OPERATOR'S MANUAL



BACKHOE LOADER
3CX Compact

EN - 9831/1400 ISSUE 11 - 06/2018

THIS MANUAL SHOULD ALWAYS STAY WITH THE MACHINE

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Contents **Page No.**

Acronyms Glossary viii

Introduction
About this Manual
Model and Serial Number 1
Using the Manual 1
Left-Hand Side, Right-Hand Side 1
Cross References 1
Location of Manual 2
Safety
Safety - Yours and Others 3
Safety Warnings 3
General Safety 4
Clothing and Personal Protective Equipment (PPE) 5

About the Product
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 9
Product and Component Identification
Machine 10
Engine 10
Axle(s) 11
Operator Protective Structure 11
Safety Labels
General 13
Safety Label Identification 14
Operator Station
Component Locations 17
Interior Switches
Ignition Switch 19
Multi-Purpose Switch 19
Cab Interior Light 20
Console Switches
General 22
Road Lights 22
Rear Fog Lights 22
Hazard Warning Lights 22
Front Work Lights 23
Rear Work Lights 23
Boom Work Light 23
Smooth Ride System (SRS) 23

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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 4. The safety alert system symbol



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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:
3CX Compact	2454201	
	2495456	

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.

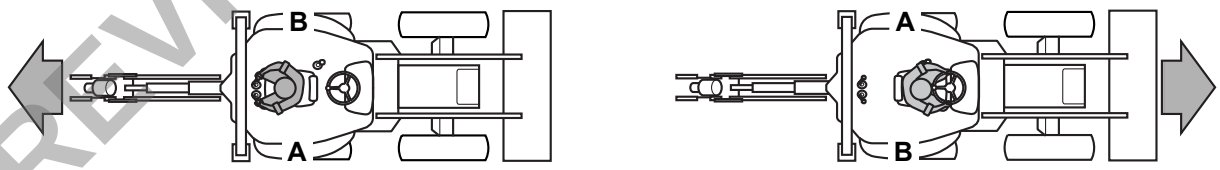
All of the optional equipment included in this manual may not be available in all territories

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.

This is so whether you are facing the loader (front) or the backhoe (rear).

Figure 1.



A Left **B** Right

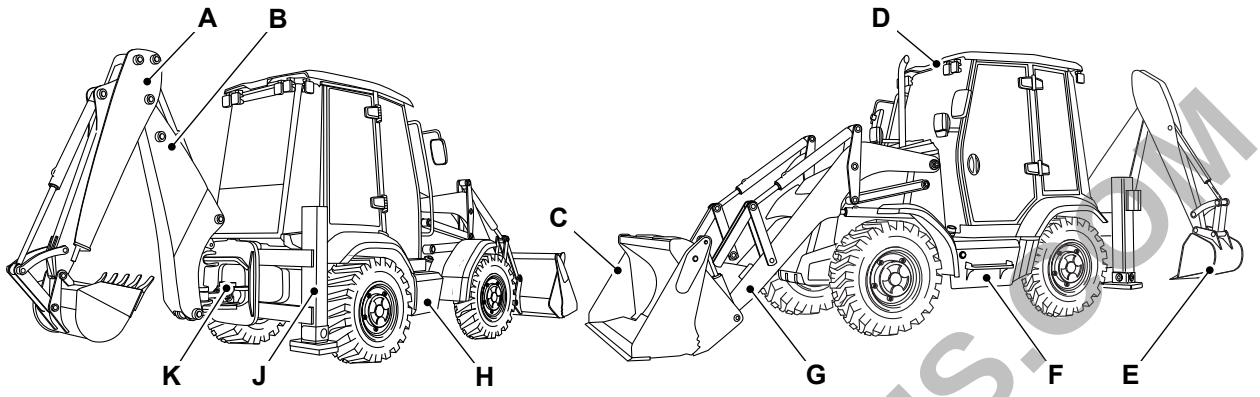
Cross References

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 1).

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Main Component Locations

Figure 5.



A Dipper
B Boom
C Shovel
D ROPS (Roll-Over Protective Structure)/FOPS (Falling Object Protective Structure) cab or canopy
E Bucket
F Hydraulic oil tank
G Loader arm
H Fuel tank
J Stabilisers
K Kingpost

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Figure 13. Canopy Machine

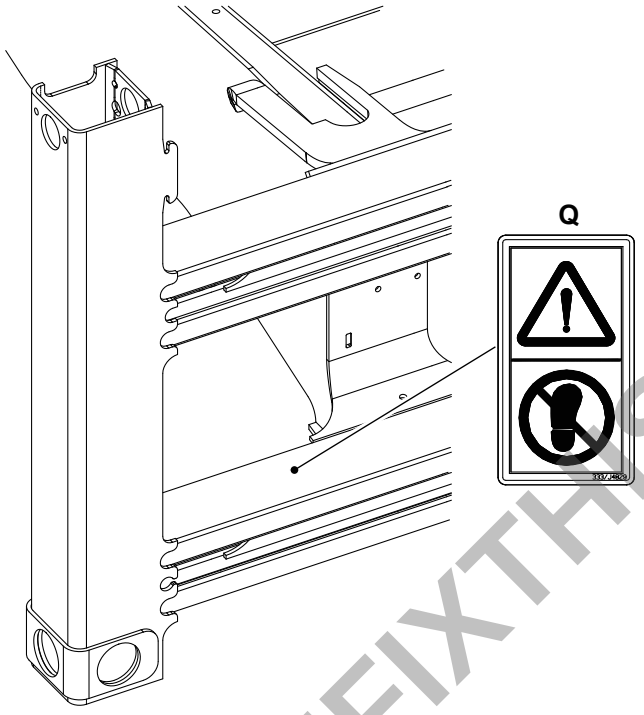


Table 3. Safety Labels

Item	Part No.	Description	Qty
A	817/70029	Crush hazard. Wear seat belt.	1
B	817/70014	Warning. Read the Operator's Manual before you operate the machine.	1
C	332/P4679	Severing of hands and fingers. Keep clear of/do not reach into rotating parts. Read the Service Manual.	2
D	817/70104	Crushing of whole body. Insert the boom support device before you complete any service or maintenance work underneath the boom.	2
E	332/P7135	Crush hazard (to feet). Keep a safe distance. The attachment may roll forward when released.	2
F	817/70021	Noise warning. Wear ear protection.	2
G	332/F5855	Pressure hazard. Read the Operator's Manual.	2
H	817/70108	Fall from raised attachment. Do not stand or ride on the bucket or forks.	1
J	817/70042	Explosion hazard. Remove sources of ignition.	1
K	817/70012	Run over hazard. Start the engine from the operator's seat only. Do not short across the terminals.	1
L	817/70018	Crushing of whole body. Do not operate the controls from outside of the machine.	1
M	334/G8512	Emergency exit.	1
N	332/A0768	Crushing of whole body. Quickhitch – Read the Operator's Manual.	2
P	-	Load chart (if fitted)	1
Q	333/J4829	Warning. Do not use as a step.	2

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Torque Values

General

ROPS/FOPS

Table 46.

Mounting bolts torque	205 N·m

Engine

Table 47.

Oil filter cartridge cap	25 N·m
Fuel filter cartridge	17 N·m
Engine oil drain plug	35 N·m

Wheels

Table 48.

Wheel nuts	650 –680 N·m

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Status Screen

Figure 55.

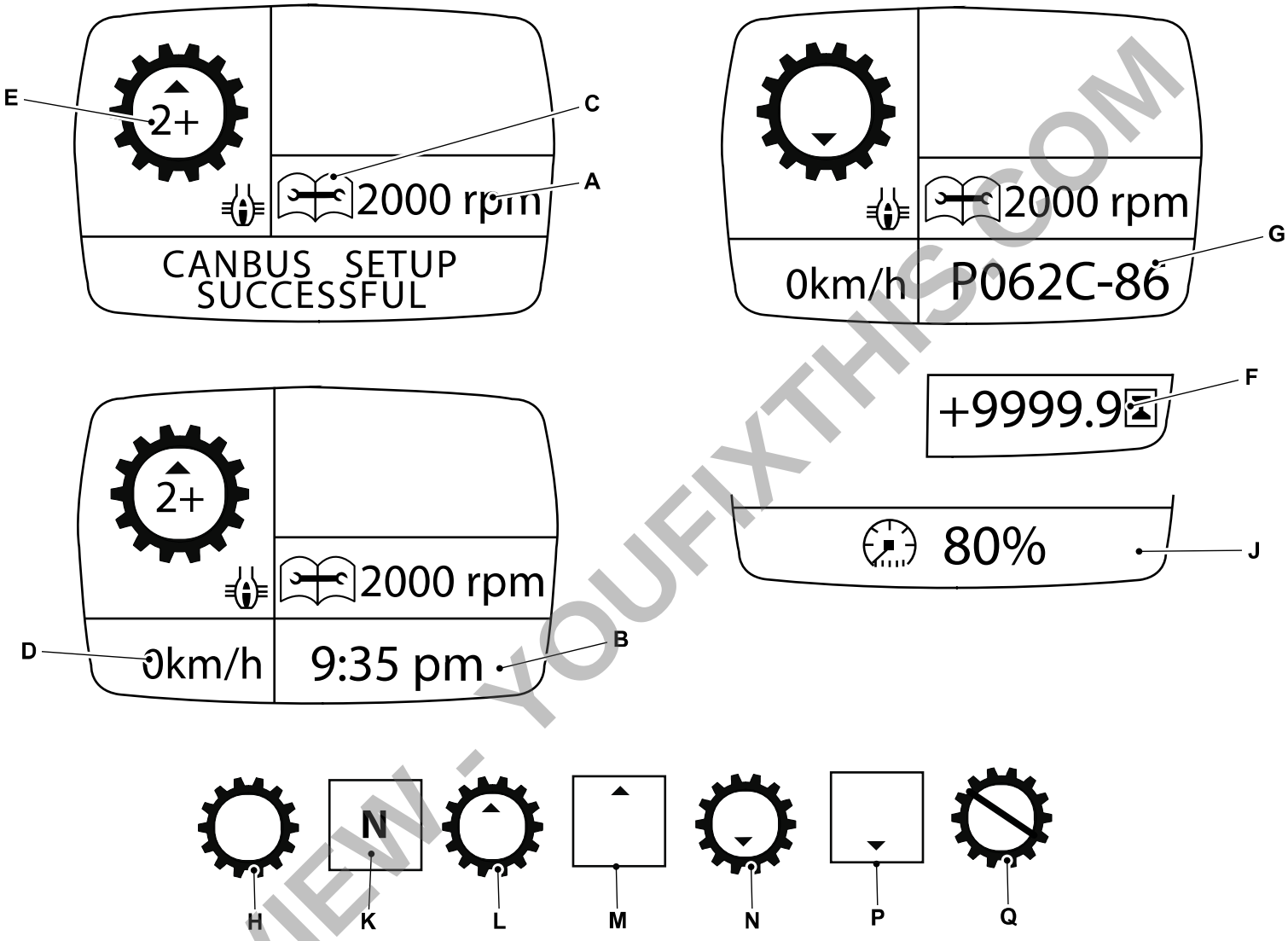


Table 8.

Item	Status
A	The engine RPM (Revolutions Per Minute).
B	Clock: 12 or 24 hour format (12 hour is shown).
C	The service icon is shown if there is less than 20 h to a service interval 20>0.
D	The machine speed. If the shaft speed message is missing.
E	The current gear 1,2,3. If the requested gear is lower than the current gear a "-" sign is shown to the left of the flashing symbol. If the requested gear is greater than the current gear a "+" sign is shown to the left of the flashing symbol. The auto symbol will flash if the CanBus message is not present.
F	The engine hours are shown when the ignition key is turned to IGN, then after 30 s goes to the clock time. This is replaced by an error code if any are active.
G	Error code (J2012 Standard), P= Powertrain (Engine and Transmission), B= Body items, C= Chassis items, and U= Network. Press either the enter or the scroll button to mute the buzzer for non-critical errors. The codes will remain on the screen and the display will scroll through multiple errors. Contact your JCB dealer for assistance. The respective warning lights will remain on if the buzzer has been muted.

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To Disarm the Immobiliser to Allow the Machine to be Used

1. Put the ignition key in the ignition switch. Turn the ignition key to position 1.
2. Enter your four digit PIN code using the keypad.
3. Push the 'ENT' button. The LED will come on for three seconds if the PIN code is correct and the machine can be started.
4. If an incorrect PIN code is entered the unit will lock. The LED will flash twice quickly, pause and then flash twice again and will continue this pattern until the ignition key is turned to the off position. In this event return to step 1 to try again.

   4.1. After five failed tries the system will lock.

   Duration: 15 min

Figure 35.



A LED

To Arm the Immobiliser

1. Stop the engine. Remove the ignition key.
2. The immobiliser arms automatically after two minutes. The green LED flashes for 60 seconds, then goes off.
3. If you restart the engine within two minutes, the system disarms automatically.

To Add a New or Additional PIN Code

Before you try to add a new or additional PIN code, make sure that the machine is ready to start and that you have your six digit master code and your new four digit PIN code available.

If you are unsure of the master code or your new PIN code, then do not start this procedure.

The keypad immobiliser can be programmed to accept up to 14 different four digit PIN codes, any of which will let the machine be started.

1. Put the ignition key in the ignition switch. Turn the ignition key to position 1
2. Enter your six digit master code using the keypad. Push the 'ENT' button.
3. The LED will flash three times to indicate the acceptance of the master code.
4. Within 59 seconds of the three flashes, push the 'MD' button.
5. Enter your new four digit PIN code using the keypad. Push the 'ENT' button. The LED will flash four times to indicate that the new PIN code has been successfully entered.
6. Turn the ignition key to the off position, then a minimum of five seconds later, turn the ignition key to position 1. The new PIN code is now entered and recorded.
7. If another PIN code is to be entered, turn the ignition key to the off position, then return to step 1.

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Banks and Trenches

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

Safety Barriers

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

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.

Hazardous Atmospheres

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

Regulations

Obey all laws, worksite and local regulations which affect you and your machine.

Electrical Power Cables

You could be electrocuted or badly burned if you get the machine or its attachments too close to electrical power cables. You are strongly advised to make sure that the safety arrangements on site comply with the local laws and regulations concerning work near electric power lines. Before you start using the machine, check with your electricity supplier if there are any buried power cables on the site. There is a minimum clearance required for working beneath overhead power cables. You must obtain details from your local electricity supplier.

Working Platform

Using the machine as a working platform is hazardous. You can fall off and be killed or injured. Never use the machine as a working platform unless with approved man-basket or man-crate (if applicable).

Machine Safety

Stop work at once if a fault develops. Abnormal sounds and smells can be signs of trouble. Examine and repair before resuming work.

Hot Components

Touching hot surfaces can burn skin. The engine and machine components will be hot after the unit has been running. Allow the engine and components to cool before servicing the unit.

Travelling at High Speeds

Travelling at high speeds can cause accidents. Always travel at a safe speed to suit working conditions.

Hillsides

Operating the machine on hillsides can be dangerous if the correct precautions are not taken. Ground conditions can be changed by rain, snow, ice etc. Check the site carefully. When applicable, keep all attachments low to the ground.

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Technical Data
Static Dimensions

Dimensions

Figure 201.

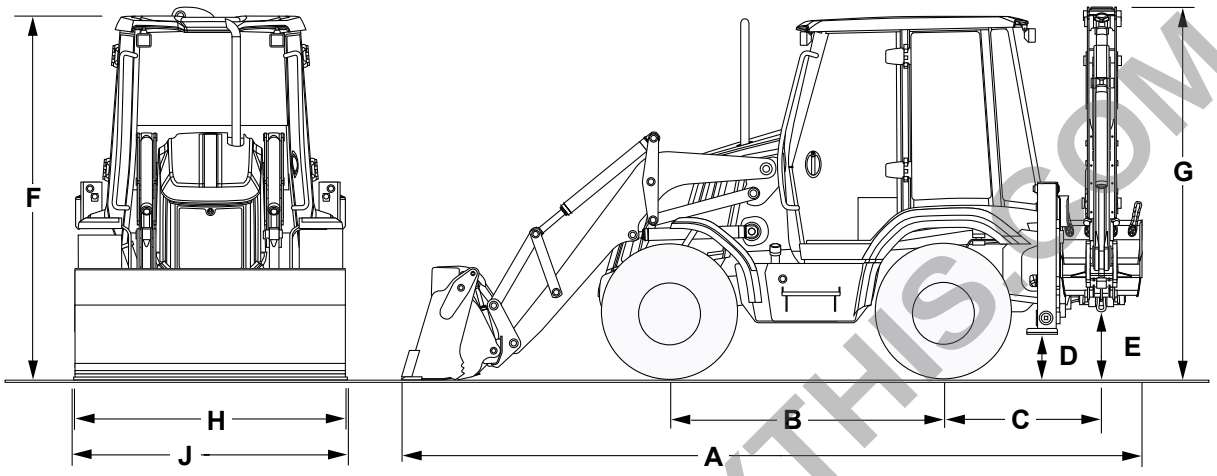
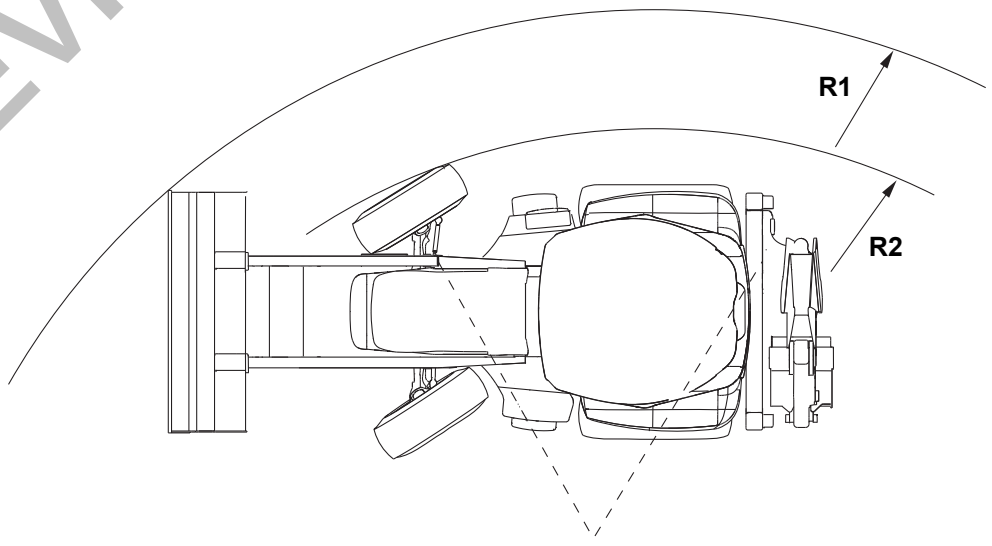


Table 19.

		Standard
A	Overall length	5.54 m
B	Wheelbase	1.99 m
C	Slew centre to rear axle	1.21 m
D	Ground clearance - stabiliser	0.24 m
E	Ground clearance - kingpost	0.47 m
F	Height to top of cab	2.6 m
G	Overall height (10')	2.74 m
	Overall height (12')	3.07 mm
H	Rear frame width	1.89 m
J	Shovel width	2 m

Figure 202.



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Pre-start Cold Checks, Service Points and Fluid Levels

Table 17.

Component	Task	10	50	100[1]	500	1000	2000
Attachments							
6-in-1 Clam shovel	Lubricate	O	O	□	□	□	□
Excavator and loader arm quick hitch	Lubricate	O	O	□	□	□	□
Tow hitch (if fitted)	Lubricate			□	□	□	□
Body and Framework							
General	Clean	O	O	□	□	□	□
General	Check (condition)	O	O	□	□	□	□
All pins and bushes	Check (condition)/Lubricate	O	O	□	□	□	□
Visual inspection of structure for damage including welds around lifting points and excavator end main pivots	Check (condition)	O	O	□	□	□	□
Doors and hinges	Lubricate				□	□	□
All cables	Lubricate				□	□	□
Cab heater fresh air filter[2]	Replace				□	□	□
Cab air conditioning recirculation filter (if installed)[2]	Replace				□	□	□
Extending dipper	Lubricate		O	□	□	□	□
Kingpost clamp	Check (condition)			□	□	□	□
Door	Check (condition/operation)			□	□	□	□
Front mudguards - security (if installed)	Check (condition)			□	□	□	□
Boom lock engagement[16]	Check (operation)	O	O	□	□	□	□
Condition of paintwork	Check (condition)			□	□	□	□
Stabiliser legs	Clean/Lubricate		O	□	□	□	□
Sideshift	Waxoyl		O	□	□	□	□
Operator Station							
Seat and seat belt	Check (condition)			□	□	□	□
Seat and seat belt	Check (operation)			□	□	□	□
Operator protective structure and ROPS (Roll-Over Protective Structure)/FOPS (Falling Object Protective Structure)	Check (condition)	O	O	□	□	□	□
Engine							
Oil	Check (leaks)	O	O	□	□	□	□
Oil	Check (level)	O	O	□	□	□	□
Oil and oil filter	Replace				□	□	□
Drive belt	Check (condition)	O	O	□	□	□	□
Drive belt[14]	Replace						

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Operation
Introduction

General

The aim of this part of the manual is to guide the operator step-by-step through the task of learning how to operate the machine efficiently and safely. Read the Operation section through from beginning to end.

The operator must always be aware of events happening in or around the machine. Safety must always be the most important factor when you operate the machine.

When you understand the operating controls, gauges and switches, practice using them. Drive the machine in an open space, clear of people. Get to know the 'feel' of the machine and its driving controls.

Do not rush the job of learning, make sure you fully understand everything in the Operation section. Take your time and work efficiently and safely.

Remember:

- Be careful.
- Be alert.
- Be safe.

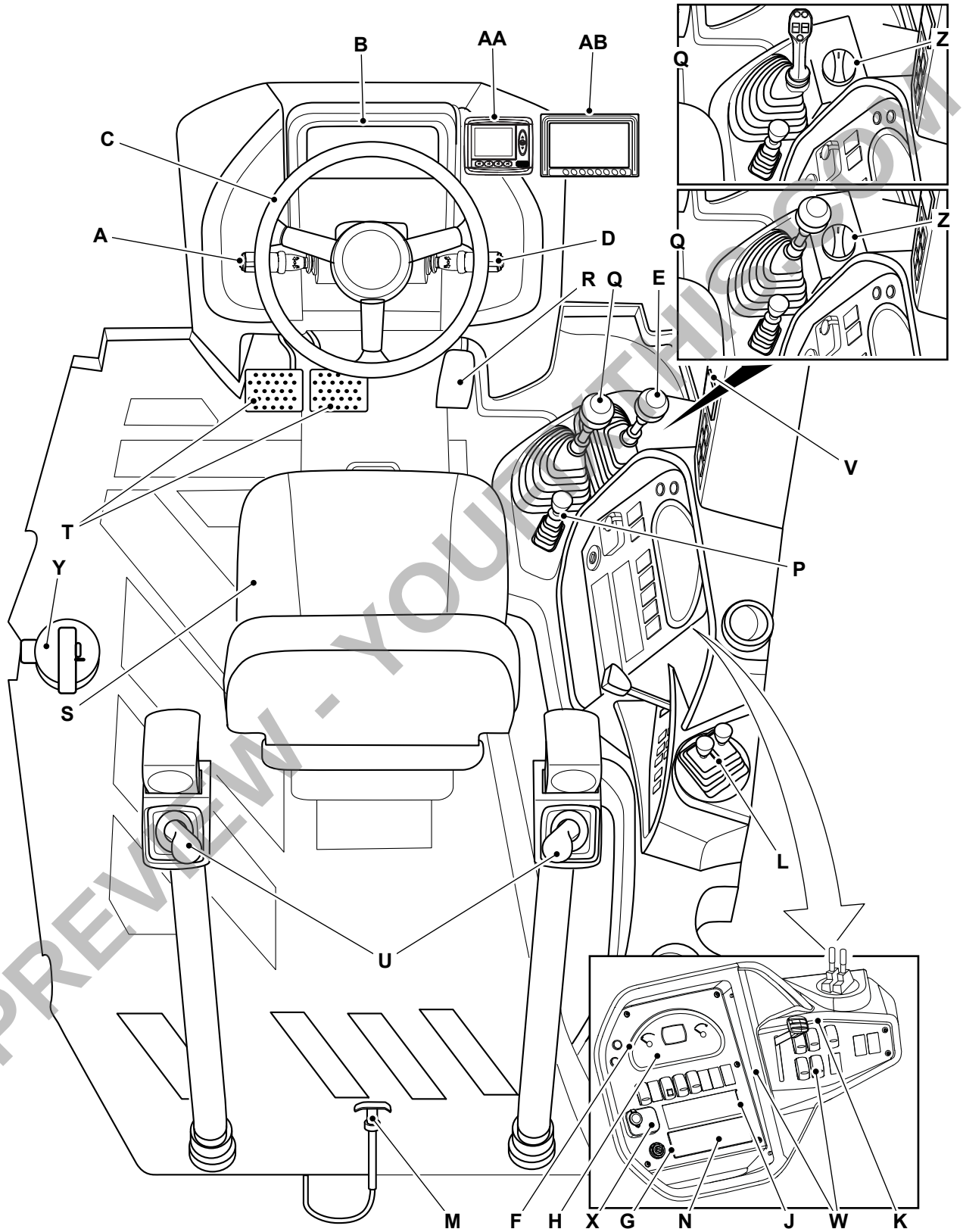
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Operator Station

Component Locations

Figure 14.

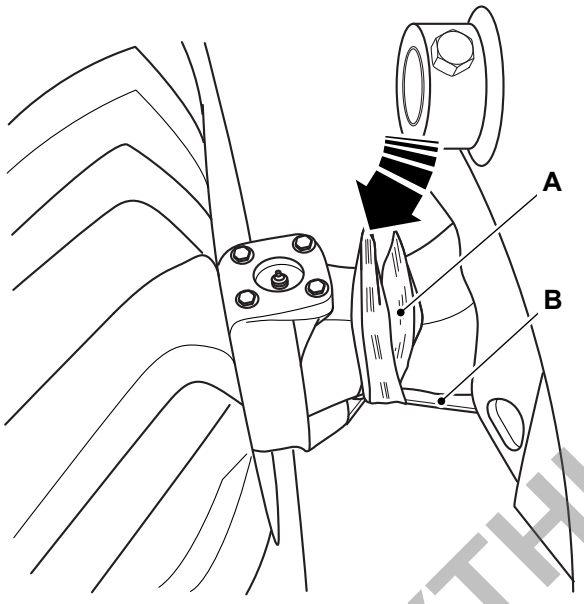


A Drive lever Refer to: Transmission Drive Lever (Page 66).

AA Auxiliary control displayRefer to: Instruments (Page 70).

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Figure 117.



A Slings **B** Rubber protectors

All scenarios cannot be listed, due to the vastly different situations that could occur, dependent on the problem and the reason for towing. It is advised you contact your JCB dealer for help and advice on the correct and safest procedure for machine preparation before attempting to move the machine.

Running Engine Procedure

1. Engage the park brake.
2. Raise all attachments off the ground.
3. The machine is now ready for towing. Make sure you understand what the towing driver will be doing. Obey his instructions and all relevant regulations.
4. Release the park brake to allow the machine to move.

Disabled Engine Procedure

1. Engage the park brake.
2. All attachments must be raised into their transport positions and secured, move the appropriate control lever to the raise position.
3. Make sure that the control lever is returned to its neutral position after lifting.
4. Release the park brake to allow the machine to move.

Loader Arm (Emergency Operation)

⚠ **DANGER** Do not stand underneath the raised load during the lifting/lowering procedure. 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.

The following information describes how to safely and correctly lower a load (attachment) in the event of engine failure. With a load (attachment) in the raised position, loader or excavator, it is possible to lower it safely, under control, using the relevant control system.

Refer to the relevant control lever, in the Operation section, Operating Levers and Pedals.

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Transporting the Machine

General

⚠ **WARNING** 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.

CAUTION 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.

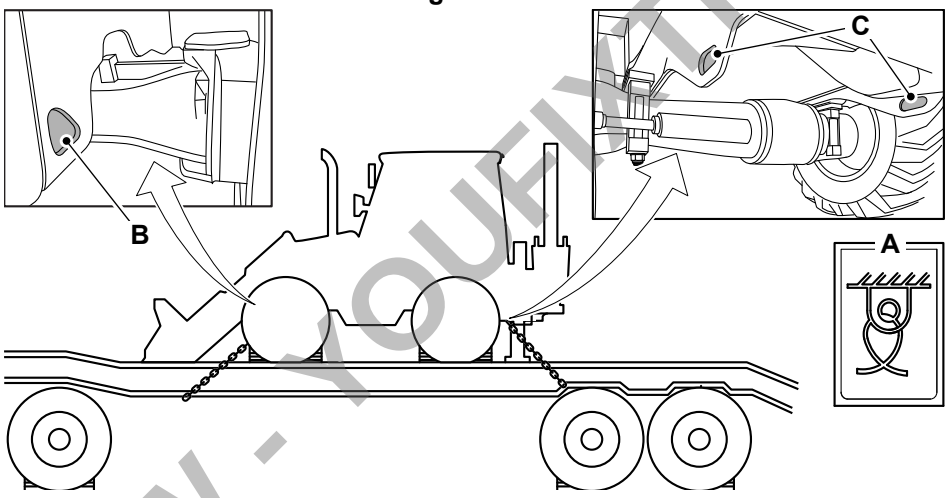
Check the condition of the transport vehicle before the machine is loaded on to its trailer.

Make sure that the transport trailer is suitable for the dimensions and weight of your machine. Refer to: Static Dimensions (Page 247).

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

Loading the Machine onto the Transporting Vehicle/Trailer

Figure 123.



A Tie-down decal
B Front axle tie-down points (both sides)
C Rear axle tie-down points (both sides)

1. Place the blocks at the front and rear of the trailer wheels.
2. Make sure that the ramps onto the trailer are in the correct position and are attached securely.
3. Set the loader arm and excavator arm to the road travel position.
   Refer to: Preparing for Travel (Page 58).
4. Engage the boom and slew locks.
   Refer to: Safety Equipment (Page 62).
   4.1. If for any reason the slew or boom lock cannot be engaged, then the bucket must be securely lashed to the trailer bed, if no bucket is installed, then secure the dipper end to the trailer bed.
5. If the machine has an extendable dipper make sure that the locking pin is securely in place.
6. Carefully move the machine onto the trailer.
   6.1. When the machine is safely in position, engage the park brake and set the drive to neutral.
   6.2. Lower the loader shovel and excavator onto the trailer bed.
   6.3. Lock all doors and access panels.
   6.4. Cover the exhaust opening.

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Fluids, Lubricants and Capacities

General

⚠ **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.

JCB recommend that you use the JCB lubricants shown as they have been verified by JCB for use on JCB machines. However, you could use other lubricants that are equivalent to the JCB standards and quality or offer the same machine component protection.

No warranty liability will be accepted for engine failures where unacceptable fuel grades (or their equivalent) have been used at any stage.

Table 43.

Item	Capacity	Fluid/Lubricant	JCB Part Number	Container Size[1]	Specification
Fuel tank	80 L	Diesel Oil	-	-	
Engine (oil)[2]	11 L	JCB Engine Oil UP 10W30	4001/3005	20 L	API CJ-4 / SN. ACEA, E6, E7, E9
	12 L Dry				
Engine (coolant)[3]	20.5 L Wet	JCB Antifreeze HP Coolant/Water	4006/1120	20 L	ASTM D6210
	21.5 L Dry				
Housing Axle	9 L	JCB Gear Oil HP90 (without LSD (Limited Slip Differential))	4000/0305	20 L	
Housing Axle	9 L	JCB Gear Oil HP Plus (with LSD)	4000/2205	20 L	
Hubs (x4)	2 L	JCB Gear Oil HP90	4000/0305	20 L	
Hydraulic system	130 L	JCB Optimum Performance 46 Hydraulic Fluid	4002/2005	20 L	
Dropbox	1.8 L	JCB HP Gear Oil	4000/0505	20 L	
Grease points	-	JCB Special HP Grease	4003/2017	0.4 kg x 24	
	-	JCB Special MPL-EP Grease[8]	4003/1501	0.4 kg x 24	
Extending dipper	-	JCB Waxoyl	4004/0502	5 L	
Electrical connections	-	As a corrosion and moisture inhibitor all exposed connections should be coated liberally with petroleum jelly	-	-	
Screenwash	4 L	JCB Screenwash	4006/0504	1 L	

(1) For information about the different container sizes that are available (and their part numbers), contact your JCB dealer.
(2) Caution - Do not use ordinary engine oil.
(3) It is recommended that the cooling system be filled at a maximum rate of 10 litres per minute. If the fill rate is any higher than this there is a possibility of air becoming trapped in the system.
(8) JCB HP Grease is the recommended specification grease, if using JCB Special MPL-EP then the greasing must be carried out more frequently.

Fuel

⚠ **WARNING** Do not use petrol in this machine. Do not mix petrol with the diesel fuel. In storage tanks the petrol will form flammable vapours.

Notice: No warranty liability will be accepted for engine failures where unacceptable fuel grades (or their equivalent) have been used at any stage.

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