



OPERATOR'S MANUAL

MOBILE ELEVATING WORK PLATFORM
T65D

EN - 9851/1417 ISSUE 3 - 07/2024

THIS MANUAL SHOULD ALWAYS STAY WITH THE MACHINE



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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.

California Proposition 65

▲ WARNING Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

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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Acronyms Glossary

AC	Alternating Current
CCV	Crankcase Ventilation
DC	Direct Current
ECU	Electronic Control Unit
EGR	Exhaust Gas Recirculation
ESOS	Engine Shut-Off Solenoid
LED	Light Emitting Diode
MEWP	Mobile Elevating Work Platform
PIN	Product Identification Number
PPE	Personal Protective Equipment
RCBO	Residual Current Breaker with Over-Current
RPM	Revolutions Per Minute
SAHR	Spring Applied Hydraulic Release
VGT	Variable Geometry Turbocharger
WIF	Water in Fuel



This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Introduction

About this Manual

Model and Serial Number

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

Table 1.

Model	VIN Prefix. Refer to: Machine (Page 8).
T65D [T4F]	RAJA3036

Using the Manual

The Quick Start Guide or Quick Reference Guide (if supplied) with the machine does not replace the Operator's Manual. You must read all the disclaimers and safety instructions in the Operator's Manual before initially operating the machine.

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.

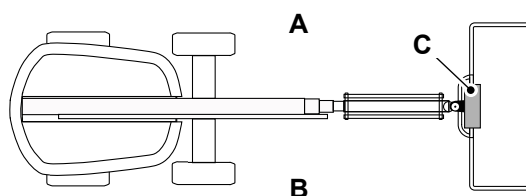
The manufacturer's policy is one of continuous improvement. The right to change the specification of the machine without notice is reserved. No responsibility will be accepted for discrepancies which may occur between specifications of the machine and the descriptions contained in this manual.

All 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 standing on the platform facing the platform control. [Refer to: Main Component Locations \(Page 7\).](#)

Figure 1.



A Right- engine side
C Platform control

B Left- tank side

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 operator's manual is kept in to a 'document box' in the center of platform under the controls. The manual should always be put back in its box after use.

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 have received the appropriate training. 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 the machine. Failure to do so will result in incorrect operation of the machine and you will be putting yourself and others at risk. You must abide by all local site regulations. 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.

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.

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.

Cell Phones

Switch off your cell 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 cell phone when refueling the machine.

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 that can get caught on controls or moving or rotating machine parts. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained. Remove rings, watches and personal jewelry. Wear protective clothing and personal safety equipment issued or called for by the job conditions, local regulations or as specified by your employer. It is recommended to put on safety harnesses at all times when operating the machine.

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, gage, 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 Access Limited, Lakeside Works, Rocester, Uttoxeter, United Kingdom, ST14 5JP.

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 markings, and may have been supplied with a Declaration/Certificate of Conformity. These markings 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 markings 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.

Description

General

This machine is a self propelled MEWP (Mobile Elevating Work Platform) with a wheeled undercarriage. A articulated and telescopic boom is mounted to a revolving upper structure.

Intended Use

The machine is intended to lift personnel with their tools, and position them at a level of working height safely. The machine can be used to reach areas located above machinery or equipment positioned at ground level by use of the extending structure and platform.

The machine is intended to be used for the applications and in the environmental conditions as described in this manual. Use in any other way not described in the manual is considered contrary to intended use of this machine.

The machine is not intended for use in mining and quarrying applications, in demolition activities, forestry, any use underground, or in any kind of explosive atmosphere. This is not an exhaustive list. For any activity not described here, it is recommended that a risk assessment must be done prior to operation.

If the machine is to be used in applications where there is a high silica concentration, risk due to materials containing asbestos or similar hazards, additional protective measures such as the use of PPE (Personal Protective Equipment) may be required.

The machine should not be operated by any person who does not have an appropriate level of qualification, training or experience of use of this type of machine.

Prior to use of the machine, its suitability (size, performance, specification etc.) should be considered with regards to the intended application and any relevant hazards that may exist. Contact your JCB dealer for support in determining the appropriate JCB machine, attachment and any optional equipment that is suitable for the application and environment.

The machine is not intended to be used as a towing machine. Do not attach trailers or other towing devices to the machine.

Log Moving/Object Handling

Do not use the machine to move or handle logs or other objects. You could cause serious injury to yourself and damage to the machine. Do not use the machine as a crane. Do not overload the platform with tools or equipment.

[Refer to: Technical Data \(Page 109\)](#). For more information, contact your JCB dealer.

Danger Zone

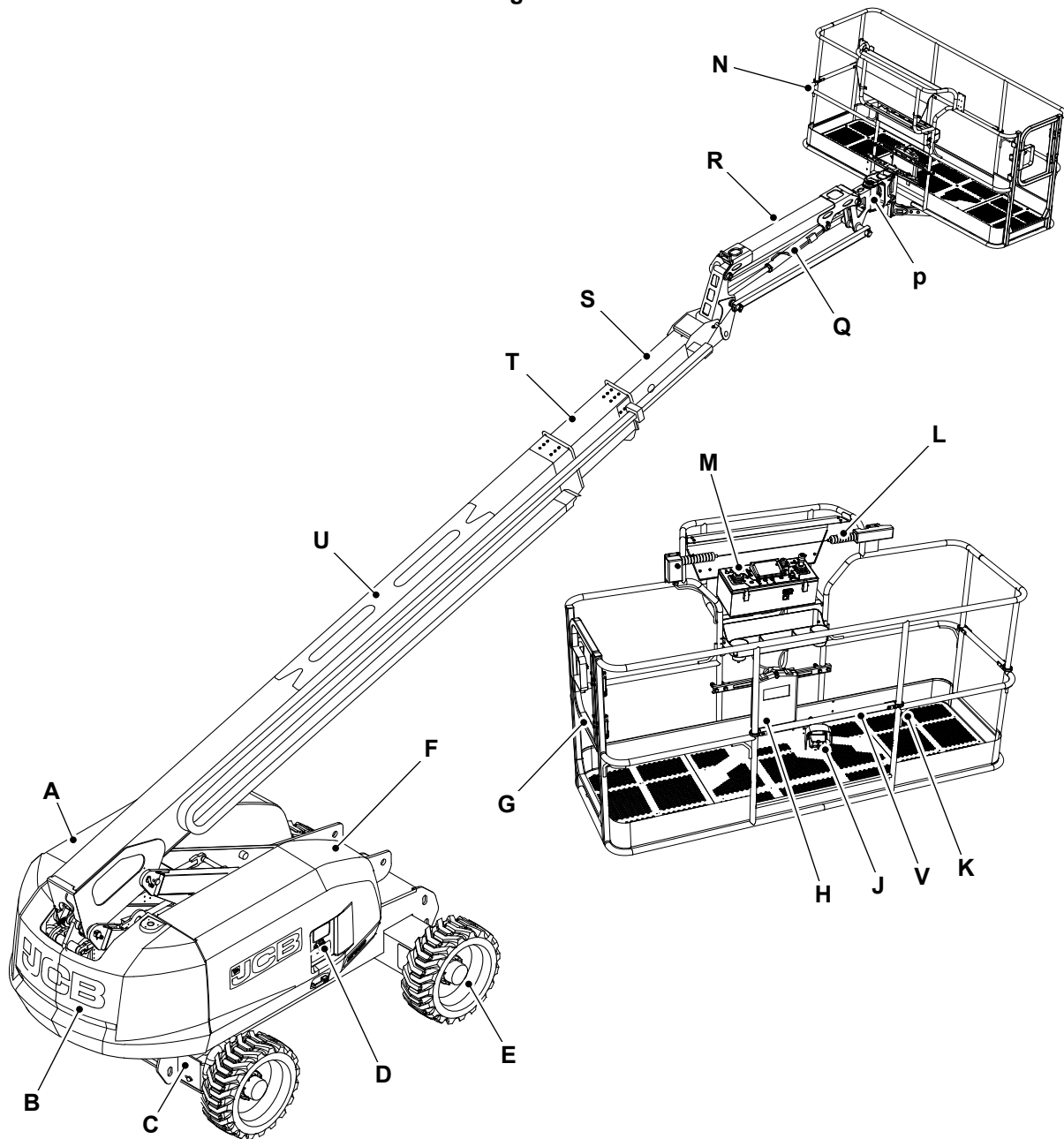
The danger zone is any zone within and/or around the machinery in which a person is subject to a risk to their health or safety. During operation of the machine, keep all persons out of the danger zone. Persons in the danger zone could be injured.

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

[Refer to: Maintenance Positions \(Page 75\)](#).

Main Component Locations

Figure 3.



- A Engine canopy
- C Front axle
- E Wheel
- G Platform entry door
- J Foot pedal switch
- L Secondary guarding system
- N Work platform
- Q Jib lift cylinder
- S Telescopic boom (Stage 3)
- U Telescopic boom (Stage 1)

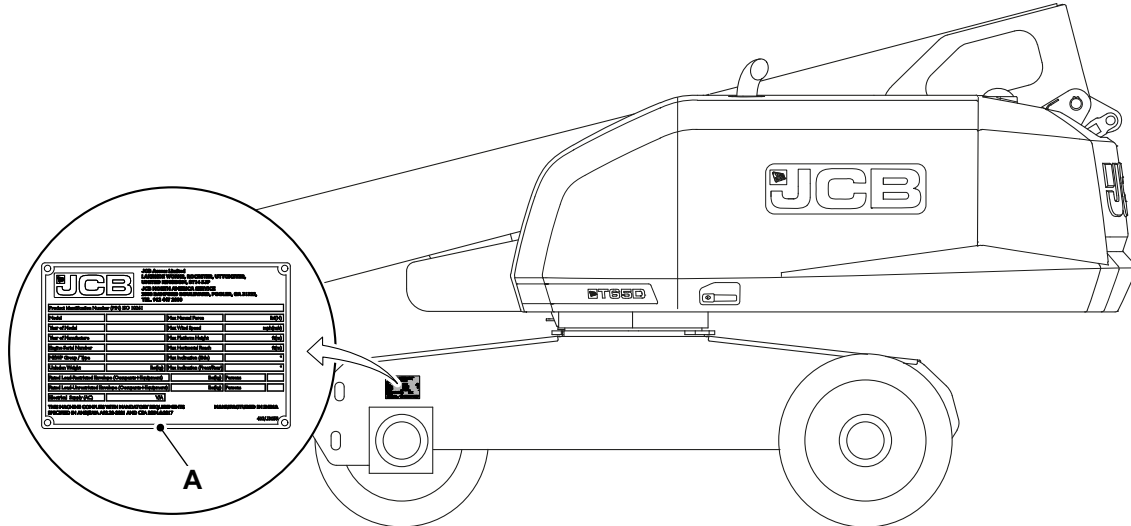
- B Counter weight
- D Base controller
- F Control side canopy
- H Operator manual's case
- K Safety harness anchorage point
- M Platform controller
- P Rotary actuator
- R Jib
- T Telescopic boom (Stage 2)
- V Platform entry slider

Product and Component Identification

Machine

Your machine has an identification plate as shown. Refer to Figure 4.

Figure 4.



A Machine identification plate

Explanation of Machine Identification Plate

Figure 5.

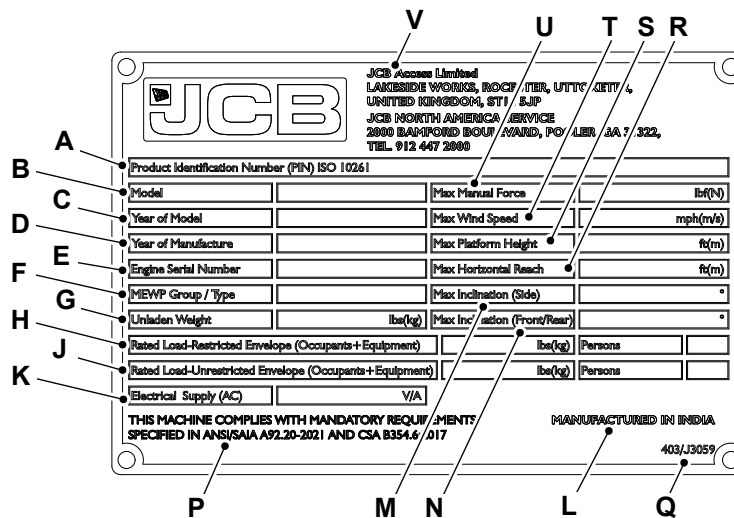


Table 2.

A	PIN (Product Identification Number) ISO10261
B	Model
C	Year of Model
D	Year of Manufacture
E	Engine Serial Number
F	MEWP Group / Type
G	Unladen Weight
H	Rated Load-Restricted Envelope (Occupation+Equipment)

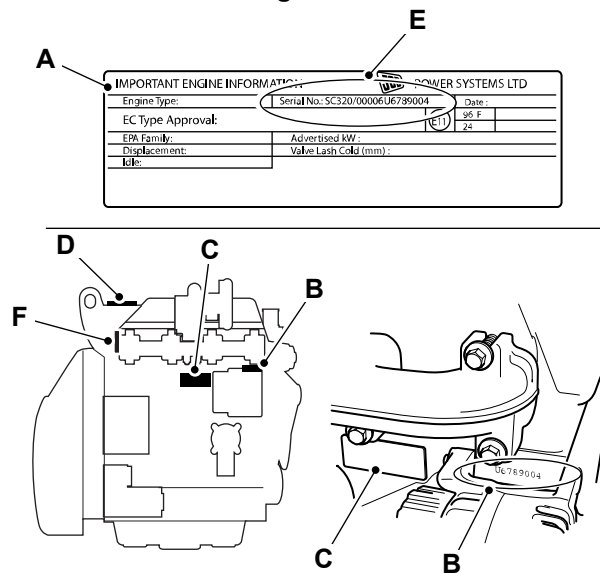
J	Rated Load-Unrestricted Envelope (Occupation+Equipment)
K	Electrical Supply (AC)
L	Build Location
M	Max Inclination (Side)
N	Max Inclination (Front/Rear)
P	Compliance
Q	Part Number
R	Max Horizontal Reach
S	Max Platform Height
T	Max Wind Speed
U	Max Manual Force
V	Manufacturers Address

Engine

The engine data labels are attached to the cylinder block and rocker cover as shown. [Refer to Figure 6.](#)

The data label contains important engine information and includes the engine identification number. Injector codes are on a label on the rocker cover. [Refer to Figure 6.](#)

Figure 6.



- A** Engine data label
- C** Engine data label- cylinder block
- E** Engine identification number
- B** Stamp
- D** Engine data label- rocker cover
- F** Injector codes label

The data label includes the engine identification number.

Table 3. Example of the engine identification number

	SL	320/40001	U	00001	12
Digit	1-2	3-10	11	12-16	17-18

Table 4.

Digit 1-2	Engine Type
SL	4.4L (1UKgal) turbocharged and aftercooled electronic common rail fuel injection (Tier 4F) < 55kW (73.7hp)

Table 5. Explanation of the engine identification number

Digit	Explanation
3-10	Engine part number
11	Country of manufacture. U = United Kingdom
12-16	Engine serial number
17-18	Year of manufacture

The country of manufacturer, engine serial number and year of manufacture of the engine are also stamped on the cylinder block. [Refer to Figure 6.](#)

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 7.

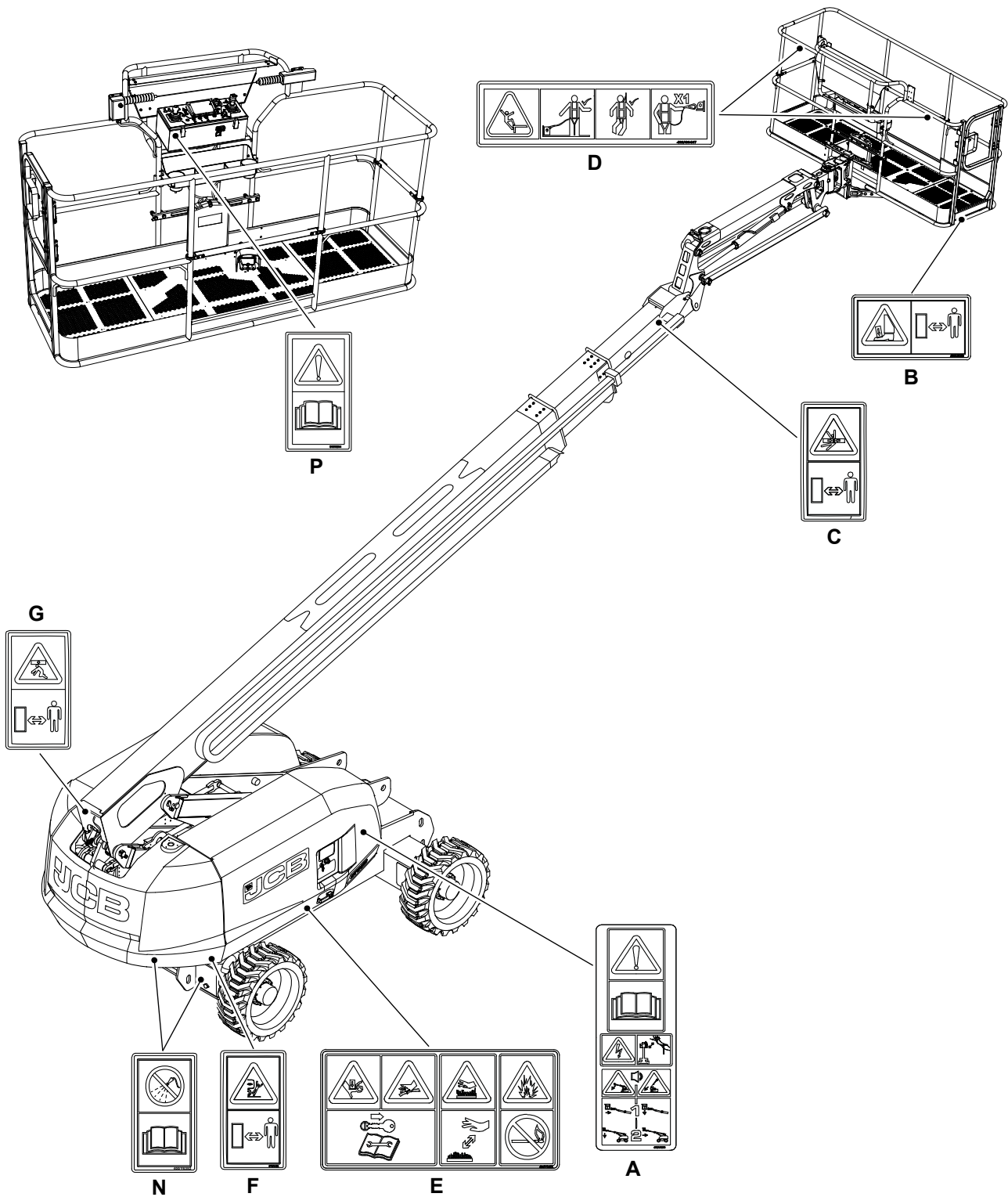


Figure 8.

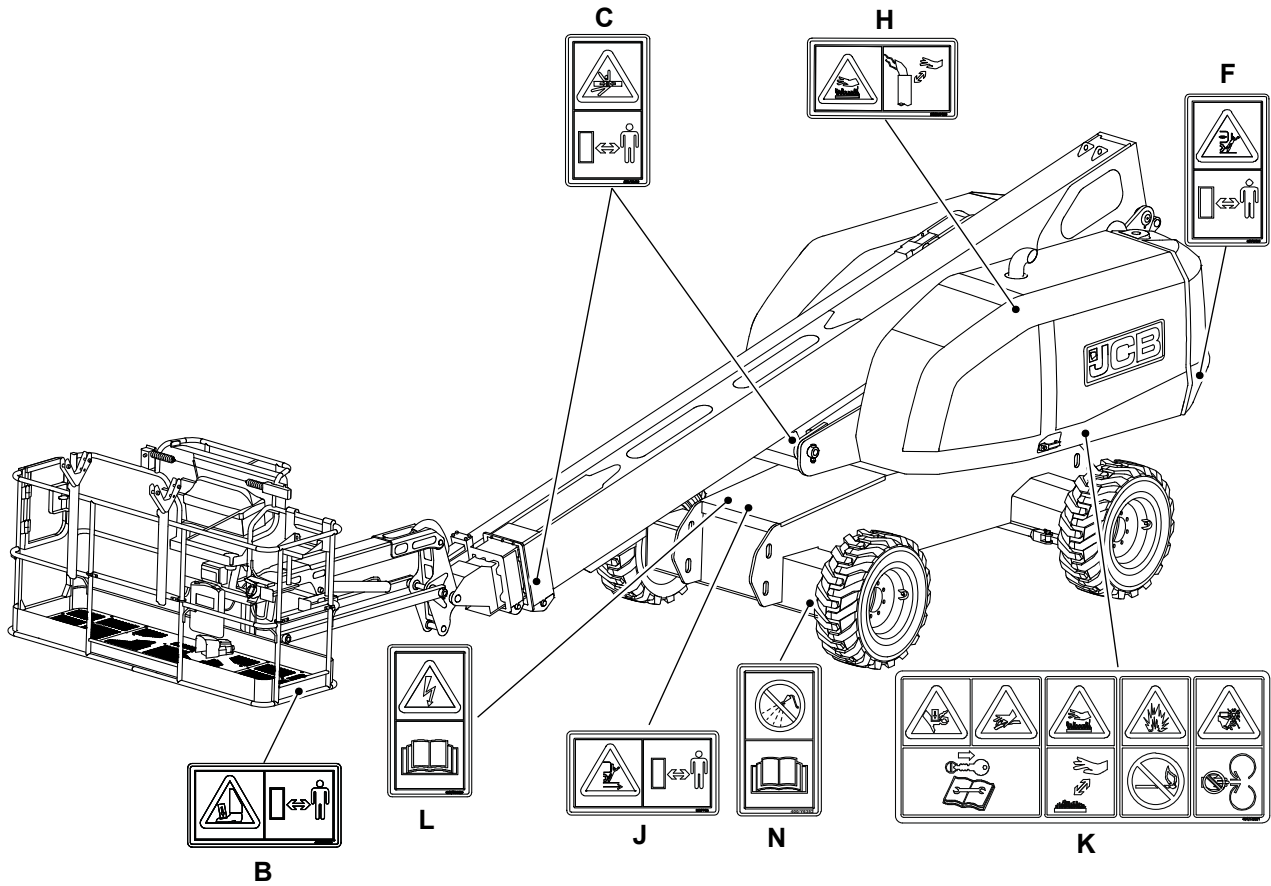


Figure 9.

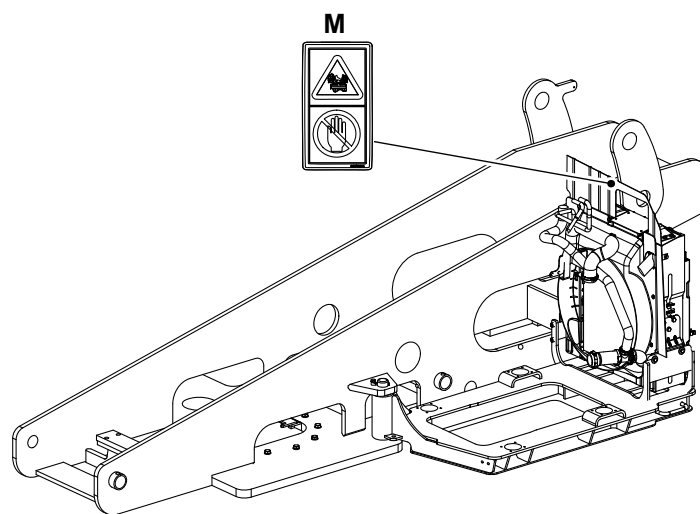


Table 5. Safety Labels

Item	Part No.	Description	Qty.
A	402/V6290	(Combination label). Warning - Read the Operator's Manual before you operate the machine. Electrical hazard, stay a safe distance away from	1

Item	Part No.	Description	Qty.
		power lines. Operate the decent alarm when you lower the boom. Follow the correct sequence while lowering the boom.	
B	400/U5049	(Combination label) Warning - Crush hazard (to feet). Keep a safe distance. The attachment may roll forward when released. The object may fall over from the platform.	2
C	817/70112	Warning. Crushing of whole body. Keep a safe distance.	3
D	402/G0407	Warning - Wear safety harness.	2
E	400/V1418	(Combination label) Warning - Pressure hazard. Stop the machine, remove the ignition key and consult service manual before carrying out any servicing and maintenance work. Caution - Burns to fingers and hands. Stay a safe distance away. Warning - Explosion hazard. Remove sources of ignition.	1
F	817/70106	Warning. Strike to whole body (machine swing). Keep a safe distance from the machine.	2
G	817/70110	Warning. Crushing of whole body. Keep a safe distance from machine.	1
H	332/U9190	Warning. Engine exhaust. Burn to fingers and hands. Stay a safe distance away.	1
J	332/P7124	Strike. Keep clear of the reversing machine.	2
K	401/C5031	(Combination label) Warning - Pressure hazard. Stop the machine, remove the ignition key and consult service manual before carrying out any servicing and maintenance work. Caution - Burns to fingers and hands. Stay a safe distance away. Warning - Explosion hazard. Remove sources of ignition. Caution - Severing of hands and fingers. Keep clear of/do not reach into rotating parts.	1
L	817/70032	Electrical hazard. Read the Operator's Manual.	1
M	817/70005	Warning. Hot fluid under pressure. Do not touch, consult operator's manual.	1
N	400/Y6352	Warning. Do not pressure wash. Read operator manual.	14
P	817/70014	Warning. Read the Operator's Manual before you operate the machine.	1

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 thoroughly 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, gages 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.

Operating Safety

General

Training

Make sure that you have had adequate training and that you are confident in your ability to operate the machine safely before you use it. Practice using the machine and its attachments until you are completely familiar with the controls and what they do. Where applicable you may be required to show competency to a national certification scheme. Ensure you comply with local legislation and jobsite rules. With a careful, well trained and experienced operator, your machine is a safe and efficient machine. With an inexperienced or careless operator, it can be dangerous. Do not put your life, or the lives of others, at risk by using the machine irresponsibly. Before you start to work, tell your colleagues what you will be doing and where you will be working. On a busy site, use a signalman.

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

Fuel

Fuel is flammable, keep naked flames away from the fuel system. Stop the engine immediately if a fuel leak is suspected. Do not smoke while refueling or working on the fuel system. Do not refuel with the engine running. Completely wipe off any spilt fuel which could cause a fire. There could be a fire and injury if you do not follow these precautions.

Machine Condition

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

Machine Limits

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

Engine/Steering Failure

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

Exhaust Gases

Machine exhaust gases can harm and possibly kill you or bystanders if they are inhaled. Do not operate the machine in closed spaces without making sure there is good ventilation. If possible, install an exhaust extractor. If you begin to feel drowsy, stop the machine at once and get into fresh air.

Worksites

Worksites can be hazardous. Examine the site before working on it. You could be killed or injured if the ground gives way under your machine or if piled material collapses onto it. Check for potholes and hidden debris, logs, ironwork etc. Any of these could cause you to lose control of your machine. Check for utilities such as electric cables (overhead and underground), gas and water pipes etc. Mark the positions of the underground cables and pipes. Make sure that you have enough clearance beneath overhead cables and structures.

If the machine is used in coordination with other machines, vehicles and/or people on the jobsite the operator must follow jobsite organization rules.

Communications

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

You must stop the machine operation, isolate the controls and turn off the machine when persons are required to interact with it.

Parking

An incorrectly parked machine can move without an operator. Follow the instructions in the Operator's Manual to park the machine correctly.

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, vapor or dust.

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.

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.

Traveling at High Speeds

Traveling 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.

Confined Areas

Pay extra attention to proximity hazards when operating in confined areas. Proximity hazards include buildings, traffic and bystanders.

Safe Working Loads

Overloading the machine can damage it and make it unstable. Study the specifications in the Operator's Manual before using the machine.

Worksite Safety

"Workplace Inspection" will help operators to determine whether the workplace is suitable for operation. Operators must inspect the workplace before they move machines there. It is the operator's responsibility to understand and keep in mind the hazards in the workplace, He/she must pay attention and avoid these problems when moving, installing and operating the machine. Check for hazards such as but not limited to:

- Drop-offs, or potholes including those concealed by water mud, etc.
- Slopes.
- Bumps and floor obstructions.
- Debris.
- Overhead obstructions and electrical conductors.
- Hazardous locations and atmospheres.
- Inadequate surface and support to withstand all load forces imposed by the platform in all operating configurations.

- Wind and weather conditions.
- Presence of unauthorized persons.
- Other possible unsafe conditions.
- Underground utilities and pipes.
- Overhanging objects, tree branches.

Risk Assessment

It is the responsibility of the competent people that plan the work and operate the machine to make a judgment about the safe use of the machine, they must take into account the specific application and conditions of use at the time.

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

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

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

A good risk assessment depends on the training and experience of the operator. Do not put your life or the lives of others at risk.

Personnel

- Are all persons who will take part in the operation sufficiently trained, experienced and competent? Are they fit and sufficiently rested? A sick or tired operator is a dangerous operator.
- Is supervision needed? Is the supervisor sufficiently trained and experienced?
- As well as the machine operator, are any assistants or lookouts needed?

The Machine

- Is it in good working order?
- Have any reported defects been corrected?
- Have the daily checks been carried out?
- Are the tires in good condition?
- Is there sufficient fuel to complete the job?

Working Area

- Is it level?
- Is the ground solid? Will it support the weight of the machine when loaded?
- How rough is the ground? Are there any sharp projections which could cause damage, particularly to the tires?
- Are there any obstacles or hazards in the area, for example, debris, excavations, manhole covers, power lines?
- Is the space sufficient for safe maneuvering?
- Are any other machines or persons likely to be in or to enter the area while operations are in progress?

The Route to be Traveled

- How solid is the ground, will it provide sufficient traction and braking? Soft ground will affect the stability of the machine and this must be taken into account.
- How steep are any slopes, up/down/across? A cross slope is particularly hazardous, is it possible to detour to avoid them?

Weather

- How windy is it? High wind will adversely affect the stability of a loaded machine.
[Refer to: Performance Dimensions \(Page 113\).](#)
- Is it raining or is rain likely? The ground that was solid and smooth when dry will become uneven and slippery when wet, and it will not give the same conditions for traction, steering or braking.

Emergency Plan

Make sure that emergency rescue plan is in place and understood by those involved when operating the machine from platform controller at height. It is important to make sure that those involved in the rescue plan are aware of the location of the lowering controls and how to operate the machine from platform controller at height.

Walk-Around Inspection

General

▲ **DANGER** Check the brackets in the center of the wheel hubs to ensure they are in their normal extruded position before leaving or operating the machine. Otherwise there is a risk that the machine will roll away.

[Refer to: Getting the Machine Moving \(Page 26\).](#)

The machine walk-around or pre-operation inspection is an important routine task and must be performed by the operator. This is a visual inspection that must be performed by the operator before using the machine. If there are any issues observed during inspections, then machine maintenance is required. For more details on daily checks

[Refer to: Maintenance Schedules \(Page 69\).](#)

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

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

1. Check for cleanliness.
 - 1.1. Remove dirt and debris, especially from around the linkages, rams, pivot points.
 - 1.2. Make sure the platform floor and handrails are clean and dry.
 - 1.3. Clean all of the safety and instructional labels. Replace any label that is missing or cannot be read.
2. Check for damage.
 - 2.1. Examine the machine generally for damaged and missing parts.
 - 2.2. Make sure that all of the fasteners and pivot pins are correctly installed.
 - 2.3. Check the operation of the platform side rails.
 - 2.4. Check the condition of the tires.
 - 2.5. Check for leaks
3. Make sure that all of the access panels are closed correctly.
 - 3.1. If access panels are installed with locks, we recommend that you lock them to prevent theft or tampering.
4. Check condition of safety harness anchorage points. Check the condition after any excessive loading.
5. Check the brackets in the center of the wheel hubs to ensure they are in their normal extruded position before leaving or operating the machine. Otherwise there is a risk that the machine will roll away.
[Refer to: General \(Page 26\).](#)
6. Check the operation of all controls.
7. Check the operator's manual is in good condition and is kept in the operator's manual storage compartment.
8. Check the level of the hydraulic fluid and for leaks.
9. Check the level of the fuel and for leaks.
10. Check the condition of the batteries, cables and wiring.
11. Check the operation of the safety equipment.
[Refer to: Check \(Operation\) \(Page 87\).](#)
12. Before operating the boom and drive functions remove the slew lock by positioning the slew lock pin in the unlock position.

Entering and Leaving the Platform

General

▲ CAUTION Entering or leaving the operator station must only be made where steps and handrails are provided. Always face the machine when entering and leaving. Make sure the steps, handrails and your boot soles are clean and dry. Do not jump from the machine. Do not use the machine controls as handholds, only use the handrails.

Make sure the machine is stopped, correctly parked and fully stowed before entering or leaving the platform.
[Refer to: Stopping and Parking \(Page 25\).](#)

When entering and leaving the platform always maintain three points of contact. Three points of contact means that two hands and one foot or one hand and two feet are in contact with platform or ground at all times during entering and leaving the platform. Do not use the machine controls as handholds.

Before entering and leaving the platform, make sure that the platform is fully lowered.

Entering the Platform using slider

1. Hold the guardrail, to climb up to the platform.
2. Lift and hold the sliding tube.
3. Step into the platform. [Refer to Figure 10.](#)
4. Move the sliding tube in its original position.

Entering the Platform using Platform door

1. Hold the guardrail, to climb up to the platform.
2. Slide the latch lever to right side to open the platform door.
3. Step into the platform. [Refer to Figure 10.](#)
4. Close the platform door and make sure it latches correctly.

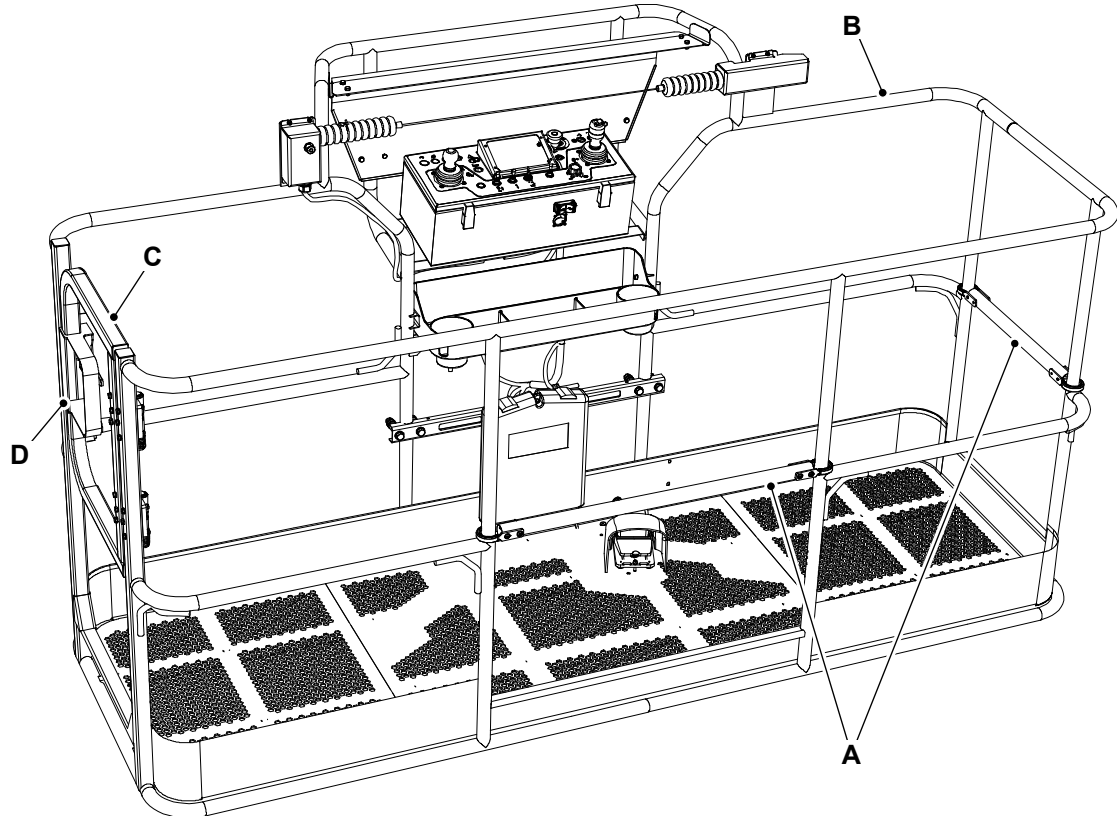
Leaving the Platform using slider

1. Park the machine on solid, level ground.
2. Lift and hold the sliding tube. [Refer to Figure 10.](#)
3. Hold the guardrail and step out from the platform.
4. Move the sliding tube in its original position.

Leaving the Platform using Platform door

1. Park the machine on solid, level ground.
2. Move the lever to the left side to open the platform door. [Refer to Figure 10.](#)
3. Hold the guardrail and step out from the platform.
4. Close the platform door and make sure it latches correctly.

Figure 10.



A Sliding tubes
C Platform door

B Guardrails
D Latch

Battery Isolator

General

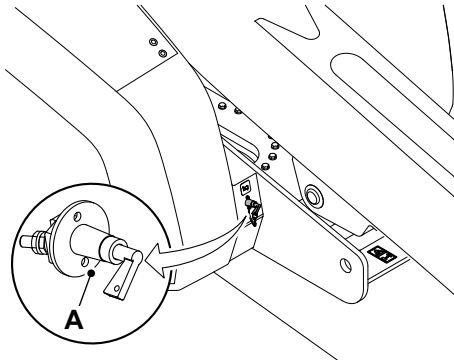
▲ WARNING The batteries remain live even when the isolator key is removed.

Note: When the machine is transported on sea in the container, make sure that the isolator is turned OFF and turned ON when it is removed from the container.

Disconnect the Machine Electrics:

1. Turn the key switch to the ON position.
2. Open the hydraulic compartment cover.
[Refer to: Hydraulic Compartment Cover \(Page 79\).](#)
3. Get access to the battery isolator.
[Refer to: Service Points \(Page 76\).](#)
4. Disconnect the battery isolator.

Figure 11.



A Isolator switch

Connect the Machine Electrics:

1. Make sure the key switch is in OFF position.
2. Connect the battery isolator.

Starting the Engine

General

1. Make the machine safe.
[Refer to: Safety \(Page 3\).](#)
2. Make sure that emergency stop buttons are in OFF condition.
3. Turn the ignition key to the ON position.
[Refer to: Control Layouts \(Page 34\).](#)
 - 3.1. The display turns 'ON' on the base/platform control panel.
4. Push the engine start/stop button on the base/platform control panel to start the engine.
[Refer to: Control Layouts \(Page 34\).](#)
5. Cold climate engine start: 0°C to -20°C
 - 5.1. Turn the ignition key to the ON position.
 - 5.2. Push the engine start/stop button on the base/platform control panel to start the engine.
[Refer to: Control Layouts \(Page 34\).](#)
 - 5.3. Allow the engine to run idle for the specified time for every °C, if the temperature is below 0°C.
Duration: 1min

Stopping and Parking

General

Dynamic braking is achieved hydrostatically. The machine uses a spring applied hydraulic release SAHR (Spring Applied Hydraulic Release) park brake in all four wheel motors.

The park brakes release automatically during travel only. The park brakes do not release during lifting.

1. Select a safe place to stop where the ground is firm and level, where the machine will not cause an obstruction and away from heavy traffic.
2. Lower the platform to stowed position.
3. Turn the key switch to the off position. Remove the key to avoid unauthorized use.

Brake Operational Limits

The machine is capable of holding itself on the maximum gradient as stated in this manual. For more details [Refer to: Slopes \(Page 28\)](#).

It is recommended that the machine is not parked or left unattended on slopes greater than those specified in this manual. It is the responsibility of the operator to assess the ground and atmospheric conditions before using or parking the machine on gradients.

The machine must be immediately taken out of service until corrected if the park brakes do not operate within specifications or performance requirements as defined in this manual or any other in-service, periodic or post maintenance brake verification.

The hydraulic system is designed to decelerate and stop the machine at its maximum speed on the maximum gradients as stated in this manual.

Getting the Machine Moving

General

▲ WARNING Watch for obstructions around machine and overhead when driving. Check clearance above, to sides, at bottom of machine when lifting or lowering the platform.

WARNING Do not operate the machine from the platform to release the platform when it is stuck, snagged or caught. In this case, use the base control only when there are no persons on the platform.

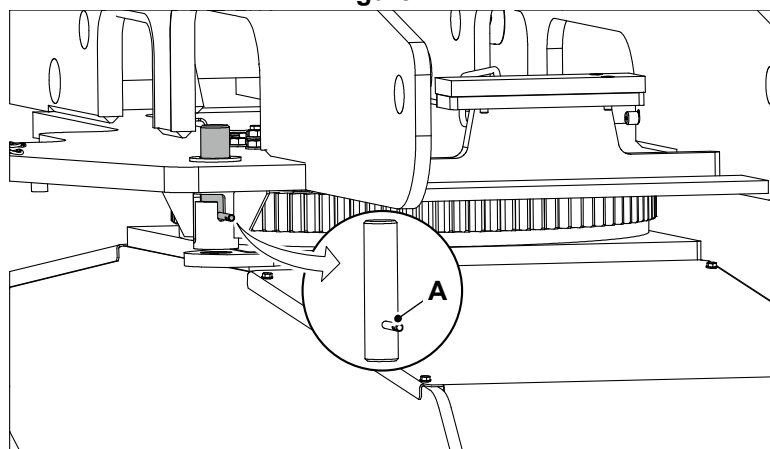
DANGER Check the brackets in the center of the wheel hubs to ensure they are in their normal extruded position before leaving or operating the machine. Otherwise there is a risk that the machine will roll away.

Perform the pre-operation checks before using the machine.

Refer to: [Check \(Operation\) \(Page 82\)](#).

Disengage the slew lock pin. [Refer to Figure 12](#).

Figure 12.



A Slew lock pin with handle

Raising and Lowering the Platform

Operation from Base

1. Make sure the base and platform emergency stop buttons are released and there are no faults or alarms active on the machine.
1. Turn the ignition switch to the ON position.
2. Push and release the engine start / stop button to start the engine. Do not push the base enable switch when starting the engine.

[Refer to: Control Layouts \(Page 34\)](#).

3. Push and hold the base enable switch, followed by the relevant function switch to raise or lower the platform in the required direction.

[Refer to: Control Layouts \(Page 34\)](#).

4. When operating the platform, an amber beacon will flash and a white noise alarm will sound at the chassis to draw the attention of nearby persons to keep a safe distance from the machine as the booms and platform are operating.

Drive and steer functions are not available from the base controls.

Operation from the Platform

1. Make sure the base and platform emergency stop buttons are released and there are no faults or alarms active on the machine.

2. Push and release the engine start / stop button to start the engine. Do not push down the foot pedal switch when starting the engine.
[Refer to: Control Layouts \(Page 34\).](#)
3. Push and hold the foot pedal and push and hold the relevant function switch or joystick / lever in the desired direction to raise or lower the platform.
[Refer to: Control Layouts \(Page 34\).](#)
4. When operating the platform, the beacon will flash and the white noise alarm will sound at the chassis to draw the attention of nearby persons to keep a safe distance from the machine as the booms and platform are operating.
5. Turn the potentiometer to set desired speed.

With the travel speed potentiometer at its minimum position it is possible that some services may not function when operated from the platform control panel. Adjust the travel speed potentiometer for smooth movement.

Multi-functions

When operating the boom controls, some functions may not be permitted simultaneously. In this case, the operation commanded first will be prioritized. To indicate that an operation is not permitted, the operator caution icon will be shown on the base and platform control panel displays. To find out more information about which operations are not permitted simultaneously on your machine, contact your local JCB dealer.

Slopes

General

▲ WARNING Make sure that you have been trained and are familiar with the use of machines on slopes, and understand the adverse effects that slopes and site conditions can have on stability. Never use the machine on a slope if you do not understand the recommended practices for the use of machines in such applications.

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

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

Machine can be driven both in reverse and forward direction.

Driving on Slopes

▲ WARNING If the tilt indicator warning light/alarm is activated while driving with platform raised, lower the platform and drive to a smooth firm level surface.

WARNING Make sure that the platform is fully stowed while driving the machine on slopes and gradient, otherwise it may affect the stability of the machine.

Understand the uphill, downhill and side slope ratings for the machine and determine the grade of the slope. Do not use the machine on the slope if the rating is exceeded.

[Refer to: Performance Dimensions \(Page 113\).](#)

Slope rating is subject to ground conditions and adequate traction. The term gradability applies to the machine when it is in the stowed position only.

Turn the potentiometer clockwise to increase the boom speed/drive speed as per potentiometer position.

Make sure that while driving on slopes with the platform fully stowed, the front/back and side slope does not exceed the rated gradient for the machine.

While driving on slopes it is possible to partially raise the platform before leaving the stowed position and drive the machine, even when the chassis angle is above the rated maximum limit.

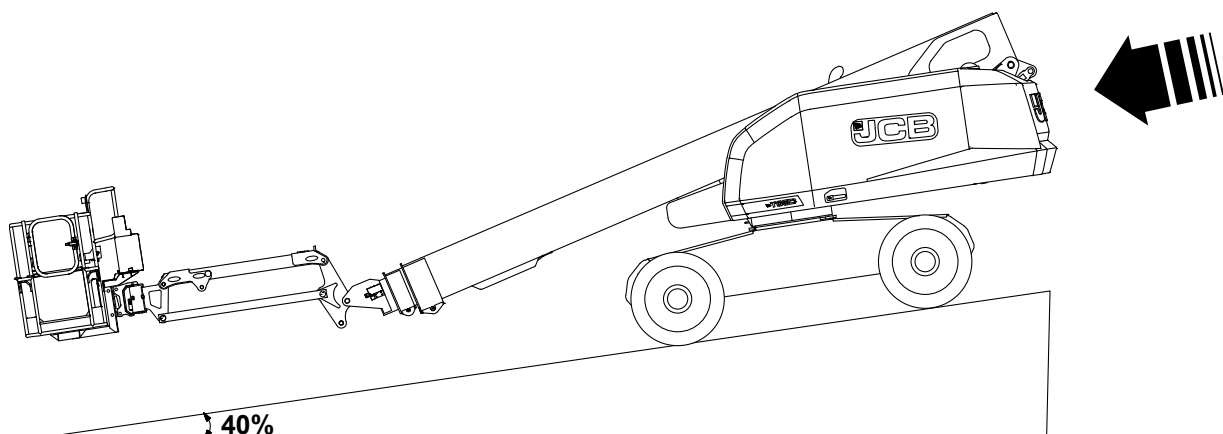
Platform in Stowed Condition

Downhill Slope

Maximum slope rating, platform downhill (gradability):

40% (22°)

Figure 13.

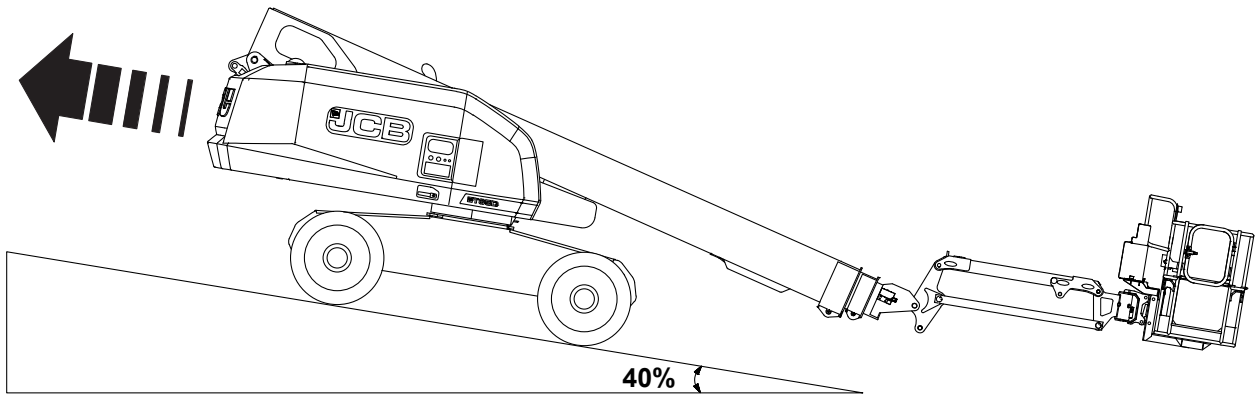


Uphill Slope

Maximum slope rating, platform uphill:

40% (22°)

Figure 14.

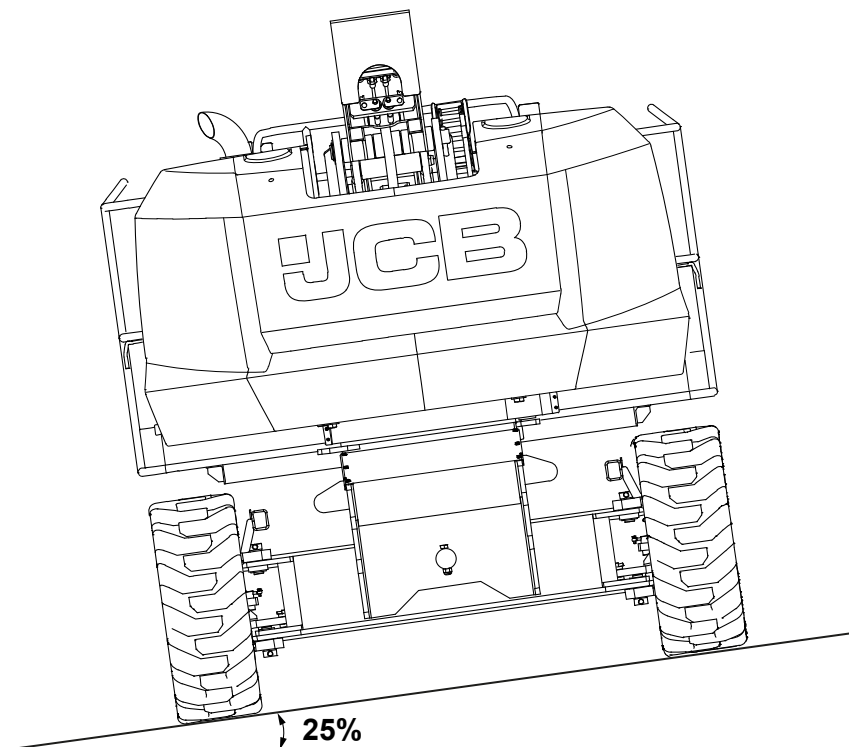


Side Slope

Maximum side slope rating:

25% (14°)

Figure 15.



Platform in Raised/Partial Raised Condition

Make sure that while driving on slopes with the platform raised, front/back slope and side slope does not exceed the specified value in all orientations.

8.75% (5°)

Figure 16. Side Slope

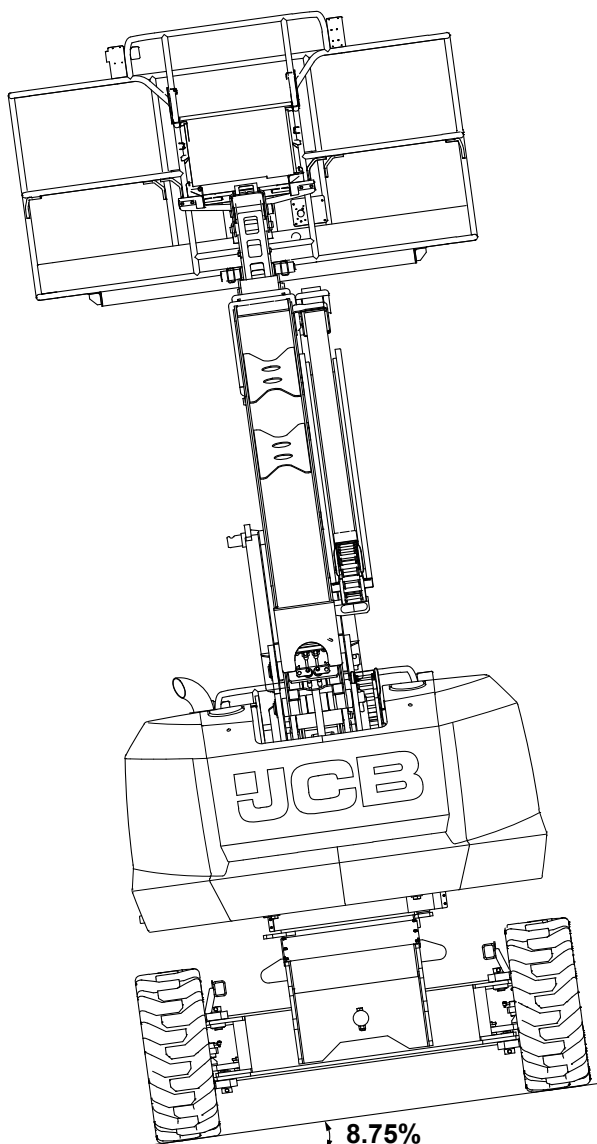
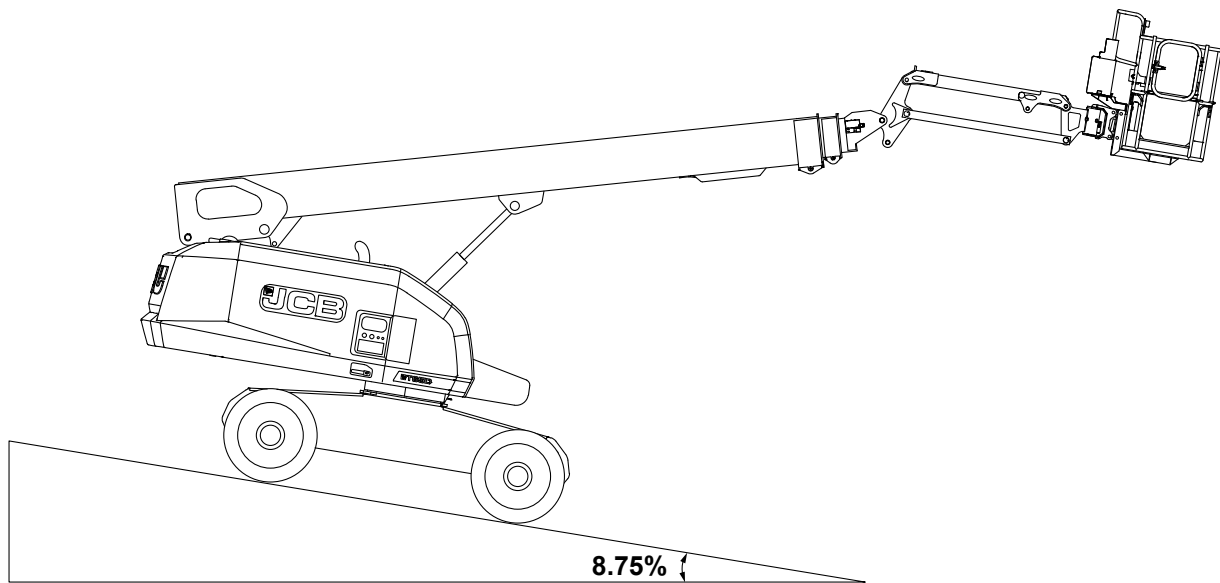


Figure 17. Front or Back Slope



Slope Hold Test

1. Make the machine safe with the platform lowered.
2. Put a mark on the ground to use as a test line.
3. Release the base and platform emergency stop button to the ON position.
[Refer to: Control Layouts \(Page 34\).](#)
4. Turn the ignition switch to the ON position.
5. Make a note of the point on the machine (contact patch of a tire) as a visual reference when you cross the test line.
6. Press the drive function button (if installed).
7. Press and hold the drive and steer joystick and move the joystick in the forward direction.
8. Bring the machine to top drive speed before you reach the test line.
9. Make sure to test the brake hold at 45% slope for the specified duration.
Duration: 30s
10. Release the joystick when the selected reference point on the machine crosses the test line.
11. Measure the distance between the test line and the machine reference point.
12. Make sure that the braking distance is within the specified limits.
[Refer to: Brakes \(Page 98\).](#)
13. Raise the platform.
14. Do the steps 2 to 11 with the platform raised.
15. Make sure that the braking distance is within the specified limits.
[Refer to: Brakes \(Page 98\).](#)

Driving the Machine

General

▲ WARNING Do not operate the machine from the platform to release the platform when it is stuck, snagged or caught. In this case, use the base control only when there are no persons on the platform.

WARNING Watch for obstructions around machine and overhead when driving. Check clearance above, to sides, at bottom of machine when lifting or lowering the platform.

Operation from Base

1. Drive and steer functions are not available on the base control.

Operation from Platform

1. Release both base and platform red emergency stop buttons to the on position.
2. Press the engine crank button to start the engine. Do not press down the foot pedal switch when starting the engine.
3. Press the engine speed button to toggle between high or low engine rpm.

To Steer

1. Press down the foot pedal switch.
2. Press the steering switch left or right to change the steering direction of the steering wheels according to the markings on the control panel.

[Refer to: Control Layouts \(Page 34\).](#)

Use the color-coded direction triangles on the platform controls and the drive chassis to identify the direction the wheels will turn.

To Drive

[Refer to: Control Layouts \(Page 34\).](#)

1. Push the high torque button to switch between high torque/low speed or low torque/high speed.
2. Turn the potentiometer clockwise or counter-clockwise to select travel speed.
3. Press down the foot pedal to enable the platform control.
4. Move the travel joystick to forward or reverse direction to move.
5. Release the joystick to stop the machine.

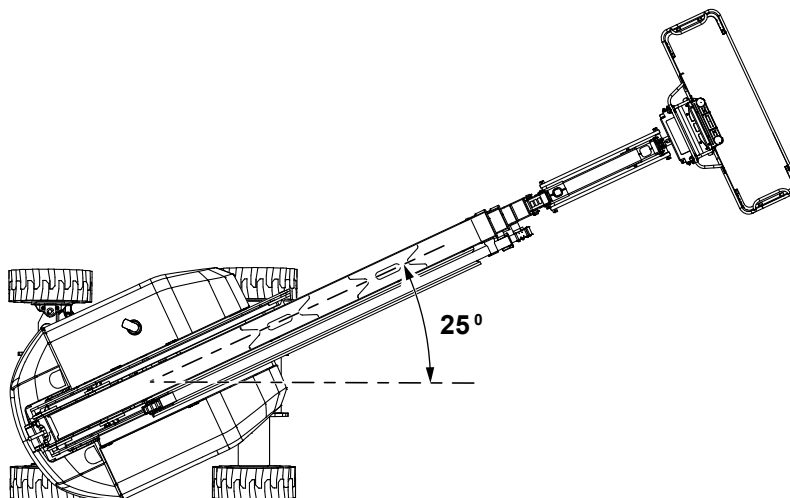
Use the color-coded direction arrows on the platform controls and the drive chassis to identify the direction the wheels will turn.

Machine travel speed is reduced when the boom is raised above its lower limit switch, or when the telescopic boom is extended out of the stowed position. If maximum drive speed is required, it is recommended to fully stow the boom. Refer to the boom switch positions.

[Refer to: Check \(Operation\) \(Page 87\).](#)

Slew Acknowledge

Figure 18.



1. If the turntable is slewed more than the specified angle from forward position (between the non-steer wheels), drive and steer functions will not be available until the operator acknowledges the slew orientation. Angle: +/- 25 degree.
2. The slew position indicator LED (Light Emitting Diode) will flash.
3. Press down the foot pedal switch.
4. Press the slew acknowledge button located below the slew position indicator LED to acknowledge the slew orientation and that the machine could be in an unstable condition.
5. The slew position indicator LED will change to a constant light.
6. The drive and steer functions will be enabled until the foot pedal switch is released.

Drive Mode

There are two torque settings available for the drive motors, when the machine is stowed. Press the high torque button to switch between high torque (tell-tale ON) and low torque (tell-tale OFF) on screen.

There are two speeds available for the engine. Press the high speed button to switch between high speed (tell-tale ON) and low speed (tell-tale OFF) on screen.

When driving on a slope, select the 'low speed / high torque' drive mode.

Machine travel speed is reduced when the booms are raised, or extended. The machine high torque tell-tale will be constantly illuminated.

[Refer to: Control Layouts \(Page 34\).](#)

Always make sure the machine is in the correct drive speed before moving the joystick, especially after lowering the platform.

Multi-functions

When operating the drive controls, some boom functions may not be permitted simultaneously. In this case, the operation commanded first will be prioritized. The indication that an operation is not permitted, the operator caution icon/ LED will be lit at the base and platform control panels. To find out more information about which operations are not permitted simultaneously on your machine, contact your local JCB dealer.

Operating Levers/Pedals

Control Layouts

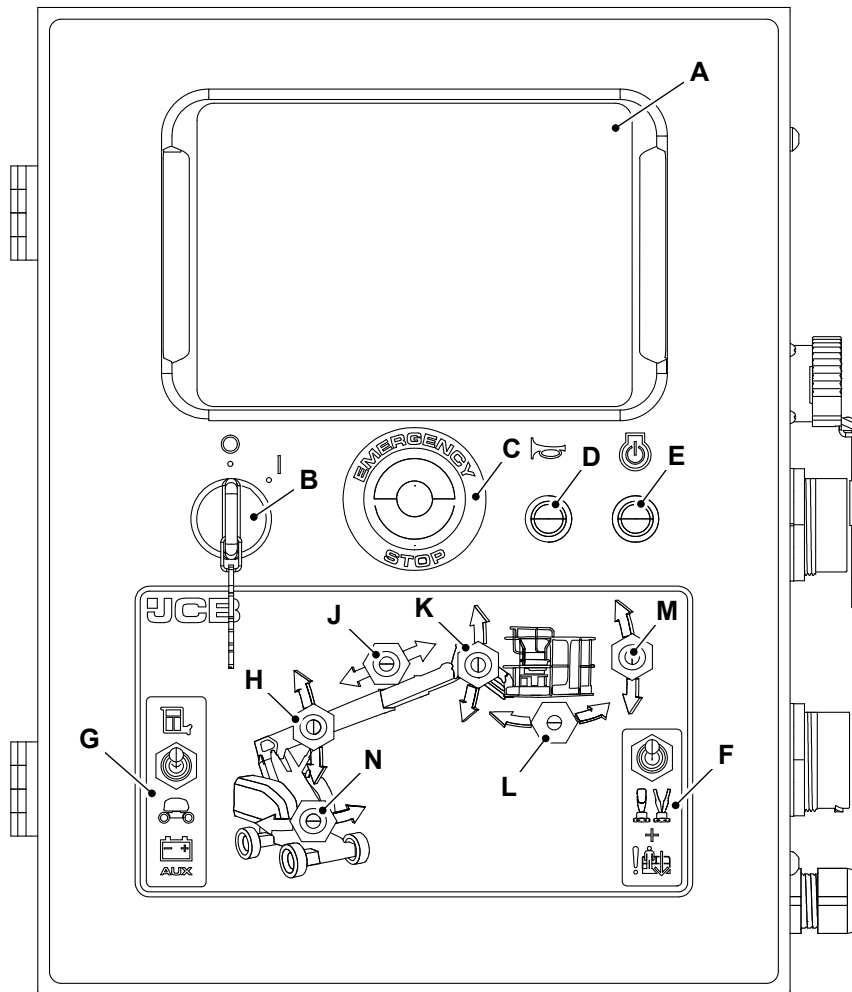
⚠ CAUTION Keep the machine controls clean and dry. Your hands and feet could slide off slippery controls. If that happens you could lose control of the machine.

There are two control panels, one is located on the left hand side of the machine, other is in the operator platform.

Base Control Panel

⚠ WARNING Do not operate the machine with the base control when there are personnel in the platform except in an emergency.

Figure 19.



- | | |
|--|---|
| A Digital display | B Key switch |
| C Emergency stop button | D Horn button |
| E Engine start / stop button | F Emergency override switch |
| G Base control enable switch | H Main boom raise / lower switch |
| J Telescopic boom extend / retract switch | K Jib raise / lower switch |
| L Platform rotate switch | M Platform level switch |
| N Slew left / right switch | |

Figure 20. Base Control Display

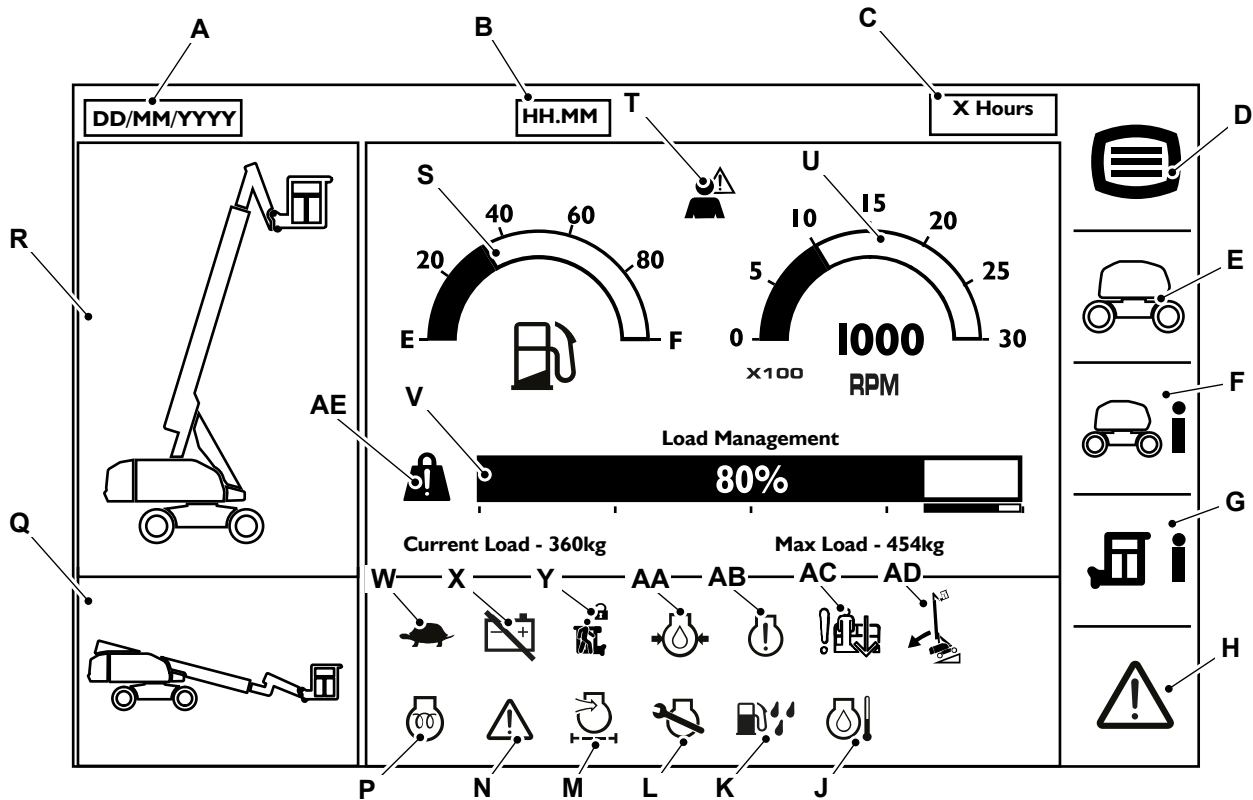


Table 6.

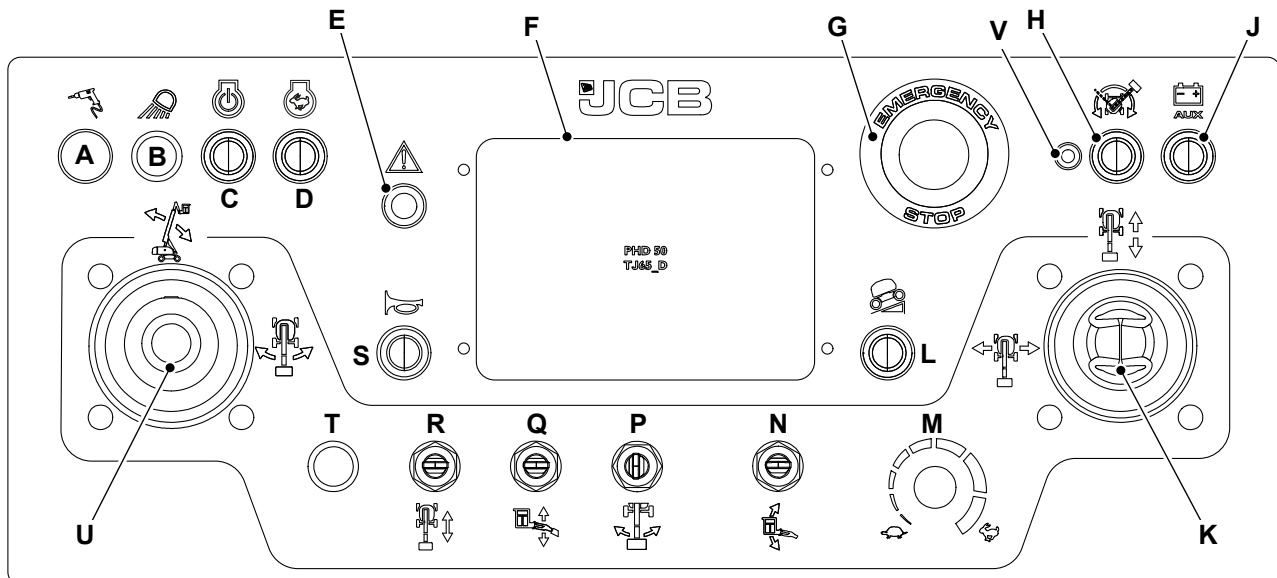
Callout	Indicator	Description
A	Date	Displays current date.
B	Time	Displays current time.
C	Machine hours	Displays machine running hours.
D	Machine control settings	Displays settings for the display.
E	Machine control setup	Displays locked screen for new settings of machine.
F	Base information	Displays base information of machine like input, output and machine information.
G	Platform information	Displays platform input / output information.
H	Alarm information	Displays live and historic faults.
J	Coolant temperature	Displays when coolant temperature is high.
K	Water in fuel	Displays if moisture is detected in fuel.
L	Service Lamp	Displays when the engine service is due.
M	Blocked air filter	Displays when the engine air filter is blocked.
N	Fault indicator	Displays when there is a fault on the machine.
P	Engine pre-heater	Applicable for machines fitted with grid heater. Indicates wait to heat in cold conditions.
Q	Machine stowed position	Displays when machine is in stowed position.
R	Machine raised position	Displays when machine is in raised position.
S	Fuel level indicator	Displays the level of diesel fuel in the tank. Do not let the tank run dry, or air will enter the fuel system. Do not run the engine if the indicator needle goes into the red area. First segment of fuel gage blinks to show reserve capacity.
T	Operator error or caution alarm	Displays when there is error in the operation and requires operator's attention.

Callout	Indicator	Description
U	Engine speed indicator	Displays the engine RPM (Revolutions Per Minute).
V	Load management indicator	Displays the amount of load machine is carrying in percentage.
W	Travel speed	Displays machine operation is in slow / high or tortoise / hare mode.
X	Alternator lamp	Displays if there is a battery charging circuit fault while the engine is running.
Y	Secondary guarding	Displays when the platform secondary guarding is in active condition.
AA	Engine oil pressure	Displays if the engine oil pressure is too low. Stop the engine. The light should go out after the engine is started.
AB	Engine warning lamp	Displays during fault state of engine.
AC	Emergency mode used	Displays when emergency override has been activated.
AD	Tilt limit exceeded	Displays when machine tilt limit is exceeded. Solid lamp if the machine is stowed. Flashing lamp if the machine is raised.
AE	Overload lamp	Displays when the platform load limit is exceeded. Solid lamp if the load is approaching the limit. Flashing lamp if the load is above the limit.

Platform Control Panel

▲ WARNING Do not drive the machine with the platform raised except on smooth, firm and level surface free of obstructions and pot holes.

Figure 21.



- | | |
|---|--|
| <p>A Hydraulic generator ON/OFF button (if installed)</p> <p>C Engine start/stop button</p> <p>E Error indicator</p> <p>G Emergency stop button</p> <p>J Auxiliary power button</p> <p>L High torque button</p> <p>N Manual platform level switch</p> <p>Q Jib boom up/down switch</p> <p>S Horn button</p> <p>U Main boom lift and slew joystick</p> | <p>B Work lights ON/OFF switch (if installed)</p> <p>D Engine high/low speed select button</p> <p>F Display</p> <p>H Slew acknowledgment button</p> <p>K Drive and steer joystick</p> <p>M Potentiometer</p> <p>P Platform rotate switch</p> <p>R Telescope in/out function switch</p> <p>T Spare</p> <p>V Slew acknowledge LED (Light Emitting Diode) indicator</p> |
|---|--|

Platform Control Display

Figure 22.

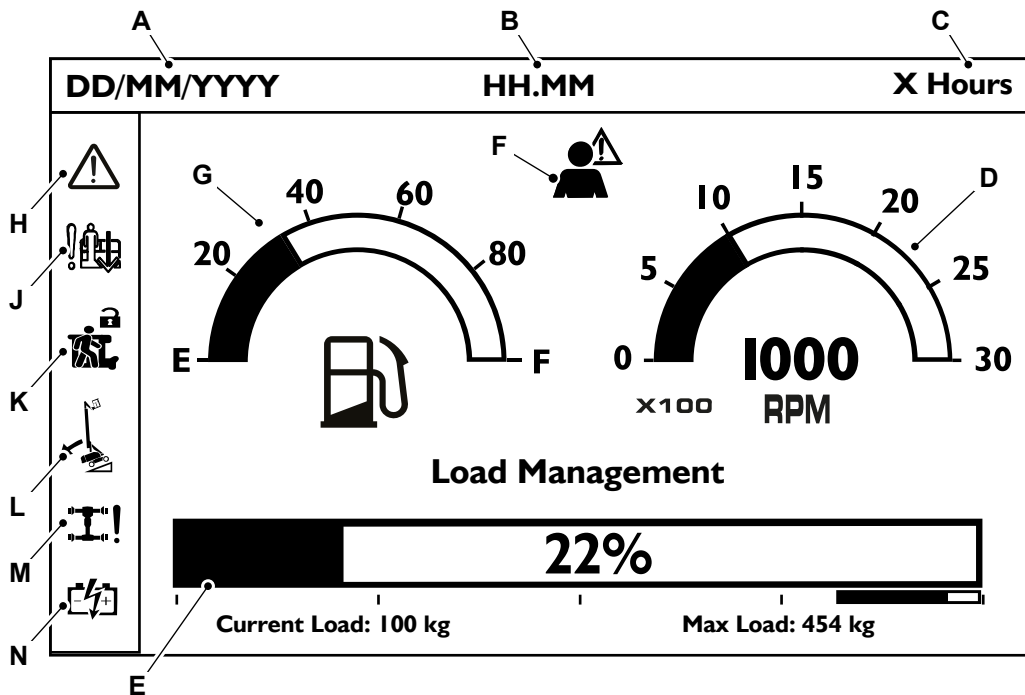


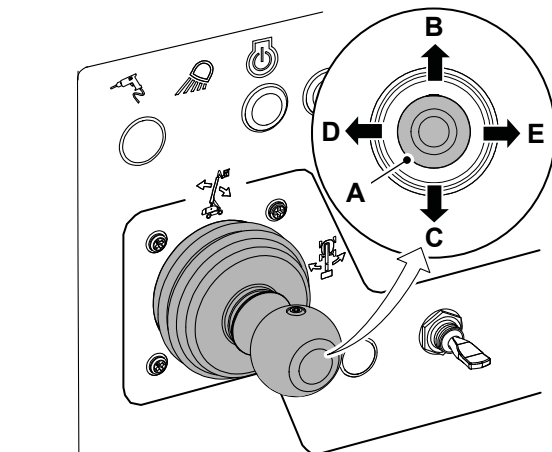
Table 7.

Callout	Indicator	Description
A	Date	Displays current date.
B	Time	Displays current time.
C	Machine hours	Displays machine running hours.
D	Engine speed indicator	Displays the engine RPM.
E	Load management indicator	Displays the amount of load machine is carrying in percentage.
F	Operator error or caution alarm	Appears when machine is operated outside the limits.
G	Battery charging level indicator	Displays the battery level in percentage.
H	Fault indicator	Displays when there is a fault on the machine.
J	Emergency override	Displays when emergency override has been activated.
K	Secondary guarding	Displays when the platform secondary guarding is in active condition.
L	Tilt limit exceeded	Displays when machine tilt limit is exceeded. Solid lamp if the machine is stowed. Flashing lamp if the machine is raised.
M	Powertrain fault lamp	Displays when there is a fault on the powertrain.
N	Battery voltage warning	Displays when battery voltage is high/low.

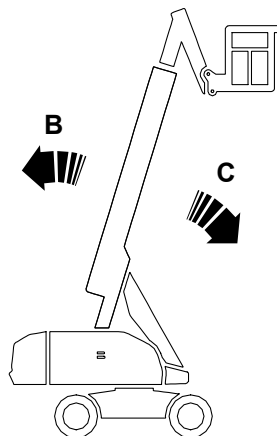
Basic Controls

Main Boom Lift and Slew Joystick

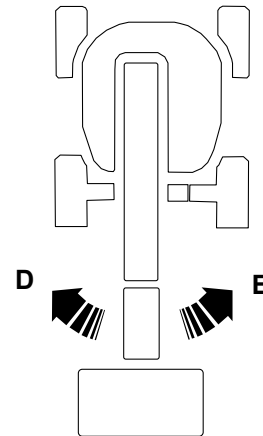
Figure 23.



- A Left joystick
- C Lower boom
- E Slew right

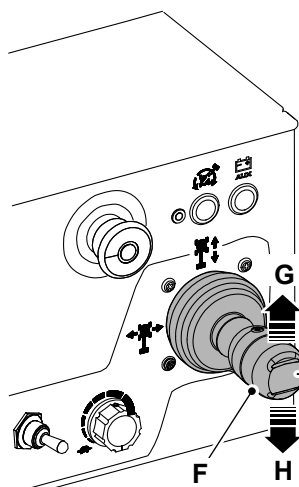


- B Raise boom
- D Slew left

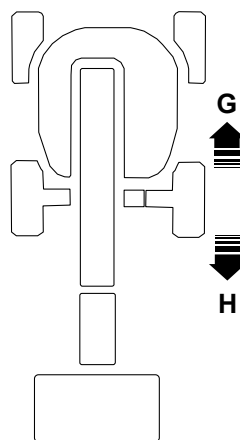


Drive and Steer Joystick

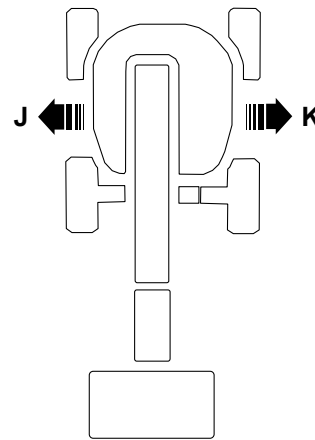
Figure 24.



- F Right joystick
- H Reverse drive
- K Steer right



- G Forward drive
- J Steer left



Working with the Platform

General

Trip and Fall Hazards

- Prior to operation, make sure that all operator door and guard rails are fastened and secured in their proper position.
- It is recommended that all persons in the platform wear full body harnesses with a short lanyard attached to an authorized lanyard anchor point while operating this machine. For further information refer to JCB dealer.
- Keep both feet firmly on the platform floor at all times. Never position ladders, boxes, steps, planks or other similar items on unit to provide additional reach for any purpose.
- Never use the boom assembly to enter or leave the platform.
- Use extreme caution when entering or leaving platform. Make sure that the boom is fully lowered. It may be necessary to telescope out to position the platform closer to the ground for entering or leaving. Face the machine, maintain “three point contact” with the machine, using two hands and one foot or two feet and one hand during entering and leaving.
- Keep your footwear and the platform floor clean of oil, mud and slippery substances.

Electrocution Hazards

- This machine is not insulated and does not provide protection from contact or proximity to electrical current.
- Maintain distance from electrical lines, apparatus, or any energized (exposed or insulated) parts according to the Minimum Approach Distance. [Refer to Table 8.](#)
- Allow for machine movement and electrical line swaying.
- Maintain a clearance of at least 3m (3½yd) between any part of the machine and its occupants, their tools, and their equipment from any electrical line or apparatus carrying up to 50,000 volts. One foot additional clearance is required for every additional 30,000 volts or less.
- The minimum approach distance may be reduced if insulating barriers are installed to prevent contact, and the barriers are rated for the voltage of the line being guarded. These barriers shall not be part of (or attached to) the machine. The minimum approach distance shall be reduced to a distance within the designed working dimensions of the insulating barrier. This determination shall be made by a qualified person in accordance with the employer, local, or governmental requirements for work practices near energized equipment.

Table 8. Minimum Approach Distance

Voltage Range	Minimum Approach Distance
0–50,000V	3m (3½yd)
50,000–200,000V	5m (5½yd)
200,000–350,000V	6m (6½yd)
350,000–500,000V	8m (8½yd)
500,000–750,000V	11m (12yd)
750,000–1,000,000V	14m (15½yd)

Tipping Hazards

- Make sure that the ground conditions are adequate to support the maximum tire load indicated on the tire load decals located on the chassis adjacent to each wheel. Do not travel on unsupported surfaces.
- The user must be familiar with the driving surface before driving. Do not exceed the allowable sideslope and grade while driving.
- Do not raise the platform or drive with platform raised while on or near a sloping, uneven, or soft surface. Make sure that the machine is positioned on the level, solid (slabbed or paved) ground before elevating platform or driving with the platform in the elevated position.
- Before driving on floors, bridges, trucks, and other surfaces, check allowable capacity of the surfaces.
- Never exceed the maximum work load as specified on the platform. Keep all loads within the confines of the platform. Evenly distribute the load across the platform, or the machine could become unstable.
- Keep the chassis of the machine suitably away from holes, bumps, drop-offs, obstructions, debris, concealed holes, and other potential hazards on the floor/surface.
- Do not push or pull any object with the boom.
- Do not operate the machine when wind conditions exceed the limit.

- Never attempt to use the machine as a crane. Do not tie-off machine to any adjacent structure. Never attach wire, cable, or any similar item to platform.
- If the platform or booms becomes stuck or snagged on an adjacent or overhead structure, do not try to free the machine until all personnel are removed from the platform.
- Do not increase the surface area of the platform or the load. Increase of the area exposed to the wind will decrease the stability.
- Do not increase platform size with unauthorized deck extensions or attachments.
- Do not raise the platform with the access apertures open. Keep the access apertures closed whilst the platform is raised.
- If the boom assembly or platform is caught so that one or more wheels are off the ground, all the persons and tools must be removed before attempting to stabilize the machine. Use a crane, forklift truck, or other appropriate equipment to stabilize the machine.

Crushing and Collision Hazards

- Approved head protection must be worn by all operating and ground personnel.
- Watch for obstructions around machine and overhead when driving. Check clearance above, to sides, at bottom of machine when lifting or lowering the platform.
- During operation, keep all body parts inside platform railing.
- Use the boom functions, not the drive function, to position the platform close to obstacles.
- Always post a lookout when driving in areas where vision is obstructed.
- Keep non-operating personnel at least 1.8m (2yd) away from machine during all operations.
- Under all travel conditions, the operator must limit travel speed according to conditions of ground surface, congestion, visibility, slope, location of personnel, and other factors.
- Be aware of stopping distances in all drive speeds. Travel on slope or grades in low speed only.
- Do not use high speed drive in restricted or close quarters or when driving in reverse.
- Exercise extreme caution at all times to prevent obstacles from striking or interfering with operating controls and persons in the platform.
- Ensure that operators of other overhead and floor level machines are aware of the aerial work platform's presence. Disconnect power to overhead cranes. Barricade floor area if necessary.
- Do not operate over ground personnel. Warn personnel not to work, stand, or walk under a raised platform. Position barricades on floor as necessary.

Platform Information Decals

The decals are located below the platform control box.

Figure 25. Decal Description

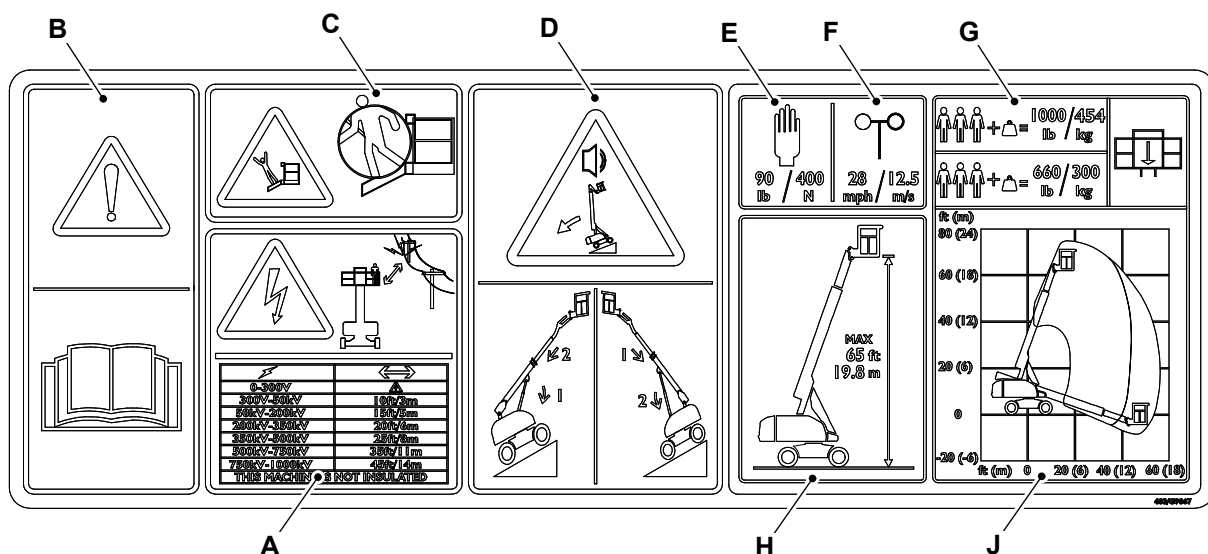


Table 9.

Items	Description
A	Warning. Keep a safe distance from the overhead electrical cables.
B	Warning. Read operator's manual before operating the machine.
C	Warning. Do not exit the platform at height. Do not walk or climb on the booms.
D	Warning. In the event of a stability hazard, lower the platform in the order shown, depending on the orientation of the machine on the slope.
E	Maximum manual force
F	Maximum wind speed
G	Weight distribution on the platform
H	Maximum platform height
J	Machine operating envelope

Operating Characteristics and Limitations

Operating Conditions

The boom can be raised above horizontal with or without any load in the platform, if:

- The machine is positioned on a smooth, firm surface within the maximum operating slope.
[Refer to: Slopes \(Page 28\).](#)
- Make sure that the load is within specified rated capacity.
[Refer to: Weights \(Page 112\).](#)
- Make sure that all machine systems functions correctly.

Platform Load Sensing System (LSS)

The platform LSS (Load Sensing System) measures the platform load from a sensor in the platform support.

If the LSS senses an overload condition, the overload alarm will sound, the overload indicator will light up at both the platform control panel and base control panel, the engine will be stopped and all the boom functions will be disabled.

[Refer to: Control Layouts \(Page 34\).](#)

To regain boom control, reduce the load in the platform to not exceed the rated workload indicated on the platform decal/platform display. [Refer to Figure 25.](#) If unable to resolve the overload condition, auxiliary power may be used to return the platform to a safe working condition.

[Refer to: Moving a Disabled Machine \(Page 45\).](#)

Auxiliary Electrics

General

⚠ WARNING Electric shock hazard. High voltage can cause serious injury or death. Make sure that all work is performed by qualified personnel. All cabling to the load must comply with the applicable laws and electrical standards.

Notice: Possibility of equipment damage. Proper sizing is critical to the operation and performance of the generator. Make sure that the load is sized correctly for the capacity of your generator and cables.

WARNING Maintenance work on equipment that operate using alternating current (AC) can be dangerous. Any maintenance work on such equipment must be performed by authorized electrical engineers or suitably trained personnel. Maintenance work conducted in North and South America must comply with IEC 60204-1.

On mobile machines with on-board power supplies, the protective conductors, the conductive structural parts of the electrical equipment, and those extraneous-conductive-parts that form the structure of the machine must all be connected to a protective bonding terminal to provide protection against electric shock. The protective bonding terminal serves as the connection point for the external protective conductor when a mobile machine is connected to an external incoming power supply.

Your machine is installed optionally with an alternator motor, also called a hydraulic generator.

The hydraulic generator is a compact and integrated all-in-one unit. The hydraulic generator uses a hydraulic power source to operate and produce electricity. This can be used to provide power to the platform when the machine is stationary. You must use equipment that is within the specified rated capacity of hydraulic generator. [Refer to Table 10.](#)

Table 10.

Description	Single Phase	Three Phase
Rated output	120V, 60Hz	208V, 60Hz
Rated Power	7.5kW (10.1hp)	

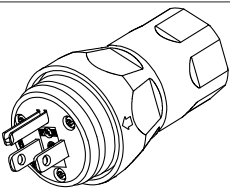
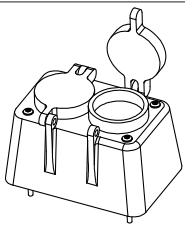
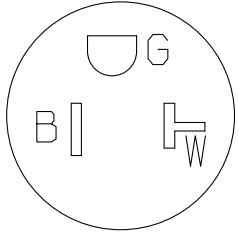
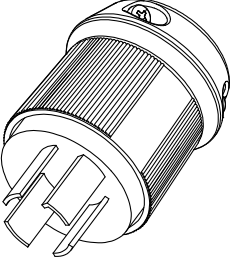
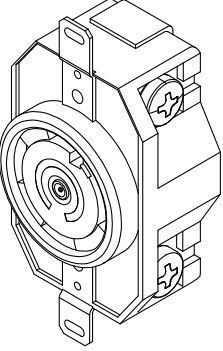
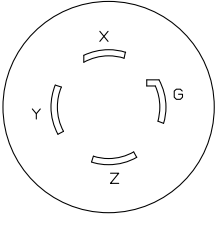
Power to Platform- Hydraulic Generator Option

1. Make the machine safe.
[Refer to: Safety \(Page 3\).](#)
2. Make sure that the emergency stop buttons are released.
3. Turn the ignition key to the position 1.
4. Push the engine start/stop button on the platform control panel to start the engine.
5. Grid heater icon will pop up on the display until the engine starts.
6. Make sure the hydraulic generator canopy door is closed and locked. The canopy door should not be opened unless the machine ignition and isolator are switched OFF. Make sure that machine or the generator is not operational when the canopy door is open.
7. The hydraulic generator may become hot after use. Allow the machine to cool down before service or inspection.
8. Daily or before use visually inspect connectors and wiring for damage. If any damage to the AC cable, please contact the JCB dealer.

Power to Platform- Industrial Plug Kit

Some machines are equipped with a generator and industrial plug kit with external power source connected to an input socket at the turntable structure and output plug at the platform. [Refer to Table 11.](#)

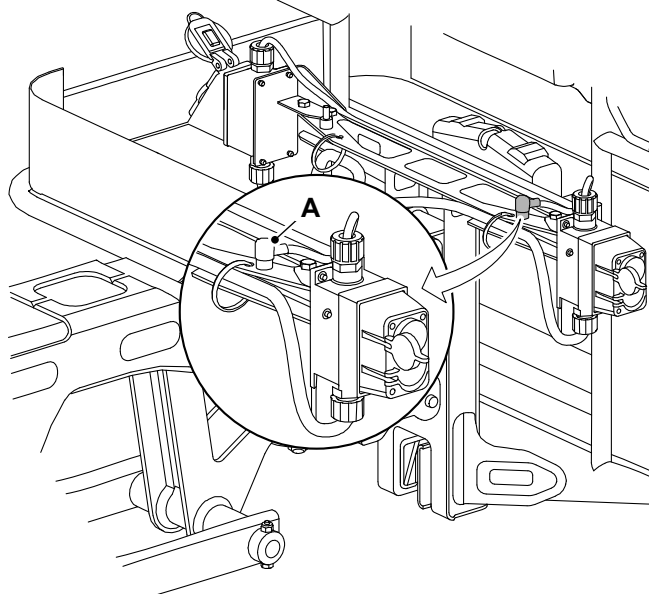
Table 11.

Description	Chassis End	Voltage	Platform End	Connection (View Platform Connector)
1-phase	 NEMA 5-20P Male Plug, 2Pole/3Wire	125V	 NEMA 5-20R Female Receptacle, 2Pole/3Wire	
3-phase	 L15-30P Twist Lock Male Plug housing, 3Pole 4Wire	250V	 L15-30R Twist Lock 3Pole 4Wire Flush Female Receptacle Housing	

Platform Protective Conductor

All the protective conductor shall be connected to a protective bonding terminal to provide protection against electric shock.

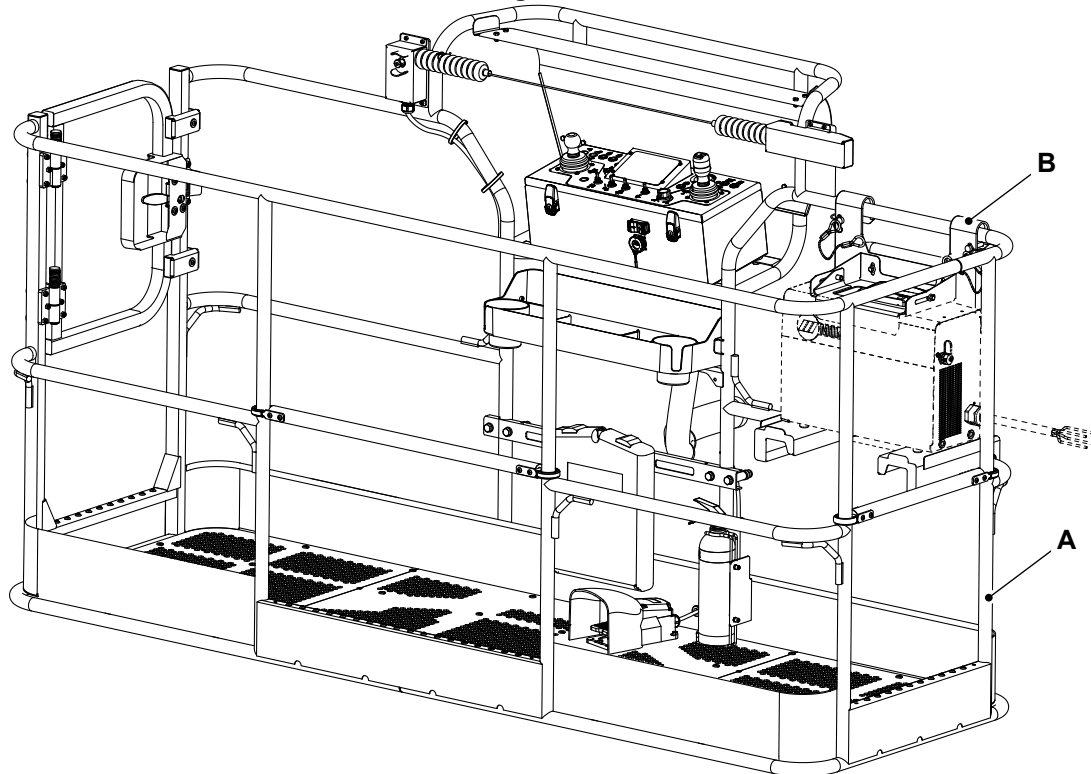
Figure 26.



A Platform protective conductor (earth)

Welder Kit

Figure 27.



A Platform

B Welder bracket

Operation

1. Make the machine safe.
[Refer to: Safety \(Page 3\).](#)
2. Make sure that emergency stop buttons are released.
3. Turn the ignition key to the position 1.
4. Push the engine start/stop button on the platform control panel to start the engine.
[Refer to: Control Layouts \(Page 34\).](#)
5. Push the hydraulic generator ON / OFF button on the platform control panel to start the generator.
[Refer to: Control Layouts \(Page 34\).](#)
6. Turn the welder to the ON position.

Hydraulic Generator Output

Engine speed at 1800 RPM +/- 10%.

Moving a Disabled Machine

General

▲ WARNING Do not use the platform controller to release the platform when it is stuck, snagged or caught. In this case, use the ground controller only when there are no persons on the platform.

Notice: Following any incident, thoroughly inspect the machine. Do not raise the platform until you are sure that all damage has been repaired and that all controls are operating correctly. Test all functions first from the ground controller, then from the platform controller.

The operator can lower the platform in the event of an emergency or engine malfunction.

The boom functions may be powered electrically, without the engine running for a short period of time only. This option is intended for recovering a disabled machine in the event that operation with the engine is not possible, that is low fuel condition, or base override mode etc.

If the machine becomes disabled, the machine must be made safe, lifted onto a transporter and moved to a location where it can be repaired.

Towing, winching or pushing the machine without following the correct procedure will damage parts of the hydraulic system. If possible, repair the disabled machine where it stands.

Lower the Platform (Engine Malfunction)

Engine malfunction (e.g. loss of fuel, failure of any major component etc.).

Operation From the Base Control

1. Release the emergency stop button.
[Refer to: Control Layouts \(Page 34\).](#)
2. Press and hold the base control enable switch.
 - 2.1. Once the selection switch is pressed and held, the machine can only be operated from the base controls.
3. Operate the desired boom function.

Operation From the Platform Control

1. Release the emergency stop button.
[Refer to: Control Layouts \(Page 34\).](#)
2. Press down the foot pedal switch.
3. Select and hold the auxiliary power button and operate the desired boom function.

Lower the Platform (Emergency Operation)

Override control must be used in the event of an emergency only. If the override control has been used because the platform has been overloaded, the machine should be inspected for any structural damage, and the overload system should be re-calibrated according to the instructions in the service manual. The override should not be used to intentionally lift or lower loads heavier than the maximum rated platform load. If the platform is overloaded, the excess weight must be removed from the platform before lowering the platform.

[Refer to: General \(Page 39\).](#)

Base Override System

The base override safety system will allow the operator to be rescued in case of a fault being activated during working from the platform (i.e. platform overload, crush protection fault, platform start lock fault etc). If this emergency feature is used by the operator, a fault tell-tale will be displayed at base display. To reset the tell-tale, contact JCB service.

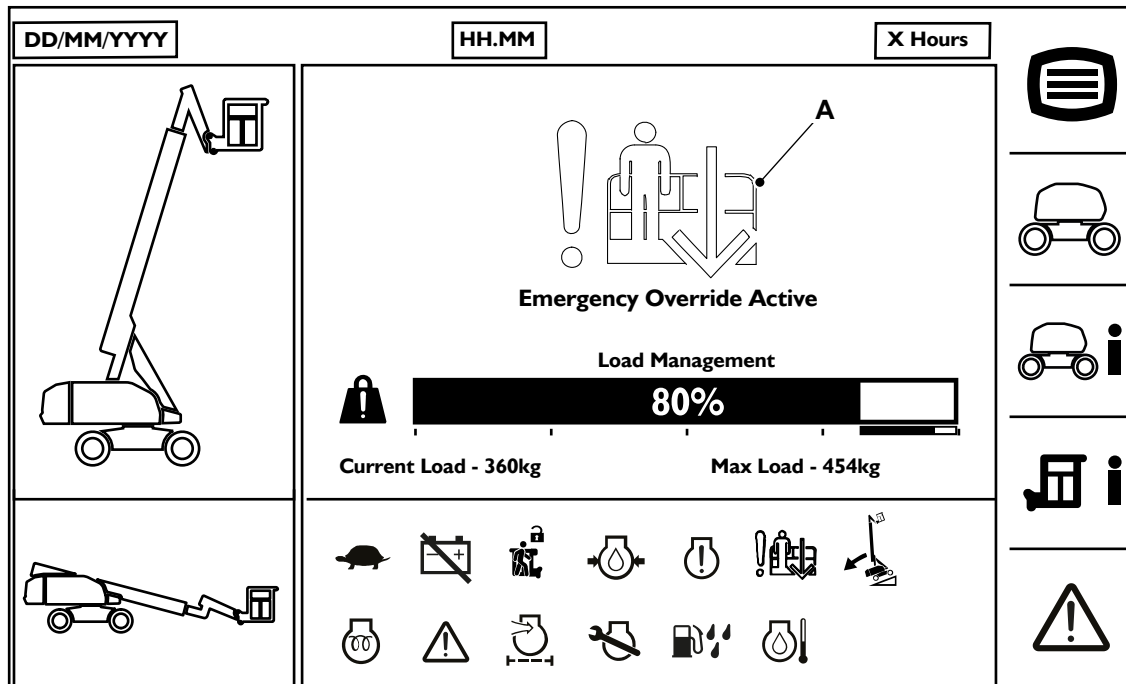
1. Make sure that the base emergency stop button is released.

2. Turn the ignition switch to the OFF position.
3. Continue to hold the emergency override switch from the base control panel and turn the ignition switch to the ON position.

[Refer to: Control Layouts \(Page 34\).](#)

4. The 'Emergency Override Active' window will appear at the base display.

Figure 28.



A Emergency Override Active

5. Now, perform the desired boom operations from the base control panel to rescue the operator whilst continuing to hold the emergency override switch.

Platform Override System

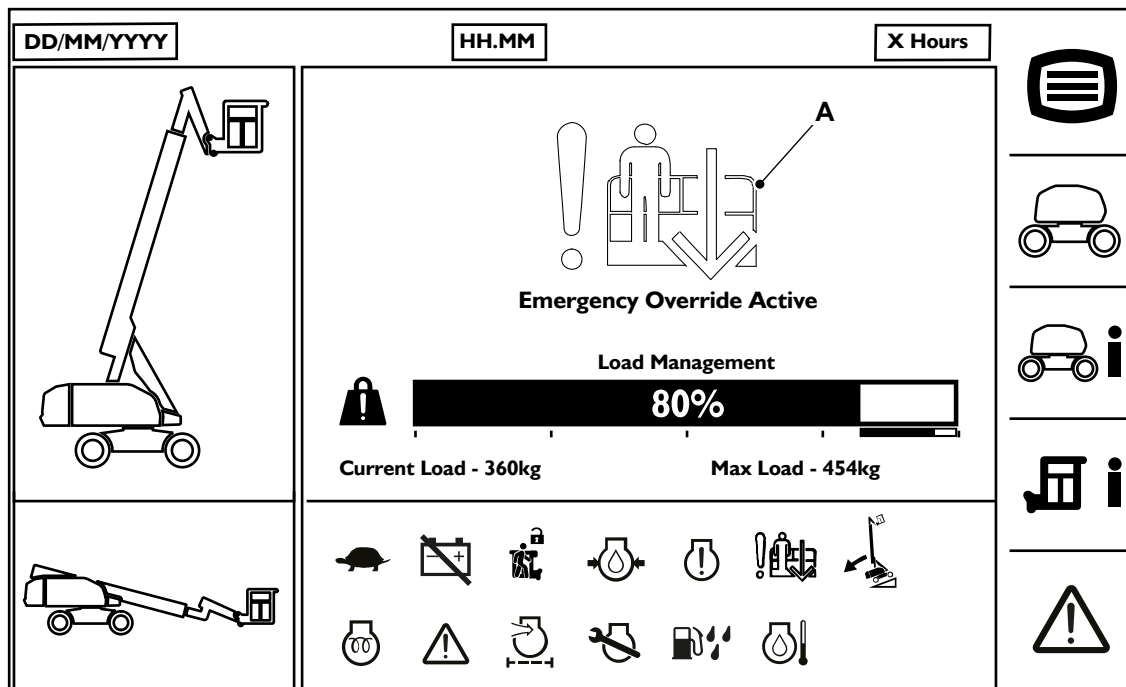
The platform override safety system will allow the operator to be recover the machine in case of an overload or overload fault being activated during working from the platform.

1. Press the foot pedal switch and keep it pressed.
2. Press and hold the auxiliary power button.

[Refer to: Control Layouts \(Page 34\).](#)

- 2.1. The engine will stop automatically if it's running and an 'Emergency Override Active' message will appear on the display.

Figure 29.



A Emergency Override Active

2.2. The machine alarm will sound for 2s and mute for 2s.

3. Continue to hold the auxiliary power button and operate the desired boom function.

4. Release the auxiliary power button.

4.1. Now, the normal machine operation can be resumed.

Note: All functions works (one function at a time) except for drive and steer.

Manual Brake Deactivation

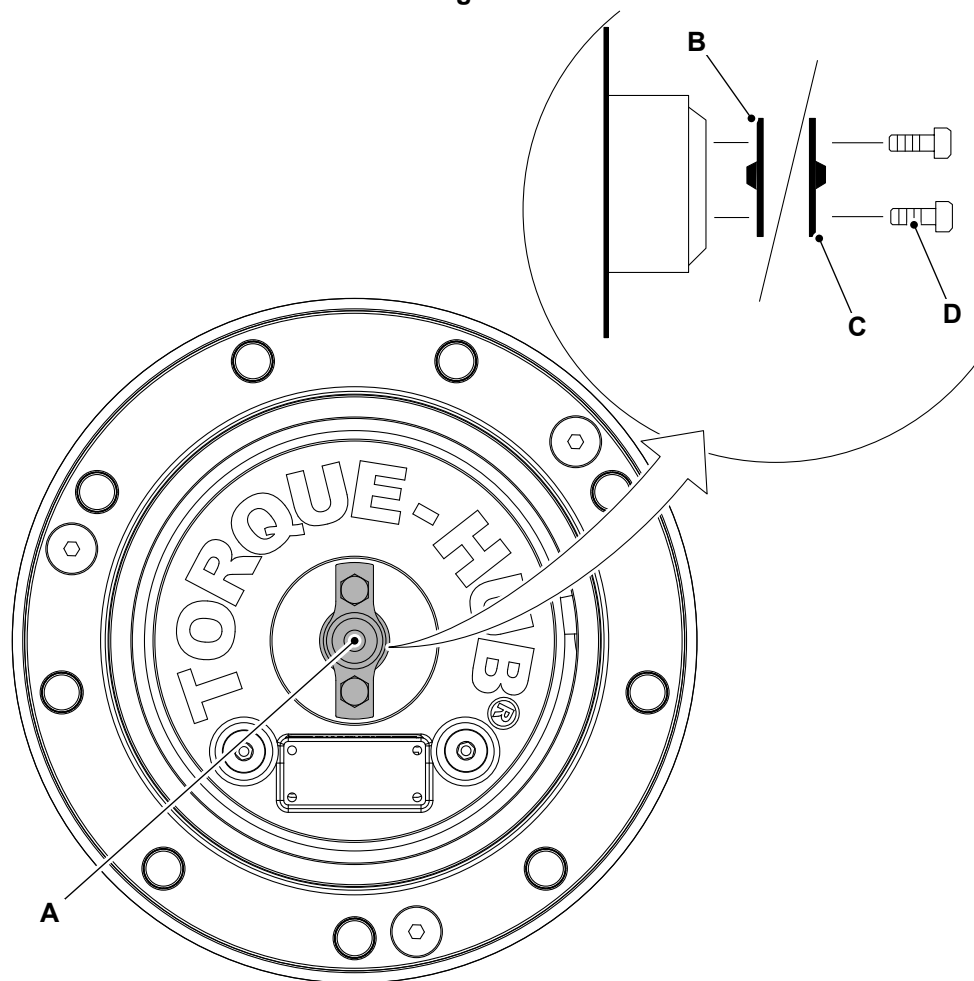
⚠ WARNING Do not keep the brake deactivated for a duration more that 30 minutes. Before towing the machine perform a risk assessment and make sure there is a safe method of stopping the machine since the machine brakes will not be available.

Manual brake deactivation is required when there is machine failure and the machine needs to be towed to a safe maintenance site. Do not tow the machine for a distance more than 200m (218½yd). Before towing make sure that the oil level in the hub is appropriate.

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Remove the screw (x2). [Refer to Figure 30.](#)
3. Remove the disengage cap from the hub.
4. Flip the disengage cap and install to the hub.
5. Tighten the screw (x2).
6. Do the steps 1 to 5 to other hubs.

7. After towing install the disengage caps in their original positions. [Refer to Figure 30.](#)

Figure 30.



- | | |
|---|--|
| A Disengage cap | B Disengage cap (brake disengaged position) |
| C Disengage cap (brake engaged position) | D Screw (x2) |

Emergency Stop System

The emergency stop button is available at both base and platform control panels. The emergency stop button is pressed to stop the engine and all movement outputs from the control system.

Emergency Stop from Base Control Panel

- When the base emergency stop button is pressed, it stops the power supply to the machine (i.e. displays etc.).
[Refer to: Control Layouts \(Page 34\).](#)
- When the base emergency stop is pressed, it cannot be overridden by the base override.
- When the base emergency stop button is released/unpressed, make sure that all the desired functions work correctly.

Emergency Stop from Platform Control Panel

- When the platform emergency stop button is pressed, it stops the power supply to the machine (i.e. displays etc.).
[Refer to: Control Layouts \(Page 34\).](#)

2. When the platform emergency stop is pressed, it can be overridden by the base override.
3. When the platform emergency stop button is released/unpressed, make sure that all the desired functions work correctly.

Lifting the Product

General

Lifting points are provided for lifting the machine. Using these points will give a safe stable lift. Other methods of lifting are not recommended.

[Refer to: Lifting Points \(Page 51\).](#)

Lifting Procedure

1. Make the machine safe with the platform lowered.
2. Remove any loose items from the machine.
3. Make sure all the access covers and canopies are securely shut.
4. Use an appropriate length of lifting equipment to prevent damage to the platform base and guardrail.
5. Make sure the hoist rigging is in the correct position. Adjust the hoist rigging to prevent machine damage and keep the machine in the level position.
 - 5.1. You must consider the location of the center of gravity on the machine, when you lift the machine. The center of gravity is located at a point on the ground, at the center of front axle.

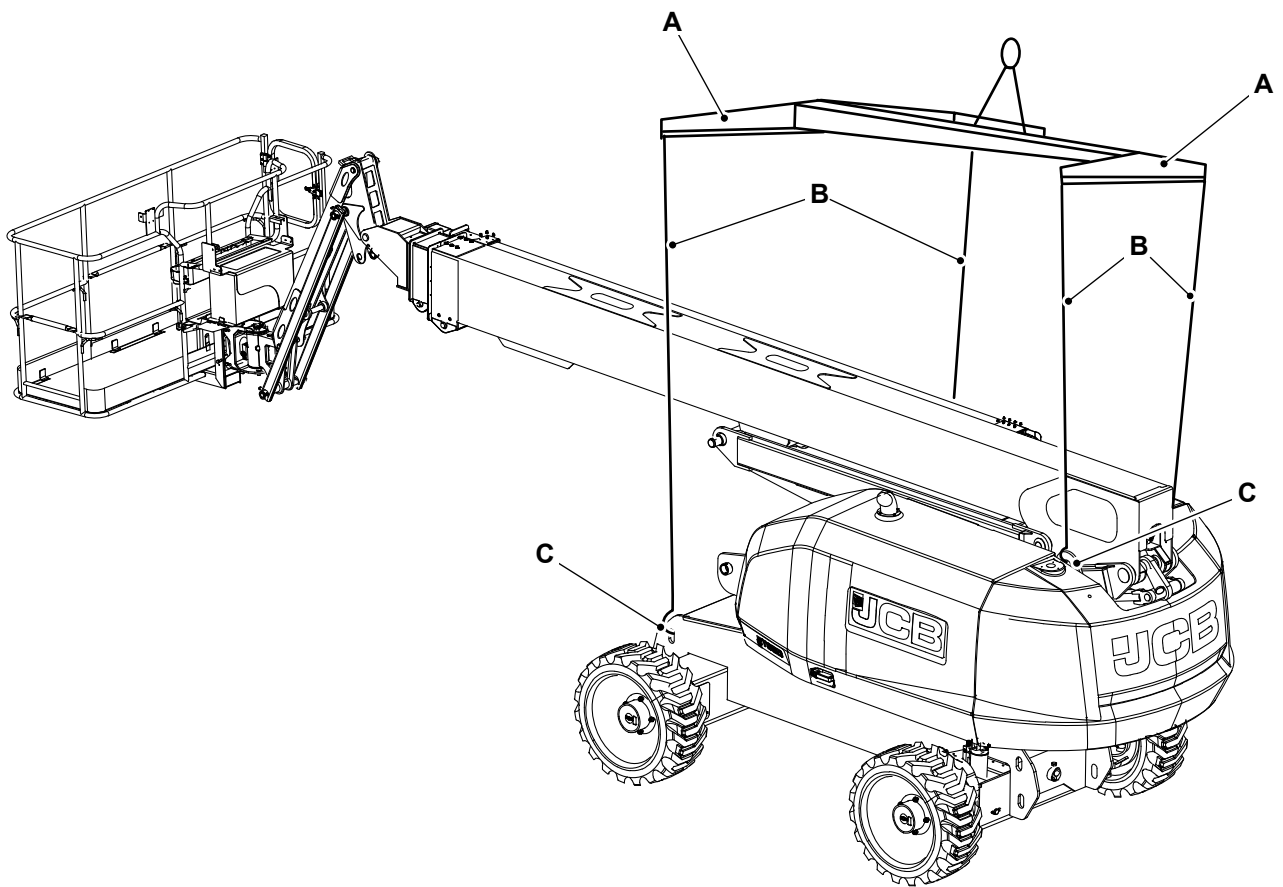
[Refer to: Lifting Points \(Page 51\).](#)

- 5.2. Use foam to protect the booms and counterweight at suitable contact points to avoid damage.

The machine should be in the fully stowed position in 0° slewing position and in the forward drive position. If necessary, slew the machine to 5° which will let the vertical chains lift the machine without impacting the boom structure.

Lifting Points

Figure 31.



A Spreader bars
C Lifting points

B Lifting chains

Figure 32.

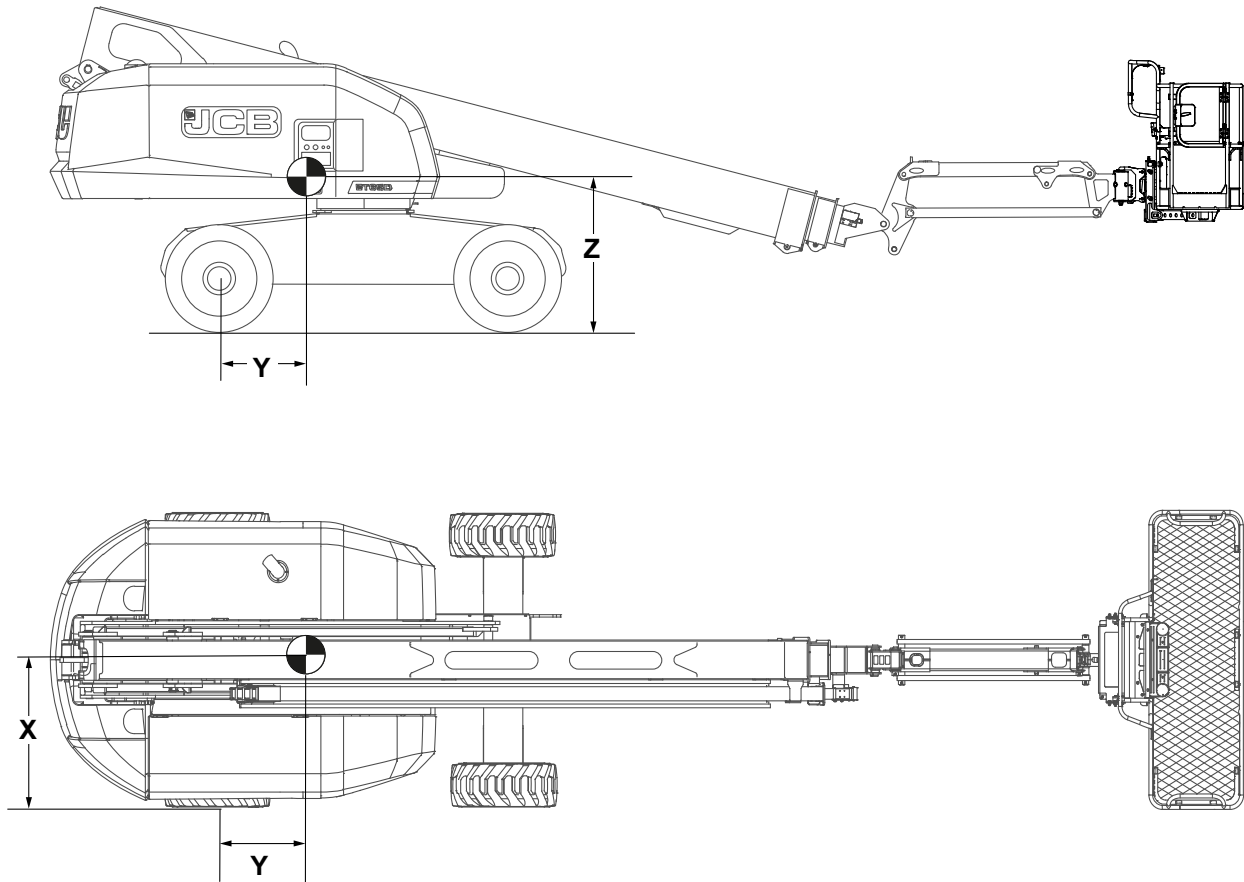


Table 12. Location of the Center of Gravity

X- axis	Y- axis	Z- axis
1,221mm (48in)	802.6mm (31½in)	1,305mm (51½in)

Transporting the Product

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 tires. 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.

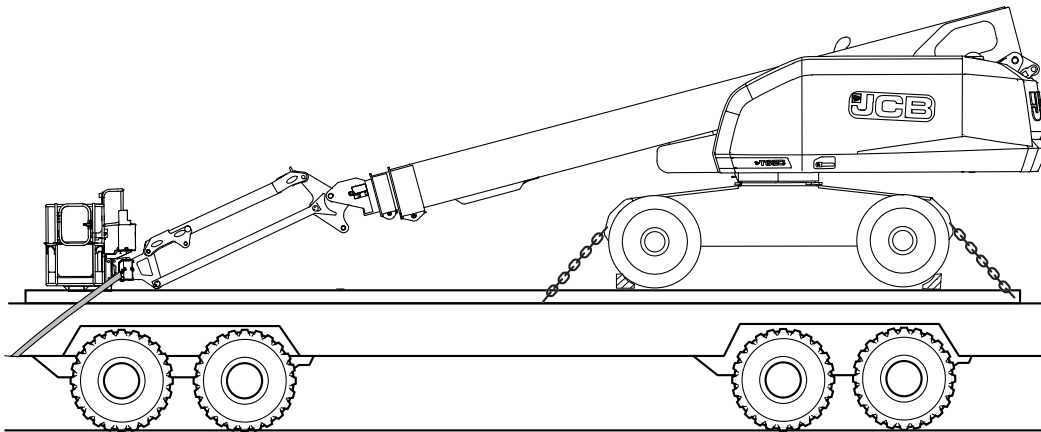
Make sure that the transport trailer is suitable for the dimensions and weight of your machine.

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 onto the Transporting Vehicle

Lifting the Machine onto the Transporting Vehicle/Trailer

Figure 33.



1. Place the boom and jib in the stowed position.
2. Turn the machine off and remove the key.
3. Remove any loose items from the machine.
4. Engage the slew lock pin.
[Refer to: Tie Down Points \(Page 55\).](#)
5. Place the wheel chocks at the front and rear of the trailer wheels.
6. Lift the machine on to the trailer.
7. Put the wheel chock blocks at the front and rear of all four wheels. Make sure they are securely in place.
8. Measure the maximum height of the machine from the ground. Total height should comply with regulation for transportation. Make sure the truck driver knows the clearance height before they drives away.
9. Secure the chassis to the trailer bed with suitable restraints. Use the tie down points indicated by the safety decals.
[Refer to: Tie Down Points \(Page 55\).](#)
10. Secure the platform with a nylon strap placed over the platform mount near the platform rotator. The platform should rest on a block during transportation. Do not use excessive downward force when securing the boom section.

[Refer to: Tie Down Points \(Page 55\).](#)

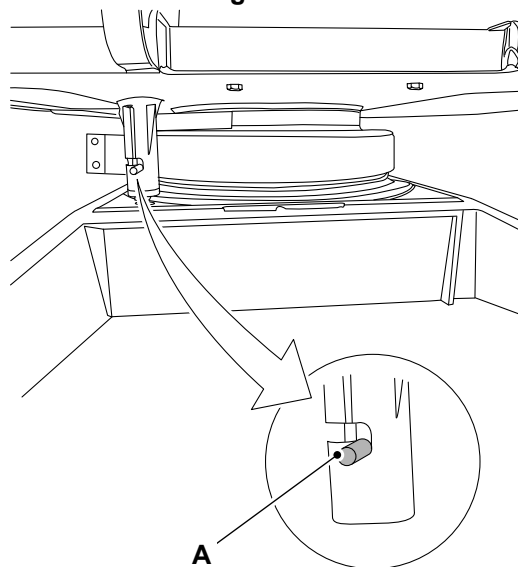
Driving the Machine onto the Transporting Vehicle/Trailer

1. Put the blocks at the front and rear of the trailer wheels.
2. Lower the ramps and check for suitability. Ramp should be with less than 40% gradient.
[Refer to: Performance Dimensions \(Page 113\).](#)
3. Check the condition and security of the trailer side rails to make sure that the machine cannot be driven off the trailer.
4. Make sure the machine is in stowed position before driving onto the trailer. Use jib to give clearance to drive onto the trailer, if required.
5. Drive the machine onto the trailer in high torque mode. Make sure that the machine load distribution is correct.

[Refer to: General \(Page 32\).](#)

6. Put the wheel chock blocks at the front and rear of all four wheels. Make sure they are secure in place.
7. Turn the machine OFF and remove the key.
8. Remove any loose items from the machine.
9. Engage the slew lock pin.

Figure 34.

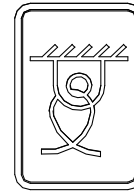
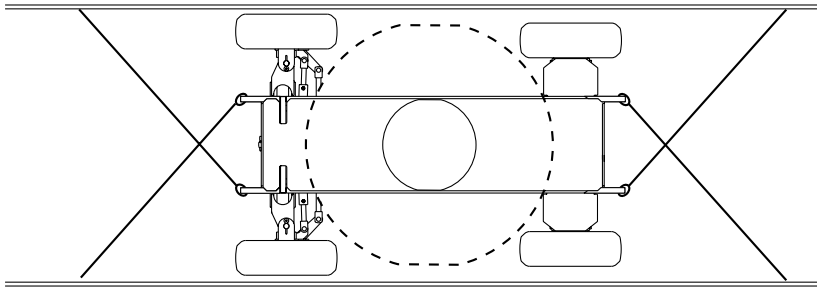


A Slew lock pin

10. Measure the maximum height of the machine from the ground. Total height should comply with regulation for transportation. Make sure the truck driver knows the clearance height before they drives away.
11. Secure the chassis to the trailer bed with suitable restraints. Use the tie down points indicated by the safety decals.
[Refer to: Tie Down Points \(Page 55\).](#)
12. Secure the platform with a nylon strap placed over the platform mount near the platform rotator. The platform should rest on a block during transportation. Do not use excessive downward force when securing the boom section.
[Refer to: Tie Down Points \(Page 55\).](#)

Tie Down Points

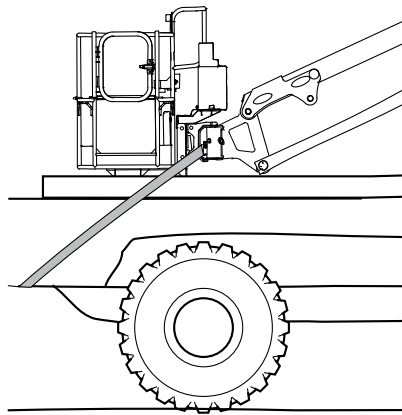
Figure 35.



A

A Tie down decal

Figure 36.



Operating Environment

General

The machine has been designed to operate in atmospheric temperatures between -20°C (-4°F) and 50°C (122°F). When the machine is operated at temperature below 0°C (32°F), the machine should be allowed to idle for 1min per 1°C (34°F), if the temperature is below 0°C (32°F).

Refueling

General

▲ **CAUTION** Spilt fuel may cause skidding and therefore accidents. Clean any spilt fuel immediately.

Do not use fuel to clean the machine.

When filling with fuel, choose a well aired and ventilated area.

Notice: Consult your fuel supplier or JCB dealer about the suitability of any fuel you are unsure of.

Filling the Tank

[Refer to: Fluids, Lubricants and Capacities \(Page 117\)](#). If you use the incorrect type of fuel or fuel which is contaminated, then damage to the fuel injection system can occur.

WARNING! Do not use gasoline in this machine. Do not mix gas with the diesel fuel. In storage tanks the gas will form flammable vapors.

At the end of every working day, fill the tank with the correct type of fuel. This will prevent overnight condensation from developing in the fuel.

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\)](#).
2. Remove all unwanted material around the fuel cap.
3. Remove the fuel cap.
[Refer to: Service Points \(Page 76\)](#).
4. Check strainer is available.
5. Add the fuel through the filler neck as necessary.
6. Install the fuel cap.
7. Lock the fuel cap to prevent theft and tampering.



This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Preservation and Storage Cleaning

General

▲ **WARNING** When using cleaning agents, solvents or other chemicals, you must adhere to the manufacturer's instructions and safety precautions.

WARNING Airborne particles of light combustible material such as straw, grass, wood shavings, etc. must not be allowed to accumulate within the battery compartment. Examine these areas frequently and clean at the beginning of each work shift or more often if required. Before opening the battery cover, make sure that the top is clear of debris.

CAUTION To avoid burning, wear personal protective equipment when handling hot components. To protect your eyes, wear goggles when using a brush to clean components.

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

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

Notice: Never use water or steam to clean inside the operator station. The use of water or steam could damage the machine electrics and render the machine inoperable. Remove dirt using a brush or damp cloth.

Clean the machine with water and/or steam. Do not allow mud, debris etc. to collect on the machine.

Before you do any service procedures that require components to be removed:

- The cleaning must be done either in the area of components to be removed, or in the case of major work, the whole machine must be cleaned.
- When cleaning is complete, move the machine away from the wash area or alternatively, remove the material washed from the machine.

When you remove components, be aware of exposure to dirt and debris. Cover any open ports and remove the deposits before proceeding.

Refer to the individual clean procedures throughout the Maintenance section.

[Refer to: Maintenance Schedules \(Page 69\).](#)

Detergents

Do not use a full strength detergent. Always dilute the detergents as per the manufacturer's recommendations, or damage to the paint finish can occur.

Always obey the local regulations regarding the disposal of debris created from cleaning the machine.

Pressure Washing and Steam Cleaning

▲ **CAUTION** When using a steam cleaner, wear safety glasses or a face shield as well as protective clothing. Steam can cause personal injury.

Notice: The battery and other electrical components could be damaged by high pressure washing systems. Special precautions must be taken if the machine is to be washed using a high pressure system.

Do not directly pressure wash the electrical components. Use a low pressure washer and brush to remove dried mud or dirt.

Use a steam cleaner to remove soft dirt and oil.

When cleaning around decals:

- Ensure the water pressure is kept below 138bar (2,001.5psi).
- Keep water temperature below 80°C (175.9°F).

- Use a spray nozzle with a 40° wide angle spray pattern.
- Keep the nozzle at least 300mm (12in) away from and perpendicular (at 90° degrees) to the decal.

The machine must always be greased (if appropriate) after pressure washing or steam cleaning.

Storage

General

If the machine will not be used for an extended period, you must store the machine correctly. If you prepare the machine carefully and apply on-going care you can prevent deterioration and damage to the machine while it is in storage.

Storage Area

The machine can be stored in a temperature range of: -40°C (-39.9°F) to 54°C (129.1°F)

When possible, you must keep the machine in a dry building or shelter.

If only an outdoor storage area is available, look for a storage area with good drainage.

Prepare the Machine for Storage

1. Clean the machine to remove all unwanted material and corrosive products.
2. Dry the machine to remove solvents and moisture.
3. Touch-up any damaged paint.
4. Apply grease to the moving parts (if applicable).
5. Examine the machine for worn or damaged parts. Replace if necessary.
6. Fill the fuel tank to prevent a build up of condensation in the tank (if applicable).
7. Examine the coolant condition. Replace if necessary.
8. Examine all fluid levels. Top up if necessary.

Put into Storage

1. Park the machine on solid, level ground.
 - 1.1. Park the machine in an area where it is easy to access. (In case the machine does not start at the end of the storage period).
2. Retract all of the rams and fully lower the boom.
3. Vent the hydraulic system.
4. Remove the ignition key.
5. Apply a thin layer of grease or petroleum jelly to all of the exposed ram piston rods.
6. Remove the batteries.
 - 6.1. Keep the battery in warm, dry conditions.
 - 6.2. Charge the battery periodically.
7. If you keep the machine outdoors, cover the machine with tarpaulins or plastic sheets.
8. If you store the machine outside in cold climate and possible snowfall. Cover the platform control with console cover.

During Storage

Operate the machine functions each week to prevent a build up of rust in the engine and hydraulic circuits, and to minimize the deterioration of the hydraulic seals.

1. Remove the grease or petroleum jelly from the ram piston rods.

2. Examine all fluid levels. If necessary, add more fuel.
3. Install a charged battery.
4. Start the engine.
5. Operate the machine controls. Make sure that the machine operate correctly.
6. Prepare the machine for storage.

Take out of Storage

After long-term storage, it is recommended to service the machine before operation. For more information contact your JCB dealer.

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 and maintenance, as specified in this manual, are done 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.

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

This section of the manual gives full details of the service requirements necessary to maintain your JCB machine at peak efficiency.

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. JCB dealer service engineers have been trained by JCB to do such specialist tasks, and are equipped with the necessary special tools and test equipment to do such tasks, thoroughly, safely, accurately and efficiently.

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 to safely service the machine to the latest requirements, which makes them best placed to maintain and service your machine.

A service record sheet or book is provided at the back of this publication 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.

Environmental Protection Agency and California Air Resources Board

The original owner and all subsequent owners of this machine are free to elect a suitable competent repair shop or person of the owners choosing to conduct maintenance, replacement or repair of engine parts/systems.

JCB strongly recommend the use of genuine JCB Service approved parts when conducting maintenance, replacement or repair of any engine component in order to assure the performance and safety of the machine. If replacement parts other than genuine JCB Service approved parts are used, only manufacturer warranted parts of equivalent performance should be used. In this case, the remaining emissions component warranties remain in effect; unless damage is caused to such components by the non-JCB Service approved parts.

Service/Maintenance Agreements

To help plan and spread the costs of maintaining your machine, we strongly recommend you take advantage of the many service and maintenance agreements your dealer can offer. These can be tailor made to meet your operating conditions, work schedule etc.

Please consult your JCB dealer for details.

Obtaining Spare Parts

If you use non-genuine JCB parts or consumables, they could cause compatibility issues, malfunctions or failures. The health and safety of the operator and bystanders could be compromised.

A parts book for your machine is available from your JCB dealer. The parts book will help you identify parts and order them from your JCB dealer.

Your dealer will need to know the exact model, build and serial number of your machine.

[Refer to: Product and Component Identification \(Page 8\).](#)

The data plate also shows the serial numbers of the engine, transmission and axle(s), where applicable. Remember, if any of these units have been changed, the serial number on the data plate may be wrong. Check on the unit itself.

Maintenance Safety

General

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.

Compressed Air

Compressed air is dangerous. Wear personal protective equipment. Never point a compressed air jet at yourself or others.

Springs

Always wear personal protective equipment when dismantling assemblies containing components under pressure from springs. This will protect against eye injury from components accidentally flying out.

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.

Repairs

If your machine does not function correctly in any way, get it repaired straight away. Neglect of necessary repairs could result in an accident or affect your health. Do not try to do repairs or any other type of maintenance work you do not understand. To avoid injury and/or damage get the work done by a specialist engineer.

Hydraulic Pressure

Hydraulic fluid at system pressure can injure you. Before connecting or removing any hydraulic hose, residual hydraulic pressure trapped in the service hose line must be vented. Make sure the hose service line has been vented before connecting or removing hoses. Make sure the engine cannot be started while the hoses are open.

'O' rings, Seals and Gaskets

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

Counterweights

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

Soft Ground

A machine can sink into soft ground. Never work under a machine on soft ground.

Working Under the Machine

Make the machine safe. Make sure the park brake is engaged and machine is fully isolated. Remove the machine key switch, disconnect the battery. Use blocks to prevent unintentional movement of the wheels.

Lifting the Machine

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

Chemicals

Certain seals and gaskets (e.g. crankshaft oil seal) on JCB machines contain fluoroelastomeric materials such as Viton®, Fluorel™ and Technoflon®. Fluoroelastomeric materials subjected to high temperatures can produce highly corrosive hydrofluoric acid. This acid can severely burn. New fluoroelastomeric components at ambient temperature require no special safety precautions. Used fluoroelastomeric components whose temperatures have not exceeded 300°C (572 °F) require no special safety precautions. If evidence of decomposition (e.g. charring) is found, refer to the next paragraph for safety instructions. Do not touch component or surrounding area. Used fluoroelastomeric components subjected to temperatures greater than 300°C (572 °F) (e.g. engine fire) must be treated using the following safety procedure. Make sure that heavy duty gloves and special safety glasses are worn: Thoroughly wash contaminated area with 10% calcium hydroxide or other suitable alkali solution, if necessary use wire wool to remove burned remains. Thoroughly wash contaminated area with detergent and water. Contain all removed material, gloves etc. used in this operation in sealed plastic bags and dispose of in accordance with Local Authority Regulations. Do not burn fluoroelastomeric materials.

Hydraulic Hoses

Never re-use hydraulic hose end crimps or use reusable hose end crimps.

Personal Protective Equipment

Use the appropriate personal protective equipment before performing maintenance on the machine, otherwise you could be injured.

Working at Height

Use appropriate access equipment such as ladders or a working platform if it is necessary to work at height to perform maintenance tasks on the machine. If you do not use suitable access equipment there is a risk of falling, resulting in personal injury or death.

Fluids and Lubricants

Oil

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

Fluid Under Pressure

Fine jets of fluid at high pressure can penetrate the skin. Keep face and hands well clear of fluid under pressure and wear personal protective equipment. Hold a piece of cardboard close to suspected leaks and then examine the cardboard for signs of fluid. If fluid penetrates your skin, get medical help immediately.

Fuel

Fuel is flammable, keep naked flames away from the fuel system. Stop the engine immediately if a fuel leak is suspected. Do not smoke while refueling or working on the fuel system. Do not refuel with the engine running. Completely wipe off any spilt fuel which could cause a fire. There could be a fire and injury if you do not follow these precautions.

Hygiene

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

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

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

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

Storage

Always keep lubricants out of the reach of children.

Never store lubricants in open or unlabeled containers.

Waste Disposal

▲ CAUTION It is illegal to pollute drains, sewers or the ground. Clean up all spilt fluids and/or lubricants.

Used fluids and/or lubricants, filters and contaminated materials must be disposed of in accordance with local regulations. Use authorized waste disposal sites.

CAUTION Damaged or spent batteries and any residue from fires or spillage must be put in a suitable closed receptacle and must be disposed of in accordance with local environmental waste regulations.

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

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

Handling

▲ CAUTION The temperature of the hydraulic oil will be high soon after stopping the machine. Wait until it cools before beginning maintenance.

New Oil

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

Used Oil

Used engine crankcase lubricants contain harmful contaminants.

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

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

Battery

Warning Symbols

▲ DANGER Batteries give off an explosive gas. Do not smoke when handling or working on the battery. Keep the battery away from sparks and flames.

Battery electrolyte contains sulfuric acid. It can burn you if it touches your skin or eyes. Wear goggles. Handle the battery carefully to prevent spillage. Keep metallic items (watches, rings, zippers etc) away from the battery terminals. Such items could short the terminals and burn you.

Set all switches to off before disconnecting and connecting the battery. When disconnecting the battery, take off the earth (-) lead first.

Re-charge the battery away from the machine, in a well ventilated area. Switch the charging circuit off before connecting or disconnecting the battery. When you have installed the battery in the machine, wait 5min before connecting it up.

When reconnecting, attach the positive (+) lead first.

Notice: Do not disconnect the battery while the engine is running, otherwise the electrical circuits may be damaged.

CAUTION Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

WARNING Battery electrolyte is toxic and corrosive. Do not breathe the gases given off by the battery. Keep the electrolyte away from your clothes, skin, mouth and eyes. Wear safety glasses.

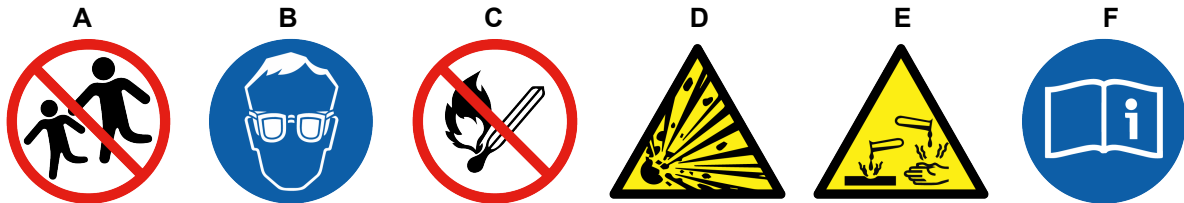
CAUTION Damaged or spent batteries and any residue from fires or spillage must be put in a suitable closed receptacle and must be disposed of in accordance with local environmental waste regulations.

DANGER Batteries give off explosive gases. Keep flames and sparks away from the battery. Do not smoke close to the battery. Make sure there is good ventilation in closed areas where batteries are being used

or charged. Do not check the battery charge by shorting the terminals with metal. Use a hydrometer or voltmeter.

The following warning symbols may be found on the battery.

Figure 37.



A Keep away from children

C No smoking, no naked flames, no sparks

E Battery acid

B Shield eyes

D Explosive gas

F Note operating instructions

First Aid - Oil

Eyes

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

Swallowing

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

Skin

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

Spillage

Absorb with sand or a locally approved brand of absorbent granules. Scrape up and remove to a chemical disposal area.

Fires

▲ WARNING Do not use water to put out an oil fire. This will only spread it because oil floats on water.

Extinguish oil and lubricant fires with carbon dioxide, dry chemical or foam.

First Aid - Electrolyte

Eyes

In the case of eye contact, flush with water for 15min. always get medical attention.

Swallowing

Do not induce vomiting. Drink large quantities of water or milk. Then drink milk of magnesia, beaten egg or vegetable oil. Get medical help.

Skin

Flush with water, remove affected clothing. Cover burns with a sterile dressing then get medical help.

Maintenance Schedules

General

▲ WARNING Maintenance must be done only by suitably qualified and competent persons.

Before doing any maintenance make sure the machine is safe, it must be correctly parked on solid, level ground.

To prevent anyone starting the machine, remove the key. Disconnect the battery (by means of the battery isolator if installed) when you are not using electrical power. If you do not take these precautions you could be killed or injured.

A badly maintained machine is a danger to the operator and the people working around the operator. Make sure that the regular maintenance and lubrication tasks listed in the service schedules are done to keep the machine in a safe and efficient working condition.

Apart from the daily tasks, the schedules are based on time. Keep a regular check on the hourmeter readings to monitor the hourmeter equivalents. When there is no hourmeter installed, use the calendar equivalents to determine the service intervals.

Do not use a machine which is due for a service. Make sure any defects found during the regular maintenance checks are corrected immediately.

How to Use the Maintenance Schedules

The schedules show the service tasks which must be done and their intervals.

The services must be done at either the hourly interval or the calendar equivalent, whichever occurs first.

The intervals given in the schedules must not be exceeded. If the machine is operated under severe conditions (high temperature, dust, water, etc.) shorten the intervals. Where local regulations require more frequent checks, the local regulations intervals should be followed.

Table 13.

○	Service task can be completed by a competent operator. Details of how to complete the service task are given in the Operator's Manual.
□	We recommend that a Service Engineer completes the service task. Details of how to complete the service task are given in the Service Manual.

Maintenance Intervals

Table 14.

Interval (h)	Calendar Equivalent
10	Daily
50	Weekly
250	6 months
500	Yearly
1000	Two years
2000	Two years

Operator Maintenance Tasks

Table 15.

Component	Task	Daily	Weekly	
Engine				
Engine				
Engine compartment hose	Check condition/security	○	○	
Engine oil	Check (level)	○	○	

Component	Task	Daily	Weekly	
Engine oil	Check (leaks)	○	○	
Engine coolant	Check (level)	○	○	
Engine coolant	Check (leaks)	○	○	
Cooling pack	Check/clean	○	○	
Front end drive belt	Check (condition)		○	
Air filter	Check (condition)	○	○	
Air filter dust valve	Check operation/Clean		○	
Engine fuel	Check (leaks)	○	○	
Water Separator/fuel filter	Clean/Drain	○	○	
Fuel tank cap- vent	Check (condition)	○	○	
Exhaust system	Check (condition)	○	○	
Hydraulics				
Hydraulic hoses	Check (condition)	○	○	
Hydraulic oil	Check (level)	○	○	
Hydraulic oil	Check (leaks)	○	○	
Boom				
Boom wire rope	Check (Condition)	○	○	
Boom wire rope - Tension	Check	○	○	
Cylindrical wear pad	Check	○	○	
Electrics				
Hydraulic generator (If installed)	Check (operation)	○	○	
Hydraulic generator- wiring and connectors (If installed)	Check	○	○	
AC (Alternating Current) power to platform cables	Check (operation)	○	○	
Batteries terminal	Clean	○	○	
Battery leads	Check (condition)	○	○	
All electrical cables and conductors	Check (condition)	○	○	
Base controller				
Emergency stop	Check (operation)	○	○	
Platform raise and lower functions	Check (operation)	○	○	
Electric pump	Check (operation)	○	○	
Ignition switch	Check (operation)	○	○	
Ground control emergency override	Check (operation)	○	○	
Engine start	Check (operation)	○	○	
Engine speed (1500 RPM)	Check (operation)	○	○	
Horn	Check (operation)	○	○	
Emergency override switch	Check (operation)	○	○	
Platform controller				
Emergency stop	Check (operation)	○	○	

Component	Task	Daily	Weekly	
Platform raise and lower functions	Check (operation)	○	○	
Foot pedal switch	Check (operation)	○	○	
Steering	Check (operation)	○	○	
Drive and brake	Check (operation)	○	○	
Worklight (if installed)	Check (operation)	○	○	
Power to platform (if power tool installed)	Check (operation)	○	○	
Horn	Check (operation)	○	○	
Engine speed (1500 RPM/22000 RPM)	Check (operation)	○	○	
Electric pump	Check (operation)	○	○	
General				
Limited driving speed (with platform lifted and stowed)	Check (operation)	○	○	
Tilt sensor	Check (operation)	○	○	
Proximity, String pod, Boom raise and lower sensor	Check (operation)	○	○	
Axle oscillation lock	Check (operation)	○	○	
Platform leveling	Check (operation)	○	○	
Travel alarm	Check (operation)	○	○	
Platform secondary guarding system	Check (operation)	○	○	
Miscellaneous				
Operator's Manual	Check (condition)	○	○	
Canopy and latches	Check (condition)	○	○	
Safety Labels	Check (condition)	○	○	
Welds	Check (condition)	○	○	
Machine damage, missing parts	Check (condition)	○	○	
Fasteners	Check (condition)	○	○	
Platform guard rail	Check (condition)	○	○	
Tires and wheels	Check (condition)	○	○	

Service Engineer Maintenance Tasks

Table 16.

Component	Task	250	500	1000	2000
Engine					
Engine compartment	Check security	□	□	□	□
Engine compartment hose	Check condition/security	□	□	□	□
Engine oil	Check (level)	□	□	□	□
Engine oil	Check (leaks)	□	□	□	□
Engine oil	Replace		□	□	□
Engine oil filter	Replace		□	□	□

Component	Task	250	500	1000	2000
Engine coolant	Check (level)	☐	☐	☐	☐
Engine coolant	Check (condition)	☐	☐	☐	☐
CCV (Crankcase Ventilation) ⁽⁷⁾	Replace				
Coolant (inorganic) ⁽⁵⁾	Replace				☐
Coolant (OAT - organic acid technology) ^(4, 5)	Replace				
Engine coolant	Check (leaks)	☐	☐	☐	☐
Engine radiator	Check (condition)	☐	☐	☐	☐
Cooling pack	Check/clean	☐	☐	☐	☐
Cooling hoses ⁽³⁾	Replace				
Front end drive belt	Check (condition)	☐	☐	☐	☐
Front end drive belt ⁽³⁾	Replace				
Air filter	Check (condition)	☐	☐	☐	☐
Air filter element (outer) ⁽²⁾	Replace		☐	☐	☐
Air filter element (inner) ⁽²⁾	Replace				☐
Air filter dust valve	Check operation/Clean	☐	☐	☐	☐
Intake manifold hose ⁽³⁾	Replace				
Engine fuel	Check (leaks)	☐	☐	☐	☐
Water Separator/fuel filter	Clean/Drain	☐	☐	☐	☐
Water Separator/fuel filter element	Replace		☐	☐	☐
Engine fuel filter element	Replace		☐	☐	☐
Fuel tank cap- vent	Check (condition)	☐	☐	☐	☐
Exhaust system	Check (condition)	☐	☐	☐	☐
Hydraulics					
Hydraulic hoses	Check (condition)	☐	☐	☐	☐
Hydraulic oil	Check (level)	☐	☐	☐	☐
Hydraulic oil	Check (leaks)	☐	☐	☐	☐
Hydraulic oil	Replace				☐
Hydraulic return filter element	Replace		☐	☐	☐
Suction strainer	Replace				☐
Charge pump filter element	Replace		☐	☐	☐
High pressure filter element	Replace		☐	☐	☐
Vent filter - hydraulic tank	Replace				☐
Hydraulic system pressure	Check (settings)	☐	☐	☐	☐
Hydraulic system functional test	Check (operation)	☐	☐	☐	☐
Boom					
Boom wire rope	Check (Condition)	☐	☐	☐	☐
Boom wire rope - Tension	Check/ Adjust	☐	☐	☐	☐
Cylindrical wear pad	Check (condition)	☐	☐	☐	☐
Cylindrical wear pad	Grease	☐	☐	☐	☐

Component	Task	250	500	1000	2000
Electrics					
Batteries terminal	Clean	☐	☐	☐	☐
All electrical cables and conductors	Check (condition)	☐	☐	☐	☐
Hydraulic generator (If installed)	Check (operation)	☐	☐	☐	☐
Hydraulic generator- wiring and connectors (If installed)	Check	☐	☐	☐	☐
RCBO (Residual Current Breaker with Over-Current)	Check (operation)	☐	☐	☐	☐
AC (Alternating Current) power to platform cables	Visual inspection	☐	☐	☐	☐
AC power to platform cables	Check (operation)	☐	☐	☐	☐
Battery leads	Check (condition)	☐	☐	☐	☐
Ground controller					
Emergency stop	Check (operation)	☐	☐	☐	☐
Platform raise and lower functions	Check (operation)	☐	☐	☐	☐
Electric pump	Check (operation)	☐	☐	☐	☐
Ignition switch	Check (operation)	☐	☐	☐	☐
Ground control emergency override	Check (operation)	☐	☐	☐	☐
Engine start	Check (operation)	☐	☐	☐	☐
Engine speed	Check (operation)	☐	☐	☐	☐
Horn	Check (operation)	☐	☐	☐	☐
Emergency override switch	Check (operation)	☐	☐	☐	☐
Platform controller					
Emergency stop	Check (operation)	☐	☐	☐	☐
Platform raise and lower functions	Check (operation)	☐	☐	☐	☐
Foot pedal switch	Check (operation)	☐	☐	☐	☐
Steering	Check (operation)	☐	☐	☐	☐
Drive and brake	Check (operation)	☐	☐	☐	☐
Worklight (if installed)	Check (operation)	☐	☐	☐	☐
Power to platform (if power tool installed)	Check (operation)	☐	☐	☐	☐
Horn	Check (operation)	☐	☐	☐	☐
Engine speed	Check (operation)	☐	☐	☐	☐
Electric pump	Check (operation)	☐	☐	☐	☐
General					
Limited driving speed (with platform lifted and stowed)	Check (operation)	☐	☐	☐	☐
Tilt sensor	Check (operation)	☐	☐	☐	☐
Proximity, String pod, Boom raise and lower sensor	Check (operation)	☐	☐	☐	☐
Axle oscillation lock	Check (operation)	☐	☐	☐	☐
Platform leveling	Check (operation)	☐	☐	☐	☐
Overload System	Check (operation)	☐	☐	☐	☐

Component	Task	250	500	1000	2000
Overload test	Check (operation)	☐	☐	☐	☐
Engine speed selection	Check (operation)	☐	☐	☐	☐
Travel alarm	Check (operation)	☐	☐	☐	☐
Buzzers	Check (operation)	☐	☐	☐	☐
Drive speed	Check	☐	☐	☐	☐
Boom and slew speed	Check	☐	☐	☐	☐
Platform secondary guarding system	Check (operation)	☐	☐	☐	☐
Miscellaneous					
Operator's Manual	Check (condition)	☐	☐	☐	☐
Canopy and latches	Check (condition)	☐	☐	☐	☐
Safety Labels	Check (condition)	☐	☐	☐	☐
Welds	Check (condition)	☐	☐	☐	☐
Machine damage, missing parts	Check (condition)	☐	☐	☐	☐
Fasteners	Check (condition)	☐	☐	☐	☐
Platform guard rail	Check (condition)	☐	☐	☐	☐
Steer pivots	Grease	☐	☐	☐	☐
Tires and wheels	Check (condition)	☐	☐	☐	☐
Hub oil	Check (level)	☐	☐	☐	☐
Hub oil ⁽¹⁾	Replace		☐	☐	☐
Slew gearbox oil	Check (level)	☐	☐	☐	☐
Slew gearbox oil ⁽¹⁾	Replace		☐	☐	☐
Slew bearing	Check (condition)		☐	☐	☐
Wire ropes (Tension) ⁽²⁾	Check (condition)				
Wire ropes (Wear) ⁽⁶⁾	Check (condition)				
Wheel nut	Check (torque)	☐	☐	☐	☐
Rotary actuator	Check (torque)	☐	☐	☐	☐
Slew ring fastener	Check (torque)	☐	☐	☐	☐
Counter weight	Check (torque)	☐	☐	☐	☐

(1) An initial hub oil replacement should be made after the first 50 hours and slew gearbox oil should be made at first 250 hours service and then at regular 1000 hour intervals.

(2) The period of time that must elapse before checking the filter element depends on the environment in which the engine operates. The air filter must be cleaned and replaced more frequently under very dusty conditions.

(3) At every 8,000h.

(4) At every 4,000h or 4 years, whichever is first.

(5) Check which coolant type is installed in the machine before topping up the coolant. Mixing of different coolant types is likely to impair corrosion inhibiting performance and may result in invalidation of the warranty offered by JCB. In the event of mixing or if the coolant type is to be changed, the coolant circuit should be completely drained and flushed with clean water before re-filling with fresh coolant.

(6) Wire ropes must be inspected as per the guidelines defined in the service manual at every 7,000h / 12 Years and should be replaced if found damaged.

(7) At every 1,500h.

(8) At every 150h.

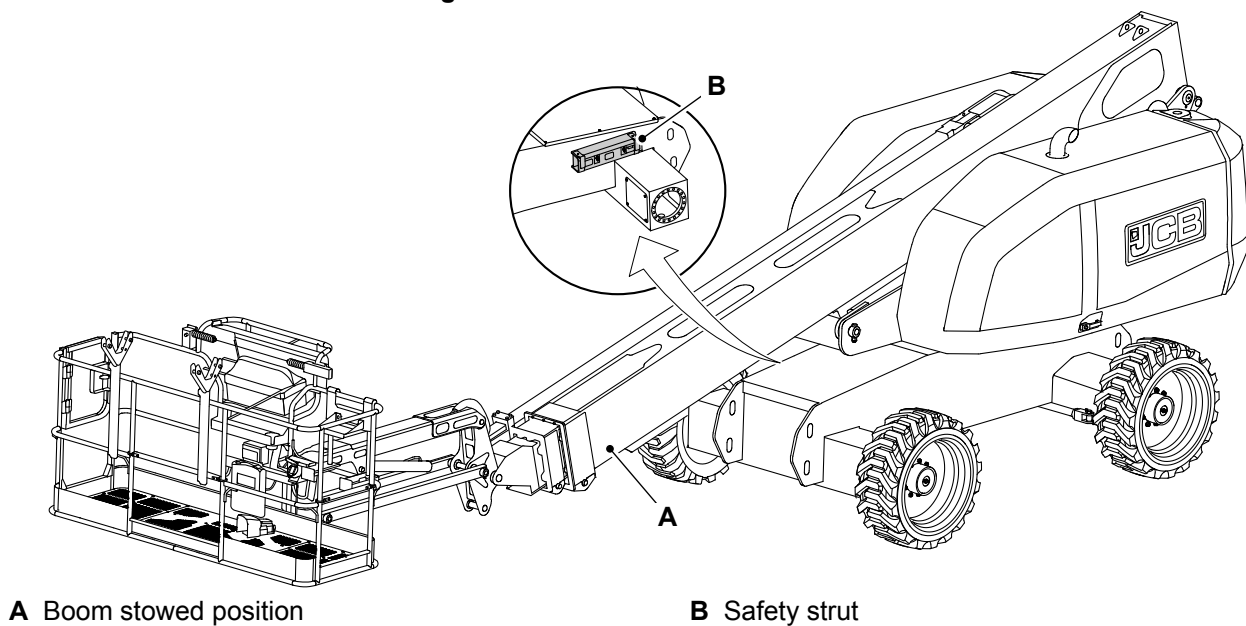
Maintenance Positions

General

Make the machine safe before you start any maintenance procedure.

1. Park the machine on firm, level ground.
2. Make sure that machine is in the stowed position.
3. Turn the ignition switch to the OFF position and remove the ignition key from the ignition switch.
4. Disconnect the battery to prevent accidental operation.
5. Put chocks at front and rear of all wheels.
6. Engage the turntable locking pin with the chassis.
7. The boom support safety strut should be used when it is required to work under the elevated boom

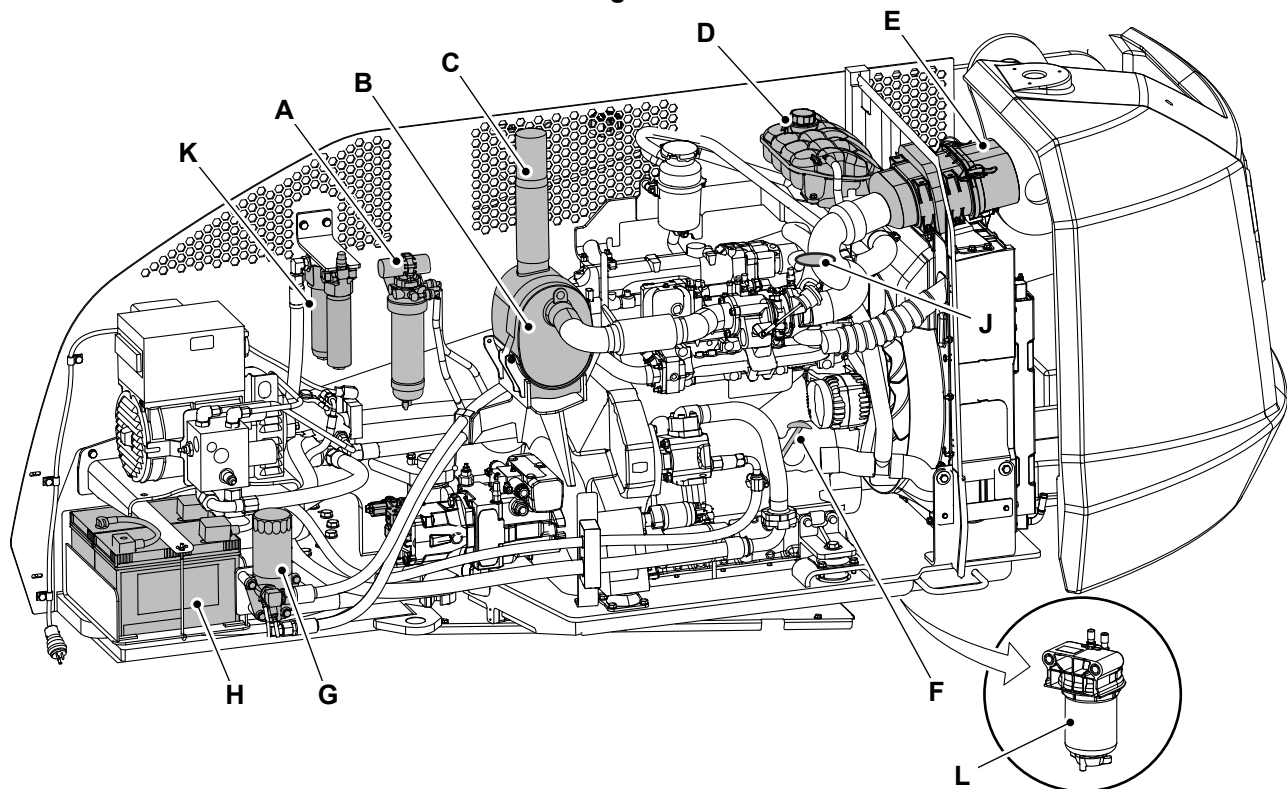
Figure 38. Platform Lowered Position



Service Points

General

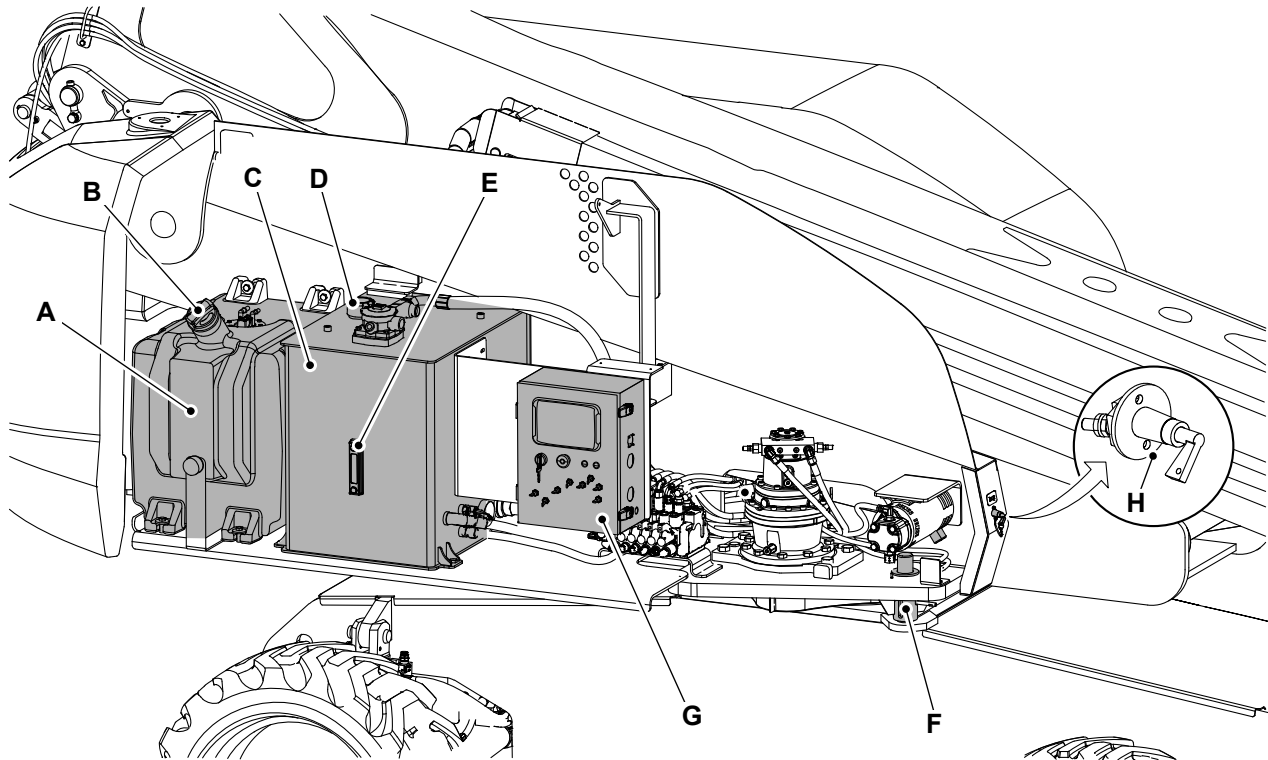
Figure 39.



- A Primary fuel filter
- C Exhaust outlet pipe
- E Air cleaner
- G Engine oil filter
- J Engine oil fill point
- L Secondary fuel filter

- B Engine exhaust
- D Coolant expansion bottle
- F Dipstick (engine oil)
- H Batteries
- K Hydraulic filters

Figure 40.



- A** Fuel tank
- C** Hydraulic tank
- E** Level gage / oil temperature (hydraulic)
- G** Base control panel

- B** Fuel filler cap
- D** Filler / breather
- F** Slew locking pin
- H** Isolator switch

Access Apertures

General

When moved to their maintenance position, the access panels give you access to parts or areas of the machine that are not required during machine operation.

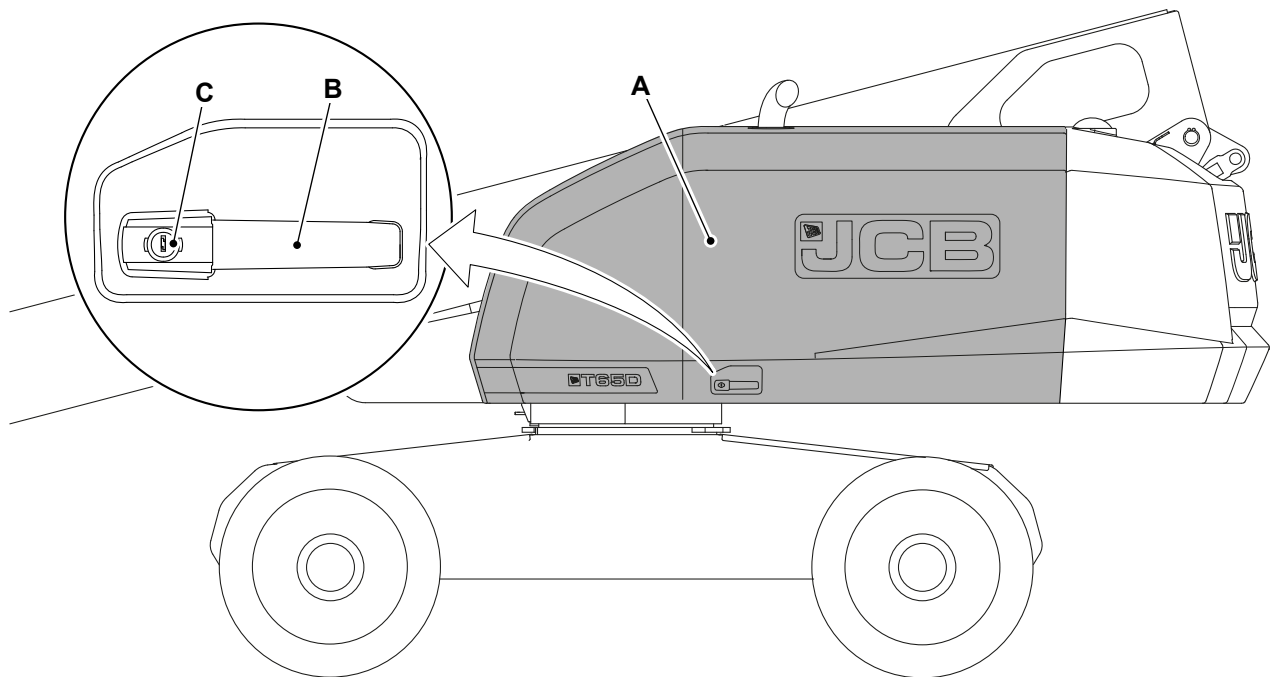
Before you operate the machine, make sure that all of the access panels are correctly in their closed or installed positions.

Engine Compartment Cover

To open the cover:

1. Unlock the right hand side body panel with the ignition key.
2. Push the button on the lock barrel.
3. Pull the handle to release the latch and open the cover.
4. The cover is supported by gas springs.

Figure 41.



A Engine compartment cover
C Lock

B Handle

To close the cover

1. Close the cover by pushing the handle firmly; it will latch itself.

Engine Access

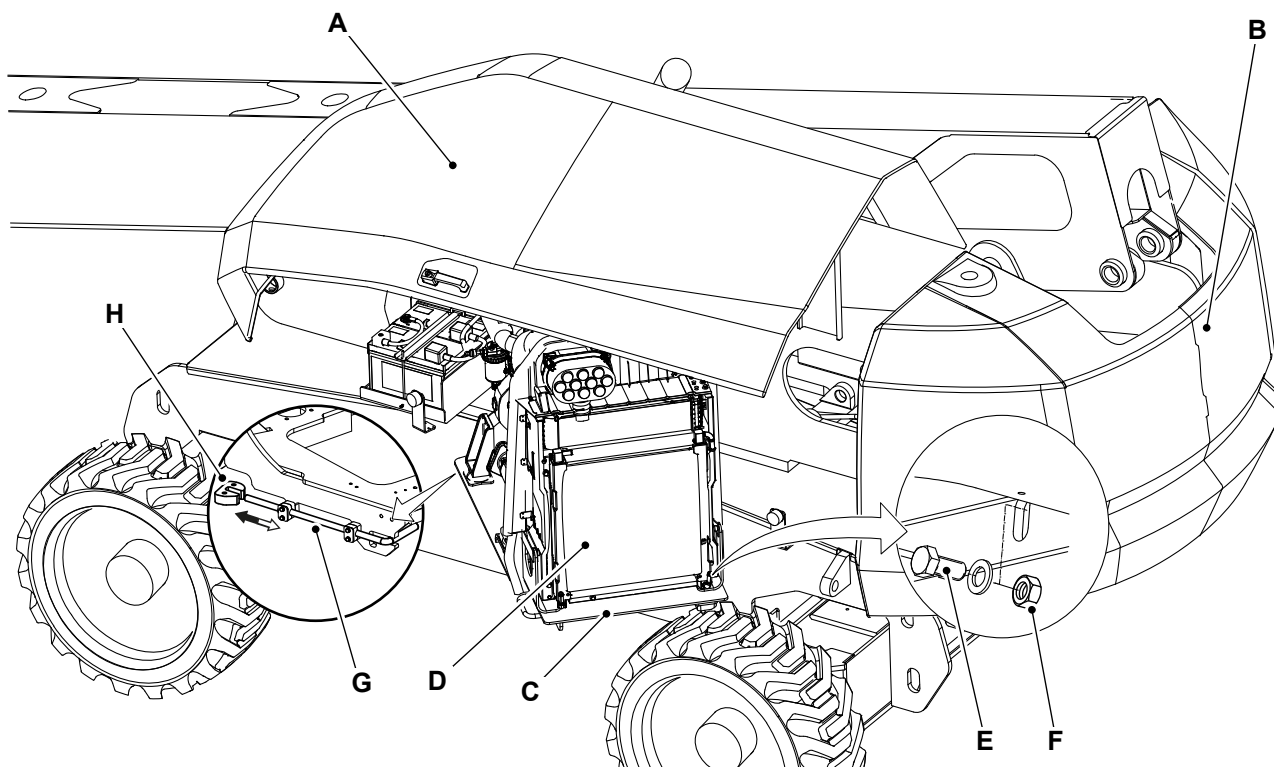
Opening the engine tray allows access to the rear of the engine for troubleshooting items such as engine ECU (Electronic Control Unit).

To open the engine tray:

1. Remove the securing bolt with 24 mm A/F spanner.
2. Remove the locking pin from swivel side.
3. Pull the engine tray out.

4. Insert the locking pin to keep the engine tray in its locked position.

Figure 42.



A Engine compartment cover
C Engine tray
E Securing bolt
G Locking pin

B Counter weight
D Engine
F Locking nut
H Lock stop plate

To close the engine tray:

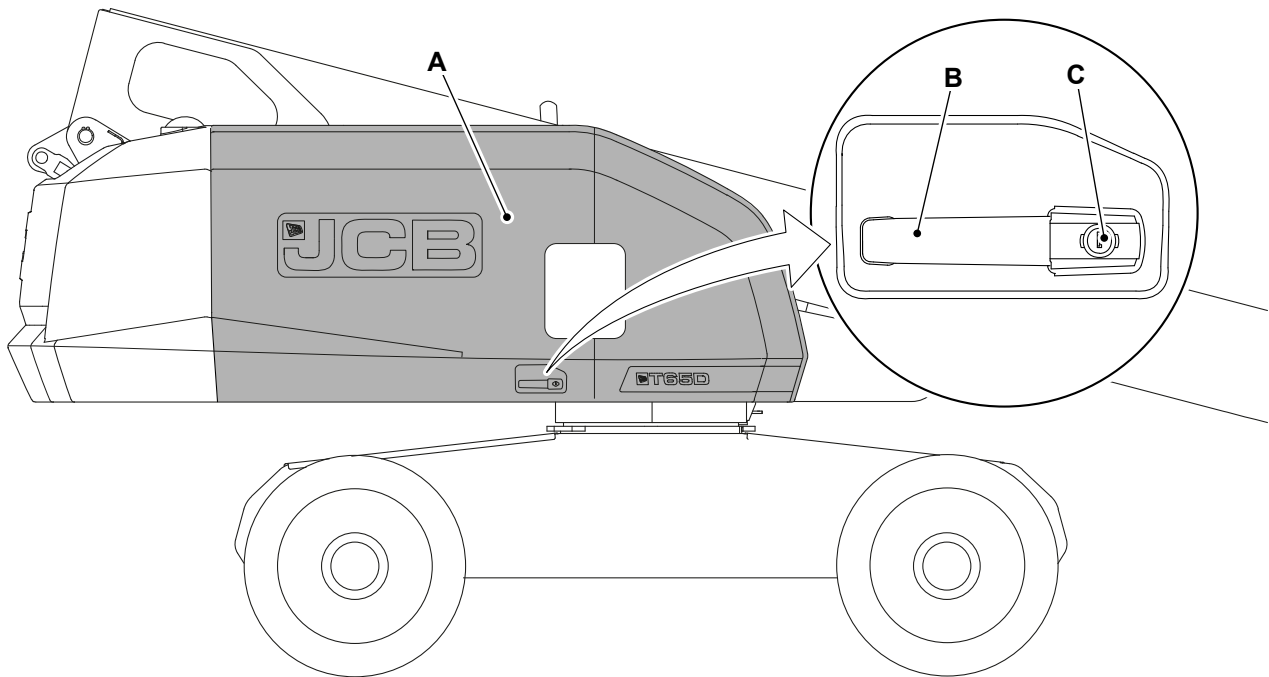
1. Remove the locking pin from the lock stop plate and push the tray inside.
2. Insert locking pin at swivel side.
3. Install and torque tighten the securing bolt with 24 mm A/F spanner to the specified torque value.
Torque: 184N·m (135.7lb.ft)
4. Close the cover by pushing the handle firmly; it will latch itself.

Hydraulic Compartment Cover

To open the cover:

1. Unlock the cover with the ignition key.
2. Push the button on the lock barrel.
3. Pull the handle to release the latch.

Figure 43.



A Body panel left side
C Lock

B Handle

To close the cover:

1. Close the cover by pushing the handle firmly; it will latch itself.

Body and Framework

General

Check (Condition)

1. Make sure that all of the guards and protective devices are in position, secured by their locking devices and free from damage.
2. Inspect all of the steelwork for damage. Include the following:
 - 2.1. Examine all of the pivot point welds.
 - 2.2. Examine the condition of all the pivot pins.
 - 2.3. Check that the pivot pins are correctly in position and secured by their locking devices.
3. Check the guardrails are undamaged.
4. Check that all of the safety and instructional labels are undamaged and in position. Install new labels where necessary.
5. Note any damaged paintwork for future repair.
6. Inspect the machine for broken or loose fasteners.

Controls

Check (Operation)

The functional checks are designed to discover any malfunctions before the machine is put into service. The operator must follow the step-by-step instructions to test all machine functions. A malfunctioning machine must never be used. If malfunctions are discovered, the machine must be tagged and removed from service. Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications

Pre-Operation Checks

Base Control Display Check

1. Make sure that the base and platform emergency stop buttons are released.
2. Insert the ignition key and turn the ignition switch to the ON position.
 - 2.1. Check the display switches on and the buzzers at the base and platform beep 3 times.
3. Check there is no alarm information displayed on screen.

Horn Button Check

1. Press the horn button from the base and platform control panels, check the horn sounds.

Engine Start Button Check

1. Push the engine start button.
 - 1.1. Check that the engine starts smoothly without abnormal sounds.

Engine Speed Check

1. Once the engine is at operating temperature. Idle speed may be increased with cold temperature.
2. Press the base control enable switch, check the speed on the base display is 1500 RPM (Revolutions Per Minute).
3. The platform control has two modes:
 - 3.1. For low speed mode, check the platform display shows 1500 RPM.
 - 3.2. For high speed mode, check the platform display shows 2200 RPM.

Emergency Stop Button Check

Proper functioning of emergency stop buttons are essential for safe machine operation.

1. Start the engine from the base control.
2. Push the base emergency stop button to OFF position. The engine should stop and no machine function should be operated.
3. Reset the base emergency stop button.
4. Start the engine from the platform control panel.
5. Push the platform emergency stop button to OFF position. The engine should stop and no machine function should be operated.

The platform emergency stop button will stop all machine operation, even if base control is selected. Also, the base control emergency stop button will stop all machine operation, even if the platform control is selected.

The platform emergency stop can be overridden by the ground override control.

[Refer to: Moving a Disabled Machine \(Page 45\).](#)

Base Control Function Test

Enable Switch Check

1. Press and hold the base control enable switch and press the engine start button, check the engine does not start.
2. Release the base control enable switch and press the engine start button, check the engine starts.
3. With the engine running release the base control enable switch and push a function switch. Check the function is deactivated.
4. With the engine running press and hold the base control enable switch and push a function switch. Check the function is activated.
5. With the engine running push a function switch and then press and hold the base control enable switch. Check the machine function is de-activated.

Check following boom functions with base enable switch pressed down:

Main Boom Function Check

1. Push up the main boom toggle switch. Check the main boom raises steadily. Check there is no abnormal sound.
2. Push down the main boom toggle switch. Check the main boom is lowered steadily. Check there is no abnormal sound.

Telescopic Boom Extend/Retract Check

1. Push the telescopic boom toggle switch to right. Check the telescopic boom extends steadily. Check there is no abnormal sound.
2. Push the telescopic boom toggle switch to left. Check the telescopic boom retracts steadily. Check there is no abnormal sound.

Platform Level Function Check

1. Push up the platform level toggle switch. Check the basket and jib rotates upward.
2. Push down the platform level toggle switch. Check the basket and jib rotates downward.

Platform Rotary Actuator Check

1. Press the platform rotate switch to the left, check the platform rotates clockwise direction (from plan view).
2. Press the platform rotate switch to the right, check the platform rotates counter-clockwise direction (from plan view).

Slew Rotation Check

Check the slew lock pin is not engaged in the turntable and then start test as follows:

1. Push the slew switch to the left, check the turntable swings clockwise (from plan view), and the buzzer sounds.
2. Push the slew switch to the right, check the turntable swings counter-clockwise (from plan view), and the buzzer sounds.

Jib Function Check

1. Push the jib switch up, check the jib moves upward.
2. Push the jib switch down, check the jib moves down.

Auxiliary Power Function Check

1. Stop the engine. Press down and hold the base enable switch while pushing the boom function button. Check the boom functions normally.

Emergency Override Check

1. Navigate to base inputs in the display menu.
2. Press the emergency override switch.
3. Check that the display shows the emergency override switch input is activated.

Platform Control Function Check

Platform Control Display Check

1. Insert the ignition key and turn the ignition switch to the ON position.
 - 1.1. Check the display should be in ON position and buzzers should beep at base and platform control panels for 3 times (3 beeps).
2. Check on display whether the weight bar, RPM bar, fuel bar and tell-tale (if activated) etc. should be displayed at platform control display.

Foot Pedal Check

1. Press the foot pedal, push the engine start/stop button, check the engine does not start.
2. Release the foot pedal, push the engine start/stop button, check the engine starts.
3. With the engine running, release the foot pedal, push the control levers, check the machine functions are not active.
4. With the engine running, press the foot pedal, push the control levers, check the machine functions are all active.
5. Push a control lever and then press the foot pedal, check the machine function is not active and a caution icon should be activated at display.
6. Make sure that the functions will be activated after foot pedal release and re-pressed condition.

Travel/Steer Check

1. Start the engine and press the foot pedal and then drive forward, check the machine moves forward and the speed is within the specified value. Release the joystick and check the machine stops moving.
Speed: 6–7km/h (3.7–4.3mph)
2. Start the engine and press the foot pedal and then drive backward, check the machine moves backward and the speed is within the specified value. Release the joystick and check the machine stops moving.
Speed: 6–7km/h (3.7–4.3mph)
3. Start the engine, extend telescopic boom to >100mm or lift main boom up to >0° boom angle, then press foot pedal and drive the machine to backward/forward, then the drive speed should be less than the specified value.
Speed: 1.1km/h (0.7mph)
4. Start the engine, press the foot pedal and then press the steer left button, check the front tires turns left.
5. Start the engine, press the foot pedal and then press the steer right button, check the front tires turns right.

Main Boom Check

1. Push forward the main boom/slew joystick, check the main boom is raised steadily. Check there is no abnormal sound.

- 1.1. Check the rising speed varies depending on the change in joystick movement amplitude. When the joystick movement is small, the speed is low.
2. Push down the main boom/slew joystick, check the main boom lowers steadily. Check there is no abnormal sound.
 - 2.1. Check the lowering speed varies depending on the change in joystick movement amplitude. When the joystick movement is small, the speed is low.

Machine Slew Check

Check the slew lock pin is not engaged in the turntable and then start test as follows:

1. Push the turntable slew joystick to the left, check the turntable slews clockwise (from plan view).
 - 1.1. Check the slew speed varies depending on the joystick movement amplitude.
 - 1.2. When the telescopic boom is extended, check slew is smooth and there is no jerk or abnormal sound.
 - 1.3. When the joystick movement is small, check the speed is low, check the travel alarm sounds.
2. Push the turntable slew joystick to the right, check the turntable slews counter-clockwise (from plan view).
 - 2.1. Check the slew speed varies depending on the joystick movement amplitude.
 - 2.2. When the telescopic boom is extended, check slew is smooth and there is no jerk or abnormal sound.
 - 2.3. When the joystick movement is small, check the speed is low, check the travel alarm sounds.

Slew Acknowledgment Travel Interlock Check

Check the slew lock pin is not engaged in the turntable and then start test as follows:

1. Slew the turntable outside of the forward position. Check the slew acknowledgment LED (Light Emitting Diode) is flashing and the travel function is de-activated.
2. Press the foot pedal and then press the slew acknowledgment button, check the LED turns solid and the travel function is enabled.
3. Release the foot pedal and check the platform slew acknowledge LED is flashing.
4. Slew to the forward position, check the platform slew acknowledge LED is OFF.

Telescopic Boom Extend/Retract Check

1. Push down the telescopic boom toggle switch, check the telescopic boom is extending smoothly. Check there is no abnormal sound.
2. Push up the telescopic boom toggle switch, check the telescopic boom is retracting smoothly. Check there is no abnormal sound.
 - 2.1. Check there is no jerk when it is retracting to the full extent. Check the travel alarm sounds.

Platform Level Check

1. Push up the platform level toggle switch, check the basket and jib rotates upward.
2. Push down the platform level toggle switch, check the basket and jib rotates downward.

Automatic Leveling Check

1. When the main boom is lifting and lowering, check leveling happens without jitter and delay.

Platform Rotary Actuator Check

1. Press the platform rotate left switch, check the platform rotates clockwise direction (from plan view).

2. Press the platform rotate right switch, check the platform rotates counter-clockwise direction (from plan view).

Jib Function Check

1. Push up the jib switch, check the jib moves upward.
2. Push down the jib switch, check the jib moves down.

Potentiometer Function Check

The potentiometer control affects all function speeds, when operating from the platform control panel only.

It is possible that with the potentiometer in the minimum position some services may not move when operated from the platform control. Adjustment of the potentiometer will ensure smooth movement.

Auxiliary Function Check

1. With the engine stopped, press and hold the auxiliary power button while pushing the boom function button, check the boom functions normally.
 - 1.1. To conserve battery power, test each function through a partial cycle.

Engine High and Low Speed Inspection

1. Start the engine.
2. Check the engine idle speed on the platform control display is 850 RPM
3. Press and hold down the foot pedal until the RPM reaches 1500 RPM (low engine speed RPM) and it appears on the platform control display.
4. Press the engine high and low speed button and check the engine speed switches from high-speed to low-speed and vice versa respectively (high engine speed is 2200 RPM).

Drive and Brake Check

[Refer to: Check \(Operation\) \(Page 98\).](#)

Safety Equipment

Check (Operation)

Safety Function Check

If any of the safety equipment is defective stop using the machine until the defect has been rectified.

Emergency Stop Check

Proper functioning of emergency stop buttons are essential for safe machine operation.

1. Start the engine from the base control.
2. Push the base emergency stop button to OFF position. The engine should stop and no machine function should be operated.
3. Reset the base emergency stop button.
4. Start the engine from the platform control.
5. Push the platform emergency stop button to OFF position. The engine should stop and no machine function should be operated.

The platform emergency stop button will stop all machine operation, even if base control is selected. Also, the base control emergency stop button will stop all machine operation, even if the platform control is selected.

The platform emergency stop can be overridden by the ground override control.

[Refer to: Moving a Disabled Machine \(Page 45\).](#)

Tilt Sensor Check

1. Park the machine on firm level ground.
2. Raise the main boom to the horizontal position with $> 0^\circ$ boom angle or extend the telescopic boom to > 100 mm, so that the machine goes into raised mode.
3. Drive the machine on the slope $> 5^\circ$ boom angle in the stowed position and make sure that the tilt icon appears at both base and platform control display.

Axle Oscillation

The machine is installed with an oscillating front axle. The machine stability will be affected if the axle locking system is damaged.

1. Make the machine safe.
2. Make sure that the telescopic boom is in stowed position.
3. Start the engine from the platform control.
4. Drive the right front wheel up on the ramp of the specified height. The front axle should be free to tilt.
Distance: 150mm (6in)
5. Make sure that the other three wheels are on the ground and are at a level position.
6. Extend the telescopic boom to the specified distance.
Distance: 500mm (19½in)
7. Drive the right front wheel down the ramp. The front axle should be locked.
8. Make sure that the axle remains locked relative to the chassis.

Main Boom Limit Down Sensor

Main boom limit down sensor is an important safety equipment that indicates if the machine is at boom raised position or stowed position. Before you check the main boom limit down sensor operation, make sure that the main boom is at stowed position.

1. The main boom angle can be seen from the input section of the base control panel at the specified angle.
Angle: 0°
2. Check the base control display light changes from stowed to boom raised position.
3. Lower the main boom and check display light changes to stowed position.
4. If the display does not change then do not drive the machine with boom raised. Consult your JCB dealer for advice.

Boom Length and Angle Sensor

This sensor detects the length of extension/retraction and angle of tele-boom.

1. Make sure that the machine is at stowed position.
2. Extend the tele-boom from base control or platform control to specified distance.
Distance: 200mm (8in)
3. Check the display changes from stowed to the extended position.
4. Retract the boom and check the display changes to the stowed position.
5. Make a note that the machine will be in stowed position between specified stroke.
Distance: 0–180mm (0–7in)
6. Do not drive machine with boom raised position if this switch does not function properly. Consult your JCB dealer for advice.

Machine Drive Speed Check

The machine maximum speed is limited by software with boom raised position.

1. From platform control, perform boom operation (main boom raise or teleboom extend) so machine shows raised position.
2. Drive the machine to specified distance and record the speed.
Distance: 10m (11yd)
3. The machine should cover this speed in not less than specified duration.
Duration: 32.8s
4. If the machine takes less time than this, do not drive machine in the raised position.

Table 17.

Raise or extend, Maximum moving speed	1.1km/h (0.7mph)
---------------------------------------	------------------

Platform Secondary Guarding System Check

1. From the platform control, raise the platform by main boom to boom raised position.
2. Press the secondary guarding system cable and check platform warning LED (Light Emitting Diode) flashes and buzzer sounds.
3. Check all drive, raise and extend functions are disabled from the base and the platform control.
4. Check all other functions are enabled.

5. Release the secondary guarding system reset switch and check fault indicators are cleared.
6. Check all functions are enabled from the base and platform.

Weight Sensor Check

1. The platform basket is calibrated for 300kg (661lbs) payload for operation throughout the lift envelope and for 454kg (1000lbs) payload with 80% boom extension.
2. Add a load of 454kg or 300kg depending on the boom position. Check that the base and platform displays show a load in excess of 100% and the overload icon with buzzer sound.
3. Check all the functions from the platform and base control are disabled with $\geq 100\%$ load.
4. Decrease the load in the platform to remove the overload condition and check that all functions are enabled from the base and platform.

Slew Acknowledge for Enabling Drive

If the booms are slewed more than the specified angle from forward position (between the non-steer wheels), drive and steer functions will not be available until the operator acknowledges the slew orientation. Angle: +/- 25 degree.

1. Slew the machine to the forward drive position and check slew acknowledgment LED is OFF.
2. Make sure that the drive is enabled. Drive the machine in forward or reverse.
3. Slew the machine outside forward drive position. Check slew acknowledgment LED is flashing.
4. Check that the drive is disabled.
5. Press the foot pedal and then press the slew acknowledgment reset button. Check the slew acknowledgment LED turns on.
6. Check that drive is enabled with the foot pedal pressed.
7. Release the foot pedal and check that the LED is flashing and drive is disabled without slew acknowledgment reset button pressed.

Engine

General

Clean

Engine

Do not allow mud to build up on the engine and transmission. Pay particular attention to the exhaust area, remove all combustible material.

The engine or certain components could be damaged by high pressure washing systems, special precautions must be taken if the engine is to be washed using a high pressure system.

Do not attempt to clean any part of the engine while it is running. Stop the engine and allow it to cool for at least one hour.

1. Disconnect the battery.
2. Do not wash any part of the:
 - 2.1. Fuel injection pump and injectors.
 - 2.2. Cold start device.
 - 2.3. ESOS (Engine Shut-Off Solenoid) if applicable.
 - 2.4. Electrical connections.
 - 2.5. ECU (Electronic Control Unit) if applicable.
3. Ensure that the alternator, starter motor and any other electrical components are shielded and not directly cleaned by high pressure cleaning system.

Check (Operation)

Start the engine and check for:

- Excessive smoke
- Excessive vibration
- Excessive noise
- Overheating
- Performance
- Unusual smells.

Oil

Check (Leaks)

Before you start the machine, do a check for oil leaks:

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Get access to the engine compartment (if applicable).
[Refer to: Access Apertures \(Page 78\).](#)
3. Check the engine and the area below for oil leaks.
4. Close the engine cover (if applicable).
5. If necessary, contact your JCB dealer.

Check (Level)

▲ WARNING Never check the oil level or add oil with the engine running. Be careful of hot lubricating oil. Danger of scalding.

Notice: Do not exceed the maximum level of engine oil in the sump. If the maximum is exceeded, the excess must be drained to the correct level. An excess of engine oil could cause the engine speed to increase rapidly without control.

1. Make the product safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Wait for the oil to drain back into the engine sump before you take a reading. If not, a false low reading may be recorded which can cause the engine to be overfilled.
3. Get access to the engine compartment (if applicable).
[Refer to: Access Apertures \(Page 78\).](#)
4. You must wear suitable PPE (Personal Protective Equipment) when working on the engine otherwise you could be injured.
5. Remove and clean the dipstick.
[Refer to: Service Points \(Page 76\).](#)
6. Install the dipstick.
7. Remove the dipstick.
8. Check the oil level. The oil should be between the two marks on the dipstick.
9. If necessary, add more oil:
 - 9.1. Remove the filler cap.
[Refer to: Service Points \(Page 76\).](#)
 - 9.2. Add the recommended oil slowly through the filler point
[Refer to: Fluids, Lubricants and Capacities \(Page 117\).](#)
 - 9.3. Remove the dipstick.
 - 9.4. Check the oil level, if necessary add more oil.
 - 9.5. Install the dipstick
 - 9.6. Install the filler cap.
10. Close and secure the engine cover (if applicable).

Front End Accessory Drive (FEAD) Belt

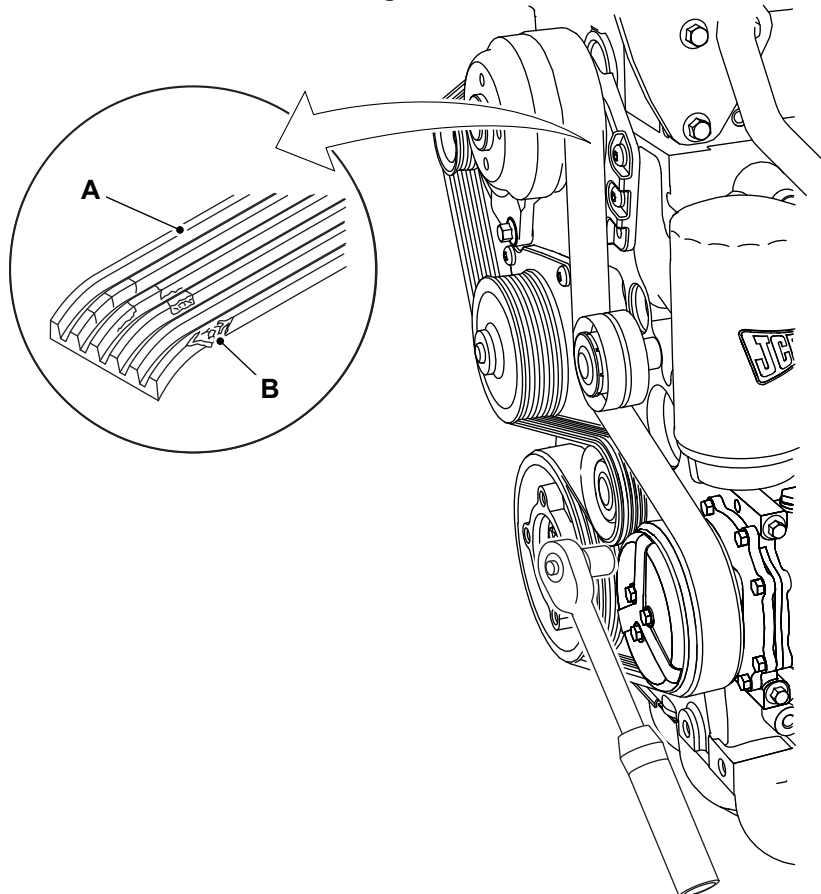
Check (Condition)

▲ Notice: A drive belt that is loose can cause damage to itself and/or other engine parts.

1. Make the product safe.
[Refer to: Stopping and Parking \(Page 25\).](#)
2. Open the engine compartment cover (if applicable).
[Refer to: Access Apertures \(Page 78\).](#)
3. Get access to the drive belt.
4. Check the drive belt tension, if necessary contact your JCB dealer for any service requirements.

5. Check for any belt misalignment mark on the flat pulley.
6. Renew the belt if it has cracks or if it is frayed or has pieces of material missing. Contact your JCB dealer for any service requirements. [Refer to Figure 44.](#)
7. Close and latch the engine compartment cover (if applicable).

Figure 44.



A Drive belt

B Crack/frayed

Exhaust

Check (Condition)

Check that there are no exhaust system components missing.

Check that none of the components are excessively corroded.

Check that there are no leaks in the exhaust system.

Check that the exhaust system is secure.

Air Filter

General

Check (Condition)

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Get access to the air filter.
[Refer to: Service Points \(Page 76\).](#)
3. Check the system hoses for:
 - 3.1. Condition.
 - 3.2. Damage.
 - 3.3. Security.
4. Replace the system hoses if necessary.
5. Close the engine cover.

Dust Valve

Check (Condition)

- Check the dust valve for rips/tears.
- Check there are no obstructions.
- Check that the dust valve is free of dirt and dust.
- Check that the dust valve securely attached to the air filter housing.

Fuel System

General

Bleed

⚠ WARNING Do not open the high pressure fuel system with the engine running. Engine operation causes high fuel pressure. High pressure fuel spray can cause serious injury or death.

The fuel system is self bleeding when the engine is running.

Check (Leaks)

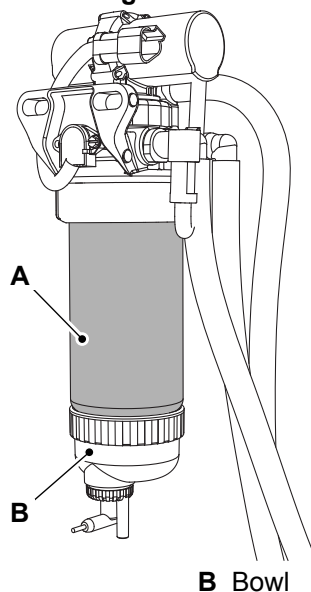
1. Make the machine safe.
2. Get access to the engine compartment (if applicable).
3. Check the engine compartment (if applicable), fuel lines and the area below for leaks.
4. If necessary, contact your JCB dealer.

Fuel Filter

Replace

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Get access to the filter.
[Refer to: Access Apertures \(Page 78\).](#)
3. Drain and remove the separator bowl.
[Refer to: Water Separator \(Page 95\).](#)
4. Replace the fuel filter.
5. Install the separator bowl.

Figure 45.



A Filter

B Bowl

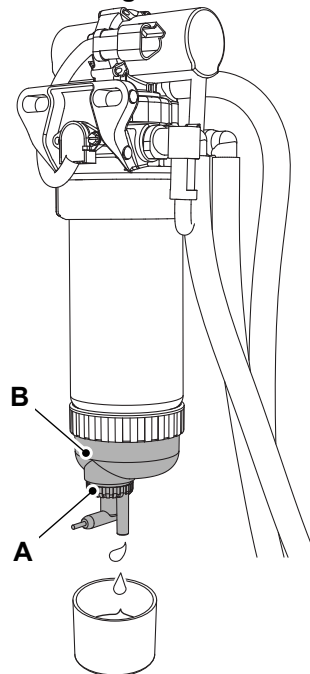
Water Separator

Clean

Draining the Water Separator

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Get access to the filter.
[Refer to: Service Points \(Page 76\).](#)
3. If there is water but no sediment, open the tap to drain the water. If there is any sediment in the bowl replace the fuel filter element. Do not disconnect the electrical connector (if installed).
4. Tighten the drain tap when all the water is drained.

Figure 46.



A Tap

B Bowl

Cooling System

General

Check (Leaks)

▲ CAUTION The cooling system is hot when the machine is running. Allow the machine to cool down to perform the service tasks.

Before you start the machine, inspect the system for leaks:

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Get access to the cooling pack.
[Refer to: Access Apertures \(Page 78\).](#)
3. Check the cooling system for leaks.
4. If necessary, contact your JCB dealer.

Coolant

Check (Condition)

▲ Notice: Check which coolant type is installed in the machine before topping up the coolant. Mixing of different coolant types is not recommended and may result in invalidation of the warranty offered by JCB. In the event of mixing or if the coolant type is to be changed, the coolant circuit should be completely drained and flushed twice with clean water before re-filling with fresh coolant.

[Refer to: Coolant \(Page 119\).](#)

Check (Level)

▲ CAUTION The cooling system is pressurized when the coolant is hot. When you remove the cap, hot coolant can spray out and burn you. Make sure that the engine is cool before you work on the cooling system.

1. Make the machine safe.
2. Let the engine cool.
3. Get access to the coolant expansion tank.
[Refer to: Service Points \(Page 76\).](#)
4. Check the coolant level in the expansion tank.
 - 4.1. Carefully loosen the cap on the expansion tank and let the pressure release from the system.
[Refer to: Service Points \(Page 76\).](#)
 - 4.2. Remove the cap from the expansion tank.
 - 4.3. Add the recommended coolant up to the maximum mark.
[Refer to: Fluids, Lubricants and Capacities \(Page 117\).](#)
 - 4.4. Replace the cap.
5. Start the engine and run the engine up to operating temperature.
6. Stop the engine.
7. Remove the ignition key.
8. Check for leaks.

Cooling Pack

Clean

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Let the engine cool.
3. Get access to the cooling pack.
[Refer to: Access Apertures \(Page 78\).](#)
4. If necessary, use a soft bristle brush or compressed air to remove all debris from the cooling pack.

Check (Condition)

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Let the engine cool.
3. Get access to the radiator.
[Refer to: Service Points \(Page 76\).](#)
4. Check the condition of the coolant hoses.
5. Check the radiator and intercooler surfaces for signs of damage.
6. If necessary, contact your JCB dealer for any service requirements.

Brakes

General

Check (Operation)

The brakes must be able to hold the machine on a flat ground or slope it is able to climb up to the permissible value.

[Refer to: Driving on Slopes \(Page 28\).](#)

Make a note of the following.

- You must check the brakes for correct operation at regular intervals.
[Refer to: Maintenance Schedules \(Page 69\).](#)
- The correct brake function is necessary for safe machine operation.
- The brake function must operate smoothly, free of hesitation, jerking and unusual noise.
- Carry out this procedure with the machine on a firm, level surface that is free of obstructions.

For brake check, use the limiting value specified for braking distance on flat ground. For more information on braking distance, [Refer to Table 18.](#)

Table 18. Speed and Braking Distance

Operation	Engine Speed (RPM)	Travel Mode	Speed (Kmph)	Braking Distance (cm)
Stowed-forward	1500	Low torque	4.39 to 4.62	156 to 175
	2200	Low torque	6.55 to 6.74	275 to 300
	1500	High torque	1.70 to 1.76	37.5 to 45
	2200	High torque	2.50 to 2.58	60 to 75
Stowed-reverse	1500	Low torque	4.49 to 4.60	156 to 175
	2200	Low torque	6.55 to 6.73	275 to 300
	1500	High torque	1.74 to 1.76	37.5 to 45
	2200	High torque	2.53 to 2.58	60 to 75
Raised-forward	1500	Low torque	0.44 to 0.57	35 to 40
	2200	Low torque	0.70 to 0.90	35 to 40
Raised-reverse	1500	Low torque	0.57 to 0.58	35 to 40
	2200	Low torque	0.88 to 0.90	35 to 40

Steering System

General

Check (Operation)

1. Start the engine.
2. Enable the joystick by pressing the foot pedal at the platform.
Refer to: [Operator's Manual \(Machine\) - T65D \(T4F\) \(9851/1400\) Main Component Locations](#).
3. Push the steer left button and check the front tires turns from initial position to the left within the specified time.
Duration: 5 ± 1 s
Refer to: [Operator's Manual \(Machine\) - T65D \(T4F\) \(9851/1400\) Basic Controls](#).
 - 3.1. Make sure that the tires turns left from lock to lock steer position.
4. Push the steer right button and check the front tires turns from initial position to the right within the specified time.
Duration: 5 ± 1 s
Refer to: [Operator's Manual \(Machine\) - T65D \(T4F\) \(9851/1400\) Basic Controls](#).
 - 4.1. Make sure that the tires turns right from lock to lock steer position.

Tires

General

Check (Condition)

Always drive with consideration for the condition of the tires. Check the tires daily for the signs of damage and wear. For example:

- Signs of distortion
- Cuts
- Embedded objects (nails, etc.)
- Continuous tread
- Edge damage
- Uneven wear
- Compare wear between tires

Never modify tires or install tires which are not intended for use on this machine. Contact you local JCB dealer to replace the parts.

Hydraulic System

General

Check (Condition)

Hydraulic Hoses

▲ WARNING Damaged hoses can cause fatal accidents. Examine the hoses regularly. Do not use the machine if a hose or hose fixture is damaged.

WARNING Fine jets of fluid at high pressure can penetrate the skin. Keep face and hands well clear of pressurized fluid and wear protective glasses. If fluid penetrates your skin, get medical help immediately.

Examine the hoses for:

Damaged hose ends

Worn outer covers

Ballooned outer covers

Kinked or crushed hoses

Exposed armoring in the outer covers

Displaced hose end fittings.

Worn cover sheathing or hose burst protection covering.

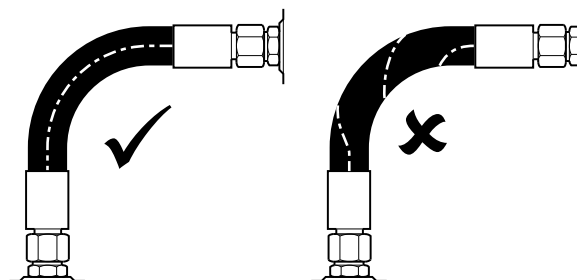
Replace a damaged hose before you use the machine again.

The replacement hoses must be of the same size, standard and pressure rating. If necessary, for more information contact your JCB dealer.

Connecting the Hydraulic Hoses

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Vent the hydraulic system.
3. Check the hoses and adaptors for damage.
4. Connect the hoses:
 - 4.1. Make sure that the hose is not twisted. Pressure applied to a twisted hose can cause the hose to fail or the connections to loosen.

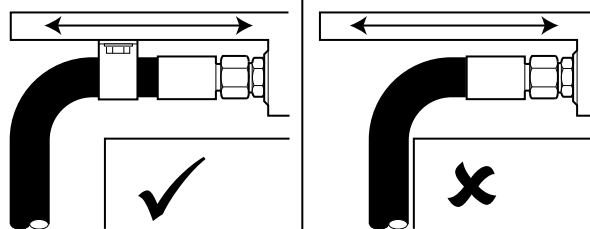
Figure 47.



- 4.2. Make sure that the hose does not touch hot parts. High ambient temperatures can cause the hose to fail.
- 4.3. Make sure that the hose does not touch parts which can rub or cause abrasion.

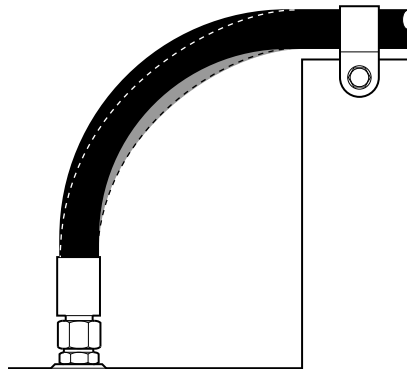
- 4.4. Use the hose clamps (where possible) to support long hose runs and keep the hoses away from moving parts, etc.

Figure 48.



- 4.5. To allow for length changes when the hose is pressurized, do not clamp at the bend. The curve absorbs the change.

Figure 49.



5. Check for leaks:
 - 5.1. Start the machine.
 - 5.2. Operate the related controls to increase the pressure in the hydraulic system.
 - 5.3. Stop the machine then remove the key.
 - 5.4. Check for indications of leakage at the hose connections. Correct, as necessary.

Disconnecting the Hydraulic Hoses

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Vent the hydraulic system.
3. Disconnect the hoses.
4. Check the hoses and adaptors for damage.
5. If necessary, install the blanking caps.
6. Check for leaks:
 - 6.1. Start the machine.
 - 6.2. Operate the related controls to increase the pressure in the hydraulic system.
 - 6.3. Stop the machine then remove the key.
 - 6.4. Check for indications of leakage at the hose connections. Correct, as necessary.

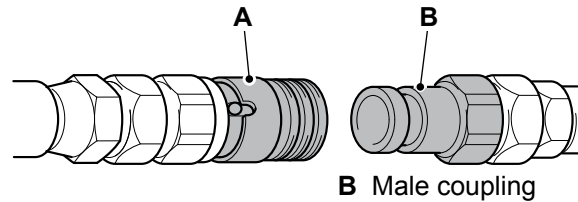
Quick Release Couplings

▲ WARNING The external surfaces of the couplings must be clean before connecting or disconnecting. Ingress of dirt will cause fluid leaks and difficulty in connecting or disconnecting. You could be killed or seriously injured by faulty quick release couplings.

The flat face quick release couplings allow the operator to remove and install attachments swiftly and efficiently.

Generally, your machine pipework will be installed with a female coupling and a male coupling. The optional attachment hoses will also be installed with a female coupling and a male coupling.

Figure 50.



A Female coupling

B Male coupling

The quick release couplings will be trouble free and relatively easy to connect and disconnect, if they are kept clean and used correctly. The recommendations listed below must always apply when using flat face quick release couplings.

Read the correct connecting and releasing procedures before you install or remove any optional attachment connected with quick release couplings.

Essential do's:

- Before connecting or removing any hydraulic hose, the residual hydraulic pressure trapped in the service hose line must be vented. Make sure the hose service line has been vented before connecting or removing the hoses.
- Always wipe the two mating faces clean before connecting.
- Use caps and plugs when the couplings are disconnected.
- Always align the external locking ball (if used) with the notch in the locking sleeve and then pull the locking sleeve back fully to disconnect.
- If a coupling sticks, first check that pressure has been released. Make sure the locking ball and notch in the locking sleeve are aligned, pull back the sleeve and twist the couplings apart. Sticking is normally caused by dirt in the coupling or physical damage due to abuse.
- Connect and disconnect the new couplings two or three times to work the PTFE seals. Sometimes a new coupling will stick if the seal has not been worked.
- When connecting the couplings, only apply the spanner or grips to the hexagon and nowhere else.
- Avoid damage to the coupling faces. Burrs and scratches cause damage to the seals and cause leaks. They can also impede connection and disconnection of the couplings.
- Periodically lubricate the internal locking balls on the female half of the coupling with silicone grease.

Essential don'ts:

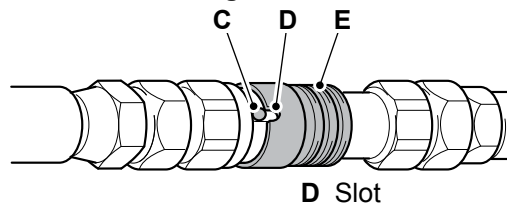
- Never try to reconnect using a damaged half coupling as this will destroy the seals in the mating half and necessitate replacement of both halves.
- Do not leave the coupling where it may be run over by a machine or otherwise crushed, this will distort the sleeve and prevent connection and disconnection.
- Never try to turn the sleeve when the coupling is disconnected as this will cause the locking ball to jam under the locking sleeve and damage the coupling.
- Never try to strip the coupling down, there are no user serviceable parts. If the coupling is damaged it must be replaced with a new one.
- Never hit the center poppet of the coupling to try and release the locked in pressure. This can cause irreparable damage to the coupling and serious injury.
- When connecting the couplings, never clamp on the sleeve of the female or nose of the male, this will cause distortion and/or damage.
- Never subject the couplings to external forces, especially side load. This can decrease the life of the coupling or cause failure.

- Never allow the torsional forces transmitted from the hoses to unscrew/screw together the couplings.
- Never use a coupling as a plug.
- Do not connect and disconnect with pressure in the line unless the coupling type is specifically designed to do so.

Connecting Quick Release Couplings

1. Remove any residual hydraulic pressure trapped in the service line hose.
2. Wipe the two faces of the male and female couplings and make sure they are clean.
3. Make sure that the ball in the female coupling is located in one of its slots.
4. Connect the male coupling into the female coupling.
5. Where applicable, rotate the sleeve half a turn and make sure that the locking ball does not align with the slot.

Figure 51.



- C** Ball
E Sleeve

D Slot

Disconnecting Quick Release Couplings

1. Remove any residual hydraulic pressure trapped in the service line hose.
2. Where applicable, align the slot with the ball.
3. Pull back the sleeve to release the coupling.

Oil

Check (Level)

1. Make the machine safe with the boom lowered.
2. Get access to the hydraulic oil level indicator and hydraulic oil filler cap.
[Refer to: Service Points \(Page 76\).](#)
3. Check the hydraulic oil level indicator. The hydraulic oil level must be visible in the level indicator.
4. Top up oil level if necessary:
 - 4.1. Remove the hydraulic oil filler cap.
 - 4.2. Add hydraulic oil.
[Refer to: Fluids, Lubricants and Capacities \(Page 117\).](#)
 - 4.3. Install the filler cap.

Electrical System

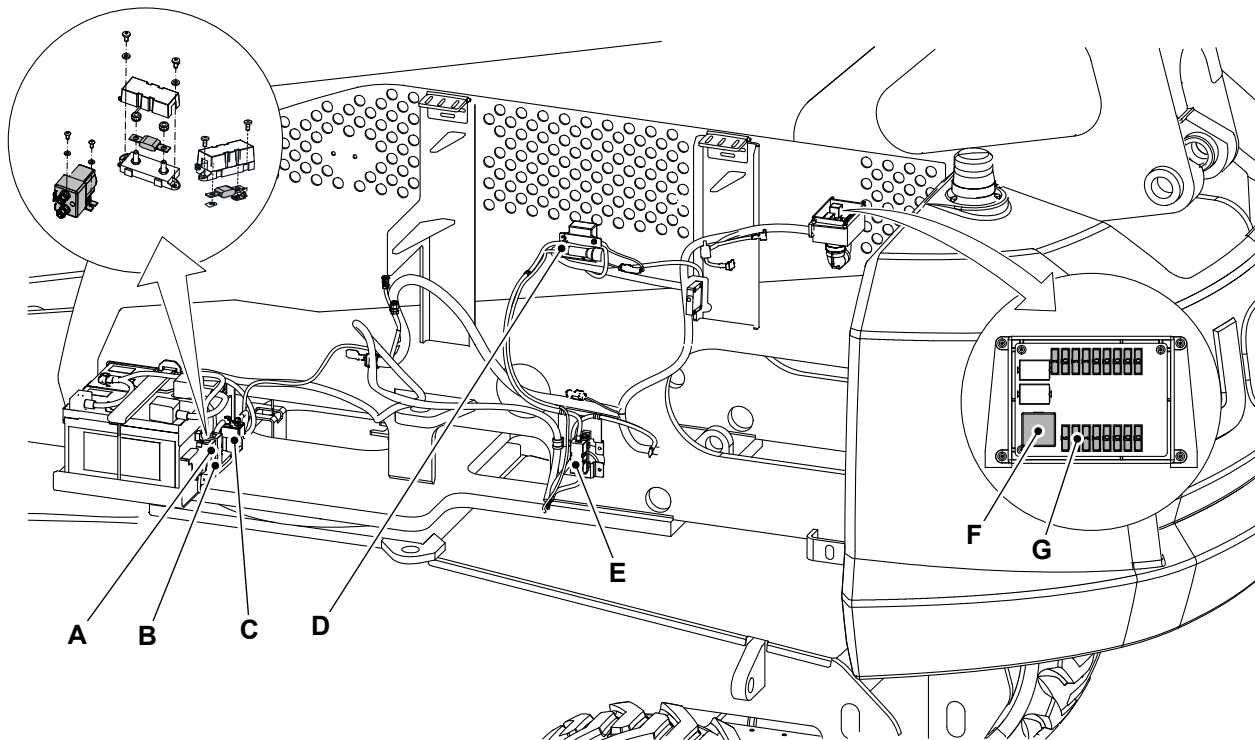
Fuses and Relays

▲ Notice: Always replace fuses with ones of correct ampere rating to avoid electrical system damage.

The electrical circuits are protected by fuses. If a fuse blows, find out why before a new one is installed.
[Refer to: Fuses \(Page 120\).](#)

Remove the chassis cover to get access to the primary fuses and podbox relays. Remove the engine side cover plate to get access to the grid heater relay.

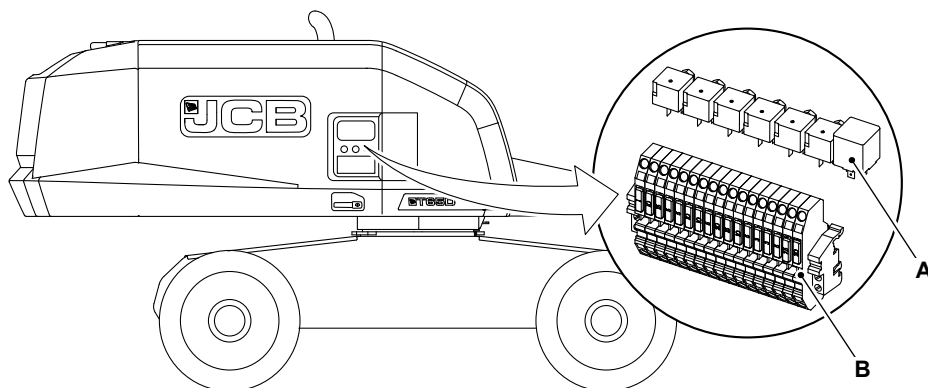
Figure 52.



- | | |
|-----------------------------------|-------------------------------------|
| A Fuse | B Control panel primary fuse |
| C DC contactor | D Grid heater relay |
| E Grid heater primary fuse | F Podbox relays |
| G Podbox fuses | |

Open the base control panel to get access to the base control relays.

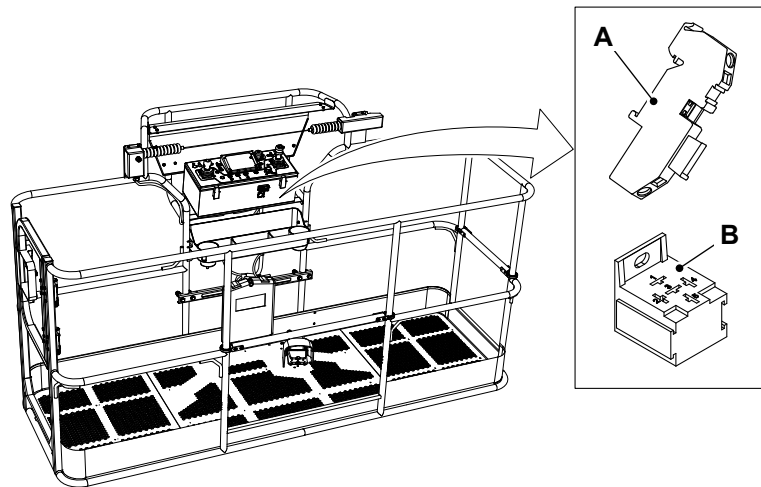
Figure 53. Base Control Fuses and Relays



- | | |
|------------------------------|-----------------------------|
| A Base control relays | B Base control fuses |
|------------------------------|-----------------------------|

Open the platform control panel to get access to the platform control relay.

Figure 54. Platform Control Fuses and Relays



A Platform control fuse

B Platform control relay

General

Check (Operation)

Make sure all of the electrical equipment operates correctly, for example:

- Switches
- Warning lights
- Beacon
- Alarms
- Horn
- Hourmeter/display
- Battery
- Lights

All defective equipment must be repaired before the machine is used.

Check (Condition)

▲ WARNING Battery electrolyte is toxic and corrosive. Do not breathe the gases given off by the battery. Keep the electrolyte away from your clothes, skin, mouth and eyes. Wear safety glasses.

DANGER Batteries give off explosive gases. Keep flames and sparks away from the battery. Do not smoke close to the battery. Make sure there is good ventilation in closed areas where batteries are being used or charged. Do not check the battery charge by shorting the terminals with metal. Use a hydrometer or voltmeter.

CAUTION Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

Examine the electrical circuits regularly for:

- Damaged connectors
- Loose connections
- Chafing on the wiring harnesses
- Corrosion
- Missing insulation
- Incorrect routing of the wiring harnesses
- Insulation covers on battery terminals and leads

Do not use the machine if one or more of these faults are found. You must make sure that the electrical circuit is repaired immediately.

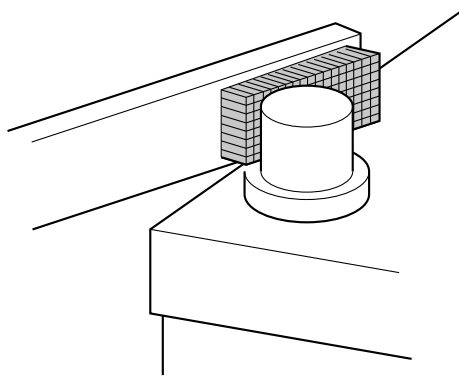
Battery

Clean

⚠ WARNING Keep metal watch straps and any metal fasteners on your clothes, clear of the positive (+) battery terminal. Such items can short between the terminal and nearby metal work. If it happens you can get burned.

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Get access to the battery.
[Refer to: Access Apertures \(Page 78\).](#)
3. If the terminal posts are corroded and covered with white powder wash them with hot water. If there is considerable corrosion, clean the terminal posts with a wire brush or abrasive paper. [Refer to Figure 55.](#)

Figure 55.



4. Apply a thin layer of petroleum jelly to the terminal posts.

Connect

⚠ WARNING Keep metal watch straps and any metal fasteners on your clothes, clear of the positive (+) battery terminal. Such items can short between the terminal and nearby metal work. If it happens you can get burned.

CAUTION The machine is negatively earthed. Always connect the negative pole of the battery to earth.

When connecting the battery, connect the earth (-) lead last.

When disconnecting the battery, disconnect the earth (-) lead first.

CAUTION Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Get access to the batteries.
[Refer to: Battery \(Page 107\).](#)
3. Connect the battery leads. Connect the earth (-) terminal last.
4. If the machine has a battery isolator, move the switch to the on position.

Disconnect

⚠ **WARNING** Keep metal watch straps and any metal fasteners on your clothes, clear of the positive (+) battery terminal. Such items can short between the terminal and nearby metal work. If it happens you can get burned.

CAUTION The machine is negatively earthed. Always connect the negative pole of the battery to earth.

When connecting the battery, connect the earth (-) lead last.

When disconnecting the battery, disconnect the earth (-) lead first.

CAUTION Understand the electrical circuit before connecting or disconnecting an electrical component. A wrong connection can cause injury and/or damage.

Notice: Do not disconnect the battery while the engine is running, otherwise the electrical circuits may be damaged.

1. Make the machine safe.
[Refer to: Maintenance Positions \(Page 75\).](#)
2. Get access to the batteries.
[Refer to: Access Apertures \(Page 78\).](#)
3. If the machine has a battery isolator, switch off the battery isolator and remove the key.
[Refer to: Battery Isolator \(Page 23\).](#)
4. Batteries are installed in parallel position. Make sure that you disconnect both the battery leads as when one battery is removed, the other battery and cables are still alive.
5. Disconnect the battery leads. Disconnect the earth (-) terminal first.

Battery Isolator

Check (Operation)

⚠ **Notice:** Do not isolate the machine electrics when the engine is running, this may cause damage to the machine electrics.

1. Isolate the machine electrics.
2. Make sure that the machine electrics are isolated and the machine will not start.

A defective isolator must be repaired before the machine is used. For more information, contact your JCB dealer.

Technical Data

Introduction

General

All the rated operating capacities/rated lift capacities are based on the criteria of the machine being level on a firm supporting ground and wind speed is below the specified limit.

Static Dimensions

Dimensions

Figure 56.

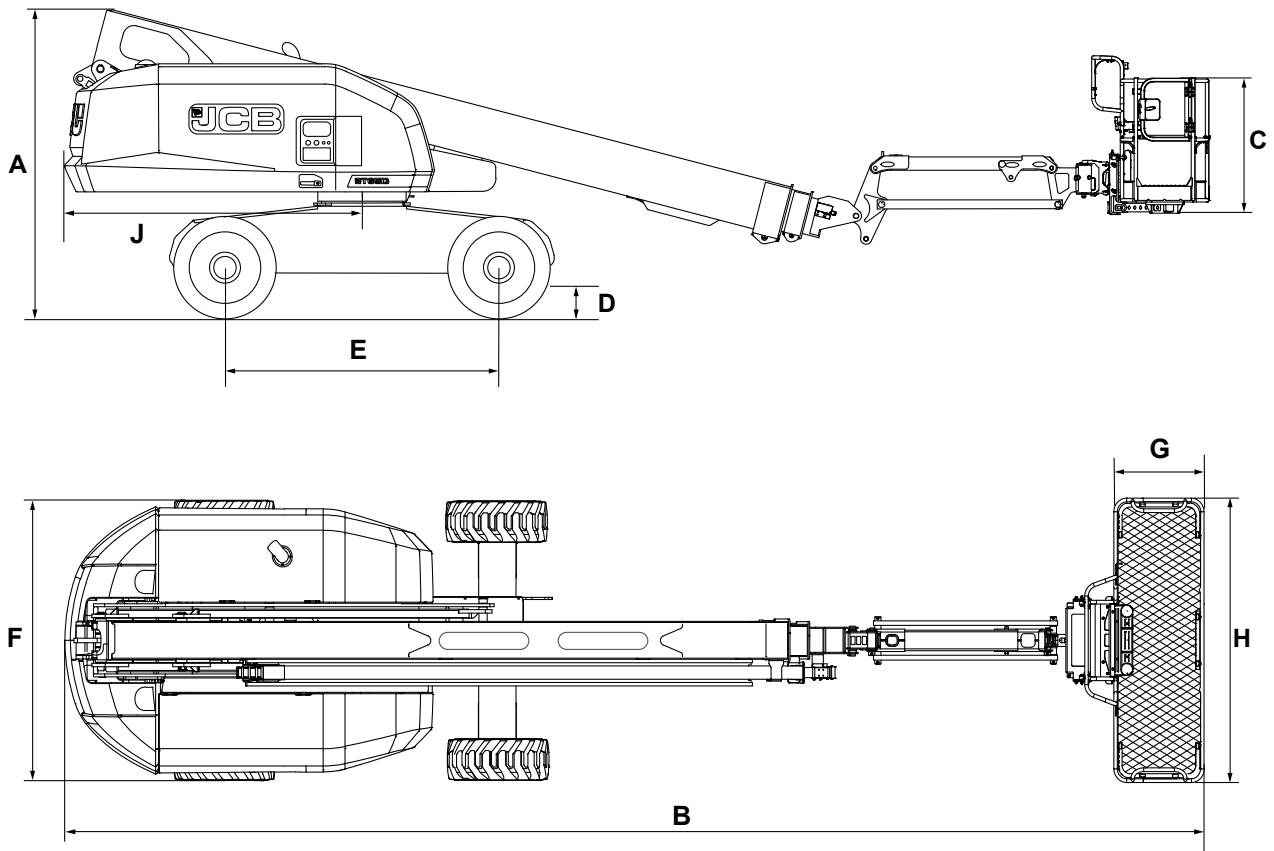


Figure 57.

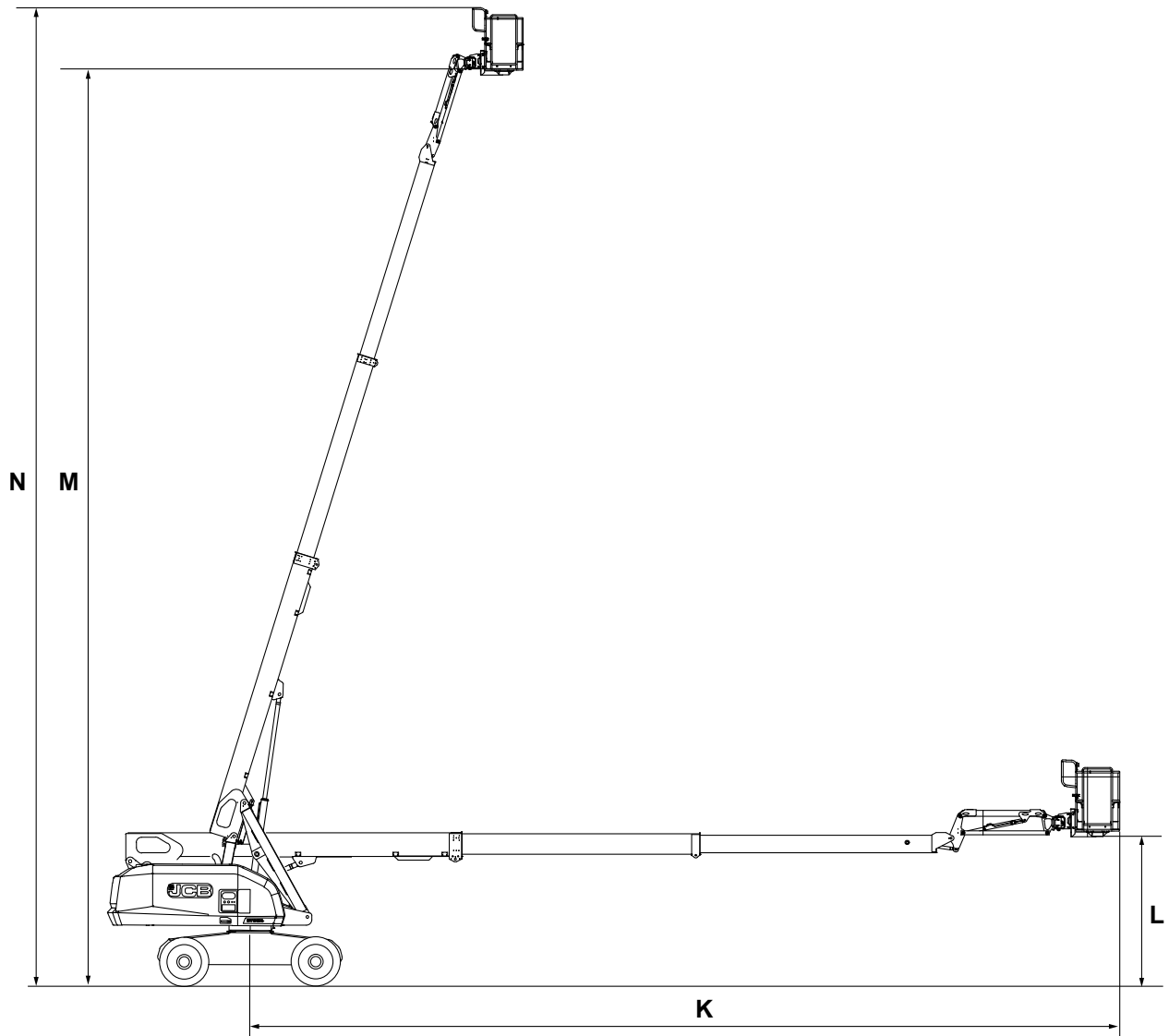


Figure 58.

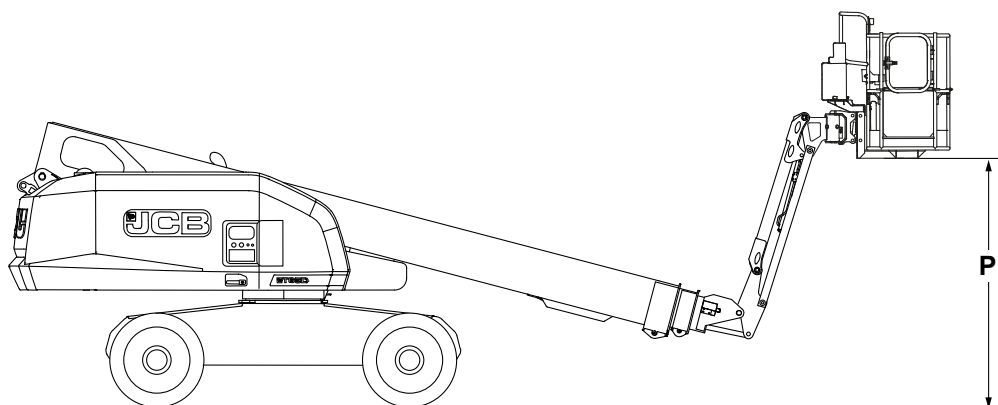


Table 19.

Items	Description	Length
A	Height - stowed	2.81m (9ft 2.63in)
B	Length - stowed	10. 1m (33ft 1.6in)
C	Platform height	1.1m (3ft 7.3in)
D	Ground clearance	0.227m (0ft 08.93in)
E	Wheelbase	2.49m (8ft 2.0in)
F	Width	2.4m (7ft 10.5in)
G	Platform - width	0.84m (2ft 7in)
H	Platform - length	2.43m (7ft 11.64in)
J	Swing-radius	2.71 (8 ft 10.49 in)
K	Maximum horizontal reach	16.61m (54ft 5.93in)
L	Height at maximum horizontal reach	3.01m (9ft 10.50in)
M	Maximum platform height ⁽²⁾	19.92m (65ft 4.2in)
N	Maximum working height	21.75m (71ft 4.2in)
P	Platform height ⁽³⁾	2.4m (7ft 10.5in)

(1) The maximum height that the basket can reach when the main telescopic boom is angled horizontally.

(2) Maximum working height adds 2m to the metric platform height, and adds 6ft to the imperial platform height, based on regional norms.

(3) The platform height is calculated when boom is in fully stowed position and the jib fully raised.

Weights

Table 20.

Description	Weight
Overall weight (approximate)	12,655kg (27,899.21lb)
Load capacity	300kg (661.38lb) ⁽¹⁾
	454kg (1,000.89lb) ⁽²⁾
Platform entry type and number	1 Gate and 2 slide bars
Platform occupancy	3 persons
Maximum manual force	400N (89.92lb)
Maximum ground wheel load	5,352kg (11,799.02lb)

(1) Capacity with 100% boom extension.

(2) Capacity with 80% boom extension.

Performance Dimensions

Boom Dimensions and Performance

Figure 59. Operating Envelope Diagram

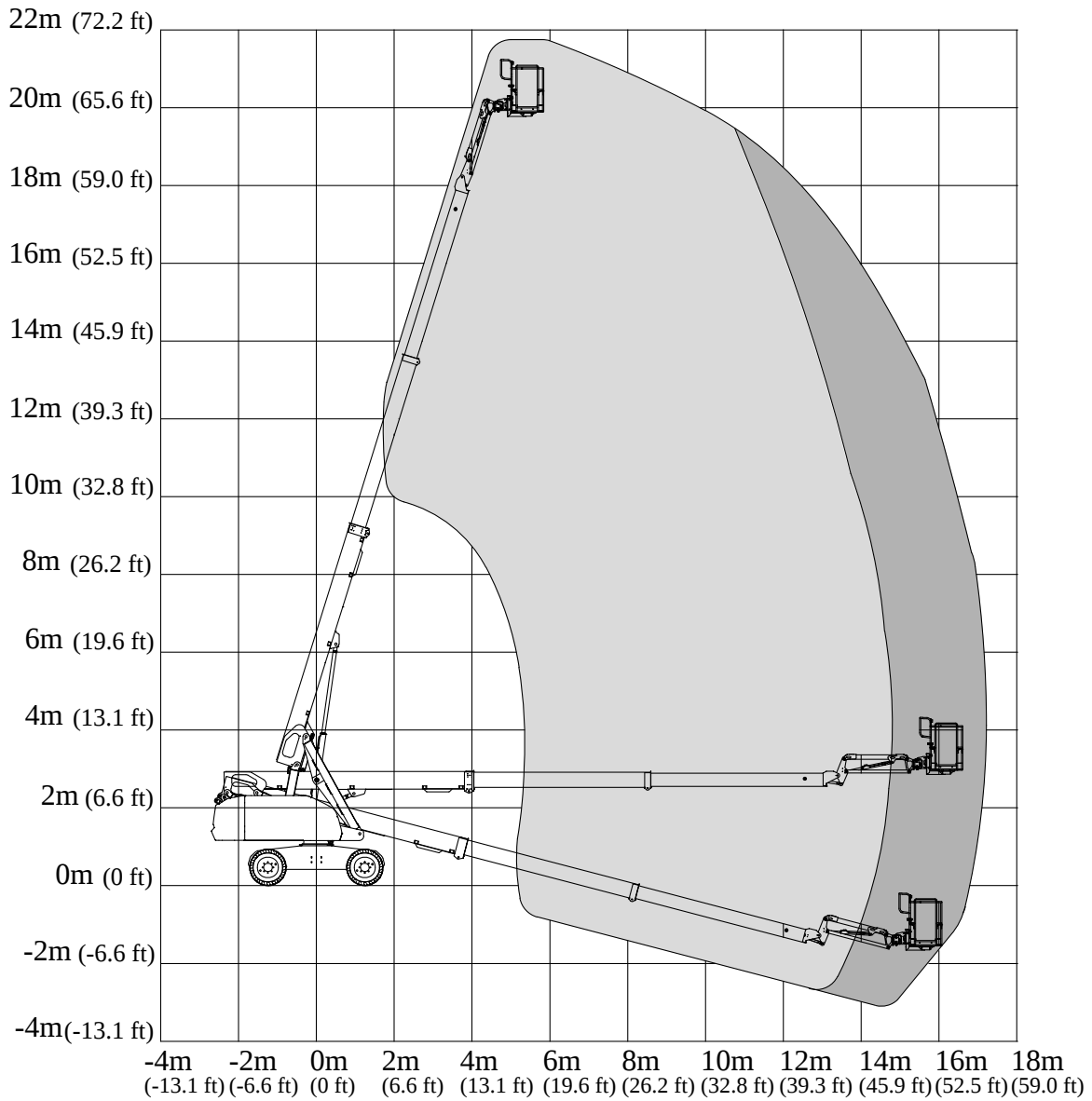
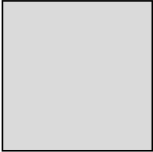
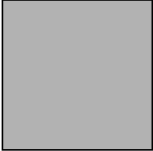


Table 21.

Working envelope	Envelope description	Load Capacity
	Max capacity zone	454kg (1,000.89lb)
	Max outreach zone	300kg (661.38lb)

Noise Emissions

Noise Data

All Machines

Noise value does not exceed 101 dB.

Vibration Emissions

Vibration Data

Whole-body vibration emission in accordance with ISO 2631-1:1997 does not exceed 0.5m/s.

Hand-arm vibration determined in accordance with dynamic test conditions defined in ISO 5349-2:2001 does not exceed 2.5m/s.

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 22. Fluids, Lubricants and Capacities

Item	Capacity L (UKgal)	Fluid/Lubricant	JCB Part Number	Container Size ⁽¹⁾	Specification
Fuel Tank	125L (27 ¹⁶ / ₃₂ UKgal)	Diesel Oil	-		
Engine Oil	16L (3 ¹⁷ / ₃₂ UK- gal)	-20°C (-4°F) to 45°C (112.9°F) JCB High per- formance 5W40	4001/2705	20L (4 ¹³ / ₃₂ UK- gal)	CH-4 or higher
Engine coolant (inorganic) ⁽²⁾	25L (5 ¹⁶ / ₃₂ UK- gal)	JCB Antifreeze HP/ Coolant/Water	4006/1120	20L (4 ¹³ / ₃₂ UK- gal)	ASTM D6210
Engine OAT (organic acid technology) ⁽²⁾	25L (5 ¹⁶ / ₃₂ UK- gal)	JCB OAT Coolant	4006/1805	20L (4 ¹³ / ₃₂ UK- gal)	ASTM D6210
Hydraulic Sys- tem	System 165L (36 ¹ / ₂ UKgal)	-20°C (-4.0°F) to 46°C (114.7°F): JCB Hy- draulic oil HP 32	4002/1025	20L (4 ¹³ / ₃₂ UK- gal)	VG32 Grade oil: Cold climate region
	Tank 200L (44UKgal)	0°C (32.0°F) to 55°C (130.9°F): HVI Hydraulic oil	4002/3000		VG46 Grade oil: Hot cli- mate region
Slew Ring Bearings	As required	JCB HP Grease	4003/2017	0.4kg (0.88lb)	
Slew Ring Gear Teeth	As required	JCB Special Slew Pin- ion Grease	4003/1619	0.4 (0.88)	
Slew Gearbox	2.3L (1 ⁶ / ₃₂ UK- gal)	JCB Ultra Performance Gear Oil 150	4000/4901	5L (1 ³ / ₃₂ UK- gal)	
		Gear oil 80W90	4000/3400		MIL-L-2105C: Cold cli- mate region
Transmis- sion/Hub Oil	0.68L (5 ⁵ / ₃₂ UK- gal) x 4 (each hub)	JCB HD90 Gear Oil	4000/0301	5L (1 ³ / ₃₂ UK- gal)	
All Other Grease	As required	JCB MPL-EP Grease	4003/1501	0.4 (0.88)	
Boom wear pad greasing	As required	PTFE high temperature grease	4003/4405	As required	

(1) For information about the different container sizes that are available (and their part numbers), contact your local JCB dealer. Transmission oil required - 2.8L (4000/4900).

(2) Check which coolant type is installed in the machine before topping up the coolant. Mixing of different coolant types is not recommended and may result in invalidation of the warranty offered by JCB. In the event of mixing or if the coolant type is to be changed, the coolant circuit should be completely drained and flushed twice with clean water before re-filling with fresh coolant.

Fuel

▲ WARNING Do not use gasoline in this machine. Do not mix gas with the diesel fuel. In storage tanks the gas will form flammable vapors.

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

Acceptable and Unacceptable Fuels

Use the same type of diesel fuel as used in cars (EN 590 for E.U. - ASTM D975-09B regulation - S 15 for U.S.). Use of other types of fuel could damage the engine. Do not use dirty diesel fuel or mixtures of diesel fuel and water since this will cause serious engine faults.

Clean fuel prevents the fuel injectors from clogging. Immediately clean up any spillage during refueling.

Never store diesel fuel in galvanized containers (i.e. coated with zinc). Diesel fuel and the galvanized coating react chemically to each other, producing flaking that quickly clogs filters or causes fuel pump and/or injector failure.

Fuels for Low Temperatures

When operating the engine in ambient temperatures lower than 0°C (32.0°F), use suitable low temperature fuel normally available from fuel distributors and corresponding to the specifications in the table.

These fuels reduce the formation of paraffin in diesel at low temperatures.

When paraffin forms in the diesel, the fuel filter becomes blocked interrupting the flow of fuel.

Biodiesel Fuel

Fuels containing 10% methyl ester or B10, are suitable for use in this engine provided that they meet the specifications listed in the table.

Do not use vegetable oil as a biofuel for this engine.

Any failures resulting from the use of fuels other than recommended will not be warranted.

Table 23. Fuel Compatibility

	Compati- ble		Certifica- tion emis- sion		Warranty coverage		Engine waste	
	yes	no	yes	no	yes	no	yes	no
EN 590, DIN 51628 - Military NATO fuel F-54 (S=10 ppm)	○		○		○			○
No 1 Diesel (US) - ASTM D 975-09 B - Grade 1-D S 15 (S=15 ppm)	○		○		○			○
No 1 Diesel (US) - ASTM D 975-09 B - Grade 1-D S 500 (S=500 ppm)	○			○	○ ⁽¹⁾			○
No 2 Diesel (US) - ASTM D 975-09 B - Grade 2-D S 15	○		○		○			○
No 2 Diesel (US) - ASTM D 975-09 B - Grade 2-D S 1500	○			○	○ ⁽¹⁾			○
ARCTIC (EN 590/ASTM D 975-09 B)	○ ⁽²⁾		○		○			○
High sulfur fuel < 5000 ppm (<0.5%)	○			○	○ ⁽¹⁾			○ ⁽¹⁾
High sulfur fuel > 5000 ppm (<0.5%)	○			○	○ ⁽³⁾			○ ⁽³⁾
High sulfur fuel > 10000 ppm (>1%)		○		○		○	○	
Civil Jet Fuels Jet A/A1		○		○		○	○	
Civil Jet Fuels Jet B		○		○		○	○	

	Compati- ble	Certifica- tion emis- sion	Warranty coverage	Engine waste
Bio Fuels (EN14214)	○ ⁽⁴⁾	○ ⁽⁴⁾	○ ⁽⁴⁾	○ ⁽⁴⁾

- (1) *Except for catalyst clogged and EGR.*
 (2) *Without adding oil.*
 (3) *Except for catalyst clogged and EGR. Shorter oil change intervals.*
 (4) *Max. 10% in fuel.*

Coolant

▲ WARNING Antifreeze can be harmful and is restricted to professional users only. Obey the manufacturer's instructions when handling full strength or diluted antifreeze and always use appropriate PPE. Inappropriate coolant handling may damage fertility or the unborn child.

Notice: Check which coolant type is installed in the machine before topping up the coolant. Mixing of different coolant types is not recommended and may result in invalidation of the warranty offered by JCB. In the event of mixing or if the coolant type is to be changed, the coolant circuit should be completely drained and flushed twice with clean water before re-filling with fresh coolant.

Check the strength of the coolant mixture at least once a year, preferably at the start of the cold period.

Replace the coolant mixture according to the intervals shown in the machine's service schedule.

You must dilute full strength coolant with clean water before use. You must dilute full strength coolant with distilled or de-ionized water.

The correct concentration of coolant protects the engine against frost damage in winter and provides year round protection against corrosion.

Table 24.

Concentration	Level of protection
50% (Standard)	Protects against damage down to -40°C (-40°F)
60% (Extreme Conditions Only)	Protects against damage down to -56°C (-69°F)

Do not exceed a 60% concentration, as the freezing protection provided reduces beyond this point.

- Make sure that the coolant complies with specification in this manual.
- Always read and understand the manufacturer's instructions.
- Make sure that a corrosion inhibitor is included. Serious damage to the cooling system can occur if corrosion inhibitors are not used.
- Care should be taken to not mix coolant types. Mixing coolant will have a detrimental effect on the performance of the coolant.

Electrical System

General

Table 25.

Item	Specification
System voltage	12V
Battery capacity	2 x 110Ah
Battery voltage	12V DC (Direct Current)

Fuses

Primary Fuses

Table 26.

Fuse	Rating
Electric motor primary fuse	275A
Base control panel fuse	80A

Secondary Fuses

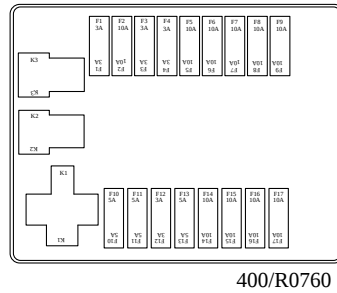
Figure 60. Base Control Fuses

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13	F14	F15	F16	F17
	1A	10A	15A	5A	5A	10A	10A	1A	20A	15A	20A	5A	3A	3A	5A	7.5A	10A

Table 27.

Fuse ID	Fuse	Rating
F1	Ignition fuse	1A
F2	Base E-stop, horn relay and diagnostic connector	10A
F3	Base ECU (Electronic Control Unit) supply	15A
F4	Wire reel, tilt sensor and rope switch	5A
F5	Display and axle lock pressure sensor	5A
F6	Platform ECU supply	10A
F7	Platform ECU supply	10A
F8	Base ECU supply	1A
F9	Spare	20A
F10	Spare	15A
F11	Worklight	20A
F12	Engine run signal for telematics and Base ECU	5A
F13	Livelink	3A
F14	Display	3A
F15	Spare	5A
F16	Key switch	7.5A
F17	Platform ECU supply	10A

Figure 61. Podbox Fuses



400/R0760

Table 28.

Fuse ID	Fuse	Rating
F1	Engine ECU power hold	3A
F2	Fuel pump	10A
F3	Starter	3A
F4	Fuel pump	3A
F5	Spare	10A
F6	Spare	10A
F7	Grid heater	10A
F8	Engine ECU	10A
F9	Engine ECU	10A
F10	Battery Isolator relay	5A
F11	Spare	5A
F12	WIF (Water in Fuel)	3A
F13	Alternator resistor	5A
F14	VGT (Variable Geometry Turbocharger)	10A
F15	EGR (Exhaust Gas Recirculation)	10A
F16	Engine ECU	10A
F17	Engine ECU	10A

Figure 62. Platform Control Fuse

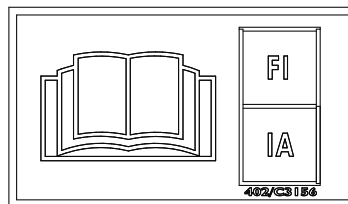


Table 29.

Fuse ID	Fuse	Rating
F1	Ignition feed fuse	1A

Other Fuses

Table 30.

Fuse	Rating
Grid heater primary fuse	150A
Battery isolation fuse	70A
Engine podbox fuse	50A

Relays

Primary Relays

Table 31.

Description	Rating
Electric pump relay	180A
Grid heater relay	130A

Secondary Relays

Figure 63. Base Control Relays

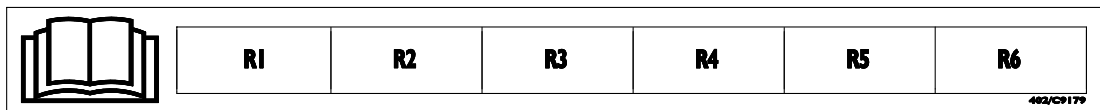


Table 32.

Relay ID	Description	Rating
R1	Ignition relay 1	40A
R2	Ignition relay 2	40A
R3	Ignition relay 3	40A
R4	Ignition relay 4	40A
R5	D+ relay	40A
R6	Horn relay	40A

Figure 64. Podbox Relays

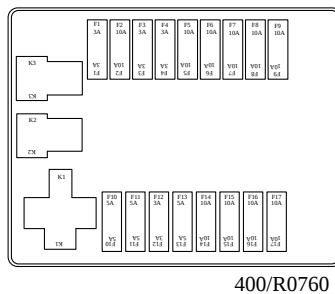


Table 33.

Relay ID	Description	Rating
K1	Power hold relay	40A
K2	Starter relay	20A
K3	Fuel pump relay	20A

Table 34.

Relay ID	Description	Rating
R1	Platform buzzer relay	12V

Batteries

California Proposition 65

⚠ WARNING Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Engine

General

Table 35.

Description	SL Engine
Engine Variant	Turbocharged with intercooler
Emission compliance	US-EPA Tier 4 Final, EU Stage IV
Rated speed	2200 RPM (Revolutions Per Minute)
Weight (Dry)	(Dry weight-No cooling fan drive) 496kg (1,093.48lb)
Number of cylinders	4
Nominal bore size	103mm (4in)
Stroke	132mm (5in)
Cylinder arrangement	In Line
Combustion Cycle	4-stroke
Firing order	1-3-4-2
Displacement	4.399L (1UKgal)
Compression ratio	16.7: 1
Engine Compression	Compression variance between each cylinder should be no greater than 3.5bar (50.8psi)
Direction of rotation (viewed from front {crankshaft pulley} end)	Clockwise
Valves	4 per cylinder
Valve clearances measured at the tappet end of the rockers (measured cold)	
- Inlet	0.15–0.21mm (0–0in)
- Exhaust	0.43–0.49mm (0–0in)
Lubricating oil pressure (Dependent on engine temperature and speed)	1.6–6.5bar (23.2–94.3psi)
Filter type	Screw-on canister (with drain facility) ⁽²⁾
Pressure to open by-pass valve	-
Oil pressure relief valve setting	6bar (87.0psi)
Oil pressure switch setting	0.6bar (8.7psi) falling
Oil pump ⁽¹⁾	Integral unit with relief valve
Combustion system	Common rail direct Injection
High pressure fuel pump	High pressure with electronically controlled fuel metering

(1) The oil pump is a non-serviceable part

(2) Some variants have ports for connection of a remote filter assembly.

Hydraulic System

General

Table 36.

Description	Specification
Hydraulic tank volume	200L (44UKgal)
Hydraulic system pressure	235bar (3,408.4psi)

Wheels and Tires

General

Table 37.

Tire Size (Description)	Type	Make	Tire Width	Weight	Tire Outer Diameter	Remark
24.5 X 11.75 - 25B	Foam filled-marking	Blacksmith	361.3mm (14in)	196.1kg (432.32lb)	928mm (36 ¹ / ₂ in)	Standard
24.5 X 15 - 21	Foam filled-turf marking	Blacksmith	449.5mm (17 ¹ / ₂ in)	243.5kg (536.82lb)	922mm (36 ¹ / ₂ in)	Option

Fault-Finding

General

Fault code information of the machine is available in help files via servicemaster and service pro.
Refer to: servicepro.jcb.com.



Declaration of Conformity

General

This machine complies with ANSI/SAIA A92.6-2006, ANSI/SAIA A92.20-2020, CSA B354.2-01 & CSA B354.6-2017.

Warranty Information

Service Record Sheet

Table 38.

	Signature and stamp		Date
	Annual Insurance (Yes)		Hours

Figure 65. Installation Checklist

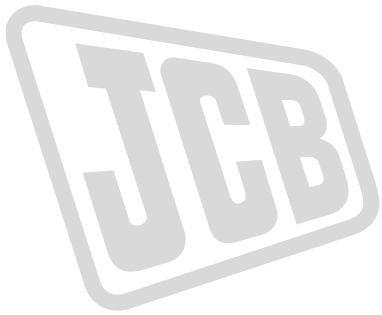
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Figure 66. 1st 100h/1 Month

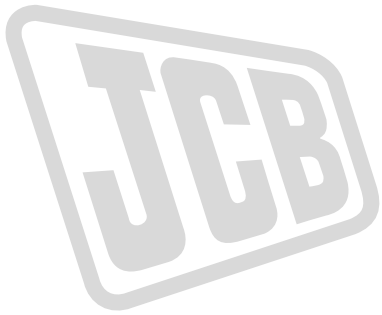
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Figure 67. 500h/6 Month

 	 1 / /	 h

Figure 68. 1000h/12 Month

	 1 / /		h

Figure 69. 1500h/18 Month

	 1 / /		h

Figure 70. 2000h/24 Month

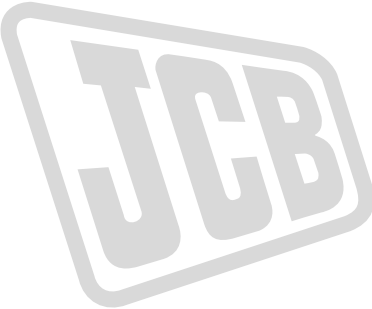
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Figure 71. 2500h/30 Month

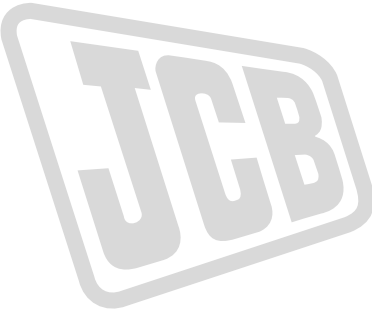
	 1 / /		h

Figure 72. 3000h/36 Month

		 1	/	/		h
						

Figure 73. 3500h/42 Month

		 1	/	/		h

Figure 74. 4000h/48 Month

		 1	/	/		h
						

Figure 75. 4500h/54 Month

		 1	/	/		h

Figure 76. 5000h/60Month

		 1	/	/		h
						

Figure 77. 5500h/66 Month

		 1	/	/		h

Figure 78. 6000h/72 Month

		 1	/	/		h
						

Figure 79. 6500h/78 Month

		 1	/	/		h

Figure 80. 7000h/84 Month

	 1 / /		h

Figure 81. 7500h/90 Month

	 1 / /		h

Figure 82. 8000h/96 Month

	 1 / /		h

Figure 83. 8500h/102 Month

	 1 / /		h

Figure 84. 9000h/108 Month

		 1	/	/		h
						

Figure 85. 9500h/114 Month

		 1	/	/		h

Figure 86. 10000h/120 Month

		 1	/	/		h
						

Figure 87. 10500h/126 Month

		 1	/	/		h

Engine Emissions

California Emission Control Warranty Statement. Your Warranty Rights and Obligations

The California Air Resources Board and Kohler Co. are pleased to explain the emission control system warranty on your engine.

In California, new heavy-duty off-road engines must be designed, built and equipped to meet the State's stringent anti-smog standards.

Kohler Co. must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the fuel injection system and the air induction system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, Kohler Co. will repair your heavy-duty off-road engine at no cost to you including diagnosis, parts and labor.

Manufacturers's Warranty Coverage

Your off-road diesel engine emission control system is covered under warranty for a period of five (5) years or 3,000 hours, whichever occurs first, beginning on the date the engine or equipment is delivered to an ultimate purchaser for all constant speed engines with maximum power $19 \leq \text{kW} < 37$ and rated speed less than 3,000 rpm, all variable speed engines with maximum power $19 \leq \text{kW} < 37$ and all variable or constant speed engines with maximum power greater than 37 kW.

Your off-road diesel engine emission control system on variable or constant speed engines with maximum power less than 19 KW and constant speed engines with maximum power $19 \leq \text{kW} < 37$ and rated speed equal to or greater than 3,000 rpm is covered under warranty for a period of two (2) years or 1,500 hours, whichever occurs first.

If any emission related part on your engine is defective, the part will be repaired or replaced by Kohler Co.

Owner's Warranty Responsibilities

As the heavy-duty off-road engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual.

Kohler Co. recommends that you retain all receipts covering maintenance on your heavy-duty off-road engine.

Kohler Co. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all recommended scheduled maintenance.

As the heavy-duty off-road engine owner, you should however be aware that Kohler Co. may deny you warranty coverage if your heavy-duty off-road engine or emission control related component has failed due to abuse, neglect, improper maintenance or unapproved modifications.

Your engine is designed to operate on commercial diesel fuel (No. 1 or No. 2 low sulfur or ultra low sulfur diesel fuel) only.

Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.

Requirements for emission directive in force in the Californian State. • You are responsible for initiating the warranty process.

The Air Resources Board suggests that you present your heavy-duty off-road engine to a Kohler Co. dealer as soon as a problem exists.

The warranty repairs should be completed by the dealer as expeditiously as possible.

Please review the document titled, "Kohler Co. Federal and California Emission Control Systems Limited Warranty Off- Road Diesel Engines", for complete details of your heavy-duty off-road engine warranty.

If you have any questions regarding your warranty rights and responsibilities or the location of the nearest Kohler Co. authorized service location, you should contact Kohler Co. at 1-800-544-2444 or access our website at www.kohlerengines.com (USA and North American).

The complete and updated list of authorized Kohler Co. service centers can be found on our web site: <http://www.lombardinigroup.it/dealer-locator>.