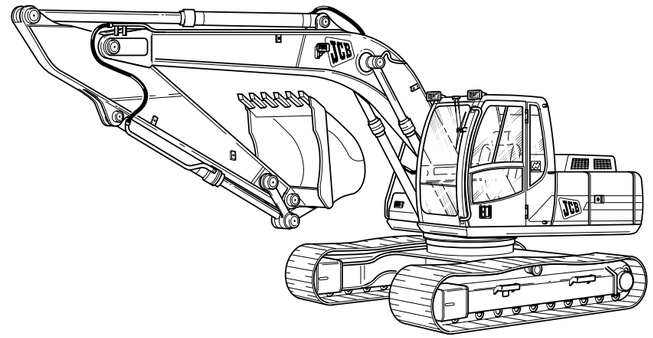
9801/6950
ISSUE 6
MAR 03
PRINTED IN ENGLAND

OPERATOR HANDBOOK : JS TRACKED EXCAVATORS

9801/6950 ISSUE 6

Operator Handbook

This handbook should always stay with the machine



JS130 JS160 JS180 JS200 JS210 JS220 JS240 JS260 JS330 JS460

TRACKED EXCAVATOR

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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

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ABOUT THIS HANDBOOK

Machine Model and Serial Number

This handbook provides information for the following machines:
JCB JS130 from machine serial number 758000
JCB JS160 from machine serial number 702000
JCB JS180 from machine serial number 702132
JCB JS200 from machine serial number 705001
JCB JS210 from machine serial number 705648
JCB JS220 from machine serial number 705001
JCB JS240 from machine serial number 708501
JCB JS260 from machine serial number 708501
JCB JS330 from machine serial number 712501
JCB JS460 from machine serial number 714550

Note: The above models are available in various configurations which are identified by a model number suffix, e.g. JS200LC, JS220N XD. Where appropriate, specific information for these variants is given in this Handbook.

Using this Handbook

This handbook is arranged to give you a good understanding of the machine and its safe operation. It also contains maintenance information and specification data. Read this handbook from front to back before using the machine for the first time. Particular attention must be given to all the safety aspects of operating and maintaining the machine.

General warnings in this chapter are repeated throughout the book, as well as specific warnings. Read all the safety statements regularly, so you do not forget them. Remember that the best operators are the safest operators.

Finally, treat this handbook as part of the machine. Keep it clean and in good condition. Do not operate the machine without a handbook in the cab. If there is anything you are not sure about, ask your JCB Distributor or employer. Do not guess, you or others could be killed or seriously injured.

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 publication.

Units of Measurement

In this handbook, the S.I. system of units is used. For example, liquid capacities are given in litres. The Imperial units follow in parenthesis ( ), for example 28 litres (6 UK gal).

Page Cross References

In this handbook, page cross references are made by presenting the subject title printed in bold and italic to signify a cross reference. (This is followed by the title of the section containing the subject if this is different from the one being read at the time).

Use the contents list at the beginning of the handbook to find the exact page number.

Page Numbering

The page numbering system in this handbook is not continuous. There is a gap of about ten pages between sections. This allows for the insertion of new pages in later issues of the handbook.

Left Side, Right Side

References in this handbook to 'left' and 'right' are as viewed looking forwards from the rear of the machine.

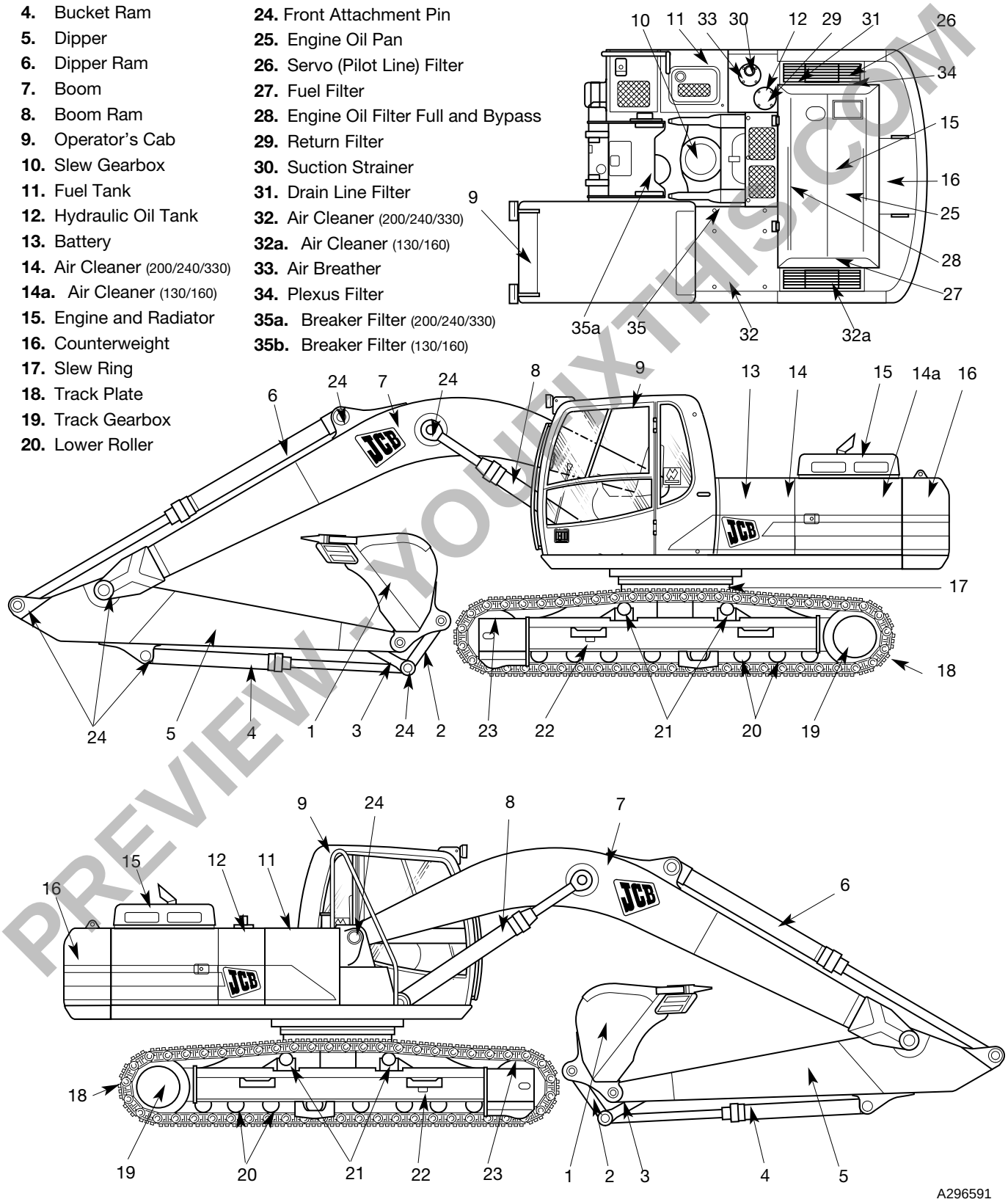
Using the Machine

To use a JCB Excavator efficiently and safely, you must know the machine and have the skill to use it. You must abide by all relevant laws and regulations *(speed limits for example)*. This handbook instructs you on the machine, its controls and its safe operation. It is not a training manual on the art of operating or a guide to the relevant laws and regulations. If you are a new operator, get yourself trained in the skills of using this machine before trying to work with it. If you don't you will not do your job well, and you will be a danger to yourself and others.

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IDENTIFICATION OF MACHINE COMPONENTS

1. Bucket
2. Bucket Link
3. Dipper Link
4. Bucket Ram
5. Dipper
6. Dipper Ram
7. Boom
8. Boom Ram
9. Operator's Cab
10. Slew Gearbox
11. Fuel Tank
12. Hydraulic Oil Tank
13. Battery
14. Air Cleaner (200/240/330)
14a. Air Cleaner (130/160)
15. Engine and Radiator
16. Counterweight
17. Slew Ring
18. Track Plate
19. Track Gearbox
20. Lower Roller
21. Upper Roller
22. Recoil Spring
23. Idler Wheel
24. Front Attachment Pin
25. Engine Oil Pan
26. Servo (Pilot Line) Filter
27. Fuel Filter
28. Engine Oil Filter Full and Bypass
29. Return Filter
30. Suction Strainer
31. Drain Line Filter
32. Air Cleaner (200/240/330)
32a. Air Cleaner (130/160)
33. Air Breather
34. Plexus Filter
35a. Breaker Filter (200/240/330)
35b. Breaker Filter (130/160)

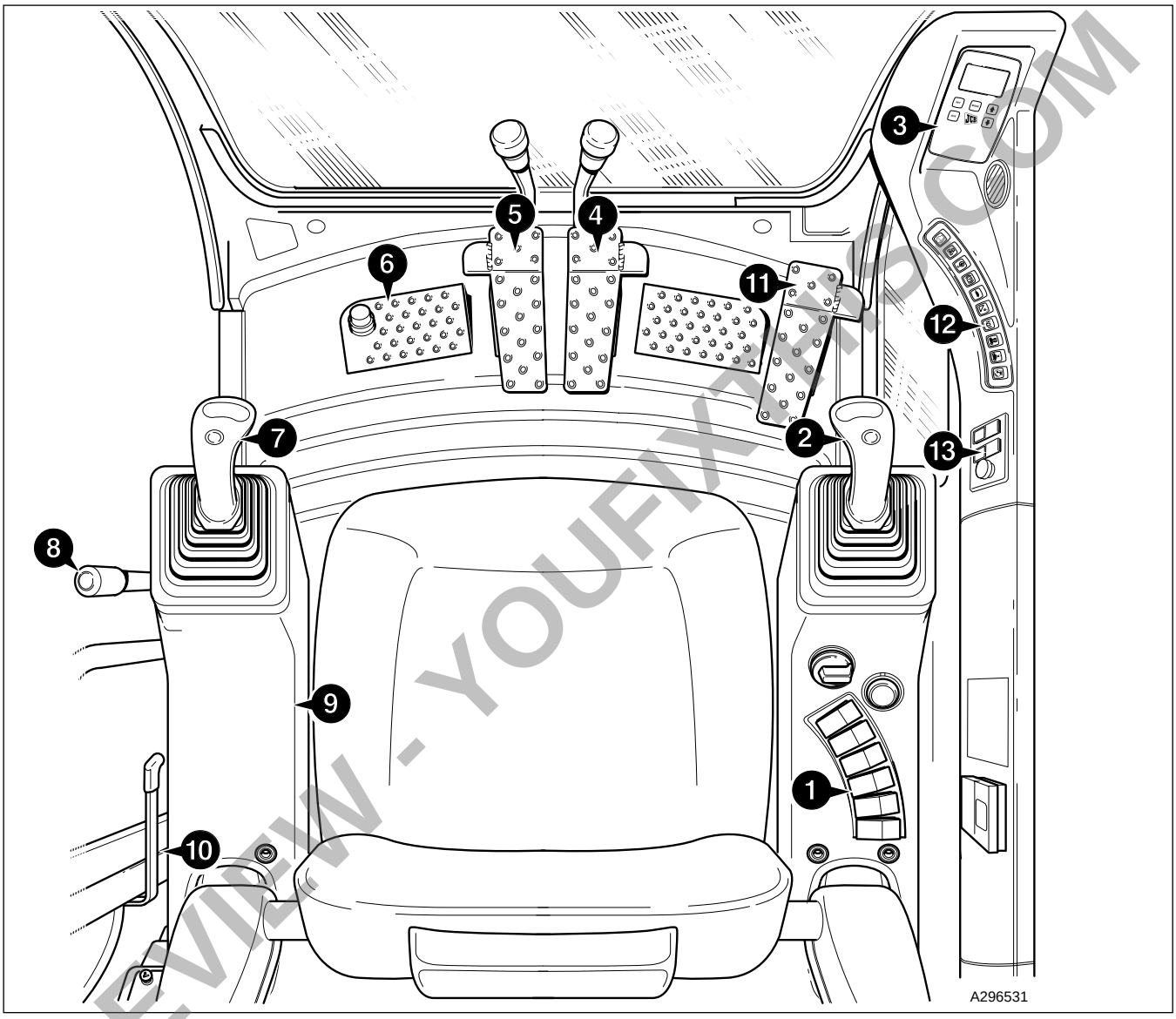


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OPERATOR'S CAB

Location of Controls and Components



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

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

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

4 **Right Hand Track Control**
*(see **Switches and Controls**)*

5 **Left Hand Track Control**
*(see **Switches and Controls**)*

6 **Travel Speed Range Change Switch**
*(see **Switches and Controls**)*

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

8 **Control Lock Lever**
*(see **Switches and Controls**)*

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

10 **Door Lock Release Lever**
(see ***Doors and Windows***)

11 **Optional Circuit Pedal (if fitted)**
*(see **Switches and Controls**)*

12 **Facia Panel**
*(see **Switches and Controls**)*

13 **Lightswitch Panel**
*(see **Switches and Controls**)*

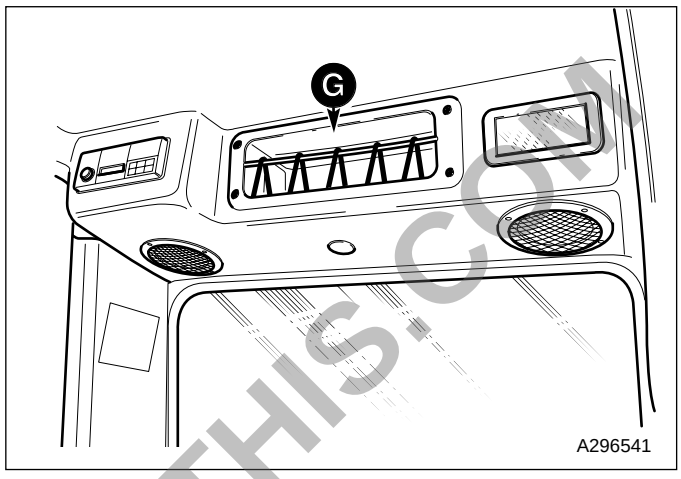
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INSTRUMENTS AND CONTROLS
(continued)

Cab Interior Lights

a. The interior light is located on the cab back wall.

b. To turn it on, press the right hand side of the light. To extinguish press the left hand side of the light.



Radio

The radio, located on the cab rear wall above the seat, operates only with the Starter Switch ON. It has the following controls:

A Tone control

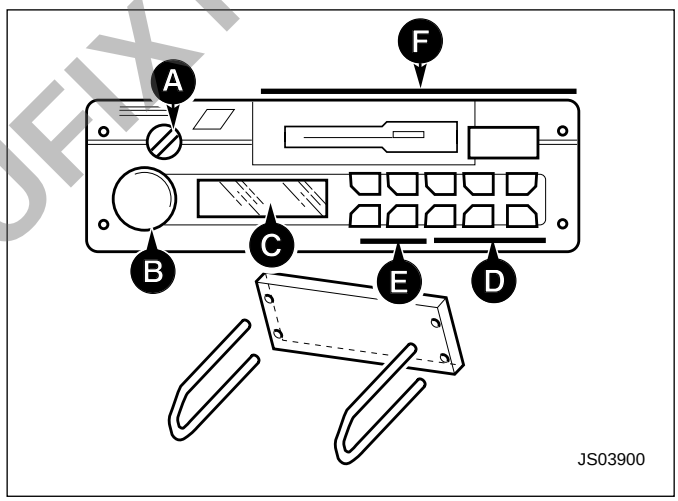
B On/off switch and volume control

C Tuning display (waveband, memory number, frequency)

D Waveband/frequency select buttons

E Pre-set memory store/select buttons

F Cassette loading/control features



Removal

Remove the screws from the stowage box and remove the stowage box. Remove the retaining nut, behind the radio, which can be accessed through the storage space. Insert the bows as shown, lock the bows in and press outwards to release the retaining catches. **G**. Remove the radio.

Replacement

Push in the radio until it engages the retaining catches and fit the retaining nut. Refit the stowage box and the retaining screws.

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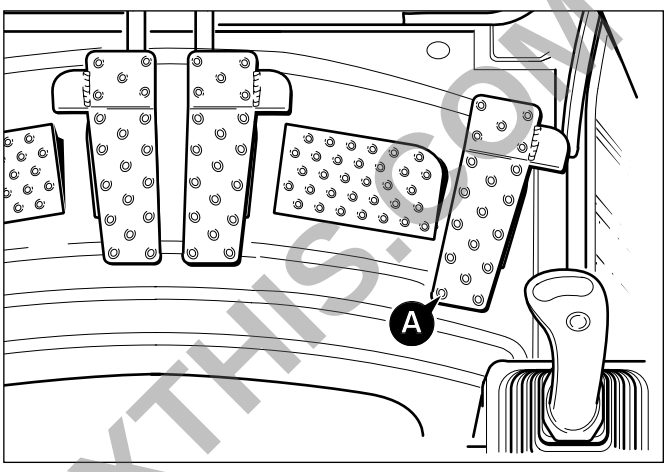
USING YOUR MACHINE

Operating Attachments

WARNING

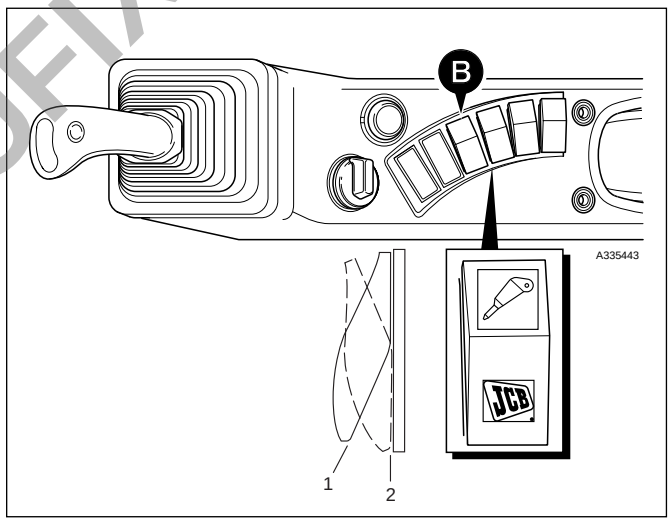
Hydraulic fluid at system pressure can injure you. Before disconnecting or connecting hydraulic hoses, stop the engine and operate the controls to release pressure trapped in the hoses. Make sure the engine cannot be started while the hoses are open.
INT-3-1-11/1

Your machine may be equipped with one of four systems, items **1** - **3** for operating attachments requiring high flow, or item **4** for operating attachments requiring both standard and high flow. An optional low flow two-way circuit (item **5**) is available in addition to or as an alternative to one of items **1** - **4**.



1. Rockbreaker Circuit

This system provides a one-way, regulated hydraulic flow to operate a breaker. The flow to the breaker is controlled by a pedal **A** at the operator's feet. Automatic engine speed reduction is incorporated, to prevent breaker damage due to excess oil flow.



2. Two-Way Auxiliary Circuit

This system provides two-way flow, controlled by the pedal. It is suitable for attachments which need a relatively high flow in either direction.

3. Combined Rockbreaker and Two-Way Auxiliary Circuit

As well as the control pedal, this system incorporates a changeover valve **Y** and a switch **B** . The system enables the operator to operate rockbreakers and two-way attachments without changing pipework. The switch and valve should be set as follows:

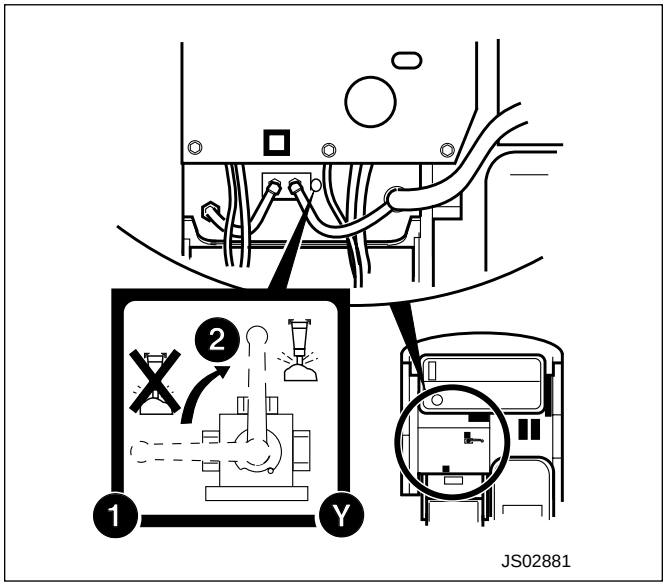
Before Operating a Two-Way Attachment

1. Set switch **B** to position **2**.
2. Set valve **Y** to position **1**.

Before Operating a Breaker

1. Set switch **B** to position **1**.
2. Set valve **Y** to position **2**.

Note: JS330 and JS460 machines have an automatic changeover system and not a manual changeover valve. The automatic system is controlled as on the manual system, using switches **B** and **C**.



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BOLT AND NUT TORQUE SPECIFICATIONS

JS130/JS160 and Variants

Tighten the bolts and nuts according to the table. Before and after daily work, check the bolts and nuts for looseness and for those missing. Tighten if loose and renew if missing.

Tighten the bolts and nuts after the first 50 hours of the running-in stage and every 250 hours thereafter.

Tightening Torque Table

No	Tightening Point	Bolt Diameter	Wrench	JS130/JS160		
				Tightening Torque		
			mm	Nm	kgf m	lbf ft
1*	Travel Motor	M16	24	270~310	27.6~31.8	200~230
2*	Drive Sprocket	M16	24	220~310	27.6~31.8	200~230
3*	Idler Wheel	M16	24	270~310	27.6~31.8	200~230
4*	Upper (Carrier) Roller	M16/M20	24/30	270~310/520~608	27.6~31.8/53.2~62.2	200~230/385~450
5*	Lower (Track) Roller	M16	24	270~310	27.6~31.8	200~230
6*	Track Guard	M16	24	270~310	27.6~31.8	200~230
7	Shoe Bolt	M16	24	310~360/640~750	32~37/65~76.5	229~266/472~553
8	Counter weight	M27	41	845~980	86~100	622~723
9*	Turntable Bearing (Undercarriage)	M16/M20	24	280~310/475~550	28.4~31.8/48.4~55.3	205~230/350~400
10*	Turntable Bearing (Slew Frame)	M16/M20	24	280~310/475~550	28.4~31.8/48.4~55.3	205~230/350~400
11*	Slew Equipment	M16/M20	24	280~310/475~550	28.4~31.8/48.4~55.3	205~230/350~440
12*	Engine (Engine Mount)	M16	24	265~310	27~32	195~230
13*	Engine Bracket	M10	17	65~75	6.5~7.6	47~55
14	Radiator	M12	19	60~70	6.2~7.2	45~52
15*	Hydraulic Pump	M10	17	65~75	6.5~7.6	47~55
16*	Hydraulic Oil Tank	M16	24	205~285	21~29	152~210
17*	Fuel Tank	M16	24	225~285	22.4~29	162~210
18*	Control Valve	M16	24	270~310	27.6~31.8	200~230
19*	Rotary Coupling	M12	19	110~125	11.1~13.0	80~94
20	Cab	M16	24	127~137	13~14	94~101
21	Battery	M10	17	20~30	2.1~2.9	15~21

Note: Use JCB Threadlocker and sealer (High Strength) on those marked * and tighten to the torque listed in the above table.

The tightening torques for the bolts and nuts not listed above are as follows:

Bolt Diameter (size)			M6	M8	M10	M12	M14	M16	M18	M20
Hex. bolt	Wrench	mm	10	13	17	19	22	24	27	30
	Tightening Torque	Nm	6.9	15.7	32.3	58.8	98.0	137.2	196.0	274.4
		kgf m	0.7	1.6	3.2	5.9	9.8	13.7	19.6	27.4
		lbf ft	5	12	24	43	72	101	145	202
Hex. socket head bolt	Wrench	mm	5	6	8	10	12	14	14	17
	Tightening Torque	Nm	8.8	21.6	42.1	78.4	117.6	176.4	245.0	343.0
		kgf m	0.88	2.2	4.2	7.8	11.8	17.6	24.5	34.3
		lbf ft	6.5	16	31	58	87	130	181	253

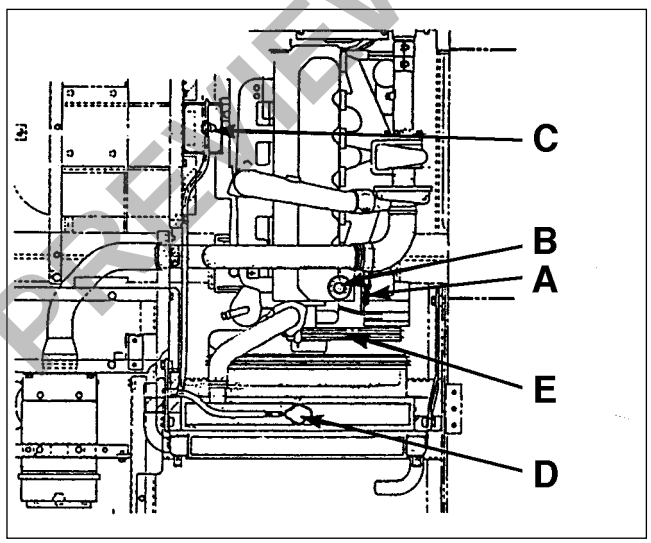
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DAILY CHECKING

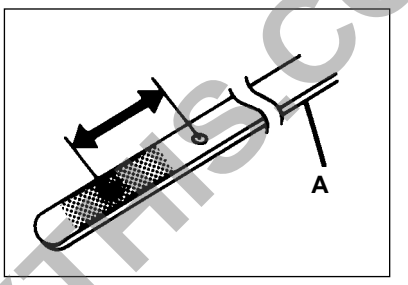
Daily Checking

It is vital to check certain machine functions and components daily to ensure that the machine can be operated safely and efficiently.

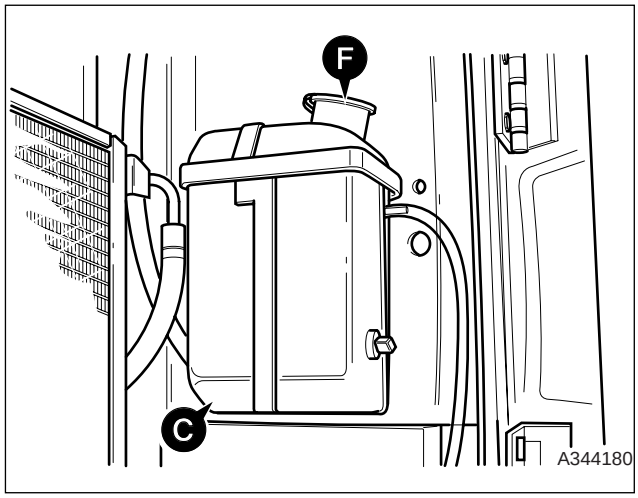
1. **Prepare the Machine**
   Park the machine on level ground, lower the bucket to the ground.
2. **Locate the Components to be Checked**
   *(See **Identification of Machine Components**).*
3. **Stop the Engine**
   Remove the starter key.
4. **Visual Check**
   Check the machine for the following:
   a. Oil, fuel and coolant leakage.
   b. Fasteners properly attached.
   c. Wire breakage, short circuit of cables and terminal anchorage.
   d. Oil cleanliness.
   e. Dust accumulation.
5. **Checking After Initial Start-up**
   a. Operation of horn and gauges.
   b. Ease of engine starting, abnormal noise and exhaust gas colour.
   c. Oil, fuel and coolant leakage.
6. **Engine (Inspection Before Starting)**
   a. Follow steps 1-3 of daily checking.



b. Engine oil level check and refilling
Check the oil level before starting the engine and 30 minutes or more after stopping the engine.
Use dipstick **A** to check that the oil level is correct. If low, refill with engine oil through oil filler port **B.**
Re-check the oil level about 10-15 minutes after refilling.



c. Coolant level check and refilling.
Check the level of coolant in the reserve tank **C**. If low, carefully remove the cap **D**, let any pressure escape. Remove the reserve tank cap **F** and refill with coolant. The correct level is between the **FULL** and **LOW** markings.



⚠ WARNING

The coolant system is pressurised when the coolant is hot. Hot coolant will burn you. Make sure that the engine is cool before checking the coolant level or draining the system.

2-3-3-3

d. Check the Fan Belt Tension
Press the belt **E**, There must be 10 mm (0.4 in) slack midway between the alternator and water pump.

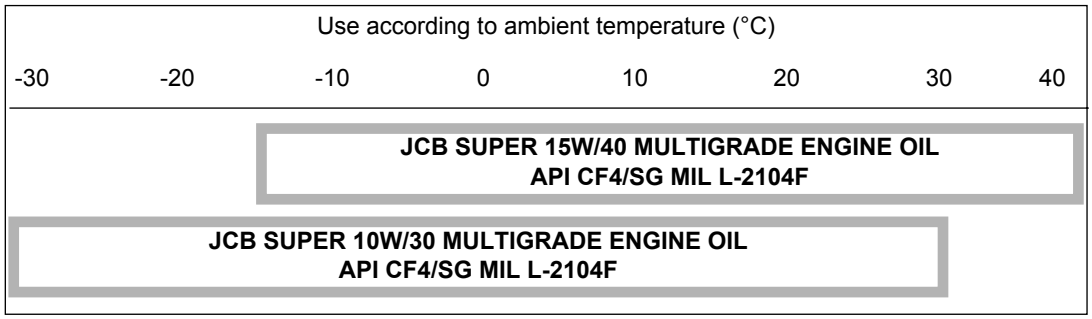
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LUBRICANTS AND CAPACITIES

JS130/JS160

Item	Lubricant	International Specification	Capacity	
			JS130	JS160
ENGINE	(see separate chart)		12.1 litres (2.7 UK gal) (3.2 US gal)	12.1 litres (2.7 UK gal) (3.2 US gal)
TRACK GEARBOX	JCB HD90 Gear Oil	API-GL-5, MIL-L-2105	2 x 3.0 litres (2 x 0.66 UK gal) (2 x 0.79 US gal)	2 x 3.0 litres (2 x 0.66 UK gal) (2 x 0.79 US gal)
SLEW GEARBOX	JCB HD90 Gear Oil	API-GL-5, MIL-L-2105	5 litres (1.09 UK gal) (1.31 US gal)	5 litres (1.09 UK gal) (1.31 US gal)
TRACK ROLLERS IDLER WHEEL	JCB HD 90 Gear OIl	API-GL-5, MIL-L-2105	-	-
RECOIL SPRING CYLINDER	JCB Special HP Grease	Lithium complex (NLGI) inc. extreme pressure additives	-	-
HYDRAULIC SYSTEM	JCB Hydraulic Fluid 46	ISO VG46	124 litres (27.3 UK gal) (32.8 US gal)	124 litres (27.3 UK gal) (32.8 US gal)
SLEW RING - BEARING	JCB Special HP Grease	Lithium complex (NLGI) inc. extreme pressure additives	-	-
- GEAR TEETH	JCB Special HP Grease	Lithium complex (NLGI) inc. extreme pressure additives	11kg (24.25 lb)	17kg (37.48 lb)
ALL OTHER GREASE POINTS	JCB Special HP Grease	Lithium complex (NLGI) inc. extreme pressure additives	-	-
COOLING SYSTEM	see ***Coolant Mixtures***	-	16.4 litres (3.6 UK gal) (4.3 US gal)	17.2 litres (3.78 UK gal) (4.5 US gal)
FUEL TANK	see ***Type of Fuel***	-	240 litres (52.8 UK gal) (63.4 US gal)	240 litres (52.8 UK gal) (63.4 US gal)

ENGINE LUBRICATION CHART

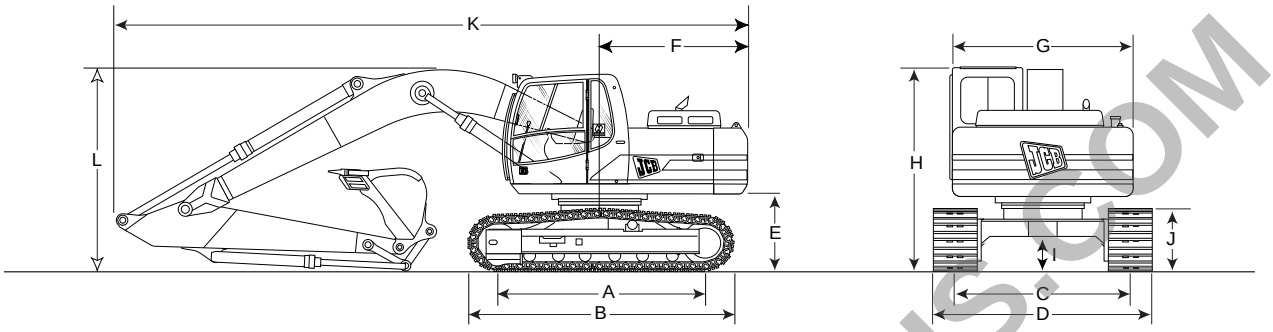


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STATIC DIMENSIONS
JS180



JS03511

Dimensions in millimetres (ft. in)		
A Track length on ground	3370	(11 ft 1 in)
B Undercarriage overall length	4170	(13 ft 8 in)
C Track gauge	2200	(7 ft 2 in)
D Width over tracks (600 mm shoes)	2800	(9 ft 2 in)
D Width over tracks (700 mm shoes)	2900	(9 ft 6 in)
E Counterweight clearance	1066	(3 ft 6 in)
F Tailswing radius	2350	(7 ft 9 in)
G Width of superstructure *	2500	(8 ft 2 in)
H Height over cab	2930	(9 ft 7 in)
I Ground clearance *	486	(1 ft 7 in)
J Track height	885	(2 ft 11 in)

* Machine in transport position.

Dipper lengths	2.25 m	2.70 m	3.05 m
K Transport length with Monoboom	8366 (27 ft 5 in)	8326 (27 ft 4 in)	8415 (27 ft 7 in)
L Transport height with Monoboom	2865 (9 ft 5 in)	2790 (9 ft 5 in)	3095 (10 ft 2 in)

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