



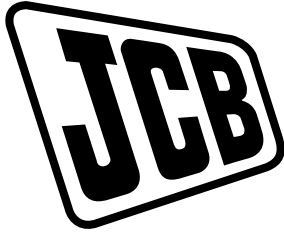
## OPERATOR'S MANUAL



LOADER  
**419S**

EN - 9831/2000 ISSUE 4 - 02/2018

THIS MANUAL SHOULD ALWAYS STAY WITH THE MACHINE



# OPERATOR'S MANUAL

LOADER  
419S

EN - 9831/2000 - ISSUE 4 - 02/2018

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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Contents	Page No.
Acronyms Glossary .....	viii
<b>Introduction</b>	
About this Manual	
Model and Serial Number .....	1
Using the Manual .....	1
Left-Hand Side, Right-Hand Side .....	1
Cab/Canopy .....	1
Cross References .....	2
Location of Manual .....	2
Safety	
Safety - Yours and Others .....	3
Safety Warnings .....	3
General Safety .....	4
Clothing and Personal Protective Equipment (PPE) .....	5
<b>About the Product</b>	
Introduction	
General .....	7
Name and Address of the Manufacturer .....	7
Product Compliance .....	7
Description	
General .....	8
Intended Use .....	8
Log Moving/Object Handling .....	8
Optional Equipment and Attachments .....	8
Danger Zone .....	8
Main Component Locations .....	8
Product and Component Identification	
Machine .....	10
Engine .....	10
Operator Protective Structure .....	11
Safety Labels	
General .....	13
Safety Label Identification .....	13
Operator Station	
Component Locations .....	16
Interior Switches	
Ignition Switch .....	17
Multi-Purpose Switch .....	17
Cab Interior Light .....	18
Console Switches	
General .....	20
<b>Operation</b>	
Introduction	
General .....	23
Operating Safety	
General .....	24
Worksite Safety .....	26
Risk Assessment .....	27



Walk-Around Inspection  
    General ..... 29

Entering and Leaving the Operator Station  
    General ..... 30  
    Emergency Exit ..... 30

Doors  
    Operator Door ..... 32

Windows  
    Side Window ..... 33

Battery Isolator  
    General ..... 34

Before Starting the Engine  
    General ..... 35

Operator Seat  
    General ..... 37  
    Armrest ..... 40

Seat Belt  
    General ..... 42  
    Inertia Reel Seat Belt ..... 42

Mirrors  
    General ..... 44

Visual Aids  
    Exterior View System ..... 48

Starting the Engine  
    General ..... 49

Stopping and Parking  
    General ..... 51

Preparing for Travel  
    General ..... 52  
    Preparing for Road Travel ..... 52  
    Preparing for Worksite Travel ..... 54  
    Smooth Ride System (SRS) ..... 55  
    Beacon ..... 56

Safety Equipment  
    Articulation Lock ..... 57  
    Control Lock ..... 58

Drive Controls  
    General ..... 59  
    Steering Wheel ..... 60  
    Steering Column ..... 61  
    Accelerator Pedal ..... 61  
    Forward, Neutral and Reverse Switch ..... 61  
    Service Brake Pedal ..... 63  
    Park Brake ..... 63  
    Transmission Kickdown Switch ..... 64  
    Transmission Dump Switch ..... 64  
    Transmission Mode ..... 65

Instruments  
    Instrument Panel ..... 68

Getting the Machine Moving  
    General ..... 80



Slopes  
    General ..... 81  
    Driving on Slopes ..... 81  
    Working on Slopes ..... 82  
Driving the Machine  
    Towing Other Equipment ..... 83  
Operating Levers/Pedals  
    General ..... 84  
    Control Layouts ..... 84  
    Lift Arm Controls ..... 84  
    Auxiliary Circuit Controls ..... 86  
Lifting and Loading  
    General ..... 88  
Working with the Lift Arm  
    General ..... 89  
    Filling the Shovel ..... 90  
    Loading a Truck ..... 90  
    Adjusting the Lift Arm ..... 91  
Heating, Ventilating and Air-Conditioning (HVAC)  
    General ..... 94  
    Air-Conditioning Controls ..... 94  
Power Sockets  
    Auxiliary Power Socket ..... 96  
Fire Extinguisher  
    General ..... 97  
Moving a Disabled Machine  
    General ..... 98  
    Getting the Machine Unstuck ..... 98  
    Jump-Starting the Engine ..... 98  
    Retrieval ..... 99  
    Recovery Hitch ..... 101  
    Loader Arm (Emergency Operation) ..... 102  
Lifting the Machine  
    General ..... 103  
Transporting the Machine  
    General ..... 105  
Operating Environment  
    General ..... 107  
    Operating in Low Temperatures ..... 107  
    Operating in High Temperatures ..... 108  
    Cab Filters ..... 108  
Refuelling  
    General ..... 109  
    Low Fuel Levels ..... 109  
    Filling the Tank ..... 109

**Attachments**

Working with Attachments  
    Introduction ..... 113  
    Attachments for your Machine ..... 113  
    Connecting/Disconnecting Hydraulic Hoses ..... 114



Quickhitch	
General .....	118
Lift Arm Quickhitch Carriage .....	118
Tow Hitches	
Standard Hitch .....	124
Hydraulic Tow Hitch .....	124
Rockinger Hitch .....	130
Mechanical Tow Hitch .....	131
Work Platforms	
General .....	134
<b>Preservation and Storage</b>	
Cleaning	
General .....	135
Preparation .....	136
Checking For Damage	
General .....	137
Storage	
General .....	138
Put into Storage .....	138
During Storage .....	138
Take out of Storage .....	139
Security	
General .....	141
JCB Plantguard .....	141
Construction Equipment Security and Registration Scheme (CESAR) .....	141
LiveLink .....	141
<b>Maintenance</b>	
Introduction	
General .....	143
Owner/Operator Support .....	143
Service/Maintenance Agreements .....	144
Initial Service and Inspection .....	144
Obtaining Spare Parts .....	144
Maintenance Safety	
General .....	145
Fluids and Lubricants .....	146
Maintenance Schedules	
General .....	150
How to Use the Maintenance Schedules .....	150
Maintenance Intervals .....	150
Pre-start Cold Checks, Service Points and Fluid Levels .....	151
Functional Tests and Final Inspection .....	153
Maintenance Positions	
General .....	155
Maintenance Position (Lift Arm Lowered) .....	155
Maintenance Position (Lift Arm Raised) .....	156
Service Points	
General .....	158
Access Apertures	
General .....	162



Battery Cover .....	162
Engine Compartment Cover .....	162
Cab Heater Door .....	163
Tools	
General .....	165
Toolbox .....	165
Lubrication	
General .....	166
Preparation .....	166
Automatic Greasing System .....	166
Attachments	
General .....	168
Body and Framework	
General .....	169
Lift Arm	
General .....	170
Operator Station	
General .....	171
Operator Protective Structure .....	171
Seat .....	171
Seat Belt .....	171
Controls .....	172
Heating, Ventilating and Air-Conditioning (HVAC)	
Air-Conditioning .....	173
Heater .....	173
Engine	
General .....	175
Oil .....	176
Drive Belt .....	178
Crankcase Ventilation .....	178
Exhaust .....	179
Emissions Control System .....	179
Air Filter	
General .....	181
Outer Element .....	181
Pre-Cleaner .....	182
Dust Valve .....	182
Fuel System	
General .....	183
Fuel Filter .....	184
Water Separator .....	184
Cooling System	
General .....	186
Coolant .....	186
Cooling Pack .....	186
Brakes	
General .....	188
Park Brake .....	188
Service Brake .....	189
Trailer Brakes .....	189





Gearbox	
Oil .....	190
Steering System	
General .....	191
Driveshafts	
General .....	192
Wheels	
General .....	193
Tyres	
General .....	195
Hydraulic System	
General .....	197
Services .....	198
Oil .....	198
Cylinders / Rams .....	198
Hose Burst Check Valves .....	199
Electrical System	
General .....	200
Battery .....	200
Battery Isolator .....	202
Fuses .....	202
Relays .....	204
Window Washer .....	206
Miscellaneous	
Fire Extinguisher .....	207
<b>Technical Data</b>	
Static Dimensions	
Dimensions .....	209
Weights .....	211
Visibility Diagrams .....	214
Performance Dimensions	
Lift Arm Dimensions and Performance .....	217
Driving Performance .....	219
Towing Weights .....	221
Noise Emissions	
General .....	223
Noise Data .....	223
Vibration Emissions	
General .....	224
Vibration Data .....	225
Fluids, Lubricants and Capacities	
General .....	226
Fuel .....	226
Diesel Exhaust Fluid (DEF) .....	229
Coolant .....	231
Torque Values	
General .....	233
Electrical System	
General .....	234
Bulbs .....	234
Fuses .....	234



Relays .....	237
Engine	
Exhaust After Treatment (EAT) .....	239
Wheels and Tyres	
General .....	241
Tyre Sizes and Pressures .....	241
Declaration of Conformity	
General .....	243
Data .....	243
Warranty Information	
Service Record Sheet .....	245
Engine Emissions .....	251

**Acronyms Glossary**

ARV	Auxiliary Relief Valve
ATC	Automatic Temperature Control
CAN	Controller Area Network
CESAR	Construction Equipment Security and Registration
DEF	Diesel Exhaust Fluid
ECU	Electronic Control Unit
EGR	Exhaust Gas Recirculation
ETRTO	European Tyre and Rim Technical Organisation
FOPS	Falling Object Protective Structure
HEST	High Exhaust System Temperature
HVAC	Heating Ventilation Air Conditioning
ICCO	Intelligent Clutch Cut Off
ISO	International Organization for Standardization
LCD	Liquid Crystal Display
LED	Light Emitting Diode
MRV	Main Relief Valve
PIN	Product Identification Number
PPE	Personal Protective Equipment
RMS	Root Mean Square
ROPS	Roll-Over Protective Structure
RPM	Revolutions Per Minute
SAE	Society of Automotive Engineers
SCR	Selective Catalytic Reduction
SRS	Smooth Ride System
TCU	Transmission Control Unit
VIN	Vehicle Identification Number

# 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:
419S	2439651	2439810

### 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.

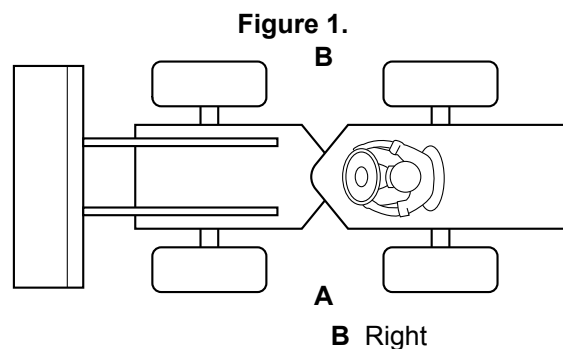
The illustrations in this manual are for guidance only. Where the machines are different, the text and or the illustration will specify.

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.



### 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.

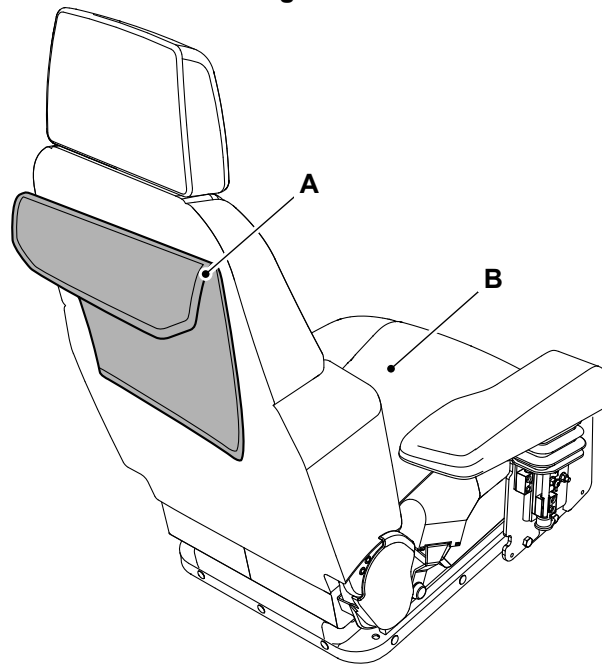
## Cross References

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 \(Page 2\)](#).

## Location of Manual

The manual is located in the case attached to the back of the seat. The manual should always be returned to its case after use.

**Figure 2.**



**A** Manual location

**B** Operator seat

## 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 3. 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 Earthmovers Limited, Harewood Estate, Leek Road, Cheadle, Stoke On Trent, Staffordshire, United Kingdom, ST10 2JX

### **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

A self-propelled wheeled machine with an integral front mounted shovel-supporting structure and linkage.

The machine can load or excavate through the forward motion of the machine, and can lift, transport and discharge material.

### 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.

### 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.

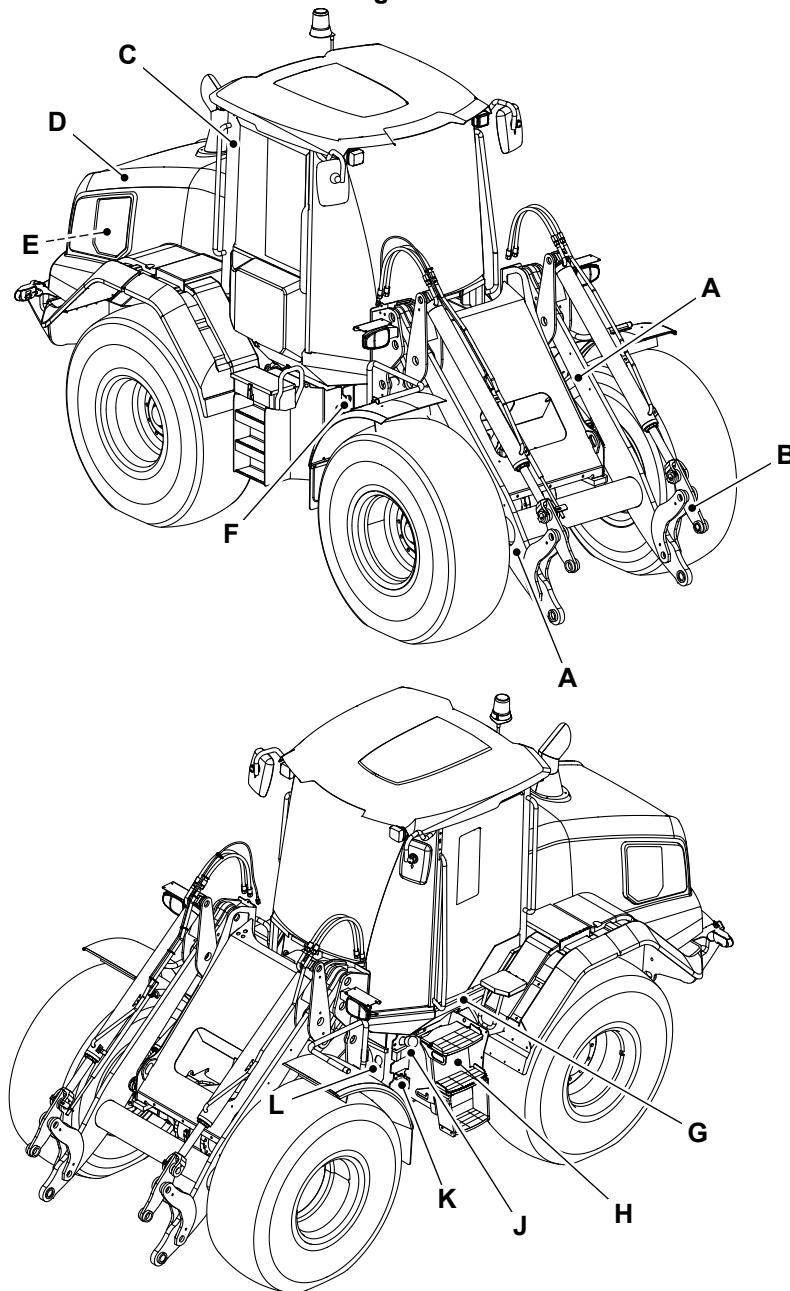
### Danger Zone

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.

### Main Component Locations

Figure 4.



- |  |   |
|--|---|
| <b>A</b> Loader arms   | <b>B</b> Quickhitch                       |
| <b>C</b> ROPS (Roll-Over Protective Structure)/FOPS<br>(Falling Object Protective Structure) Cab | <b>D</b> Engine cover                     |
| <b>E</b> Hydraulic fluid filler point  | <b>F</b> Hydraulic fluid tank sight glass |
| <b>G</b> Battery isolator  | <b>H</b> Battery cover                    |
| <b>J</b> Diesel filler point   | <b>K</b> Articulation lock                |
| <b>L</b> Transmission filler point   |   |

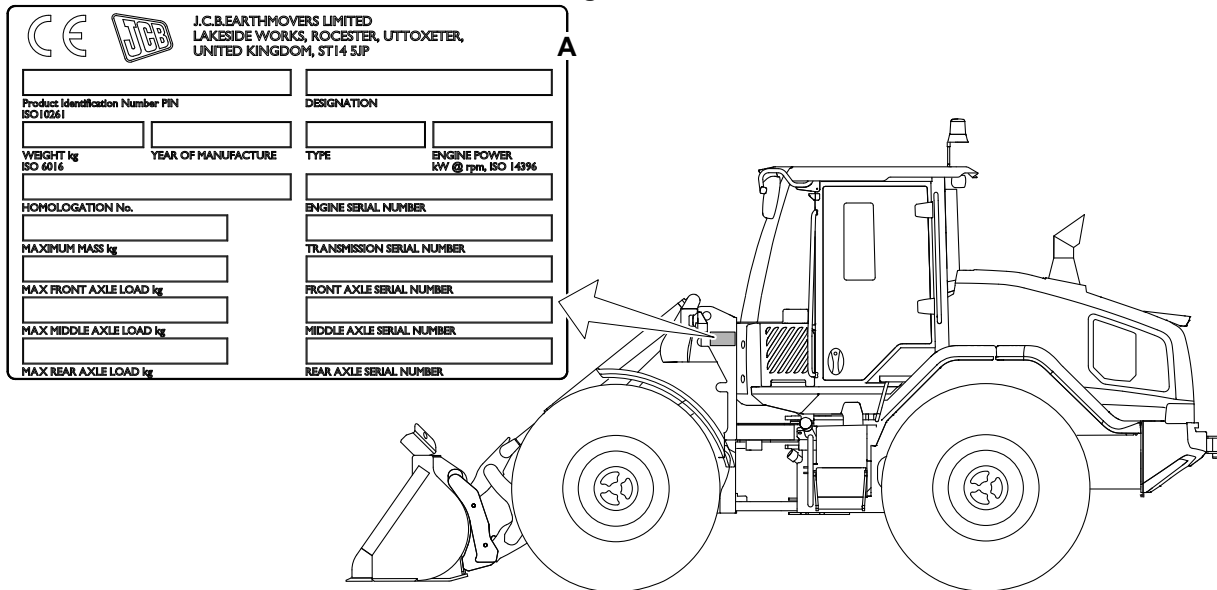
## Product and Component Identification

### Machine

Your machine has an identification plate. The PIN (Product Identification Number), weight, engine power, year of manufacture and serial number of the machine are shown on the identification plate.

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.

**Figure 5.**



**A** Identification plate (location)

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	419S	Z	S	D	01323456
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**Table 2. Explanation of the PIN**

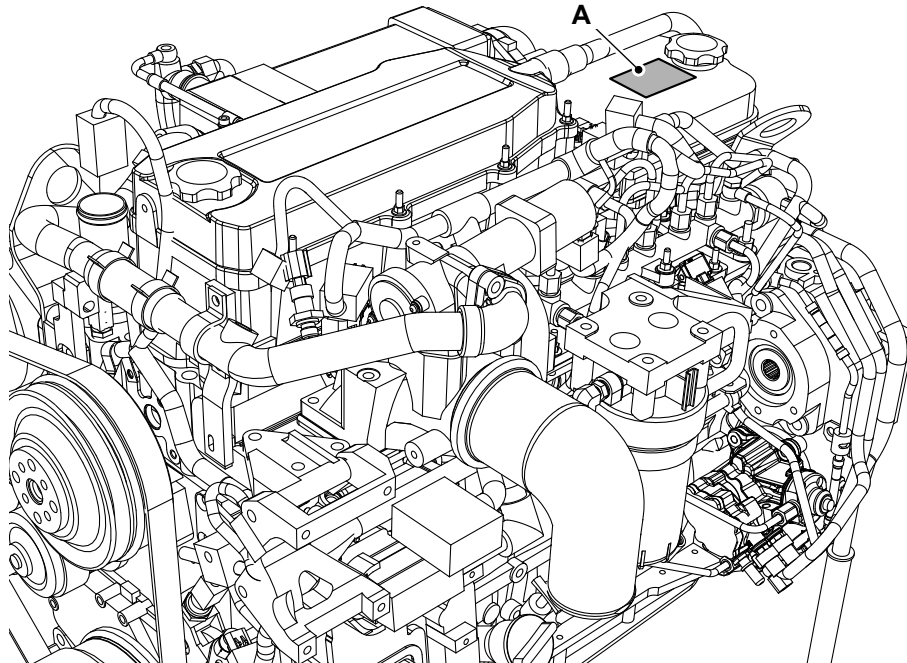
Digit	Description
1 to 3	World manufacturer identification. For example, JCB = UK Build.
4 to 6	Machine type and model
7	O = HT Loader End, Z = ZX Loader End
8	Designation: O = Non-Farmmaster, S = Farmmaster, I = India
9	Random check letter. The check letter is used to verify the authenticity of a machine's PIN.
10 to 17	Machine serial number

### Engine

The engine data label is attached to the rocker cover as shown.

The data label includes the engine identification number.

Figure 6.



A Engine data label - rocker cover

Figure 7.

MANUFACTURED BY CUMMINS INC  Assembled in the USA Date of Mfg: WARNING: Injury may result and warranty is voided if fuel, rpm or altitudes exceed published maximum values for this model and application.	Engine No.	Ref. No.	MODEL	Fuel Rate at Adv.HP	Mm <sup>3</sup> Score	CPL
	Idle Speed(rpm)	Advertised HP	at rpm	Family	FEL	EPA
	Firing Order	Timing	J.D.C. ELECTRONIC	Catalyst No.	NOx	NMHC
	Valve lash/cold	Int.	Exh.	C. I.D./A.	E. C. S.	PM
IMPORTANT ENGINE INFORMATION: This engine is exempt from the prohibitions of Section 203 (a) (1) (3) & (4) of the clean air act as amended. See exemption label information for exemption no. and effective date.						

Engine data label

## Operator Protective Structure

### ROPS and FOPS Data Plate

**⚠ WARNING** You could be killed or seriously injured if you operate a machine with a damaged or missing ROPS/FOPS/FOGS. If the ROPS/FOPS/FOGS 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/FOGS certification.

**WARNING** Do not use the machine if the falling objects protection level provided by the structure is not sufficient for the application. Falling objects can cause serious injury.

**WARNING** Machines with a ROPS, FOPS,FOGS or TOPS are equipped with a seat belt. The ROPS, FOPS,FOGS or TOPS is designed to give you protection in an accident. If you do not wear the seat belt you could be thrown off the machine and crushed. You must wear a seat belt when using the machine. Fasten the seat belt before starting the engine.

A machine built to the ROPS (Roll-Over Protective Structure)/FOPS (Falling Object Protective Structure) standard has a data plate attached to the inside of the cab.

**Figure 8.**

J.C.B. CAB SYSTEMS LAKESIDE WORKS ROCESTER UTTOXETER, STAFFS ST14 5JP ENGLAND 	LOADING SHOVEL WHEELED  MAX UNLADEN MASS XXXX KG YEAR OF MANUFACTURE XXXX		OECD APPROVAL NUMBER  ROPS COMPLIANCE EN ISO 3471:2008  FOPS COMPLIANCE EN ISO 3449:2008 LEVEL 2  WA PART NUMBER XXX/XXXXX
WA SERIAL NUMBER XXXXXXXXXXXXXXXX			

If the machine is used in any application where there is a risk of falling objects then a FOPS must be installed. For further information, contact your JCB dealer.

The FOPS has a data plate attached. The data plate indicates what level protection the structure provides.

There are two levels of FOPS:

- Level I Impact Protection - impact strength for protection from small falling objects (e.g. bricks, small concrete blocks, hand tools) encountered in operations such as highway maintenance, landscaping and other construction site services.
- Level II Impact Protection - impact strength for protection from heavy falling objects (e.g. trees, rocks) for machines involved in site clearing, overhead demolition or forestry.

## 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 overstretch 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.

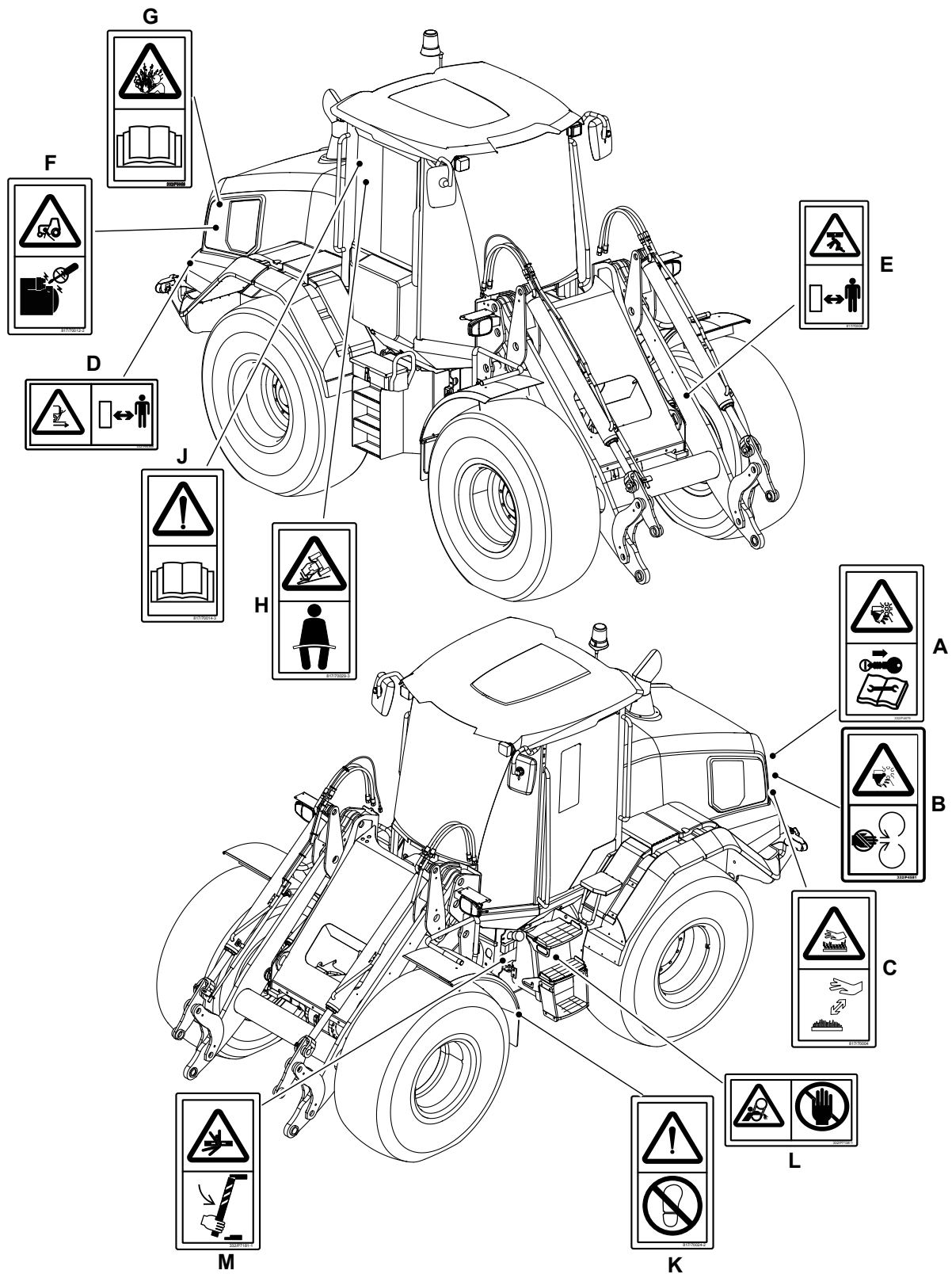


Table 3. Safety Labels

Item	Part No.	Description	Qty.
A	400/C5179	Severing of hands and fingers. Keep clear of/do not reach into rotating parts. Read the Service Manual.	2

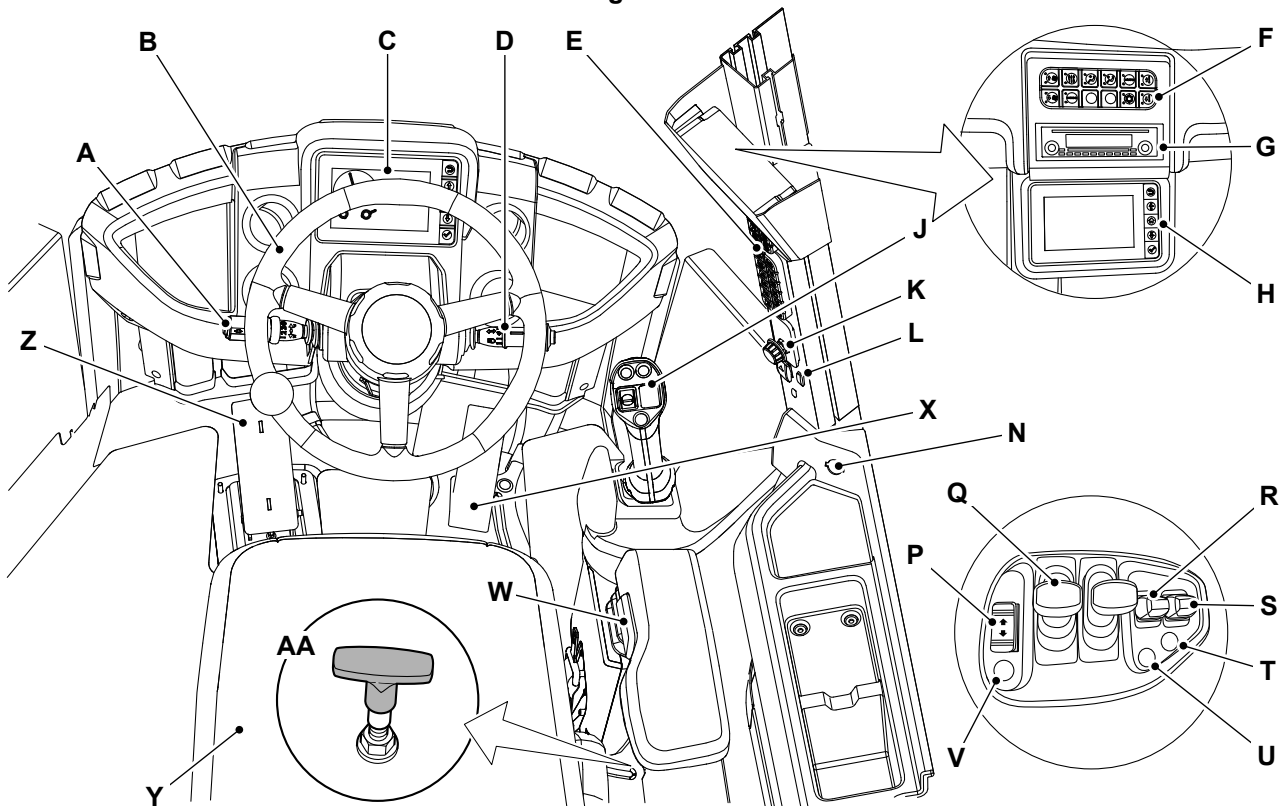


<b>Item</b>	<b>Part No.</b>	<b>Description</b>	<b>Qty.</b>
B	400/C4172	Severing of hands and fingers. Keep clear of/do not reach into rotating parts.	1
C	332/W8904	Burns to fingers and hands. Stay a safe distance away.	1
D	400/B5121	Strike. Keep clear of the reversing machine.	1
E	400/B5120	Crushing of whole body. Keep a safe distance from machine.	2
F	817/70012	Run over hazard. Start the engine from the operator's seat only. Do not short across the terminals.	1
G	400/C4420	Pressure hazard. Read the Operator's Manual.	1
H	400/B5108	Crush hazard. Wear seat belt.	1
J	400/B5107	Warning. Read the Operator's Manual before you operate the machine.	1
K	400/B7285	Warning. Do not use as a step.	3
L	400/C5126	Entanglement hazard. Do not touch.	1
M	400/B5118	Crushing of whole body. Attach/use the support or prop to lockout for service, maintenance or any access.	1

## Operator Station

### Component Locations

Figure 10.



- |   |   |
|---|---|
| <p><b>A</b> Transmission Refer to: <a href="#">Drive Controls (Page 59)</a>.</p> <p><b>C</b> Front display panel Refer to: <a href="#">Instruments (Page 68)</a>.</p> <p><b>E</b> Console switches Refer to: <a href="#">Console Switches (Page 20)</a>.</p> <p><b>G</b> Radio</p> <p><b>J</b> Proportional lever controls Refer to: <a href="#">Operating Levers/Pedals (Page 84)</a>.</p> <p><b>L</b> Park brake switch Refer to: <a href="#">Park Brake (Page 63)</a>.</p> <p><b>P</b> Forward reverse switch Refer to: <a href="#">Forward, Neutral and Reverse Switch (Page 61)</a>.</p> <p><b>R</b> Primary auxiliary controller (option) Refer to: <a href="#">Auxiliary Circuit Controls (Page 86)</a>.</p> <p><b>T</b> Ergo traction (option)</p> <p><b>V</b> Transmission kickdown switch Refer to: <a href="#">Transmission Kickdown Switch (Page 64)</a>.</p> <p><b>X</b> Accelerator pedal Refer to: <a href="#">Accelerator Pedal (Page 61)</a>.</p> <p><b>Z</b> Service brake pedal Refer to: <a href="#">Service Brake Pedal (Page 63)</a>.</p> | <p><b>B</b> Steering wheel Refer to: <a href="#">Steering Wheel (Page 60)</a>.</p> <p><b>D</b> Multi purpose steering column switch Refer to: <a href="#">Multi-Purpose Switch (Page 17)</a>.</p> <p><b>F</b> ATC (Automatic Temperature Control) panel or optional manual HVAC (Heating Ventilation Air Conditioning) controls Refer to: <a href="#">Air-Conditioning Controls (Page 94)</a>.</p> <p><b>H</b> Secondary display panel (option) Refer to: <a href="#">Instruments (Page 68)</a>.</p> <p><b>K</b> Rotary switch panel Refer to: <a href="#">Instruments (Page 68)</a>.</p> <p><b>N</b> Starter switch Refer to: <a href="#">Ignition Switch (Page 17)</a>.</p> <p><b>Q</b> Multi lever controls Refer to: <a href="#">Drive Controls (Page 59)</a>.</p> <p><b>S</b> Secondary auxiliary controller (option)</p> <p><b>U</b> Horn</p> <p><b>W</b> Armrest Refer to: <a href="#">Armrest (Page 40)</a>.</p> <p><b>Y</b> Seat Refer to: <a href="#">Operator Seat (Page 37)</a>.</p> <p><b>AA</b> Tow hitch lever</p> |
|---|---|

## Interior Switches

### Ignition Switch

The ignition key operates the 4-position ignition switch. The ignition key can only be inserted or removed in position O.

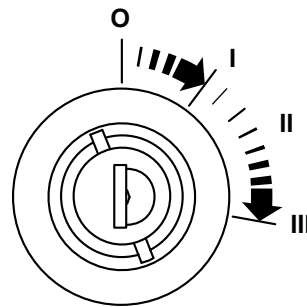
If the engine fails to start, the ignition key must be returned to position O before the starter motor is re-engaged.

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

**Table 4. Switch positions**

	Function
O	Turn the ignition key to this position to stop the engine. Make sure the transmission is in neutral, the attachments are lowered and the park brake is engaged before you stop the engine
I	Turn the ignition key to this position to connect the battery to all of the electrical circuits (except the lights and hazard warning lights which are permanently live). The ignition key will return to this position when it is released from position II or III
II	This position is not used
III	Turn the ignition key to this position to operate the starter motor which turns the engine. (Only when the transmission is in neutral)

**Figure 11.**



### 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 (Standard)

O = Off

I = On

#### Two Speed (Optional)

J = Intermittent wipe

0 = Off

I = Slow

II = Fast

### Windscreen Washer

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

### Horn

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

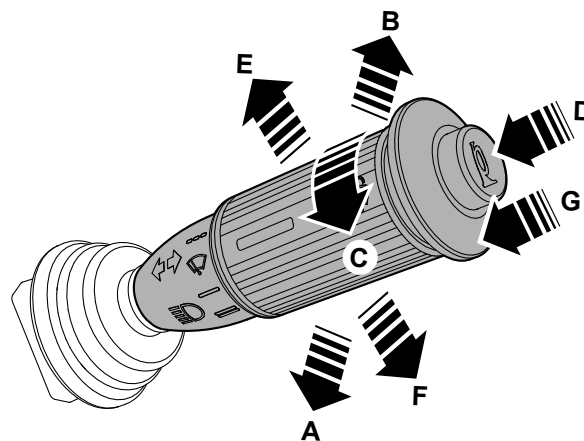
### Headlights Flash

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 main 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.

**Figure 12.**



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

- B** Forwards - Left turn
- D** Horn
- F** Downwards - Main beam

### Cab Interior Light

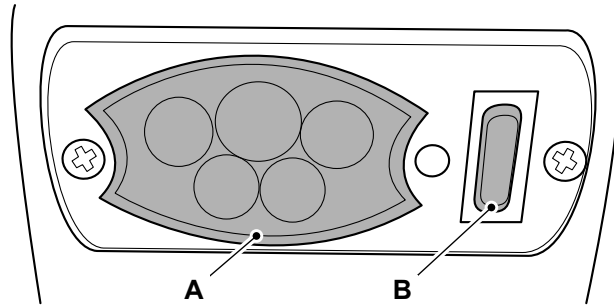
Three position switch. Make sure the cab interior light is turned off when you intend to leave the machine for a long period of time.

Position : 1 = Interior light and ambient light off

Position : 2 = Interior light operates when cab door open, ambient light comes on when side lights switched on

Position : 3 = Interior light comes on permanently

Figure 13.



A Cab interior light

B Switch

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