



## **OPERATOR'S MANUAL**

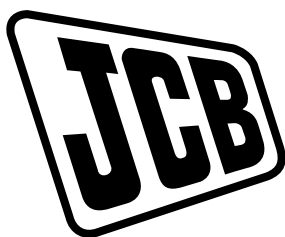


**LOADALL (ROUGH TERRAIN VARIABLE REACH TRUCK)  
506-36, 507-42, 509-42, 510-42, 510-56, 512-56, 514-56**

**EN - 9831/0050 ISSUE 6 - 03/2018**

**THIS MANUAL SHOULD ALWAYS STAY WITH THE MACHINE**





# OPERATOR'S MANUAL

LOADALL (ROUGH TERRAIN  
VARIABLE REACH TRUCK)  
**506-36, 507-42, 509-42,  
510-42, 510-56, 512-56, 514-56**

EN - 9831/0050 - ISSUE 6 - 03/2018

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

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## Foreword

### The Operator's Manual



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

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

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

### Machine Delivery and Installation

Even if you have operated this type of equipment before, it is very important that your new machines operations and functions are explained to you by a JCB Dealer Representative following delivery of your new machine.

Following the installation you will know how to gain maximum productivity and performance from your new product.

Please contact your local JCB dealer if the Installation Form (included in this manual) has not yet been completed with you.

Your local JCB Dealer is



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Notes:

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**Acronyms Glossary**

CCV	Crankcase Ventilation
DEF	Diesel Exhaust Fluid
ECU	Electronic Control Unit
EGR	Exhaust Gas Recirculation
ESOS	Engine Shut-Off Solenoid
FEAD	Front End Accessory Drive
FOPS	Falling Object Protective Structure
HVAC	Heating Ventilation Air Conditioning
ISO	International Organization for Standardization
LCD	Liquid Crystal Display
LLMI	Longitudinal Load Moment Indicator
LSD	Limited Slip Differential
MAF	Mass Air Flow
MIL	Malfunction Indicator Lamp
NOx	Nitrogen Oxide
PIN	Product Identification Number
RAS	Rear Axle Stabilization
ROPS	Roll-Over Protective Structure
RPM	Revolutions Per Minute
SCR	Selective Catalytic Reduction
SRS	Smooth Ride System
SWL	Safe Working Load

# Introduction

## About this Manual

### Model and Serial Number

This manual provides information for the following model(s) in the JCB machine range:

Model	From:	To:
506-36	2433101	2436100
	2501401	
507-42	2433101	2436100
	2501401	
509-42	2433101	2436100
	2501401	
510-42	2433101	2436100
	2501401	
510-56	2433101	2436100
	2501401	
512-56	2433101	2436100
	2501401	
514-56	2433101	2436100
	2501401	

### Using the Manual

This operator's manual is arranged to give you a good understanding of the machine and its safe operation. It also contains maintenance and technical data.

Read this manual from the front to the back before you use the machine for the first time, even if you have used machines of a similar/same type before as the technical specification, systems and controls of the machine may have changed. Particular attention must be given to all the safety aspects of operating and maintaining the machine.

If there is anything you are not sure about, ask your JCB dealer or employer. Do not guess, you or others could be killed or seriously injured.

The general and specific warnings in this section are repeated throughout the manual. Read all the safety statements regularly, so you do not forget them. Remember that the best operators are the safest operators.

The illustrations in this manual are for guidance only. Where the machines are different, the text and or the illustration will specify.

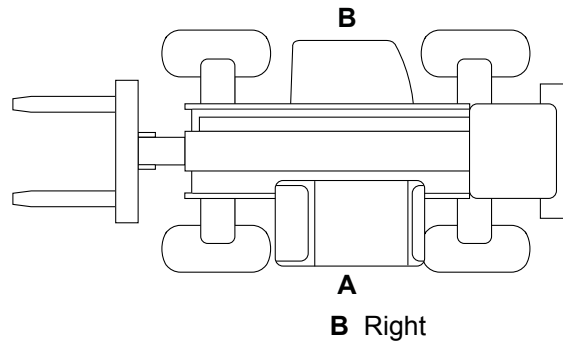
The manufacturer's policy is one of continuous improvement. The right to change the specification of the machine without notice is reserved. No responsibility will be accepted for discrepancies which may occur between specifications of the machine and the descriptions contained in this manual.

All of the optional equipment included in this manual may not be available in all territories

### Left-Hand Side, Right-Hand Side

In this manual, 'left' and 'right' mean your left and right when you are seated correctly in the machine.

**Figure 1.**



A Left

B Right

## **Cab/Canopy**

This manual frequently makes references to the cab. For example, 'do not operate the machine without an operator's manual in the cab'. These statements also apply to canopy build machines.

## **Cross References**

In this manual, cross references are made by presenting the subject title in blue (electronic copy only). The number of the page upon which the subject begins is indicated within the brackets. For example: [Refer to: Cross References \(Page 2\)](#).

## Safety

### Safety - Yours and Others

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

In this manual and on the machine you will find warning messages, you must read and understand them. They inform you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your employer or JCB dealer to explain them.

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 of 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 work until you are sure that you and those around you will be safe.

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

Remember:

- Be careful
- Be alert
- Be safe.

### Safety Warnings

In this manual there are safety notices. Each notice starts with a signal word. The signal word meanings are given below.

The signal word 'DANGER' indicates a hazardous situation which, if not avoided, will result in death or serious injury.

The signal word 'WARNING' indicates a hazardous situation which, if not avoided, could result in death or serious injury.

The signal word 'CAUTION' indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

The signal word 'Notice' indicates a hazardous situation which, if not avoided, could result in machine damage.

The safety alert system symbol (shown) also helps to identify important safety messages in this manual. When you see this symbol your safety is involved, carefully read the message that follows.

**Figure 2. The safety alert system symbol**



## General Safety

### Training

To operate the machine 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. The operator's manual instructs you on the machine, its controls and its safe operation; it is not a training manual. Ensure that you receive the correct training before operating any machinery. Failing to do so will result in incorrect operation of the machine and you will be putting yourself and others at risk. In some markets, and for work on certain jobsites, you may be required to have been trained and assessed in accordance with an operator competence scheme. Make sure that you and your machine comply with relevant local laws and jobsite requirements – it is your responsibility.

### 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.

### Clothing

You can be injured if you do not wear the correct clothing. Loose clothing can get caught in the machinery. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained. Remove rings, watches and personal jewellery.

### Alcohol and Drugs

It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.

### Feeling Unwell

Do not attempt to operate the machine if you are feeling unwell. By doing so you could be a danger to yourself and those you work with.

### Mobile Phones

Switch off your mobile phone before entering an area with a potentially explosive atmosphere. Sparks in such an area could cause an explosion or fire resulting in death or serious injury.

Switch off and do not use your mobile phone when refuelling the machine.

### Lifting Equipment

You can be injured if you use incorrect or faulty lifting equipment. You must identify the weight of the item to be lifted then choose lifting equipment that is strong enough and suitable for the job. Make sure that lifting equipment is in good condition and complies with all local regulations.

### Raised Equipment

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

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

### Raised Machine

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

### Lightning

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

### Machine Modifications

This machine is manufactured in compliance with prevailing legislative requirements. It must not be altered in any way which could affect or invalidate its compliance. For advice consult your JCB dealer.



## **Clothing and Personal Protective Equipment (PPE)**

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.



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Notes:

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# About the Product

## Introduction

### General

Before you start using the machine, you must know how the machine operates. Use this part of the manual to identify each control lever, switch, gauge, button and pedal. Do not guess, if there is anything you do not understand, ask your JCB dealer.

### Name and Address of the Manufacturer

JCB Excavators Limited, Lakeside Works, Rocester, Uttoxeter, United Kingdom, ST145JP

### Product Compliance

Your JCB product was designed to comply with the laws and regulations applicable at the time of its manufacture for the market in which it was first sold. In many markets, laws and regulations exist that require the owner to maintain the product at a level of compliance relevant to the product when first produced. Even in the absence of defined requirements for the product owner, JCB recommend that the product compliance be maintained to ensure safety of the operator and exposed persons and to ensure the correct environmental performance. Your product must not be altered in any way which could affect or invalidate any of these requirements. For advice consult your JCB dealer.

For its compliance as a new product, your JCB and some of its components may bear approval numbers and marking's, and may have been supplied with a Declaration/Certificate of Conformity. These marking's and documents are relevant only for the country/region in which the product was first sold to the extent that the laws and regulations required them.

Re-sales and import/export of products across territories with different laws and regulations can cause new requirements to become relevant for which the product was not originally designed or specified. In some cases, pre owned products irrespective of their age are considered new for the purposes of compliance and may be required to meet the latest requirements which could present an insurmountable barrier to their sale/use.

Despite the presence of any compliance related marking's on the product and components, you should not assume that compliance in a new market will be possible. In many cases it is the person responsible for import of a pre owned product into a market that becomes responsible for compliance and who is also considered the manufacturer.

JCB may be unable to support any product compliance related enquiry for a product which has been moved out of the legislative country/region where it was first sold, and in particular where a product specification change or additional certification would have been required in order for the product to be in compliance.

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## Description

### General

The JCB Loadall is a 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.

### Intended Use

The machine is intended to be used in normal conditions for the applications described in this manual. If the machine is used for other applications or in dangerous environments, for example in a flammable atmosphere or in areas with dust containing asbestos, special safety regulations must be obeyed and the machine must be equipped for use in these environments.

Make sure you follow the instructions outlined in the operator's manual of the mounted or trailed machinery or trailer. Do not operate the combination tractor-machine or tractor-trailer unless all instructions have been followed.

### Log Moving/Object Handling

Do not use the machine to move or handle logs unless sufficient log protection is installed. You could cause serious injury to yourself and damage to the machine. For more information, contact your JCB dealer.

### Optional Equipment and Attachments

A wide range of optional attachments are available to increase the versatility of your machine. Only the JCB approved attachments are recommended for use with your machine. Contact your JCB dealer for the full list of approved attachments available.

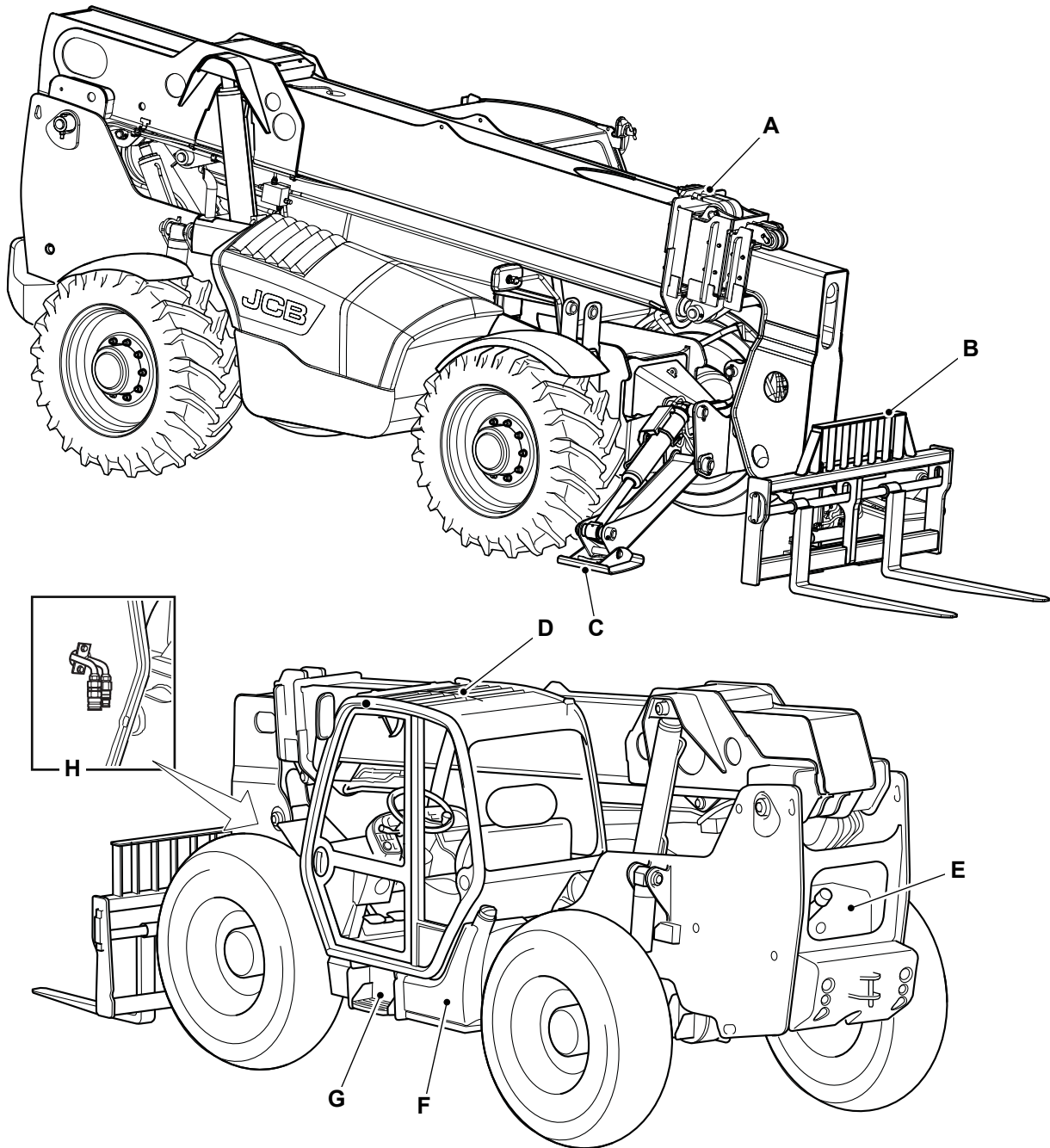
### Danger Zone

The danger zone is any zone within and/or around the machinery in which a person is subject to a risk to their health or safety. The danger zone includes the area in immediate proximity to any hazardous moving parts, areas into which working equipment and attachments can be moved to quickly, the machine normal stopping distances and also areas into which the machine can quickly turn under normal conditions of use. Depending on the application at the time, the danger zone could also include the area into which debris, from use of an attachment or working tool, could be projected and any area into which debris could fall from the machine. During the operation of the machine, keep all persons out of the danger zone. Persons in the danger zone could be injured.

Before you do a maintenance task, make the product safe, stopping operation, isolating the controls and turning off the engine.

### Main Component Locations

Figure 3.



A Lift arm  
C Stabilizer

E Hydraulic tank  
G Battery

B Carriage  
D ROPS (Roll-Over Protective Structure)/FOPS  
(Falling Object Protective Structure) cab

F Fuel tank  
H Quick release couplings

## Product and Component Identification

### Machine

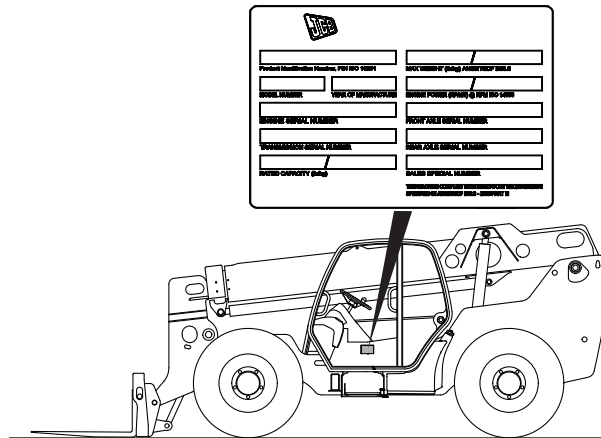
#### Machine Identification Plate

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

The machine model and build specification is indicated by the PIN (Product Identification Number)

The serial number of each major unit is also shown 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 get a replacement identification plate from your JCB Dealer or simply remove 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.

**Figure 4.**



#### Typical Product Identification Number

The machine model and build specification are indicated by the PIN. The PIN has 17 digits and must be read from left to right.

**Table 1. Typical PIN**

JCB	5AA	J	E	C	12345678
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**Table 2.**

Digit 1 to 3	World Manufacturer Identification
JCB	United Kingdom
GEO	Georgia, US
HAR	Haryana, India
SOR	Sorocaba, Brazil
GET	Gatersleben, Germany
PUN	Pune, India
SHA	Shanghai, China
JBP	JCB Branded Products

**Table 3.**

Digit 4 to 6	Machine Model
5CD	506-36
5CE	507-42
5CF	509-42

Digit 4 to 6	Machine Model
5CL	510-42
5CG	510-56
5CH	512-56
5CJ	514-56
5C6	509-45
5C7	508-66
5C8	510-44
5C9	510-55

**Table 4.**

Digit 7	Engine Type
JCB Dieselmex (Tier 4):	
W - (T4i)	55 kW
7 - (T4F)	
X - (T4i)	81 kW
2 - (T4F)	
3 - (T4F)	93 kW
A - (T4F)	55 kW 3L SEF Engine

**Table 5.**

Digit 8	Gearbox Model
G	4 Speed (PS750)

**Table 6.**

Digit 9
Random check letter. The check letter is used to verify the authenticity of a machine's PIN

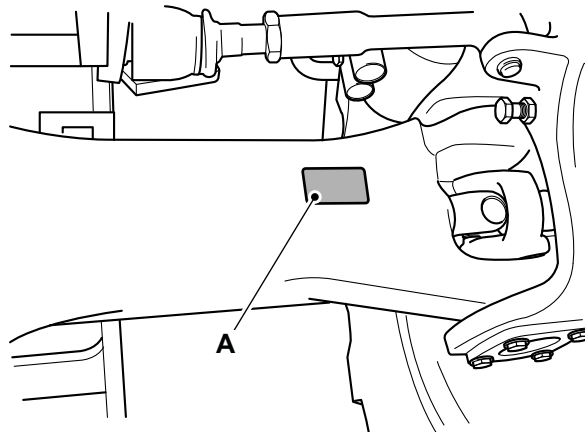
**Table 7.**

Digit 10 to 17
Machine serial number. Each machine has a unique serial number.

## Axle

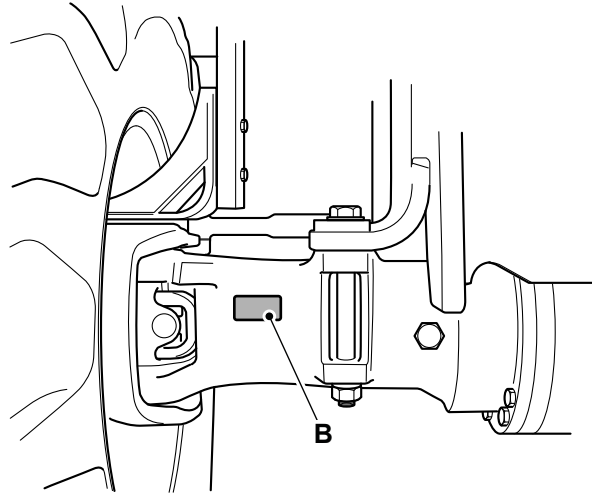
The axles have a serial number stamped on a data plate as shown.

**Figure 5. Front axle**



**A** Data plate - front axle

**Figure 6. Rear axle**

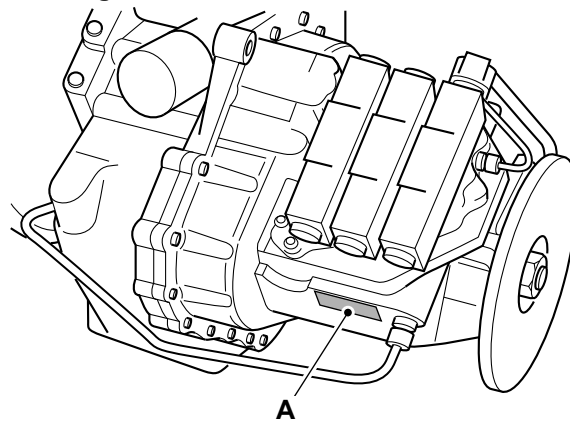


**B** Data plate - rear axle

## **Gearbox**

The gearbox has a serial number stamped on a data plate as shown.

**Figure 7. Power-shift Transmission**



**A** Data plate

## **Operator Protective Structure**

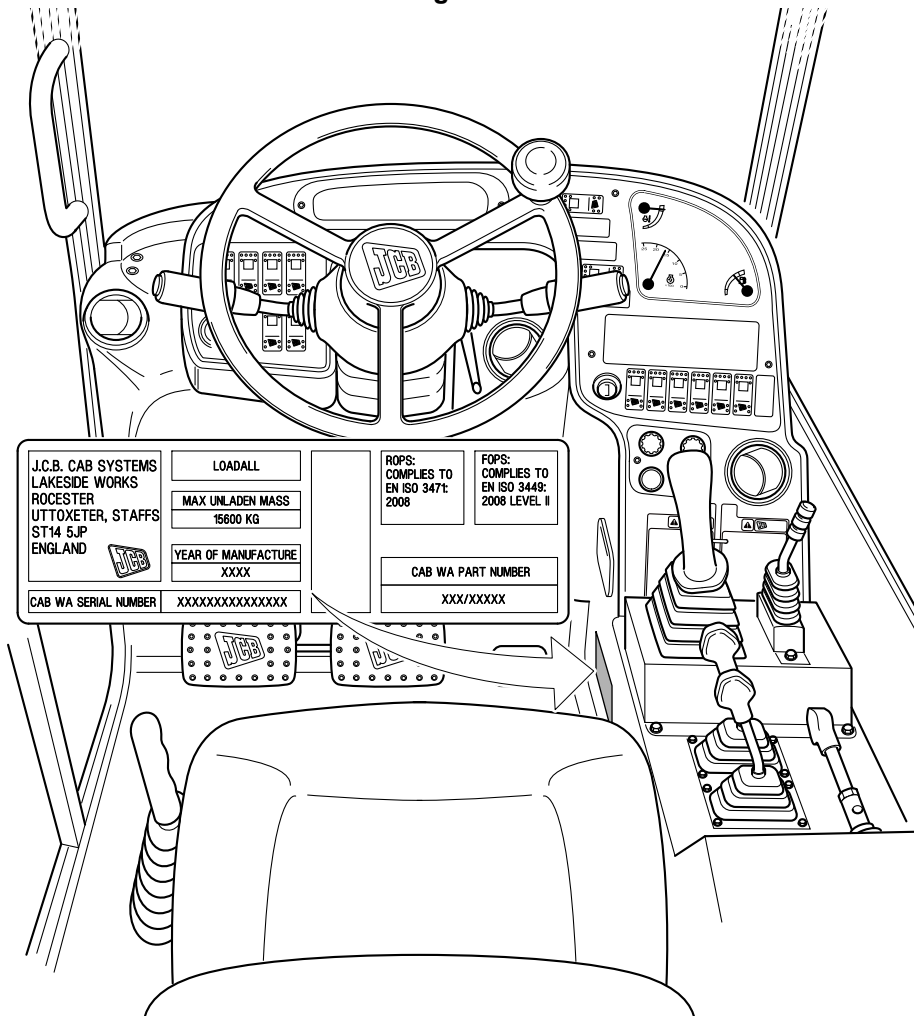
**▲ WARNING** You could be killed or seriously injured if you operate a machine with a damaged or missing ROPS/FOPS. If the ROPS/FOPS has been in an accident, do not use the machine until the structure has been renewed. Modifications and repairs that are not approved by the manufacturer may be dangerous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

Machines built to ROPS (Roll-Over Protective Structure)/FOPS (Falling Object Protective Structure) standards have identification label A fitted to the inside of the cab.

The FOPS structure provides Level II Impact Protection against falling objects (as defined in ISO 3449:2005).



Figure 8.



Data plate - ROPS/FOPS standards

## Safety Labels

### General

**▲ WARNING** Safety labels on the machine warn you of particular hazards. You can be injured if you do not obey the safety instructions shown.

The safety labels are strategically placed around the machine to remind you of possible hazards.

If you need eye-glasses for reading, make sure you wear them when reading the safety labels. Do not over-stretch or put yourself in dangerous positions to read the safety labels. If you do not understand the hazard shown on the safety label, then refer to Safety Label Identification.

Keep all of the safety labels clean and readable. Replace a lost or damaged safety label. Make sure the replacement parts include the safety labels where necessary. Each safety label has a part number printed on it, use this number to order a new safety label from your JCB dealer.

### Safety Label Identification

Figure 9.

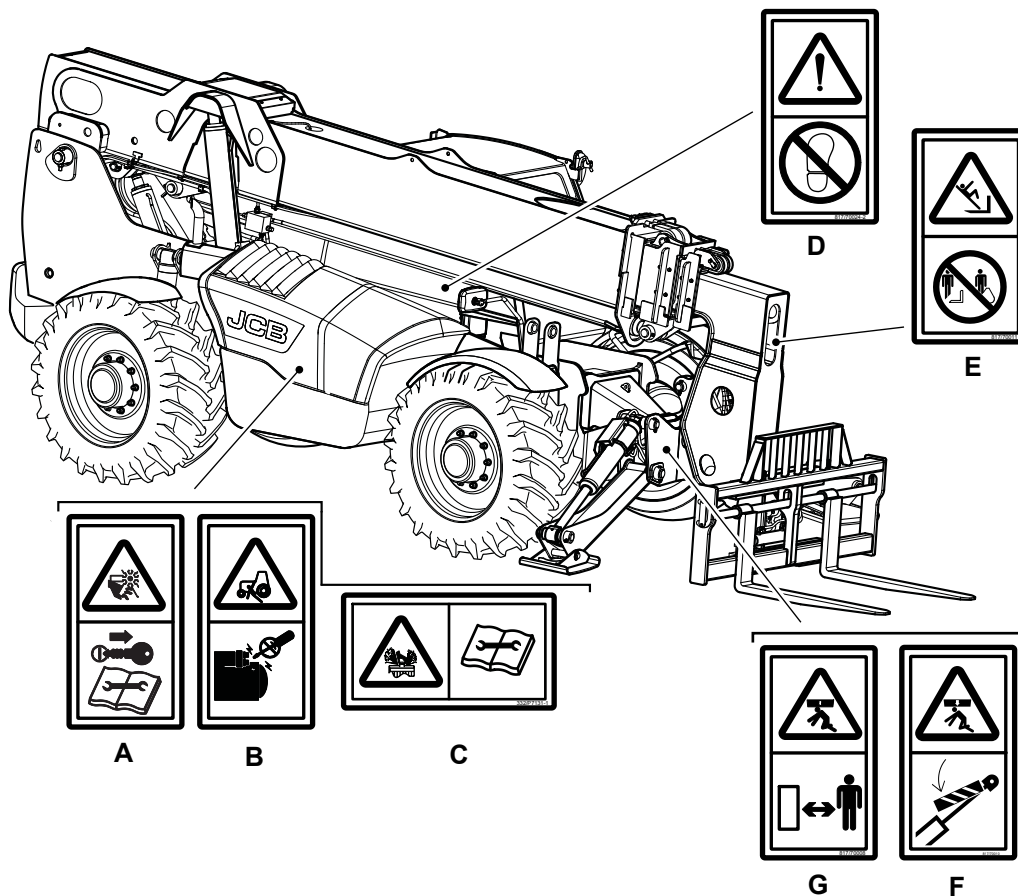


Figure 10.

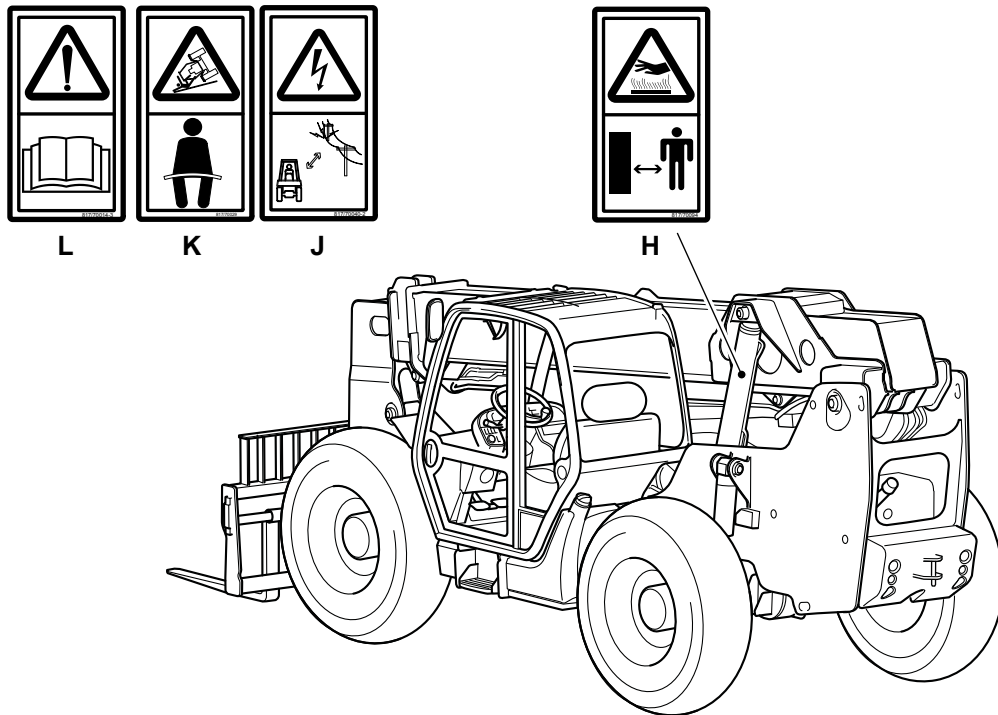


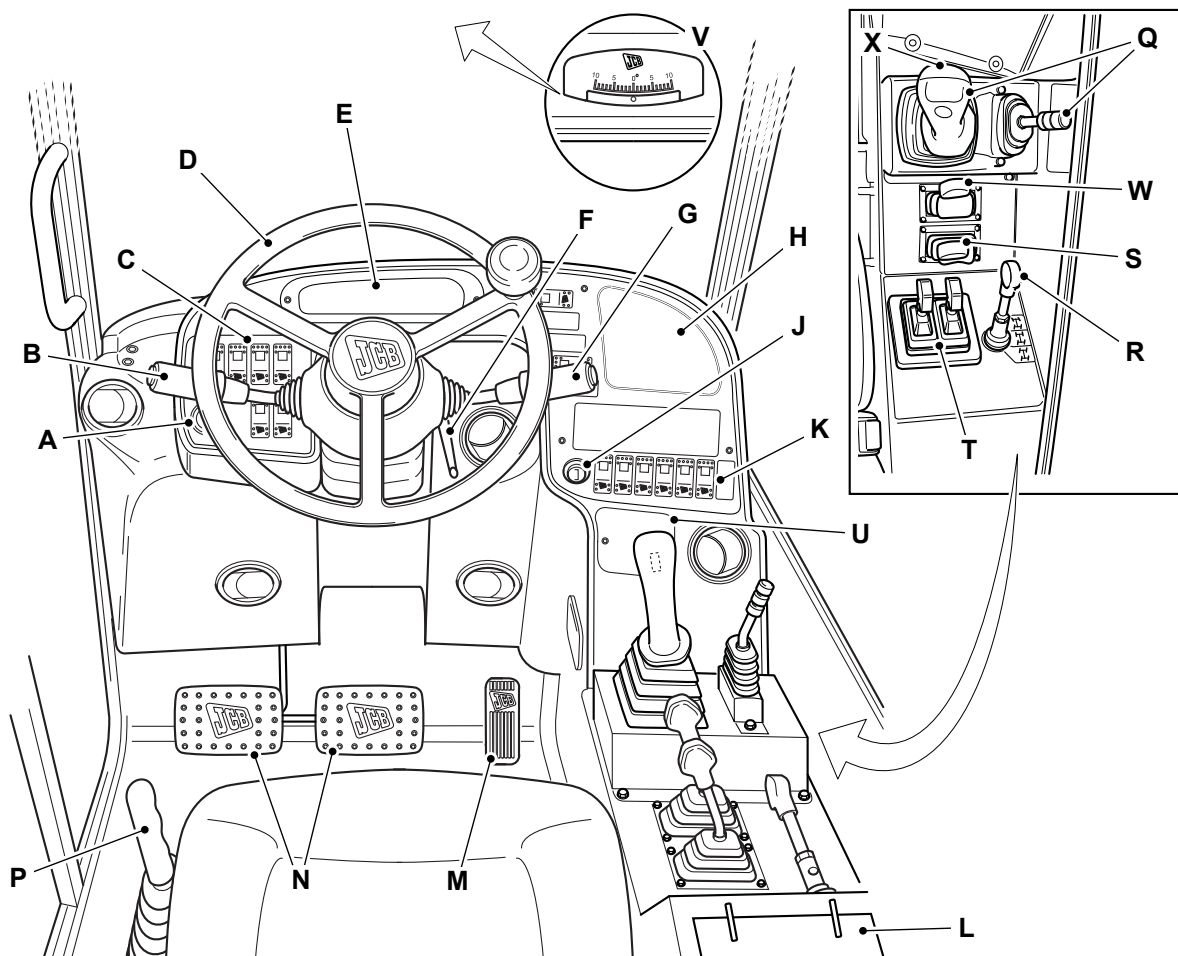
Table 8. Safety Labels

Item	Part No.	Description	Qty.
A	333/D0526	Severing of hands or fingers. Keep clear of/do not reach into the moving parts. Stop the engine and remove the starter key before you start maintenance work. Refer to Maintenance Section in the Operator's Manual.	1
B	332/C9978	Run over hazard. Start the engine from the operator's seat only. Do not short across the terminals.	1
C	332/P7131	Pressure hazard. Read the Service Manual.	1
D	817/70024	Warning. Do not use as a step.	1
E	817/70011	Fall from raised attachment. Do not stand or ride on the bucket or forks.	1
F	817/70010	Crushing of whole body. Insert the boom support device before you complete any service or maintenance work underneath the boom.	1
G	817/70008	Crushing of whole body. Keep a safe distance from machine.	1
H	817/70094	Burns to fingers and hands. Stay a safe distance away.	1
J	817/70040	Electrical hazard. Stay a safe distance away from power lines.	1
K	817/70029	Warning. Crush hazard. Wear seat belt.	1
L	332/G4040	Warning. Read the Operator's Manual before you operate the machine. Electrical hazard. Keep a safe distance away from power lines. Crush hazard. Wear the seatbelt when you operate the machine.	1

# Operator Station

## Component Locations

Figure 11.



- A** Hourmeter Refer to: Instrument Panel (Page 51).
- B** Drive lever Refer to: Gear Lever (Page 49).
- C** Console switches Refer to: Console Switches (Page 19).
- D** Steering wheel Refer to: Steering Wheel (Page 47).
- E** Instrument panel Refer to: Instrument Panel (Page 51).
- F** Steering column adjustment Refer to: Steering Column (Page 47).
- G** Multi-purpose switch Refer to: Multi-Purpose Switch (Page 17).
- H** Instrument panel Refer to: Instrument Panel (Page 51).
- J** Ignition switch Refer to: Ignition Switch (Page 17).
- K** Console switches Refer to: Console Switches (Page 19).
- L** Load Charts Refer to: Load Charts (Page 84).
- M** Accelerator pedal Refer to: Accelerator Pedal (Page 47).
- N** Brake pedals Refer to: Service Brake Pedal (Page 47).
- P** Park brake Refer to: Park Brake (Page 48).
- Q** Boom and carriage controls Refer to: Operating Levers/Pedals (Page 78).
- R** Steer mode selector Refer to: Steer Mode Control (Page 50).
- S** Chassis levelling controls Refer to: Operating Levers/Pedals (Page 78).
- T** Stabilizer controls Refer to: Operating Levers/Pedals (Page 78).
- U** HVAC (Heating Ventilation Air Conditioning) Refer to: Heating, Ventilating and Air-Conditioning (HVAC) (Page 101).
- V** Inclinator Refer to: Inclinator (Page 87).
- W** Auxiliary controls Refer to: Auxiliary Circuit Controls (Page 82).
- X** Transmission dump switch Refer to: Transmission Dump Switch (Page 49).

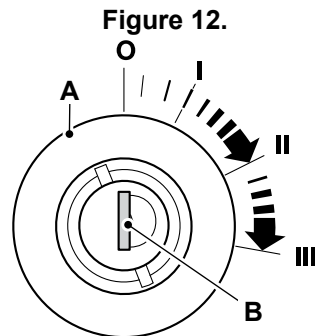
## Interior Switches

### Ignition Switch

The ignition key operates the four-position ignition switch. The ignition key can only be inserted or removed in position 0.

If the engine fails to start, the ignition key must be returned to position 0 before the starter motor is re-engaged.

Do not operate the starter motor for more than 10 s without the engine firing. If the engine fires but does not fully start, do not operate the starter motor for more than 40 s seconds. Let the starter motor cool for at least 2 min between starts.



A Ignition switch

B Ignition key

Table 9. Switch Positions

Position	Function
0	Turn the key to this position to stop the engine. Make sure the transmission is in neutral, the attachments have been lowered and the park brake is engaged before stopping the engine.
I	Putting the switch to this position connects the battery to all the electrical circuits except the lights and the hazard warning lights circuit (the lights and hazard warning lights circuits are permanently live). The starter key will spring back to this position when it is released from II or III. At $-6^{\circ}\text{C}$ ( $21.2^{\circ}\text{F}$ ), the cold start warning light will illuminate to indicate the cold start inlet manifold heater has come on.
II	This position is not used in this application.
III	Operates the starter motor to turn the engine.

### Multi-Purpose Switch

#### Direction Indicators

Push the stalk forwards to indicate a left turn. Pull the stalk backwards to indicate a right turn. Place in central position to cancel.

#### Windscreen Wiper

Rotate the switch barrel to activate and cancel the windscreen wipers. The wiper speed can vary dependant on machine specification.

#### Single Speed

0 = Off

I = On

## Windscreen Washer

Push the button to activate the windscreen washer. Allow the stalk to spring back to central position when finished.

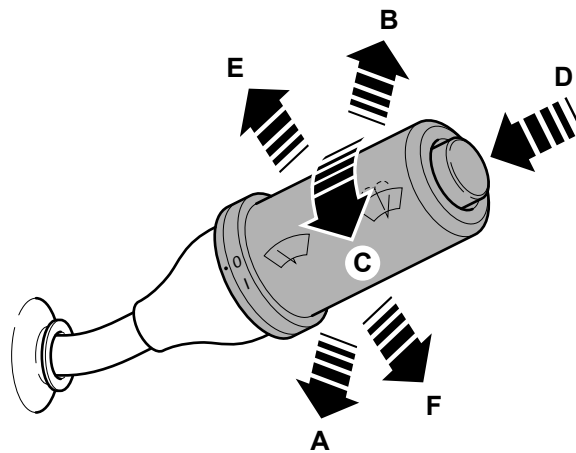
## Headlights Flash

Lift the stalk upwards to flash the headlights. Allow the stalk to spring back to central position when finished.

## Main Beam

When the road lights are switched on via the switch on console, push the stalk downwards to turn on the main beam. Pull the stalk upwards to the central position to turn off main beam. Switch off main beam for oncoming vehicles.

Figure 13.



**A** Backwards - Right turn  
**C** Rotate - Wiper on and off  
**E** Upwards - Headlights flash

**B** Forwards - Left Turn  
**D** Push - Washer on  
**F** Downwards - Main beam

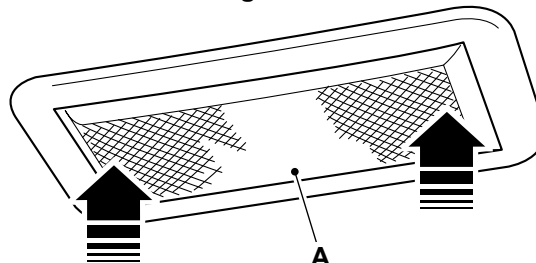
## Cab Interior Light

Press either end of the light unit to turn on the cab interior light.

Press the other end of the light unit to turn off the cab interior light.

Make sure the cab interior light is turned off when you intend to leave the machine for a long period of time.

Figure 14.



**A** Cab interior light

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