OPERATOR'S MANUAL



COMPACT EXCAVATOR
16C-1, 18Z-1

EN - 9831/5417 ISSUE 1 - 04/2017

THIS MANUAL SHOULD ALWAYS STAY WITH THE MACHINE

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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. 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 and on the machine, 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 (shown) also helps to identify important safety messages in this manual and on the machine. When you see this symbol, be alert, your safety is involved. Carefully read the message that follows, and inform other operators.

Figure 2. The safety alert system



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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:
16C-1	2492571	2493515
18Z-1	2493516	2493975

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.

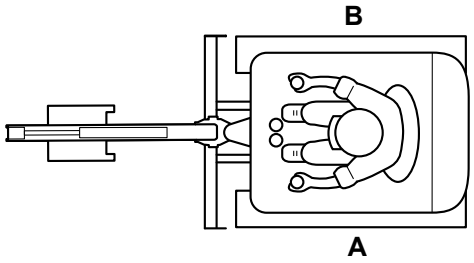
The manufacturer's policy is one of continuous improvement. The right to change the specification of the machine without notice is reserved. No responsibility will be accepted for discrepancies which may occur between specifications of the machine and the descriptions contained in this manual.

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.

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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.

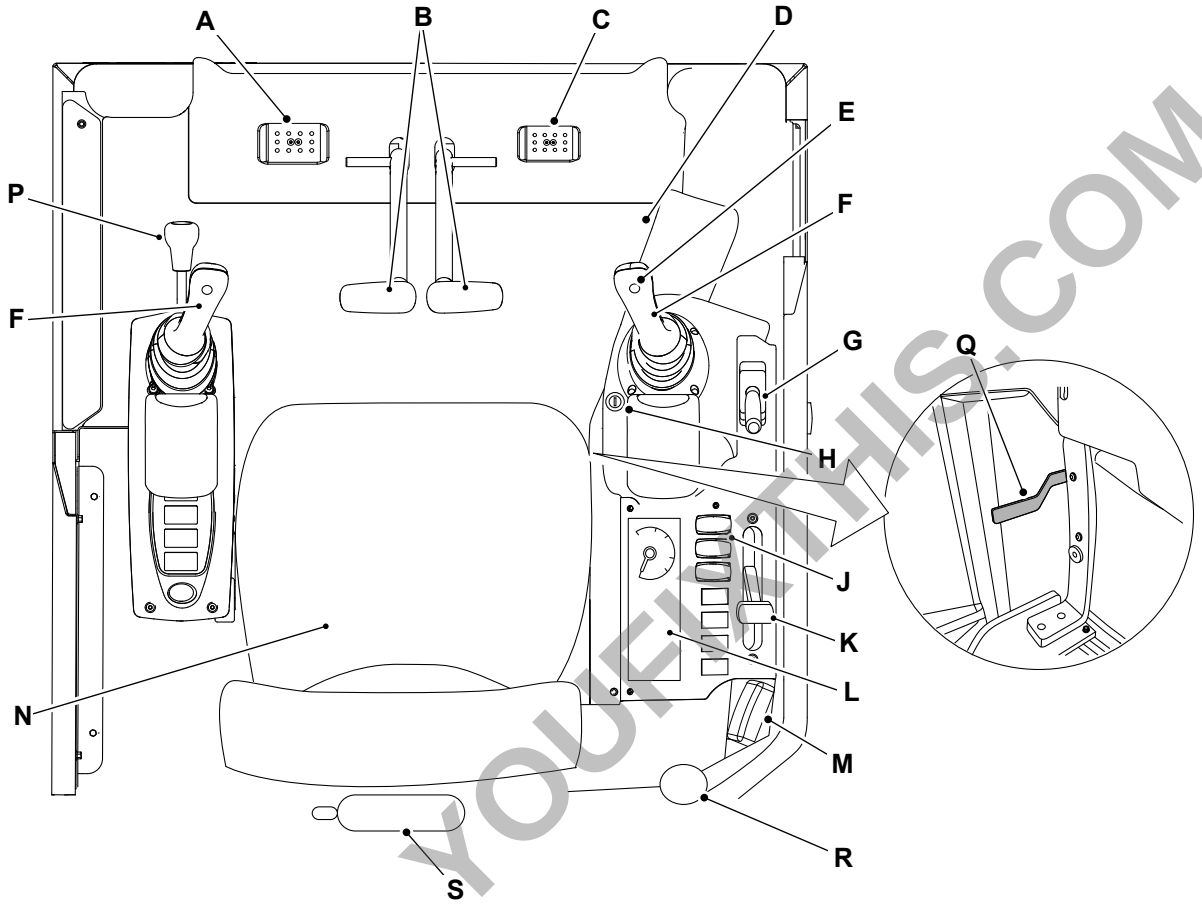
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Operator Station

Component Locations

Figure 14.



A Auxiliary pedalRefer to: Auxiliary Circuit Controls (Page 75).
B Track controlsRefer to: Track Controls (Page 64).
C Swing left/rightRefer to: Excavator Arm Controls (Page 70).
D Heater controls (if installed)Refer to: Cab Heater Controls (Page 85).
E Horn
F Excavator arm controlsRefer to: Excavator Arm Controls (Page 70).
G Dozer control leverRefer to: Dozer Blade Controls (Page 74).
H Ignition SwitchRefer to: Ignition Switch (Page 22).
J Right console switchesRefer to: Console Switches (Page 24).
K Hand throttle controlRefer to: Hand Throttle Control (Page 64).
L Instrument panelRefer to: Instrument Panel (Page 65).
M Radio (if installed)
N Operator seatRefer to: Operator Seat (Page 48).
P Controls isolation leverRefer to: Control Lock (Page 62).
Q Undercarriage track extension lever (if installed)Refer to: Extending Undercarriage Controls (Page 74).
R Fire extinguisher (18Z-1)Refer to: Fire Extinguisher (Page 87).
S Fire extinguisher (16C-1)Refer to: Fire Extinguisher (Page 87).

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Attachments
Working with Attachments

Introduction

Attachments

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.

The use of non-approved attachments could invalidate your warranty.

Metal Splinters

You can be injured by flying metal splinters when driving metal pins in or out. Use a soft faced hammer or copper drift to remove and install metal pins. Always wear personal protective equipment.

Attachments

If you have an attachment which is not covered in the Operator's Manual 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.

Some attachments are supplied with instructions on the safety, installation, removal, operation and maintenance procedures. Read and fully understand these procedures before the attachment is installed, used and serviced. If there is anything you do not understand, ask your JCB dealer.

Before you use an attachment, make sure you understand how the attachment will affect the operational safety.

When an attachment is installed, there may be changes in the machine's center of gravity or overall dimensions. These changes can effect for example, the machine stability, the gradients on which it is safe to operate or the safe distance from power lines.

Practice with an attachment off the job before you work with it for the first time.

A JCB attachment is designed and manufactured specifically to suit the machines hydraulic system, mounting components and safe load requirements.

An attachment which is not designed for use with the machine can cause damage and create a safety hazard for which JCB cannot be held responsible. Also the machine's warranty and any other legislative compliance can be affected by the use of non JCB approved attachments.

If your machine needs the hydraulic system adapting to use an auxiliary attachment, you must consult your JCB dealer. Only suitably qualified personnel must re-route the hydraulic hoses.

All optional attachments will have limits on their operation for example, the lifting capacity, speeds, hydraulic flow rates. Always check the instructions supplied with the attachment or in the Specification section of this manual. Some specification limits may also be shown on the data/rating plate on the attachment.

This section of the Operator's Manual includes general information on the operation of the attachment and the procedures for the installation and removal of the attachment.

Attachments for your Machine

⚠ **CAUTION** Operation of this machine with an earth drill or breaker attached will alter machine stability.

Attachments will help increase the productivity of your machine, for more information contact your JCB dealer.

Remember, do not operate an attachment until you have read and fully understand the attachment operating instructions.

Do not operate or work with attachments until the machine hydraulic oil has reached its normal working temperature.

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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.

WARNING Make sure that the ramp incline does not exceed the machine's operational limits.

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 tracks. Make sure the machine will not foul on the ramp angle.

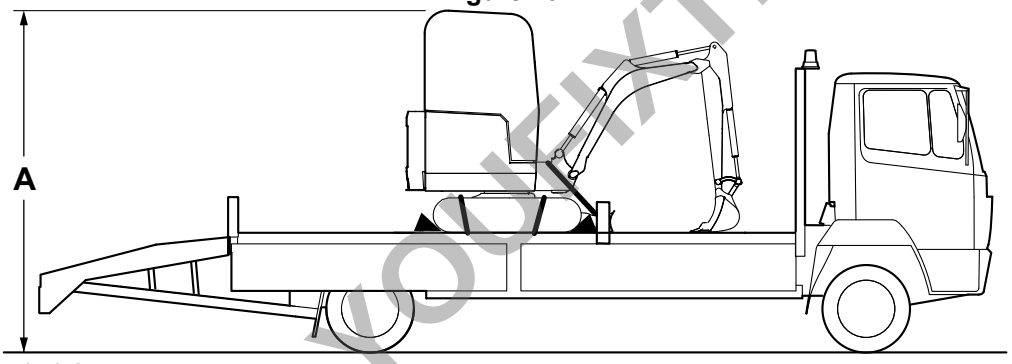
Before transporting the machine make sure you will be obeying the local rules and laws regarding machine transportation of all the areas that the machine will be carried through.

Check the condition of the transporting vehicle before loading the machine on to its trailer.

Check the Condition of the Transporting Vehicle

1. Make sure that the transporting vehicle is suitable for the dimensions and weight of your machine. Measure the clearance height. Make sure that the truck driver knows the clearance height before he drives away.

Figure 79.



A Clearance height

2. Remove all loose dirt that may otherwise come off and obstruct the highway and damage other vehicles.
3. Check the operation of the park brake.
4. Check the trailer bodywork for signs of damage.
5. Check the tire pressures are correct (consult the manufacturer's manual).
6. Check the trailer lights are working and are the correct voltage for the towing vehicle (consult the manufacturer's manual).
7. Check the breakaway cable is serviceable.

Loading the Machine onto the Transporting Vehicle/Trailer

⚠ **CAUTION** The machine must be securely tied down to the transport vehicle to prevent lateral movement, fore-and-aft movement, and slewing of the superstructure. Failure to do so could cause injury to yourself or others.

1. Position the transporting vehicle on solid, level ground.
2. Apply the park brakes and lower any stability jacks.
3. Attach the loading ramps on to the transporter correctly.
4. Align the machine with the loading ramps, position the dozer blade to the front and fully raised.
5. Slightly extend the boom and dipper for stability.

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Maintenance
Introduction

General

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 dealer to make sure that it reaches you in optimum condition. To maintain this condition and trouble free operation it is important that the routine services, as specified in this manual, are done by an approved JCB dealer at the recommended specified intervals and it is recommended that this is done by an approved JCB dealer using genuine JCB parts. Servicing/repairs carried out by unauthorized personnel or the use of non-genuine inferior quality parts could limit machine warranty.

This section of the manual gives full details of the service requirements necessary to maintain your JCB machine at peak efficiency. A service manual for your machine is available from your JCB dealer. The service manual contains information on how to repair, disassemble and assemble your machine correctly.

It can be seen from the service schedules on the following pages that many essential service checks must only be done by a JCB trained specialist competent person. Only JCB dealer service engineers have been trained by JCB to do such specialist tasks, and only JCB dealer service engineers are equipped with the necessary special tools and test equipment to do such tasks, thoroughly, safely, accurately and efficiently.

After completing any routine maintenance or repairs you must complete the functional checks according to the maintenance schedule.

JCB regularly updates its dealers to advise them of any machine developments, changes in specifications and procedures. Therefore only a JCB dealer is fully able which makes them best placed to maintain and service your machine.

A service record sheet or book is provided which will enable you to plan your service requirements and keep a service history record. It must be dated, signed and stamped by your dealer 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.

When the machine is removed from service, local regulations for machine decommissioning and disposal will vary. Contact your nearest JCB dealer for further information.

Owner/Operator Support

JCB together with your dealer wants you to be completely satisfied with your new JCB machine. However, if you do have a problem, you can contact your dealers service department who are there to help you!

You will have been given the names of the relevant service contacts at your dealer when the machine was installed.

To get the most from your dealer please help them to satisfy you by providing them with:

1. Your name, address and telephone number.
2. Your product model and serial number.
3. The date of purchase and hours of work.
4. The nature of the problem.

Remember, only your JCB dealer has access to the vast resources available at JCB to help support you. In addition, your dealer is able to offer a variety of programs covering warranty, fixed price servicing, safety inspections, including weight tests, covering both legal and insurance requirements.

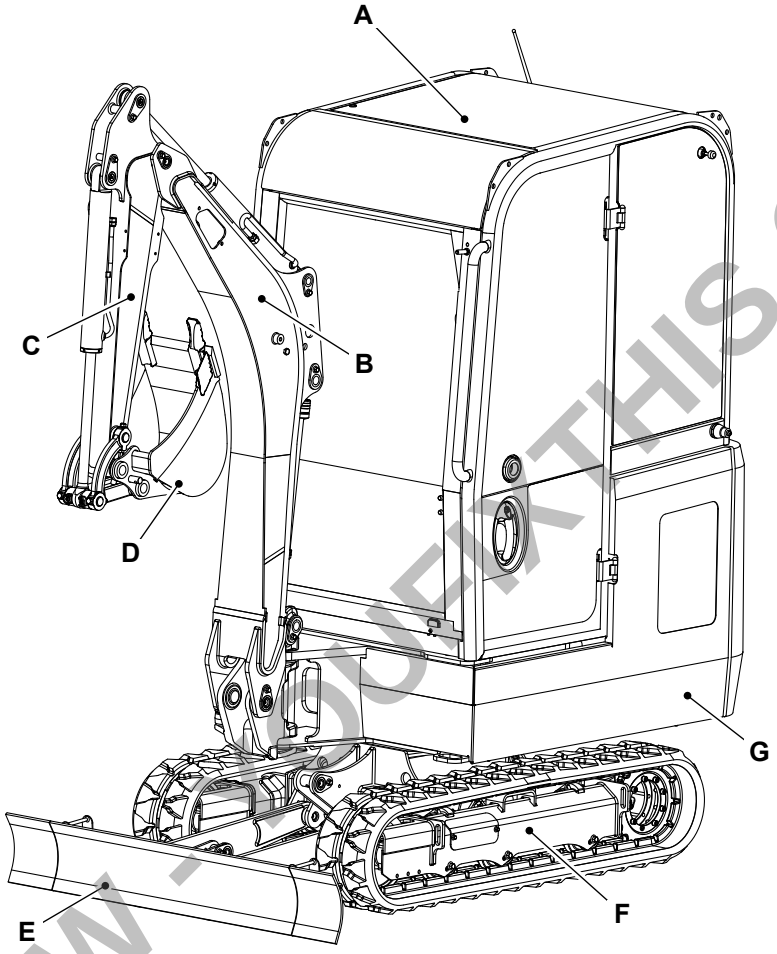
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Before you do a maintenance task, make the product safe.

Main Component Locations

Figure 3.



A Cab/canopy (contains the operator station)
B Boom (part of the excavator arm)
C Dipper (part of the excavator arm)
D Bucket
E Dozer Blade
F Undercarriage
G Upper structure

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Figure 11.

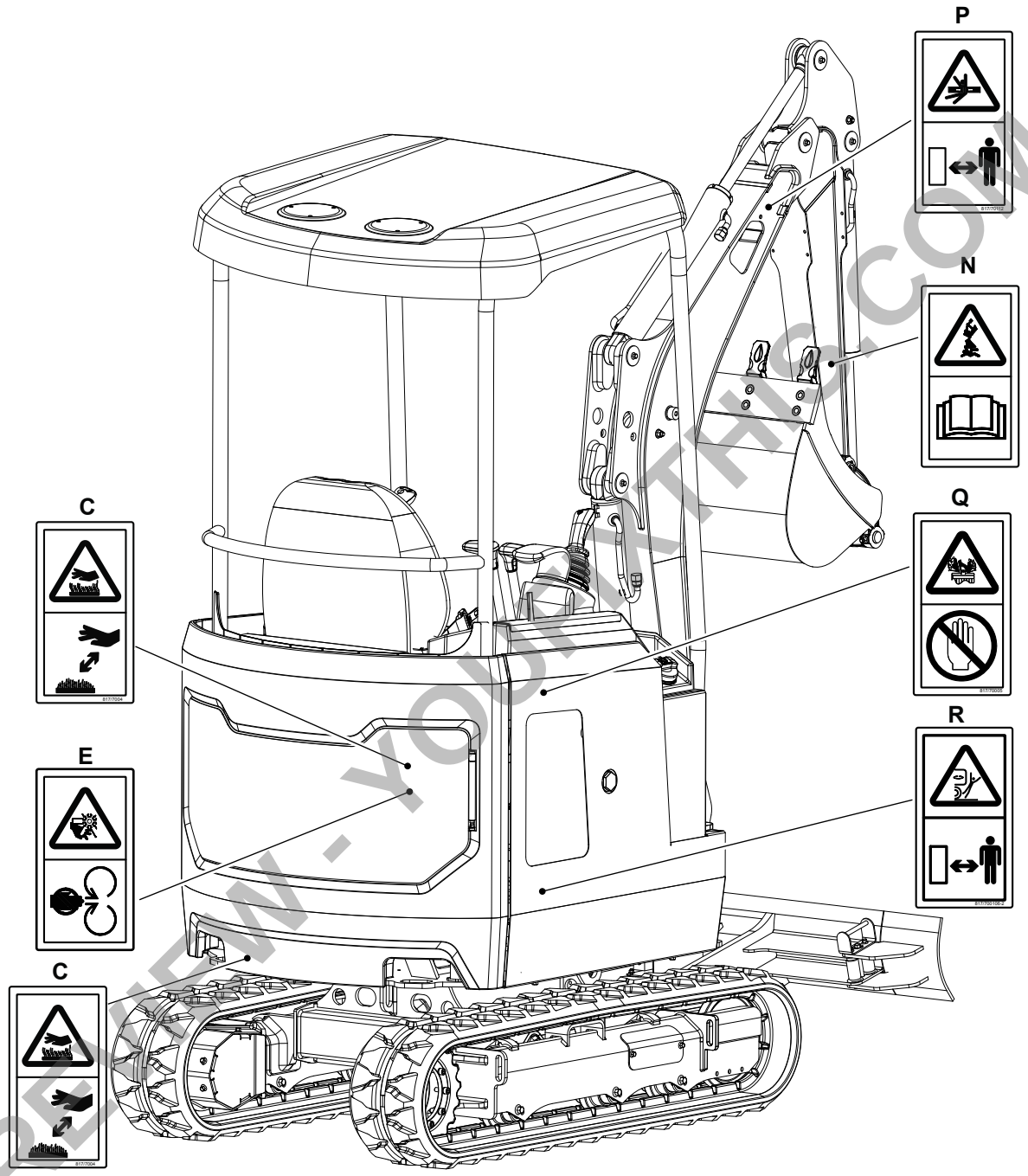


Table 3. Safety Labels

Item	Part No.	Description	Qty.
A	817/70012	Run over hazard. Start the engine from the operator's seat only. Do not short across the terminals.	1
B	817/70023	Entanglement hazard. Do not touch.	1
C	817/70004	Burns to fingers and hands. Stay a safe distance away.	3
D	817/70002	Pressure hazard. Stop the engine, remove the starter key and consult the Service Manual before you complete any service or maintenance work.	1
E	332/P4581	Severing of hands and fingers. Keep clear of/do not reach into rotating parts.	1

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Fluids, Lubricants and Capacities

General

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.

Table 20. Fluids, Lubricants and Capacities

Item	Capacity L (USgal)	Fluid/Lubricant	JCB Part Number	Container Size(1)	Specification
Fuel Tank	20.5 (5 13/32)	Diesel Oil	-		
Engine (Oil)	2.5 (21/32)	-30°C (-22°F) to 40°C (104°F) JCB Extreme performance 5W40	4001/3405U	5 US Gallon	API CJ4
Engine Coolant	4.2 (1 4/32) (Canopy Machine) and 4.7 (1 8/32) (Cab Machine)	JCB Antifreeze HP/ Coolant/Water	4006/1110U	1 US Gallon	ASTM D3306, ASTM D4985, ASTM D6210, SAE J1034, BS6580 (1992), AFNOR NF R15-601
Track Gearbox (each)	0.3 (3/32)	JCB Engine Oil HP SAE 30 (Not Multigrade)	4001/0305U	5 US Gallon	
Track Idler Wheels	0.3 (3/32)	JCB HP90 Gear Oil	4000/0305U	5 US Gallon	
Track Rollers (bottom)	0.025 (0)	JCB HP90 Gear Oil	4000/0305U	5 US Gallon	
Hydraulic System	System 28 (7½) Tank 15 (3 31/32)	-20°C (-4.0°F) to 46°C (114.7°F):JCB Hydraulic Fluid OP46	4002/2005U	5 US Gallon	
Slew Ring Bearings	As required	JCB HP Grease	4003/2017	0.4kg (0.88lb)	
Slew Ring Gear Teeth	As required	JCB Special Slew Pinion Grease	4003/1619	0.4kg (0.88lb)	
All Other Grease	As required	JCB Special HP Grease (Blue)	4003/1501	0.4kg (0.88lb)	

(1) For information about the different container sizes that are available (and their part numbers), contact your local JCB dealer.

Fuel

⚠ **Notice:** No warranty liability whatsoever will be accepted for failure of fuel injection equipment where the failure is attributed to the quality and grade of the fuel used.

Table 21. Acceptable Fuels

Fuel Specification	Applicable Engines	Service Requirements
EN590 Diesel fuel types - Auto/C0/ C1/C2/C3/C4	All	Obey the usual routine maintenance schedules and procedures.
BS2869 Class A2		
ASTM D975-076 2-D, US DF1, US DF2, US DFA		
JIS K2204 Grades 1, 2, 3 and Special Grade 3		

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