-70 Machines

Note: New engines DO NOT require a running-in period. The engine/machine should be used in a normal work cycle immediately; glazing of the piston cylinder bores, resulting in excessive oil consumption, could occur if the engine is gently run-in. Under no circumstances should the engine be allowed to idle for extended periods; (e.g. warming up without load). Engines of new machines are filled at the factory with JCB 10W/30 Multigrade oil. This oil should be drained after the first 100 hours operation and the engine filled with the appropriate recommended grade as shown in the lubrication chart. JCB 10W/30 Multigrade should also be used for the first 100 hours operation whenever a new or reconditioned engine is fitted to the machine. After the first 100 hours operation, it is essential that the 10W/30 oil is replaced by the lubricant recommended below.

ITEM	CAPACITY Litres (Gal)	FLUID/LUBRICANT	INTERNATIONAL SPECIFICATION
Fuel Tank	125 (27.5)	Diesel Oil (See Types of Fuel)	ASTM D975-66T Nos. 1D, 2D
Engine (Oil) Engine Type: AA, AB, AR, AK & AM Builds Engine Type: AA & AB Builds Only	10 (2.2)	JCB High Performance Engine Oil 15W40 -10 °C to 50 °C (14 °F to 122 °F) JCB High Performance Engine Oil 10W30 -15 °C to 40 °C (5 °F to 104 °F)	SAE15W/40 API CF4/SG (ACEA, E2:B2:A2) SAE10W/30 API CF4/SG (ACEA, E2:B2:A2)
		JCB High Performance Universal Agricultural Oil -15°C to 30°C (5°F to 86°F) JCB High Performance Torque Converter Fluid -18°C to 0°C (0°F to 32°F)	SAE10W/30 API GL4 CE/SF SAE10W API GL4 CE/SF
Engine (Coolant) System Antifreeze System (AM Build) Antifreeze (AM Build)	23 (5.0) 12.5 (2.75) 23.5 (5.2) 12.9 (2.85)	JCB Four Seasons Antifreeze And Summer Coolant (See Coolant Mixtures)	ASTM D3306-74
Gearbox Wet fill Dry fill 530FS Plus only 540FS Plus	21 (4.6) 23 (5.0) 17 (3.7) Wet 19 (4.2) Dry	JCB Extreme Performance Transmission Oil Friction modified oils MUST NOT be used (eg. Dexron ATF type).	JCB: 4000/2501
Axles Housing Hubs (x4)	18 (3.9) 2.0 (0.4)	JCB High Performance Gear Oil Plus Must be suitable for use with oil immersed brakes and limited slip differentials (LSD)	JCB: 4000/2200
Brake System		JCB High Performance Hydraulic Fluid 15 DO NOT USE ORDINARY BRAKE FLUID	ISO VG15
Hydraulic Tank † 530, 540-70 533-105, 535-95	112 (24.6) 121 (26.6)	JCB High Performance Hydraulic Fluid 46 (Above 38 °C, 100 °F)	ISO VG46
		JCB High Performance Hydraulic Fluid 32 (Below 38 °C, 100 °F)	ISO VG32
Grease Points ‡		JCB HP Grease JCB Special MPL-EP Grease	Lithium complex NLGI No. 2 consistency including extreme pressure additives. Lithium based NLGI No. 2 consistency including extreme pressure additives.
Wear Pad Runways		JCB Waxoyl	

† This is a tank capacity. The total hydraulic system capacity depends on the equipment being used. Fill and check with all rams closed. ‡ If JCB MPL Grease is used, all 50 hour greasing operations must be carried out at TEN (10) HOUR intervals; all 500 hour greasing operations must be carried out at 50 HOUR intervals.

FLUIDS, LUBRICANTS, CAPACITIES AND SPECIFICATIONS

532, 537 & 540-170 Machines

Note: New engines DO NOT require a running-in period. The engine/machine should be used in a normal work cycle immediately; glazing of the piston cylinder bores, resulting in excessive oil consumption, could occur if the engine is gently run-in. Under no circumstances should the engine be allowed to idle for extended periods; (e.g. warming up without load). Engines of new machines are filled at the factory with JCB 10W/30 Multigrade oil. This oil should be drained after the first 100 hours operation and the engine filled with the appropriate recommended grade as shown in the lubrication chart. JCB 10W/30 Multigrade should also be used for the first 100 hours operation whenever a new or reconditioned engine is fitted to the machine. After the first 100 hours operation, it is essential that the 10W/30 oil is replaced by the lubricant recommended below.

ITEM	CAPACITY Litres (Gal)	FLUID/LUBRICANT	INTERNATIONAL SPECIFICATION
Fuel Tank	125 (27.5)	Diesel Oil (See Types of Fuel)	ASTM D975-66T Nos. 1D, 2D
Engine (Oil) Engine Type: AA, AB, AR & AK Builds	10 (2.2)	JCB High Performance Engine Oil 15W40 -10 °C to 50 °C (14 °F to 122 °F) JCB High Performance Engine Oil 10W30 -15 °C to 40 °C (5 °F to 104 °F)	SAE15W/40 API CF4/SG (ACEA, E2:B2:A2) SAE10W/30 API CF4/SG (ACEA, E2:B2:A2)
Engine Type: AA & AB Builds Only		JCB High Performance Universal Agricultural Oil -15°C to 30°C (5°F to 86°F) JCB High Performance Torque Converter Fluid -18°C to 0°C (0°F to 32°F)	SAE10W/30 API GL4 CE/SF SAE10W API GL4 CE/SF
Engine (Coolant) System Antifreeze	23 (5.0) 12.5 (2.75)	JCB Four Seasons Antifreeze And Summer Coolant (See Coolant Mixtures)	ASTM D3306-74
Gearbox Wet fill Dry fill	21 (4.6) 23 (5.0)	JCB Extreme Performance Transmission Oil Friction modified oils MUST NOT be used (eg. Dexron ATF type).	JCB: 4000/2501
Axles Housing Hubs (x4)	18 (3.9) 2.0 (0.4)	JCB High Performance Gear Oil Plus Must be suitable for use with oil immersed brakes and limited slip differentials (LSD)	JCB: 4000/2200
Brake System		JCB High Performance Hydraulic Fluid 15 DO NOT USE ORDINARY BRAKE FLUID	ISO VG15
Hydraulic Tank † 532, 537 540-170	131 (28.8) 180 (39)	JCB High Performance Hydraulic Fluid 46 (Above 38 °C, 100 °F) JCB High Performance Hydraulic Fluid 32 (Below 38 °C, 100 °F)	ISO VG46 ISO VG32
Grease Points ‡		JCB HP Grease JCB Special MPL-EP Grease	Lithium complex NLGI No. 2 consistency including extreme pressure additives. Lithium based NLGI No. 2 consistency including extreme pressure additives.
Wear Pad Runways		JCB Waxoyl	

†**Note:** This is a tank capacity. The total hydraulic system capacity depends on the equipment being used. Fill and check with all rams closed.

‡**Note:** If JCB MPL Grease is used, all 50 hour greasing operations must be carried out at TEN (10) HOUR intervals; all 500 hour greasing operations must be carried out at 50 HOUR intervals.

BOOM WEAR PAD CLEARANCE

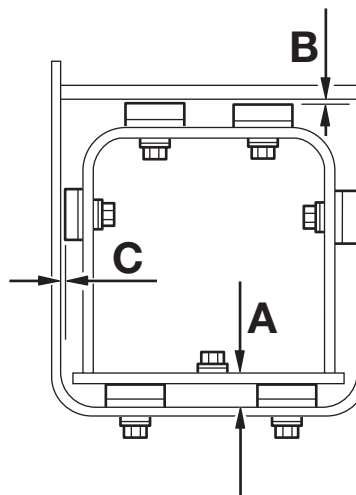
Wear Limits

Check the boom wear pad clearances every 500 hours.

Contact your JCB distributor if the wear pad clearances exceed the maximum stated dimensions below.

530 And 540 Machines

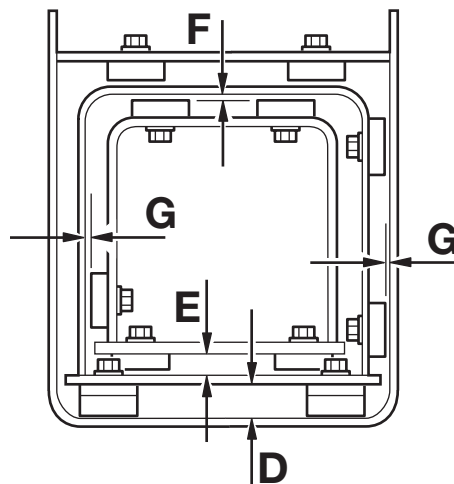
	Maximum Gap (mm)	Maximum Gap (in)	
A	37-41	1.45 to 1.60	
B	3	0.12	Boom Front
	1.5	0.06	Boom Rear
C	3.0	0.12	Boom Front
	1.5	0.06	Boom Rear



347130

532, 533, 535 And 537 Machines

	Maximum Gap (mm)	Maximum Gap (in)
D	37-41	1.45 to 1.60
E	21-25	0.83-0.98
F	3	0.12
G	1.5	0.06

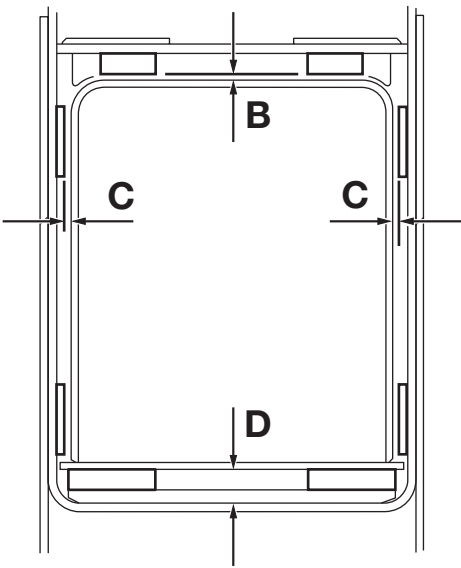
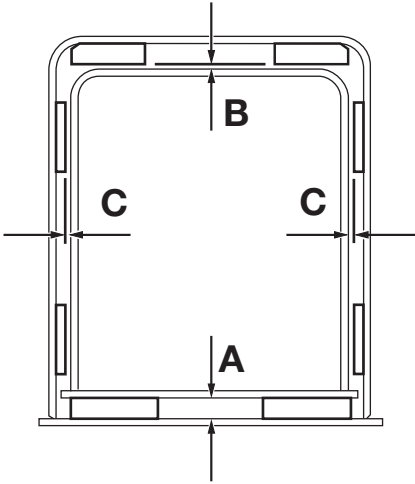
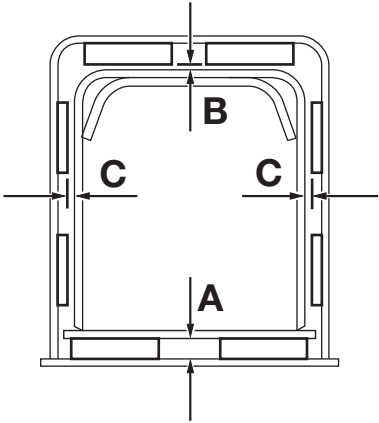


347140

BOOM WEAR PAD CLEARANCE
(Continued)

540-170 Machines

	Maximum Gap (mm)	Maximum Gap (in)	
A	22	0.87	
B	3	0.12	
C	1.5	0.06	
D	37	1.46	



A372600

INTRODUCTION

⚠ CAUTION

Use only the JCB approved attachments that are specified for your machine. Operating with non-specified attachments can overload the machine, causing possible damage and machine instability which could result in injury to yourself or others.

2-4-5-2

A wide range of optional attachments is available to increase the versatility of your machine. Only JCB approved attachments are recommended for use 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, "CE" and any other legislative compliance may be affected by the use of non JCB approved attachments.

2-4-1-13/2

Before using any attachment, read again **Working With The Machine** in the *Operation* section and consider how the attachment is going to affect operational safety. With the attachment fitted, there may be changes in the machine's centre of gravity or overall dimensions. This could have an effect on, for example, machine stability, the gradients on which it is safe to operate or the safe distance from power lines.

⚠ CAUTION

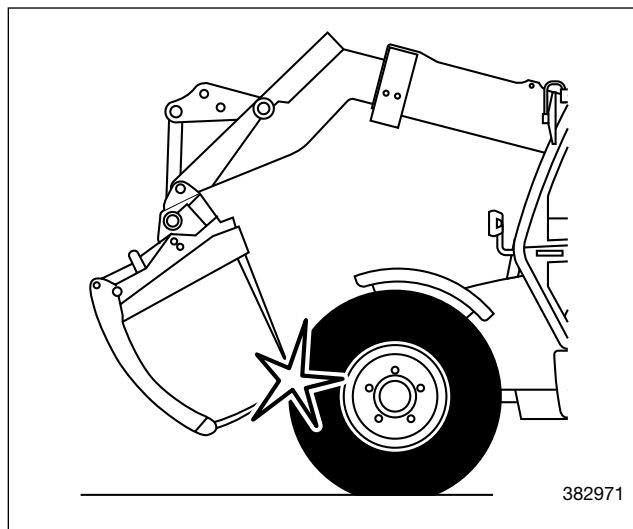
If you have an attachment which is not covered in this handbook do not install it, use it or remove it until you have obtained, read and understood the pertinent information. Install attachments only on the machines for which they were designed.

5-5-1-1

⚠ CAUTION

Some attachments (eg. muck fork/push-off) can cause damage to the front tyres when the boom is lowered and the carriage is tilted forward. Exercise caution when lowering the boom with the carriage tilted forward when a muck fork/push-off type attachment is fitted.

5-5-1-9



382971

INTRODUCTION

This part of the handbook deals with the JCB optional attachments which can be fitted to the machine. For the Sideshift Carriage, Fork Mounted Hook, Extension Jib and Roof Truss Jib, the information in this book includes installation/removal, operation and routine maintenance.

For other attachments, please refer to the manufacturer's manual for the attachment (if supplied). General installation and removal procedures for other 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.

All standard machines are fitted with a Q-Fit Carriage.

If the Q-Fit Carriage is changed or modified it may alter the setting of the Safe Load Indicator or Load Moment Indicator. Always consult your JCB distributor.

Approved attachments are listed below.

530, 533-105, 535-95, 540-70 Machines:

Shovel 6-in-1
Shovel General Purpose
Shovel Grain/Potato
Shovel Slurry/Rehandling
Industrial Forks
Standard Forks
Silage Forks
Muck Silage Forks
Muck Silage Forks with Push Off
Muck Silage Forks with Top Grab and Push Off
Round Bale Fork
Round Bale Spike
Round Bale Spike with Push Off
Hesston Bale Grab
Manure/Silage Grab
Wrapped Bale Clamp
Silashear
Root Crop Basket
Grain Pusher
Concrete Skip
Crane Hook
Extension Jib
Sideshift Carriage
Sweeper Collector

532, 537, 540-170 Machines:

Industrial Forks
Standard Forks
Crane Hook
Extension Jib
Roof Truss Jib
Shovel General Purpose (1.0 m³ max. capacity)
Concrete Skip
Sideshift Carriage
Sweeper Collector

Note: A sweeper collector must not be used for more than 30 minutes unless high flow auxiliary service connectors are fitted. Allow the hydraulic system to cool for 30 minutes between each period of use.

CAUTION

Do not extend the boom whilst an attachment is connected to the high flow auxiliary connectors (if fitted). Severe damage to the hoses will result.

0054

Please now read the section Quick Release Couplings.

QUICK RELEASE COUPLINGS

Flat face quick release couplings allow the operator to remove and install attachments swiftly and efficiently. The standard auxiliary pipework has male and female couplings. The high flow auxiliary circuit (if fitted) has two female couplings. The mating hoses on the attachment must have corresponding couplings.

The quick release couplings should be trouble free and relatively easy to connect and disconnect, provided they are kept clean and used correctly. The recommendations listed below should always apply when using flat face quick release couplings.

Finally, please read the correct fitting and releasing procedures before installing or removing any optional attachment fitted with quick release couplings.

WARNING

The external surfaces of the couplings must be clean before connecting or disconnecting. Ingress of dirt will cause fluid leaks and difficulty in connecting or disconnecting. You could be killed or seriously injured by faulty Quick Release Couplings.

2-4-1-15

Quick Release Couplings – Do's & Don'ts

DO wipe the two faces of the coupling and make sure they are clean before connecting.

DO make sure the outside sleeve (female coupling) is pulled back when disconnecting.

DO connect and disconnect a new coupling two or three times to 'work' the PTFE seals – sometimes a new coupling will stick if the seals have not been 'worked'.

DO use a spanner on the hexagonal flats of the coupling when fitting adaptors.

DO use a rubber or hide hammer to disconnect a coupling if it sticks – sticking may occur if there is dirt present in the coupling.

DON'T attempt to re-connect a damaged half coupling – this will destroy the seals and necessitate replacing both half couplings.

DON'T leave the coupling where it may be run over by a machine or otherwise crushed – this will distort the coupling sleeve and prevent correct connection and disconnection.

DON'T clamp on the smooth diameter of the coupling when fitting adaptors – always use the hexagon.

DON'T damage the faces of the couplings – this can prevent connection and disconnection, or damage seals and cause leakage.

DON'T try to dismantle the couplings – they are non serviceable parts. If a coupling is damaged it should be replaced with a new one.

DON'T turn the coupling sleeve when disconnected - this will result in the locking ball jamming under the sleeve.

Remove Pressure From Service Lines

Hydraulic fluid at pressure can injure you. Before attempting to connect or disconnect attachment couplings remove any residual hydraulic pressure trapped in the service lines:

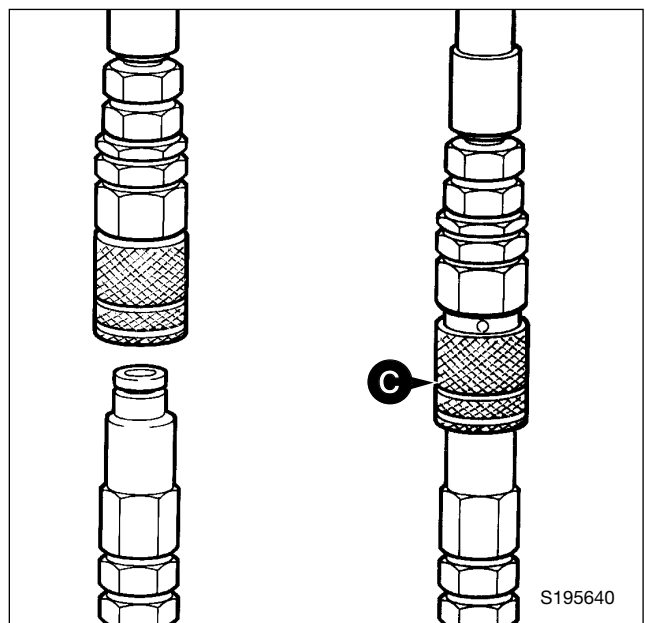
- 1 With the engine stopped, turn the starter switch to ON.
- 2 Select the Auxiliary circuit and operate the controls to vent residual hydraulic pressure.

Connecting Quick Release Couplings

- 1 Remove any residual hydraulic pressure trapped in the service line hose.
- 2 Wipe the two faces of the male and female couplings and make sure they are clean.
- 3 Fit the male couplings into the female couplings. Make sure that the sleeve on the female coupling snaps into place.

Disconnecting Quick Release Coupling

- 1 Remove any residual hydraulic pressure trapped in the service line hose.
- 2 Pull back sleeve **C** to release the coupling.



INSTALLING AND REMOVING Q-FIT ATTACHMENTS

Installing Attachments

- 1 Read the information given in the following pages or the attachment handbook. Pay particular attention to the safety notices and any specific notes about handling and installing.
- 2 Make sure the attachment is on firm, level ground. Make sure the attachment will not tip over.
- 3 Remove existing attachment, leave the Q-Fit carriage lock pins disengaged.

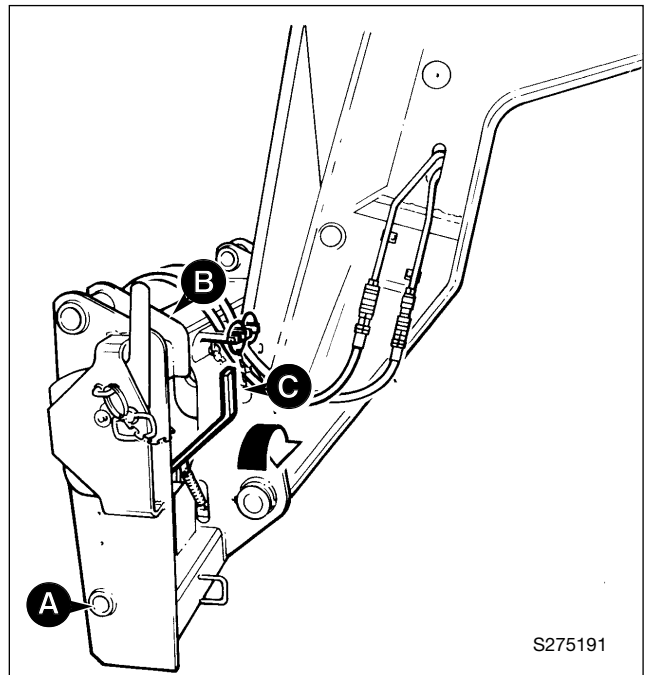
WARNING

Keep other people clear of the area while you engage the attachment. If a second person is to be involved in this procedure, ensure that he keeps clear of the machine and attachment until signalled by you to proceed. The machine loading limits at different boom positions are shown on the Load Charts in the cab.

5-5-1-2/1

- 4 Ensure that the carriage lock pins **A** are withdrawn.
- 5 Use the controls to line up the carriage with the attachment and just below the attachment hook plates **B**.
- 6 Engage the parking brake, set the gear lever and forward/reverse lever to neutral.
- 7 Using the boom controls, engage the support bar on the carriage into the hook plates on the attachment. Ensure that both hook plates are engaged equally.
- 8 Lift and tilt the carriage back, to line up the locking holes in the carriage with those in the attachment.
- 9 Ensure that the gear lever and forward/reverse lever are set to neutral, and that the parking brake is on. Stop the engine. Remove the starter key.
- 10 At the carriage, operate the manual locking lever **C** to engage the locking pins. Ensure that the lock pins are fully engaged. If a second person is to do this job keep your hands and feet away from the controls until he is clear of the machine.

For machines with hydraulic pin locking, see **Hydraulic Pin Locking Option** (this section).



S275191

INSTALLING AND REMOVING Q-FIT ATTACHMENTS (continued)

- 11 Connect the hydraulic hose(s), if the attachment is hydraulically operated read **Quick Release Couplings**, then connect the hose(s) as follows:

WARNING

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks. Then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help quickly.

INT-3-1-10/1

- a Engage the parking brake. Set the forward/reverse lever to neutral. Stop the engine.

WARNING

Always face the machine when entering and leaving the cab. Make sure your shoes and hands are clean and dry. Otherwise you could slip and fall.

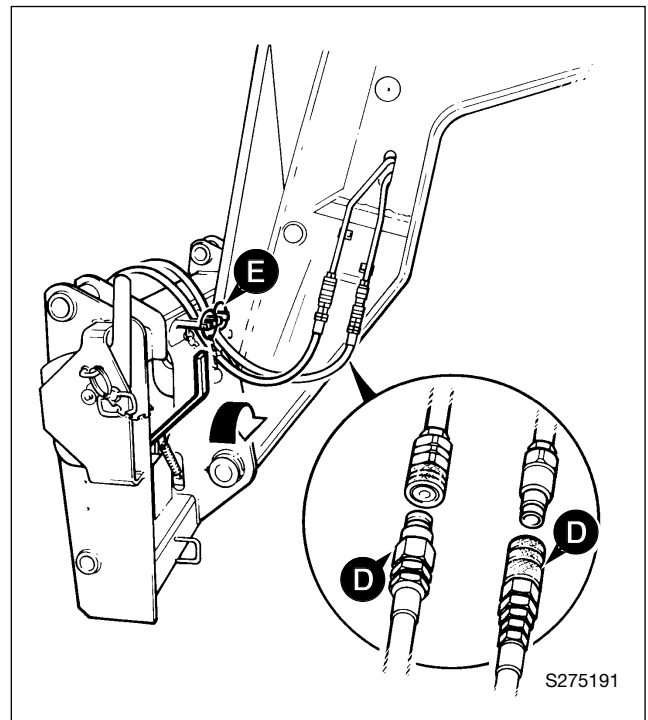
2-2-1-3

WARNING

You or others can be killed or seriously injured if you operate the control levers from outside the cab. Operate the control levers only when you are correctly seated inside the cab.

INT-2-1-3

- b Operate the auxiliary control lever several times in both directions to remove pressure from the service line. See **Auxiliary Controls (OPERATION section)** and **Quick Release Couplings, (this section)**.
- c Remove the blanking cap(s) from the hose(s) and attachment coupling(s).
- d Press the hose coupling(s) **D** onto the attachment coupling(s); make sure they lock. (*The couplings cannot be cross-connected.*)
- e Secure the attachment hydraulic hoses to the carriage with locking pins **E**.



INSTALLING AND REMOVING Q-FIT ATTACHMENTS (continued)

Removing Attachments

Note: Deposit **Q-Fit** attachments on firm, level ground whenever possible. This will make later refitting easy and safe.

- 1 Lower the attachment to the ground.
- 2 Read the information given in the following pages or the attachment handbook. Pay particular attention to the safety notices and any specific notes about removing the attachment.
- 3 If the attachment is hydraulically operated read Quick Release Couplings, then disconnect the hose(s) as follows:

⚠ WARNING

Fine jets of hydraulic fluid at high pressure can penetrate the skin. Do not use your fingers to check for hydraulic fluid leaks. Do not put your face close to suspected leaks. Hold a piece of cardboard close to suspected leaks. Then inspect the cardboard for signs of hydraulic fluid. If hydraulic fluid penetrates your skin, get medical help quickly.

INT-3-1-10/1

- a Engage the parking brake. Set the forward/reverse lever to neutral. Stop the engine.

⚠ WARNING

Always face the machine when entering and leaving the cab. Make sure your shoes and hands are clean and dry. Otherwise you could slip and fall

2-2-1-3

⚠ WARNING

You or others can be killed or seriously injured if you operate the control levers from outside the cab. Operate the control levers only when you are correctly seated inside the cab.

INT-2-1-3

- b Operate the auxiliary control lever several times in both directions to remove pressure from the service line. See **Auxiliary Controls** (OPERATION section) and **Quick Release Couplings**, (this section).

- c Disconnect the hose(s) **D**, by pulling up the knurled locking ring(s) and withdrawing the hose coupling(s). Fit the coupling blanking cap(s).

- d Release the attachment hydraulic hoses from the carriage by removing locking pins **E**.

- 4 Move the locking lever to the unlock position **A** to disengage the locking pins.

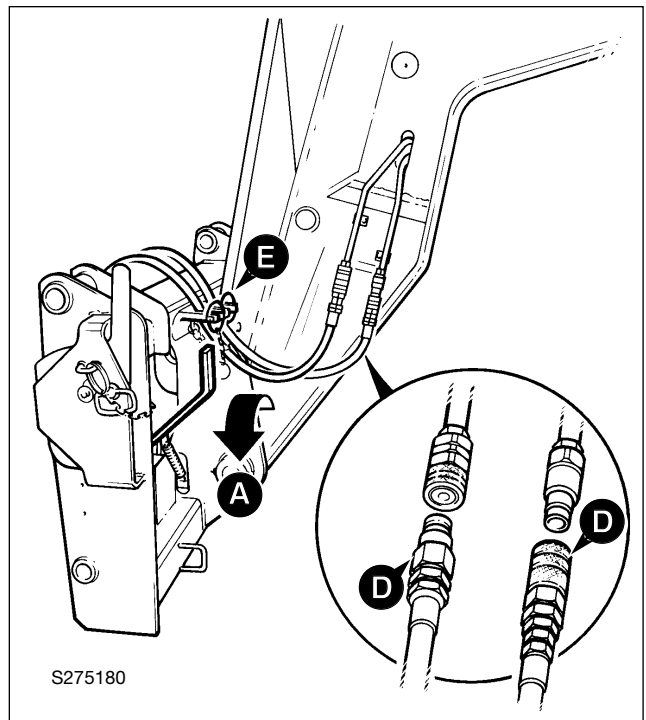
For machines with hydraulic pin locking, see **Hydraulic Pin Locking Option** (this section).

⚠ WARNING

Keep other people clear of the area while you disengage the attachment. If a second person is to be involved in this procedure (to operate the lock pin) ensure that he keeps clear of the machine and attachment until signalled by you to proceed.

5-5-1-3/1

- 5 Start the engine and tilt the carriage forward slowly to withdraw the lower end of the carriage from the attachment. Then lower the boom slowly to withdraw the carriage from the attachment hook plates. Carefully reverse the machine away from the attachment (or retract the boom).



HYDRAULIC PIN LOCKING OPTION

The hydraulic pin locking option allows attachments to be installed or removed without leaving the cab.

Decals near the levers and switches show by symbols, which levers and switches cause what actions. Before operating control levers and switches, check the decal to make sure you select the desired action.

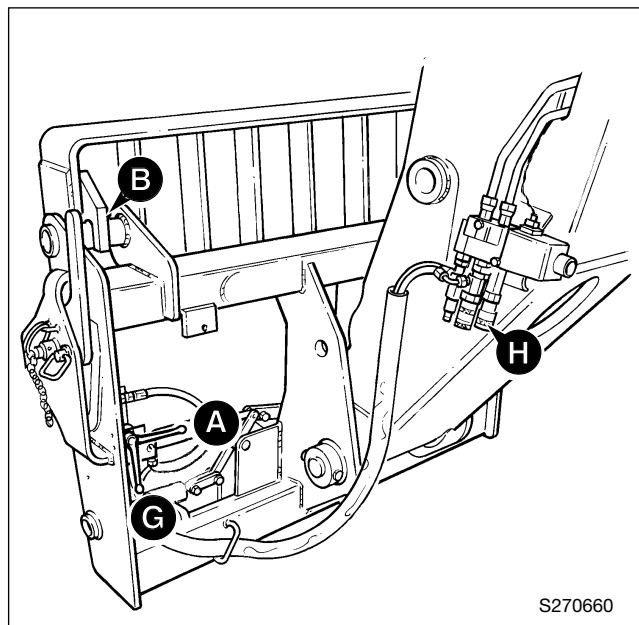
Installing Attachments

⚠ WARNING

Keep other people clear of the area while you engage the attachment. If a second person is to be involved in this procedure, ensure that he keeps clear of the machine and attachment until signalled by you to proceed.

5-5-1-2/2

- 1 Park the machine on firm level ground, apply the parking brake and select the forward/reverse lever to neutral.



- 2 Lower the boom to the ground. Remove any attachment previously fitted, see **Removing Attachments** (this section).
- 3 Move the lever of the hydraulic pin locking isolation valve (if fitted) to the horizontal position A.

⚠ DANGER

Do not retract the locking pins when the attachment is raised, the attachment could fall and kill or seriously injure someone. Only retract the locking pins after the attachment has been placed on the ground.

5-5-1-8

- 4 Using the boom controls, engage the support bar on the carriage into the hook plates **B** on the attachment. Ensure that both hook plates are engaged equally.
- 5 Lift and tilt the carriage back, to line up the locking holes in the carriage with those in the attachment.
- 6 Hitch/Auxiliary selector switch **C** is fitted on some machines. If fitted, operate to select the auxiliary circuit, the lamp should illuminate.

⚠ WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

5-2-2-9

- 7 The auxiliary controls vary according to the type of controls fitted to the machine. Refer to the illustration which shows the controls on your machine.

Operate the auxiliary control as described below.

530, 533, 535 & 540-70 machines:

Press and hold button **D** to select Aux 2 (if fitted). Operate control **E** to engage the locking pins.

532, 537 & 540-170 machines:

Operate control **E** or **F** depending on the way the Quick-Release Couplings are connected.

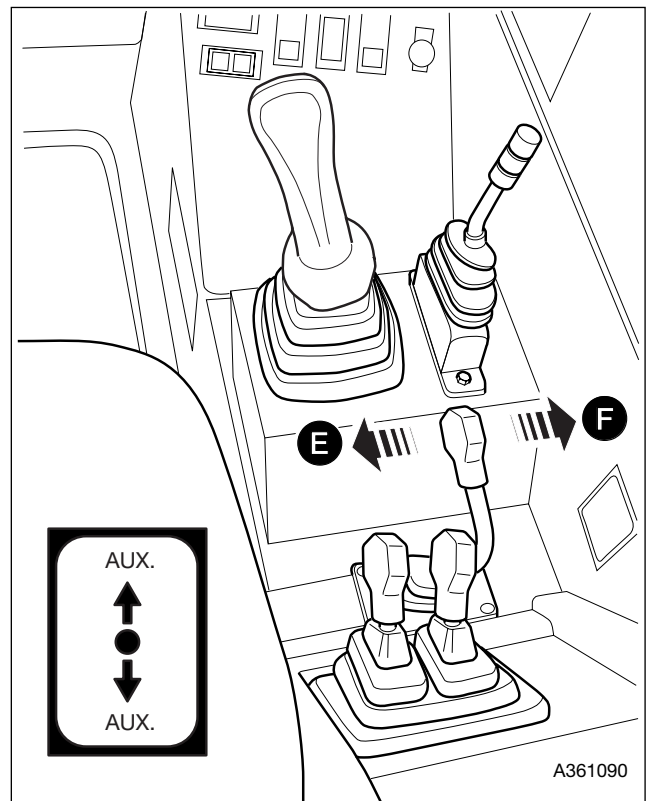
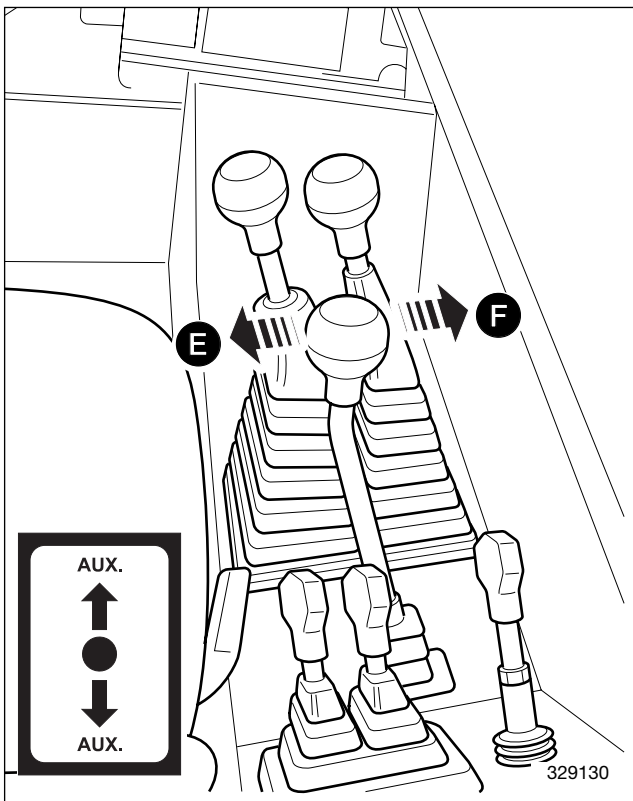
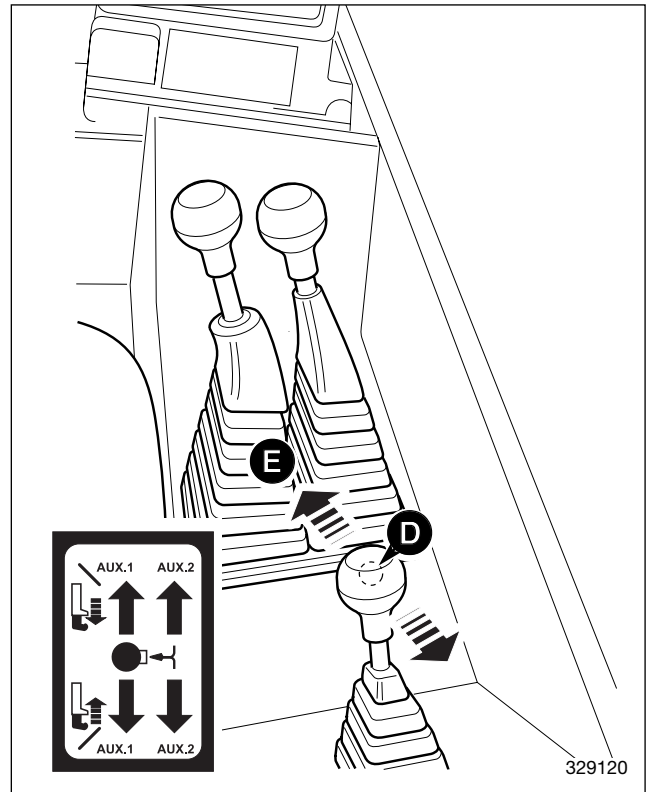
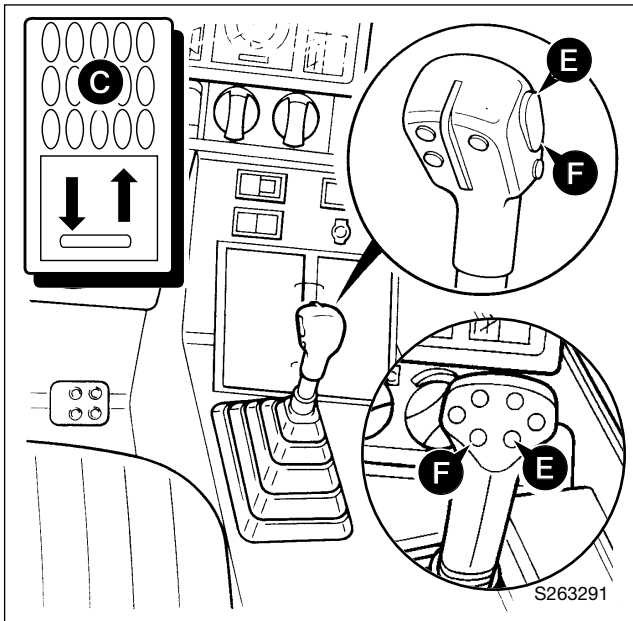
⚠ DANGER

The hydraulic pin locking isolation valve must be in the fully closed position otherwise the locking pins could be inadvertently disengaged.

5-5-3-7

- 8 Move the lever of the hydraulic pin locking isolation valve (if fitted) to the vertical position **G**, in this position the locking pins are isolated and the auxiliary circuit is active.
- 9 If a hydraulically operated attachment is fitted connect the Quick Release Couplings **H**, see **Installing and Removing Q-Fit Attachments** (this section). The engine will have to be stopped and the pressure in the service lines dissipated.

HYDRAULIC PIN LOCKING OPTION (continued)



HYDRAULIC PIN LOCKING OPTION (continued)

Removing Attachments

Decals near the levers and switches show by symbols, which levers and switches cause what actions. Before operating control levers and switches, check the decal to make sure you select the desired action.

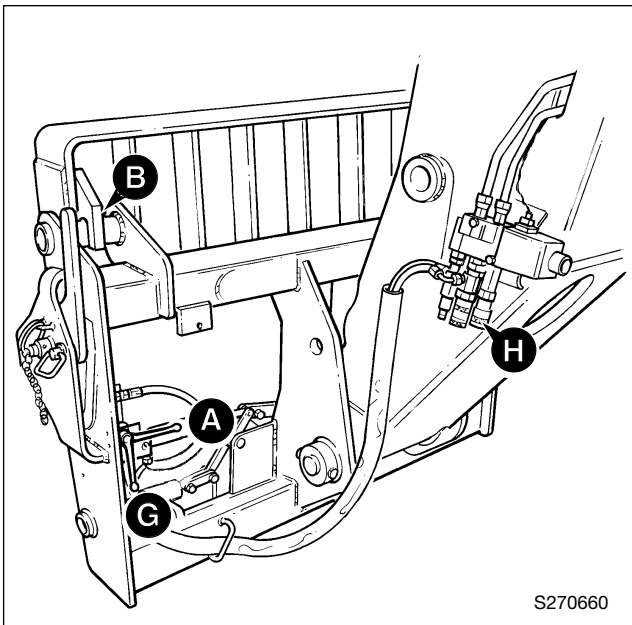
- 1 Park the machine on firm level ground, apply the parking brake and select the forward/reverse lever to neutral.
- 2 Lower the boom to the ground.
- 3 If a hydraulically operated attachment is fitted disconnect the Quick Release Couplings **H**, see *Installing and Removing Q-Fit Attachments* (this section). The engine will have to be stopped and the pressure in the service lines dissipated.

⚠ WARNING

Keep other people clear of the area while you disengage the attachment. If a second person is to be involved in this procedure ensure that he keeps clear of the machine and attachment until signalled by you to proceed.

5-5-1-3/1

- 4 Move the lever of the hydraulic pin locking isolation valve (if fitted) to the horizontal position **A**.



⚠ DANGER

Do not retract the locking pins when the attachment is raised, the attachment could fall and kill or seriously injure someone. Only retract the locking pins after the attachment has been placed on the ground.

5-5-1-8

⚠ WARNING

Control lever/switch action may vary on machines, decals near the levers/switches show by symbols, which levers/switches cause what actions. Before operating control levers/switches check the decal to make sure you select the desired action.

5-2-2-9

- 5 The auxiliary controls vary according to the type of controls fitted to the machine. Refer to the illustration which shows the controls on your machine.

Operate the auxiliary control as described below.

530, 533, 535 & 540-70 machines:

Press and hold button **D** to select Aux 2 (if fitted). Operate control **F** to disengage the locking pins.

532, 537 & 540-170 machines:

Operate control **E** or **F** depending on the way the Quick-Release Couplings are connected.

- 6 Tilt the carriage forward slowly to withdraw the lower end of the carriage from the attachment. Then lower the boom slowly to withdraw the carriage from the attachment hook plates **B**. Carefully reverse the machine away from the attachment (or retract the boom).

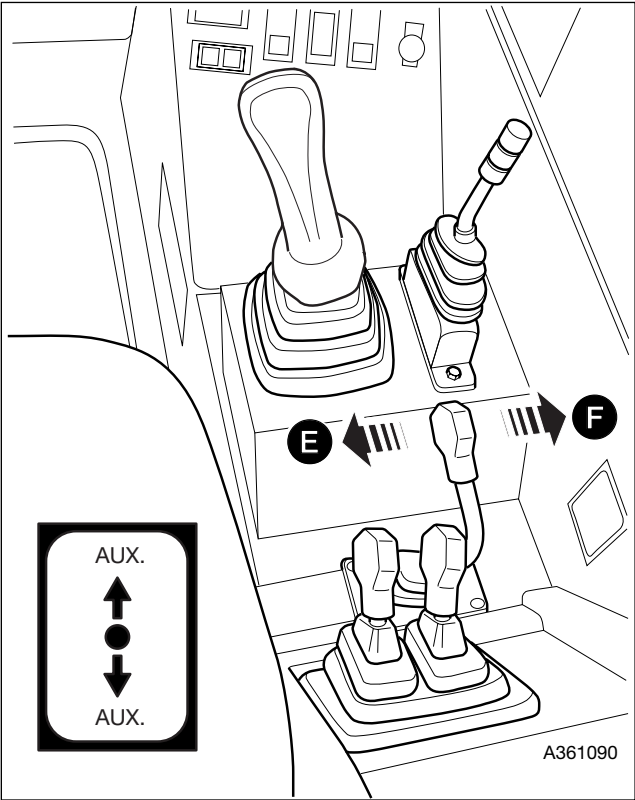
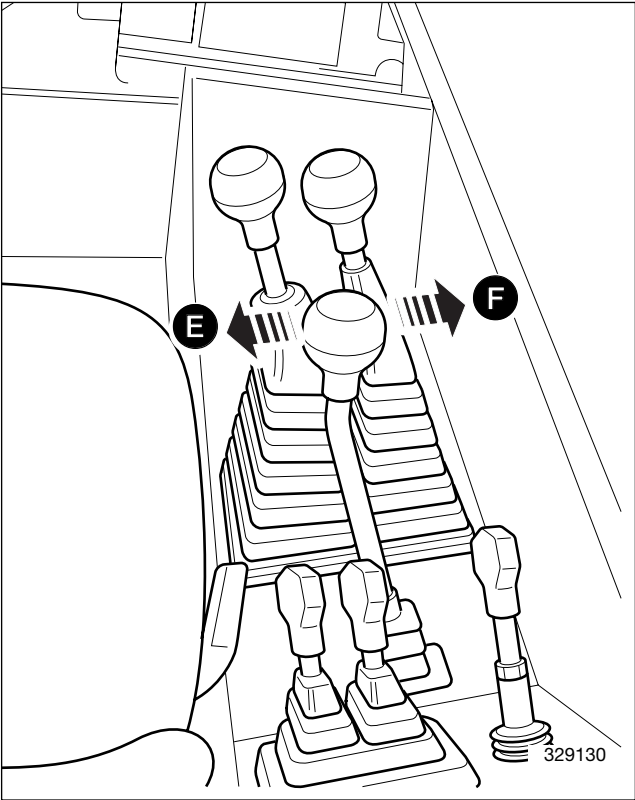
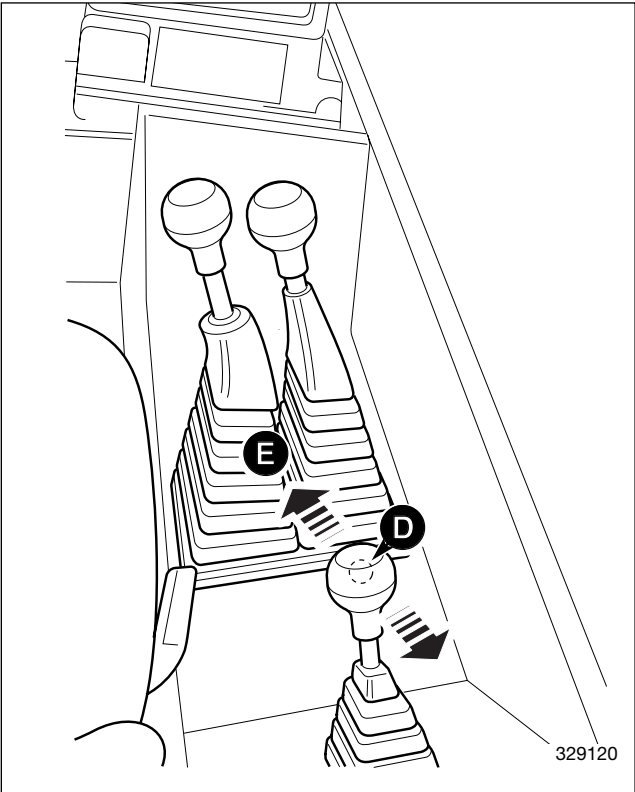
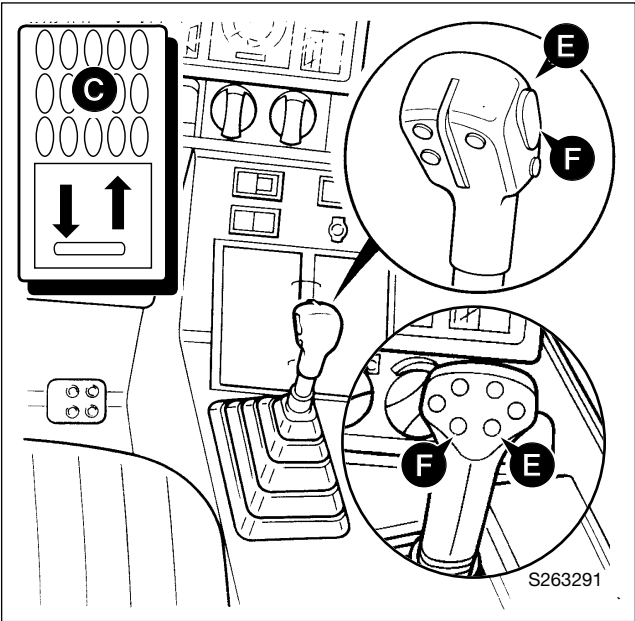
⚠ DANGER

The hydraulic pin locking isolation valve must be in the fully closed position otherwise the locking pins could be inadvertently disengaged.

5-5-3-7

- 7 Move the lever of the hydraulic pin locking isolation valve (if fitted) to the vertical position **G**, in this position the locking pins are isolated and the auxiliary circuit is active.

HYDRAULIC PIN LOCKING OPTION
(continued)



EXTENSION JIB

This is a **Q-Fit** attachment. It gives your machine greater reach and height. This attachment is supplied with test certificates for its fabrication, its hook and its shackle. Its Safe Working Load is stamped on a plate mounted on the attachment. See **Working With The Machine** (OPERATION Section).

Safety

Obey all the safety instructions given in the main part of this book, plus the ones given in this section. **USE THIS ATTACHMENT ONLY IF IT CARRIES UP TO DATE TEST CERTIFICATES**

Installing/Removing

WARNING

This attachment is heavy. Take care when lifting and handling it. Use suitable lifting tackle.

Make sure the lifting tackle is in good condition. Make sure the lifting tackle complies with all pertinent regulations.

Wear gloves and safety shoes.

5-5-4-12

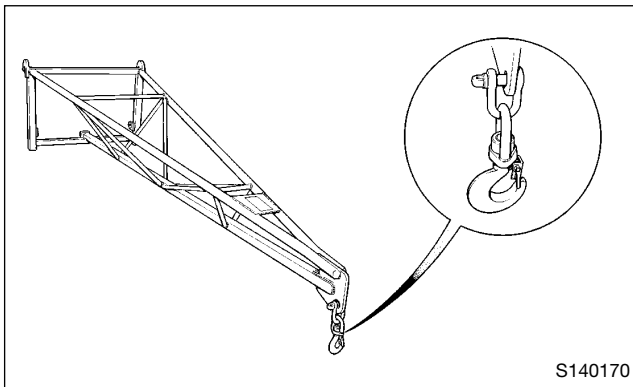
See **Installing and Removing Q-Fit Attachments** at the beginning of this section. Installing will be easier if the Extension Jib is rested on wooden blocks. **Store the attachment carefully to prevent damage and corrosion.**

WARNING

This attachment has a maximum Safe Working Load. Do not exceed the SWL.

Do not exceed the machine stability limits shown on the Load Chart(s) in the cab

5-5-4-11



Operation

CAUTION

Load and unload on firm, level ground. Always be alert for possible hazards. Take special care when turning or reversing.

5-2-4-7

Observe the following precautions when using this attachment.

ALWAYS check the appropriate flip chart in the cab before lifting or manoeuvring a load with this attachment.

ALWAYS level the machine using the sway control or stabilizers (if fitted) before operating the attachment. Reposition the machine if a level position cannot be achieved.

ALWAYS use lifting tackle which is suitable for the job, in good condition and proof tested where necessary.

ALWAYS sling the load safely and in accordance with any local regulations.

ALWAYS ensure that the hook safety catch has sprung back to prevent the sling(s) from slipping off the hook.

ALWAYS lift a slung load carefully, to avoid 'snatching' the sling(s).

ALWAYS keep yourself and other people clear of a suspended load, especially from beneath the load.

ALWAYS check for clearance before manoeuvring the machine with this attachment installed. Remember that the effective length of the boom is increased when this attachment is installed.

ALWAYS manoeuvre the machine carefully when carrying a suspended load. Keep the load as low to the ground as possible. If necessary, use guide ropes to prevent the load from swinging.

ALWAYS travel in 1st gear at walking speed when carrying a suspended load. Wherever possible, travel on firm, level ground. Avoid rough or excessively bumpy ground.

NEVER carry suspended loads on public roads.

ALWAYS be aware of the affects of wind velocity on the load being handled.

EXTENSION JIB (continued)

Maintenance

Daily

Clean with the rest of the machine.

Check for damage. Ensure that the hook safety catch is in good working order.

As Required or At Least Annually

All lifting equipment including this attachment may need regular inspection and testing by a competent person to ensure they are fit for purpose.

This may be needed every six months or at least annually in many countries to meet and comply with local legislation and for insurance purposes.

Check with your local JCB distributor for further advice.

FORK MOUNTED HOOK

The Fork Mounted Hook allows the Loadall to carry slung loads with safety. It incorporates a swivel hook with a spring-loaded safety catch. This attachment is supplied with test certificates for its fabrication and its hook. Its Safe Working Load is stamped on a plate mounted on the attachment. See **Working With The Machine** (OPERATION Section).

Safety

Obey all the safety instructions given in the main part of this book, plus the ones given in this section. USE THIS ATTACHMENT ONLY IF IT CARRIES UP TO DATE TEST CERTIFICATES

Installing

- 1 Space the forks, equally on either side of the machine centreline, so that the mounting sockets **A** can be slid onto them. Fully tighten the fork clamping screws to prevent movement.
- 2 Install the attachment.

WARNING

This attachment is heavy. Take care when lifting and handling it. Use suitable lifting tackle.

Make sure the lifting tackle is in good condition. Make sure the lifting tackle complies with all pertinent regulations.

Wear gloves and safety shoes.

5-5-4-12

- a Remove lynch pin **B** and locking bar **C**.
- b Slide the attachment over the forks so that the rear of the attachment butts against the heels of the forks.
- c Refit locking bar **C** and secure with lynch pin **B**.
- d Ensure both mounting brackets are installed securely.

Removing

- 1 Lower the attachment so that it just clears the ground. Engage the parking brake and stop the engine.
- 2 Remove the attachment.

WARNING

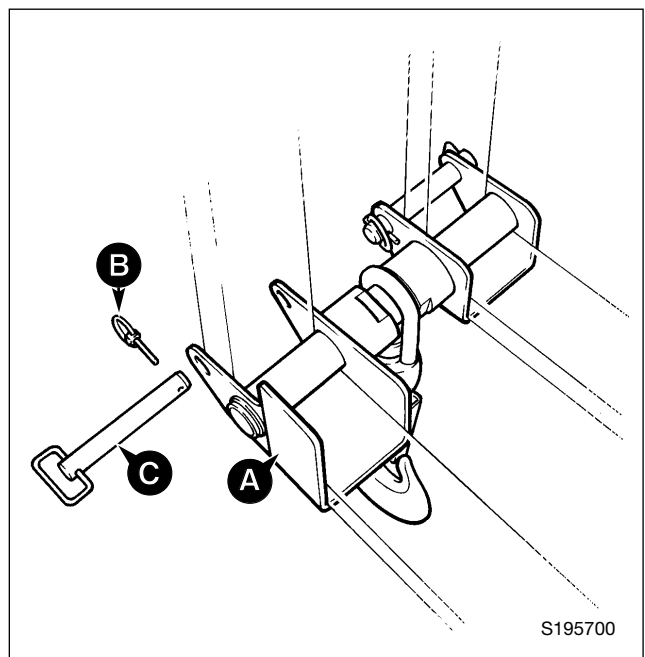
This attachment is heavy. Take care when lifting and handling it. Use suitable lifting tackle.

Make sure the lifting tackle is in good condition. Make sure the lifting tackle complies with all pertinent regulations.

Wear gloves and safety shoes.

5-5-4-12

- a Remove lynch pin **B** and locking bar **C**.
- b Carefully slide the attachment off the forks.
- c Refit locking bar **C** and secure with lynch pin **B**. **Store the attachment carefully to prevent damage and corrosion.**



FORK MOUNTED HOOK (continued)

Operation

Observe the following precautions when using this attachment.

CAUTION

Load and unload on firm, level ground. Always be alert for possible hazards. Take special care when turning or reversing.

5-2-4-7

ALWAYS check the appropriate flip chart in the cab before lifting or manoeuvring a load with this attachment.

ALWAYS level the machine using the sway control or stabilizers (if fitted) before operating the attachment. Reposition the machine if a level position cannot be achieved.

ALWAYS use lifting tackle which is suitable for the job, in good condition and proof tested where necessary.

ALWAYS sling the load safely and in accordance with any local regulations.

ALWAYS ensure that the hook safety catch has sprung back to prevent the sling(s) from slipping off the hook.

ALWAYS lift a slung load carefully, to avoid 'snatching' the sling(s).

ALWAYS keep yourself and other people clear of a suspended load, especially from beneath the load.

ALWAYS manoeuvre the machine carefully when carrying a suspended load. Keep the load as low to the ground as possible. If necessary, use guide ropes to prevent the load from swinging.

ALWAYS travel in 1st gear at walking speed when carrying a suspended load. Wherever possible, travel on firm, level ground. Avoid rough or excessively undulating ground.

NEVER carry suspended loads on public roads.

ALWAYS be aware of the affects of wind velocity on the load being handled.

WARNING

This attachment has a maximum Safe Working Load. Do not exceed the SWL.

Do not exceed the machine stability limits shown on the Load Chart(s) in the cab.

5-5-4-11

Maintenance

Daily

Clean with the rest of the machine.

Check for damage. Ensure that the hook safety catch is in good working order.

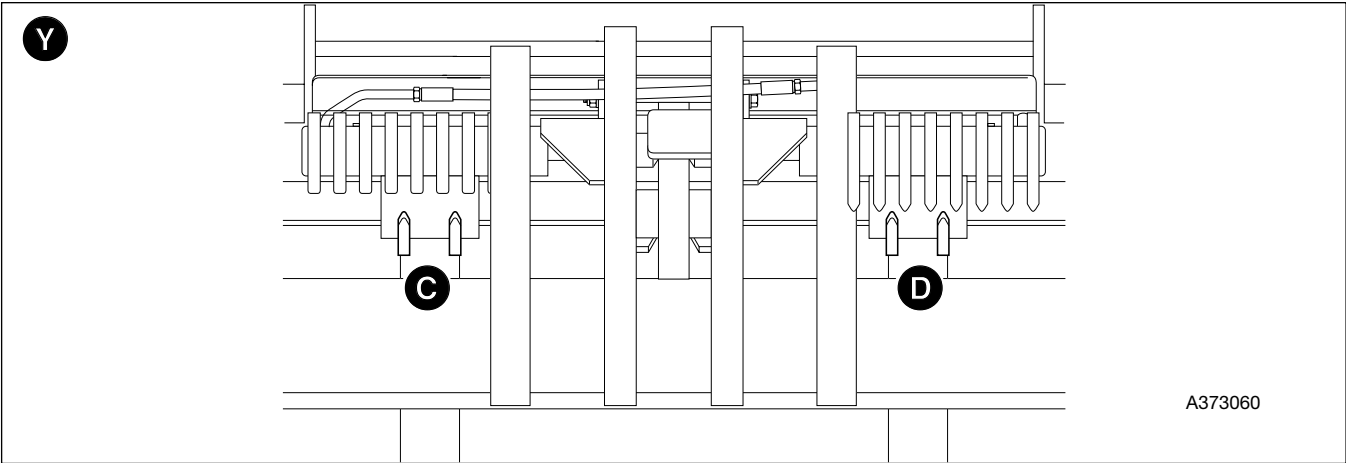
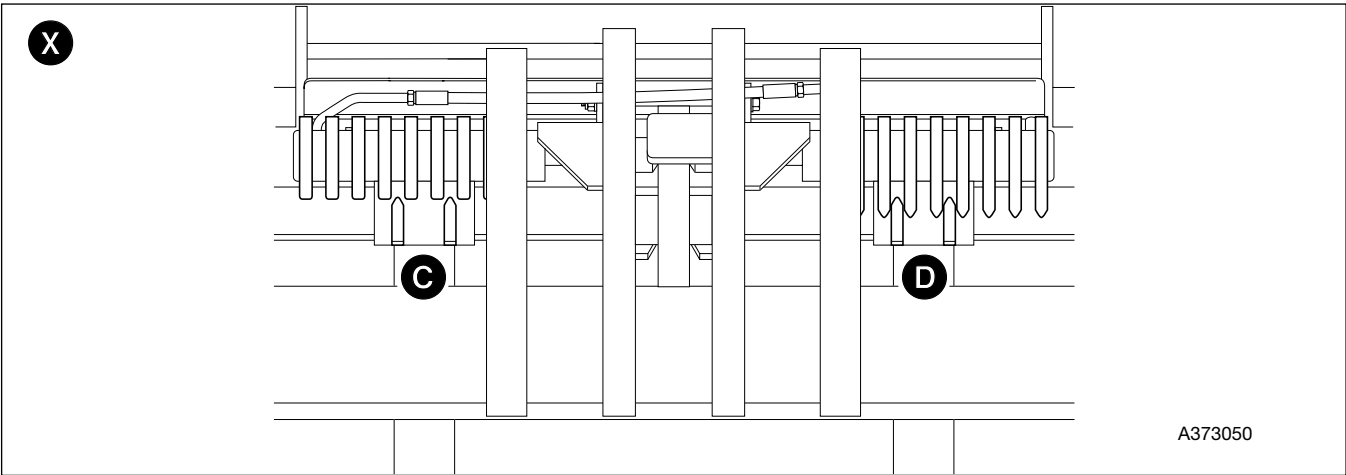
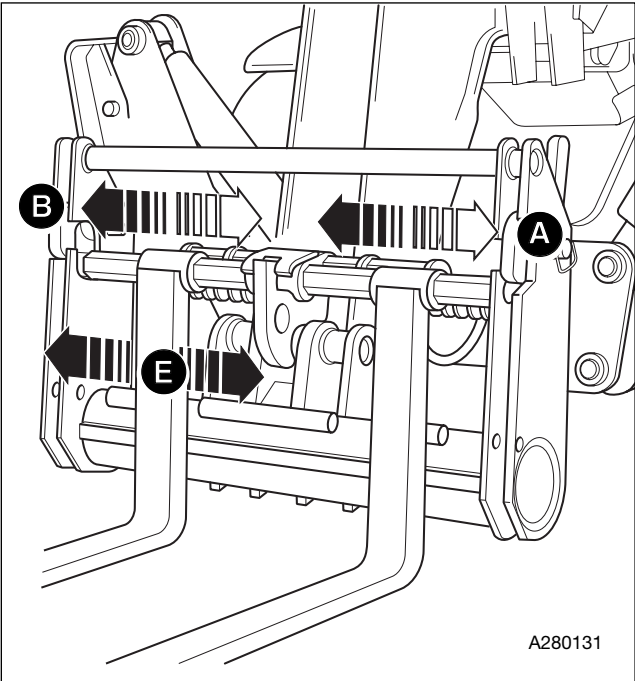
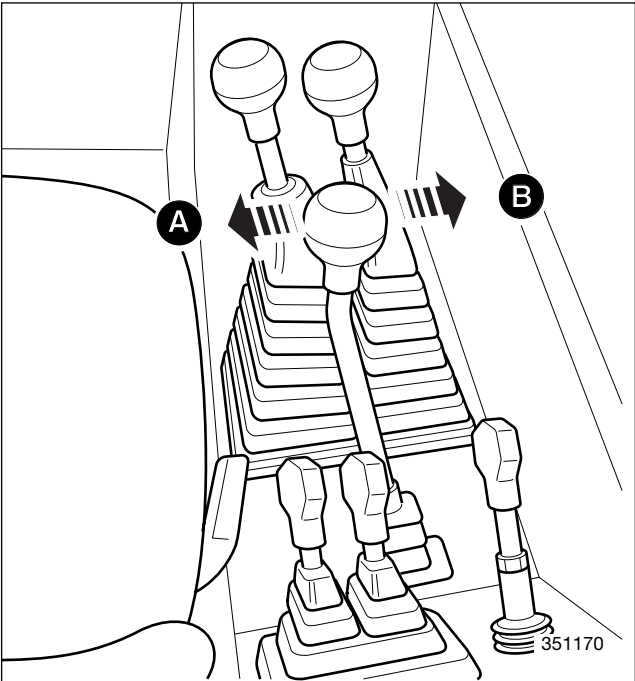
As Required or At Least Annually

All lifting equipment including this attachment may need regular inspection and testing by a competent person to ensure they are fit for purpose.

This may be needed every six months or at least annually in many countries to meet and comply with local legislation and for insurance purposes.

Check with your local JCB distributor for further advice.

SIDESHIFT CARRIAGE



SIDESHIFT CARRIAGE (continued)

Operation

The Sideshift carriage allows the operator to accurately position both forks simultaneously with $\pm 100\text{mm}$ (4in) of sideways movement with a load on the forks. The forks are controlled by the auxiliary control lever in the cab.

Operate the auxiliary lever as required to move the forks.

- A** Sideshift Left
- B** Sideshift Right

Fork spacing may be adjusted to suit the load either hydraulically, using the auxiliary control lever, or manually.

WARNING

Loads can fall off incorrectly spaced forks. Always space the forks correctly for the load. Make sure the forks are completely under the load before lifting.

0028/1

Hydraulic Fork Spacing

- 1** Raise the boom and tilt the carriage forward, as shown at **X**, until the left hand fork fingers **C** disengage from the cylinder, leaving the right hand fork fingers **D** engaged. Use the auxiliary control lever to sideshift the right hand fork only, as at **E**, in order to position the forks.
- 2** Tilt the carriage back and make sure the left hand fork re-engages with the cylinder.

Manual Fork Spacing

WARNING

Forks are heavy. Take care when spacing the forks or folding the forks back.

0002

- 1** Raise the boom and tilt the carriage forward as shown at **Y**, until both left **C** and right **D** forks disengage from the cylinder. Manually position the forks as required.
- 2** Tilt the carriage back and make sure both forks re-engage with the cylinder.

SIDESHIFT CARRIAGE (continued)

Installing the Sideshift Carriage

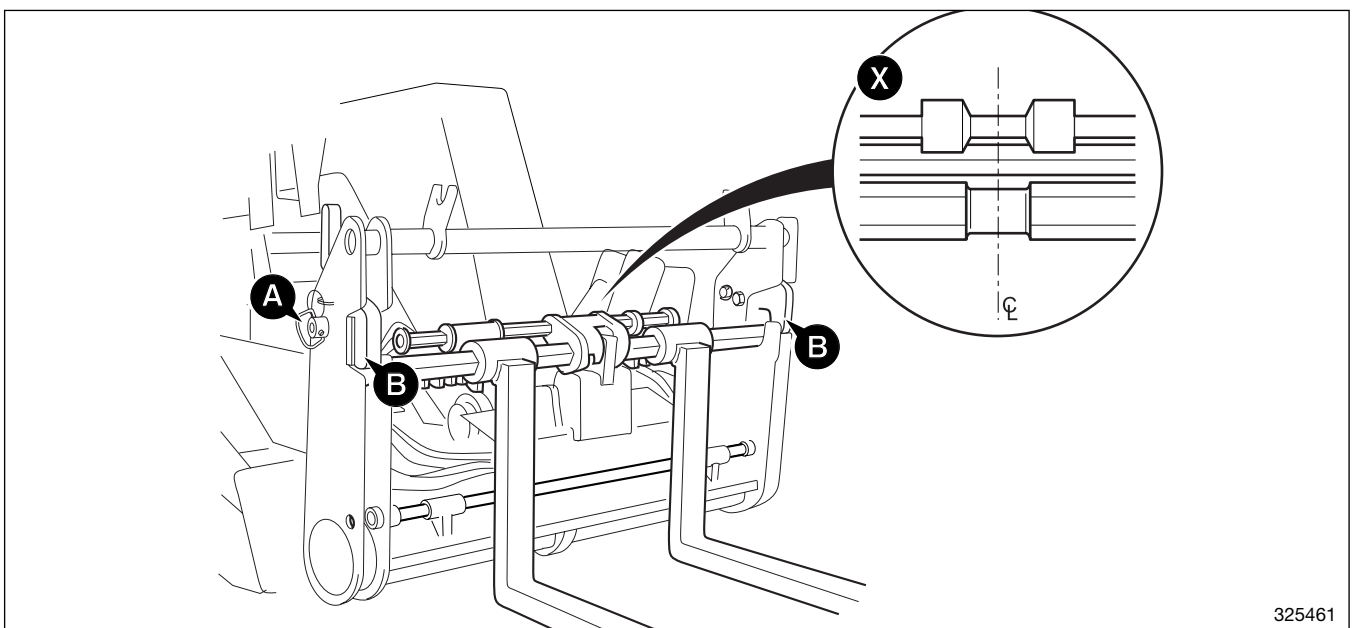
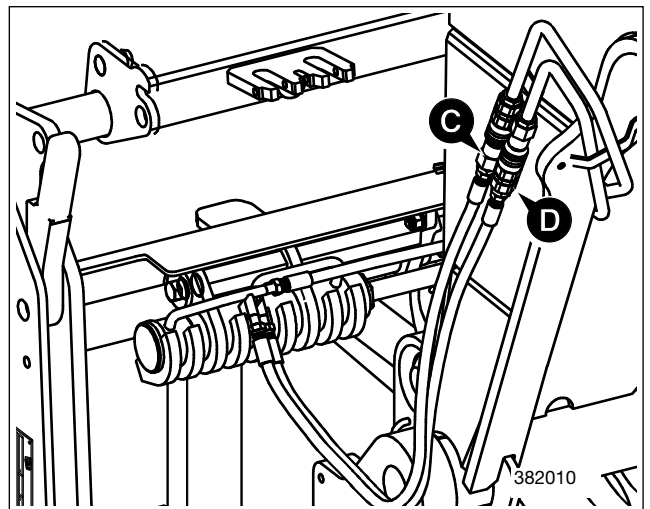
Pay particular attention to the safety notices and any specific notes about handling and installing. See **Installing And Removing Q-Fit Attachments**.

WARNING

Keep other people clear of the area while you engage the attachment. If a second person is to be involved in this procedure, ensure that he keeps clear of the machine and attachment until signalled by you to proceed. The machine loading limits at different boom positions are shown on the Load Charts in the cab.

5-5-1-2/1

- 1 Make sure the attachment is on firm, level ground. Make sure the attachment will not tip over.
- 2 Remove existing attachment, leave the Q-Fit carriage lock pin disengaged.
- 3 Withdrawn carriage locking pins **A**.
- 4 Use the controls to line up the carriage with the attachment and just below the attachment hook plates **B**.
- 5 Engage the parking brake, set the gear lever and forward/reverse lever to neutral.
- 6 Align the sections of the Sideshift attachment centrally as shown at **X**. **Note:** Protective cover removed for clarity.
- 7 Use the boom controls to engage the support bar on the attachment into the hook plates **B** on the carriage. Ensure both hook plates engaged equally.
- 8 Ensure that the gear lever and forward/reverse lever are set to neutral, and that the parking brake is on. Stop the engine. Remove the starter key.
- 9 Remove pressure from the service lines. See **Quick Release Couplings**.
- 10 Engage locking pins **A**. Ensure the pins are fully engaged, and secure with locking rings at both sides of the carriage.
- 11 Remove the blanking caps from the hoses and attachment couplings.
- 12 Press the hose couplings **C** and **D** onto the boom couplings; make sure they lock. See **Quick Release Couplings**. (The couplings cannot be cross-connected).



325461

SIDESHIFT CARRIAGE (continued)

Removing the Sideshift Carriage

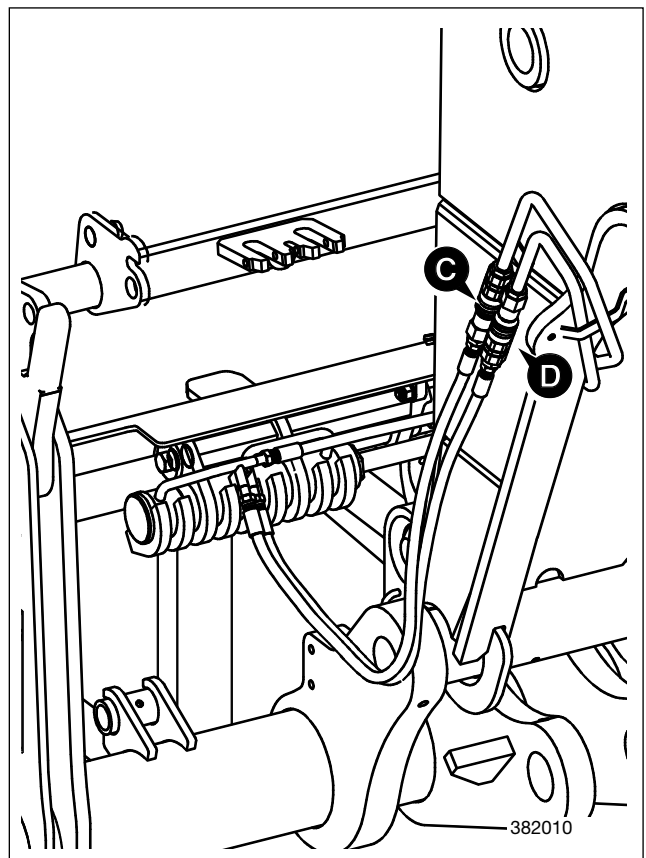
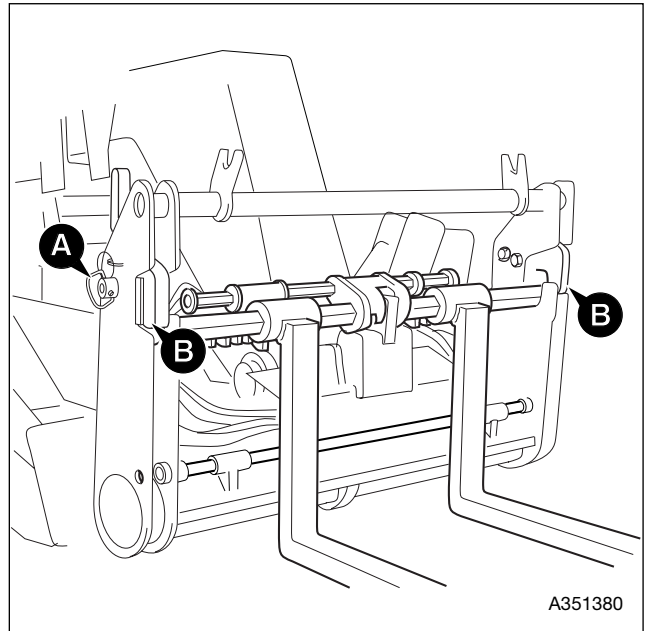
Deposit Q-Fit attachments on firm, level ground whenever possible. This will make later fitting easy and safe.

⚠ WARNING

Keep other people clear of the area while you disengage the attachment. If a second person is to be involved in this procedure (to operate the lock pin) ensure that he keeps clear of the machine and attachment until signalled by you to proceed.

5-5-1-3/1

- 1 Lower the attachment to the ground.
- 2 Pay particular attention to the safety notices and any specific notes about removing the attachment.
- 3 Engage the parking brake. Set the forward/reverse lever to neutral. Stop the engine.
- 4 Remove pressure from the service lines. See **Quick Release Couplings**.
- 5 Pull up on the knurled locking rings and disconnect the hoses at **C** and **D**. Fit blanking caps to the hoses.
- 6 Remove the lock rings and withdraw locking pins **A** at both sides of the carriage.
- 7 Start the engine and tilt the carriage forward slowly to withdraw the lower end of the carriage from the attachment. Then lower the boom slowly to withdraw the carriage from the attachment hook plates **B**. Carefully reverse the machine away from the attachment or retract the boom.



ROOF TRUSS JIB

This is a **Q-Fit** attachment which gives your machine greater reach and height. This attachment is supplied with test certificates for its fabrication, its hook and its shackle. Its Safe Working Load is stamped on a plate mounted on the attachment. See **Working With The Machine** (OPERATION Section).

Safety

Obey all the safety instructions given in the main part of this book, plus the ones given in this section. **USE THIS ATTACHMENT ONLY IF IT CARRIES UP TO DATE TEST CERTIFICATES**

Installing/Removing

WARNING

This attachment is heavy. Take care when lifting and handling it. Use suitable lifting tackle.

Make sure the lifting tackle is in good condition. Make sure the lifting tackle complies with all pertinent regulations.

Wear gloves and safety shoes.

5-5-4-12

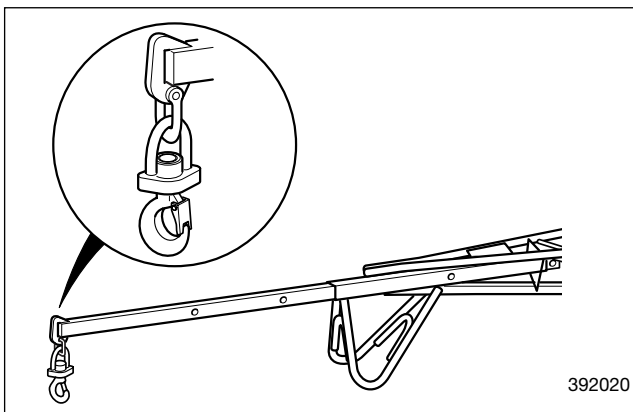
See **Installing and Removing Q-Fit Attachments** at the beginning of this section. Installing will be easier if the Roof Truss Jib is rested on wooden blocks. **Store the attachment carefully to prevent damage and corrosion.**

WARNING

This attachment has a maximum Safe Working Load. Do not exceed the SWL.

Do not exceed the machine stability limits shown on the Load Chart(s) in the cab

5-5-4-11



Operation

CAUTION

Load and unload on firm, level ground. Always be alert for possible hazards. Take special care when turning or reversing.

5-2-4-7

Observe the following precautions when using this attachment.

ALWAYS check the appropriate flip chart in the cab before lifting or manoeuvring a load with this attachment.

ALWAYS level the machine using the sway control or stabilizers (if fitted) before operating the attachment. Reposition the machine if a level position cannot be achieved.

ALWAYS use lifting tackle which is suitable for the job, in good condition and proof tested where necessary.

ALWAYS sling the load safely and in accordance with any local regulations.

ALWAYS ensure that the hook safety catch has sprung back to prevent the sling(s) from slipping off the hook.

ALWAYS lift a slung load carefully, to avoid 'snatching' the sling(s).

ALWAYS keep yourself and other people clear of a suspended load, especially from beneath the load.

ALWAYS check for clearance before manoeuvring the machine with this attachment installed. Remember that the effective length of the boom is increased when this attachment is installed.

ALWAYS manoeuvre the machine carefully when carrying a suspended load. Keep the load as low to the ground as possible. If necessary, use guide ropes to prevent the load from swinging.

ALWAYS travel in 1st gear at walking speed when carrying a suspended load. Wherever possible, travel on firm, level ground. Avoid rough or excessively bumpy ground.

ALWAYS be aware of the effects of wind velocity on the load being handled.

NEVER carry suspended loads on public roads.

ROOF TRUSS JIB (continued)

Operation (continued)

Extending the Jib

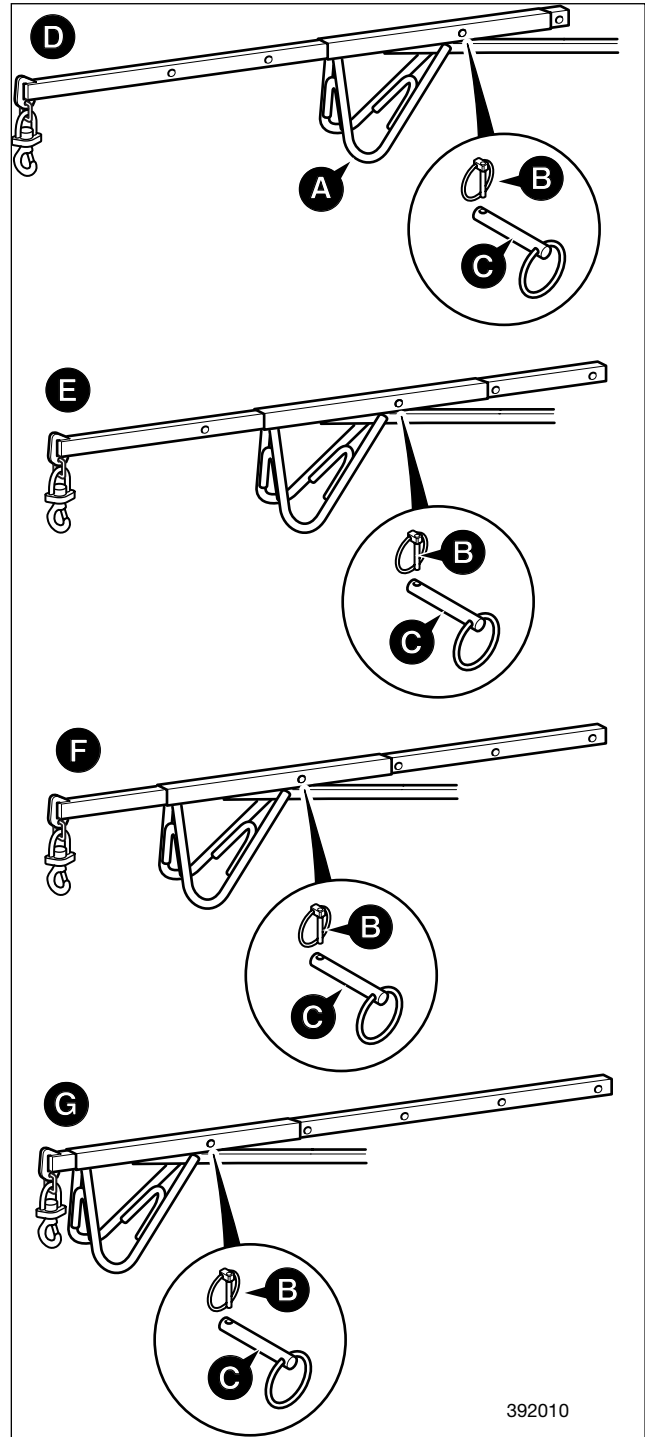
WARNING

Refer to the Load Chart in the cab for permissible loading for each position of the jib extension.

0085

The jib may be extended to one of four positions.

- 1 Remove the load and lower the jib to the ground so that the skid **A** is supporting the weight of the jib.
- 2 Remove lynch pin **B**, then pin **C**.
- 3 Move the jib extension to the required position: **D** (fully extended), **E**, **F** or **G** (fully retracted).
- 4 Insert the pin **C** and secure with lynch pin **B**.



ROOF TRUSS JIB (continued)

Operation (continued)

Changing the Jib Angle

The angle of the jib may be set in one of two positions, placing position as at **H** or travelling position as at **J**.

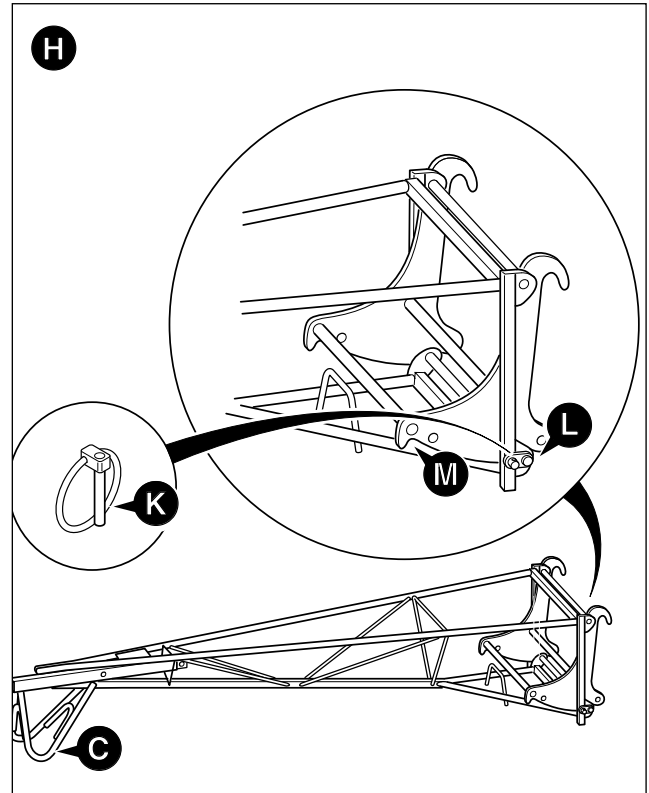
Note : When in the transport position, DO NOT extend the boom and DO NOT lift the boom more than 45°. See the flip chart in the cab.

To change the jib position:

- 1 Remove the load and lower the jib to the ground so that the skid **C** is supporting the weight of the jib.
- 2 Remove lynch pin **K**, then bar **L**.
- 3 Using the tilt control in the cab, rotate the carriage until the holes line up in the required position.

Note: Stops **M** and **N** prevent excessive movement of the jib.

- 4 Insert the bar **L** and secure with lynch pin **K**.



Maintenance

Daily

Clean with the rest of the machine.

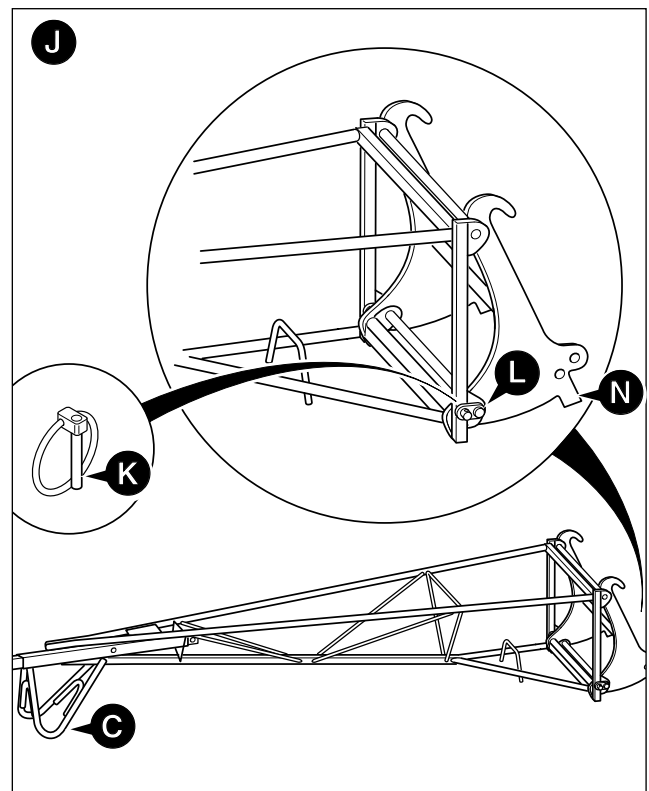
Check for damage. Ensure that the hook safety catch is in good working order.

As Required or At Least Annually

All lifting equipment including this attachment may need regular inspection and testing by a competent person to ensure they are fit for purpose.

This may be needed every six months or at least annually in many countries to meet and comply with local legislation and for insurance purposes.

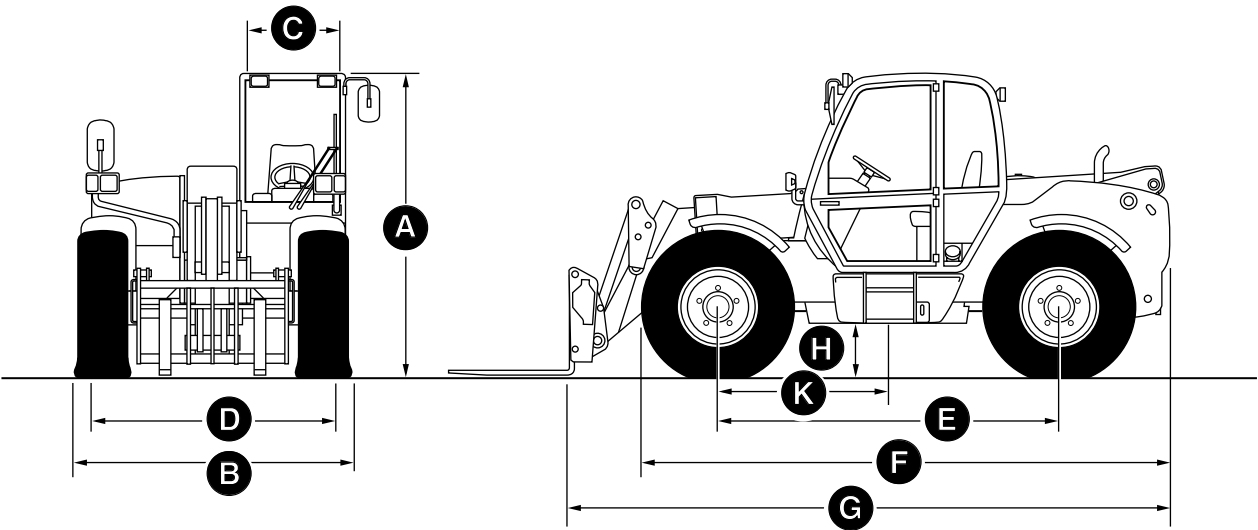
Check with your local JCB distributor for further advice.



WORK PLATFORMS

The CE mark on JCB Loadalls does not cover a machine and work platform combination. Work platforms may be used with JCB Loadalls provided the platform is of such a type and the installation is carried out in such a way that the machine/platform combination satisfies The Essential Health and Safety Requirements for the lifting of persons in the Machinery Directive 98/37/EC or the equivalent local Regulations in your territory. The responsibility for ensuring this rests with the supplier of the combination and the owner/operator and, in the case of any uncertainty, guidance should be sought from the relevant Authority.

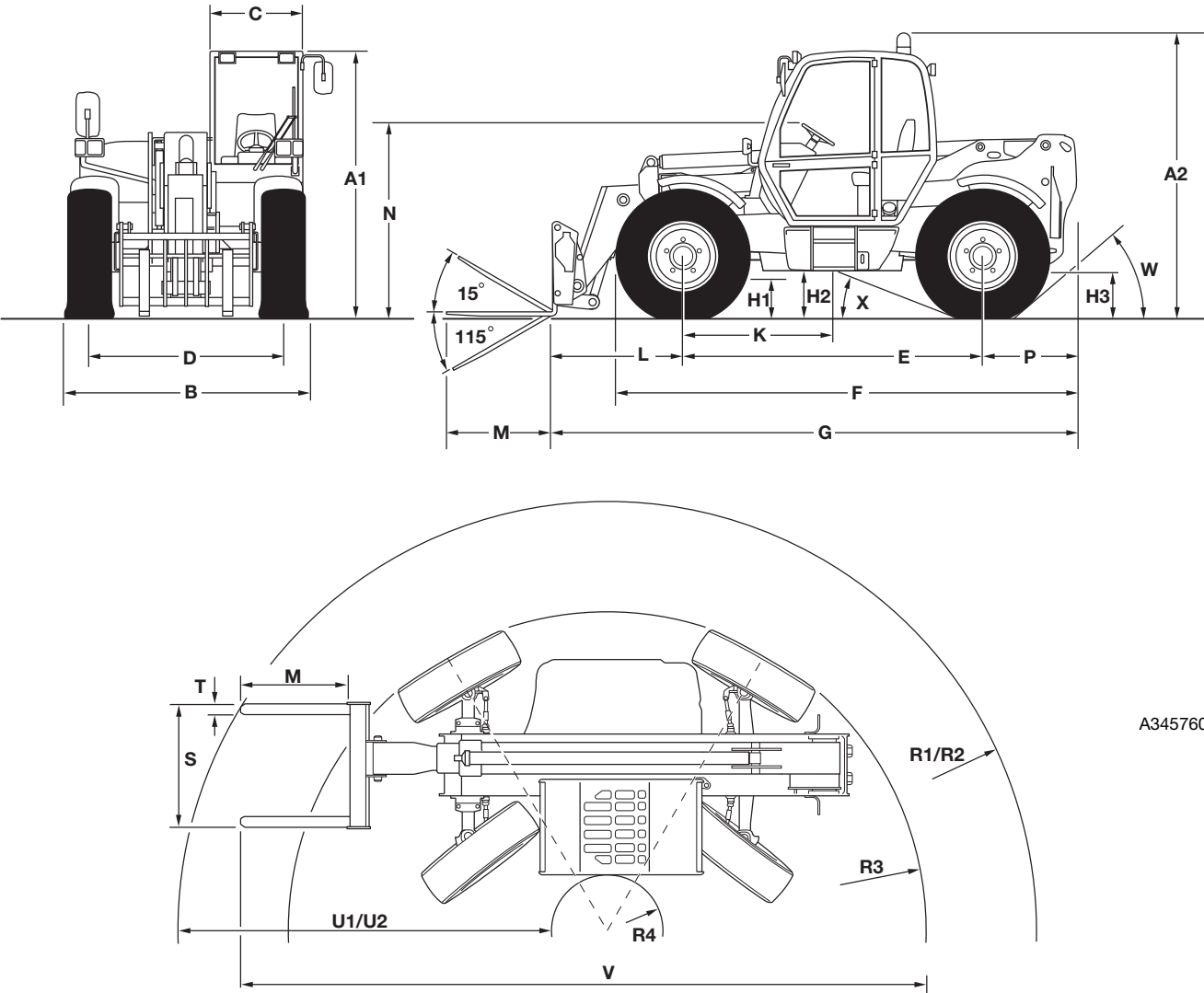
STATIC DIMENSIONS
530, 540-70



A264240

DESCRIPTION	DIMENSION	DIMENSION
	530	540-70
A Overall height	2480 mm (8ft 1 in)	2490 mm (8ft 2in)
B Overall width	2230 mm (7ft 1 in)	2290 mm (7ft 6in)
C Inside width of cab (between windows)	940 mm (3ft 1in)	940 mm (3ft 1in)
D Track	1794 mm (5ft 10in)	1870 mm (6ft 2in)
E Wheelbase	2750 mm (9ft 0in)	2750 mm (9ft 0in)
F Overall length to front tyres	4380 mm (14ft 4in)	4380 mm (14ft 4in)
G Overall length to front of carriage	4940 mm (16ft 2in)	4990 mm (16ft 4in)
H Ground clearance	390 mm (1ft 2in)	400 mm (1ft 4in)
K Centre of gravity (unladen)	1420 mm (4ft 8in)	1440 mm (4ft 9in)
Weight (unladen)	6475 kg (14,277 lb)	7400 kg (16,314 lb)

STATIC DIMENSIONS
535



DIMENSION

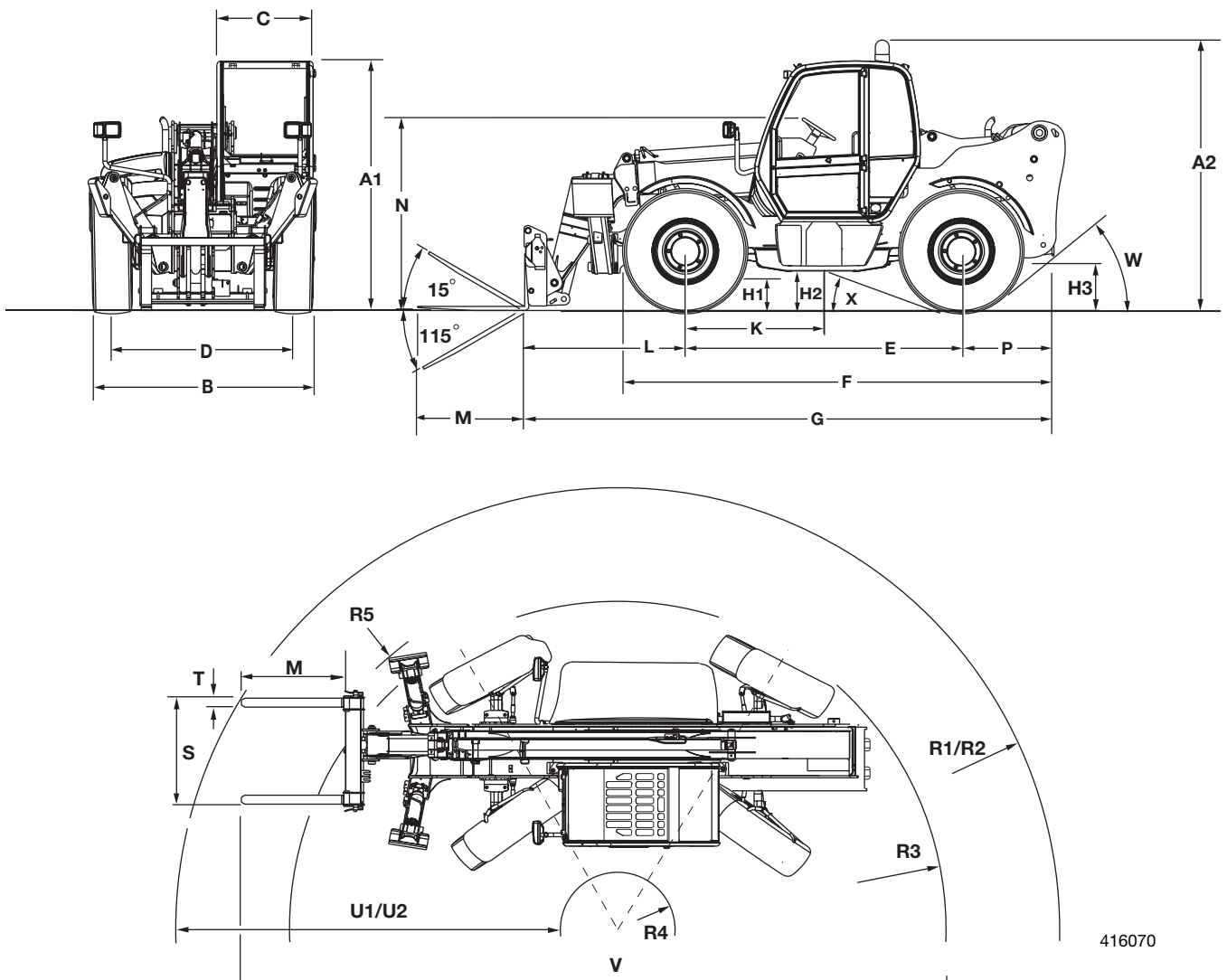
- A1** 2465 mm (8ft 1in)
- A2** 2630 mm (8ft 8in)
- B** 2290 mm (7ft 6in)
- C** 960 mm (3ft 2in)
- D** 1870 mm (6ft 2in)
- E** 2750 mm (9ft 0in)
- F** 4410 mm (14ft 6in) - without hitch
4520 mm (14ft 10in) - with hitch
- G** 4980 mm (16ft 4in)
- H1** 410 mm (1ft 5in)
- H2** 380 mm (1ft 4in)
- H3** 411 mm (1ft 5in)
- K** 1415 mm (4ft 8in) - Unladen
- L** 1200 mm (3ft 11in)
- M** 1067 mm (3ft 6in)
1200 mm (3ft 11in)
- N** 1830 mm (6ft)

DIMENSION

- P** 1030 mm (3ft 5in)
 - R1** 4585 mm (15 ft 1in) - 1067mm forks
 - R2** 4700 mm (15ft 5in) - 1200mm forks
 - R3** 3700 mm (12ft 2in)
 - R4** 1190 mm (3ft 11in)
 - S** 1226 mm (4ft)
 - T** 103 mm (4 in)
 - U1** 3395 mm (11ft 2in) - 1067mm forks
 - U2** 3510 mm (11 ft 6in) - 1200mm forks
 - V** 7290 mm (23ft 11in) - 1067mm forks
 - W** 30° with hitch
40° without hitch
 - X** 16.3°
- Weight (unladen) 7910 kg (17,438 lb)
- Machine tested with 445/70 R24 XM47 tyres

STATIC DIMENSIONS

533



416070

DIMENSION

A1	2465 mm (8ft 1in)
A2	2630 mm (8ft 8in)
B	2290 mm (7ft 6in)
C	960 mm (3ft 2in)
D	1870 mm (6ft 2in)
E	2750 mm (9ft 0in)
F	4410 mm (14ft 6in) - without hitch 4520 mm (14ft 10in) - with hitch
G	5384 mm (17ft 8in)
H1	410 mm (1ft 5in)
H2	380 mm (1ft 4in)
H3	411 mm (1ft 5in)
K	1415 mm (4ft 8in) - Unladen
L	1600 mm (5ft 3in)
M	1067 mm (3ft 6in) 1200 mm (3ft 11in)
N	1830 mm (6ft)

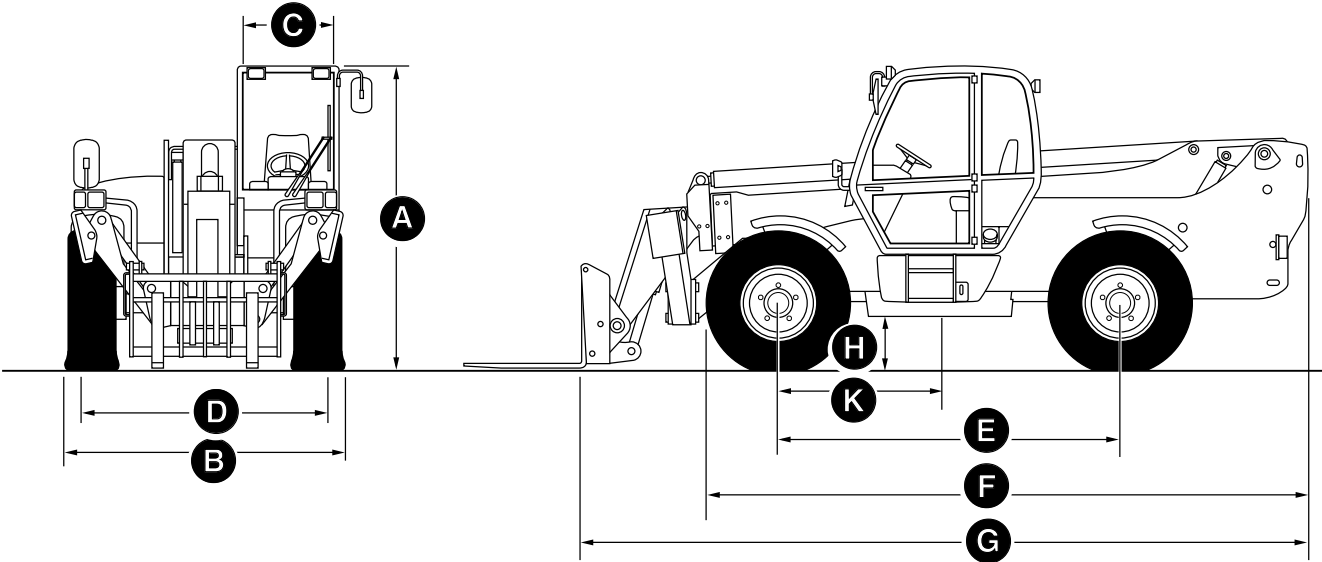
DIMENSION

P	1030 mm (3ft 5in)
R1	4750 mm (15 ft 7in) - 1067mm forks
R2	4864 mm (16ft 0in) - 1200mm forks
R3	3700 mm (12ft 2in)
R4	1190 mm (3ft 11in)
R5	4040 mm (13ft 3in)
S	1226 mm (4ft)
T	103 mm (4 in)
U1	3560 mm (11ft 8in) - 1067mm forks
U2	3674 mm (12 ft 1in) - 1200mm forks
V	7640 mm (25ft 1in) - 1067mm forks
W	30° with hitch 40° without hitch
X	16.3°

Weight (unladen) 8650 kg (19,070 lb)

Machine tested with 15.5/80 x 24 tyres

STATIC DIMENSIONS
532, 537 & 540-170



A264250

DESCRIPTION	DIMENSION	DIMENSION	DIMENSION
	532	537	540-170
A Overall height	2580 mm (8ft 5in)	2580 mm (8ft 5in)	2690mm (8ft 10in)
B Overall width	2350 mm (7ft 8in)	2350 mm (7ft 8in)	2440mm (8ft 0in)
C Inside width of cab (between windows)	940 mm (3ft 1in)	940 mm (3ft 1in)	940mm (3ft 1in)
D Track	1900 mm (6ft 2in)	1900 mm (6ft 2in)	1900mm (6ft 3in)
E Wheelbase	2750 mm (9ft 0in)	2900 mm (9ft 5in)	2750mm (9ft 0in)
F Overall length to front tyres	4830 mm (15ft 10in)	5180 mm (17ft 0in)	5000mm (16ft 5in)
G Overall length to front of carriage	5800mm (19ft 0in)	6190 mm (20ft 3in)	6280mm (20ft 7in)
H Ground clearance	390 mm (1ft 2in)	390 mm (1ft 2in)	400mm (1ft 4in)
K Centre of gravity (unladen)	1380 mm (4ft 6in)	1660 mm (5ft 5in)	1600mm (5ft 3in)
Weight (unladen)	9430 kg (20,793 lbs)	10,600 kg (23,373 lbs)	12,160 kg (26,807 lbs)

PERFORMANCE DIMENSIONS

Forklift Performance

530

535

540-70

Maximum lift capacity	3000 kg (6,615 lb)	3500 kg (7,716 lb)	4000 kg (8,818 lb)
Lift capacity to full height	2400 kg (5,291 lb)	1750 kg (3,858 lb)	2500 kg (5,511 lb)
Lift capacity at maximum reach	1250 kg (2,756 lb)	600 kg (1,323 lb)	1500 kg (3,307 lb)
Maximum lift height	7000 mm (22ft 9in)	9500 mm (31ft 2in)	7000 mm (22ft 8in)
Reach at maximum lift height	480 mm (1ft 6in)	2430 mm (7ft 11in)	480 mm (1ft 6in)
Maximum forward reach	3700mm (12ft 2in)	6520 mm (21ft 5in)	3700 mm (12ft 2in)
Reach with 1 tonne load	3700mm (12ft 2in)	5290 mm (17ft 4in)	3700 mm (12ft 2in)

Based on 500 mm (20 in) Load Centre. See Load Charts.

Forklift Performance Stabilizers Down

532

533

537

Maximum lift capacity	3200 kg (7,056 lb)	3300 kg (7275 lb)	3700 kg (8158 lb)
Lift capacity to full height	3200 kg (7,056 lb)	3300 kg (7275 lb)	3700 kg (8158 lb)
Lift capacity at maximum reach	1250 kg (2,756 lb)	1000 kg (2204 lb)	1500 kg (3,307 lb))
Maximum lift height	12000 mm (39ft 4 in)	10210 mm (33ft 6in)	13500 mm (44ft 3in)
Reach at maximum lift height	1450 mm (4ft 9 in)	1910 mm (6ft 3in)	1680 mm (5ft 5in)
Maximum forward reach	8010 mm (26ft 3in)	6835 mm (22ft 5in)	9250 mm (30ft 3in)
Reach with 1 tonne load	8010 mm (26ft 3in)	6835 mm (22ft 5in)	9250 mm (30ft 3in)

Based on 500 mm (20 in) Load Centre. See Load Charts.

540-170

Maximum lift capacity	4000 kg (8818 lbs)
Lift capacity to full height	2500 kg (5511 lbs)
Lift capacity at maximum reach	500 kg (1102 lbs)
Maximum lift height	16700mm (54ft 9in)
Reach at maximum lift height	3120mm (10ft 3in)
Maximum forward reach	12570mm (41ft 3in)
Reach with 1 tonne load	8600 mm (28ft 3in)

Based on 500 mm (20 in) Load Centre. See Load Charts.

Maximum Wading Depth

The maximum wading depth of these machines is 400mm (16in). Water can enter the engine and axles and the cooling fan can be damage if the machine is operated in deeper water.

AXLE WEIGHT DISTRIBUTION

	UNLADEN			LADEN			Max. Lift Capacity (kg)
	Front Axle Load (kg)	Rear Axle Load (kg)	Machine Weight (kg)	Front Axle Load (kg)	Rear Axle Load (kg)	Machine weight (kg)	
530-70	3280	3580	6860	8351	1509	9806	3000
535-95	3500	4420	7920	9416	2004	11420	3500
540-70	3600	3970	7570	10259	1311	11570	4000
532-120 Sway & Stabilizers	4680	4690	9370	10585	1985	12570	3200
532-120 Stabilizers Only	4360	4490	8850	10265	1785	12050	3200
533-105	4510	4140	8650	10555	1530	12085	3300
537-135	4460	5860	10320	11167	2853	14020	3700
540-170	5090	7100	12190	12788	3402	16190	4000

Note: The figures stated above are measured with the boom horizontal and in the retracted position with the forks horizontal, and no operator.

Conversion: 1 kg = 2.2 lb

ENGINE EMISSIONS (AR, AK & AM Engine Builds)

Stage 1: g/kW-hr

hp	kW	CO	HC	NOx	PM
50 - 100	37 - 75	6.50	1.30	9.20	0.85
100 - 174	75 - 130	5.00	1.30	9.20	0.70

Emission figures are determined in accordance with European Directive 97/98/EC and US Legislation Directive 40CFR Part 89.

To ensure engine emissions comply with the above regulations, it is important that routine services are carried out by an approved JCB Distributor at the recommended service intervals as specified in this handbook.

TYRES AND PRESSURES

Note: The maximum pressure embossed on the tyre may differ from the pressure stated below. Inflate to pressures below, these are agreed with the tyre manufacturer/s in accordance with the European Tyre and Rim Technical Organisation (ETRTO) standards to satisfy machine stability performance.

Note: If the tyres fitted to your machine are not listed, then contact your JCB Distributor for advice, DO NOT guess tyre pressures.

530, 530FS Plus (Not Super Models)

Size	Ply	Front		Rear		Type
		Bar	lbf/in ²	Bar	lbf/in ²	
17.5 LR 24	--	3.7	53	3.7	53	Traction
15.5/80 x 24	10	4.0	58	4.0	58	Sure Grip/Traction
15.5 - 25	12	4.0	58	4.0	58	Industrial traction
12.00 R24 X MINE D2	--	4.0	58	4.0	58	

533, 535, 540-70, 540FS Plus (Not Super Models)

Size	Ply	Front		Rear		Type
		Bar	lbf/in ²	Bar	lbf/in ²	
15.5 - 25	12	4.0	58	4.0	58	Industrial traction
15.5/80 x 24	12	4.0	58	4.0	58	Sure Grip/Traction
445/70 R24 XM47	--	4.0	58	4.0	58	Traction
12.00 R24 X MINE D2	--	4.0	58	4.0	58	

IMPORTANT: - Ensure the correct tyres are fitted and inflate to the recommended pressures before towing with a 535 Machine. Check the load chart in the cab for the correct tyre and pressure. Contact your JCB Distributor for advice if necessary.

530FS Super, 540FS Super

Size	Ply	Front		Rear		Type
		Bar	lbf/in ²	Bar	lbf/in ²	
440/70 R24 XM37	--	3.7	53	3.7	53	Traction
445/70 R24 XM47	--	4.0	58	4.0	58	Traction
500/70 R24 XM37	--	3.7	53	3.7	53	Traction

Note: Because of the increased road speed, tyre options for 'Super' machines differ from standard 530 and 540 machines.

TYRES AND PRESSURES (continued)

Note: The maximum pressure embossed on the tyre may differ from the pressure stated below. Inflate to pressures below, these are agreed with the tyre manufacturer/s in accordance with the European Tyre and Rim Technical Organisation (ETRTO) standards to satisfy machine stability performance.

Note: If the tyres fitted to your machine are not listed, then contact your JCB Distributor for advice, DO NOT guess tyre pressures.

532		Front		Rear		Type
Size	Ply	Bar	lbf/in ²	Bar	lbf/in ²	
15.5-25	12	4.0	58	4.0	58	Industrial Traction
16.5/85-24	14	4.0	58	4.0	58	Sure Grip/Traction
15.5/80-24	12/16	4.0	58	4.0	58	Sure Grip/Traction
15.5 R 25 (L2/L3)		4.5	65	4.5	65	
12.00 R 24 (L5)		5.8	84	5.8	84	

537		Front		Rear		Type
Size	Ply	Bar	lbf/in ²	Bar	lbf/in ²	
15.5-25	12	4.0	58	4.0	58	Industrial Traction
17.5-25	12	4.0	58	4.0	58	
16.5/85-24	14	4.0	58	4.0	58	Sure Grip/Traction
15.5/80-24	16	4.0	58	4.0	58	Sure Grip/Traction
15.5 R 25 (L2/L3)		4.5	65	4.5	65	

540-170		Front		Rear		Type
Size	Ply	Bar	lbf/in ²	Bar	lbf/in ²	
15.5-25	12	4.5	65	4.5	65	Industrial Traction
17.5-25	12	4.5	65	4.5	65	
16.5/85-24	14	4.5	65	4.5	65	Sure Grip/Traction
15.5/80-24	16	4.5	65	4.5	65	Sure Grip/Traction
15.5 R 25 (L2/L3)		4.5	65	4.5	65	

NOISE AND VIBRATION DATA

JCB Diesel Engines - Type AA and AB Builds

NATURALLY ASPIRATED	530	540-70	532	537
NOISE				
Noise Level at Operator's Ear (LpA)	79	79	77	79
External Noise Level (LwA)	104	104	107	108
VIBRATION				
Weighted rms acceleration: Whole Body (m/s ²)	1.09	1.09	1.25	1.25
Weighted rms acceleration: Hand/Arm (m/s ²)	<2.5	<2.5	<2.5	<2.5
TURBO CHARGED	530	540-70	532	537
NOISE				
Noise Level at Operator's Ear (LpA)	77	78	78	77
External Noise Level (LwA)	103	101	103	103
VIBRATION				
Weighted rms acceleration: Whole Body (m/s ²)	1.09	1.09	1.25	1.25
Weighted rms acceleration: Hand/Arm (m/s ²)	<2.5	<2.5	<2.5	<2.5

JCB Diesel Engines - Type AR and AK Builds

NATURALLY ASPIRATED	530	533	535	540-70	532	537	
NOISE							
Noise Level at Operator's Ear (LpA)	79	79	79	79	77	79	
External Noise Level (LwA)	104	104	104	104	107	108	
VIBRATION							
Weighted rms acceleration: Whole Body (m/s²)	1.09	1.09	1.09	1.09	1.25	1.25	
Weighted rms acceleration: Hand/Arm (m/s²)	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
TURBO CHARGED	530	533	535	540-70	532	537	540-170
NOISE							
Noise Level at Operator's Ear (LpA)	77	78	78	78	78	77	80
External Noise Level (LwA)	103	101	101	101	103	103	102
VIBRATION							
Weighted rms acceleration: Whole Body (m/s²)	1.09	1.09	1.09	1.09	1.25	1.25	0.7
Weighted rms acceleration: Hand/Arm (m/s²)	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5

NOISE AND VIBRATION DATA

JCB Diesel Engines - Type AM Builds

TURBO CHARGED & INTERCOOLED	530FS Plus	540FS Plus	530FS Super	540FS Super
NOISE				
Noise Level at Operator's Ear (LpA)	77	77	77	77
External Noise Level (LwA)	103	103	103	103
VIBRATION				
Weighted rms acceleration: Whole Body (m/s ²)	1.09	1.09	1.09	1.09
Weighted rms acceleration: Hand/Arm (m/s ²)	<2.5	<2.5	<2.5	<2.5

Noise figures are determined in accordance with dynamic test conditions defined in prEN 12053 Category 10.

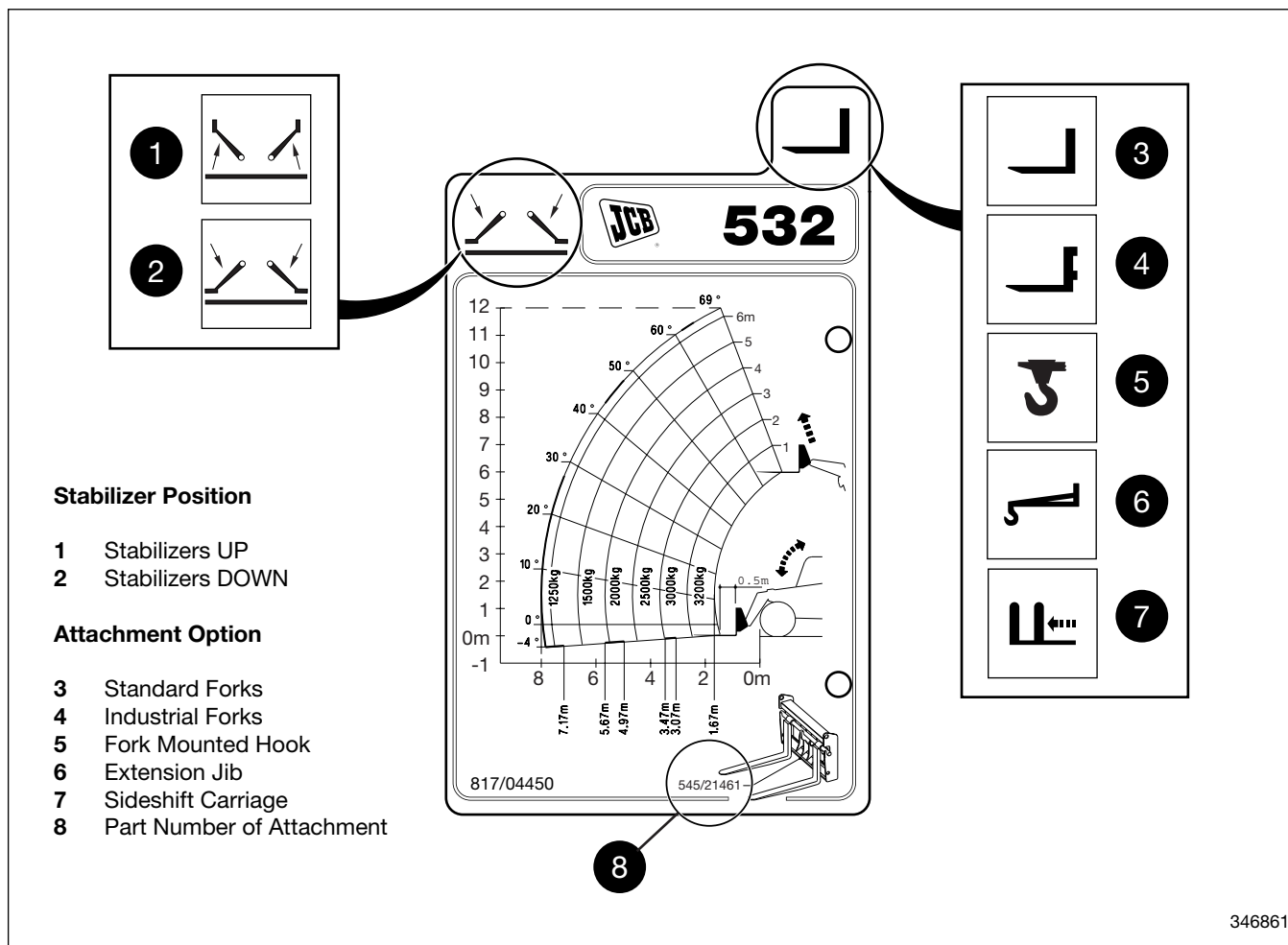
Vibration figures are 'Average Equivalent Values' determined from measurement on machines performing typical duties detailed below, with values weighted in accordance with ISO 2631. The figures are determined from measurements in three perpendicular planes.

All Values are determined with standard forks fitted to the machine. For information relating to this machine when used with other JCB approved attachments, please refer to the literature accompanying the attachments.

Typical duties for Loadall machine:

- Roading (Tarmac)
- Roading (Rough Terrain)
- Loading cycles

LOAD CHARTS



346861

Introduction

The Load Chart shows how far you can raise and extend a load without exceeding the Safe Working Load (SWL). Each model has its own Load Chart for a standard fork carriage. Additional Load Charts are shown for use when certain attachments are fitted to the boom. See **Using The Load Charts And Boom Indicators** (OPERATION section).

Check the relevant load chart is available for any alternative carriage or attachment. Where appropriate, the load chart shows the part number 8 of the carriage or attachment it refers to. If you are unsure of the correct load chart to use, contact your JCB distributor for advice.

Always refer to the load charts in the cab of the machine before lifting or placing loads.

⚠ CAUTION

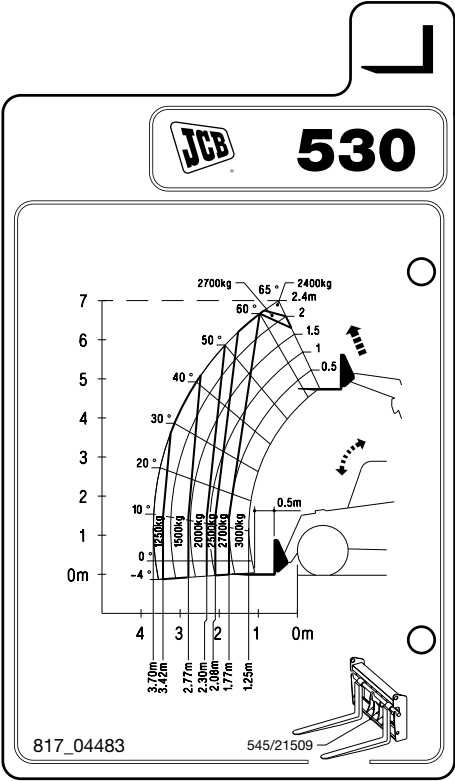
The limits shown on the Load Charts are for a stationary level machine. Do not raise or extend the boom while the machine is moving. Retract the boom fully and lower it as far as possible before travelling with a load.

5-2-4-3/1

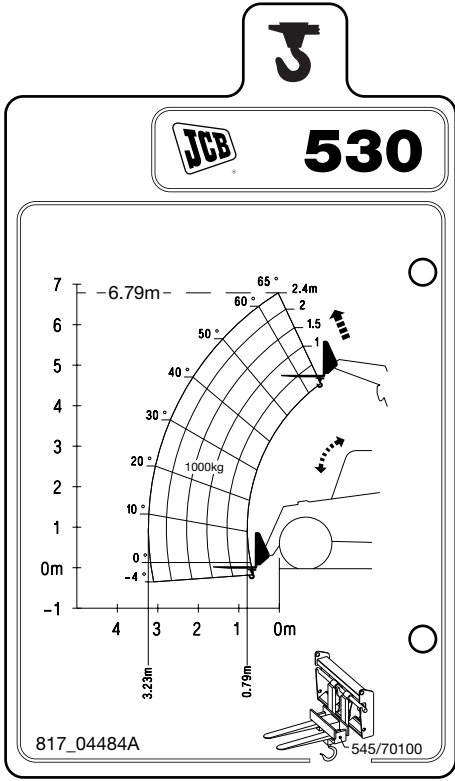
LOAD CHARTS
(continued)

530 Machines

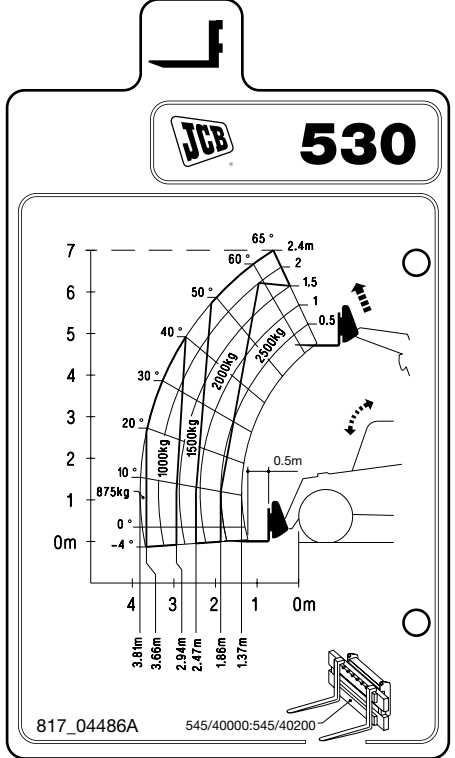
Standard Forks



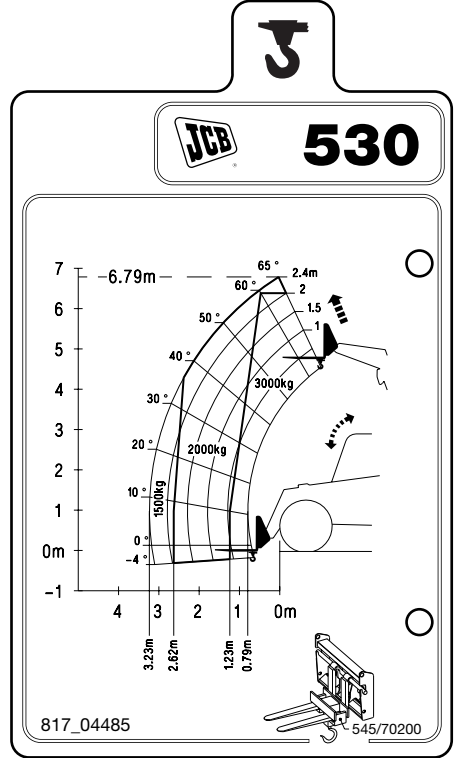
Fork Mounted Hook (UK Only)



Industrial Forks



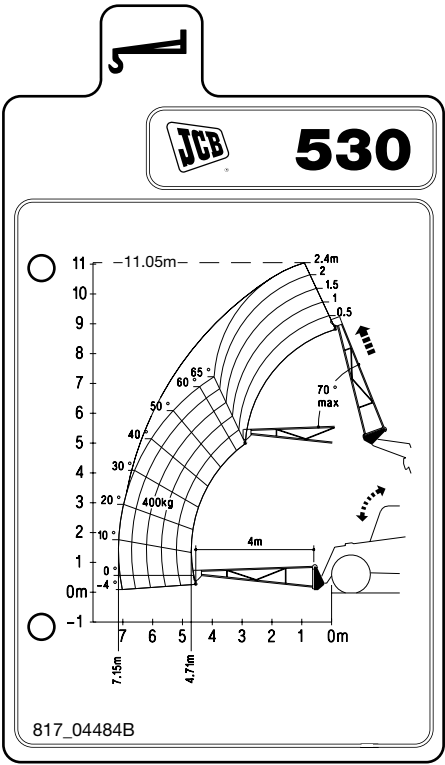
Fork Mounted Hook (Not UK)



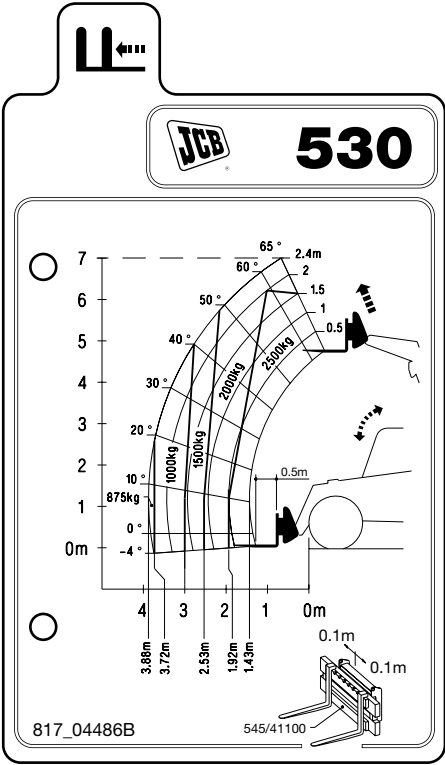
LOAD CHARTS
(continued)

530 Machines (continued)

Extension Jib (UK Only)



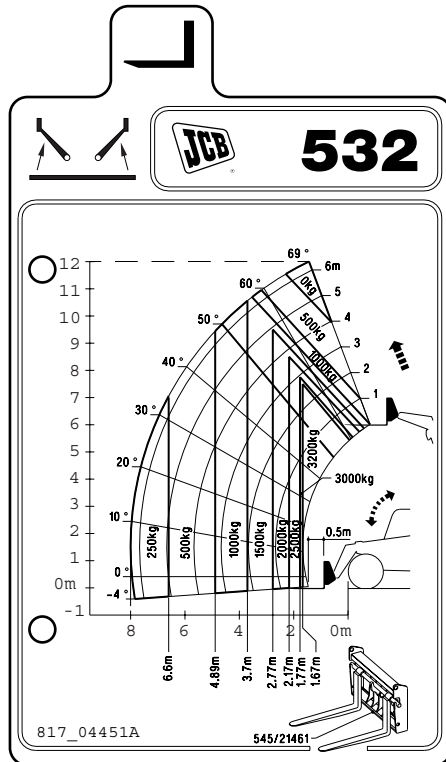
Sideshift Carriage (UK Only)



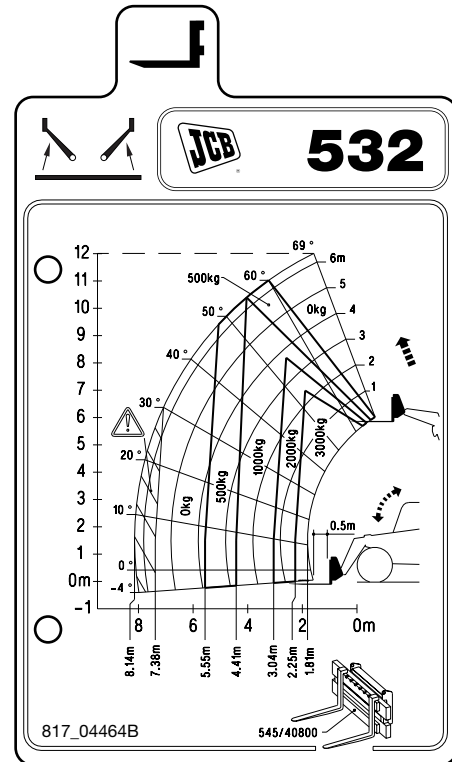
LOAD CHARTS (continued)

532 Non Sway Machines

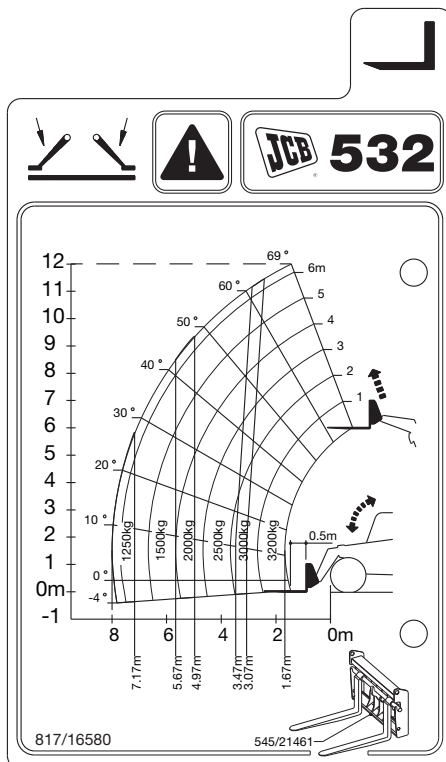
Standard Forks (Stabilisers Up)



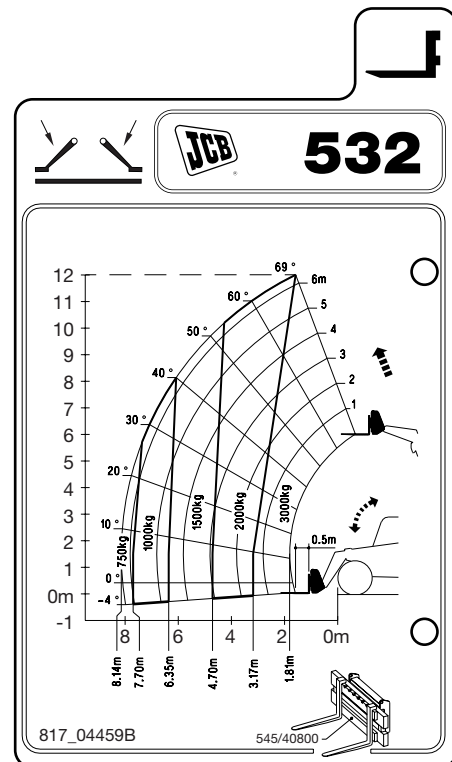
Industrial Forks (Stabilisers Up)



Standard Forks (Stabilisers Down)



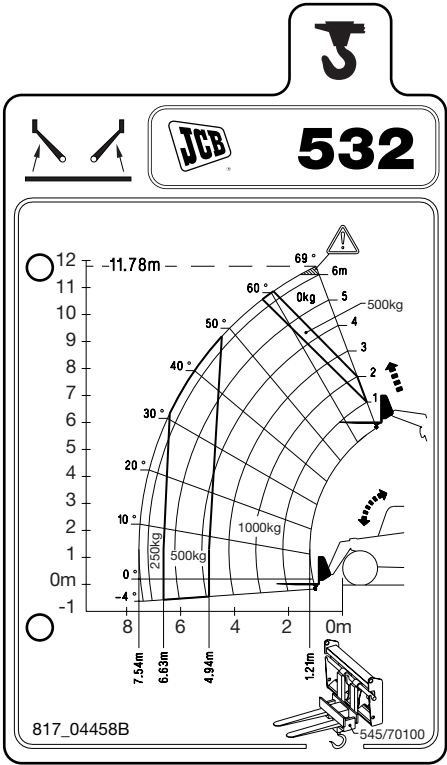
Industrial Forks (Stabilisers Down)



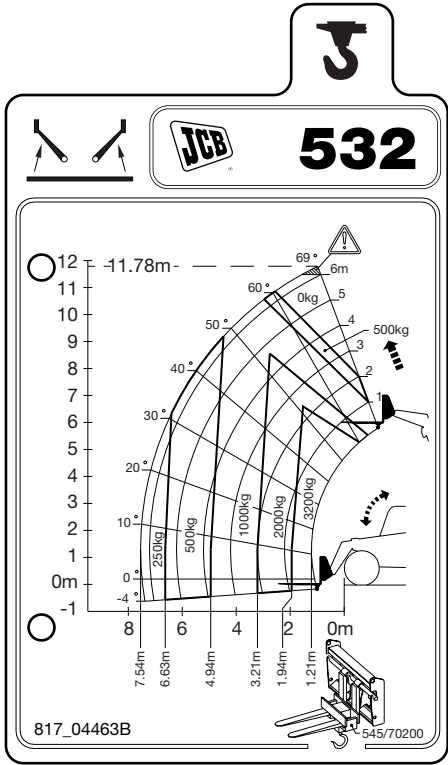
LOAD CHARTS
(continued)

532 Non Sway Machines (continued)

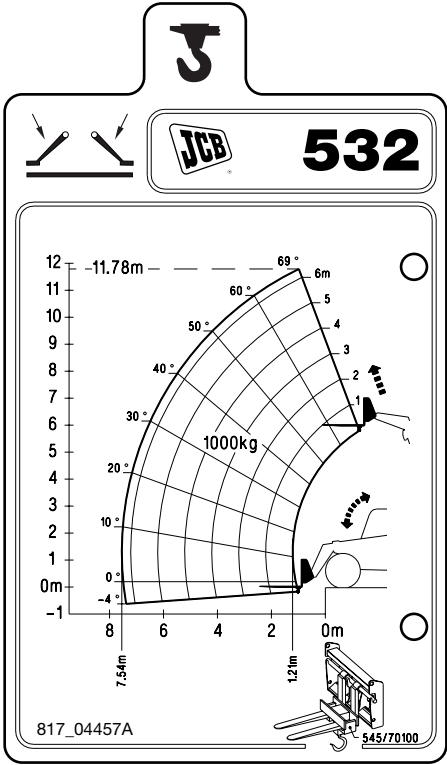
Fork Mounted Hook - UK Only (Stabilisers Up)



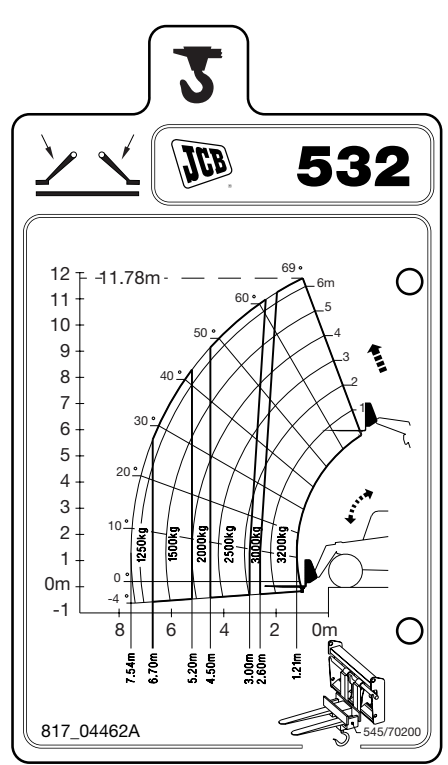
Fork Mounted Hook - Not UK (Stabilisers Up)



Fork Mounted Hook - UK Only (Stabilisers Down)



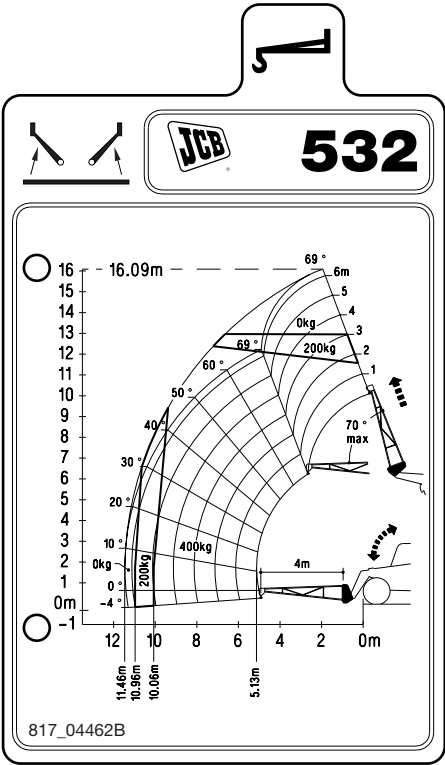
Fork Mounted Hook - Not UK (Stabilisers Down)



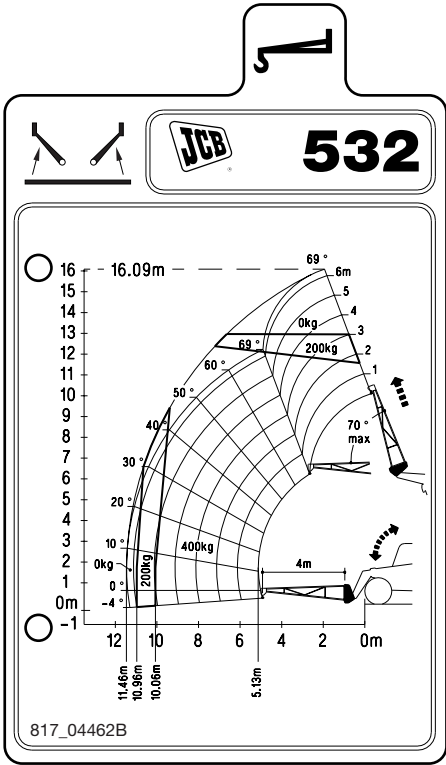
LOAD CHARTS
(continued)

532 Non Sway Machines (continued)

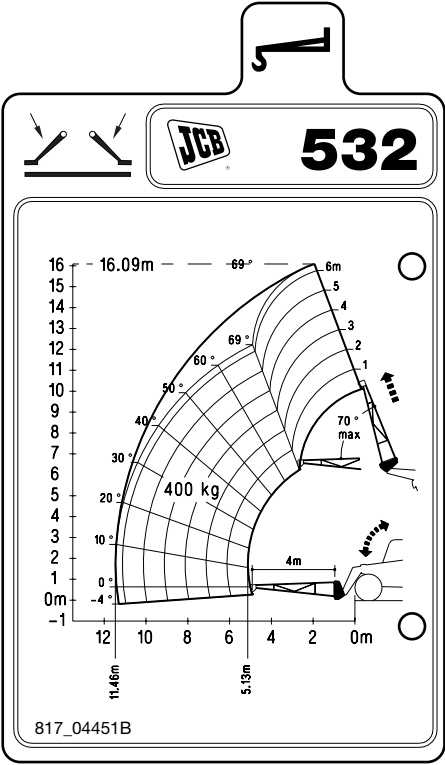
Extension Jib - UK Only (Stabilisers Up)



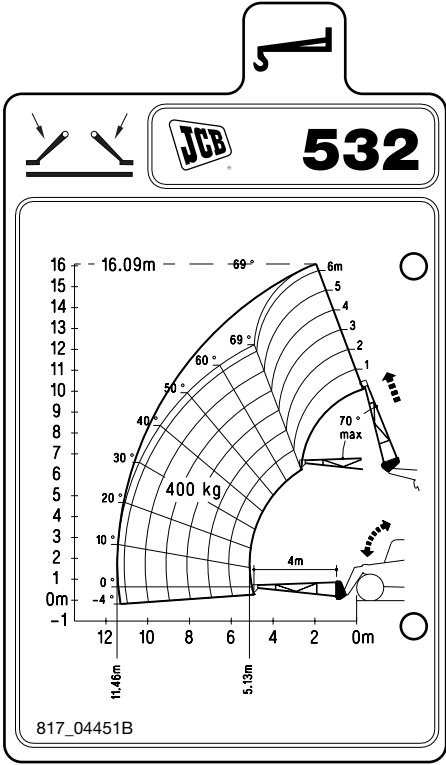
Extension Jib - Not UK (Stabilisers Up)



Extension Jib - UK Only (Stabilisers Down)



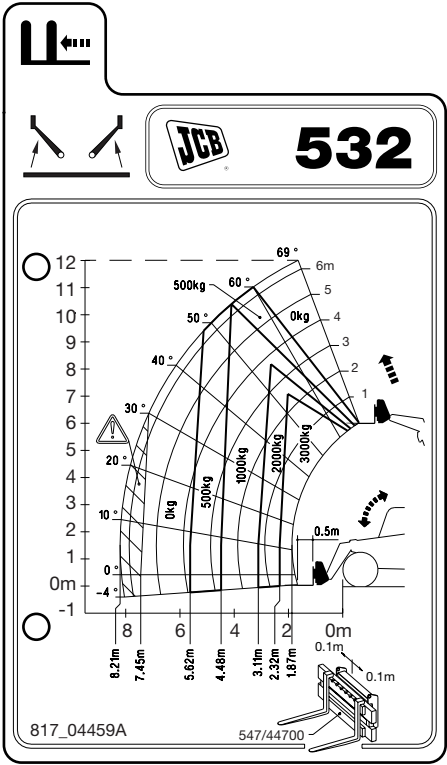
Extension Jib - Not UK (Stabilisers Down)



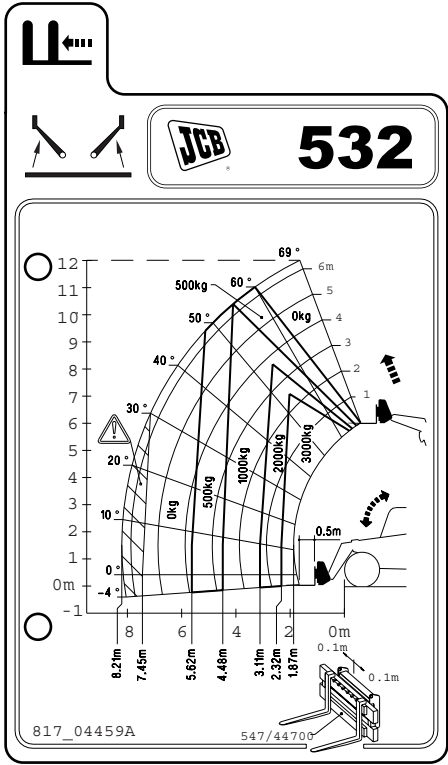
LOAD CHARTS
(continued)

532 Non Sway Machines (continued)

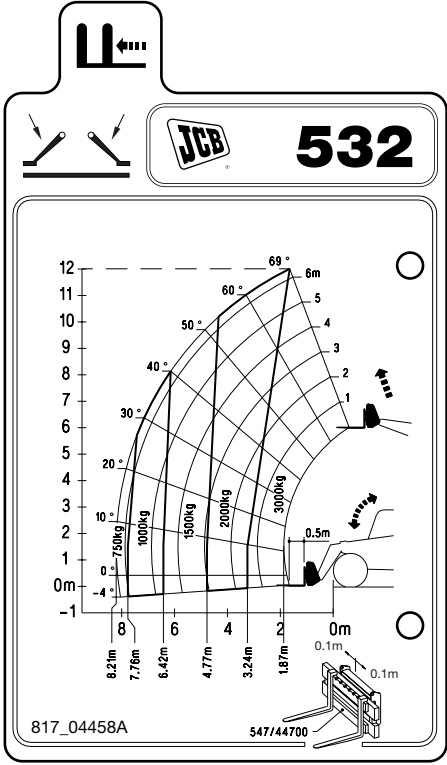
Sideshift Carriage - UK Only (Stabilisers Up)



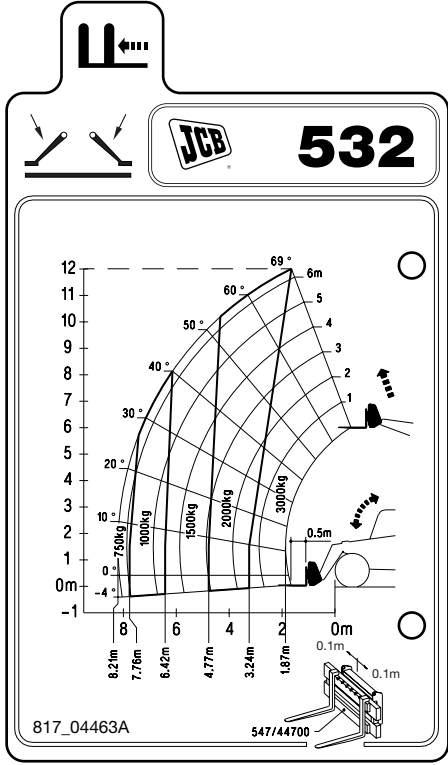
Sideshift Carriage - Not UK (Stabilisers Up)



Sideshift Carriage - UK Only (Stabilisers Down)



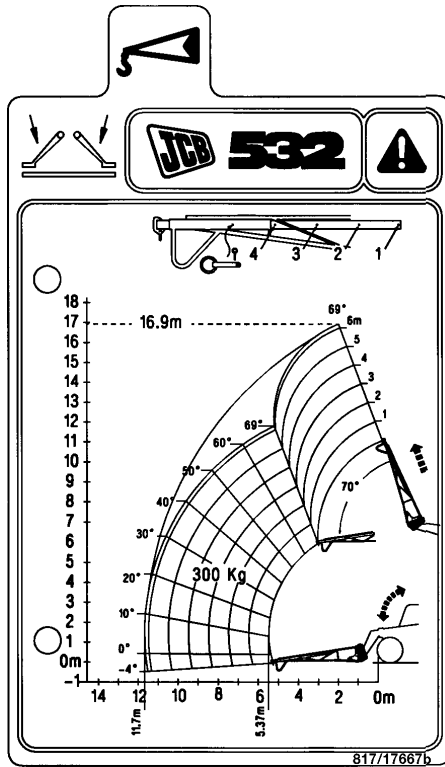
Sideshift Carriage - Not UK (Stabilisers Down)



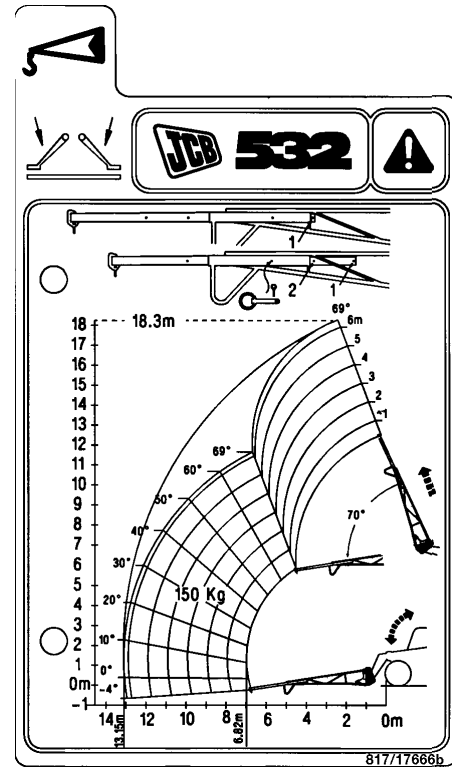
LOAD CHARTS

532 Non Sway Machines (continued)

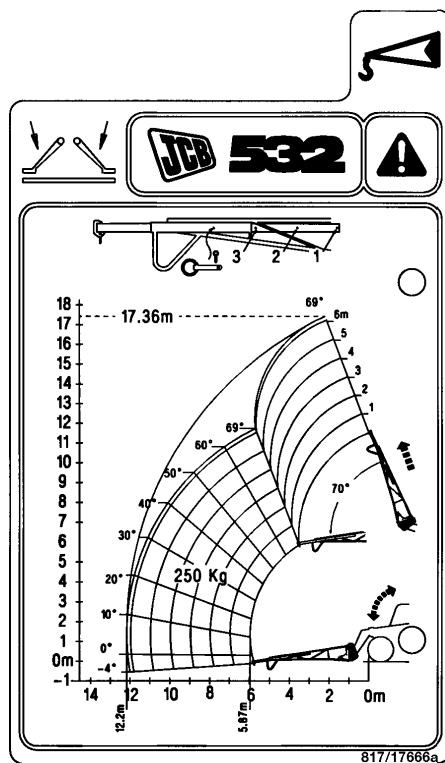
Roof Truss Boom - Position 1 (Fully Retracted)



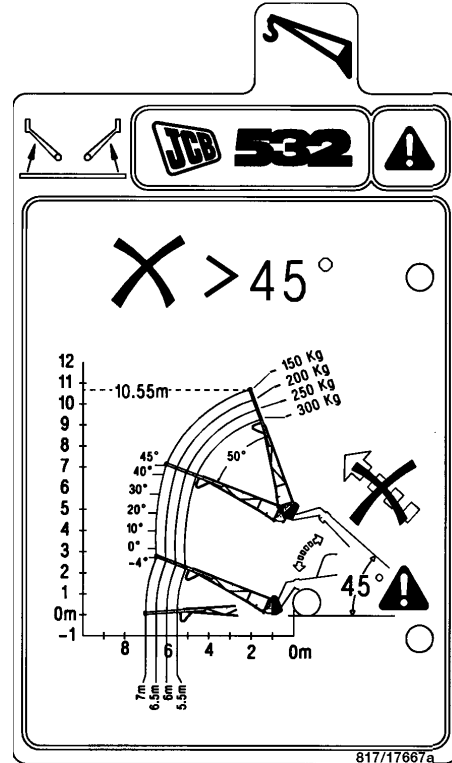
Roof Truss Boom - Positions 3 and 4



Roof Truss Boom - Position 2



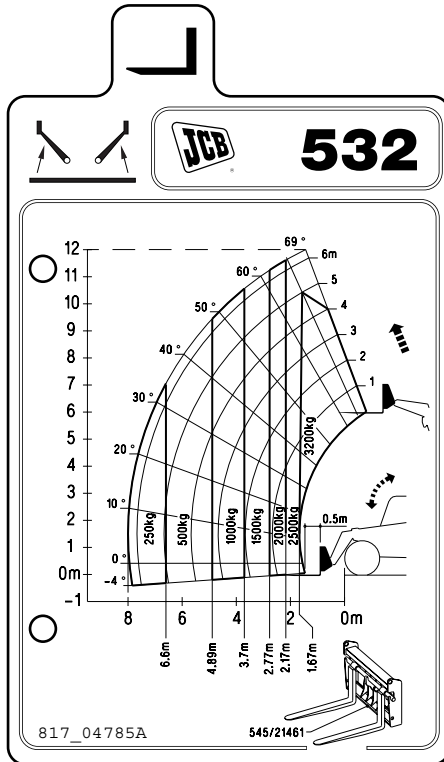
Roof Truss Boom - Boom Travel Limits



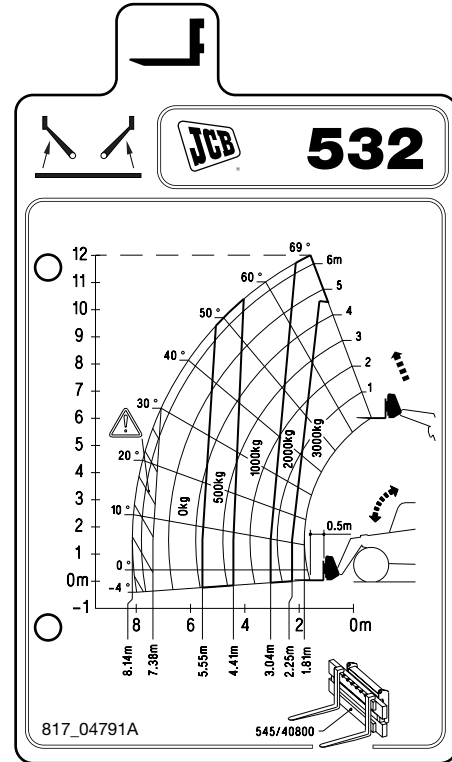
LOAD CHARTS (continued)

532 Sway Machines

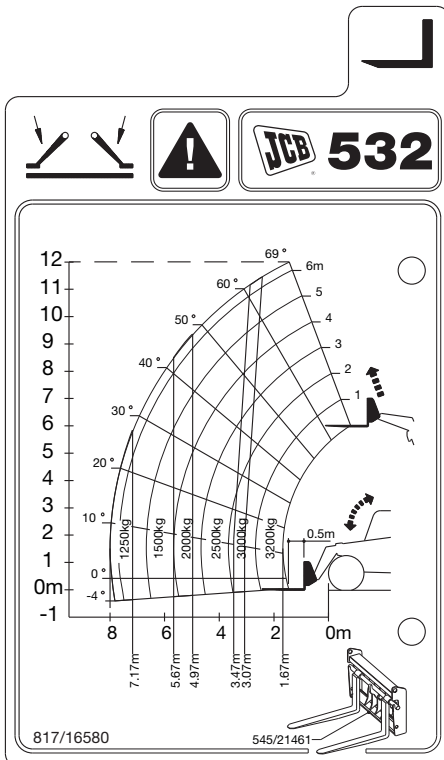
Standard Forks (Stabilisers Up)



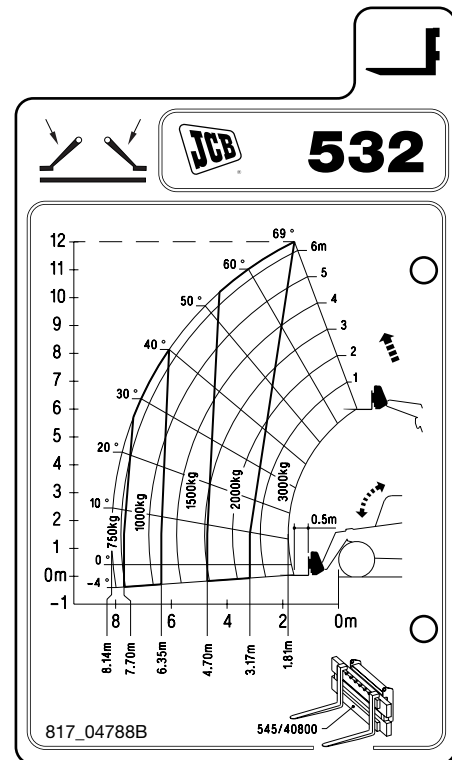
Industrial Forks (Stabilisers Up)



Standard Forks (Stabilisers Down)



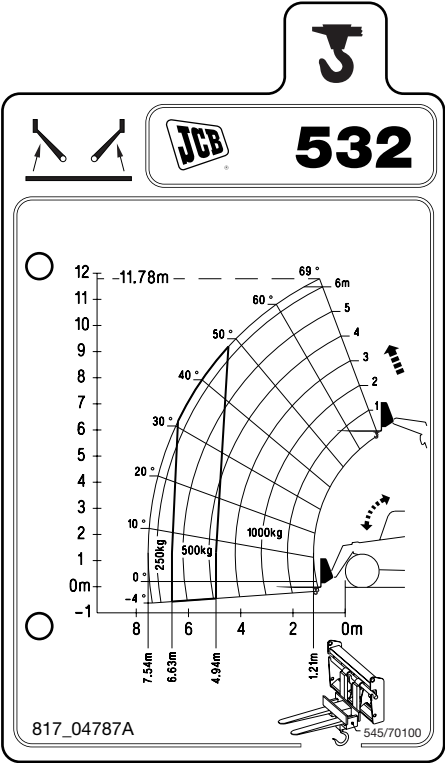
Industrial Forks (Stabilisers Down)



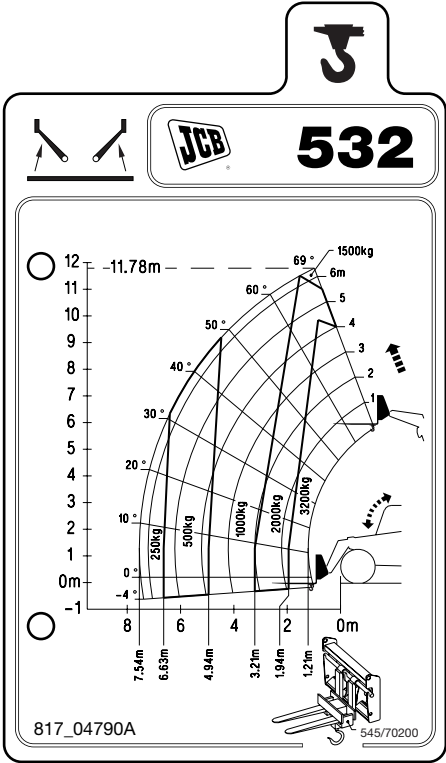
LOAD CHARTS
(continued)

532 Sway Machines (continued)

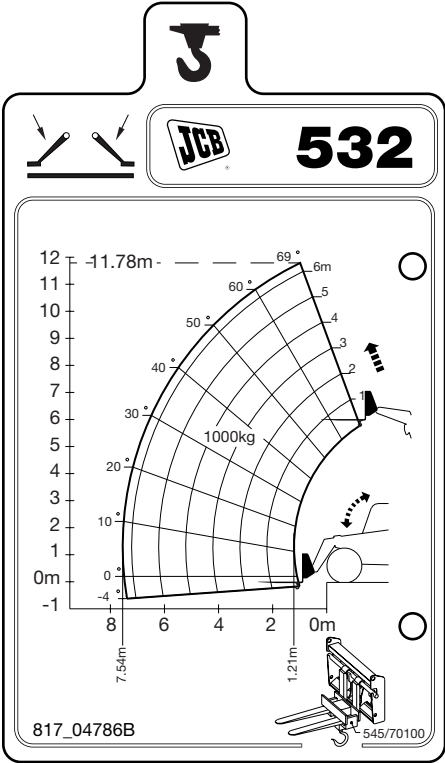
Fork Mounted Hook - UK Only (Stabilisers Up)



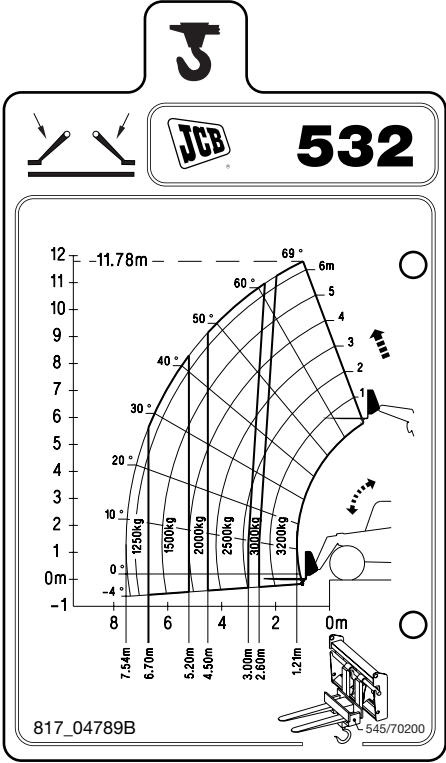
Fork Mounted Hook - Not UK (Stabilisers Up)



Fork Mounted Hook - UK Only (Stabilisers Down)



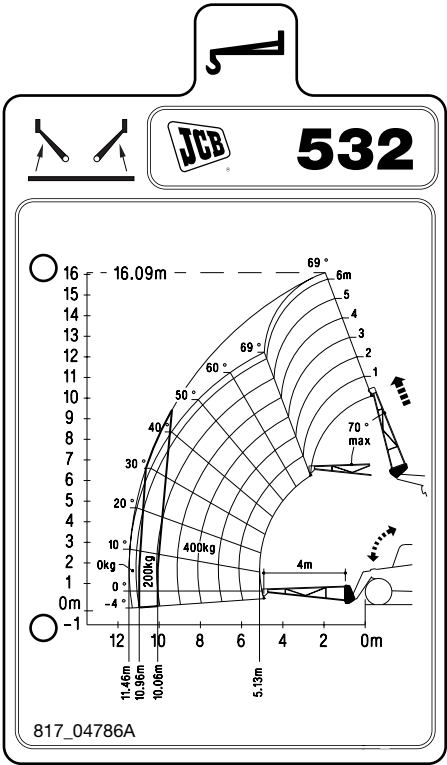
Fork Mounted Hook - Not UK (Stabilisers Down)



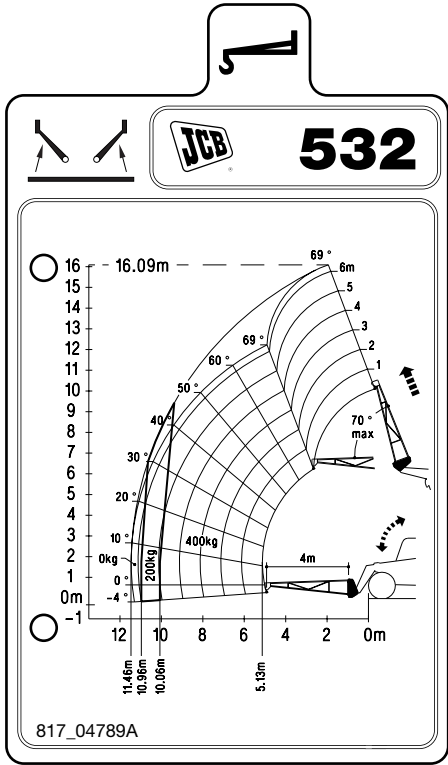
LOAD CHARTS
(continued)

532 Sway Machines (continued)

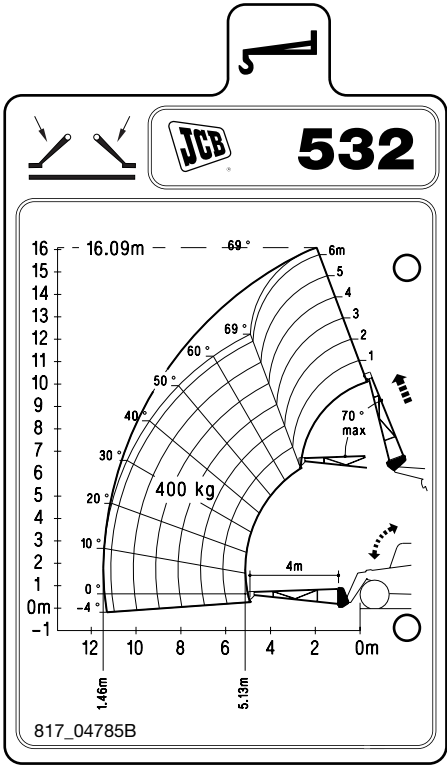
Extension Jib - UK Only (Stabilisers Up)



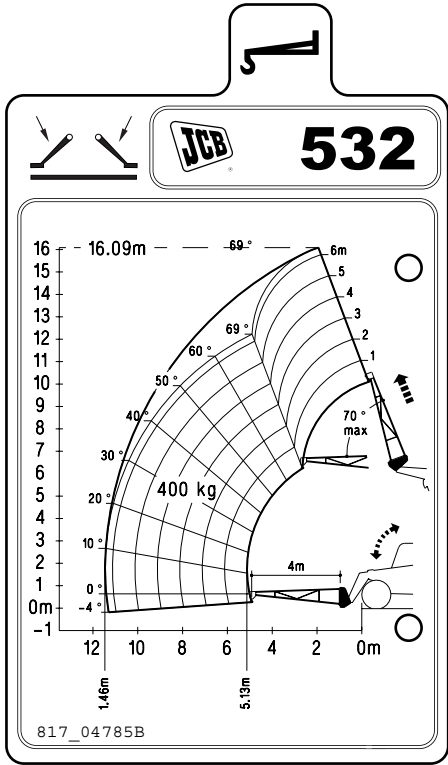
Extension Jib - Not UK (Stabilisers Up)



Extension Jib - UK Only (Stabilisers Down)



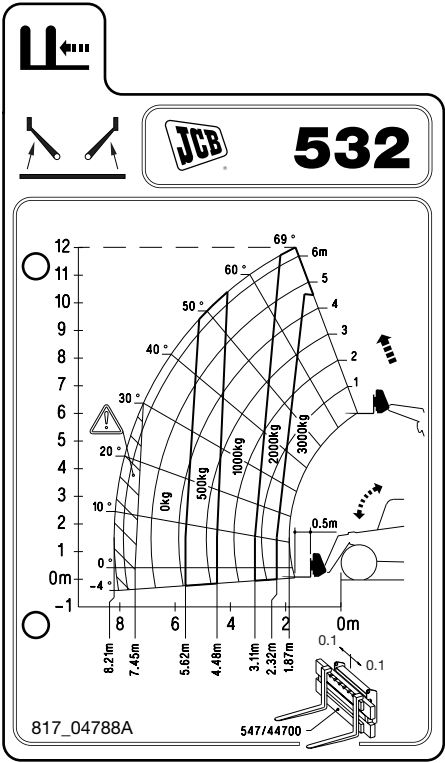
Extension Jib - Not UK (Stabilisers Down)



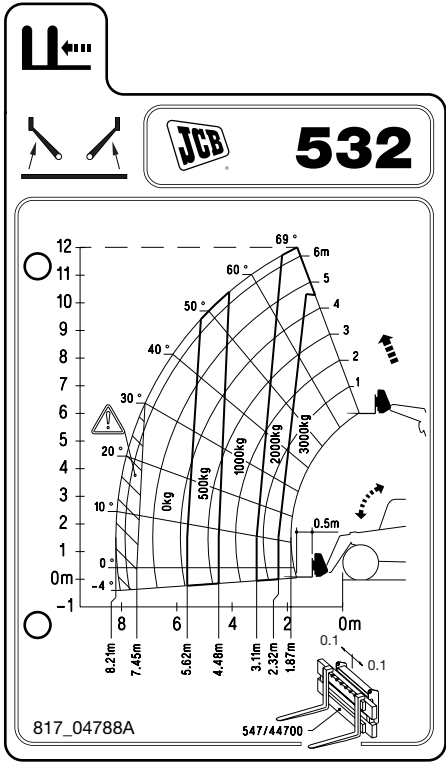
LOAD CHARTS
(continued)

532 Sway Machines (continued)

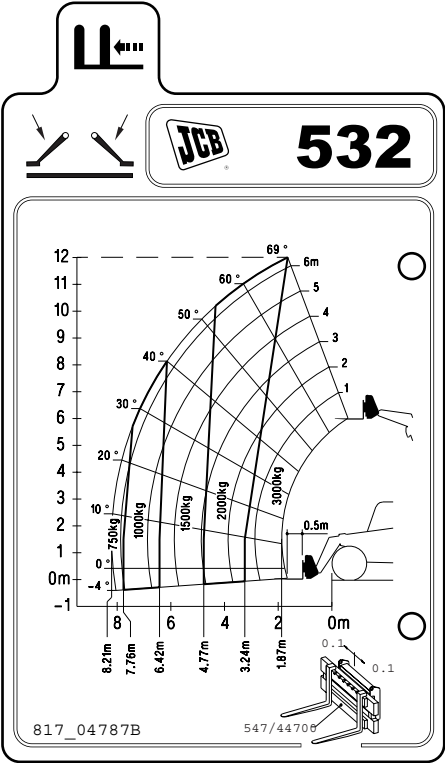
Sideshift Carriage - UK Only (Stabilisers Up)



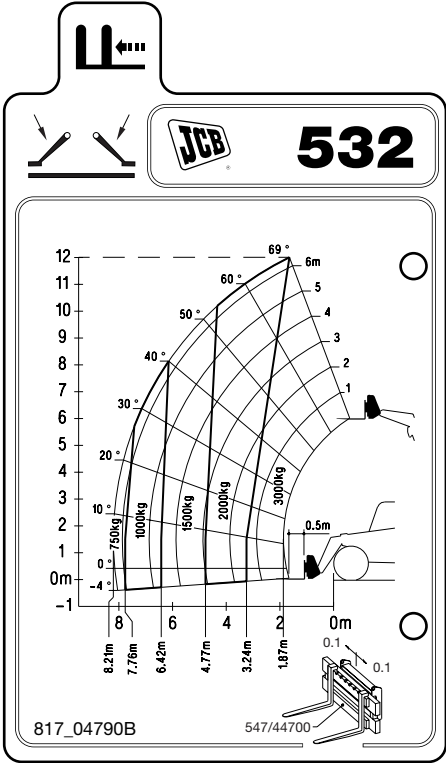
Sideshift Carriage - Not UK (Stabilisers Up)



Sideshift Carriage - UK Only (Stabilisers Down)



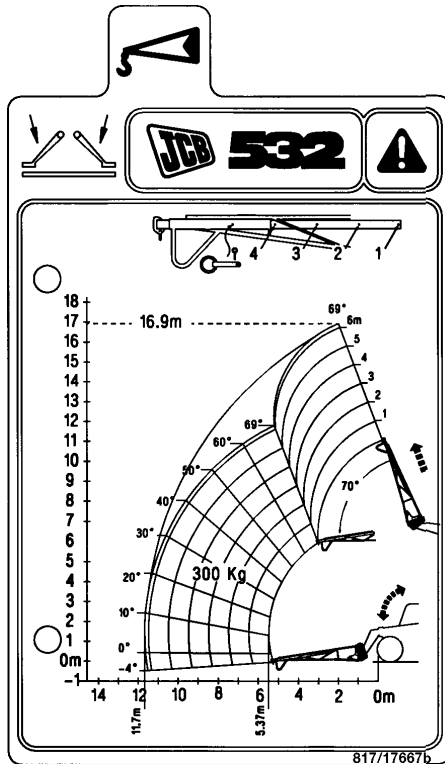
Sideshift Carriage - Not UK (Stabilisers Down)



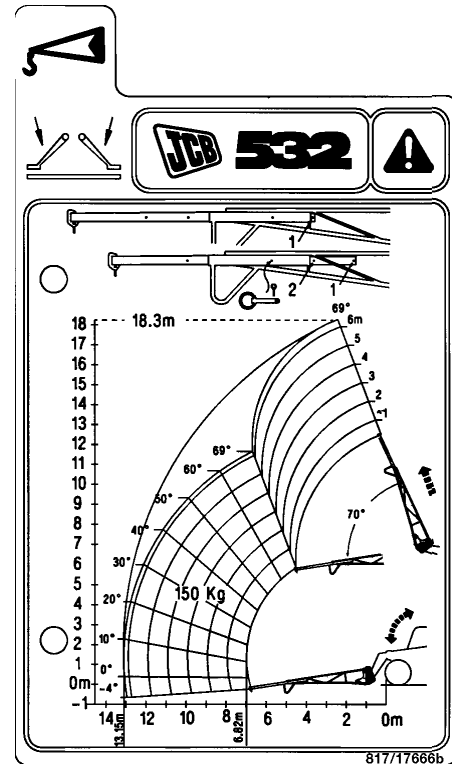
LOAD CHARTS

532 Sway Machines (continued)

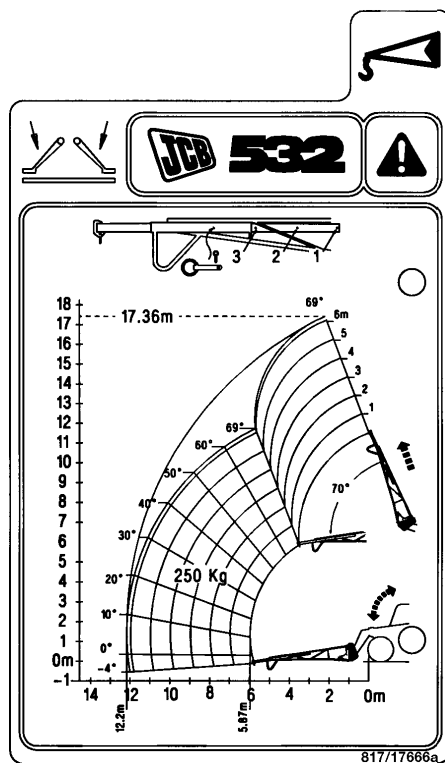
Roof Truss Boom - Position 1 (Fully Retracted)



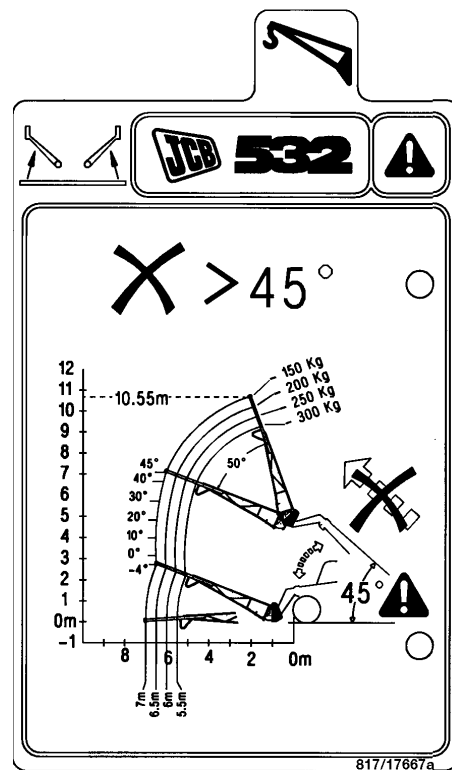
Roof Truss Boom - Positions 3 and 4



Roof Truss Boom - Position 2



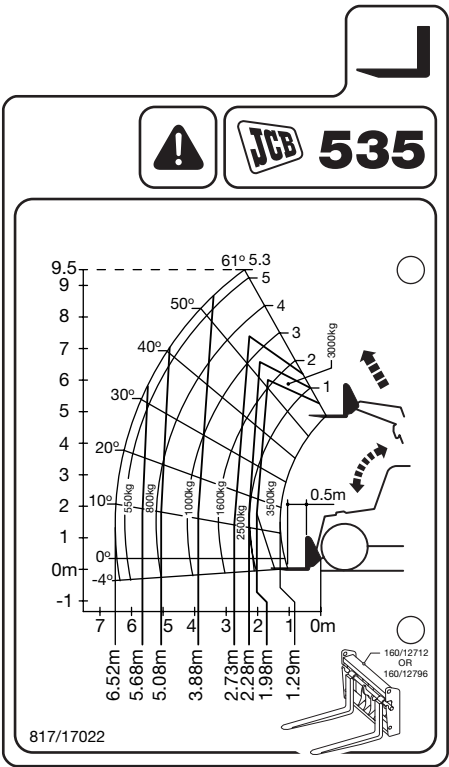
Roof Truss Boom - Boom Travel Limits



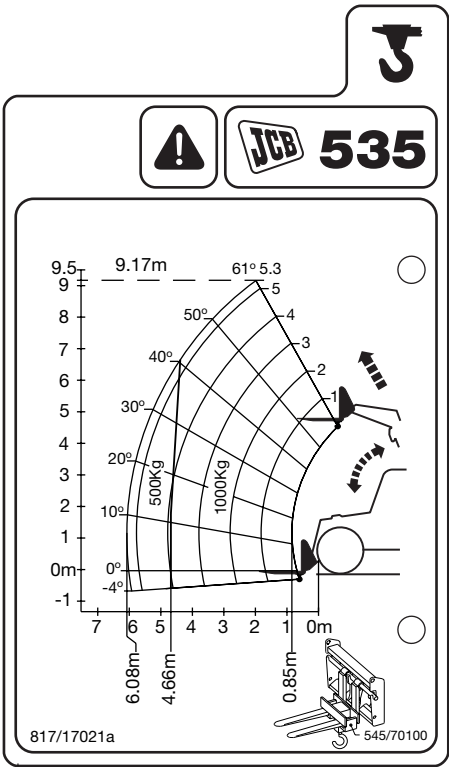
LOAD CHARTS
(continued)

535 Machines

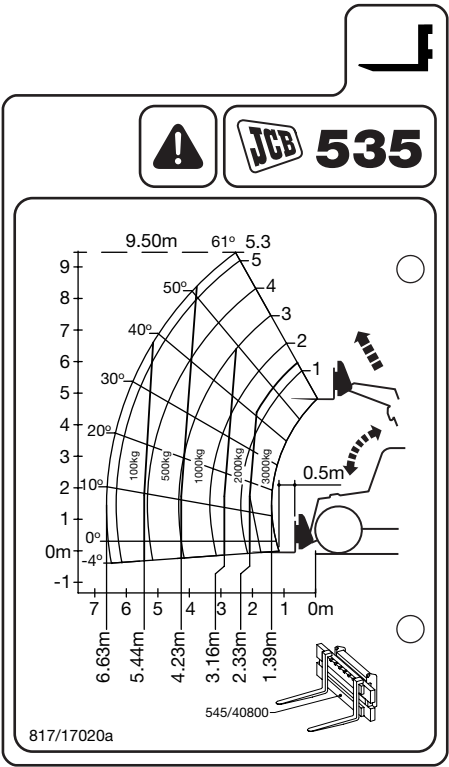
Standard Forks



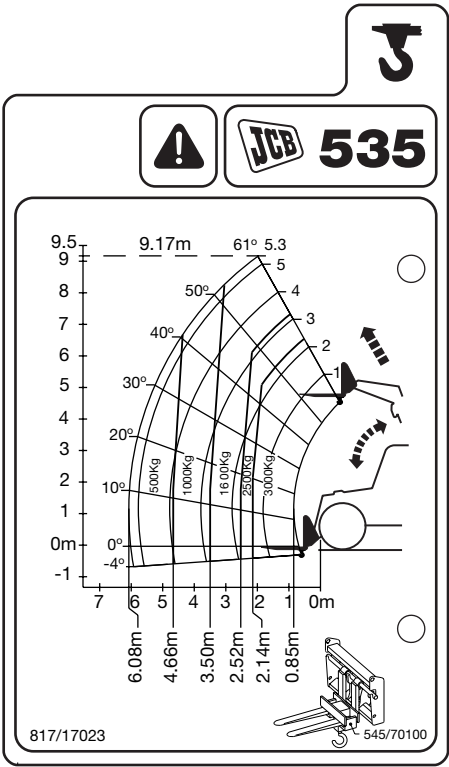
Fork Mounted Hook (UK Only)



Industrial Forks



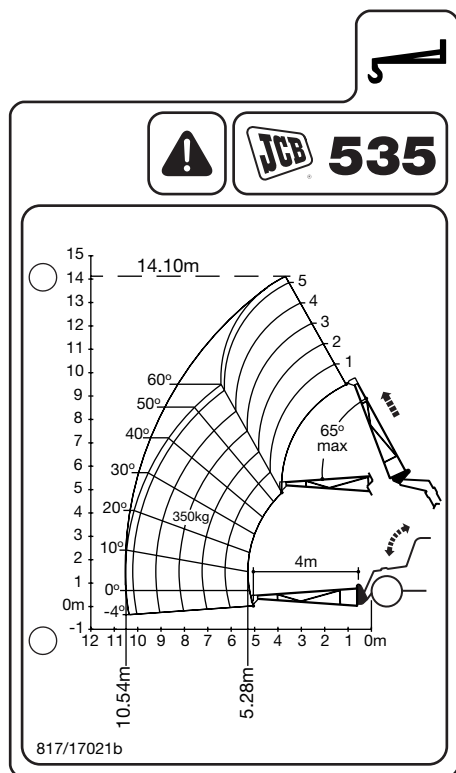
Fork Mounted Hook (Not UK)



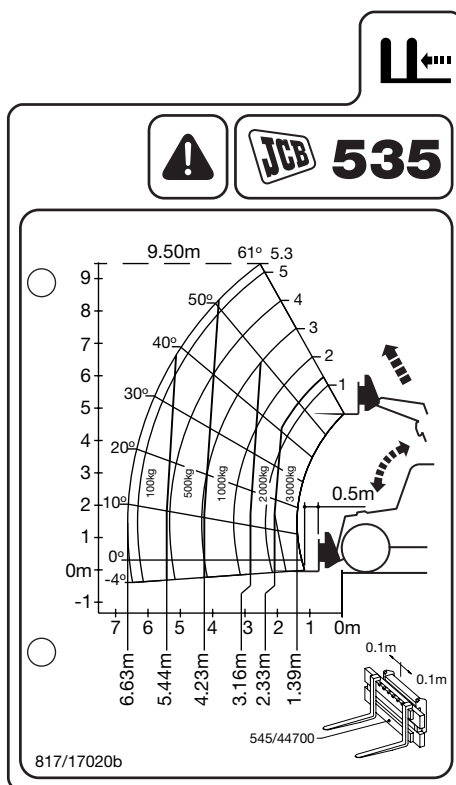
LOAD CHARTS

535 Machines (continued)

Extension Jib (UK Only)



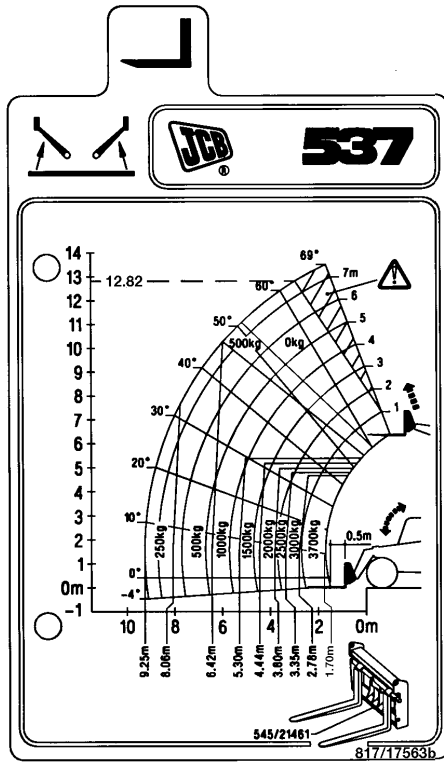
Sideshift Carriage (UK Only)



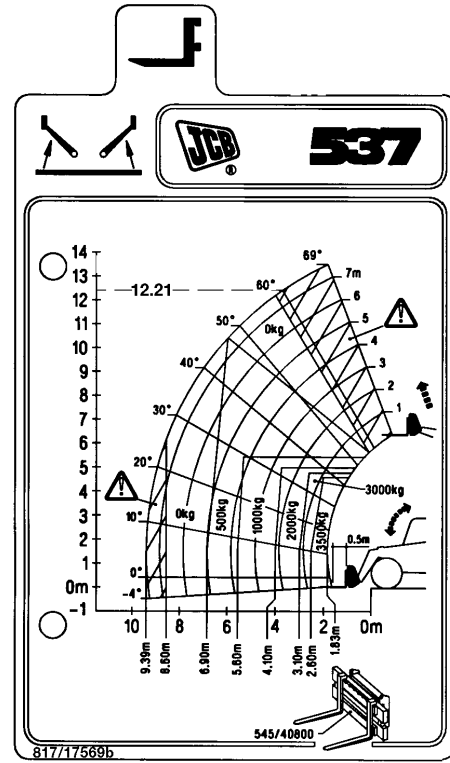
LOAD CHARTS (continued)

537 Non Sway Machines

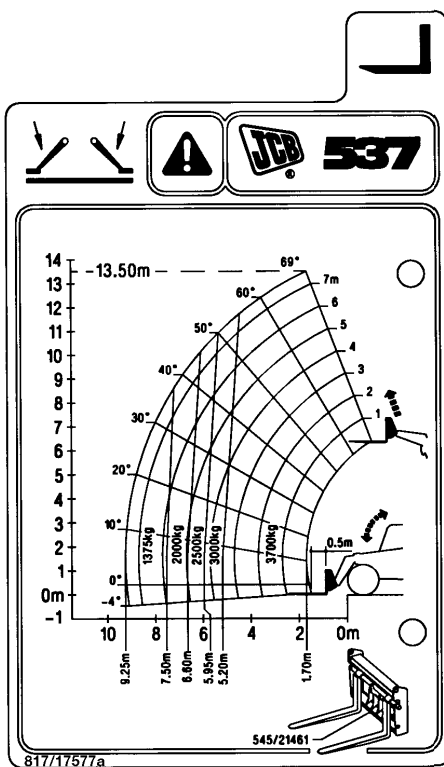
Standard Forks (Stabilisers Up)



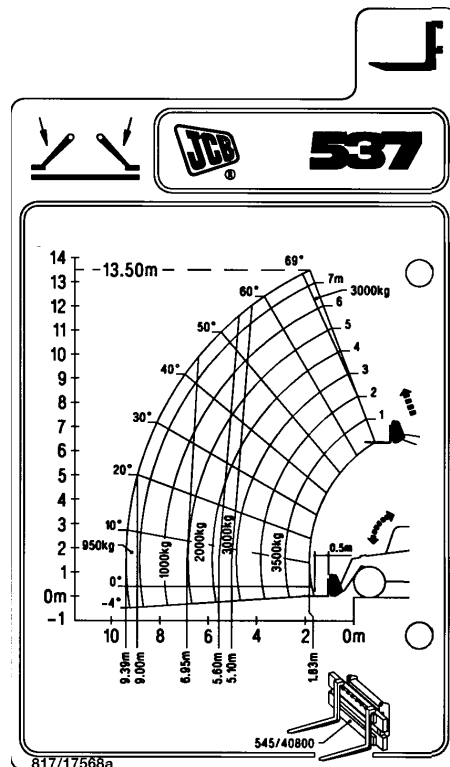
Industrial Forks (Stabilisers Up)



Standard Forks (Stabilisers Down)



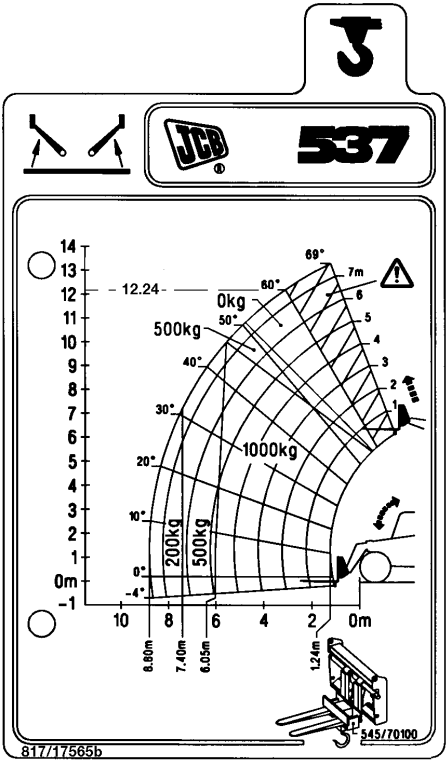
Industrial Forks (Stabilisers Down)



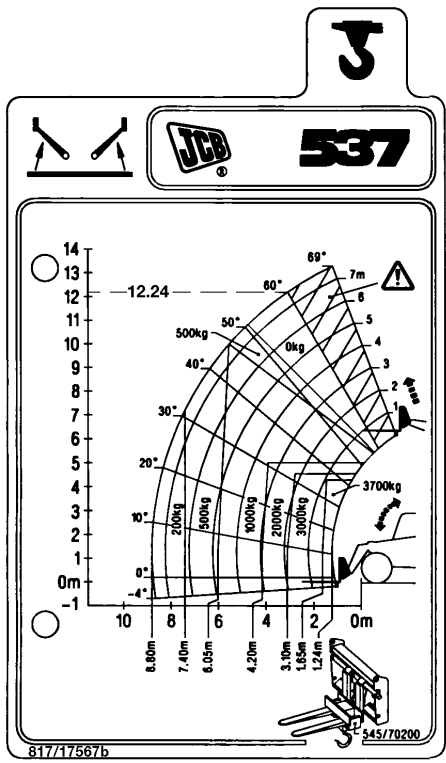
LOAD CHARTS
(continued)

537 Non Sway Machines (continued)

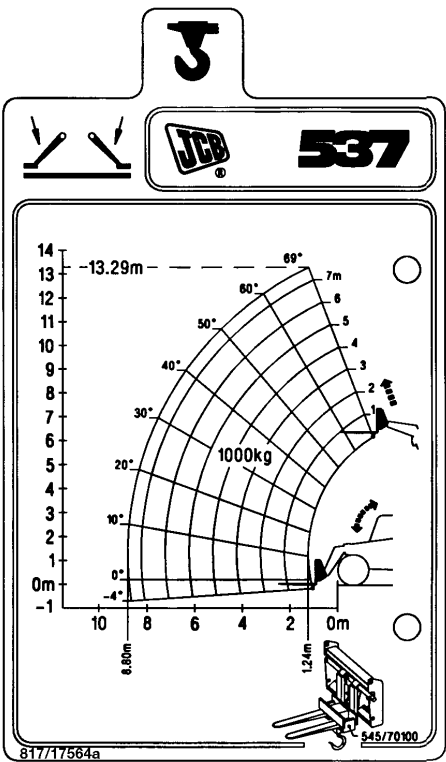
Fork Mounted Hook - UK Only (Stabilisers Up)



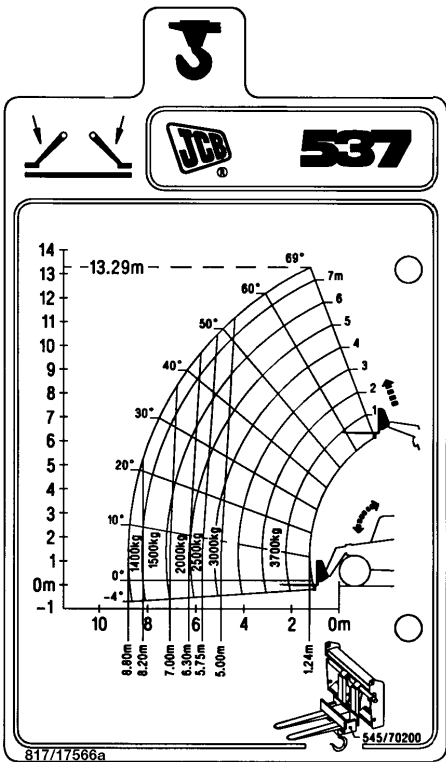
Fork Mounted Hook - Not UK (Stabilisers Up)



Fork Mounted Hook - UK Only (Stabilisers Down)



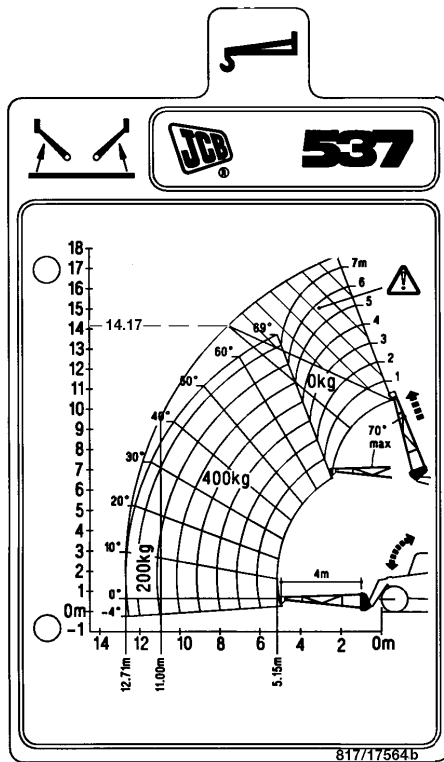
Fork Mounted Hook - Not UK (Stabilisers Down)



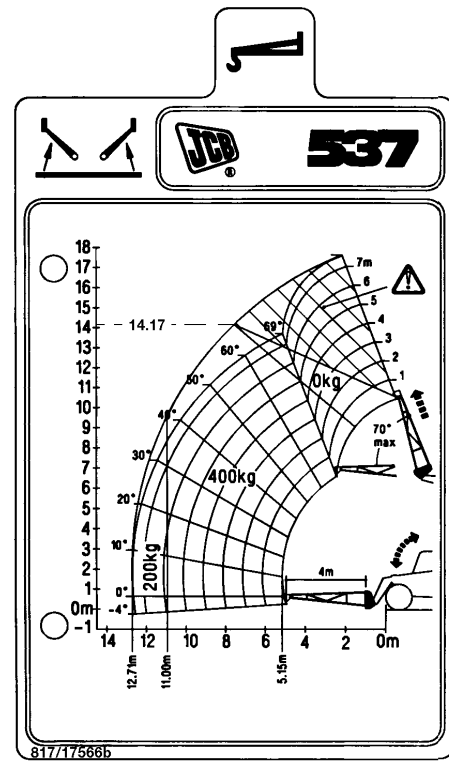
LOAD CHARTS

537 Non Sway Machines (continued)

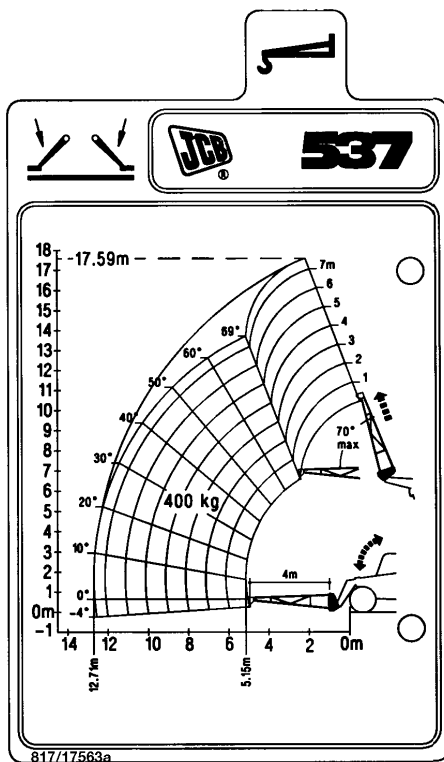
Extension Jib - UK Only (Stabilisers Up)



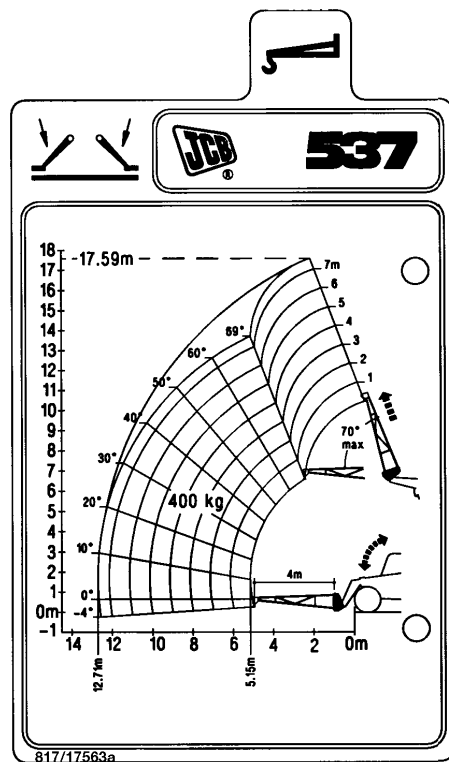
Extension Jib - Not UK (Stabilisers Up)



Extension Jib - UK Only (Stabilisers Down)



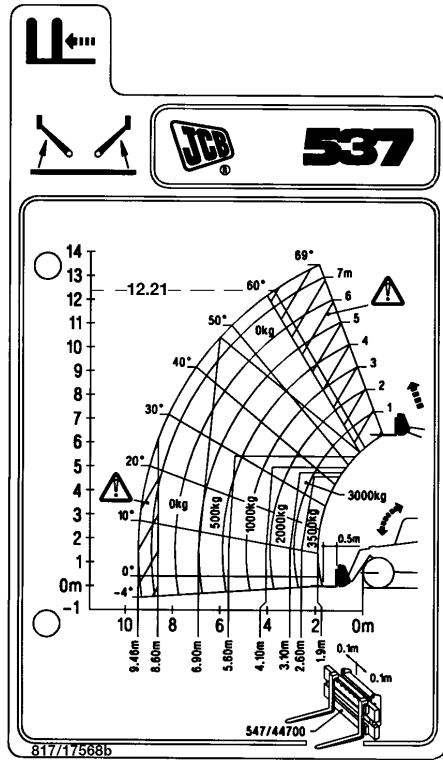
Extension Jib - Not UK (Stabilisers Down)



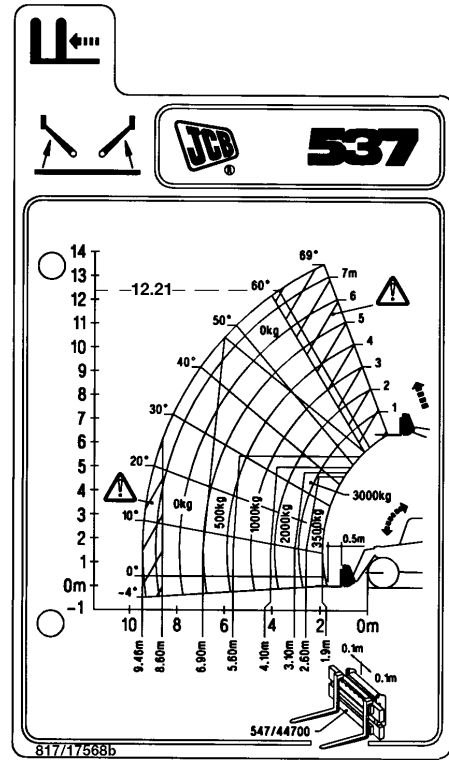
LOAD CHARTS (continued)

537 Non Sway Machines (continued)

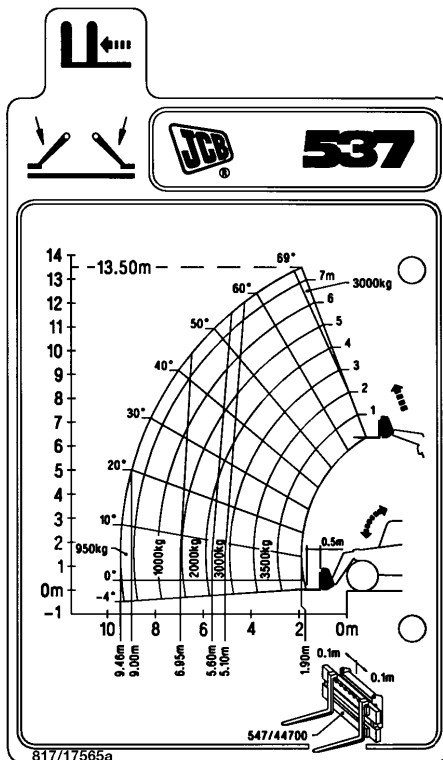
Sideshift Carriage - UK Only (Stabilisers Up)



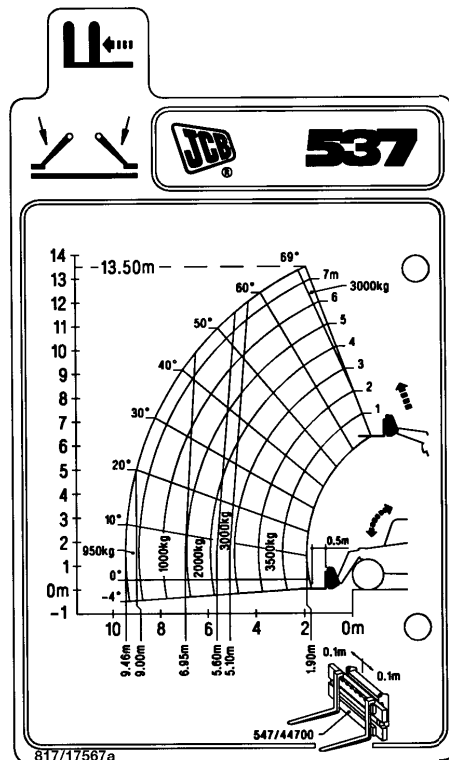
Sideshift Carriage - Not UK (Stabilisers Up)



Sideshift Carriage - UK Only (Stabilisers Down)



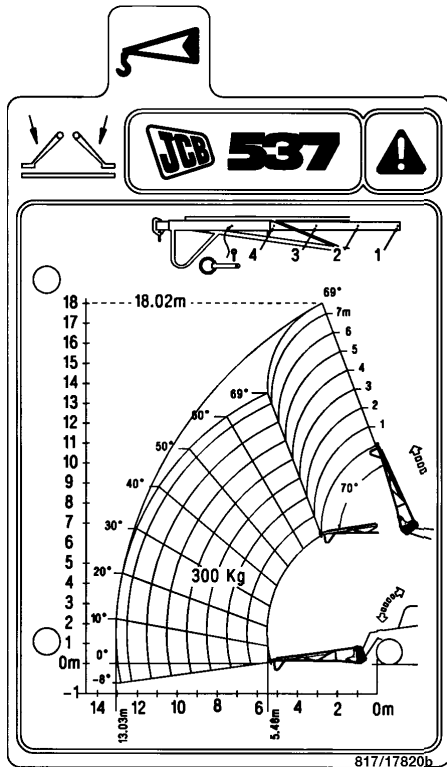
Sideshift Carriage - Not UK (Stabilisers Down)



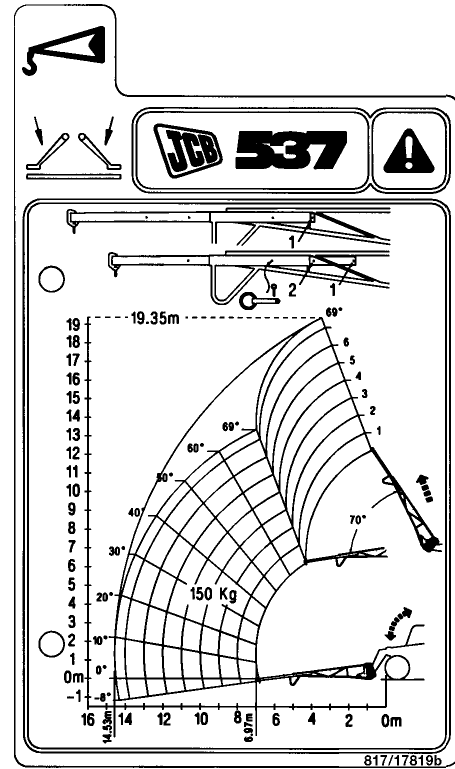
LOAD CHARTS (continued)

537 Non Sway Machines (continued)

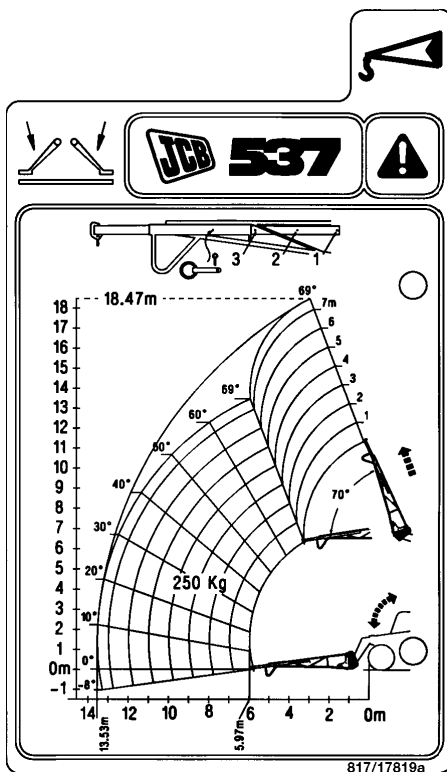
Roof Truss Boom - Position 1 (Fully Retracted)



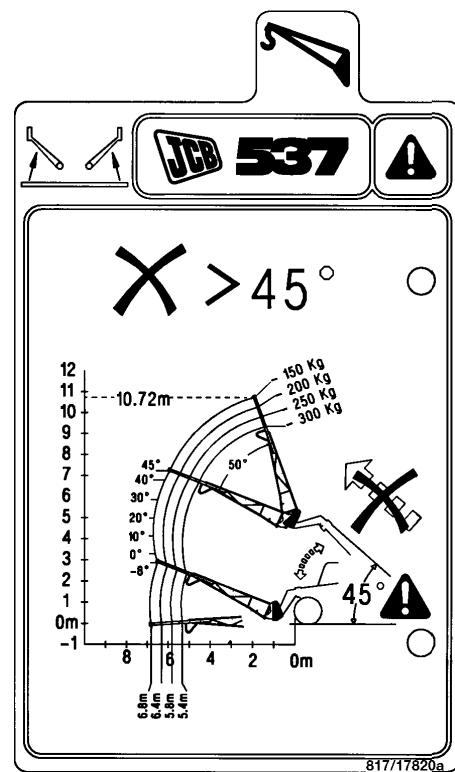
Roof Truss Boom - Positions 3 and 4



Roof Truss Boom - Position 2



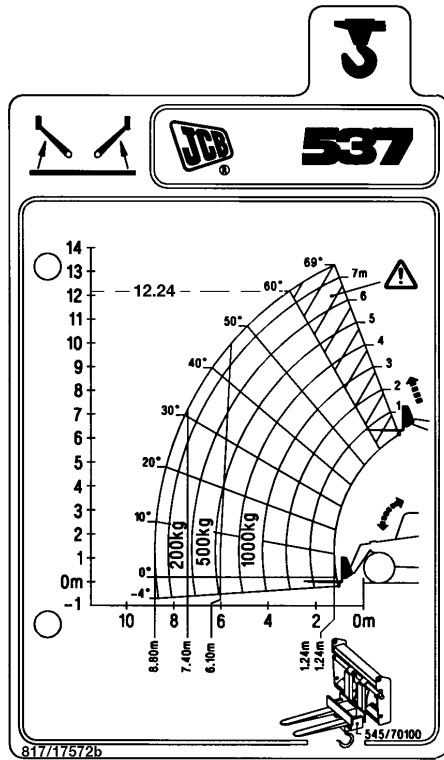
Roof Truss Boom - Boom Travel Limits



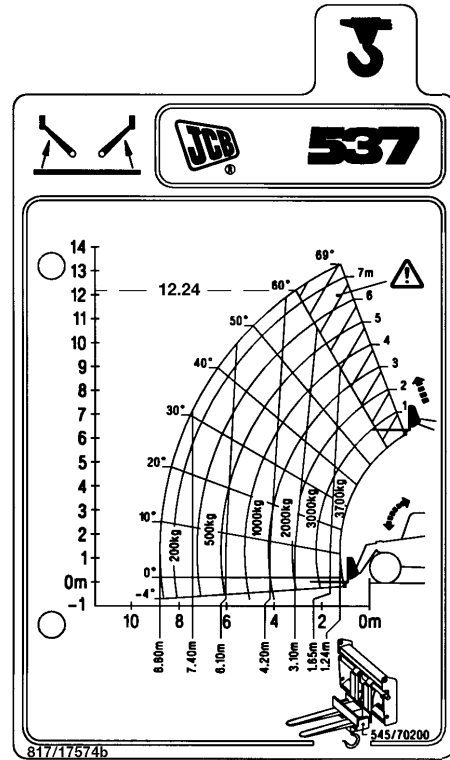
LOAD CHARTS (continued)

537 Sway Machines (continued)

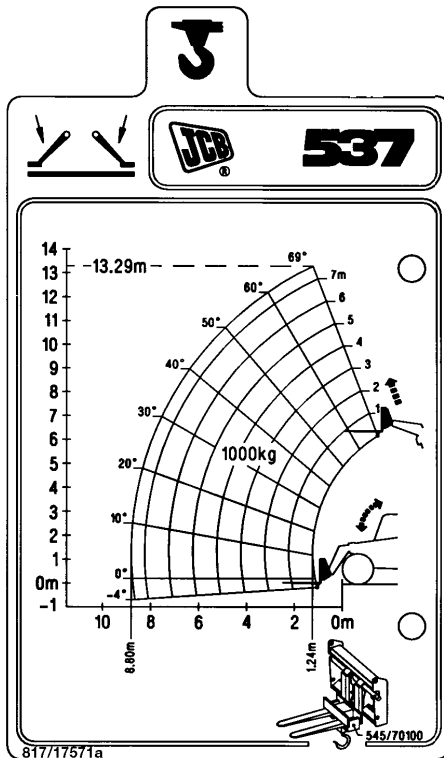
Fork Mounted Hook - UK Only (Stabilisers Up)



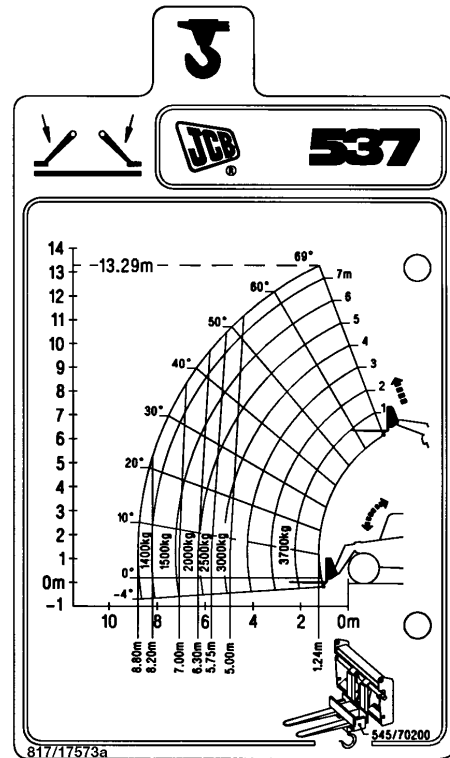
Fork Mounted Hook - Not UK (Stabilisers Up)



Fork Mounted Hook - UK Only (Stabilisers Down)



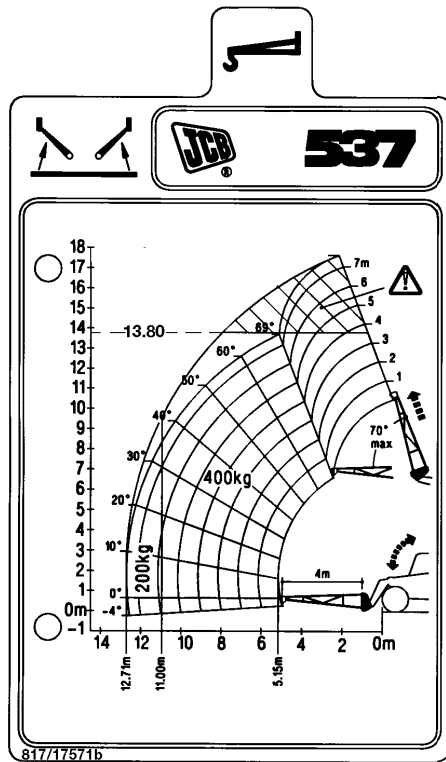
Fork Mounted Hook - Not UK (Stabilisers Down)



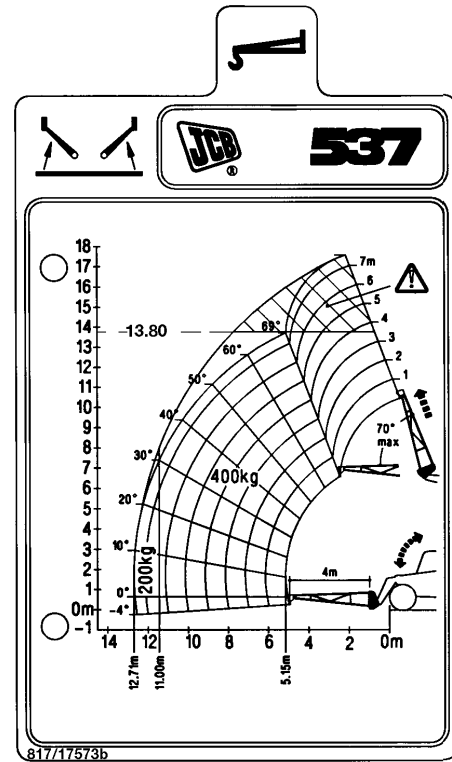
LOAD CHARTS

537 Sway Machines (continued)

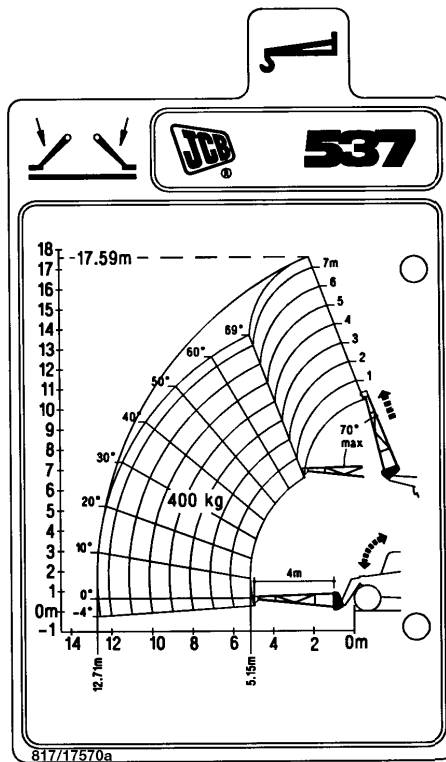
Extension Jib - UK Only (Stabilisers Up)



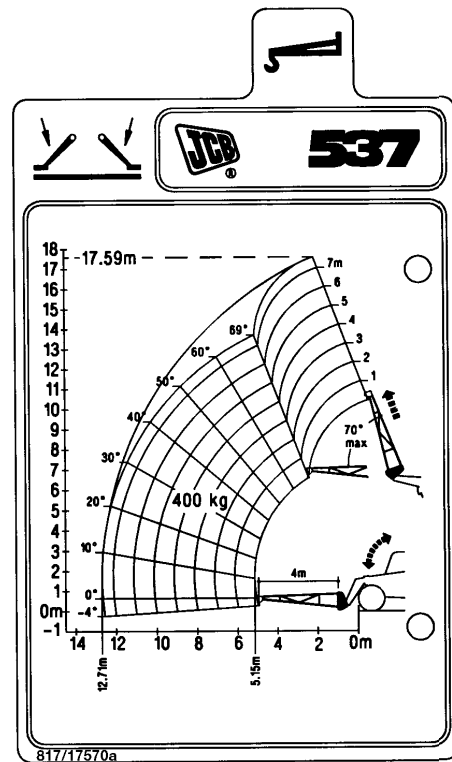
Extension Jib - Not UK (Stabilisers Up)



Extension Jib - UK Only (Stabilisers Down)



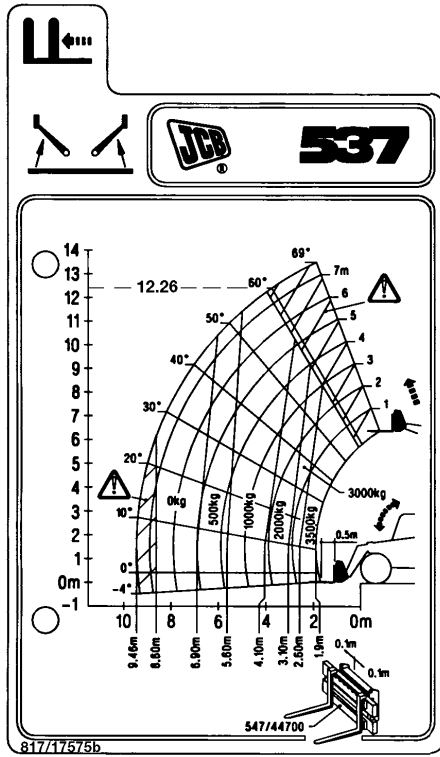
Extension Jib - Not UK (Stabilisers Down)



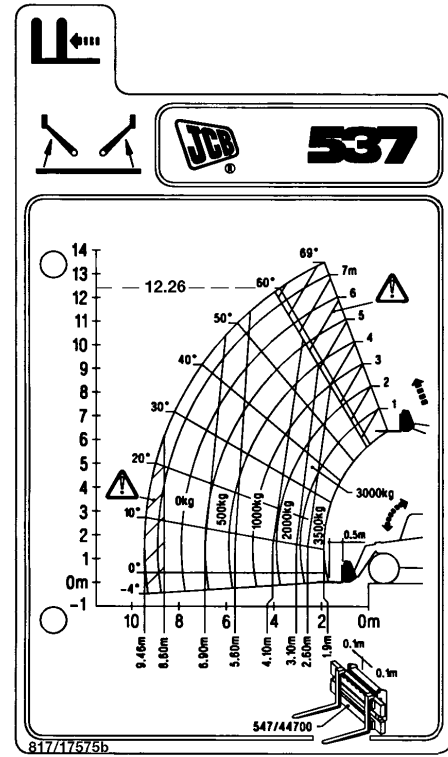
LOAD CHARTS (continued)

537 Sway Machines (continued)

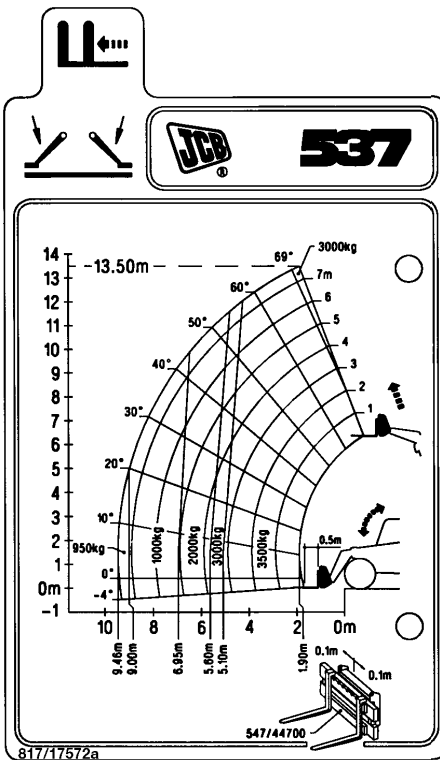
Sideshift Carriage - UK Only (Stabilisers Up)



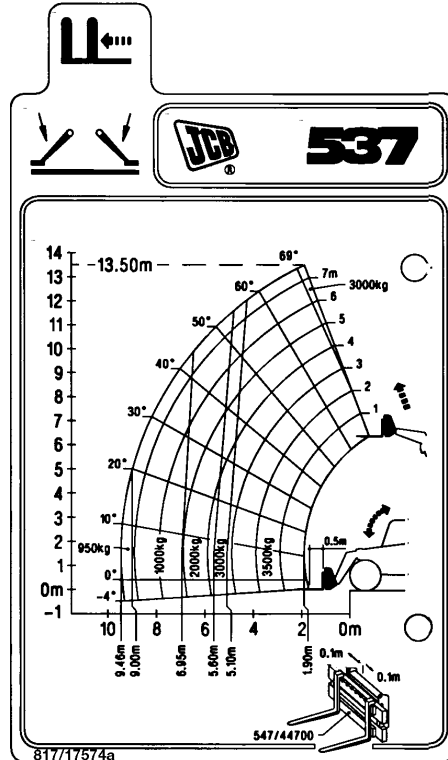
Sideshift Carriage - Not UK (Stabilisers Up)



Sideshift Carriage - UK Only (Stabilisers Down)



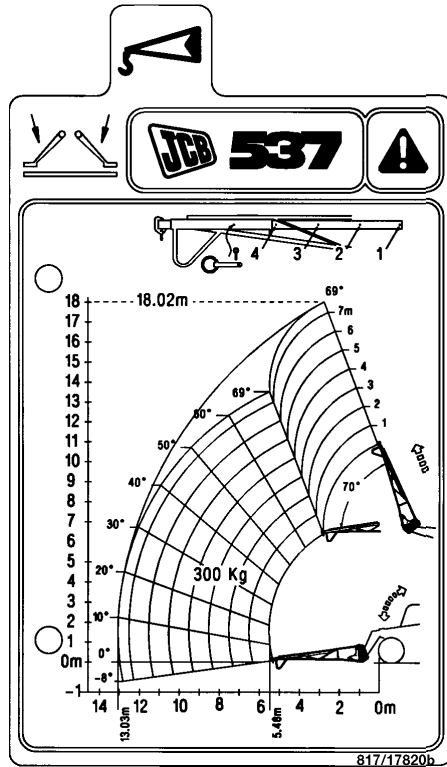
Sideshift Carriage - Not UK (Stabilisers Down)



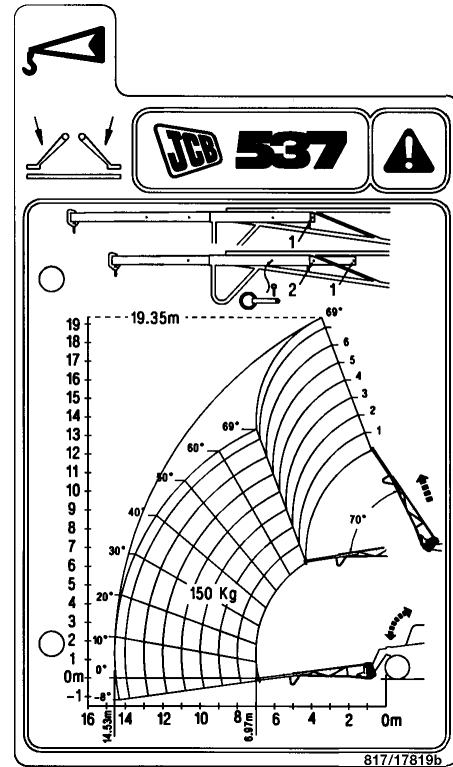
LOAD CHARTS

537 Sway Machines (continued)

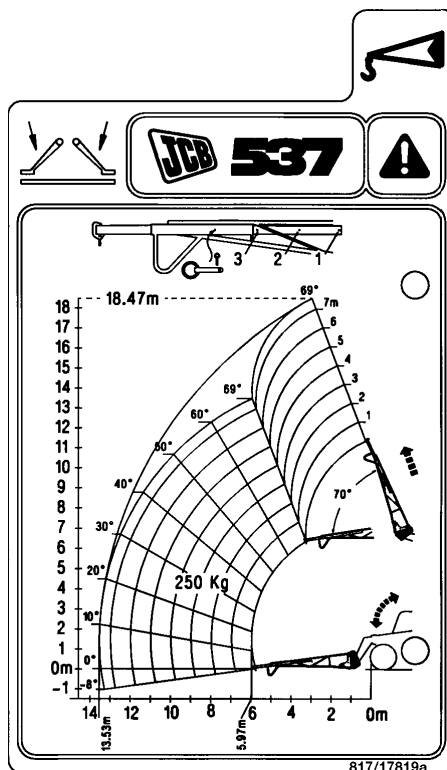
Roof Truss Boom - Position 1 (Fully Retracted)



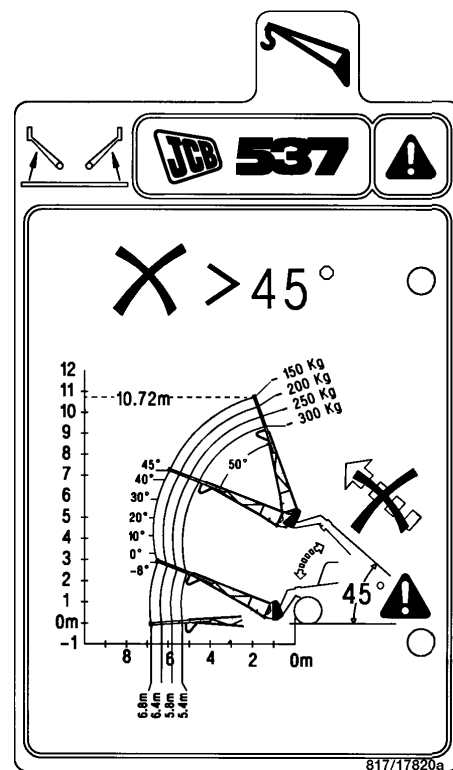
Roof Truss Boom - Positions 3 and 4



Roof Truss Boom - Position 2



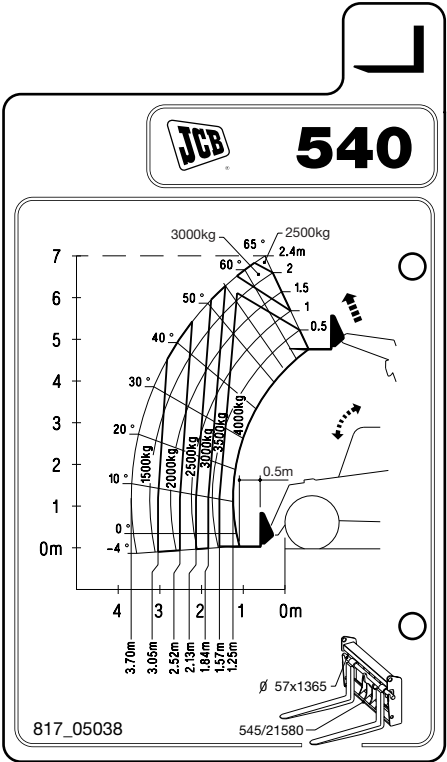
Roof Truss Boom - Boom Travel Limits



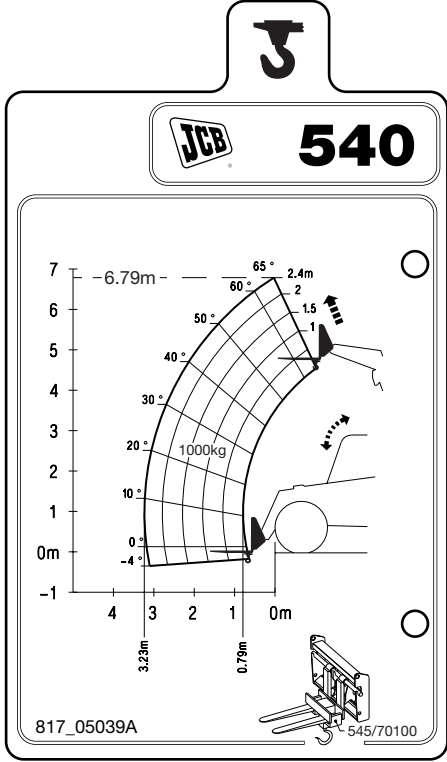
LOAD CHARTS
(continued)

540 Machines - Not 540-170

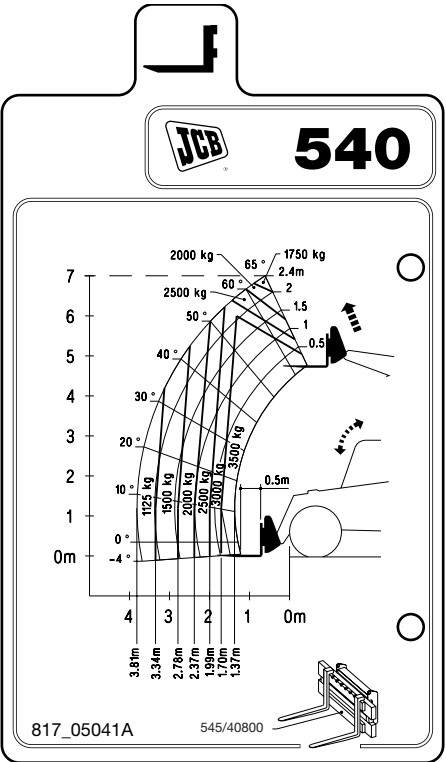
Standard Forks



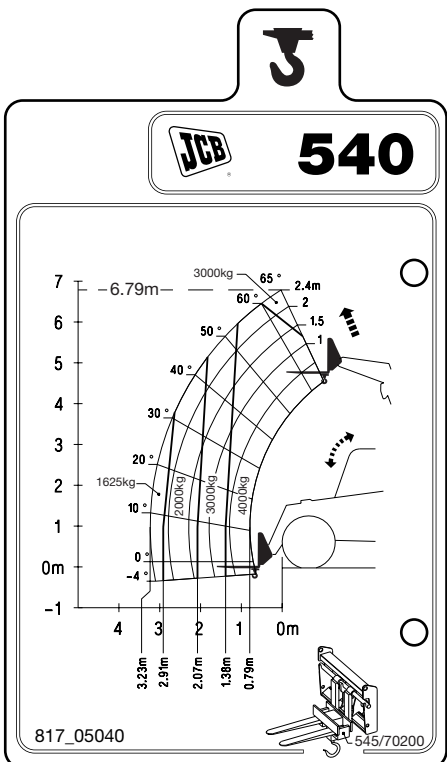
Fork Mounted Hook (UK Only)



Industrial Forks



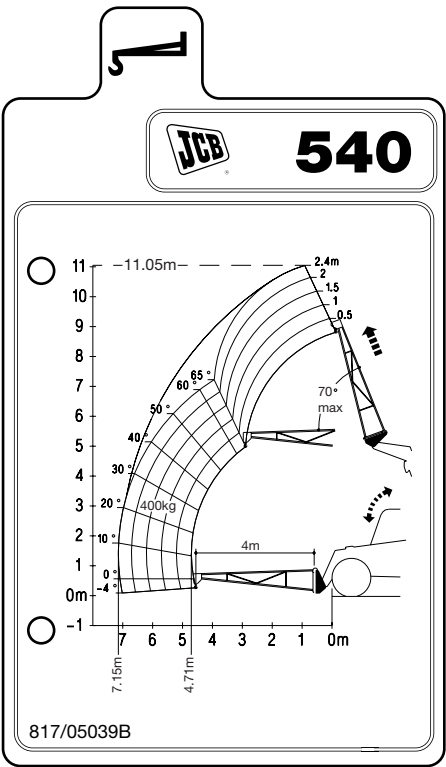
Fork Mounted Hook (Not UK)



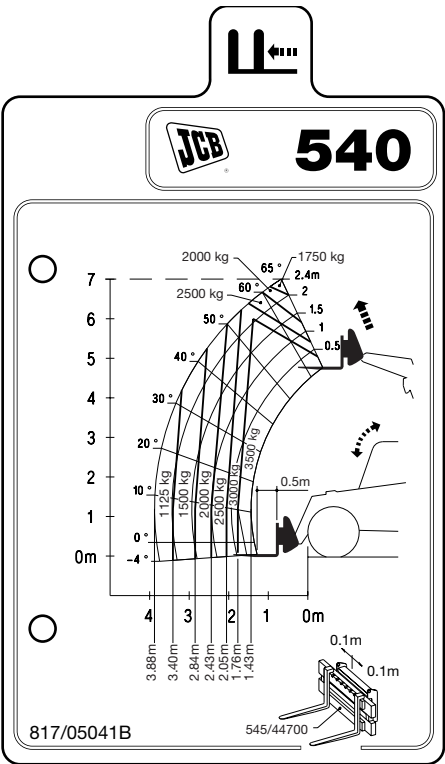
LOAD CHARTS
(continued)

540 Machines - Not 540-170 (continued)

Extension Jib (UK Only)



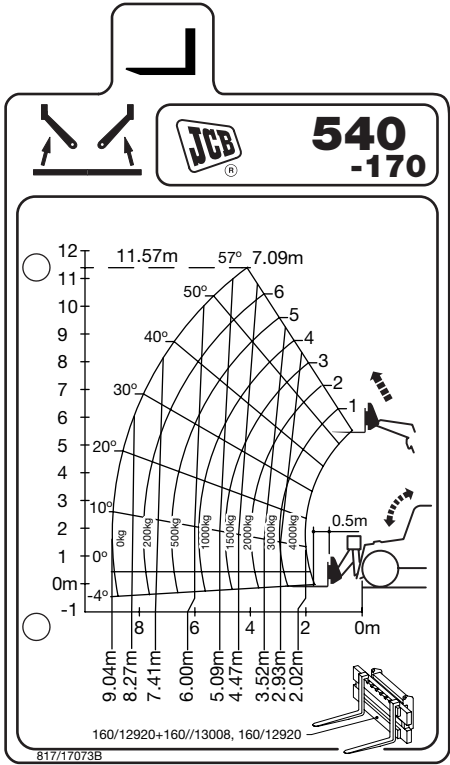
Sideshift Carriage (UK Only)



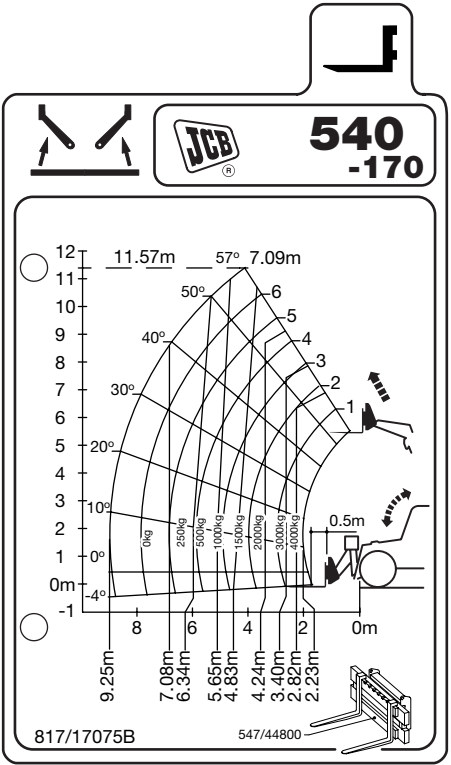
LOAD CHARTS

540-170 Machines

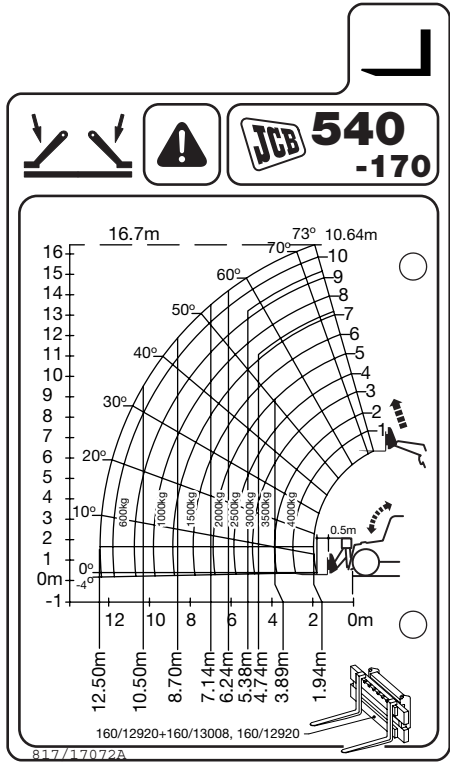
Standard Forks (Stabilisers Up)



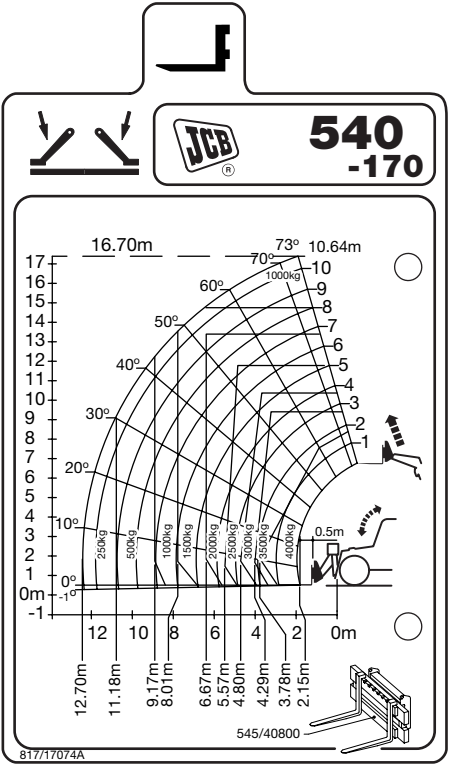
Industrial Forks (Stabilisers Up)



Standard Forks (Stabilisers Down)



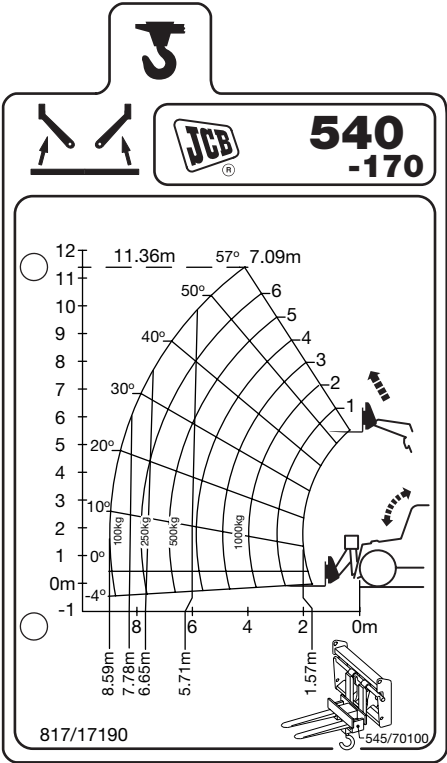
Industrial Forks (Stabilisers Down)



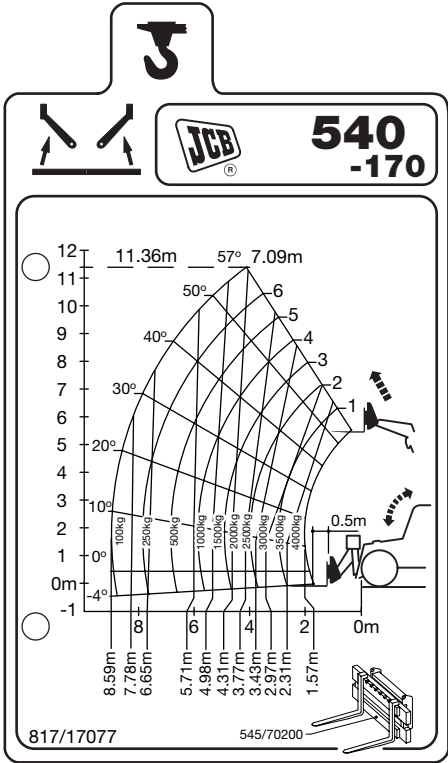
LOAD CHARTS

540-170 Machines (continued)

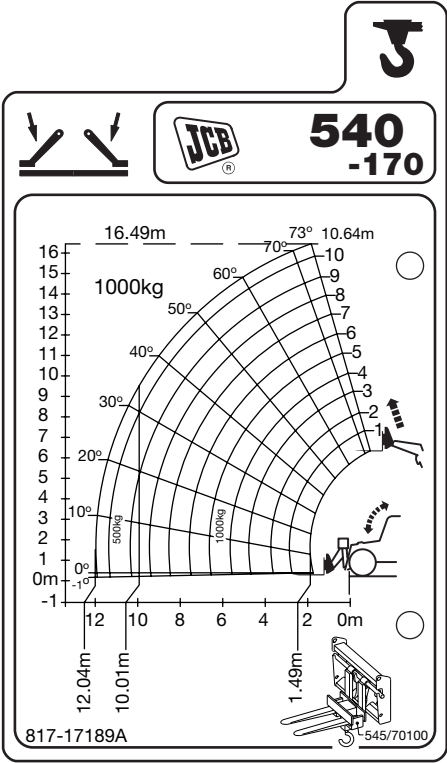
Fork Mounted Hook - UK Only (Stabilisers Up)



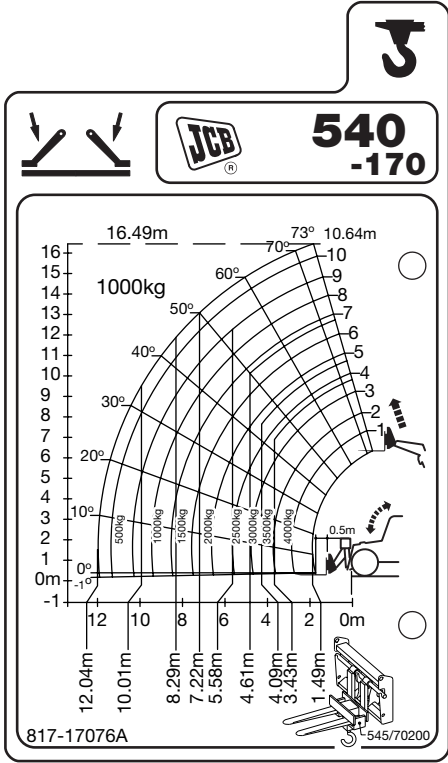
Fork Mounted Hook - Not UK (Stabilisers Up)



Fork Mounted Hook - UK Only (Stabilisers Down)



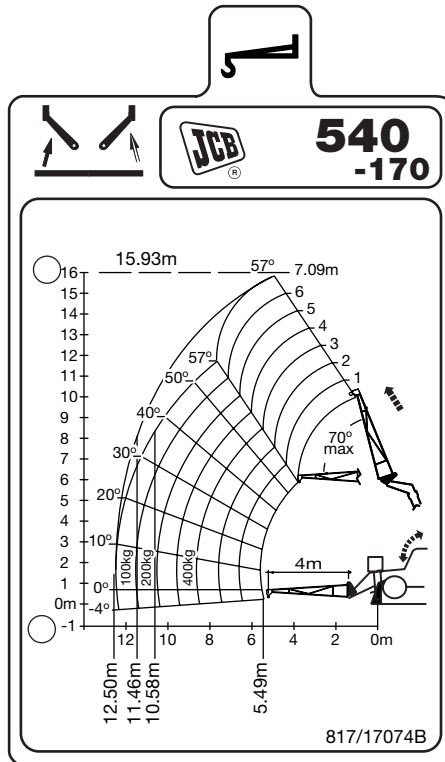
Fork Mounted Hook - Not UK (Stabilisers Down)



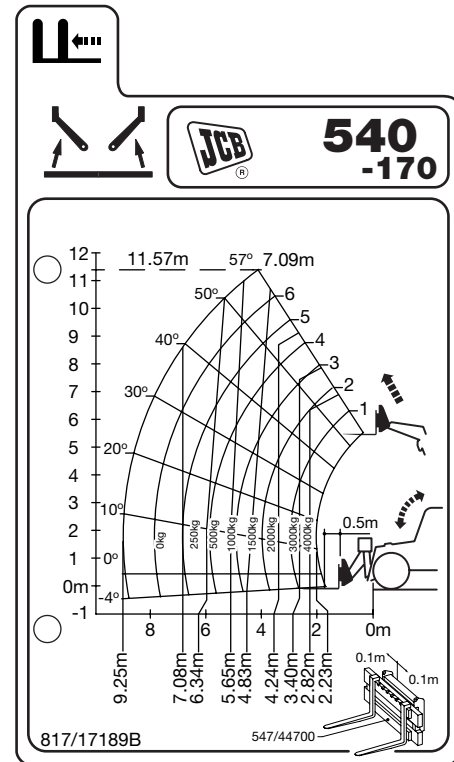
LOAD CHARTS

540-170 Machines (continued)

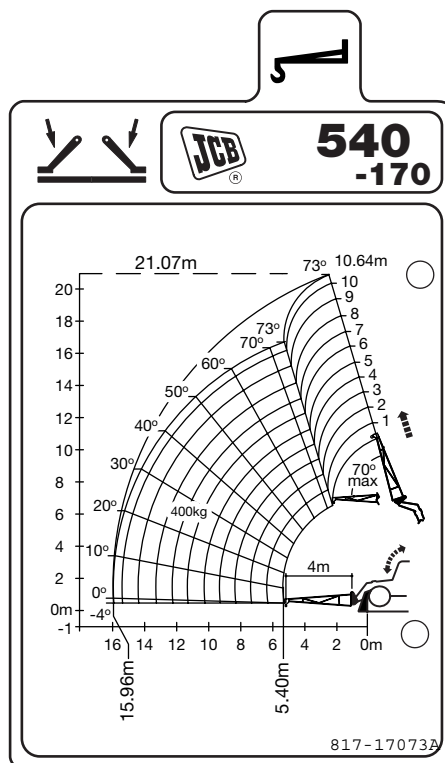
Extension Jib (Stabilisers Up)



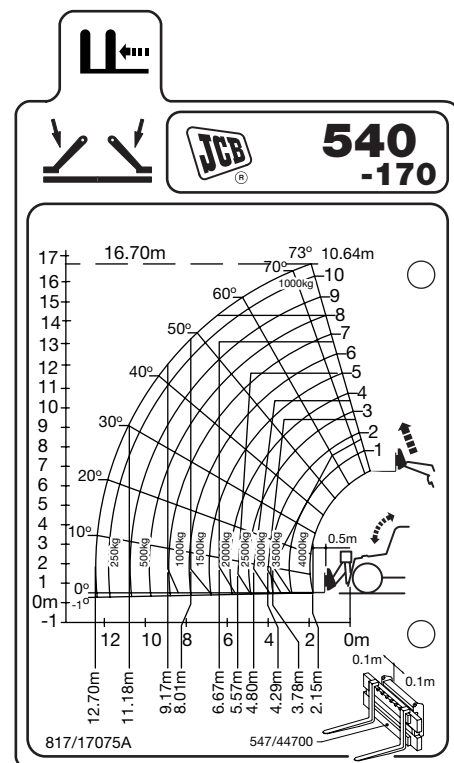
Sideshift Carriage - UK Only (Stabilisers Up)



Extension Jib (Stabilisers Down)



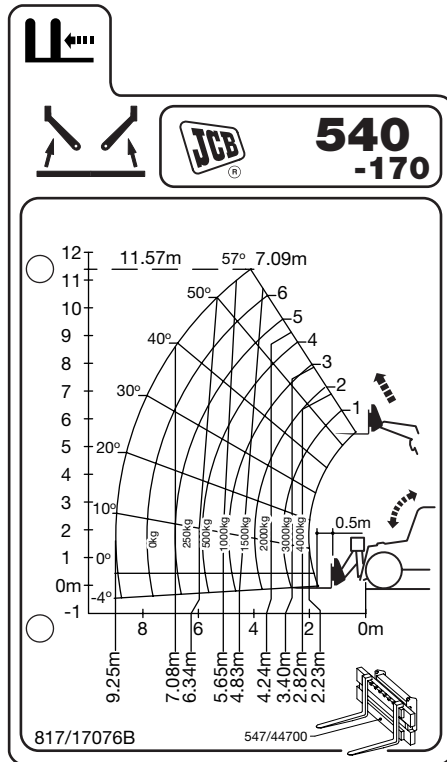
Sideshift Carriage - UK Only (Stabilisers Down)



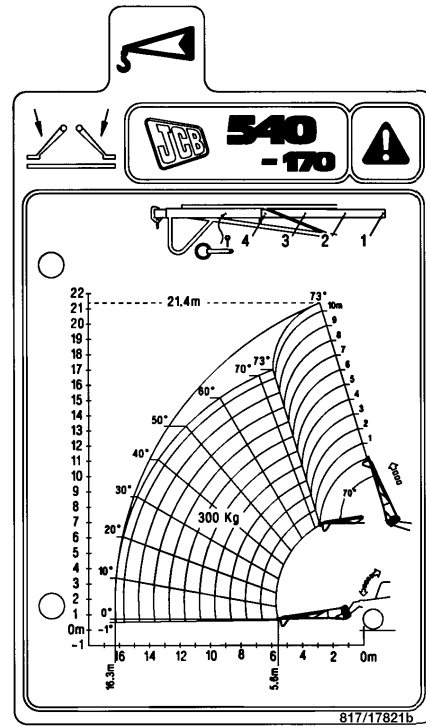
LOAD CHARTS

540-170 Machines (continued)

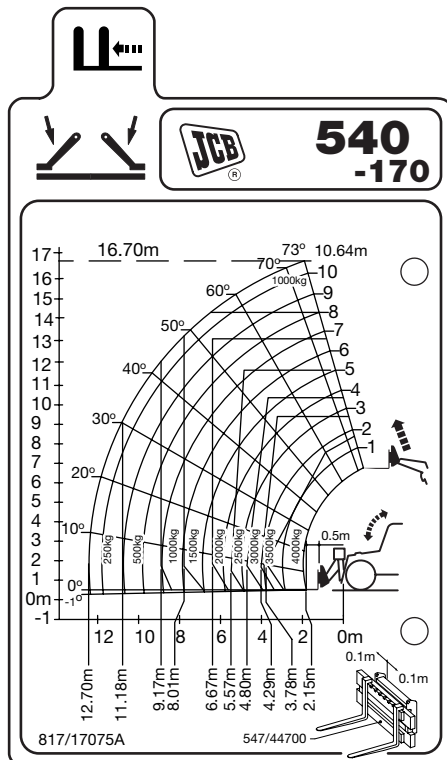
Sideshift Carriage - Not UK (Stabilisers Up)



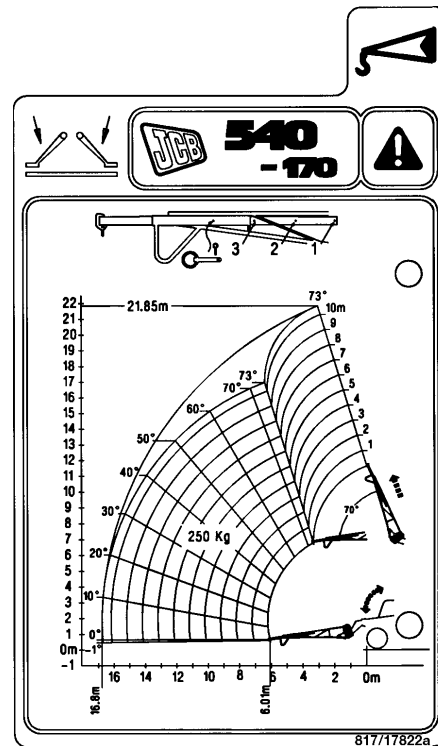
Roof Truss Boom - Position 1 (Fully Retracted)



Sideshift Carriage - Not UK (Stabilisers Down)



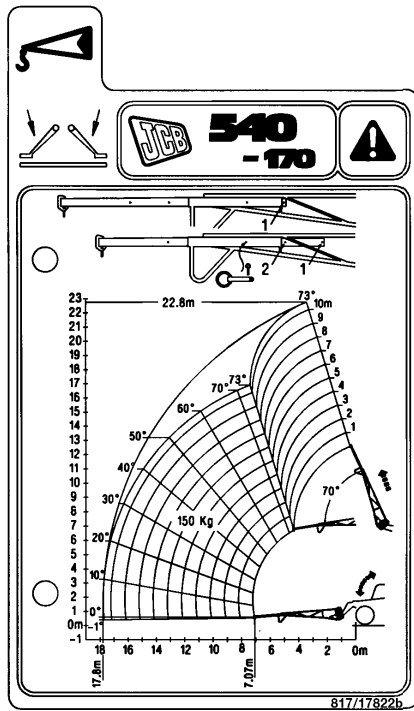
Roof Truss Boom - Position 2



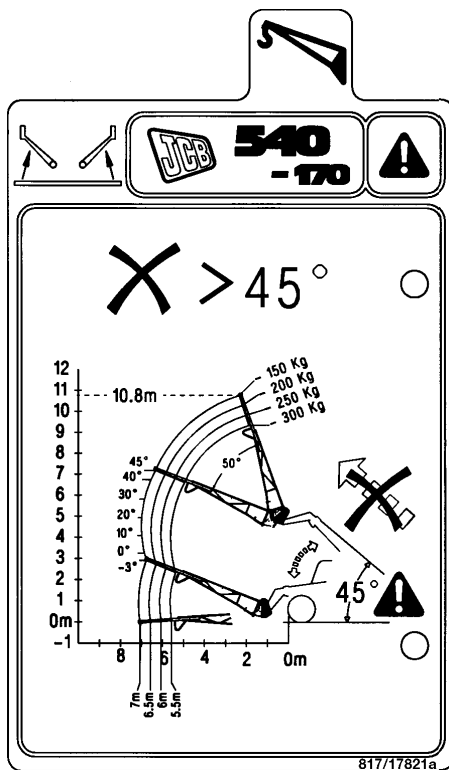
LOAD CHARTS

540-170 Machines (continued)

Roof Truss Boom - Positions 3 and 4



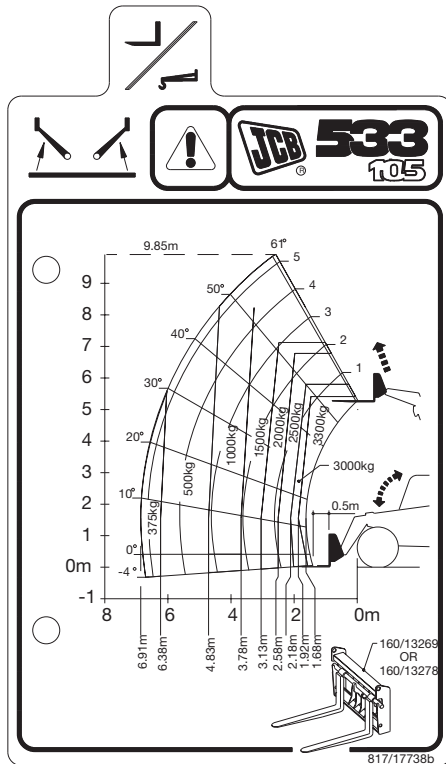
Roof Truss Boom - Boom Travel Limits



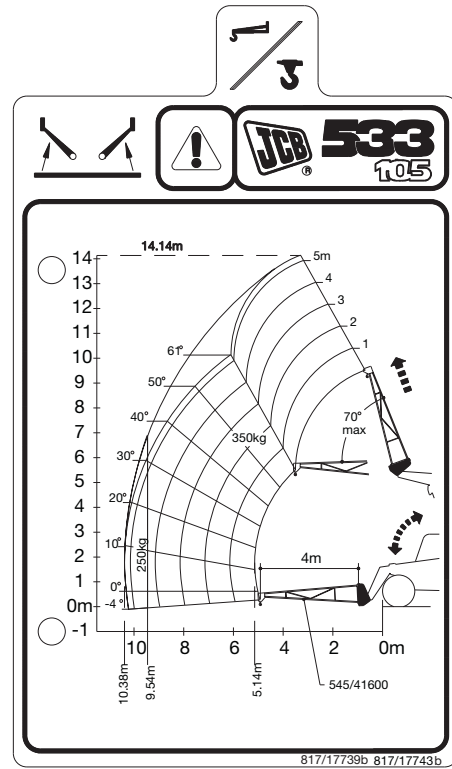
LOAD CHARTS

533-105 Machines

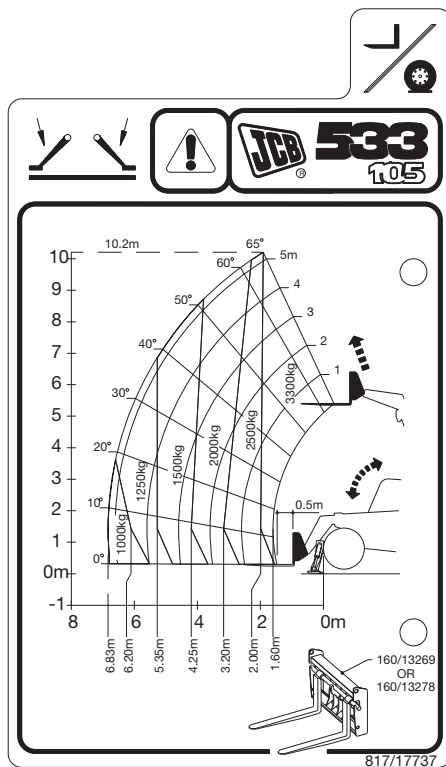
Standard Forks (Stabilisers Up)



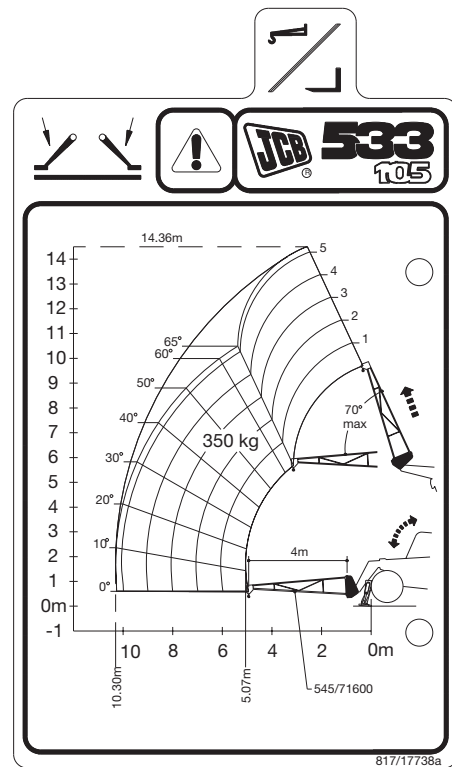
Extension Jib (Stabilisers Up)



Standard Forks (Stabilisers Down)



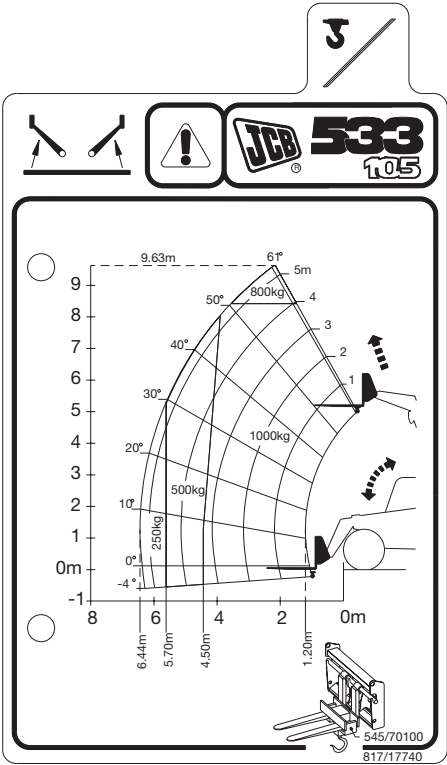
Extension Jib (Stabilisers Down)



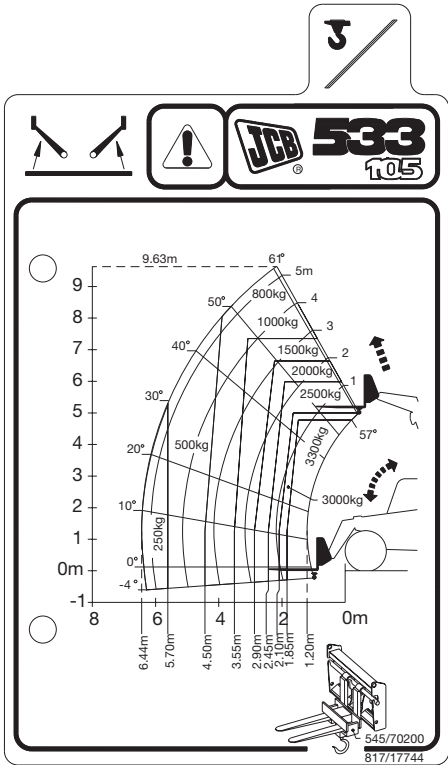
LOAD CHARTS

533-105 Machines (continued)

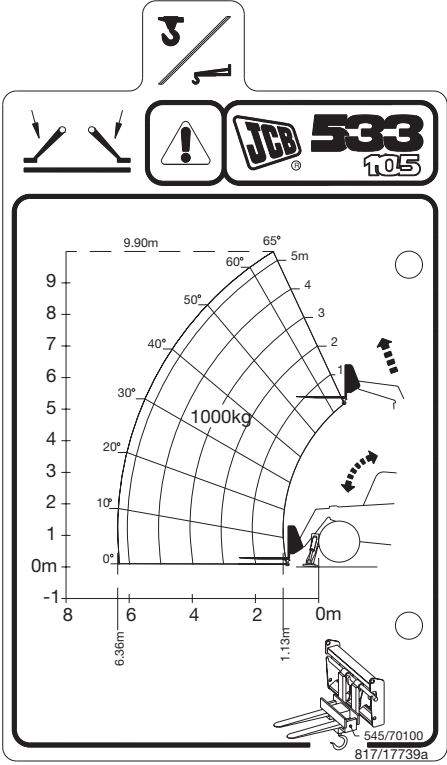
Fork Mounted Hook - UK Only (Stabilisers Up)



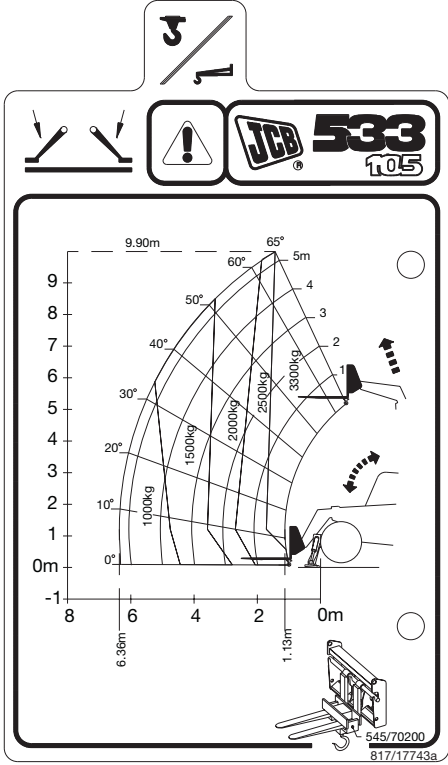
Fork Mounted Hook - Not UK (Stabilisers Up)



Fork Mounted Hook - UK Only (Stabilisers Down)



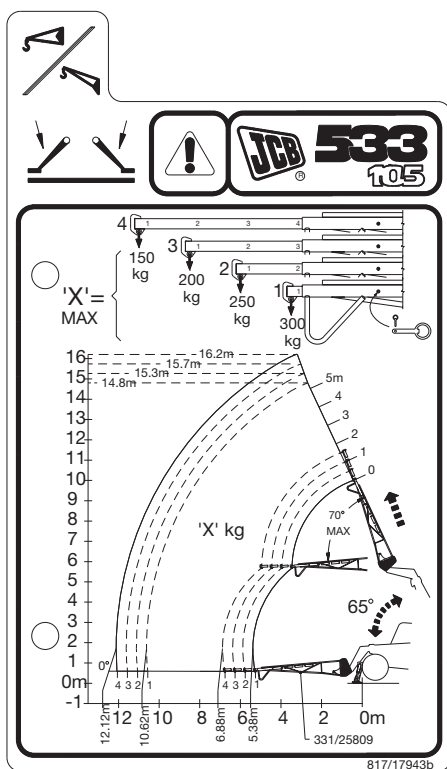
Fork Mounted Hook - Not UK (Stabilisers Down)



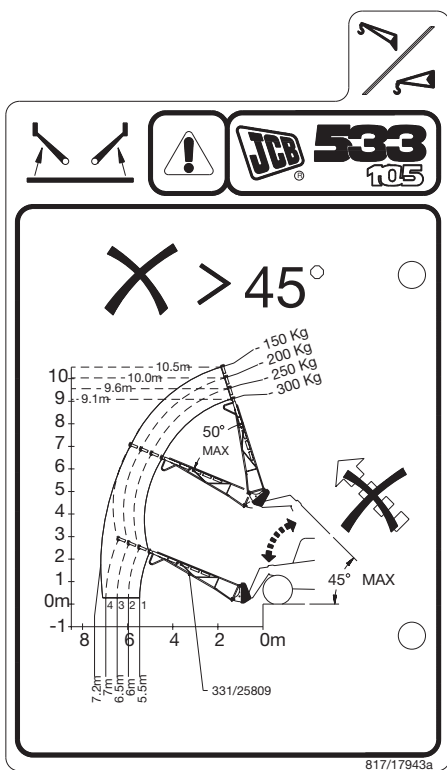
LOAD CHARTS

533-105 Machines (continued)

Roof Truss Boom



Roof Truss Boom - Boom Travel Limits



SERVICE RECORD SHEET

First 100 Hr. Date Hour Reading	4500/Hr./54 Month Date Hour Reading
500 Hr./6 Month Date Hour Reading	5000 Hr./60 Month Annual Insurance Inspection Date Hour Reading
1000 Hr./12 Month Annual Insurance Inspection Date Hour Reading	5500/Hr./66 Month Date Hour Reading
1500 Hr./18 Month Date Hour Reading	6000 Hr./72 Month Annual Insurance Inspection Date Hour Reading
2000 Hr./24 Month Annual Insurance Inspection Date Hour Reading	6500/Hr./78 Month Date Hour Reading
2500 Hr./30 Month Date Hour Reading	7000 Hr./84 Month Annual Insurance Inspection Date Hour Reading
3000 Hr./36 Month Annual Insurance Inspection Date Hour Reading	7500/Hr./90 Month Date Hour Reading
3500 Hr./42 Month Date Hour Reading	8000 Hr./96 Month Annual Insurance Inspection Date Hour Reading
4000 Hr./48 Month Annual Insurance Inspection Date Hour Reading	8500/Hr./102 Month Date Hour Reading
	9000 Hr./108 Month Annual Insurance Inspection Date Hour Reading

Note: It may be essential to change the Engine Oil and Filter, check Wear Pads or Boom Chains every 250 hours. Check machine service schedule and applications requirements.

REGISTRATION INFORMATION (Do not remove this portion from the Handbook)Issue 3 February 2000
English

P.I.N/Machine Serial Number ☐☐☐☐☐☐☐☐ Registration Date Dealer
V.I.N. ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ JCB Model Installing Engineer
Vehicle Registration Number ☐☐☐☐☐☐☐☐ Eng. Ser. No. ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐ Signature 

DEALERS COPYDo **NOT** send back to JCB SERVICE

Dealer
JCB Model
P.I.N/Machine Serial Number ☐☐☐☐☐☐☐☐
V.I.N. ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
Vehicle Registration Number ☐☐☐☐☐☐☐☐
Engine Serial Number ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Customer's Name
Address
.....
.....Postcode

Registration Date
Installing Engineer
P.D.I. Date
Owner's Plant Reference No.

ALPHA • DOT SECURITY SYSTEM - YES/NO

✓ Please send details of:

"JCB Assetcare Machinery Protection Plan" ☐**U.K. and EIRE ONLY****A COPY OF THE REGISTRATION DETAILS TO BE SENT DIRECT TO:-**

THE EQUIPMENT REGISTER LTD. (T.E.R.),
BATH & WEST BUILDINGS
LOWER BRISTOL ROAD
BATH
BA2 3EG

Tel: 01225 464599 (24 Hour)

Fax: 01225 317698





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