Checking the Foot Brake Fluid Level (ABS Machines)

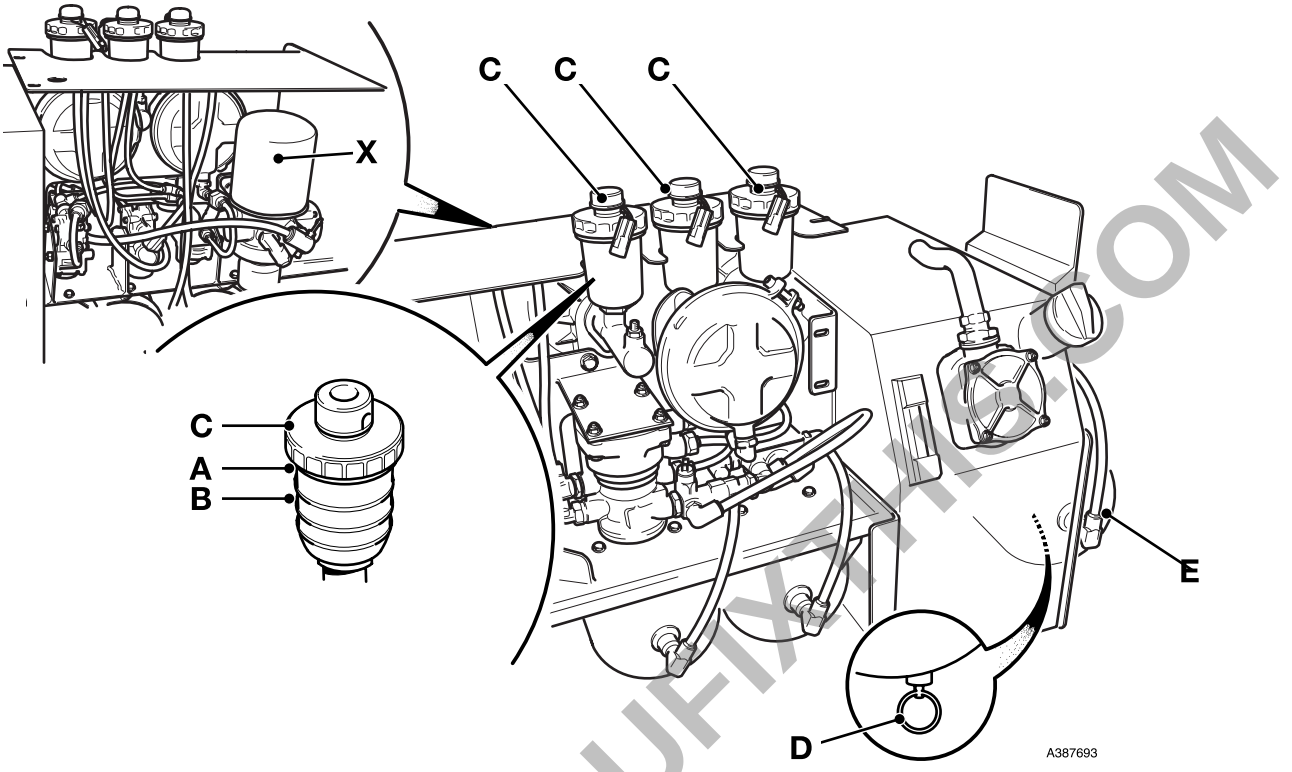


Fig 205.

⚠ WARNING

If the brake fluid warning light comes on, check the brake fluid level immediately.

13-3-1-2_1

⚠ WARNING

Faulty brakes can kill. If you have to top up the brake reservoir frequently, get the brake system checked by your JCB Dealer. Do not use the machine until the fault has been put right.

2-3-2-5_1

⚠ CAUTION

Using incorrect fluid could damage the system. See Fluids, Capacities and Lubricants for the correct fluid. The fluid can harm your skin. Wear rubber gloves. Cover cuts or grazes.

2-3-5-1_2

1 Check the fluid level in the reservoirs.

The fluid level should be between the two lines **A** and **B** moulded into the side of each reservoir. If necessary, add fluid as in **Step 2**.

Note: *If the level has fallen below the lower line **B**, the system must be checked by your JCB distributor.*

2 Add the specified brake fluid.

Clean the area around the filler cap **C**. Remove the cap and carefully pour in the recommended fluid until it reaches line **B**. Avoid spilling the fluid. Wipe up any spillage. Do not allow dirt to enter the reservoir. Fit the cap securely. After the cap is fitted, the level should be to line **A**.

Note: *Do not use ordinary hydraulic fluid.*

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Level 1 Programming Mode (continued)

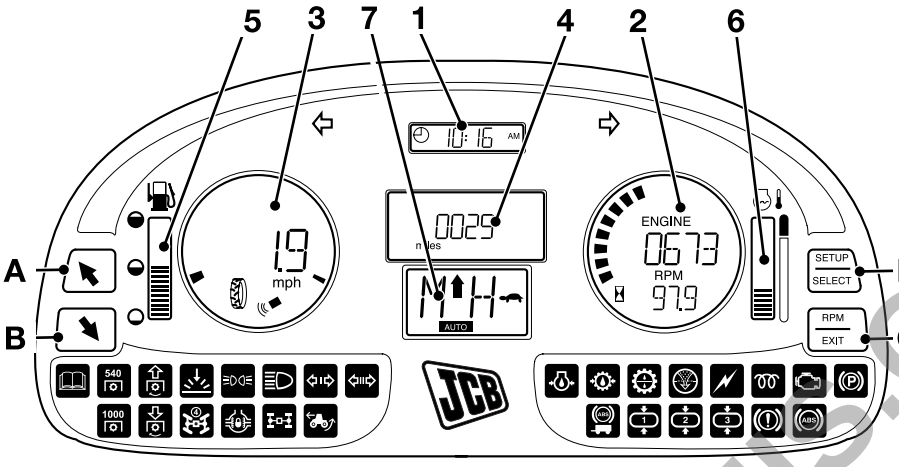


Fig 58.

9 To return to the MPH-KPH mode (step 1) press SET UP/SELECT button **D**. To exit level 1 programming either switch the ignition OFF or start the engine or press EXIT/RPM button **C**.

10 To check the axle speed sensor (which calculates the machines actual speed) press SET UP/SELECT button **D** to initiate the flashing message `AXLECAL' on centre display **4**. The clock display **1** will show one of the following:

a OFF. The factory set calibration value will be used by the EMS.

b The current numerical calibration value in pulses/metre (132.2 in the example shown).

c CAL. Ready to do a new calibration.

Depending on the requirement, press button **A** or button **B** to toggle between the current value stored for axle sensor OFF (a), axle sensor calibration (b) or CAL (c).

Note: *Axle sensor calibration should only be necessary if the operator has reason to suspect that it is inaccurate. It should be carried out on level ground in dry conditions. Any wheel slippage will cause inaccuracies.*

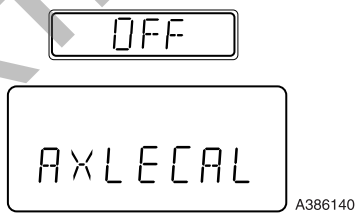


Fig 59.

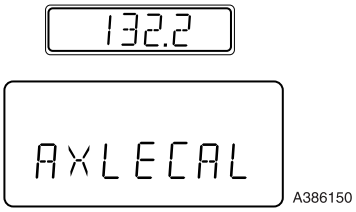


Fig 60.

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3 Anchor the Machine

Anchor the machine to the trailer with suitable webbing straps, individually fixing all four wheels to the deck of the trailer as shown. ⇒ *Fig 185. (🗋 160)* The straps must have at least 5 tonnes capacity.

Avoid strapping any part of the machine where the straps may damage critical componentry. For example, strapping around either axle could damage the steel brake pipes running along their length.

4 Measure the Machine Height

Measure the maximum height of the machine from the ground. Make sure the truck driver knows the clearance height before the truck drives away.

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Specification

Static Dimensions

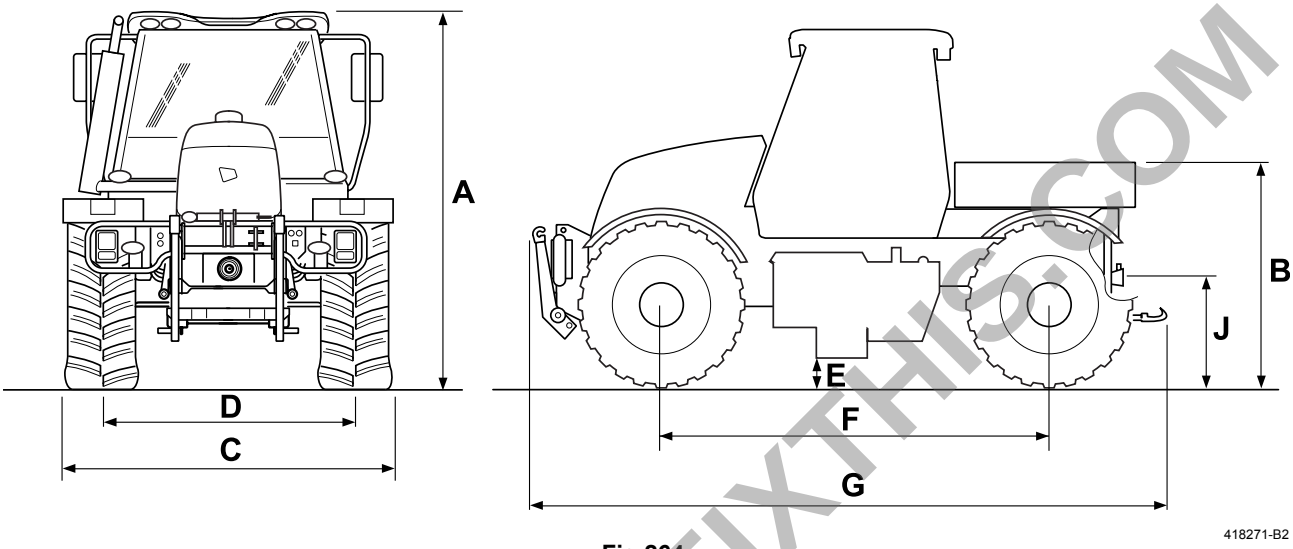


Fig 264.

Dimensions

		With 495/70 R 24 Tyres	
		mm	in
A	Height to top of Exhaust	3075	121
B	Deck Height	1475	58
C	Overall Width	2370	93
D	Track Width	1875	74
E(1)	Minimum Ground Clearance	330	12
F	Wheelbase	3056	120
G	Overall Length	5200	205
J	Height to Trailer Coupling	540-1010	21.3-39.3

(1) The position of the minimum ground clearance varies according to machine specification.

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Cab Layout - 3200 and 3230

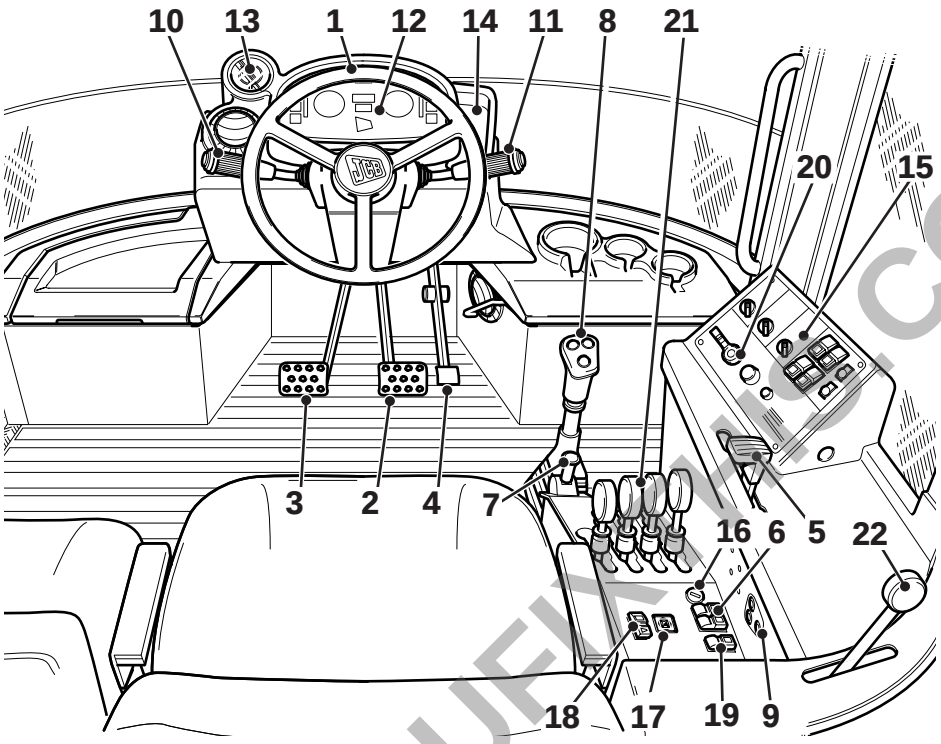


Fig 19.

Controls

1 Steering Wheel

2 Brake Pedal

Push down on the brake pedal to slow or stop the machine. The stop lights should operate when the brake pedal is applied. Do not operate the machine unless both stop lights work correctly.

3 Clutch Pedal

Depress the pedal to disengage the clutch during gear selection. Release pedal slowly.

Note: *Do not rest your foot on either the clutch or brake pedal unless you are using these controls. Otherwise increased component wear may result. A buzzer will sound if you keep your foot on the clutch pedal for too long.*

4 Accelerator Pedal

Gently depress the pedal to increase engine speed. Release to reduce the speed.

5 Hand Throttle Lever

Push lever away from you to increase engine speed or pull towards you to decrease engine speed. The position of the handle will determine the engine speed unless the accelerator pedal is depressed to give a greater speed than the setting of the hand throttle.

6 Field Speed Controls (3200 and 3230 only). For utilisation, ⇨ *Travelling (🗋 81)*.

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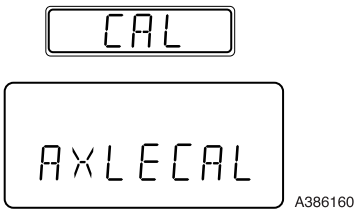


Fig 61.

11 To re-calibrate the axle sensor, accurately measure a distance along the ground of 100 metres in a straight line from the point directly below the centre of a wheel hub. Mark a line at this point.

Ensure that the clock display **1** is showing `CAL' and drive the tractor along the course to the point where the wheel hub is directly above the mark made 100 metres from the start position. It is advised that someone walks alongside the tractor to ensure that the final position is accurate.

When the 100 metre mark is reached, exit Level `1' Programming Mode to complete the calibration.

Note: *During the 100 metre run, display **1** changes from displaying `CAL' to a continually increasing number. This number ceases to increase at the end of the run. The final value displayed is the value in pulses/metre which is stored as the calibration value. If this value differs by more than 10% from the factory set value, then the value is deemed invalid and the calibration value defaults to the setting in use before calibration started. If this happens check that the machine has correct values for `Tyre RC' and `Speed Sensor Pulses'. Then recheck the 100 metre measurement and repeat the calibration. If still unsatisfactory, the axle sensor unit should be checked by a qualified technician. Refer to your JCB Dealer.*

System Error Codes

The electronic diagnostic system communicates problems to the operator via a series of `Number Error Codes'.

Number Error Codes

Electronic Control Unit (ECU) errors are drawn to the operator's attention by the flashing of the `book' icon. ⇨ *Warnings (Visual only) (57)* This is accompanied by the showing of error codes on centre display **4**. The error code information alternates with the basic data (i.e. distance travelled) of centre display **4** in the form of 2 second displays of each. The error information begins with a statement of the number of errors in the system e.g. `3 errs', followed by up to 20 error codes displayed sequentially, e.g. `ERR T025', in the order in which they occurred. If there are more than 20 error codes in the system, the opening statement will indicate that number, but only the first 20 will be identified.

Fault Identification and Rectification

The meanings of the number error codes and their effects on the machine can be summarised as follows:

D001-D003	Instrument cluster internal fault.
D010-D236	Instrument cluster system fault.
C000	No communication between the instrument cluster and the central controller
C080-C202	Central controller faults
Q000	No communication between the instrument cluster and the engine.
Q001-Q081	Engine fault. Engine performance may be affected.
T000-T003	Transmission will not operate correctly.
T010-T018	Auto shift fault. Up and down shifts are inhibited. If the currently selected gear is faulty the next best gear will be selected automatically.
T019-T021	Clutch lubrication fault.
T025-T057	Selectronic range change fault.
T060-T063	Transmission speed trigger fault. Selection of `M' or `H' ranges will be ignored.
T070-T079	Clutch system control fault.
T080-T085	Column switch fault. Range actually selected is shown on transmission display of instrument cluster.
T100-T126	Clutch system control fault.
T230	Limp home mode operated.
U000-U068	Electronic front hitch fault.
V000-V070	Electronic spool valve green slice fault.
W000-V070	Electronic spool valve blue slice fault.
X000-V070	Electronic spool valve brown slice fault.
Y000-V070	Electronic spool valve grey slice fault.

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Checking the Trailer Air Tank

1 Charge the air system by starting the engine. Wait for the tank warning lights to go out. Stop the engine, apply the parking bra**ke**.

2 Grip `keyring' fitting **D** at the bottom of tank **E** and pull sideways until all water is expelled. The amount of water released is a guide to the functioning of dryer **X**. If purging of water takes much longer than about 5 seconds, or if oil is present, the system must be checked by your JCB distributor.

Checking the Air Tank Warning Lights

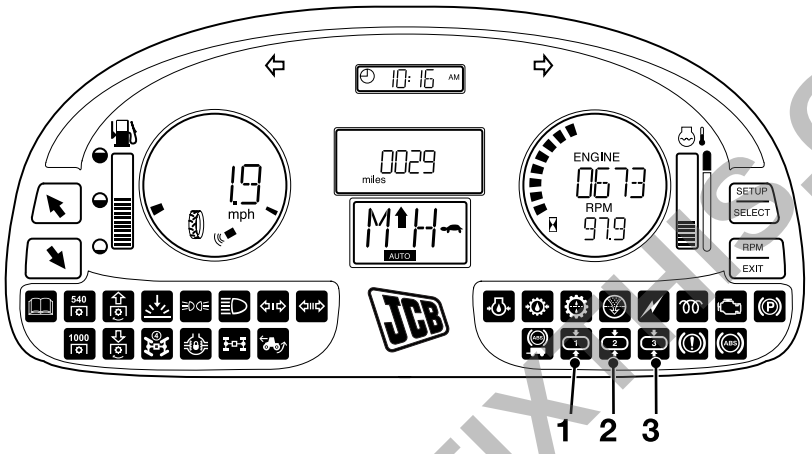


Fig 206.

1 Position machine on level ground, apply parking brake and stop engine. Chock wheels.

2 Start engine and ensure that all air tank warning lights go out.

Note: *When the engine is started the pressure builds up progressively through the circuits. Lights 1 and 2 should therefore go out before light 3. The foot brakes require pressure to apply them whilst the parking brake requires pressure for release. This ensures that the machine cannot be driven away until all the brake circuits are charged.*

3 Stop engine and turn starter switch to the IGN position.

4 Press and release brake pedal until front and rear air tank warning lights **1** and **2** come on.

5 Repeat steps 2 and 3.

6 Hold brake pedal depressed and operate parking brake on and off until parking brake air tank warning light **3** comes on.

7 Repeat step 2.

8 If any of the warning lights do not operate correctly, check the electrical circuits. If any of the lights do not go out correctly, you must consult your JCB distributor.

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Stopping and Parking the Machine

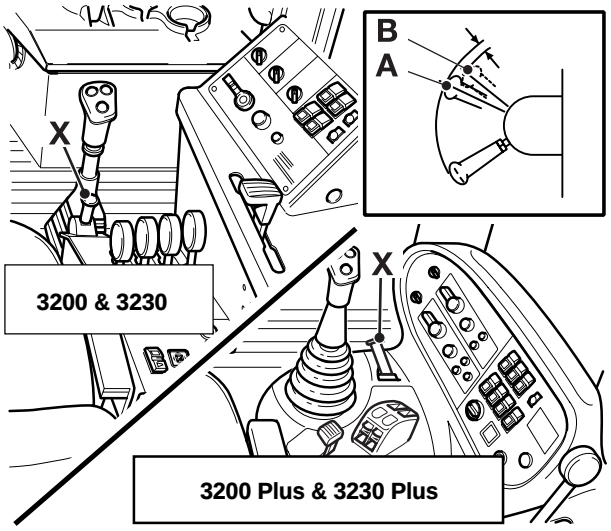


Fig 103.

⚠ DANGER

Leaving the machine in gear will not prevent it running away. Do not leave the driving seat under any circumstances unless the park brake is on.

13-2-1-10

Where possible, stop the machine on dry and level ground. If parking the machine overnight, leave the front wheels on full left lock to allow easy access for the daily checks before starting the engine on the following day.

1 Stop the Machine.

Ease up on the accelerator pedal and down on the brake and clutch pedals to bring the machine to a smooth stop. Keep the foot brake on and the clutch pedal down until the parking brake has been engaged and the drive disengaged, (Steps 2 and 3).

2 Engage the Parking Brake.

Pull up the lever **X**. Make sure that the parking brake indicator lights up.

If a trailer fitted with twin-line trailer air brakes is attached and you are parking on an incline, you must also test the parking brake as detailed under step 8.

3 Disengage the Drive.

Set the speed gearbox lever to neutral.

⚠ WARNING

Before lowering the equipment, make sure that the machine and the area around it are clear of other people. Anyone on or near the machine could fall and be crushed by the equipment, or get caught in the linkages.

13-2-1-4

4 Lower the Equipment.

Operate the control lever to fully lower the equipment.

Note: *When parking the machine for extended periods, close all rams as much as possible to protect the shafts. Lower the rear hitch but raise and block up the front hitch.*

5 Stopping the Engine.

Before stopping the engine, run at idling speed and reduced load for 3-5 minutes to allow the turbocharger to cool down.

6 Stop the Engine and Remove the Starter Key.

Turn the starter key to position 0. If you are going to leave the machine, remove the key.

7 Switch Off All Unnecessary Switches.

If you are leaving the machine, make sure that all switches are set to off. If necessary, leave the hazard warning and/or side lights switched on.

⚠ WARNING

If the machine starts to move during the following test, immediately apply the foot brake and reduce the engine speed.

2-2-5-1

8 Parking on an Incline.

a If a trailer fitted with twin-line trailer air brakes is attached and you are parking on an incline, you must test the parking brake as follows:

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Storage of the Machine

T2-043_2

Introduction

If you will not use the machine 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.

Note: *JCB Dealers must check stock monthly.*

Storage Area

The machine can be stored in a temperature range of:

-40°C to 54°C (-40°F to 129°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.

If the machine is to be out of use for an extended period, careful preparation and on-going care will minimise the possibility of deterioration and damage while in storage.

Prepare the Machine for Storage

1 Clean the machine to remove all unwanted material and corrosive products.

Dry the machine to remove solvents and moisture.

2 Apply grease to the moving parts. Refer to ***Greasing the Machine***.

3 Examine the machine for worn or damaged parts. Replace if necessary.

4 Fill the fuel tank to prevent a build up of condensation in the tank.

5 Examine the coolant condition. Replace if necessary.

6 Examine all fluid levels. Top up if necessary.

Put the Machine into Storage

1 Park the machine on level, solid ground.

Park the machine in a position where the machine is easy to tow (in case the machine does not start at the end of the storage period).

Place suitable timbers under the machine to eliminate direct contact with the ground.

2 Retract all rams and lower the attachments to the ground.

3 Vent the hydraulic system.

4 Remove the starter key.

5 Apply a thin layer of grease or petroleum jelly to all exposed ram piston rods.

6 Remove the battery. Charge the battery.

Keep the battery in warm, dry conditions. Charge the battery periodically.

7 If you keep the machine outdoors, cover the machine with tarpaulins or plastic sheets.

During Storage

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

1 Clean the machine to remove all unwanted material and corrosives.

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

2 Install a charged battery.

3 Start the engine.

4 Operate the hydraulic controls.

Make sure that the hydraulic functions operate correctly.

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Weights and Loads

Unladen Weights

	kg	lb
Basic Machine with rear linkage and rear PTO		
On Front Axle	3765	8300
On Rear Axle	3429	7560
Total Machine	7194	15860
Machine with front linkage and front PTO		
On Front Axle	4015	8851
On Rear Axle	3414	7527
Total Machine	7429	16378

Load Capacities

Front 3-point Linkage	**3500**	**7716**
Rear Pick-up Hitch		
(Maximum vertical down-load)	3000	6613
Rear 3-point Linkage (load on hook end)		
With 80 mm lift cylinders	6000	13227
With 85 mm lift cylinders	7000	15432
With 90 mm lift cylinders	8000	17637
Rear Load Deck		
With standard rear suspension	2500	5511
With heavy duty rear suspension	3250	7165
Trailer Coupling and Ladder	Refer to data plates on the components	

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Cab Layout - All Plus Models

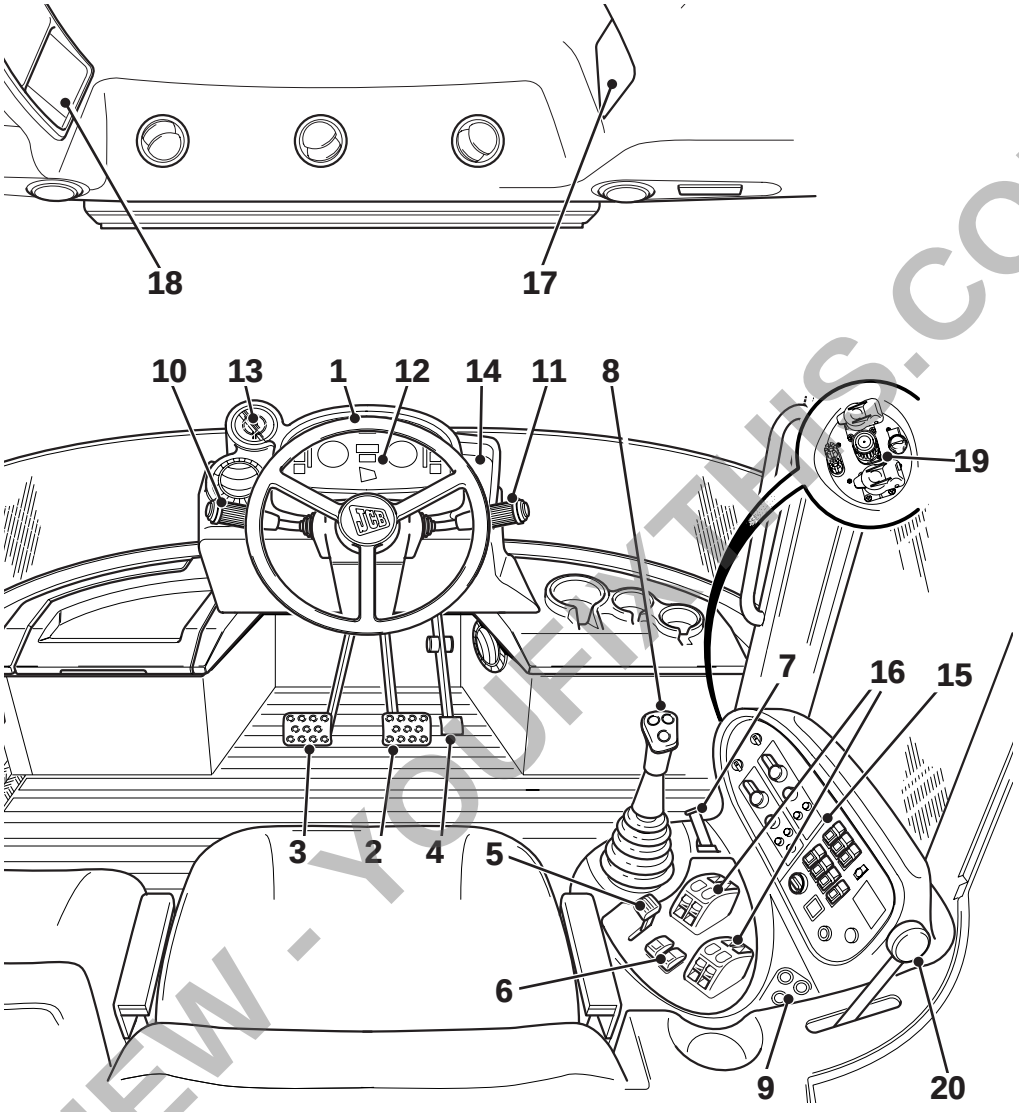


Fig 21.

Controls

1 Steering Wheel

2 Brake Pedal

Push down on the brake pedal to slow or stop the machine. The stop lights should operate when the brake pedal is applied. Do not operate the machine unless both stop lights work correctly.

3 Clutch Pedal

Depress the pedal to disengage the clutch during gear selection. Release pedal slowly.

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Warnings (Visual only)

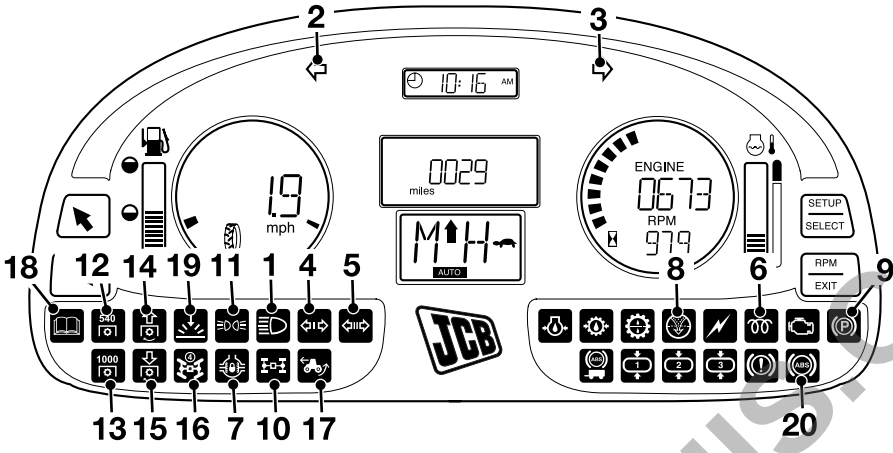


Fig 36.

1 **Main Beam On** - Blue Light

Lights up when the headlight main beams are switched on. Switch the main beams off for on-coming vehicles.

2 **Left Direction Indicators On** - Green flashing light

Flashes with the left direction indicators.

3 **Right Direction Indicators On** - Green flashing light

Flashes with the right direction indicators.

4 **Trailer Direction Indicators On** - Green flashing light

Flashes with items 2 or 3 when a trailer is fitted.

5 **Second Trailer Direction Indicators On** - Green flashing light

Flashes with items 2 or 3 and 4 when a second trailer is fitted.

6 **Wait to Start**

Indicates that engine cold start system is operating. Do not start engine until this light has gone out.

7 **Differential Lock Engaged** - Red light

Lights up when the differential locks are selected.

8 **Air Filter Blocked**

Operates if the engine air filter element needs renewal.

9 **Parking Brake**

Operates when the parking brake is engaged. The light should go out when the parking brake control is pushed down and the air pressure is high enough to release the parking brake. Always engage the parking brake before leaving the machine. If the machine is driven at a speed greater than 0.5 kph with handbrake engaged, the buzzer sounds and the warning lamp flashes.

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