Service Manual

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Published by the
TECHNICAL PUBLICATIONS DEPARTMENT
of
JCB COMPACT PRODUCTS LTD;
Harewood Estate
Leek Road, Cheadle
Stoke-on Trent
Staffordshire, England
ST10 2JU
Tel: 01538 757500, Fax: 01538 757590
Publication No. 9803/3140 Issue 4

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Body & Framework B
Electrics C
Controls D
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Service Manual

Mini Excavator

Part Number	Machine Model	Serial Numbers
9803/9300	8027Z	898000 Onwards
	8032Z	899000 Onwards
9803/3145	802.7 plus	747084 to 747210
	802.7 super	747211 Onwards
	803 plus	765607 Onwards
	803 super	765607 Onwards
	804 plus	734402 to 734629
	804 super	734630 to 735365
	804 super	735366 Onwards
9803/3140	802	732001 to 732449
	802.4	732450 to 732999
	802 super	733001 to 733847
	802 super	733848 Onwards
9803/3130	801.4	720001 Onwards
	801.5	730001 to 730614
	801.6	728750 to 729999
9803/3105	8013	893000 Onwards
	8015	894000 to 89599
	8015	1020000 to 1023999
	8017	896000 to 896999
	8018	897000 to 897999
	801 Gravemaster	
9803/9350	8014	1156000 Onwards
	8016	1155000 Onwards
	8018	1046000 Onwards
9803/9410	8025Z	1226500 Onwards
	8030Z	1228500 Onwards
	8035Z	1230500 Onwards

Publication No.
S2-eng

Issued by JCB Technical Publications, JCB Service, World Parts Centre, Beamhurst, Uttoxeter, Staffordshire, ST14 5PA, England. Tel +44 1889 590312 Fax +44 1889 593377

World Class
Customer Support

Service Manual

Mini Excavator

Part Number	Machine Model	Serial Numbers
9803/9360	8040Z	1056000 Onwards
	8045Z	1057000 Onwards
9803/3161	801	645001 to 645999
9803/9600	8020	1284000 to 1284999

Publication No.
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Introduction

This publication is designed for the benefit of JCB Distributor Service Engineers who are receiving, or have received, training by JCB Technical Training Department.

It is assumed that these personnel have a sound knowledge of workshop practice, safety procedures and general techniques associated with the maintenance and repair of hydraulic earthmoving equipment. Therefore, these basic subjects generally are omitted from this manual, the intention being to convey only more specialised information concerning particular aspects of a machine or component.

For example, renewal of oil seals, gaskets etc., and any component showing obvious signs of wear or damage is expected as a matter of course and, therefore, information of this nature is included only in the context of specialised procedures or where a range of wear tolerances is required. Similarly, it is expected that components will be cleaned and lubricated where appropriate, also that any opened hose or pipe connections will be blanked to prevent excessive loss of hydraulic fluid and ingress of dirt. Finally, please remember above all **SAFETY MUST COME FIRST!**

The manual is compiled in sections, the first three are numbered and contain information as follows:

1 = General Information - includes torque settings and service tools
2 = Care & Safety - includes warnings and cautions pertinent to aspects of workshop procedures etc.
3 = Routine Maintenance - includes service schedules and recommended lubricants for the machine.

The remaining sections are alphabetically coded and deal with Dismantling, Overhaul etc. of specific components, for example:

A = Attachments
B = Body & Framework ... etc.

The page numbering in each alphabetically coded section may not be continuous. This allows for the insertion of new items in later issues of the manual.

Section contents, technical data, circuit descriptions, operation descriptions etc. are inserted at the beginning of each alphabetically coded section.

All sections are listed on the front cover; tabbed divider cards align directly with individual sections on the front cover for rapid reference.

Illustrations which show a dismantled component are numbered as a guide to the dismantling sequence, which generally can be reversed for assembly.

Torque settings are given as a 'mean' figure which may be varied by plus or minus 3%. Torque figures indicated are for dry threads, hence for lubricated threads may be reduced by one third.

'Left Hand' and 'Right Hand' are as viewed from the rear of the machine.

References to alternative servicing intervals are to be treated on a 'whichever occurs first' basis.

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IDENTIFYING YOUR MACHINE

The machine has a Data Plate attached to the left hand front face of the machine.

The serial numbers of the machine, engine and gearboxes are stamped on this plate.

If the engine is replaced, stamp the new serial number in place of the old one.

Explanation of Vehicle Identification Number (VIN)

Code	A	B	C	D	E
Example	**SLP**	**0802**	**X**	**E**	**0732450**

A World Manufacturer Identification SLP = JCB
B Machine Model 0802 = 802

C Year of Manufacture

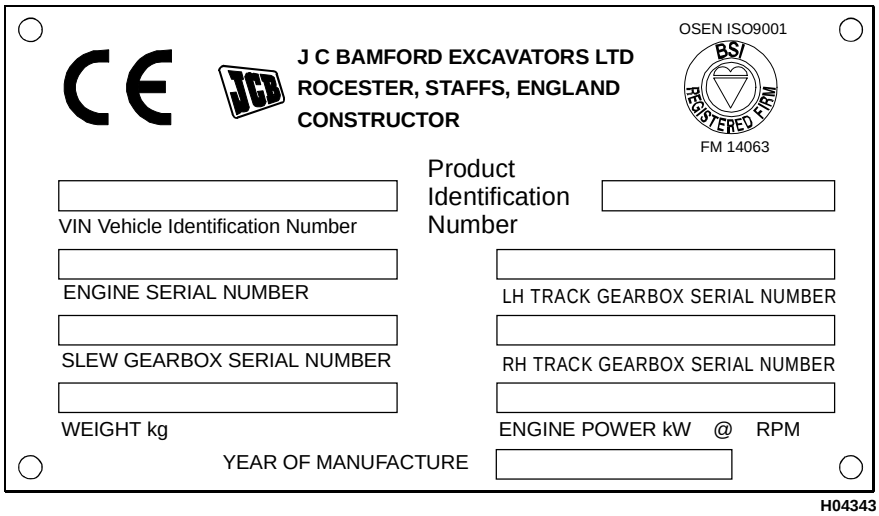
R = 1994	W = 1998	2 = 2002
S = 1995	X = 1999	3 = 2003
T = 1996	Y = 2000	4 = 2004
V = 1997	1 = 2001	5 = 2005

D Manufacturers Location E = England
E Machine Serial Number 0732450

Explanation of Engine Identification Number

Code	A	B	C	D	E
Example	**KE**	**50390**	**J**	**000001**	**y**

A Engine Type
B Engine Parts List
C Country of Manufacture
D Engine Serial Number
E Year of Manufacture



STORAGE

Preparation for Storage

The operations to place a machine into storage (-15ºC to 44º C) are given below.

1 Park the machine safely with the bucket and dipper rams retracted and the dig end outstretched. Lower the boom until the bucket rests on the ground. Lower the dozer to the ground.

2 Switch off the engine. Operate controls to release pressure from the rams.

3 Disconnect battery to prevent discharge.

4 Ensure the fuel tank is filled to a maximum, leaving no air space.

5 Ensure hydraulic tank is filled to maximum on the sight gauge.

6 Spray exposed ram rods with Waxoyl.

7 Slacken off rubber tracks until no visible spring tension exists.

Preparation after Storage

The operations to remove a machine from storage (-15ºC to 44º C) and prepare it for use are given below.

1 Lower the fuel level to ensure that sufficient air space exists in the tank.

2 Check all oil and water levels, adjust contents to correct levels as necessary.

3 Ensure the battery is fully charged.

4 Reconnect battery.

5 Remove electrical contact from fuel injection pump solenoid.

6 Crank engine for 15 seconds or until oil pressure warning light goes out.

7 Reconnect electrical supply to the fuel injection pump solenoid.

8 Start the engine. If the engine fails to start after several attempts, bleed the fuel system.

9 Adjust track tensions.

10 Grease all lubrication points.

ROPS, TOPS AND FOGS

WARNING

Modified and wrongly repaired ROPS,TOPS & FOPS Structures are dangerous. Do not modify the ROPS,TOPS & FOPS Structure. Do not attempt to repair the ROPS,TOPS & FOPS Structure. If the ROPS,TOPS & FOPS Structure has been in an accident, do not use the machine until the structure has been inspected and repaired. This must be done by a qualified person. For assistance, contact your JCB dealer. Failure to take precautions could result in death or injury to the operator.

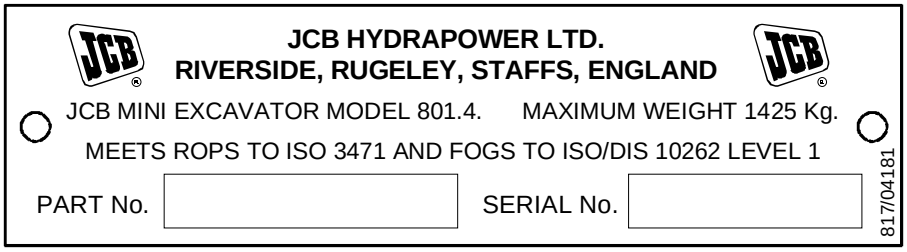
5-3-1-7

Machine built to ROPS, TOPS and FOGS standards have an identification label fitted to the cab.

WARNING

The ROPS,TOPS & FOPS cab is designed to give you protection in an accident. If you do not wear the seat belt you could be thrown about inside the cab, or thrown out of the machine and crushed. You must wear a seat belt when using the machine. Fasten the seat belt before starting the engine.

2-2-1-9



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INTRODUCTION

This chapter is arranged to guide you step-by-step through the task of learning how to use the machine. Read it through from beginning to end. By the end of the chapter you should have a good understanding of the machine and how to operate it.

Pay particular attention to all safety messages. They are there to warn you of possible hazards. Do not just read them-think about what they mean. Understand the hazards and how to avoid them.

If there is anything you do not understand, ask your JCB dealer, he will be pleased to advise you.

When you have learned where the driving controls are and what they do, practise using them. Practise driving the machine in a safe, open space clear of other people.

Get to know the "feel" of the machine and its driving controls.

Move on to the attachment controls only when you can drive the machine confidently and safely.

Take great care when practising with the attachment controls. Practise in an open space, keep people clear. Do not jerk the controls: operate them slowly until you understand the effect they have on the machine.

Finally, do not rush the job of learning. Take your time and take it safely.

Remember **BE CAREFUL**
BE ALERT
SAFE

BEFORE ENTERING THE CAB

WARNING

Walking or working under raised attachments can be hazardous. You could be crushed by the attachments or get caught in the linkages.

Lower the attachments to the ground before doing these checks. If you are new to his machine, get an experienced operator to lower them for you.

If there is nobody to help you, study this handbook until you have learned how to lower the attachments. Also make sure that the slew lock is fitted before doing these checks.
HOP26

The following checks should 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.

MACHINE WALK ROUND INSPECTION

1 Check for cleanliness:

a) Clean the windows and light lenses
b) Remove dirt and debris, especially from around the linkages, rams, pivot points and radiator
c) Make sure the cab and handrails are clean and dry
d) Clean all safety decals. Replace any that are missing or cannot be read.

2 Check for damage:

a) Inspect the machine generally for damaged and missing parts.
b) Make sure that the bucket teeth are secure and in good condition
c) Make sure that all the pivot pins are secured correctly in place
d) Inspect the windows for cracks and damage
e) Check for oil, fuel and coolant leakages beneath the machine.

BEFORE ENTERING THE CAB - continued

WARNING

You could be killed or injured with damaged tracks. Do not use the machine with damaged or excessively worn tracks.

HOP27

3. Check the Tracks (Rubber)

Check for cut rubber and penetration by sharp objects. Do not use a machine with damaged tracks.

4. Check the engine cover/panels and fuel filler cap

a) Make sure the engine cover / panels are fitted and securely locked.
b) Make sure the fuel filler cap is tightly closed (we also recommend that you lock it).

ENTERING/EXITING THE CAB

WARNING

Do not enter or exit the cab unless the arm rest or lever lock is fully engaged.

To give sufficient clearance to enter or leave the cab, the left lock must be raised.
When the lock is in the raised position the excavator controls cannot be operated. Lowering the lock to the normal position connects the excavator controls and allows the normal operation of the levers.

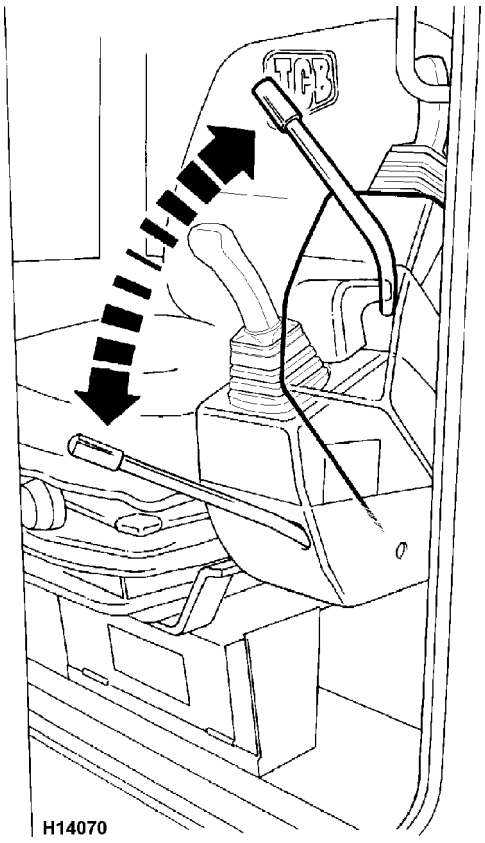
CAUTION

On cable operated machines, ensure that the levers are fully locked and the machine controls are disabled before exiting the cab.

Note: *When entering or leaving a canopy machine, both LH and RH locks must be raised.*

WARNING

Always face the machine when entering or leaving the cab. Use the step(s) and handrails. Make sure the step(s), handrails and your boot soles are clean and dry. Do not jump from the machine. Do not use the machine controls or lever locks as handholds, use the handrails. Failure to follow these instructions could result in unexpected movement of the machine.



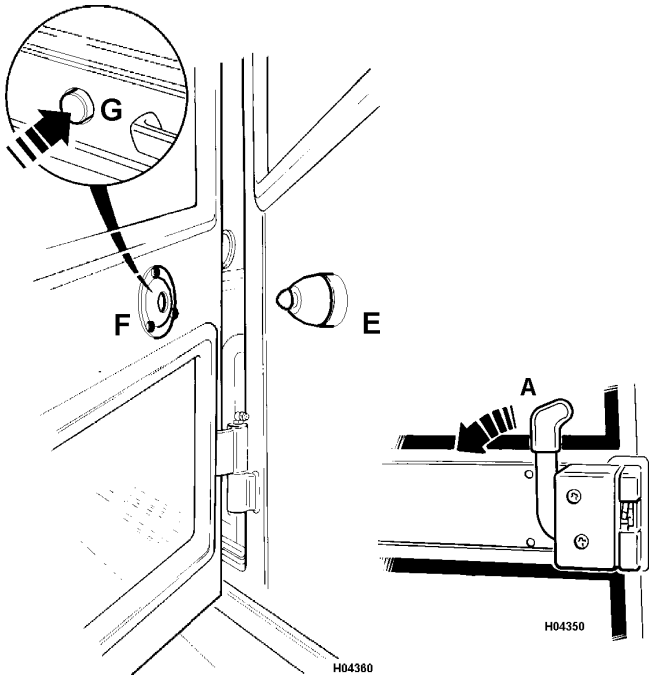
CAB

The cab is bolted on top of the mainframe and is a welded steel construction. The cab has a sliding window on the right side, a hinged door and an up and over windscreen. All windows are of toughened glass. The cab is fitted with a windscreen wiper, heater fan, seat and all operating controls and instruments.

CAUTION

Do not drive the machine with the door unlatched. It must be correctly closed or secured fully open.

HOP29



802 Super machines upto 833847

OPENING AND CLOSING THE DOOR

To open a door from the outside, unlock it with the key provided and press the lock barrel to release the catch. To open a door from inside, push lever **A** downwards. Close the door from the inside by pulling it firmly, it will latch itself.

SECURING THE DOOR IN THE OPEN POSITION

Swing the door fully open until the spigot **E** on the side of the cab locates securely in the socket **F** on the door.

To release the door when it is secured fully open, operate the button **G** on the inside of the door.

802 Super machines from 733848

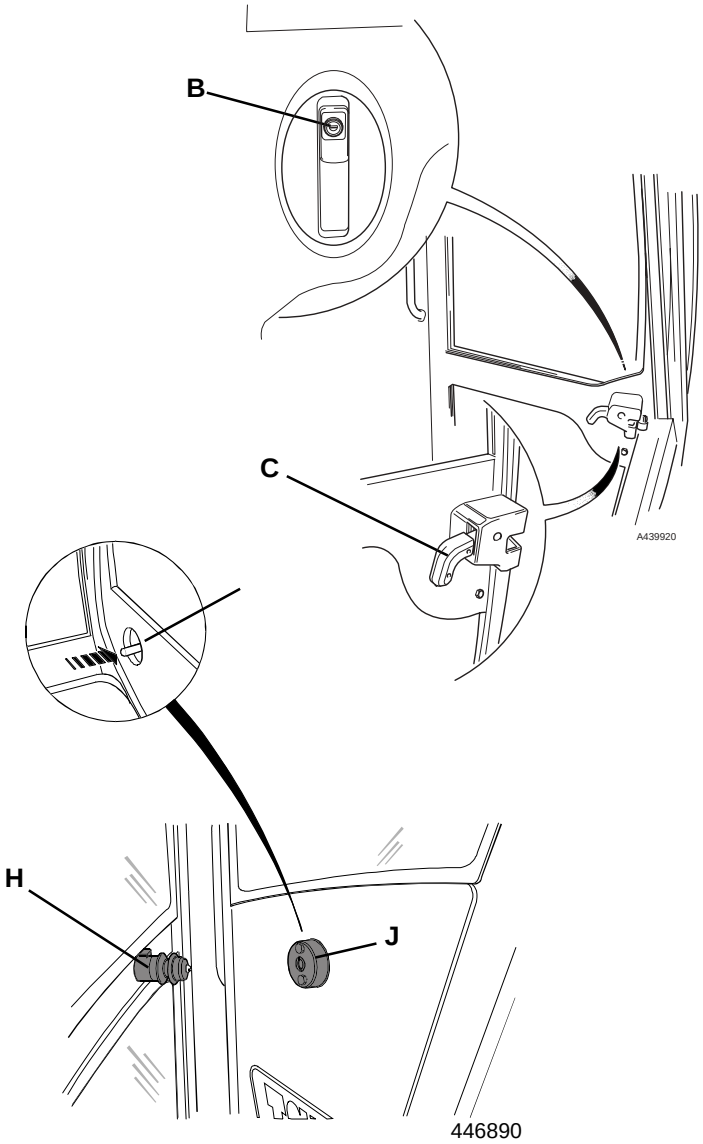
OPENING AND CLOSING THE DOOR

To open a door from the outside, unlock it with the key provided and press the lock barrel **B** to release the catch. To open a door from the inside, push lever **C** upwards. Close the door from the inside by pulling it firmly, it will latch itself.

SECURING THE DOOR IN THE OPEN POSITION

Swing the door fully open until the spigot **H** on the side of the cab locates securely in the socket **J** on the door.

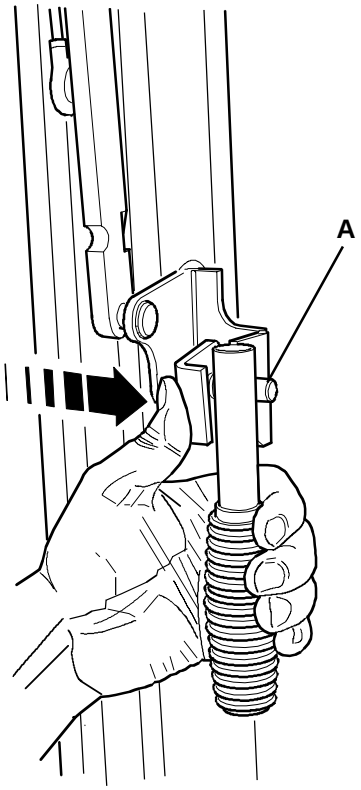
To release the door when it is secured fully open, operate the button **K** on the inside of the door.



OPENING THE WINDSCREEN

To open the up and over window, disengage the latch pins **A** on both handles and lift the screen to a position parallel with the roof. Secure in place with the latch pins **A**.

Note: *Care must be taken when lowering the window not to bump the top edge of the lower front window.*



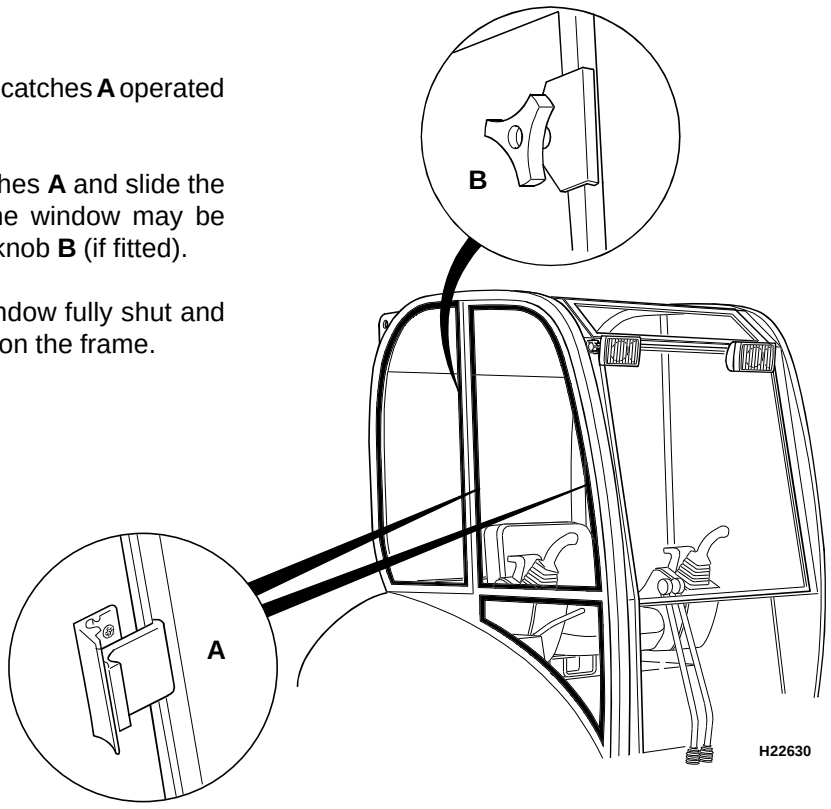
H14080

OPENING THE WINDSCREEN

The side windows are held closed by catches **A** operated from inside the cab.

To open the windows, operate catches **A** and slide the window to the desired position, the window may be secured in position with the use of knob **B** (if fitted).

To close the windows, slide the window fully shut and check that the catch **A** has located on the frame.



H22630

HEATER CONTROLS

Hot air can be directed to the cab floor by closing / opening flap **A**. Hot air is directed to the windscreen via. a fixed vent system **B**.

For the summer use, the heater element can be turned off at the water valve **C** on the engine.

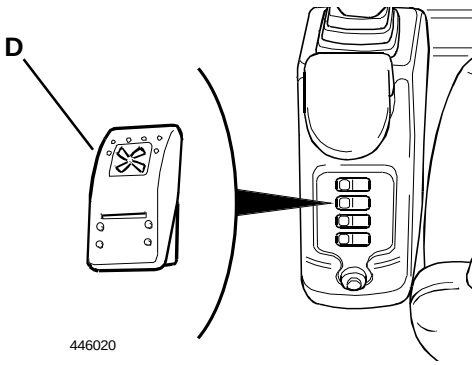
WARNING

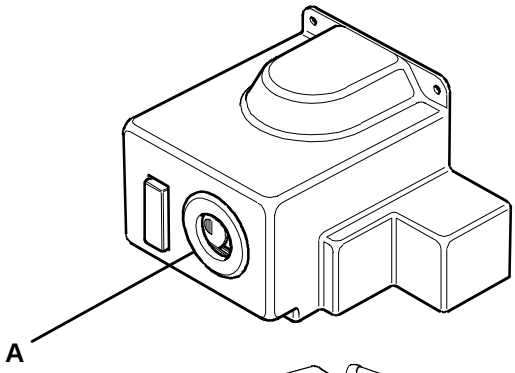
Stop the engine before lifting the engine cover to operate valve C.

HOP30

HEATER FAN

Press the rocker switch **D** down to switch the fan on to the lower speed. Press the switch again to select the faster speed (optional). Return the switch to the first position to turn the fan off.





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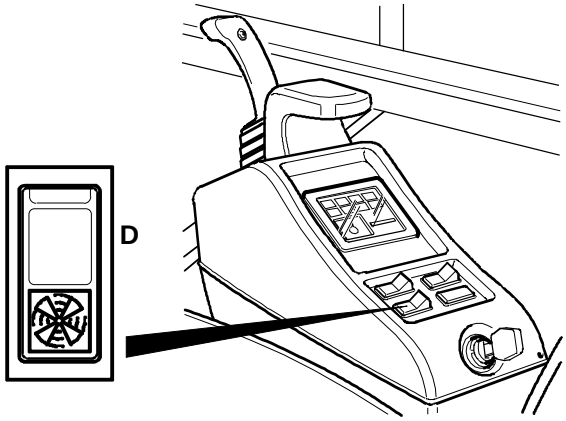
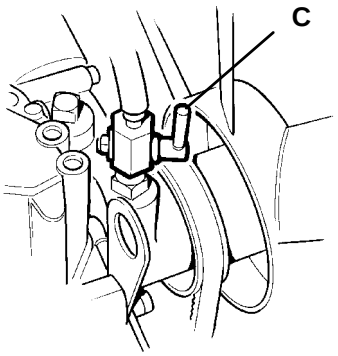
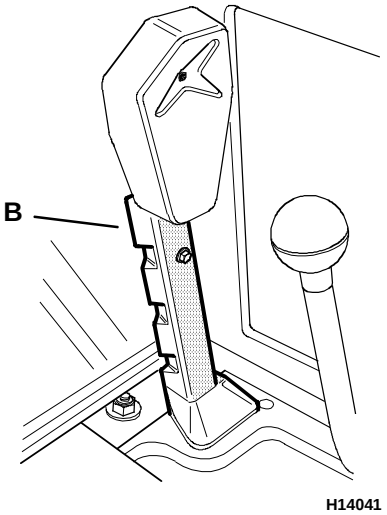






(machines upto 733847)

SEAT CONTROL

WARNING

Do not adjust the seat with the engine running otherwise your legs could knock the control levers.
HOP31

Depending on the type of machine various adjustments can be made to the positions of the control levers and the seat consoles/armrests.

The operators seat can be adjusted for your comfort. A correctly adjusted seat will reduce operator fatigue. Position the seat so that you can comfortably reach the controls with your feet on the cab floor. The seat is adjustable for height and reach.

CAUTION

Having adjusted the seat position, ensure the seat locking lever has engaged fully.

SUSPENSION SEAT - when fitted

WARNING

Whilst seated, adjust the dial on the left of the seat until your weight in kgs appears in the red shaded area. Failure to set the weight adjustment dial will reduce the beneficial isolation effect of the seat suspension and may result in personal discomfort or injury.
2-2-1-12

SEAT BELT

FASTEN THE SEAT BELT

Sit correctly in the seat. Make sure the belt is not twisted. Push the male fitting **A** into the buckle **B** until it latches.

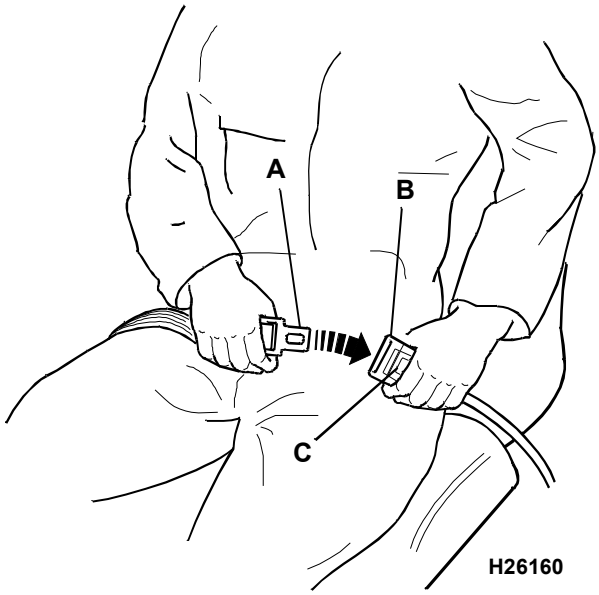
RELEASE THE SEAT BELT

Press button **C** and pull the recoil side of the belt outwards.

Note: If your machine is fitted with a seat belt, USE IT.

WARNING

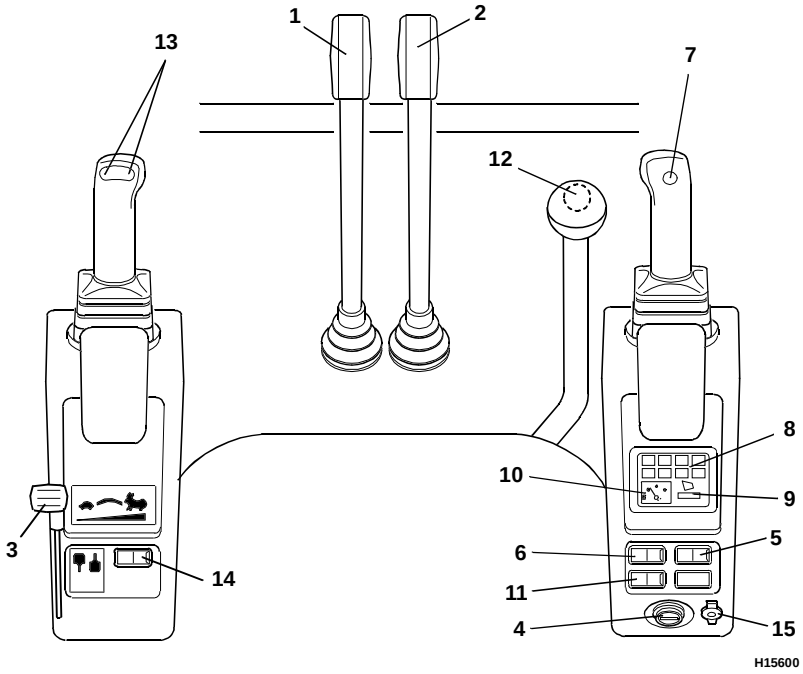
The ROPS and TOPS cab is designed to give you protection in an accident. If you do not wear the seat belt you could be thrown about inside the cab, or thrown out of the machine and crushed. You must wear a seat belt when using the machine. Fasten the seat belt before starting the engine.
2-2-1-9



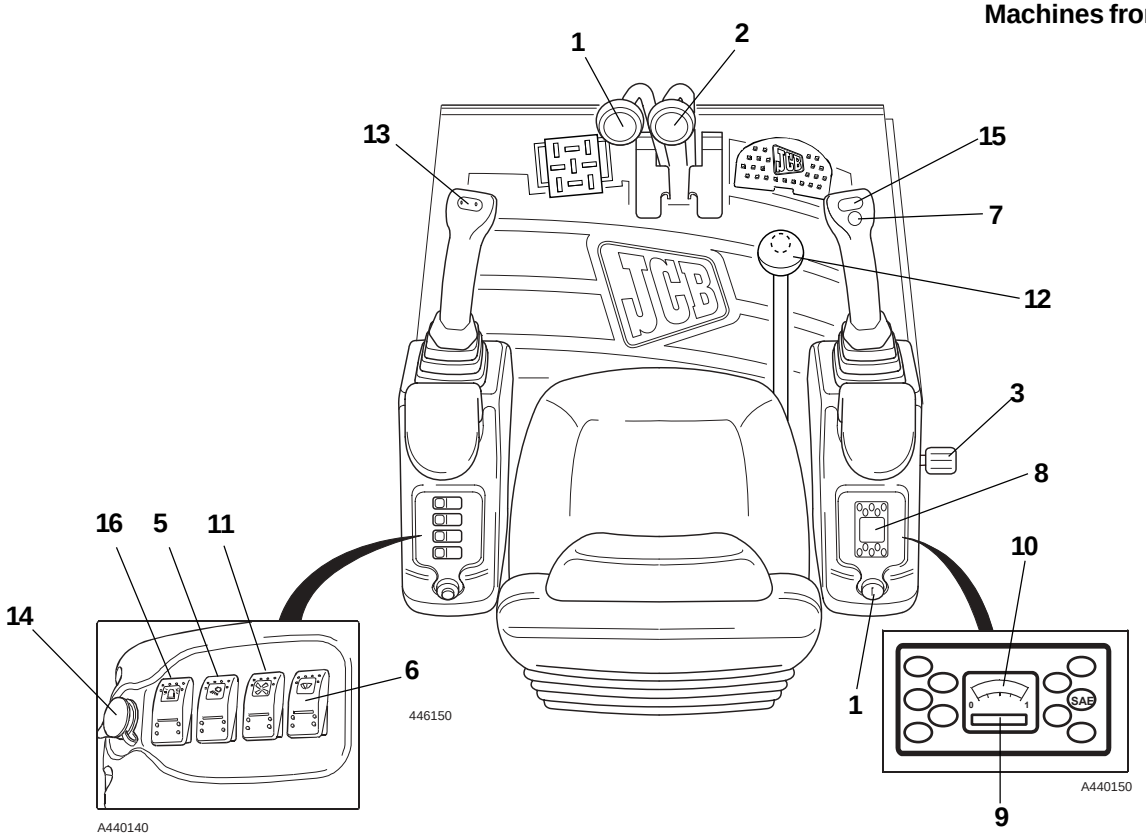
ENGINE AND TRACK CONTROLS, SWITCHES AND INSTRUMENTS

Machines upto 733847

1 Left Track Control Lever
2 Right Track Control Lever
3 Hand Throttle Lever
4 Starter Switch
5 Working Lights Switch
6 Windscreen Wiper Switch
7 Horn Button
8 Warning Lights
9 Hourmeter
10 Fuel Gauge
11 Heater Fan
12 Two Speed Tracking Switch
13 Slew/Swing Switches (Later models)
(L/H Button - Slew)
(R/H Button - Swing)
14 Slew/Swing Switches (Early models)
15 Beacon Socket
16 Boom Boost Switch (optional)
17 Beacon Switch



Machines from 733848



ENGINE AND TRACK CONTROLS, SWITCHES AND INSTRUMENTS - Continued

TRACK CONTROLS

The two tracks are controlled by a pair of control levers **A** in front of the seat. Each lever controls one track and is spring loaded to a central position. In this position the track does not operate. The left side lever controls the left track. The right side lever controls the right track. The two levers can be operated individually or together as necessary to move the machine as required. This can be done using one hand or both. Optional foot control is available **D** on later machines. An increase in speed can be achieved by operating the two speed tracking **B** or the push button switch **C** located in the dozer lever if fitted.

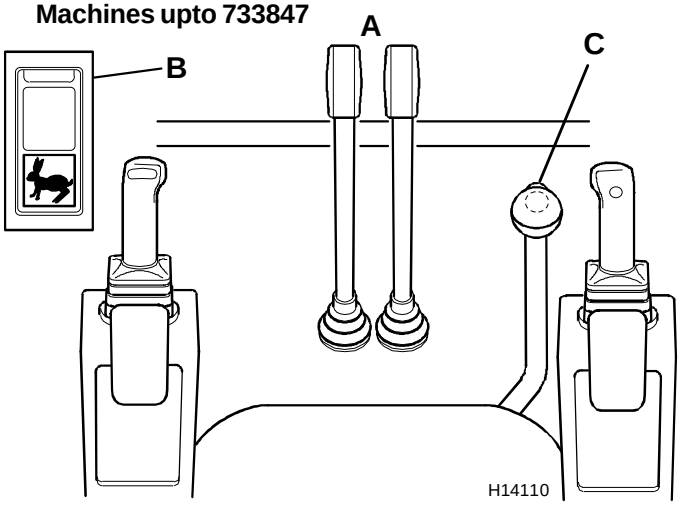
WARNING

Make sure that all persons are clear before moving.

WARNING

The track controls operate as described when the dozer is located in front of the windscreen. If the dozer is positioned behind the cab, the lever operation will be reversed. It is advisable when tracking to always position the dozer to the front of the machine.

Machines upto 733847



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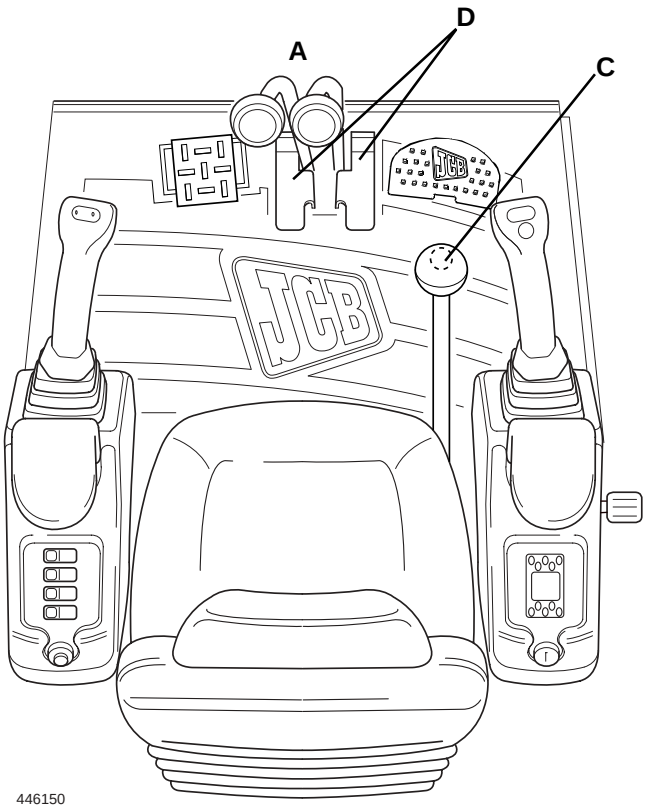


Forward

To move the machine forward, push both levers forward. Release the levers to stop.

Reverse

To move the machine backward, pull both levers backward. Release the levers to stop.

Turn

To turn the machine whilst travelling, move the lever back towards the central position on the side towards which you want to go e.g. move the left lever back to turn left. This causes one of the tracks to move slower than the other. The faster moving track will push the machine around. Release the lever to stop.

Spin

To spin the machine around though 360º, without moving it, operate one lever, in a forward position and the other in a reverse position. This will cause the tracks to drive in opposite directions and hence push the machine around.

ENGINE AND TRACK CONTROLS, SWITCHES AND INSTRUMENTS - Continued

ENGINE CONTROLS

Engine Speed

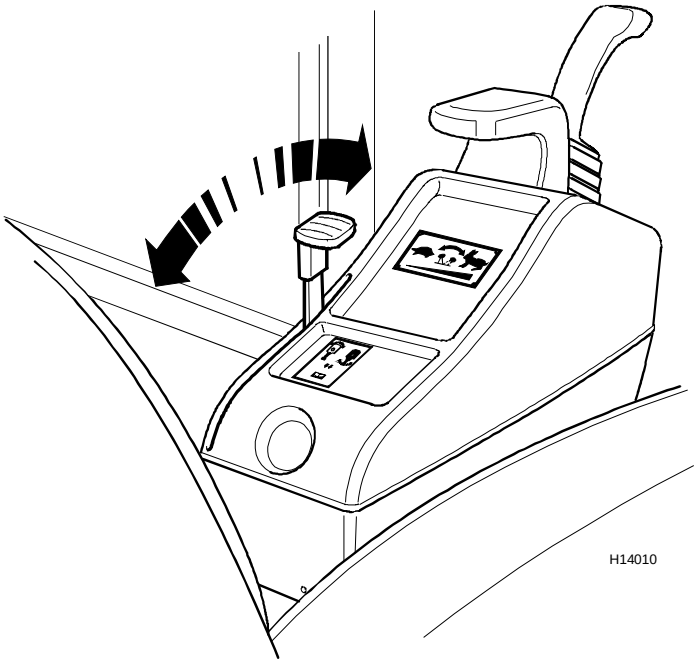
A hand operated throttle lever in the cab, controls the speed of the engine.

Move the lever to increase or decrease the engine speed. The lever can be left in any position between idle and maximum as required.

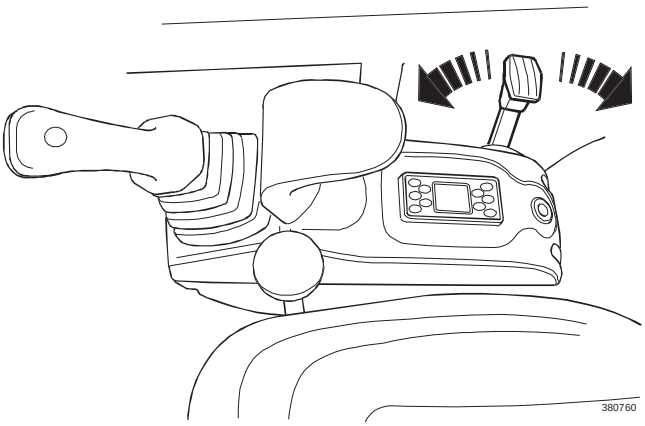
Engine Start / Stop

To start and stop the engine use the starter switch, see **Switches** on the following page.

Machines upto 733847



Machines from 733848



ENGINE AND TRACK CONTROLS, SWITCHES AND INSTRUMENTS - Continued

SWITCHES

Starter Switch A
This is operated by the starter key. It has four positions. The key can only be removed when in the **'O'** position.

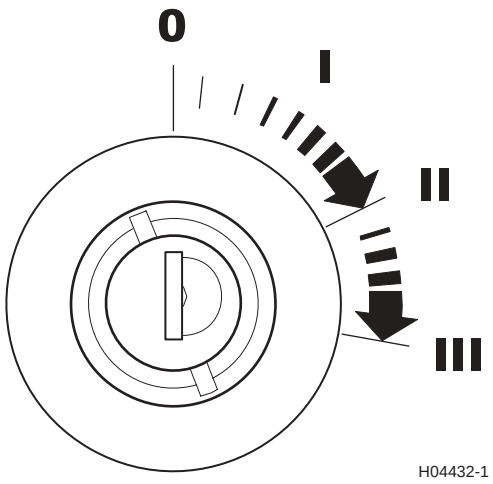
O Off/Stop Engine
Turn the key to this position to stop the engine. Make sure the controls are in neutral and the excavator and dozer are lowered before stopping the engine.

I On
Turning the key in this position connects the battery to the electrical circuits The key will spring back to this position when released from **II**.

II Heat Position
Holding the key in this position switches on the glow plugs. The glow plugs warm the engine combustion chambers for cold weather starting. Do not hold in this position for more than 60 seconds. The key will spring back to **I** when released.

III Start
Operates the starter motor to turn the engine.

Note: Do not operate the starter for more than 15 seconds at one time. If the engine fails to start, allow the starter to cool for a few minutes before trying again.



H04432-1

Working Light Switch B
This is an illuminated rocker switch. Press the switch down to switch the working lights on. The yellow part of the switch will come on. Press the switch again to switch the working lights off, the yellow part of the switch will go out.

Windscreen Wiper Switch C
This is a two position rocker switch. Press the switch down on one side to switch the windscreen wiper onto the slower speed. Press the switch to the other side to switch the windscreen wiper onto the fast speed. Put the switch to the centre position to switch off the windscreen wiper, which will then self park.
Functions only with the starter switch at **I**.

Horn Button D
This is a push button switch located in the R.H. excavator control lever or positioned in the instrument console. Press the switch to activate the horn.

Cab Light E
A cab light is situated on the right side of the cab, above the window. It is operated by an integral sliding switch.

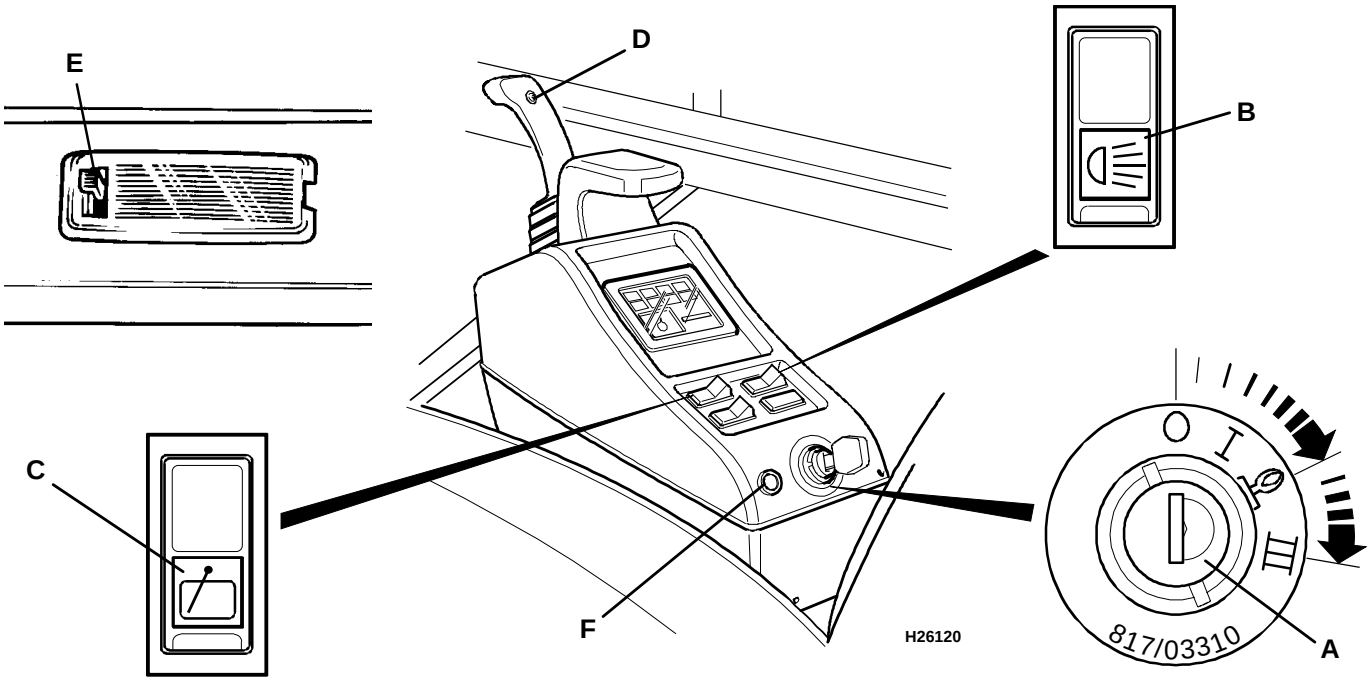
Windscreen washer F
Push button to operate windscreen washer if fitted.

Flashing Beacon G (Machines from 733848)
On/Off Switch.
Function with ignition ON or OFF.

Heater Fan Switch H (Machines from 733848)

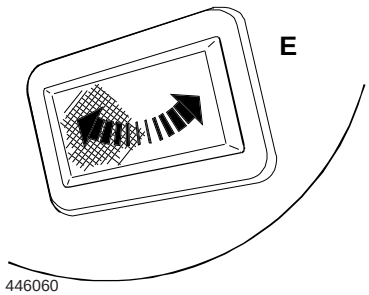
ENGINE AND TRACK CONTROLS, SWITCHES AND INSTRUMENTS - Continued

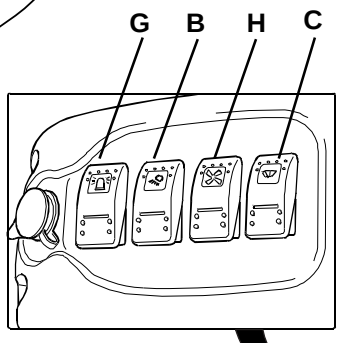
SWITCHES - Continued

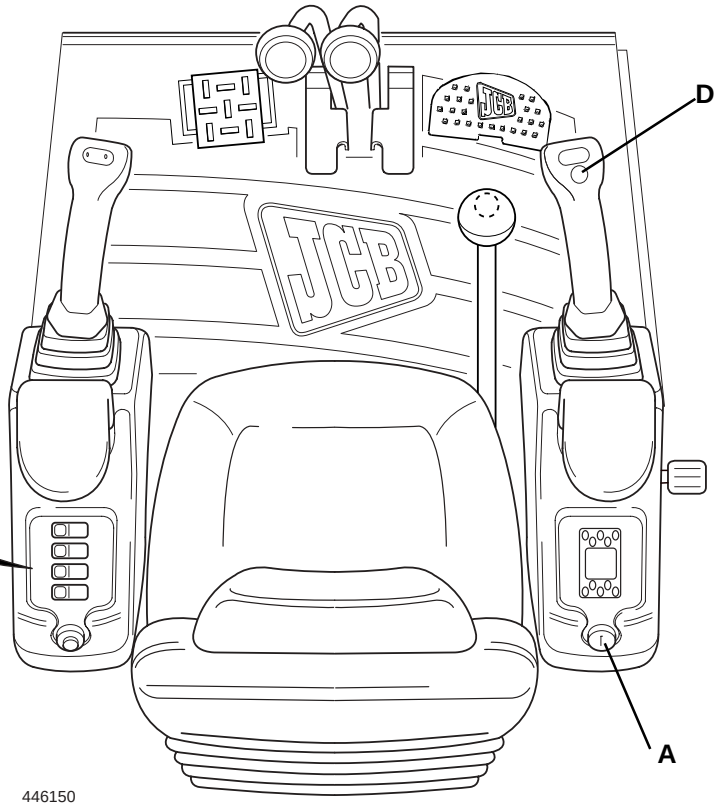


Machines upto 733847

Machines from 733848



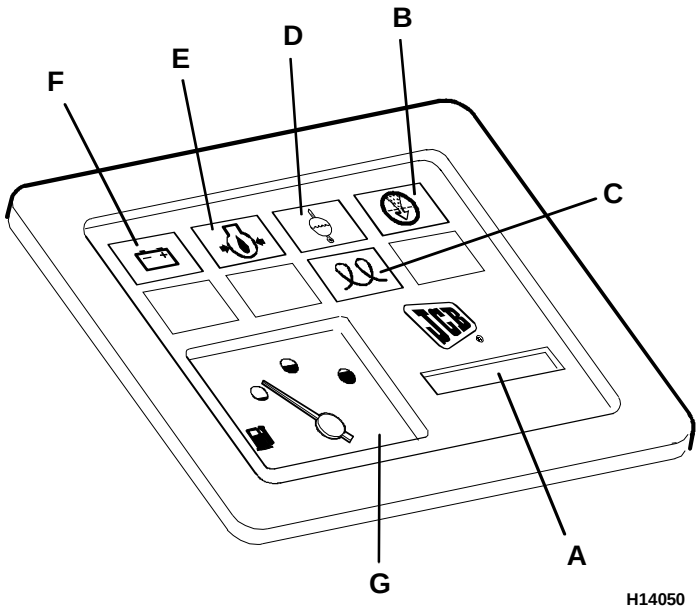




ENGINE AND TRACK CONTROLS, SWITCHES AND INSTRUMENTS - Continued

INSTRUMENT CLUSTER

Machines upto 733847
Indicators for the engine and related systems are mounted in the instrument cluster in the R.H. console.



Hourmeter (A)
Indicates the accumulative machine operating hours.

Blocked Air Cleaner (B) Optional
Illuminated when the air flow through air cleaner is restricted

Glow Plug (C)
Illuminated with the starter key at positions **II** and **III.** Extinguished at all other times.

Coolant Temperature (D)
Illuminated when the engine coolant becomes overheated.

Engine Oil Pressure (E)
Illuminated when the pressure of the oil in the engine is too low, and initially with the starter at position **I** before the engine is cranked.

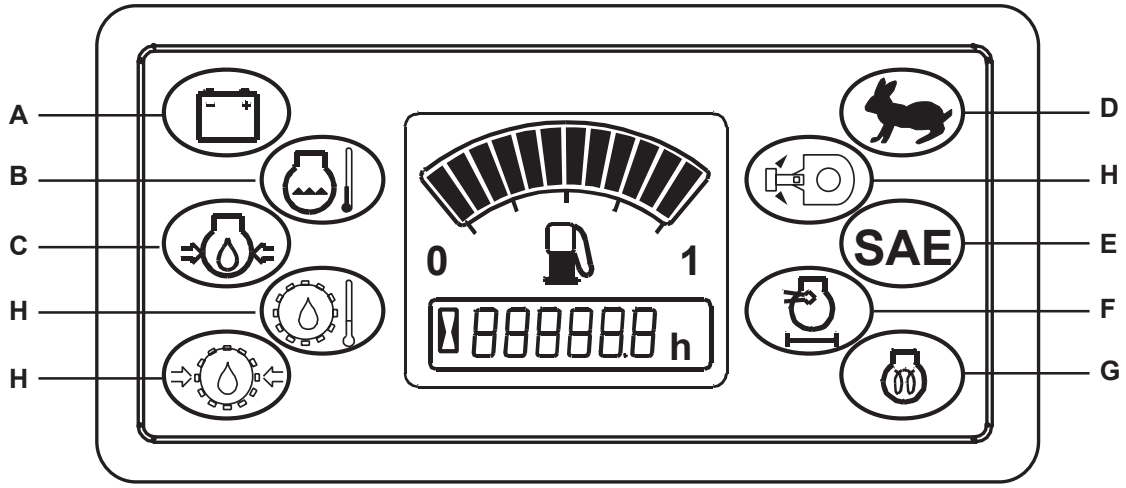
Alternator (F)
Illuminated when the alternator supply current to the battery is defective and/or the fan belt is broken. It will also illuminate initially with the starter key at position **I** before the engine is cranked.

Fuel Gauge (G)
Indicates the amount of fuel in the tank.

ENGINE AND TRACK CONTROLS, SWITCHES AND INSTRUMENTS - Continued

INSTRUMENT CLUSTER - Continued

Machines from 733848
Indicators for the engine and related systems are mounted in the instrument cluster in the R.H. console.



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A Charge (Fault) Indicator
Indicates Alternator operation. Illuminates RED when a fault occurs.

B Coolant Temperature (High) Indicator
Illuminates RED when coolant temperature is too high.

C Engine Oil (Low) Indicator
Illuminated RED when engine oil pressure is too low.

D Two Speed (High Engaged) Indicator
Illuminated GREEN when high speed is engaged.

E SAE Controls (Selected) Indicator
Illuminates GREEN when the SAE Control Pattern is selected.

F Glow Plugs (On) Indicator
Illuminates YELLOW when the Glow Plugs are energised.

G Air Filter (Blocked) Indicator
Illuminates YELLOW when the Air Filter is blocked.

H Not Used.

Audible Warnings

A buzzer will sound if any of the following display a machine fault.

A Charge indicator
B Coolant indicator
C Engine oil pressure
F Air Filter indicator

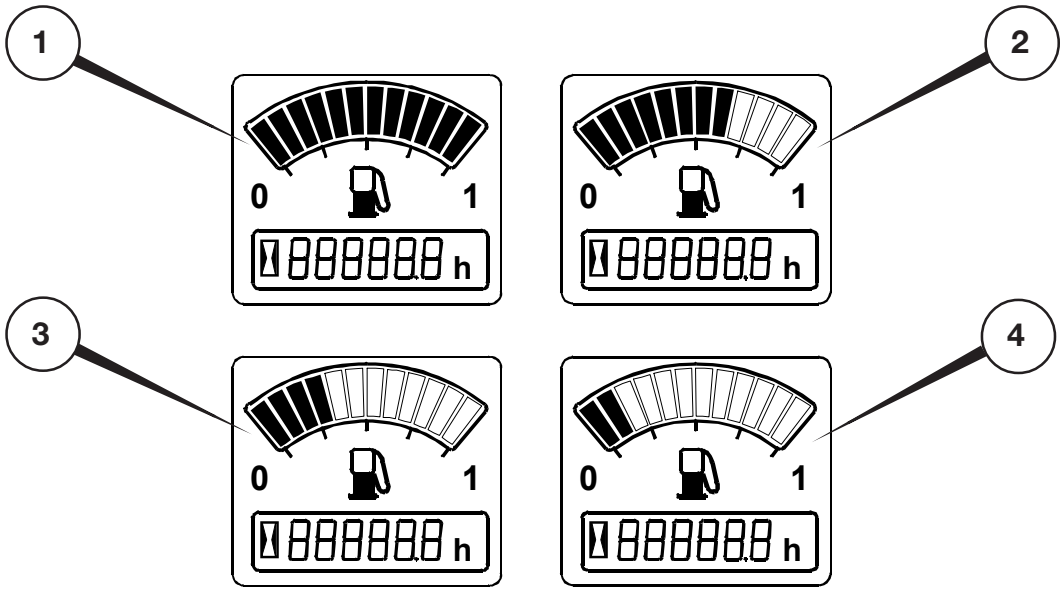
If the fault is ignored the buzzer will sound continuously for 180 seconds, after which it will sound intermittently, 1 second on, 2 seconds off.

Switch the ingnition off to reset all operations.

ENGINE AND TRACK CONTROLS, SWITCHES AND INSTRUMENTS - Continued

INSTRUMENT CLUSTER - Continued

Machines from 733848
Indicators for the engine and related systems are mounted in the instrument cluster in the R.H. console.



Digital LCD Fuel Gauge

Fuel Tank Level Indicator

1 Full Tank All bars illuminated
Filler symbol illuminated

2 4 bars to Full Filler symbol illuminated
All bars illuminated and reducing as level drops ie. 11 bars, 10 bars, 9 bars etc.

3 4 bar to 3 bar Buzzer gives 3 short beeps. Pump symbol starts to flash.

4 3 bar to 1 bar Pump symbol remains flashing
1 bar illuminated (nearly empty)
0 bars illuminated (tank empty)

Note: The flashing of all fuel level bars and the filler pump symbol indicates a fault in the fuel sender circuit. Contact your JCB dealer.

Audible Warnings

A buzzer will sound if any of the following display a machine fault.

A Charge indicator
B Coolant indicator
C Engine oil pressure
G Air Filter indicator

(see instrument cluster illustration)

If the fault is ignored the buzzer will sound continuously for 180 seconds, after which it will sound intermittently, 1 second on, 2 seconds off.

Switch the ignition off to reset all operations.

DOZER CONTROLS

The dozer is operated by a single control lever on the right side of the cab. This lever is spring loaded to the central position. In this position the dozer will not move.

⚠ CAUTION

Before operating the dozer, make sure that large rocks or other objects are not between it and the tracks that can jam the mechanism.

HOP34

⚠ CAUTION

Before stopping the engine lower the dozer blade to the ground.

HOP35

RAISE DOZER 'A'

To raise the dozer pull the lever backward. At the required position release the lever.

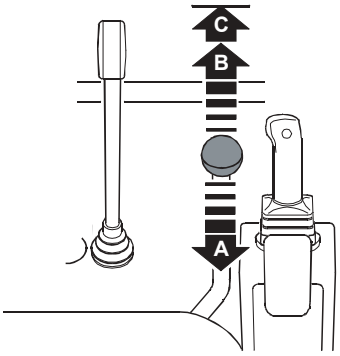
LOWER DOZER 'B'

To lower the dozer push the lever forward until an increased resistance is felt and the blade moves. At the required position release the lever.

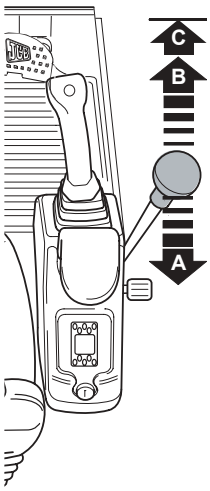
DOZER FLOAT POSITION 'C' (If fitted)

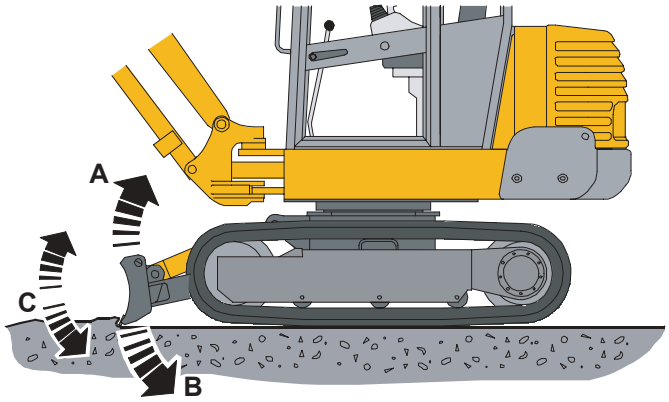
The float operation is selected by pushing and holding the lever fully forward.

Machines upto 733847



Machines from 733848





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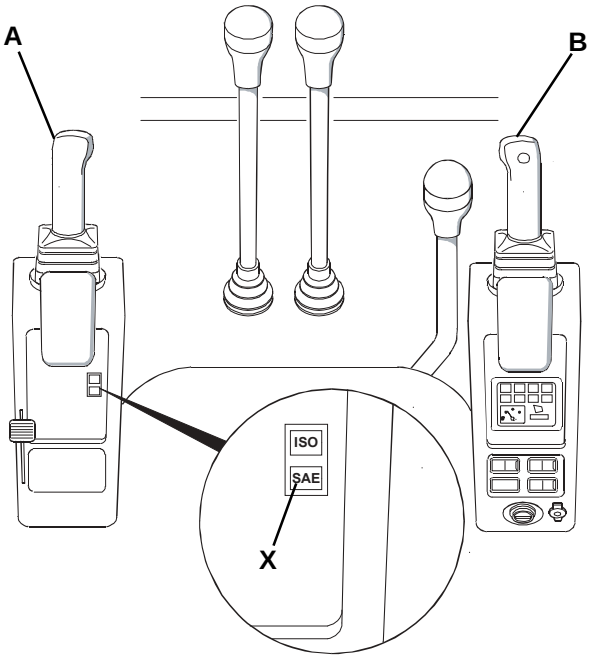
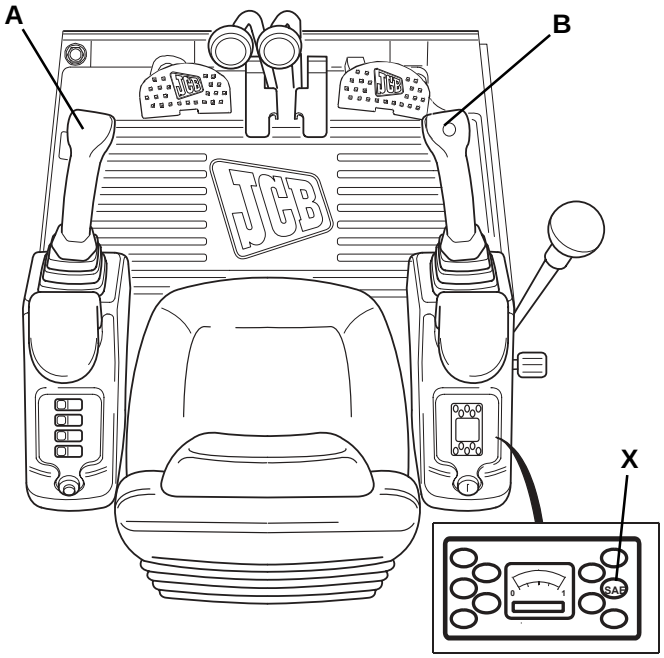
Excavator Controls

Machines upto 733847



Machines from 733848



⚠ WARNING

When using the boom and dipper fully extended, take the following precautions, otherwise the machine could get damaged or become unstable and a danger to you and other people.
Make sure you do not exceed the working capacity of the boom at maximum reach.
Swing the boom slowly to prevent any chance of the machine becoming unstable. For the same reason avoid dumping downhill if possible.

HOP36

⚠ CAUTION

Do not excavate on hard or rocky ground with the boom set diagonally across the undercarriage. This induces a rocking motion that can cause damage to the track gearbox sprockets and tracks.

HOP37

⚠ WARNING

Before operating the excavator controls always check to see which control pattern has been selected. Operate the machine slowly until you are familiar with the pattern selected. If the pattern selection indicator lamp is not illuminated, DO NOT operate the machine until any faults have been rectified.

⚠ CAUTION

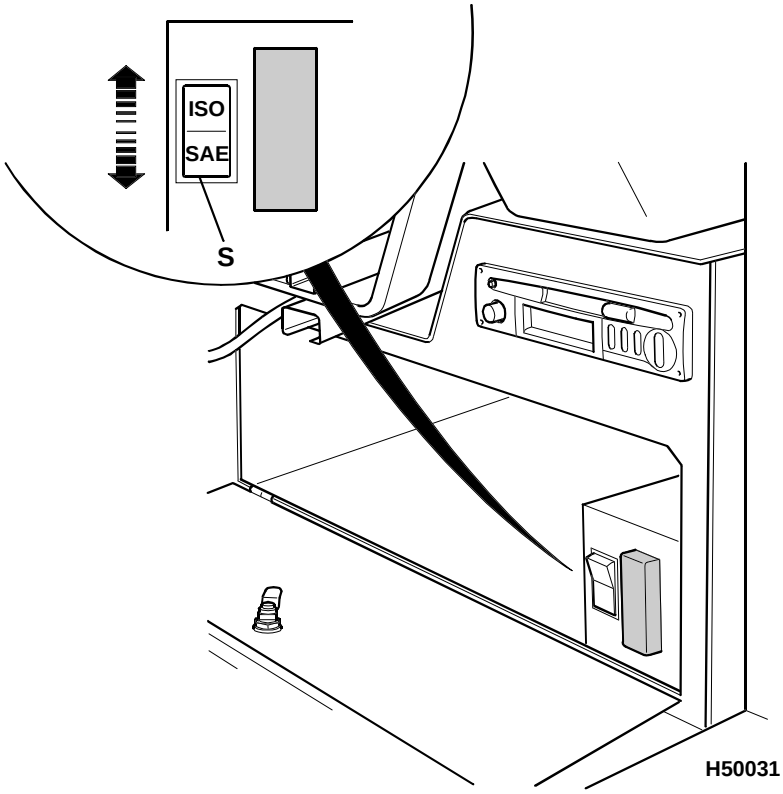
The hand throttle's lowest setting allows the engine to idle when the excavator is not being operated.
Before any service is selected, the engine speed must be increased to maximum.
NEVER operate any services with the engine at idle.

Ensure the Slew Lock is UNLOCKED before operating the excavator controls.

The excavator controls consist of those levers which operate the boom, dipper and bucket and slew the machine. There are two excavator controllers **A** and **B** which control all the functions. The controls are situated in the operators seat armrests. Raising the left armrest when leaving the cab prevents the services operating. When re-entering the cab, ensure the armrest is replaced firmly to ensure correct excavator operation.

An optional switch facility allows the operator to select either the ISO or SAE excavator control pattern. One of the indicator lamps **X** , illuminates to show which pattern has been selected.
In the ISO pattern, the left controller **A** controls slew and dipper functions. The right hand controller **B** controls boom and bucket functions.

Excavator Controls (cont.)



In the SAE pattern, the left hand controller operates slew and boom funcions. The right hand controller operates the dipper and bucket functions.

A windscreen mounted decal acts as a reminder of each control pattern.

Both controllers are spring loaded to the central position. In this position related services will not operate.

Most excavating movements are achieved using a combination of both controllers at the same time. Practice such movements until you are familiar with the operations that can be achieved safely.

Changing the Excavator Control Pattern

To change the control pattern between ISO and SAE, proceed as follows:

1 Lower the excavator and dozer to the ground.

2 Switch off the engine and remove the key.

3 Raise the arm rest/lever lock to its fully raised position.

4 Secure the door in its fully open position.

5 Working from outside the cab, unlock and open the fuse box door located under the operators seat.

6 Move the ISO/SAE switch **S** to the required position.

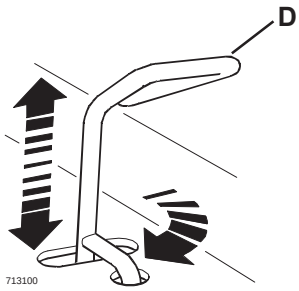
7 Close and lock the fuse box door.

8 Switch on the engine and check that the correct indicator lamp for the selected control pattern illuminates.

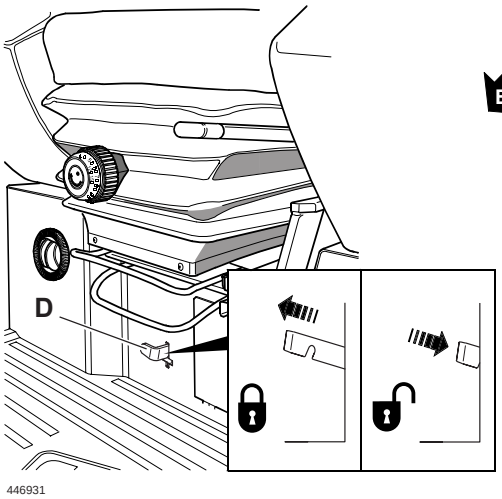
EXCAVATORS CONTROLS - Continued

Before slewing the machine ensure the slew lock **D** is disengaged.

Machines upto 733847
The slew lock is situated in the seat bulkhead. Lift and turn it through 90° to unlock.



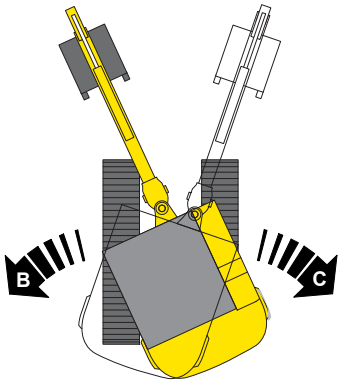
Machines from 733848
The slew lock is situated forward of the seat. Lift and push inwards to unlock.

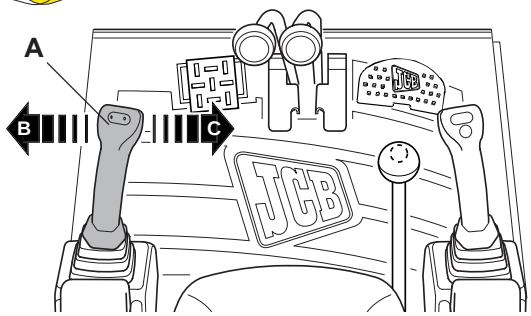


Press the slew switch **A** on the left hand controller.

SLEW MACHINE LEFT
To slew the machine to your left, move the left controller to the left **B**. Release the controller when you have moved to the desired position.

SLEW MACHINE RIGHT
To slew the machine to your right, move the left controller to the right **C.** Release the controller when you have moved to the desired position.





EXCAVATORS CONTROLS - Continued

Press the slew switch **A** on the left hand controller.

SWING BOOM LEFT

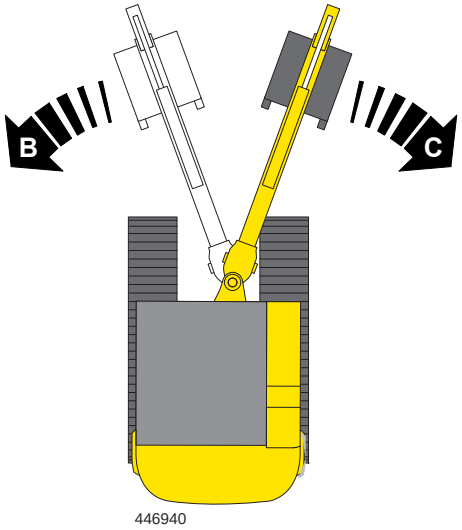
To swing the boom to your left, move the left controller to the left **B**. Release the controller when you have reached the desired position.

SWING BOOM RIGHT

To swing the boom to your right, move the left controller to the right **C**. Release the controller when you have reached the desired position.

CAUTION

When the requirement for boom swing has finished, position boom to the straight ahead configuration and reset machine to 360 deg. slew by operating switch A.



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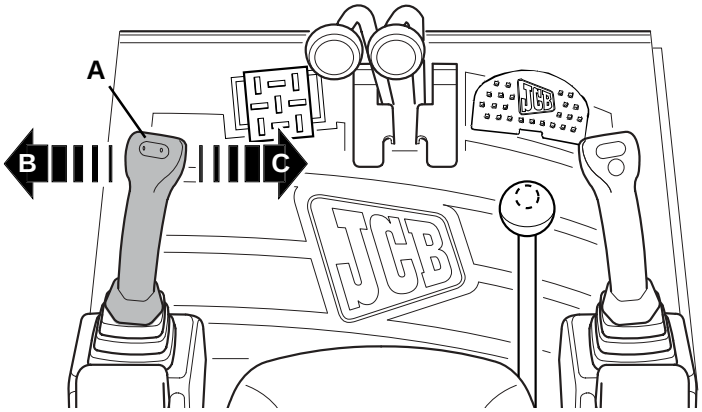


EXCAVATOR CONTROLS - Continued

BOOM SWING STOP

The boom swing can be adjusted to allow an increased swing to the left from 60º to 90º by repositioning the swing stop.

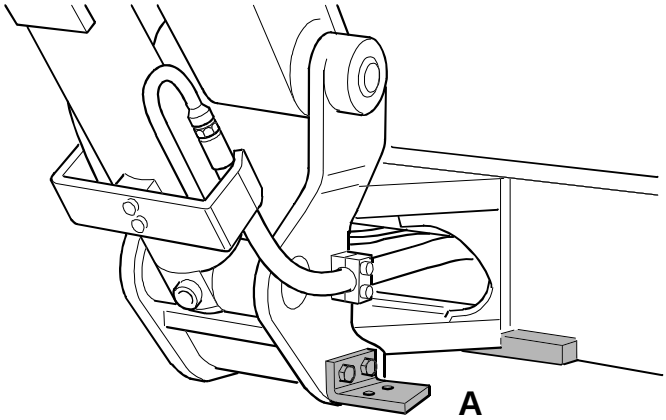
60º OPERATION
Set the swing stop to position **A** this enables the machine to operate in an arc of 60º to the left and 50º to the right.

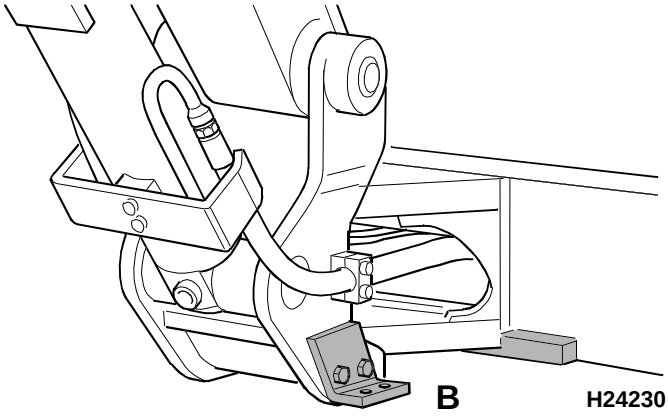
90º OPERATION
Set the swing stop to position **B** this enables the machine to operate in an arc of 90º to the left and 50º to the right.

⚠ CAUTION
With certain digging configurations with the boom stop set to 90º the bucket can contact the cab. Care should be taken whenever operating with the boom stop set to 90º especially at the extremes of position. The machine can become unstable with a fully laden bucket.

HOP39

⚠ CAUTION
The boom stop should only be used in the 90º position for the duration of the job. Return the boom stop to the 60º position for normal operating.





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EXCAVATOR CONTROLS - Continued

WARNING

Thoroughly warm the hydraulic oil before operating the excavator services. To ensure smooth boom operation damping is incorporated into the boom lift circuit, this means when boom raise is released, the boom may continue to rise for a fraction of a second. Before selecting boom up, check there are no overhead obstructions or electric power cables.

HOP40

CAUTION

The boom service is operated by the R.H. controller on standard ISO control machines or by the L.H. controller on the optional SAE control pattern machines.

HOP41

RAISE BOOM

To raise the boom pull the respective controller backwards **A.**

Release the controller when the boom has reached the desired position. The boom ram incorporates damping at the limit of boom raise, reducing the speed of the ram, eliminating shock loadings.

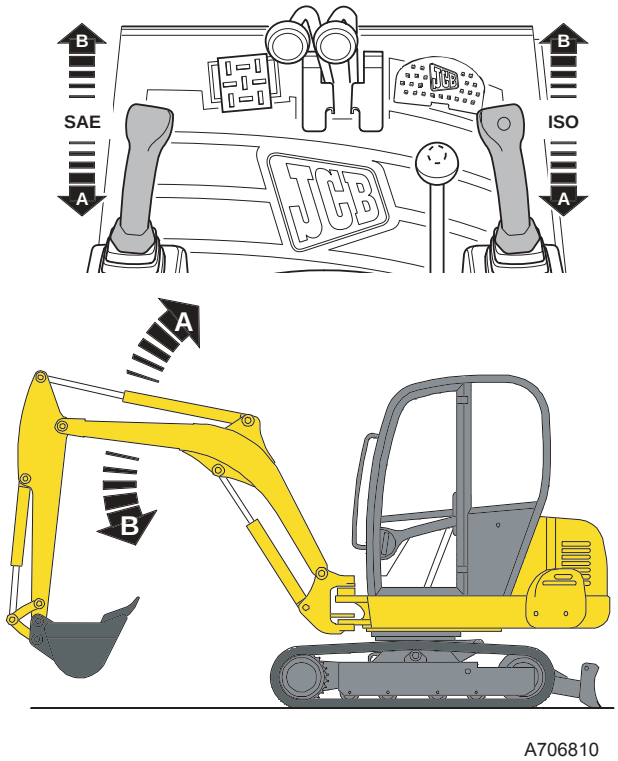
BOOM BOOST

Partial selection of the controller will limit the speed of boom raise. Boom Boost is automatically engaged when controller is fully selected.

LOWER BOOM

To lower the boom, push the respective controller forwards **B**.

Release the controller when the boom has reached the desired position.



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CAUTION

The dipper service is operated by the L.H. controller on standard ISO control machines or by the R.H. controller on the optional SAE control pattern machines.

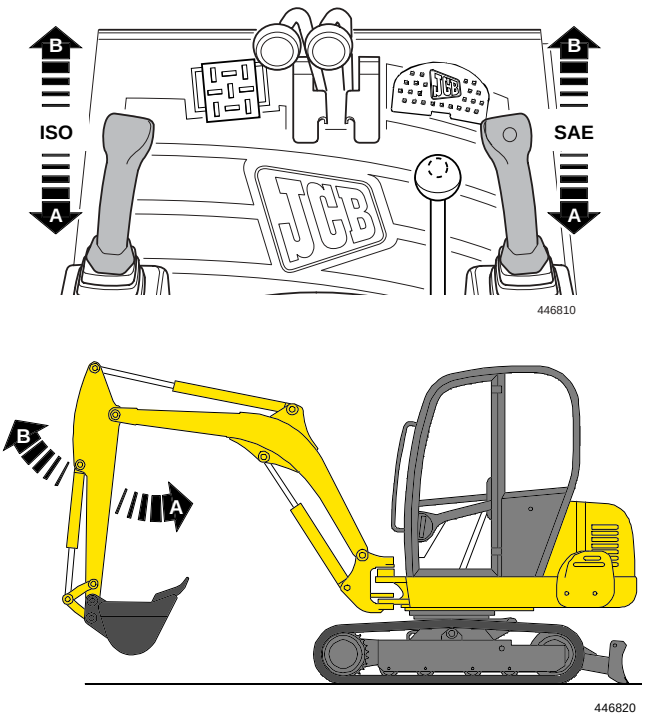
HOP42

DIPPER IN

To bring the dipper in, pull the respective controller backward **A**. Release the controller when the dipper is at the desired position.

DIPPER OUT

To push the dipper out, push the respective controller forward **B**. Release the controller when the dipper is at the desired position.



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446820

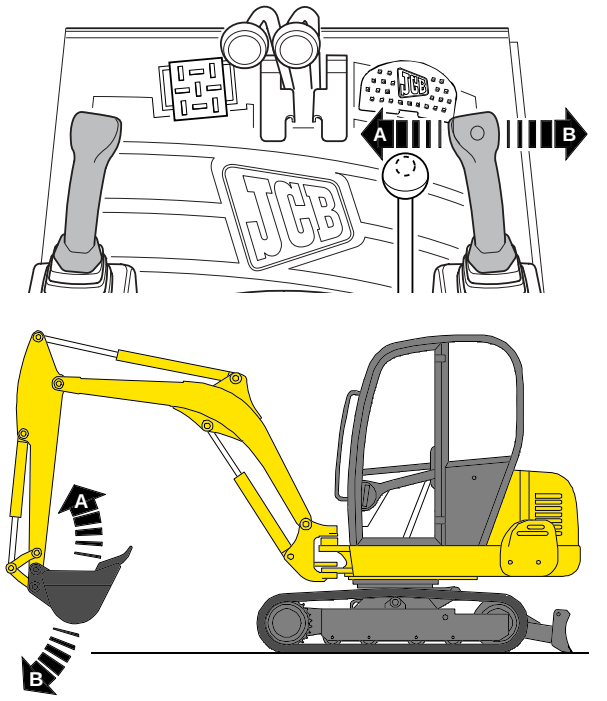
EXCAVATOR CONTROLS - Continued

CLOSE BUCKET

To close the bucket (to gather a load), move the right controller to the left **A**. Release the controller when the bucket is closed sufficiently.

OPEN BUCKET

To open the bucket (to dump a load), move the right controller to the right **B**. Release the controller when the bucket is open far enough.



Refuelling the Machine

WARNING

Diesel fuel is flammable. Keep flames away from the machine. DO NOT smoke while fuelling the machine or working on the engine. Do not refuel with the engine running. There could be a fire and injury if you do not follow these precautions.

INT-3-2-2

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.

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. Do not fill the tank completely, leave some space to allow the fuel to expand