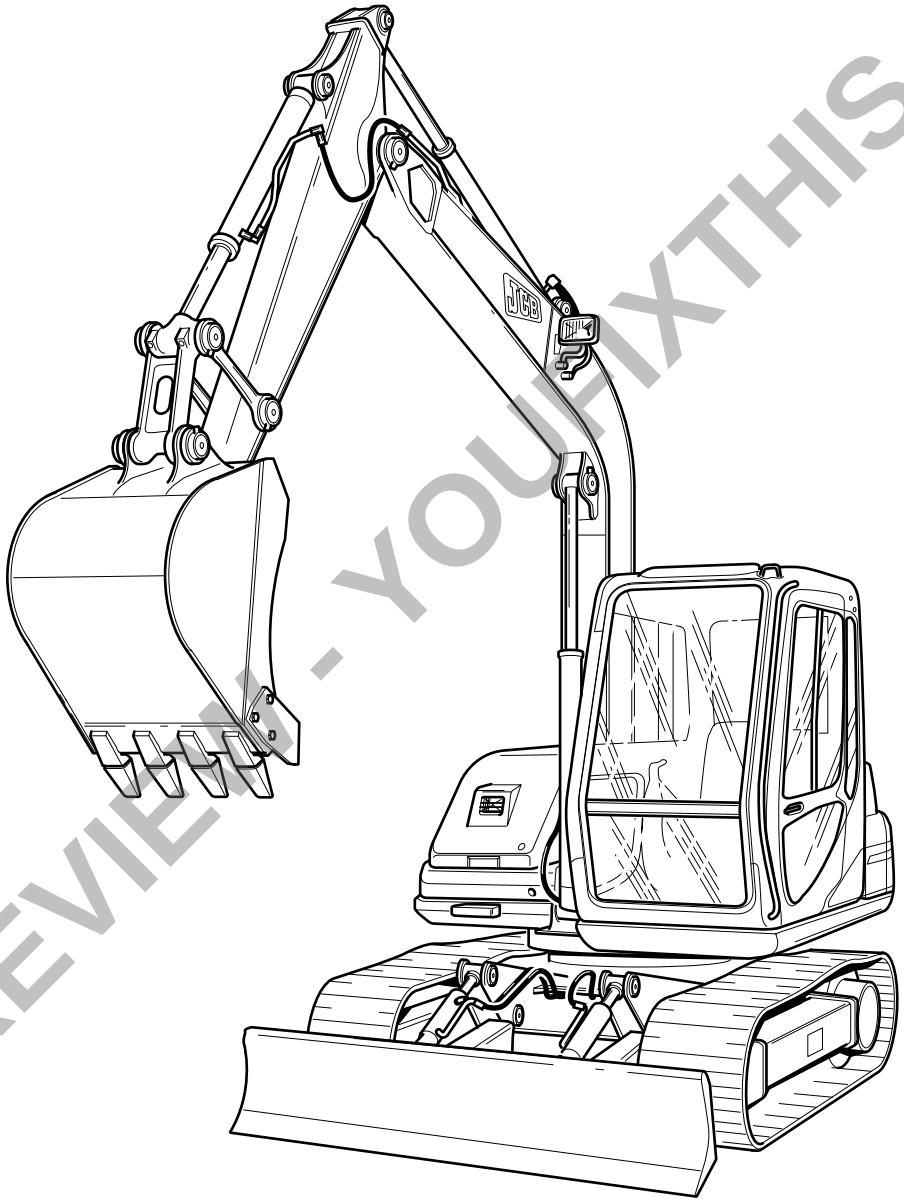
Operator Handbook

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NEPHRON FILTER SYSTEM

JS70

⚠ THIS HANDBOOK MUST BE KEPT IN THE MACHINE AT ALL TIMES ⚠

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⚠ WARNING

Study this Handbook Before Starting the Machine

You must understand and follow the instructions in this handbook. You must observe all relevant laws and regulations. If you are unsure about anything, ask your JCB Distributor or employer. **Do not guess**, you or others could be killed or seriously injured.

INT-1-1-1

In this handbook and on the machine there are safety notices. Each notice starts with a signal word. The meanings of the signal words are given below.

⚠ DANGER

Denotes an extreme hazard exists. If proper precautions are not taken, it is highly probable that the operator (or others) could be killed or seriously injured.

INT-1-2-1

⚠ WARNING

Denotes a hazard exists. If proper precautions are not taken, the operator (or others) could be killed or seriously injured.

INT-1-2-2

⚠ CAUTION

Denotes a reminder of safety practices. Failure to follow these safety practices could result in injury to the operator (or others) and possible damage to the machine.

INT-1-2-3

MACHINE SECURITY

Vandalism and theft of unattended machines is an ever increasing problem and JCB is doing everything possible to help combat this.

JCB PLANTGUARD is a comprehensive package available to help you safeguard your machine. It includes such devices as vandal proof covers, window etching, immobiliser, concealed serial number, battery isolator, Tracker security system and much more.

Remember that the fitting of any one of these security devices will help to minimise not only the damage or loss of your machine but also subsequent lost productivity. It could also result in reduced insurance premiums.

Your JCB Distributor or Dealer will be pleased to provide information on any of these sensible precautions. ACT NOW!

INT-1-2-4

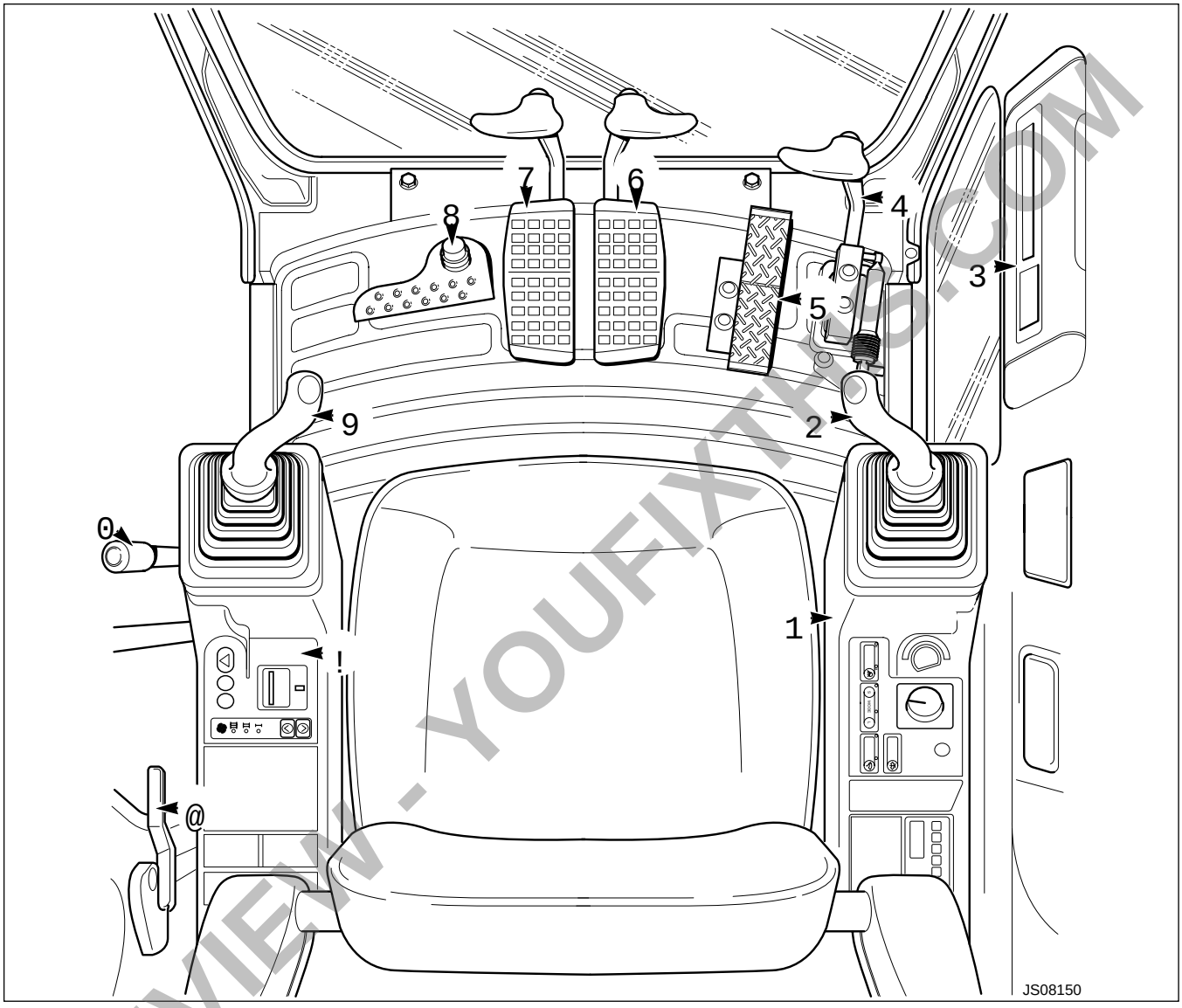
CALIFORNIA

Proposition 65 warning

Diesel engine exhaust and some of its constituents are know to the State of Calfornia to cause cancer, birth defects, and other reproductive harm.

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CAB LAYOUT



1 Right Console
(see ***Switches and Controls***)

2 Right Excavator Joystick Control
(see ***Excavating Controls***)

3 Display Monitor
(see ***Switches and Controls***)

4 Dozer Blade Lever
(see ***Other Controls***)

5 Rockbreaker/Offset Boom Control Pedal
(see ***Other Controls***)

6 Right Hand Track Control
(see ***Tracking Controls***)

7 Left Hand Track Control
(see ***Tracking Controls***)

8 Travel Speed Range Change Switch
(see ***Tracking Controls***)

9 Left Excavator Joystick Control
(see ***Excavating Controls***)

10 Control Lock Lever
(see ***Left Console***)

11 Left Console
(see ***Switches and Controls***)

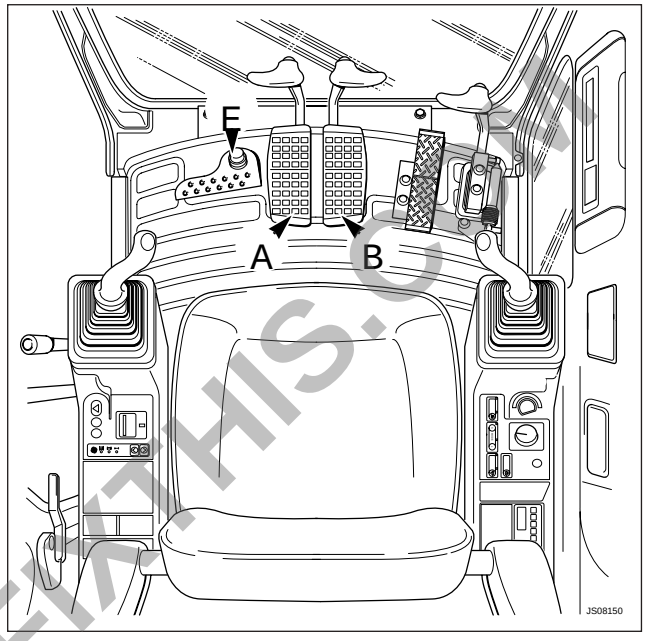
12 Door Lock Release Lever
(see ***Cab Door***)

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TRACKING CONTROLS

1 Tracking Levers/Foot Pedals

Travel is controlled by the two levers/foot pedals **A** and **B** at the front of the cab. When the cab is facing forwards (towards the recoil units **C**), each lever controls the track on the same side, i.e. the left lever controls the left track. Before operating the travel lever, confirm whether the undercarriage is facing forwards or backwards.



⚠ WARNING

When the cab is swung around so that it is facing the track motor end D of the undercarriage, the action of the tracking controls is reversed. Take extra care!

8-2-8-1

Note: *When not travelling, do not place your feet on the travel pedals.*

⚠ WARNING

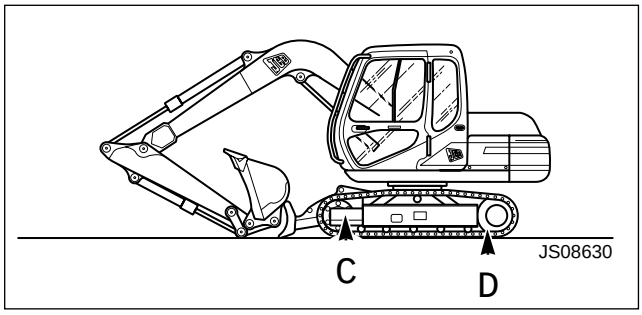
Do not travel with the track motors leading, particularly on hard or rocky ground. The recoil units will not be able to absorb the shocks and damage could be caused to the track running gear. Track chain wear could also be greatly increased.

8-2-2-3-/3

2 Travel Speed Range Change Switch

At ignition switch-on the range change circuit defaults to the low range. To change from one range to the other, press foot operated switch **E**.

Choose the speed range to suit the working conditions. When the 'high' speed range is selected the 'hare' icon illuminates. When the 'low' speed range is selected the 'hare' icon is **not** illuminated.



Speed Range	Working Conditions
High 	General work, when the ground is level.
Low	When greatest power and low speed is required or when the ground is rough.

283680

Note: *Do not change the mode while travelling. Stop the machine to select a different speed range.*

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SERVICE SCHEDULES

Every 10 Operating Hours or Daily
Whichever occurs first

1 Clean
- **a** Machine generally.

2 Grease
(If operating in very wet or severe conditions)
- **a** Bucket/dipper pivot points.

3 Check (Engine Stopped)
- **a** Generally for damage.
- **b** For oil and coolant leakage.
- **c** Security of bolts and nuts ††.
- **d** For disconnected or shorted wiring, loose terminals.
- **e** Hydraulic fluid level.
- **f** Engine oil level.
- **g** Track tension.
- **h** Windscreen washer fluid level.
- **j** Fuel system for leaks.
- **k** Fuel level.
- **l** The auxiliary circuit hydraulic oil filter visual indicator (if using a rockbreaker)

†† Tapping with a hammer will identify any loose nuts and bolts which should then be tightened to the specified torque.

4 Check (Engine Running)
- **a** Operation of warning lights and audible alarm.
- **b** Operation of other electrical equipment.
- **c** Exhaust for excessive smoke.
- **d** Excavator operation.
- **e** Transmission operation.
- **f** Operation of track and slew brakes.
- **g** Operation of hour meter.

Every 50 Operating Hours or Weekly
Whichever occurs first

1 Do the daily jobs plus:

2 Clean
- **a** Drain water and sediment from fuel tank.
- **b** Drain fuel water separator.

3 Grease
- **a** All pivot pins.

Every 100 Operating Hours or 2-Weekly
Whichever occurs first

1 Do a 50 hour service plus:

2 Clean
- **a** Battery terminals.
- **b** Fuel lift pump strainer†.

3 Change
- **a** Engine oil main filter element †.
- **b** Engine oil †.
- **c** Servo oil filter element †.
- **d** Engine oil filter by-pass element †.
- **e** Return filter element†.
- **f** Drain filter element †.
- **g** Track gearbox oil†.
- **h** Fuel filter element†.

4 Check (Engine Stopped)
- **a** Hoses and pipework for chafing or damage.
- **b** Condition of ram piston.
- **c** Bucket pivot pin grease seals†.
- **d** Track plate condition.
- **e** Track and running gear.
- **f** Top and bottom track rollers for oil leaks †.
- **g** Track idler wheels for oil leaks †.
- **h** Security of major unit mounting bolts and nuts†. If loose, tighten to specified torque.
- **i** Wiring for chafing.
- **j** Fan belt adjustment†.
- **k** Accumulator operation.
- **l** Radiator for damage.
- **m** Oil cooler for damage.
- **n** Battery electrolyte level†.
- **p** Exhaust system security†.
- **r** Teeth and sidecutters†.

5 Check (Engine Running)
- **a** Operation of throttle system†.
- **b** Operation of overload warning†.
- **c** Operation of stop control†.

† These procedures are only to be carried out after the first 100 hours use of a new machine. Thereafter they are to be carried out as detailed in the following periodic checks.

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TROUBLESHOOTING

To extend the service life and improve the operation of the machine, daily inspection and lubrication are necessary as well as immediately isolating any problem found and dealing with it. If the machine is operated with the problem uncorrected, it may lead to larger trouble and possibly to a big accident.

If trouble occurs, search for the cause in the items below and make adjustments, repairs, etc. as necessary. If the cause cannot be isolated, contact your JCB Distributor.

* Indicates jobs which should be done by a specialist. Refer to Engine Service Manual.

Engine and Related Area

Problem	Cause	Remedy
Engine does not start	•Defective starter switch (Starter does not run) •Defective rotation of starter (Starter rotates slowly) •Improper viscosity of engine oil •Excessive cooling of engine (Cold weather) •Possible seizure in engine •Incomplete air bleeding of fuel system •No fuel in fuel tank •Fuel quality unsuitable •Fuel filter clogged •Low compression •Defective fuel injection pump	Connect, repair connection Discharged battery, starter problems, contaminated or loose wiring connection Inspect and replace as necessary Preheat with air heater Warm up the coolant (add hot water) *Repair Completely bleed air Refill Inspect and replace as necessary Clean or replace *Repair *Repair
Engine stops during operation	•No fuel in fuel tank •Fuel filter clogged •Air is mixed in the fuel system	Refill Clean and replace Retighten fuel pipe connections and bleed system
Low oil pressure	•Low oil •Defective oil pressure switch •Oil filter clogged •Low oil viscosity •Improper operation of oil pump •Oil leakage at connections	Refill *Replace Replace element Replace with oil of viscosity matching temperature *Replace parts Tighten connections
Exhaust gas from engine is white or blue	•Excessive oil consumption •Excessively low oil viscosity •Excessive cooling by radiator •Improper fuel injection timing •Low compression	*Disassemble and repair, replace parts Replace with correct oil Adjust *Adjust or replace if necessary *Disassemble and repair, replace parts
Exhaust gas from engine is black or dark grey	•Improper fuel •Improper valve clearance •Defective fuel injection pump •Low compression •Insufficient air intake (air cleaner clogged)	Replace with correct fuel Adjust *Adjust or replace if necessary *Disassemble and repair, replace parts Clean or replace the element
Excessive fuel consumption	•Defective fuel injection pump •Improper spray from fuel injection nozzle •Improper fuel injection timing •Improper fuel •Low compression •Insufficient air intake	*Adjust or replace if necessary *Adjust or replace if necessary *Adjust or replace if necessary Replace with correct fuel *Disassemble and repair, replace parts Clean or replace element
Excessive engine oil consumption	•Excessive oil •Low oil viscosity •Oil leakage •Worn cylinder piston rings	Drain oil to proper level Replace with oil of viscosity matching temperature Retighten and replace parts if necessary *Disassemble and repair, replace parts
Abnormal noise.(Fuel or mechanical)	•Bad fuel •Damage inside muffler	Replace Replace

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ENGINE AIR FILTER

Changing the Outer Element

Note: *Renew the inner element every second time you renew the outer element. As a reminder, mark the inner element with a felt tip pen when you renew only the outer element.*

The outer element must be changed sooner if the filter warning light on the instrument panel lights up.

DO NOT run engine with end cover or dust valve removed.

DO NOT attempt to wash or clean elements - they must be renewed.

1 Locate the Air filter

See ***Component Layout Diagrams*** at the end of this section.

2 Stop the Engine

Remove the starter key

3 Open the Hydraulic Compartment

4 Remove the End Cover

Undo knob **A**. Remove the end cover **B**.

5 Remove the Outer Element

Unscrew nut **C**. Pull out the element **D**. Take care not to tap or knock the element as you remove it.

6 Clean the Canister

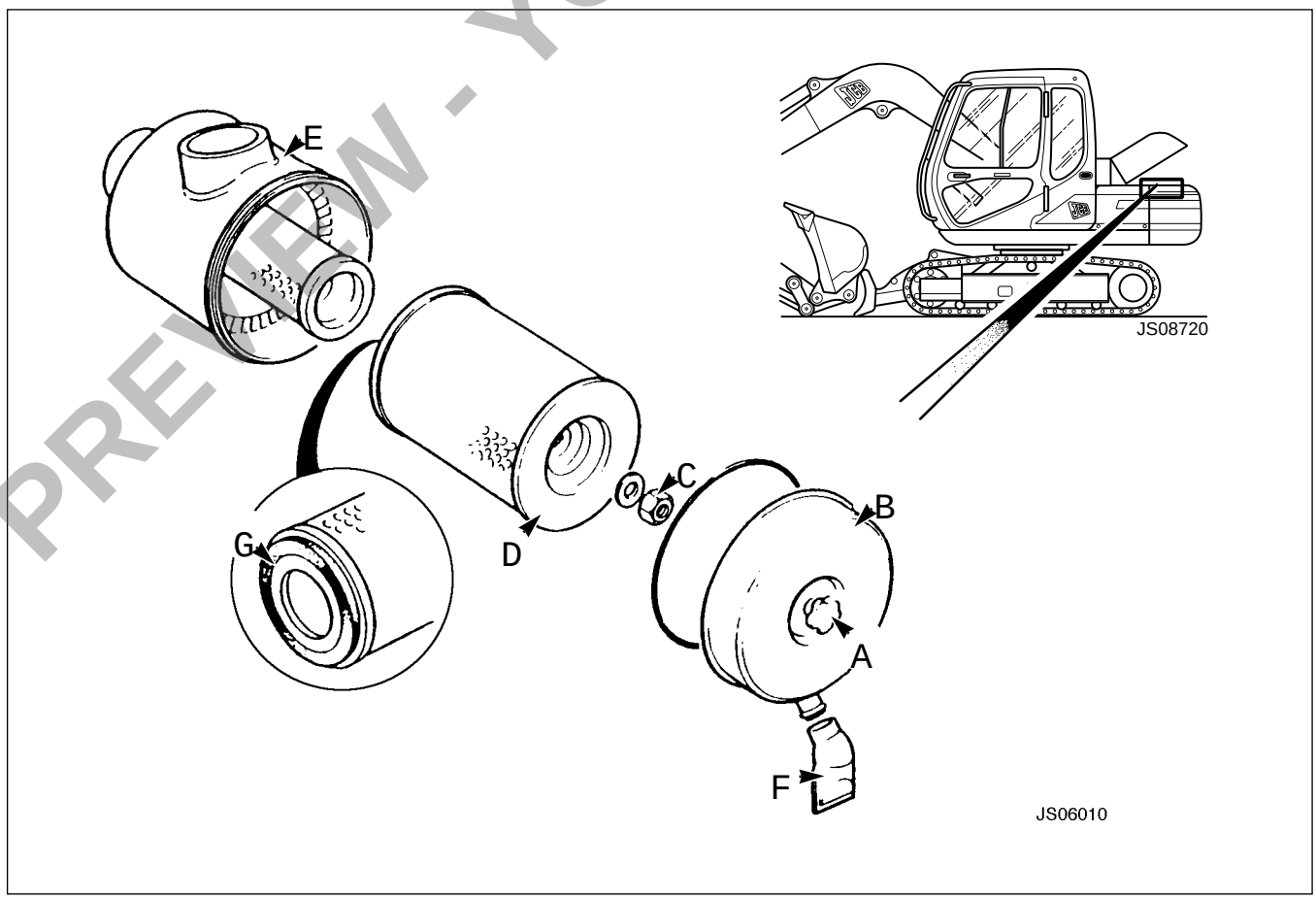
Clean the canister **E**, end cover **B** and dust valve **F**.

7 Fit the New Element

Insert the new element into the canister. Make sure it seats correctly, by smearing the seal **G** with grease and checking for a witness mark on the canister base. Fit and tighten nut **C**.

8 Fit the End Cover

Fit the end cover **B** onto the canister. Make sure the dust valve **F** is at the bottom. Tighten knob **A**. Check all hoses for condition and tightness.



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USING YOUR MACHINE (continued)

Installing a Bucket

Note: *This job is easier done by two people - one to operate the controls and one to line up the pivots.*

1 Position the Bucket

Set the bucket flat on level ground as shown, using a suitable lifting device. Block the bucket to prevent its movement.

2 Drive the Machine Squarely Up to the Bucket

! WARNING

If two people are doing this job make sure that the person working the controls is a competent operator. If the wrong control lever is moved, or if the controls are moved violently, the other person could be killed or injured.

2-2-6-5

! WARNING

You can be injured by flying metal splinters when driving metal pins in or out. Use a soft faced hammer or drift to remove and fit metal pins. Always wear safety glasses.

INT-3-1-3

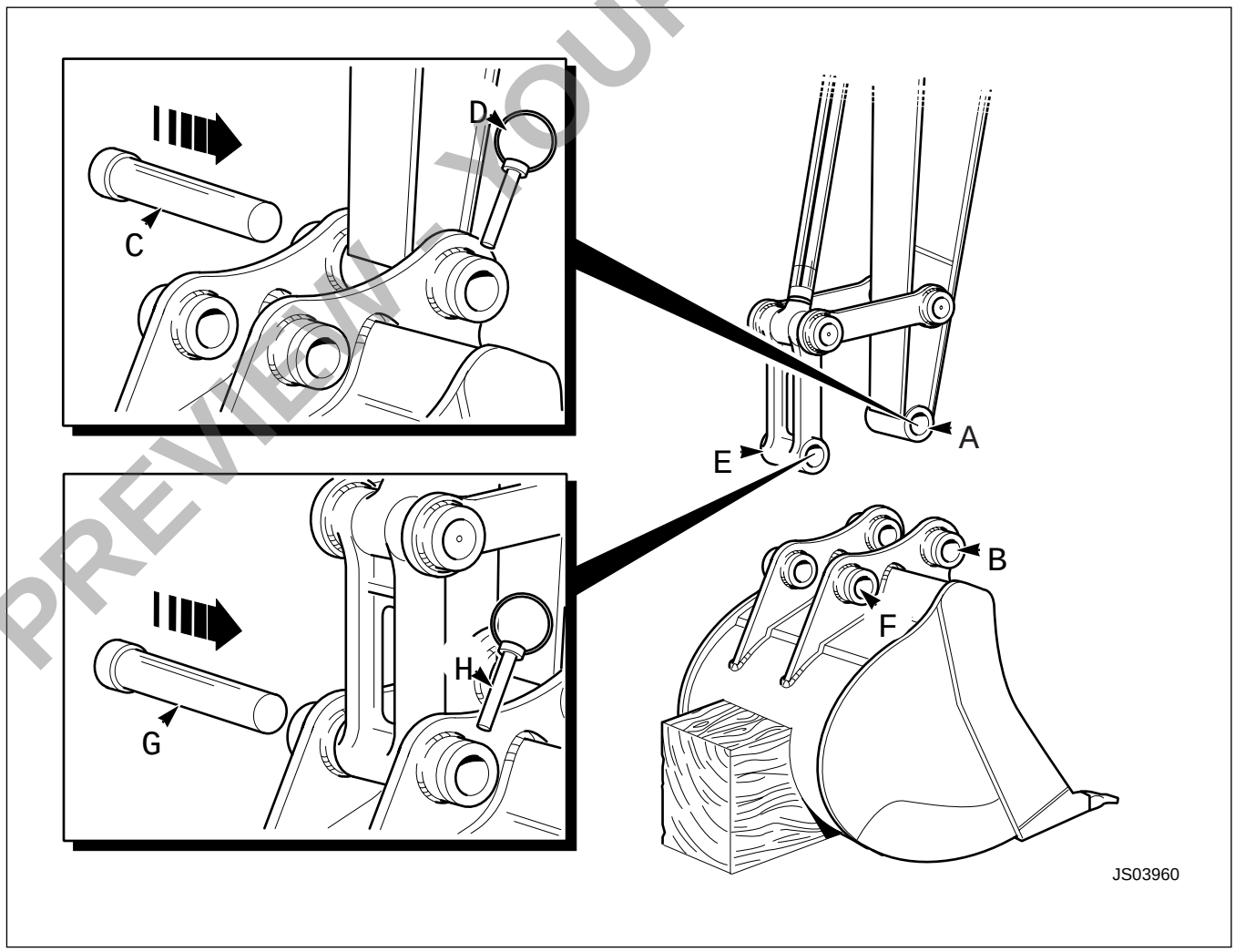
3 Engage the Dipper

Carefully operate the controls to line up hole **A** in the dipper with hole **B** in the bucket.

Insert pivot pin **C** and secure with linch pin **D**.

4 Engage the Tipping Link

Operate the bucket ram to align the tipping link **E** with hole **F** on the bucket. Insert pivot pin **G** and secure with linch pin **H**.



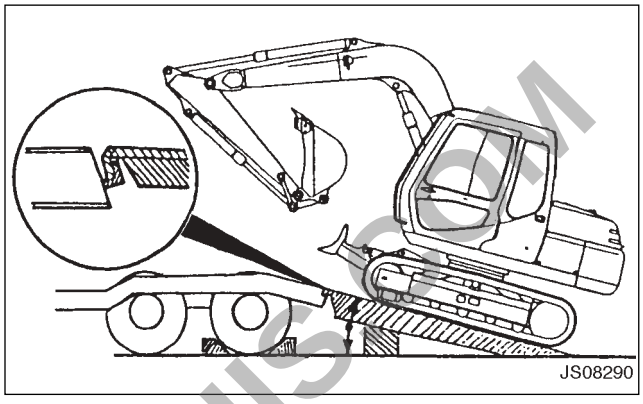
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TRANSPORTING THE MACHINE

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.
5-2-5-9

Note: *Before transporting the machine, make sure you will be obeying the rules and laws of all the areas that the machine will be carried through.*

Make sure that the transporting vehicle is suitable. See SPECIFICATION section for the dimensions and weight of your machine. The bed of the trailer should have a wood surface to aid stability.


JS08290

! WARNING

Before moving the machine onto the trailer, make sure that the trailer and ramp are free from oil, grease and ice. Also remove oil, grease and ice from the machine tracks.
8-2-4-2

1 Block the Transporter Wheels

Place blocks at the front and rear of the trailer wheels.

Note: *Before moving the machine on to the trailer, make sure that the machine will not foul on the ramp/trailer angle.*

2 Move the Machine onto the Trailer

Note: *Machines equipped with the 2.18 m dipper should be loaded with the dozer blade towards the rear of the trailer and the boom/dipper towards the front. This eliminates the possibility of the bucket fouling the dozer at step **f**.*

a Make sure the ramps are correctly in place and secure. The ramp angle should not exceed 15 °.

b Slew the cab to make sure the excavating equipment is in a position where it will not interfere with your view of the ramp and trailer. Fully raise the dozer blade.

c Slowly and carefully drive the machine onto the trailer.

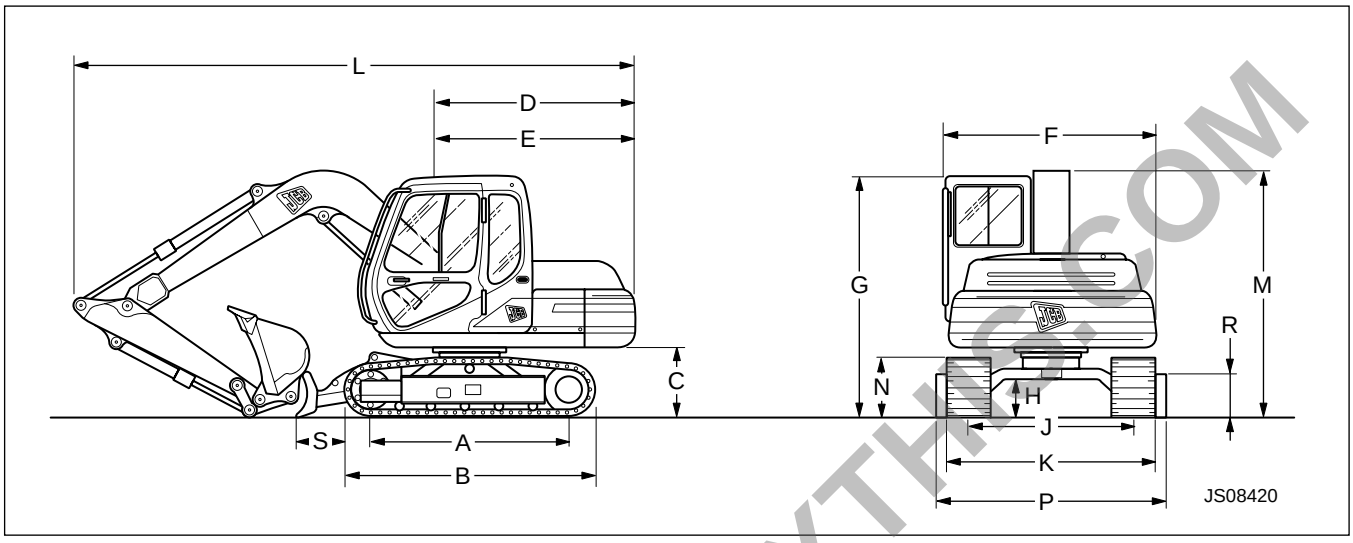
d When the machine is safely in position, slew the cab to face forwards.

e Place wooden blocks on the trailer in front of the machine.

f Crowd the bucket/attachment and swing in the dipper. Lower the boom until the dipper rests on the wooden blocks. Lower the dozer blade.

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STATIC DIMENSIONS



A	**Tracked length on ground**		2050 mm (6 ft 9 in)
B	**Undercarriage - overall length**		2680 mm (8 ft 10 in)
C	**Tail height**		760 mm (2 ft 6 in)
D	**Tailswing radius**		1740 mm (5 ft 9 in)
E	**Tail length**		1740 mm (5 ft 9 in)
F	**Superstructure width**		2200 mm (7 ft 3 in)
G	**Height over cab**		2560 mm (8 ft 5 in)
H	**Ground clearance**		380 mm (1 ft 3 in)
J	**Track gauge**		1700 mm (5 ft 8 in)
K	**Track width**	- 450 mm (18 in) shoes	2150 mm (7 ft 1 in)
		- 600 mm (24 in) shoes	2300 mm (7 ft 7 in)
L	**Transport length**	- Standard boom (1.74 m dipper)	6010 mm (19 ft 9 in)
		- Standard boom (2.18 m dipper)	5990 mm (19 ft 8 in)
		- Offset Boom	5950 mm (19 ft 6 in)
M	**Transport height**	- Standard boom (1.74 m dipper)	2640 mm (8 ft 8 in)
		- Standard boom (2.18 m dipper)	2930 mm (9 ft 7 in)
		- Offset Boom	2740 mm (9 ft 0 in)
N	**Track height**		660 mm (2 ft 2 in)
P	**Dozer blade width**		2250 mm (7 ft 5 in)
R	**Dozer blade height**		460 mm (1 ft 6 in)
S	**Dozer blade reach in front of tracks**		480 mm (1 ft 7 in)

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CAUTION

A wide range of optional attachments is available to increase the versatility of your machine. Only JCB approved attachments are recommended for use with your machine. Consult your JCB Distributor for the full list of approved attachments available.

JCB attachments are designed and manufactured specifically to suit the machine's hydraulic system, mounting arrangements and safe load requirements. Attachments which are not designed for use with this machine may cause damage and create safety hazards for which JCB cannot be held responsible. In addition the machine's warranty, "CE" and other legislative compliance may be affected by the use of non-JCB approved attachments.

2-4-1-13/2

CAUTION

This machine is manufactured in compliance with legislative and other requirements. It should not be altered in any way which could affect or invalidate any of these requirements. For advice consult your JCB Distributor.

Reference should also be made to Optional Attachments section where appropriate.

INT-1-3-10

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