Service Manual

Articulated Dump Truck - 714/718

Section 1 - General Information

Section 2 - Care and Safety

Section 3 - Routine Maintenance

Section B - Body and Framework

Section C - Electrics

Section E - Hydraulics

Section F - Transmission

Section G - Brakes

Section H - Hydraulic Steering

Section K - Engine

Section S - Suspension



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Contents **Page No.**

Identification
About this Manual 1-1
Machine Model and Serial Number 1-1
Using the Service Manual 1-1
Section Numbering 1-1
Left Side, Right Side 1-1
Identifying Your Machine 1-2
Machine Identification Plate 1-2
Component Identification Plates 1-3

Torque Settings
Zinc Plated Fasteners and Dacromet Fasteners 1-5
Introduction 1-5
Bolts and Screws 1-5

Service Tools
Numerical List Section B - Body and Framework 1-9
Section B - Body and Framework 1-10
Numerical List Section C - Electrics 1-13
Section C - Electrics 1-14
Numerical List Section E - Hydraulics 1-15
Section E - Hydraulics 1-17
Numerical List Section F - Transmission 1-20
Section F - Transmission 1-21
Numerical List Section K - Transmission 1-24
Section K - Engine 1-25

Service Consumables
Sealing and Retaining Compounds 1-27

Terms and Definitions
Colour Coding 1-29
Hydraulic Schematic Colour Codes 1-29

Hydraulic Hoses
Connecting/Disconnecting Hydraulic Hoses 1-31
Introduction 1-31
Connecting the Hydraulic Hoses 1-31
Disconnecting the Hydraulic Hoses 1-32
Quick Release Couplings 1-33

Disabled Machine
Moving a Disabled Machine 1-35
Introduction 1-35
Emergency Lowering of the Body 1-35
Lifting the Machine 1-36
Prepare the Machine for Towing 1-37
Transporting the Machine 1-39
Articulation Lock 1-40
Drive Position 1-40

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Circuit Diagrams

ADT 714/718

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Hydraulic System

Introduction

⚠ WARNING

The temperature of the hydraulic oil will be high soon after stopping the engine. Wait until it cools (less than 40°C) before beginning maintenance.

8-3-4-10

⚠ WARNING

Fluid Under Pressure

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

INT-3-1-10_3

⚠ WARNING

Hydraulic Pressure

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

INT-3-1-11_2

⚠ 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

⚠ CAUTION

Do not allow dirt to enter the system. Before disconnecting any part of the system, thoroughly clean around the connection. When a component has been disconnected, always fit protective caps and plugs to prevent dirt ingress.

Failure to follow these instructions will lead to dirt entering the system. Dirt in the system will seriously damage the systems components and could be expensive to repair.

INT-3-3-12

Releasing the Hydraulic Pressure

1 Make sure that the machine is parked correctly in the straight-ahead position. Refer to ***Operation, Stopping and Parking the Machine.***

2 Operate the body control lever to make sure that the body is in the fully lowered position. Refer to ***Operation, Control Levers***.

3 Set the starter key to the OFF position.

4 Set the starter key to the IGN position, but do not start the engine.

5 Operate the body control lever and the foot brake pedal until the remaining hydraulic pressure is released.

6 Set the starter key to the OFF position.

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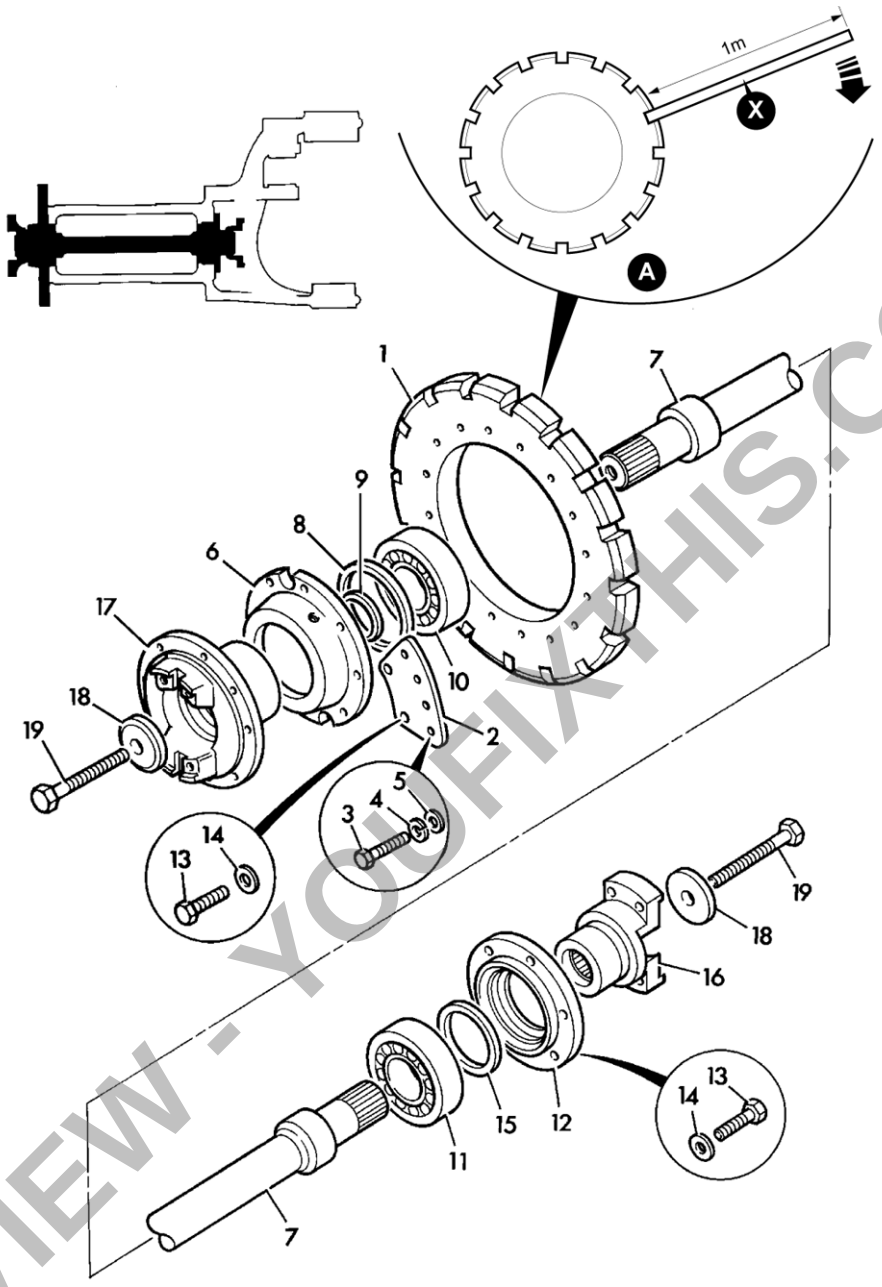


Fig 1. Centre Pivot Components

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Zinc Plated Fasteners and Dacromet Fasteners

Table 2. Torque Settings - UNF Grade 'S' Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
in.	mm	in.	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
1/4	6.3	7/16	11.2	1.1	8.3	10.0	1.0	7.4
5/16	7.9	1/2	22.3	2.3	16.4	20.0	2.0	14.7
3/8	9.5	9/16	40.0	4.1	29.5	36.0	3.7	26.5
7/16	11.1	5/8	64.0	6.5	47.2	57.0	5.8	42.0
1/2	12.7	3/4	98.00	10.0	72.3	88.0	9.0	64.9
9/16	14.3	13/16	140.0	14.3	103.2	126.0	12.8	92.9
5/8	15.9	15/16	196.0	20.0	144.6	177.0	18.0	130.5
3/4	19.0	1 1/8	343.0	35.0	253.0	309.0	31.5	227.9
7/8	22.2	1 15/16	547.0	55.8	403.4	492.0	50.2	362.9
1	25.4	1 1/2	814.0	83.0	600.4	732.0	74.6	539.9
1 1/8	31.7	1 7/8	1181.0	120.4	871.1	1063.0	108.4	784.0
1 1/4	38.1	2 1/4	1646.0	167.8	1214.0	1481.0	151.0	1092.3

Table 3. Torque Settings - Metric Grade 8.8 Fasteners

Bolt Size		Hexagon (A/F)	Condition 1			Condition 2		
ISO Metric Thread	mm	mm	Nm	kgf m	lbf ft	Nm	kgf m	lbf ft
M5	5	8	5.8	0.6	4.3	5.2	0.5	3.8
M6	6	10	9.9	1.0	7.3	9.0	0.9	6.6
M8	8	13	24.0	2.4	17.7	22.0	2.2	16.2
M10	10	17	47.0	4.8	34.7	43.0	4.4	31.7
M12	12	19	83.0	8.5	61.2	74.0	7.5	54.6
M16	16	24	205.0	20.9	151.2	184.0	18.8	135.7
M20	20	30	400.0	40.8	295.0	360.0	36.7	265.5
M24	24	36	690.0	70.4	508.9	621.0	63.3	458.0
M30	30	46	1372.0	139.9	1011.9	1235.0	125.9	910.9
M36	36	55	2399.0	244.6	1769.4	2159.0	220.0	1592.4

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Fault Finding

Error Codes

In the event of a fault developing in the hydraulic suspension system the Electronic Monitoring System (EMS) will display an error code.

The code will be displayed on the top line of the operators EMS display panel in the format:

A complete list of the error codes displayed are detailed in ***Section C, Electrics.***

Important: *When any errors in the hydraulic suspension system are detected, the hydraulic suspension system will shutdown and drain down to the hydraulic tank. The machine will lower onto the bump stops.*

Fault Code	Fault Detected	Possible Causes	Action
S1	No signal is detected from the self levelling suspension switches to the EMS	Cable from self levelling suspension switches to the EMS is broken	Check cables and connectors from self levelling suspension switches to the EMS
		Cable is defective and is contacted to earth	Check signals generated by self levelling suspension switches over a range of positions of the suspension
		Self levelling suspension switch is defective	
S2	Out of range or incorrect signal received from the self levelling suspension switches	Self levelling suspension switches are defective	Check self levelling suspension switches
		Self levelling suspension rods are incorrectly adjusted	Check self levelling suspension rod adjustment
S3	Suspension system is not adjusting to changes in the suspension loading (signals from the self levelling suspension switches are outside the dead band in excess of the set time)	Hydraulic system is defective	Check the hydraulic system for leaks, loose pipework and/or blockages
		Suspension solenoids are defective	Check suspension solenoids

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Centre Pivot

Separating the Front and Rear Chassis

Removal

⚠ WARNING

Machines with a Tip-up Body

A raised body can fall and injure you. Do not walk or work under a raised body unless it safely supported with the body safety strut.

7-1-1-1

⚠ WARNING

Jacking

A machine can roll off jacks and crush you unless the wheels have been blocked. Always block the wheels at the opposite end of the machine that is to be jacked. Do not work underneath a machine supported only by jacks. Always support a jacked-up machine on axle stands before working underneath it.

INT-3-2-8

1 Park the machine in the straight-ahead position on firm, level ground. Apply the park brake and securely chock all the wheels on both sides.

2 Raise the body and support with the body safety support (refer to ***Section 3*** for details on how to fit the body safety support).

3 Select neutral and switch off the engine. Remove the key from the ignition.

4 Remove the locking plate **2** from the locking ring **1**.

5 Using a one metre long tommy bar **X** inserted in the castellations, as shown at **A**, loosen the locking ring **1** but do not remove at this stage.

6 Start the engine, remove the body safety support and lower the body. Stop the engine and operate the hydraulic controls to vent system pressure. Remove the key from the ignition.

7 Isolate the battery by turning the battery isolator switch counter clockwise and removing the isolator key.

8 Using suitable stands or blocks of wood, support the front chassis at the front and rear.

9 Mark the flanges on the driveshaft at the centre joint to intermediate axle connection to ensure correct re-connection. Remove the rear driveshaft

10 With a suitable piece of timber between the contact points, place a trolley jack (with a five tonne rating) under the front of the rear chassis.

11 Remove the locking ring **1**.

12 Remove the chocks from the rear wheels and roll back the rear chassis to separate the chassis from the joint. Replace the chocks under the rear wheels.

Note: *There should be sufficient slack in the hydraulic pipework and electrical harness to allow the front and rear modules to be separated without the pipework or harness being disconnected. When separating the modules, take care not to put undue strain on the hydraulic pipework or the electrical harness.*

If the hydraulic pipework is separated, plug the open ends of the pipes to avoid excess loss of hydraulic fluid and the ingress of dirt.

Replacement

Replacement is the reverse of removal.

Using a one metre tommy bar **X** pivoted on the chassis at **Y**, tighten the locking ring **1** to a torque of 1200 Nm (122 kgf m, 876 lbf ft). This torque is achieved by applying 62 kg force as shown at **A**.

When refitting the driveshaft ensure that they are correctly orientated using the marks made during removal. Refer to ***Section F, Driveshafts*** for details of the driveshaft removal and replacement procedures.

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Cleaning the Machine

Introduction

T3-062_3

Clean the machine using water and or steam. Do not allow mud, debris etc. to build upon the machine.

Before carrying out any service procedures that require components to be removed:

1 Cleaning must be carried out either in the area of components to be removed or, in the case of major work, or work on the fuel system, the whole engine and surrounding machine must be cleaned.

2 When cleaning is complete move the machine away from the wash area, or alternatively, clean away the material washed from the machine.

Important: *When removing components be aware of any dirt or debris that may be exposed. Cover any open ports and clean away the deposits before proceeding.*

Detergents

Avoid using full strength detergent - always dilute detergents as per the manufacturer's recommendations, otherwise damage to the paint finish may occur.

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

Pressure Washing and Steam Cleaning

⚠ WARNING

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

13-3-2-10_2

⚠ CAUTION

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

Ensure that the engine air intake, alternator, starter motor and any other electrical components are shielded and not directly cleaned by the high pressure cleaning system.

ENG-3-3_2

Important: *Do not aim the water jet directly at bearings, oil seals, the engine air intake or electrical and electronic components such as the engine electronic control unit (ECU), alternator or fuel injectors.*

Use a low pressure water jet and brush to soak off caked mud or dirt.

Use a pressure washer to remove soft dirt and oil.

Note: *The machine must always be greased after pressure washing or steam cleaning.*

Preparing the Machine for Cleaning

1 Make the machine safe. Refer to ***Prepare the Machine for Maintenance***.

Important: *Stop the engine and let it cool for a minimum of one hour. Do not try to clean any part of the engine while it is running.*

2 Make sure that all electrical connectors are attached correctly. If the connectors are open, attach the correct caps or seal them with waterproof tape.

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Fluids, Lubricants and Capacities

Specifications

JCB recommend that you use the JCB lubricants shown as they have been verified by JCB for use on JCB machines. However, you could use other lubricants that are equivalent to the JCB standards and quality or offer the same machine component protection.

Item	Capacity		Fluid/Lubricant	JCB Part Number	Container Size[1]
	Litres	Gallon			
Engine Oil[2] includes the filter	14	3.1	JCB Engine Oil EP 15W/40 (-15°C to +50°C (5°F to 122°F)	4001/1805	20 litres
Transmission	35	7.7[3]	JCB HP Universal ATF	4000/2305	20 litres
Axles Housings (x2)	714: 33 718: 29	714: 7.2 718: 6.38	JCB Gear Oil LS Plus	4000/3905	20 litres
Hubs (x4)	6	1.3	JCB Gear Oil LS Plus	4000/3905	20 litres
Centre Pivot Casting	3.3	0.7	JCB Engine Oil HP 15W/40	4001/1505	20 litres
Hydraulic System[4]	119	26	JCB Hydraulic Fluid HP32	4002/1025	20 litres
Cooling System	30	6.6	JCB Antifreeze HP	4006/1120	20 litres
Grease Points			JCB Special HP Grease[5] (Lithium based NLGI No.2 consistency including extreme pressure additives)	4003/2017	400g x24
Fuel System	210	46	Diesel		
Electrical Connections			As a corrosion and moisture inhibitor all of the exposed connections should be covered liberally with petroleum jelly.		

(1) For information about the different container sizes that are available (and their part numbers), contact your local JCB Dealer.

(2) If the JCB Engine Oil EP 15W/40 engine oil is not available, then you must make sure that the engine oil is changed every 250 hours.

(3) The figure quoted is the TOTAL system capacity. Use the 'MAX' and 'MIN' marks on the dipstick when refilling the system.

(4) The total hydraulic system capacity depends on the equipment being used. Fill the system with all rams closed and watch the level indicator.

(5) JCB Special HP Grease is the recommended specification grease. If JCB Special MPL-EP Grease is used, all 50 hour greasing operations must be done at 10 hour intervals, all 500 hour greasing operations must be done at 50 hour intervals.

***Note:** Biodegradeable Hydraulic Fluid is a factory option only. Replenish with JCB Biodegradeable Multigrade Hydraulic fluid. For further information, contact Technical Services.*

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Pre-start Cold Checks, Service Points and Fluid Levels

Table 1. Engine

	Operation	10	50	100(1)	500	1000	2000
Oil level and condition	Check/Adjust	☐	☐	☐	☐	☐	☐
Oil and filter(2)	Replace				☐	☐	☐
Coolant level	Check/Adjust	☐	☐	☐	☐	☐	☐
Coolant mixture concentration	Check/Top-up				☐	☐	☐
Coolant	Change						☐
Water separator fuel filter bowl	Drain		☐	☐	☐	☐	☐
Water separator fuel filter	Change			☐	☐	☐	☐
Fuel filter	Change				☐	☐	☐
Air filter and dust valve(3)	Clean			☐	☐	☐	☐
Air filter outer element(4)	Change					☐	☐
Air filter inner element	Change						
Engine drive belt(5)	Check			☐		☐	☐
Engine mount security	Check/Adjust			☐		☐	☐
Radiator matrix	Check/Clean			☐	☐	☐	☐
Charge air cooler matrix	Check/Clean			☐	☐	☐	☐
Valve clearances(6)	Check/Adjust						
Air compressor belt tension/condition (Option)	Check					☐	☐

(1) The first 100 hours check is only to be completed by your JCB Dealer.
(2) In arduous conditions change the oil and filter after every 250 hours or three months (whichever comes first).
(3) Clean more often when working in dusty operating environments
(4) Change outer element more frequently in dusty operating environments.
(5) Change if necessary.
(6) Check/adjust every 5000 hours.

Table 2. Brakes

	Operation	10	50	100(1)	500	1000	2000
Park brake operation	Check	☐	☐	☐	☐	☐	☐
Foot brake operation	Check	☐	☐	☐	☐	☐	☐
Park brake components	Condition			☐	☐	☐	
Brake pads	Check			☐	☐	☐	

(1) First 100 Hours Service only, to be completed by your JCB Dealer.

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Safety Check List

P7-1004_3

Safety - Yours and Others

INT-1-3-1_3

All machinery can be hazardous. When a machine is correctly operated and properly maintained, it is a safe machine to work with. But when it is carelessly operated or poorly maintained it can become a danger to you (the operator) and others.

In this manual and on the machine you will find warning messages. Read and understand them. They tell you of potential hazards and how to avoid them. If you do not fully understand the warning messages, ask your employer or JCB distributor to explain them.

But safety is not just a matter of responding to the warnings. All the time you are working on or with the machine you must be thinking what hazards there might be and how to avoid them.

Do not work with the machine until you are sure that you can control it.

Do not start any job until you are sure that you and those around you will be safe.

If you are unsure of anything, about the machine or the job, ask someone who knows. Do not assume anything.

Remember

BE CAREFUL
BE ALERT
BE SAFE

General Safety

T1-043

⚠ WARNING

To operate the machine safely you must know the machine and have the skill to use it. You must abide by all relevant laws, health and safety regulations that apply to the country you are operating in. The Operator Manual instructs you on the machine, its controls and its safe operation; it is not a training manual. If you are a new operator, get yourself trained in the skills of using a 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.

INT-1-4-1

⚠ WARNING

Care and Alertness

All the time you are working with or on the machine, take care and stay alert. Always be careful. Always be alert for hazards.

INT-1-3-5

⚠ WARNING

Clothing

You can be injured if you do not wear the proper clothing. Loose clothing can get caught in the machinery. Wear protective clothing to suit the job. Examples of protective clothing are: a hard hat, safety shoes, safety glasses, a well fitting overall, ear-protectors and industrial gloves. Keep cuffs fastened. Do not wear a necktie or scarf. Keep long hair restrained. Remove rings, watches and personal jewellery.

INT-1-3-6_2

⚠ WARNING

Alcohol and Drugs

It is extremely dangerous to operate machinery when under the influence of alcohol or drugs. Do not consume alcoholic drinks or take drugs before or while operating the machine or attachments. Be aware of medicines which can cause drowsiness.

INT-1-3-9_2

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Identifying Your Machine

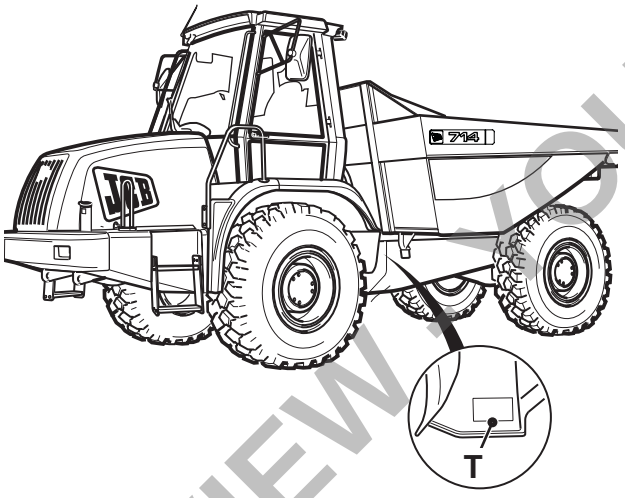
Machine Identification Plate

Your machine has an identification plate mounted as shown. The serial numbers of the machine and its major units are stamped on the plate.

Note: *The machine model and build specification is indicated by the PIN. Refer to* ***Typical Product Identification Number (PIN)****.*

The serial number of each major unit is also stamped on the unit itself. If a major unit is replaced by a new one, the serial number on the identification plate will be wrong. Either stamp the new number of the unit on the identification plate, or simply stamp out the old number. This will prevent the wrong unit number being quoted when replacement parts are ordered.

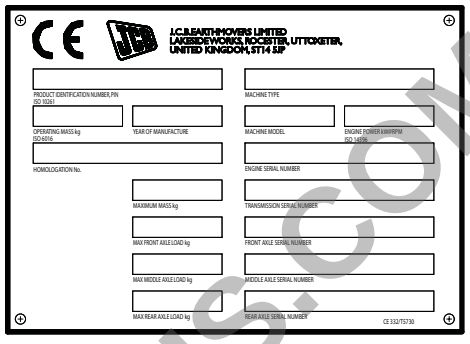
The machine and engine serial numbers can help identify exactly the type of equipment you have.



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Fig 1. T = Identification Plate

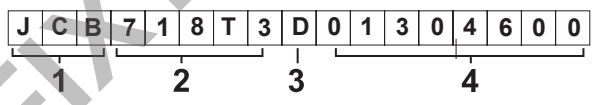
Typical Machine Identification Plate



332/T5730

Fig 2.

Typical Product Identification Number



T033160-13

Fig 3.

1 World Manufacturer Identification (3 Digits)

JCB = UK Build

2 Model Number (5 Digits)

718T3 = 718 Tier 3

3 Check Letter (1 Digit)

The check letter is used to verify the authenticity of the machine's PIN.

4 Year of Manufacture (1 Digit)

A = 2010	D = 2013
B = 2011	E = 2014
C = 2012	F = 2015

5 Machine Serial Number (7 Digits)

Each machine has a unique serial number.

Note: *On later models, the year of manufacture digit will be removed and the machine serial number increased to 8 digits.*

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Notes:

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⚠ DANGER

Working Platform

Using the machine as a working platform is hazardous; you can fall off and be killed or injured. Never use the machine as a working platform.

5-1-5-9

⚠ WARNING

Machine Safety

Stop work at once if a fault develops. Abnormal sounds and smells can be signs of trouble. Inspect and repair before resuming work.

8-1-2-3

⚠ WARNING

Touching hot surfaces can burn skin. The engine and machine components will be hot after the unit has been running. Allow the engine and components to cool before servicing the unit.

10-1-1-40

⚠ WARNING

Travelling at High Speeds

Travelling at high speeds can cause accidents. Do not reverse in a high gear with full throttle. Always travel at a safe speed to suit working conditions.

INT-5-3-3

⚠ WARNING

The engine has exposed rotating parts. Switch OFF the engine before working in the engine compartment. Do not use the machine with the engine cover open.

5-2-6-5

⚠ WARNING

You could be killed or seriously injured if you operate a machine with a damaged or missing ROPS/FOPS. If the Roll Over Protection Structure (ROPS)/Falling Objects Protection Structure (FOPS) has been in an accident, do not use the machine until the structure has been renewed. Modifications and repairs that are not approved by the manufacturer may be dangerous and will invalidate the ROPS/FOPS certification.

INT-2-1-9_6

⚠ WARNING

Hillsides

Operating the machine on hillsides can be dangerous if proper precautions are not taken. Ground conditions can be changed by rain, snow, ice etc. Check the site carefully. Operate in first gear on hillsides, when applicable, keep the tipper body in the fully down position. Never coast down a hill with the engine off or the transmission in neutral.

0193

⚠ WARNING

Visibility

Accidents can be caused by working in poor visibility. Use your lights to improve visibility. Keep the road lights, windows and mirrors clean.

Do not operate the machine if you cannot see clearly.

5-1-4-7

⚠ WARNING

Keep Your Hands and Feet Inside the Vehicle

When using the machine, keep your hands and feet clear of moving parts. Keep your hands and feet within the operator compartment while the vehicle is in motion.

13-1-1-17

⚠ WARNING

Fires

If your machine is equipped with a fire extinguisher, make sure it is checked regularly. Keep it in the correct machine location until you need to use it.

Do not use water to put out a machine fire, you could spread an oil fire or get a shock from an electrical fire. Use carbon dioxide, dry chemical or foam extinguishers. Contact your nearest fire department as quickly as possible. Firefighters should use self-contained breathing apparatus.

INT-3-2-7_2

⚠ WARNING

Safe Working Loads

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

7-1-1-8_2

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Main Relays

Note: *This warning applies only to the ADT 718.*

⚠ WARNING

If the suspension isolator switch is set to the de-activated position when the engine is running, the the front of the machine will lower onto the chassis bump stops. This must be done by a trained engineer only. If proper care is not taken, someone may be trapped and seriously injured or killed.

0066

This box also provides access to the transmission system diagnostic tool communication port and on the ADT 718 only, the hydraulic suspension de-activation switch. Both these items are for the use of JCB Dealers only.

Relay Functions

R1	Flasher Unit
R2	Ignition
R3	Reverse Relay
R4	Park Brake Latch
R5	Reverse Alarm Mute Latch
R6	Empty
R7	Empty
R8	Empty
R9	Air Conditioning
R10	Fog Light Latch
R11	Sidelights With Work Lights
R12	Mute Reverse Alarm
R13	Start Inhibit
R14	Suspension - Left Hand Lower
R15	Suspension - Right Hand Lower
R16	Suspension - Left Hand Raise
R17	Suspension - Right Hand Raise

Note: *The relays R14 to R17 are used on the ADT 718 only.*

Battery Box Components

Primary Fuse Box

Remove the cover **D** to get access to the primary fuses. ⇨ *Fig 20. (🗋 39)*.

Fuse	Circuit(s) Protected	Rating
1	Secondary Fuses A6-A10	40A
2	Secondary Fuses B1-B4	40A
3	Ignition Relay Feed, Secondary Fuses C2-C8	40A
4	Ignition Switch, Secondary Fuses A1-A5, B5-B10, C1	40A

Glow Plug Mega Fuse

Remove the cover **C** to get access to the fuse (125A).

Engine ECU Feed Fuse

Remove the cover **B** to get access to the fuse (30A).

Bulbs

Bulbs	Rating
Headlights - main	75W
Headlights - dip	70W
Indicators	21W
Indicator repeater	5W
Instruments	1.2W
Work lights	70 W Halogen
Number plate light	5W
Tail lights	5W
Front side lights	4W
Stop lights	21W
Beacon	70W Halogen
Rear fog	21W
Warning lights	1.2W
Interior light	10W

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Shock Absorber Removal and Replacement

To remove the shock absorber proceed as follows. *Fig 26. (B-25)*

1 Remove the upper seat. *Upper Seat Removal and Replacement (B-13)*

2 Remove the bellows at the lower suspension part. *Bellows Removal and Replacement (B-15)*

3 Push the bellows upwards and use cable ties or similar to hold it in position during the procedures.

4 Move the seat suspension to its highest position. Use suitable spacers between the upper and lower suspension parts to secure the seat suspension in position.

5 Remove the top cover. *Top Cover Removal and Replacement (B-15)*

6 Disengage and remove the coupling block **5** from the shock absorber and fork end **4**.

7 Disengage the Bowden cable **1** at the cable bracket **2** and fork end. Remove the spring **3**.

8 Remove spring clip **12** and pivot pin **10** to disengage the rod end of the shock absorber from the swinging structure **11**. Remove the cable bracket.

9 Remove the spring clip **9**. Support the shock absorber and remove pivot pin **7**. Move the shock absorber up to disengage it from the swinging structure and then remove it from the seat suspension assembly **13**.

10 Replacement of the shock absorber is the reverse of the removal procedure noting the following.

11 Install the shock absorber with the label **8** facing up.

12 Apply grease to the pivot pins.

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Alternator Link Lead: CAD 718/20193-1

Fig 32.

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Testing the Steer Relief Valve

⚠ WARNING

Make sure the articulation lock is in the transport position before you transport the machine. The articulation lock must also be in the transport position if you are carrying out daily checks or doing any maintenance work in the articulation danger zone.

If the articulation lock is not in the transport position you could be crushed between the two parts of the chassis.

4-3-5-7

⚠ WARNING

Hydraulic Pressure

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

INT-3-1-11_2

1 Park the machine on firm level ground. Apply the park brake and select neutral on the gear change lever.

2 Fit the articulation lock.

3 Stop the engine and operate the controls several times to vent the hydraulic pressure. Remove the starter key.

4 Gain access to the engine compartment by opening and supporting the engine cover.

5 The test point is located on the left hand side of the engine. Remove the test point snap cover.

6 Connect a 0-400 bar (0-6000 lbf/in^2) pressure gauge to the snap connector at the pressure test point.

7 Start the engine and set the speed to 1500 rpm.

8 Keeping the gear change lever in neutral, turn the steering wheel to apply full lock.

9 Record the pressure shown on the pressure gauge. The pressure gauge should show the correct stand-by pressure. ⇨ *Technical Data (E-1)*.

10 Stop the engine and operate the controls to vent hydraulic pressure before removing the pressure gauge.

11 Ensure the test point cover is correctly replaced.

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Axles (Later Machines - ZF Axles)

Introduction

ZF axles are fitted to 714 machines from serial no. 1304514 and 718 machines from serial no. 1304613.

Identification Plate

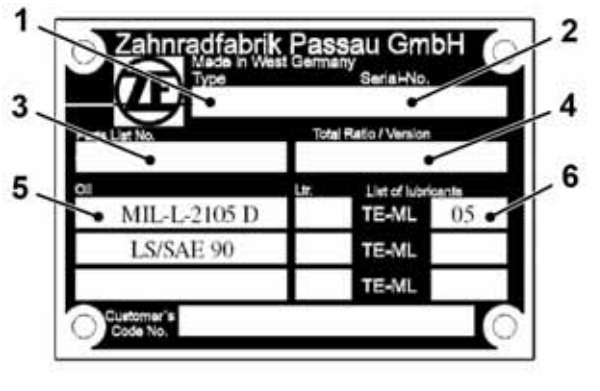


Fig 1.

1 Axle type

2 Axle number

3 ZF – parts list number

4 Overall axle ratio/ version with or without ZF – multi-disc differential lock

5 Oil grade

6 Oil quality

Note: *On item* ***6*** *ZF List of Lubricants for ZF axles TE - ML 05.*

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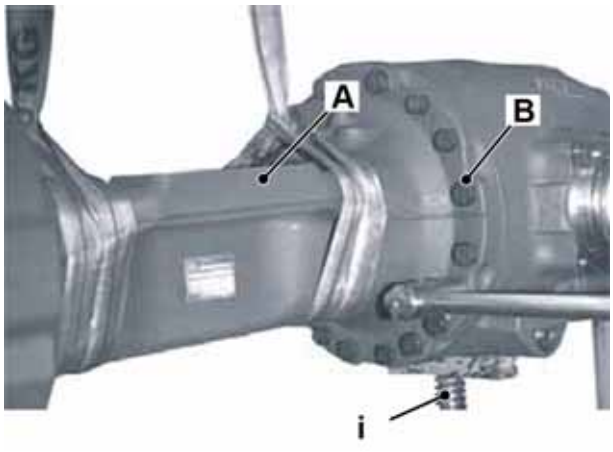
Axle Housing

1 Attach the lifting-device to the axle housing **A**.

2 Loosen the hexagon screws **B**.

3 Carefully separate the axle housing **A** from the axle drive-housing.

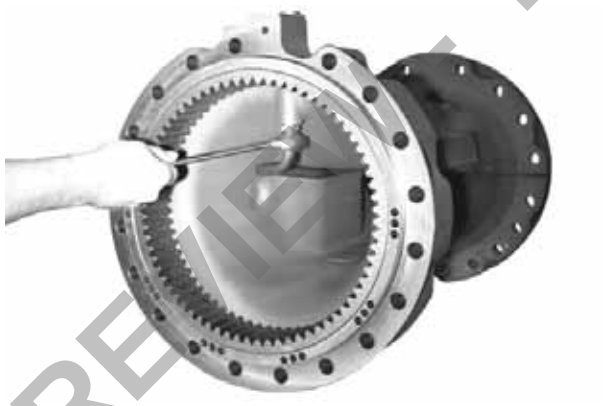
Note: *Use a stand* ***i*** *to support the axle.*



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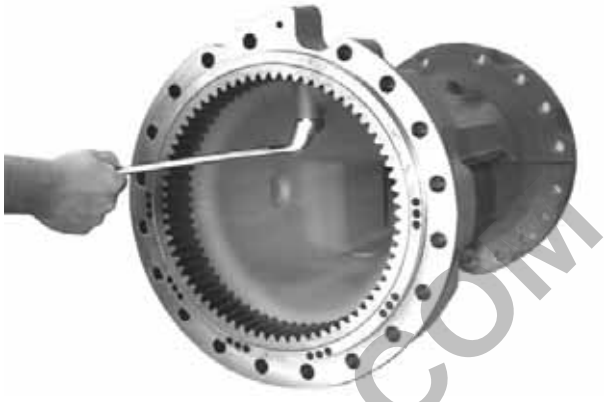
Fig 193.

4 Loosen the threaded connections and remove the releasing brake tube.



C136740

5 Loosen the screw neck.

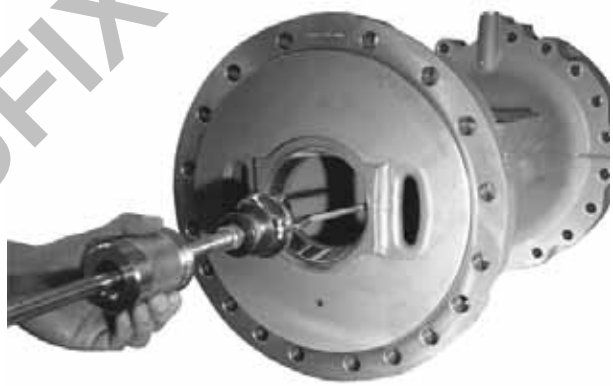


C136750

Fig 194.

6 Pull the bearing outer ring out of the bearing hole and remove the shim behind.

7 Then remove the O-ring (see arrow).



C136760

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Clutch K4

⇒ *Fig 23. (F-136)*.

1 Remove rectangular ring **1**. Pull tapered roller bearing **2** from the shaft **3**.

2 Remove opposite tapered roller bearing **5** accordingly.

Bearing Puller 892/01000

Bearing Tool 892/01001

Bearing Tool 892/01005

3 Remove circlip **6** and, using a three-leg puller, separate plate carrier **7** from shaft **3**.

4 Remove snap ring **8** and remove the plate pack **9** to **11**.

5 Preload cup spring pack **12**, **13** and remove snap ring **14**. Remove released components **12**, **13**.

Spring Compressor 892/01002

6 Force out piston **15** from its box by applying compressed air to the oil port on the innermost bore of plate carrier **7**. Remove O-rings **16** and **17** from the piston.

7 Remove idler gear **18** and remove released components **19** to **21**.

8 Remove needle bearings **22**, axial washers **23**, **25** and needle cage **24**.

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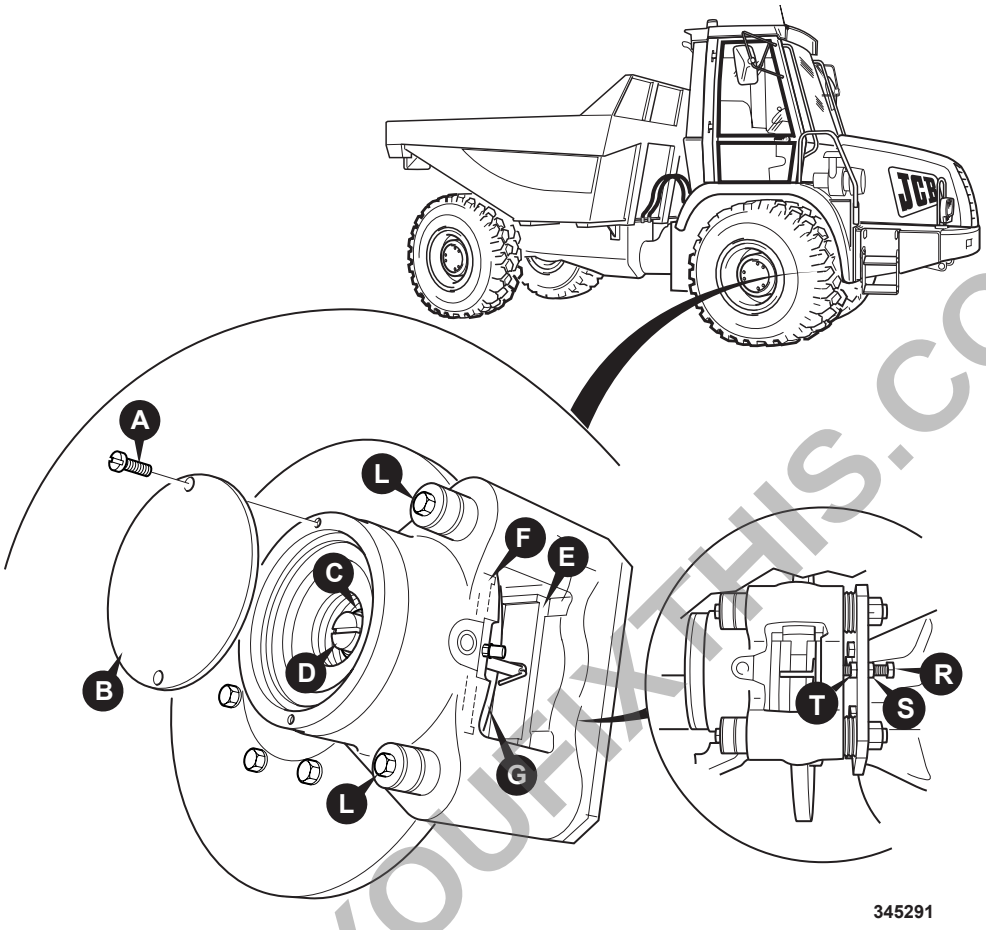


Fig 4.

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Cooling System

Coolant Pressure Cap Setting	15 psi (1.03 bar) Maximum
Coolant Temperature (Normal)	82 ºC - 110 ºC (179 - 203 ºF)
Thermostat Opens at	88 ºC
Thermostat Fully Open at	96 ºC
Capacity	35 litre (7.7 UK gal)

Air Conditioning

Charge Weight	750g

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