Service Manual

Backhoe Loader

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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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Safety Check List

P2-1005_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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Pre-start Cold Checks, Service Points and Fluid Levels

	Operation	10	50	100[1]	500	1000	2000
ENGINE							
Engine Mounting Bolts for Tightness[2]	- Check			☐	☐	☐	☐
Engine Oil Level	- Check	☐	☐				
Engine Oil and Filter (AR Build)[3]	- Change			☐	☐	☐	☐
Engine Oil and Filter (RE Build)[3]	- Change				☐	☐	☐
Fuel Filter	- Drain		☐				
Fuel Filter (AR Build)	- Change			☐	☐	☐	☐
Fuel Filter (RE Build)	- Change				☐	☐	☐
Lift Pump Strainer (AR Build Only)	- Clean			☐	☐	☐	☐
Air Cleaner Dust Valve	- Clean				☐	☐	☐
Air Cleaner Outer Element[4]	- Change				☐	☐	☐
Air Cleaner Inner Element	- Change						☐
Valve Clearances[2]	- Check and Adjust					☐	☐
External Oil Leaks	- Check	☐	☐	☐	☐	☐	☐
Fan Belt Tension/Condition	- Check		☐	☐	☐	☐	☐
Fuel Sedimentor	- Drain and Clean		☐	☐	☐	☐	☐
Coolant Level and Antifreeze Strength	- Check	☐	☐	☐	☐	☐	☐
Pre-cleaner (if fitted)	- Clean	☐	☐	☐	☐	☐	☐
All Hoses - Condition	- Check			☐	☐	☐	☐
TRANSMISSION, AXLES AND STEERING							
Front/Rear Axle Oil Level[5]	- Check			☐			
Front Axle Oil	- Change					☐	☐
Rear Axle Oil	- Change				☐	☐	☐
Wheel Hub Oil Level[5][6]	- Check			☐			
Wheel Hub Oil	- Change			☐		☐	☐
Drive Shafts (including P.T.O. if fitted)	- Security/Grease		☐	☐	☐	☐	☐
Steering Swivels	- Grease				☐	☐	☐
Transmission Oil Level	- Check	☐	☐	☐	☐		
Transmission Oil[7]	- Change					☐	☐
Transmission Oil Filter	- Change			☐	☐	☐	☐

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Fluids, Lubricants and Capacities

Note: *New engines DO NOT require a running-in period. The engine/machine should be used in a normal work cycle immediately, glazing of the piston cylinder bores, resulting in excessive oil consumption, could occur if the engine is gently run-in. Under no circumstances should the engine be allowed to idle for extended periods; (e.g. warming up without load).*

Table 1.

ITEM	CAPACITY		FLUID/LUBRICANT	INTERNATIONAL SPECIFICATION
	Litres	UK Gal		
Fuel Tank	83.2	18.3	Diesel Oil	⇨ *Types of Fuel (🗋 3A-52)*
Engine (Oil)				
- AR Build(1)	11.1	2.5	**JCB 15W/40 Multigrade**	SAE 15W/40
			-10 °C to 50 °C (14 °F to 122 °F)	API CD/SE
			JCB Super Universal Agricultural	SAE 10W/30
			-15 °C to 30 °C (5 °F to 86 °F)	API CD/SE
			JCB Torque Converter Fluid	SAE 10W
			-18 °C to 0 °C (0 °F to 32 °F)	API CD/SE
- RE Build	10.0	2.2	**JCB Extreme Performance**	ACEA E5/B3/A3
			Engine Oil 15W/40	CH-4/SJ
			! CAUTION: DO NOT USE ORDINARY ENGINE OIL	
Engine (Coolant)				
- AR Build	12.0	2.6	**JCB High Performance Antifreeze and Inhibitor/ Water & Summer Coolant/Water,** ⇨ *Coolant Mixtures (🗋 3A-14)*	ASTM D6210
- RE Build	17.0	3.7		
Synchro Shuttle(2)	17.5	3.8	**JCB Extreme Performance Transmission Oil**	
			-32 °C to 40 °C (-25 °F to 104 °F)	10W, EL4117
			-5 °C to 46 °C (23 °F to 115 °F)	SAE 30, EL4118
				CAT T04
				ZFTE-ML3C
			Friction modified oils MUST NOT be used (e.g. Dexron ATF type)	
Axles				
Housing (Front)	11	2.4	**JCB Special Gear Oil Plus**	API-GL4
Housing (Rear)	15.5	3.4	Must be suitable for use with oil immersed brakes and limited slip differentials (LSD).	
Hubs (x4)	1.8	0.4		
Brake System	1.4	0.3	**JCB Light Hydraulic Fluid**	ISO VG15
			! CAUTION: DO NOT USE ORDINARY BRAKE FLUID	
Hydraulic System(3)	58 (tank capacity)	12.75	**JCB High Performance Hydraulic Oil** (Above 38 °C, 100 °F)	ISO VG46

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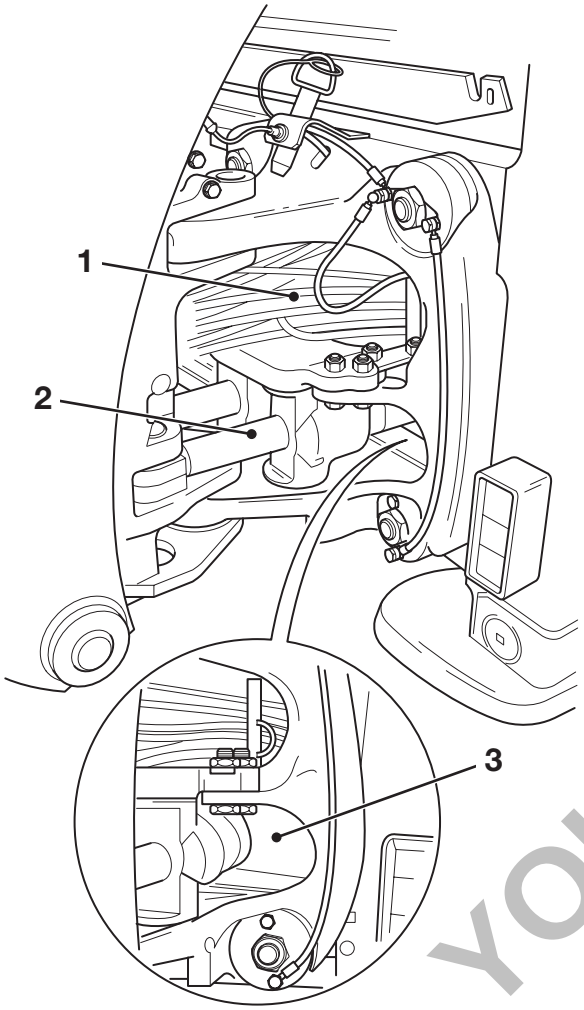


Fig 1.

d Kingpost slide rails (sideshift).

e Kingpost hose tray and bottom ‘shelf’ (sideshift).

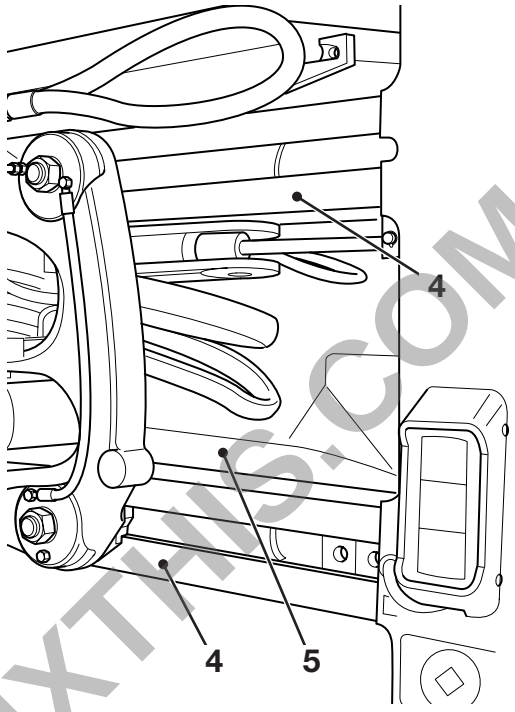


Fig 2.

f Recess between slew ram and kingpost casting (sideshift).

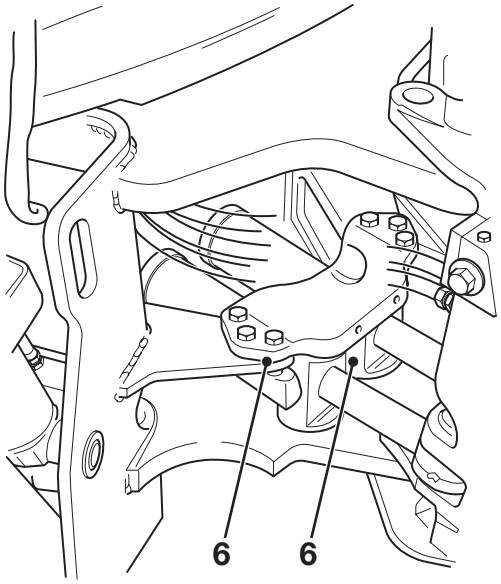


Fig 3.

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Prepare the Machine for Maintenance

Introduction

⚠ WARNING

Maintenance must be done only by suitably qualified and competent persons.

Before doing any maintenance make sure the machine is safe, it should be correctly parked on level ground.

To prevent anyone starting the engine, remove the starter key. Disconnect the battery when you are not using electrical power. If you do not take these precautions you could be killed or injured.

8-3-1-1

Make the machine safe before you start a maintenance procedure.

You can complete most of the maintenance procedures with the loader arms lowered. Unless a maintenance procedure instructs you differently, you must lower the loader arms. Refer to ***How to Make the Machine Safe (Loader Arms Lowered)***.

If you lift the loader arms to get access for maintenance, you must install the maintenance strut on the loader arm. Refer to ***How to Make the Machine Safe (Loader Arms Lifted)***.

How to Make the Machine Safe (Loader Arm Lowered)

Important: *You can complete most of the maintenance procedures with the loader arms lowered. Unless a maintenance procedure instructs you differently, you must lower the loader arms.*

1 Park the machine on level, solid ground.

If necessary, refer to ***Stopping and Parking the Machine*** in the Operator Manual.

2 Lower the loader arms.

3 Put the attachment flat on the ground.

4 Stop the engine and remove the starter key.

5 Disconnect the battery to prevent accidental operation of the engine.

6 If necessary, put chocks against the two sides of the wheels before you get below the machine.

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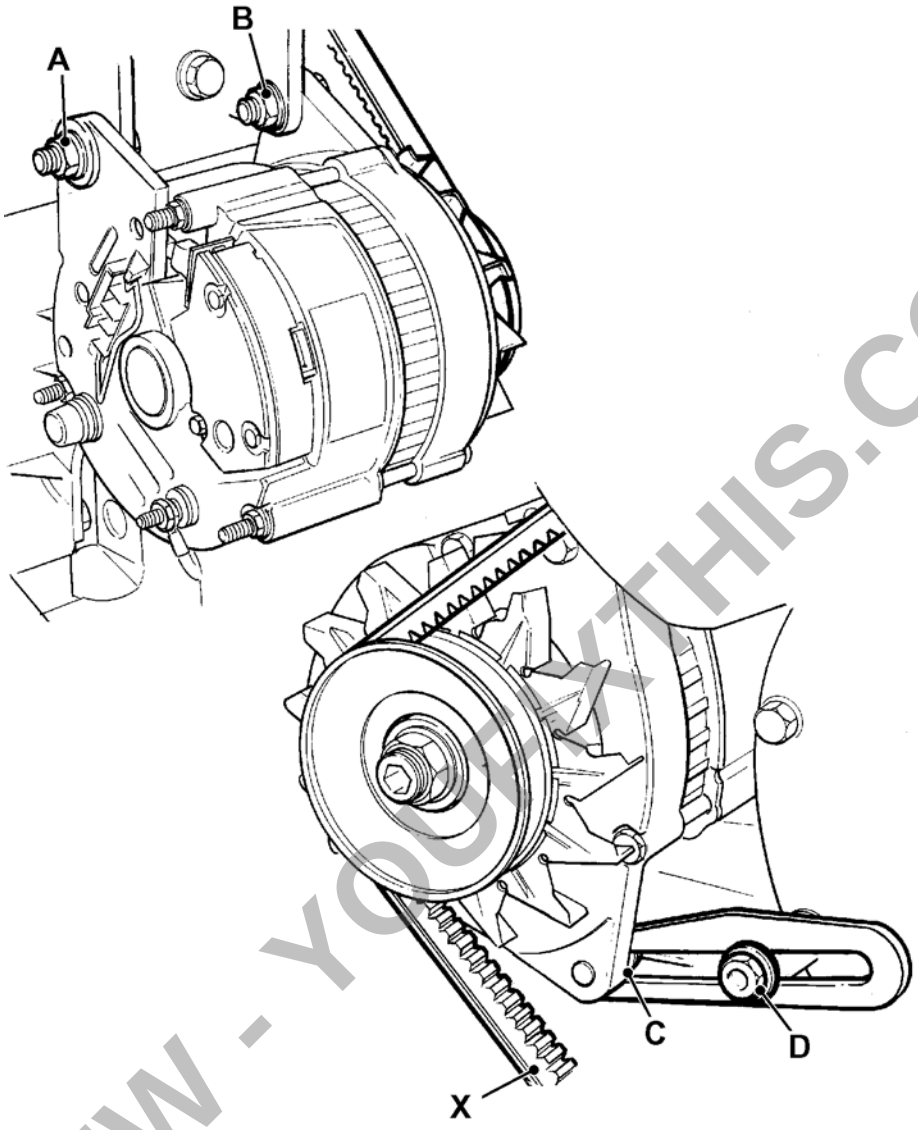


Fig 33.

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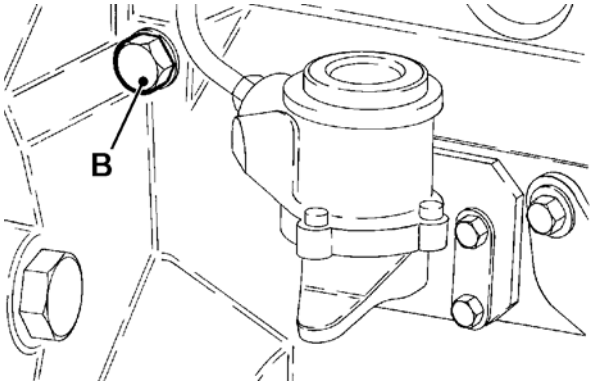


Fig 37.

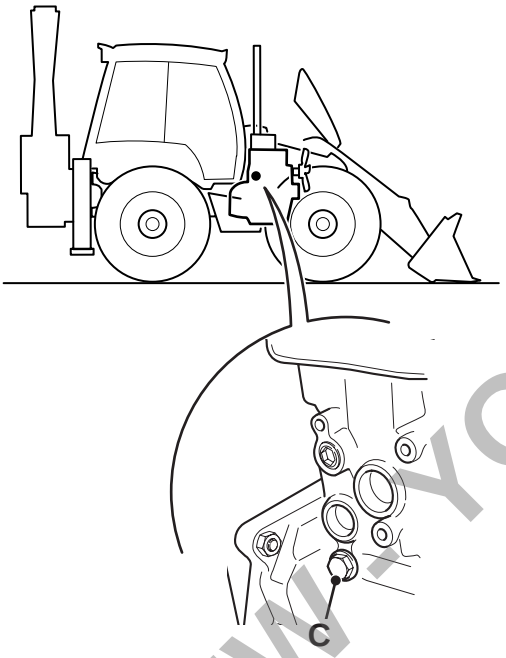


Fig 38.

5 Disconnect the radiator hose at **39-D** (Machines up to serial no. 942658), **40-E** (Machines from serial no. 942659) and allow the coolant to drain. Flush the system using clean water.

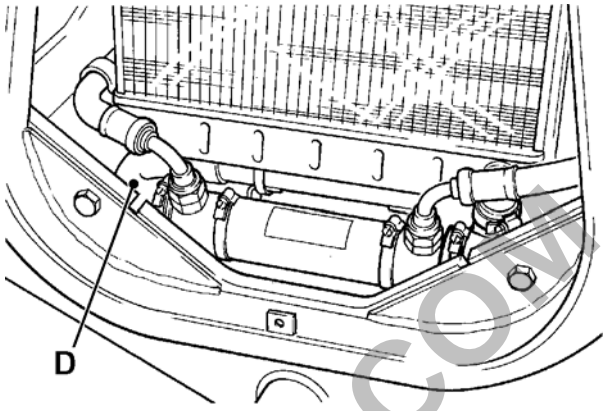


Fig 39.

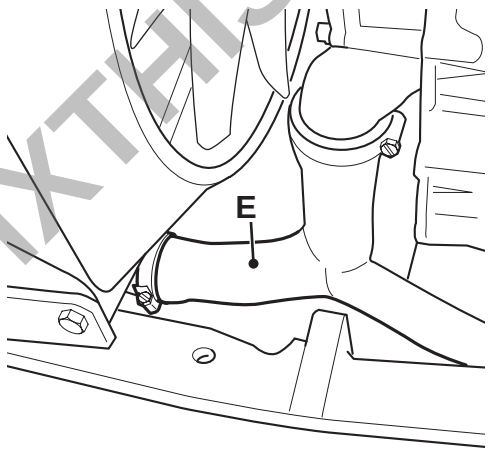


Fig 40.

6 Clean and refit plug **37-B** (AR Build), **38-C** (RE Build). Make sure it is secure. Reconnect the radiator hose at **39-D** or **40-E** as applicable.

7 Use the necessary mix of clean, soft water and antifreeze. ⇨ *Coolant Mixtures (3A-14)*. Fill to the COLD/MIN level on the coolant reservoir.

RE Build Engines: It is recommended that the cooling system be filled at a maximum rate of 10 litres per minute. If the fill rate is any higher than this there is a possibility of air becoming trapped in the system.

8 Start the engine and run at idle to circulate the coolant, top up with coolant as necessary.

9 Refit the filler cap. Make sure it is tight.

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Fuel System

Types of Fuel

T3-007_2

Use good quality diesel fuel to get the correct power and performance from your engine.

Recommended Fuel Specification

- EN590 Diesel Fuel Types - Auto/Co/C1/C2/C3/C4.
- BS2869 Class A2.
- ASTM D975-91 Class 2-2DA, US DF1, US DF2, US DFA.
- JIS K2204 (1992) Grades 1, 2, 3, and Special Grade 3.

Note: *Where low sulphur/low aromatic fuels are used it is important that lubricity additives are used. The additives listed below are advertised as being suitable for bringing the lubricity levels of kerosene/low sulphur fuels up to those of diesel fuels. They have not been tested or approved by the engine manufacturer. They should be added by your fuel supplier who should understand the concentration level necessary.*

1 Elf 2S 1750. Dosage 1000-1500 ppm (0.1 - 0.15%), specifically for Indian Superior Kerosene (SKO) but may be applicable to other fuels.

2 Lubrizol 539N. Dosage (on Swedish low sulphur fuel) 250 ppm.

3 Paradyne 7505 (from Infineum). Dosage 500 ppm (0.05%).

⚠ CAUTION

Consult your fuel supplier or JCB distributor about the suitability of any fuel you are unsure of.

GEN-9-2

Acceptable Fuel Specification

⚠ CAUTION

The fuel specification below is acceptable, however this fuel may reduce the life of the fuel injection equipment. The use of this fuel may also affect the engine performance.

GEN-9-3

- ASTM D975-91 Class 1-1DA.
- JP7, MIL T38219 XF63.
- NATO F63.

Sulphur Content

⚠ CAUTION

A combination of water and sulphur will have a corrosive chemical effect on fuel injection equipment. It is essential that water is eradicated from the fuel system when high sulphur fuels are used.

ENG-3-2

High sulphur content can cause engine wear. (High sulphur fuel is not normally found in North America, Europe or Australia.) If you have to use high sulphur fuel you must change the engine oil more frequently.

Table 3.

Percentage of sulphur in the fuel (%)	Oil Change Interval
Less than 0.5	Normal
0.5 to 1.0	0.75 of normal
More than 1.0	0.50 of normal

Aviation Kerosene Fuels

Note: *Aviation kerosene fuels are not approved and their use may cause damage to components. Warranty will not be allowed on any component where damage is found to have been caused by the use of aviation kerosene.*

Low Temperature Fuels

Special winter fuels may be available for engine operation at temperatures below 0°C (32°F). These fuels have a lower viscosity. They also limit wax formation in the fuel at low temperatures. (Wax forming in the fuel can stop the fuel flowing through the filter.)

Fatty Acid Methyl Ester Fuels as a Replacement for diesel Fuels

Fuel resources such as Rape Methyl Ester and Soybean Methyl ester, collectively known as Fatty Acid Methyl

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ROPS/FOPS Structure

Checking The ROPS/FOPS Structure

⚠ 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

For assistance, contact your JCB distributor. Failure to take these precautions could result in death or injury to the operator.

Check the structure for damage. Check that the mounting bolts are installed and undamaged. Check the bolt torques. ⇨ *Torque Settings (🗋 3A-19)*. Tighten them to the correct torque if necessary.

1 Torque tighten bolts **A**.

Table 2. Torque Settings

Bolts **A**	205 Nm (150 lbf ft)

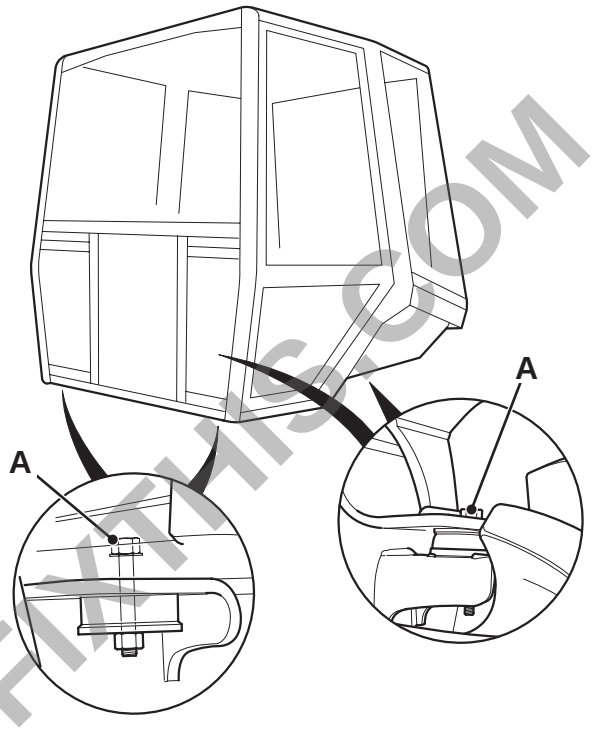


Fig 4.

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Changing the Engine Fuel Filter Element

Mechanical Fuel Injection System

T3-078

1 Get access to the Engine Fuel Filter. Refer to ***Water Separator and Engine Fuel Filter, Introduction***.

2 Thoroughly clean the outside of the filter housing and around the filter head.

3 Loosen the drain tap **A** and allow the fuel to drain into a suitable container.

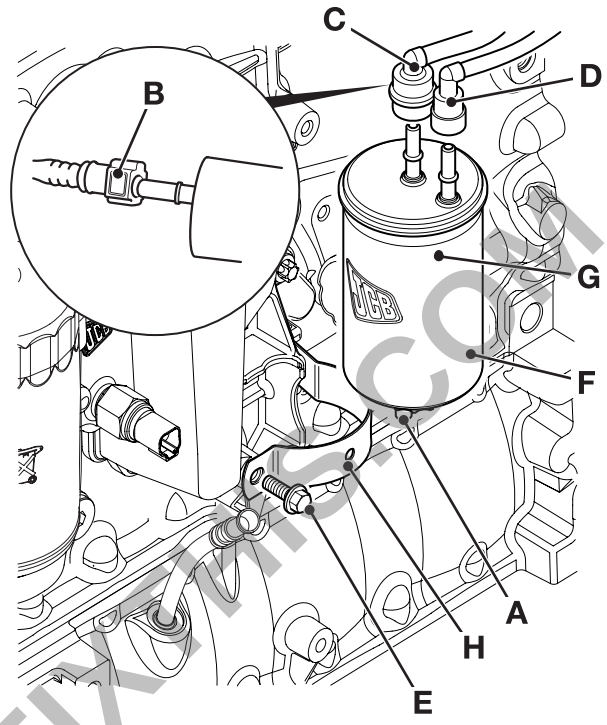
4 Mark the pipes prior to removal to ensure they are refitted in the correct position. Press fuel coupling release button **B** and disconnect fuel lines **C** and **D**.

5 Release the filter strap retaining screw **E** and lift the filter clear.

6 Install new filter element **F**. Make sure that the black dot **G** is aligned with the locating hole **H** in the strap. Torque tighten the filter strap retaining screw **E** to 24 Nm (17.7 lbf ft).

7 Reconnect the fuel lines **C** and **D**.

8 Bleed the fuel system. Refer to ***Bleeding the System***.



C007090

Fig 55.

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Blow Down Valve

The blow down valve is situated on top of the receiver. It operates automatically to release all air pressure within the system on shut-down, thus ensuring that the plant is not started against delivery pressure.

The valve consists of a body **5** which contains a fluted valve guide **7**, valve **4** and valve seating washer **3**. The valve components are attached to a diaphragm, and the whole is enclosed by a cap **1** at one end and a screwed cover **6** at the other.

When the plant is running, a depression is created within the unloader body which is applied to the top of the diaphragm **2** via inlet **9**. Receiver air pressure **10** acts simultaneously against the underside of the valve **4** and washer **3**. The washer is therefore retained firmly on its seat thus preventing the escape of receiver pressure through ports **8** in the upper portion of the valve body.

On shut-down the delivery cocks are first closed, then the engine is stopped. The residual pressure in the receiver builds up within the unloader body (the unloader valve now acting as a non-return valve) and is applied to the top of diaphragm **2**.

This pressure on the large area of diaphragm **2** is sufficient to overcome the receiver pressure acting on the smaller area of valve **4**, therefore the washer **3** is lifted from its seat so allowing the pressure still in the receiver to escape to atmosphere through ports **8**.

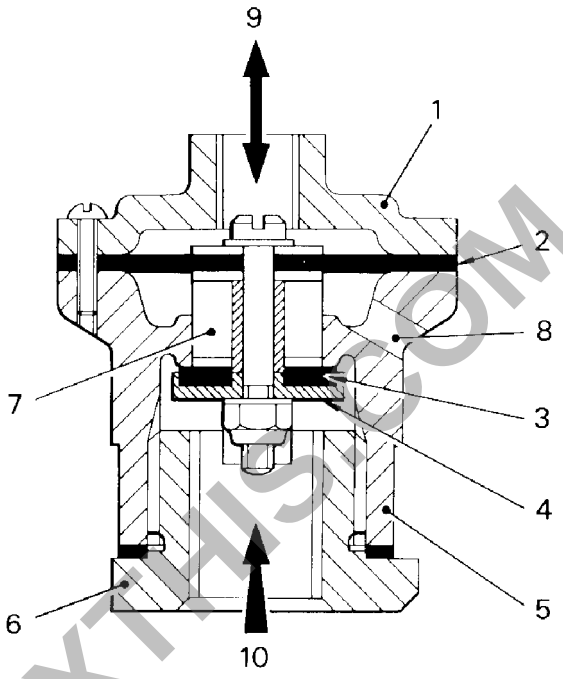


Fig 33.

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Relubricating

Pre-lubrication is essential after recovering system refrigerant, vacuuming and component flushing.

The system should be evacuated to a vacuum of 740mm (29 in) of mercury before re-lubricating.

1 Ensure that the engine is OFF and the starter key is removed.

2 Close all valves and connect the manifold as shown, with the blue hose **17-A** connected to the oil injector **17-E** and the red hose **17-B** to the system high pressure port.

3 Connect the yellow hose **17-C** to the vacuum pump **17-D**.

4 Connect the other end of the oil injector **17-E** to the system low pressure point **17-F**.

5 Switch on the vacuum pump **17-D** and open the high pressure side valve.

6 Unscrew the oil injector cap and add the specified quantity of refrigerant oil.

7 When 740mm (29 in) mercury shows on the vacuum gauge, open the oil injector valve to allow the oil into the system.

8 If more oil is needed repeat the above procedure. The quantity of oil should be the same as that taken out during the 'Recovery' procedure.

Note: *Use only PAG oil in R-134a systems.*

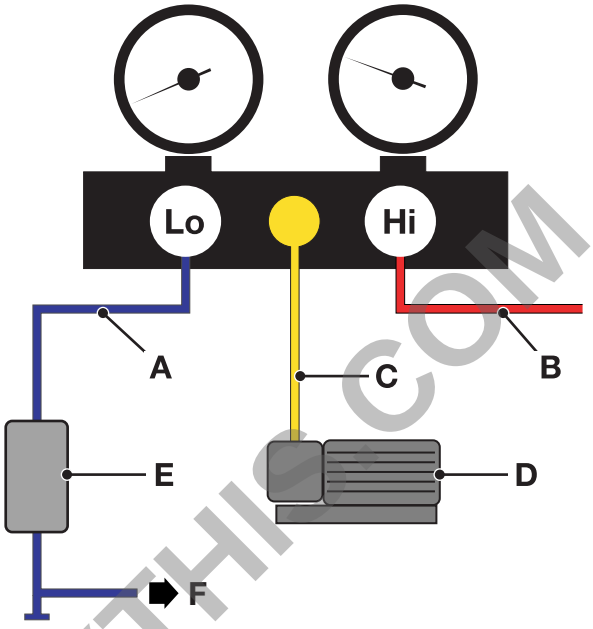


Fig 17. Relubricating

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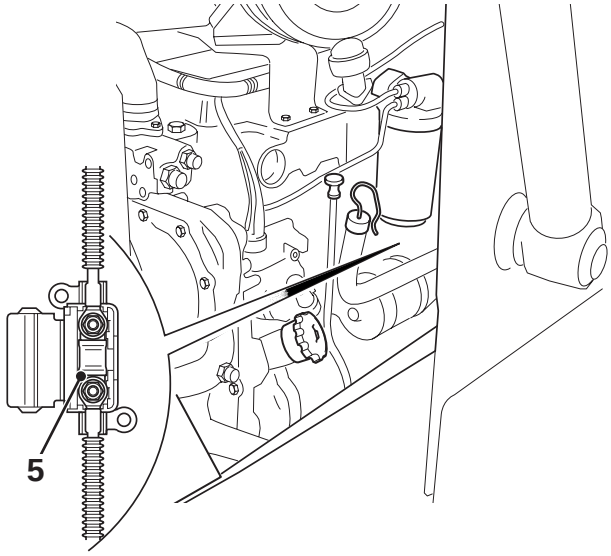


Fig 3.

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⇒ *Cab/Side Console - CAD 721/11531 Issue 3 (C-75)*

Key to Connectors: ⇒ *Fig 10. (C-75)*

C10	Headlight LH
C20	Column switch LH
C25	Park brake switch
C30	Fog light switch
C40	Headlight switch
C50	Hazard switch
C55	Hazard diode
C60	Instrumentation
C70	Warning light cluster
C100	Foot brake switch
C110	Front wiper
C120	Front earth
C130	Column switch RH
C140	Headlight RH
C142	Park brake diode
C145	Creep speed cab connector
C146	Creep speed bypass
C150	Loader dump switch
C160	Engine/Mainframe connector
C162	Creep
C164	Handheld tools (HTC)
C166	Handheld tools (HTC) link
C170	Junction box
C175	Work lights (UK)
C176	Work lights (Option)
C180	Heater
C185	Air conditioning
C190	Dump diode
C200	Radio
C210	Roof connector
C220	Work lights diode
C230	Tachometer illumination
C240	Tachometer
C250	Tachometer illumination
C260	Water temperature gauge illumination
C270	Water temperature gauge
C280	Fuel gauge illumination
C290	Fuel gauge
C296	Engine/Transmission oil pressure diodes
C297	Warning light diodes
C298	Park brake/Cooling temperature warning light diode
C299	Alternator warning light diode
C300	Alternator warning light diode
C302	Battery/Park brake warning light
C306	Transmission/Water temperature warning lights
C320	Engine/Transmission oil pressure warning lights
C325	Air filter warning light
C330	Handheld tools (HTC) switch
C340	Heater switch
C360	2/4 Wheel steer switch
C370	Power socket
C380	Ignition switch
C390	Shovel reset
C400	Smooth ride system (SRS) switch
C410	Rear wiper switch
C420	Switch illumination feed
C430	Beacon switch
C440	Front work light switch
C450	Rear work light switch
C460	Forward creep relay
	Reverse creep relay
C470	Pressure relief relay
	Brake lights relay
C480	Lights relay
	Rear horn relay
C490	Forward relay
	Reverse relay
C500	Dump relay
	Park brake relay
C510	Neutral start relay
C520	Flasher relay
C530	Front work lights relay
C540	Rear work lights relay
C550	Ignition 1 relay
C560	Ignition 2 relay
C570	Warning Buzzer
C580	Earth point
C590	Rear wiper
C600	Fusebox A
C610	Fusebox B
C620	Fusebox C
C630	Compressor start relay (Airmaster)
	Compressor shutdown relay (Airmaster)
C640	Compressor interlock relay (Airmaster)
	Blank
C650	Compressor latch diode
C660	Dallas key

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Utility Panel - CAD 721/12212 Issue 2

Key to Connectors: ⇒ *Fig 56. (C-145)*

C10 Panel connector 1
C20 Panel connector 2
C25 Panel connector 3
C30 Fuel gauge
C40 Fuel gauge illumination
C50 Tachometer illumination 1
C60 Tachometer
C70 Tachometer illumination 2
C80 Master warning lights cluster
C90 Water temperature gauge illumination
C100 Water temperature gauge
C110 Instrument panel

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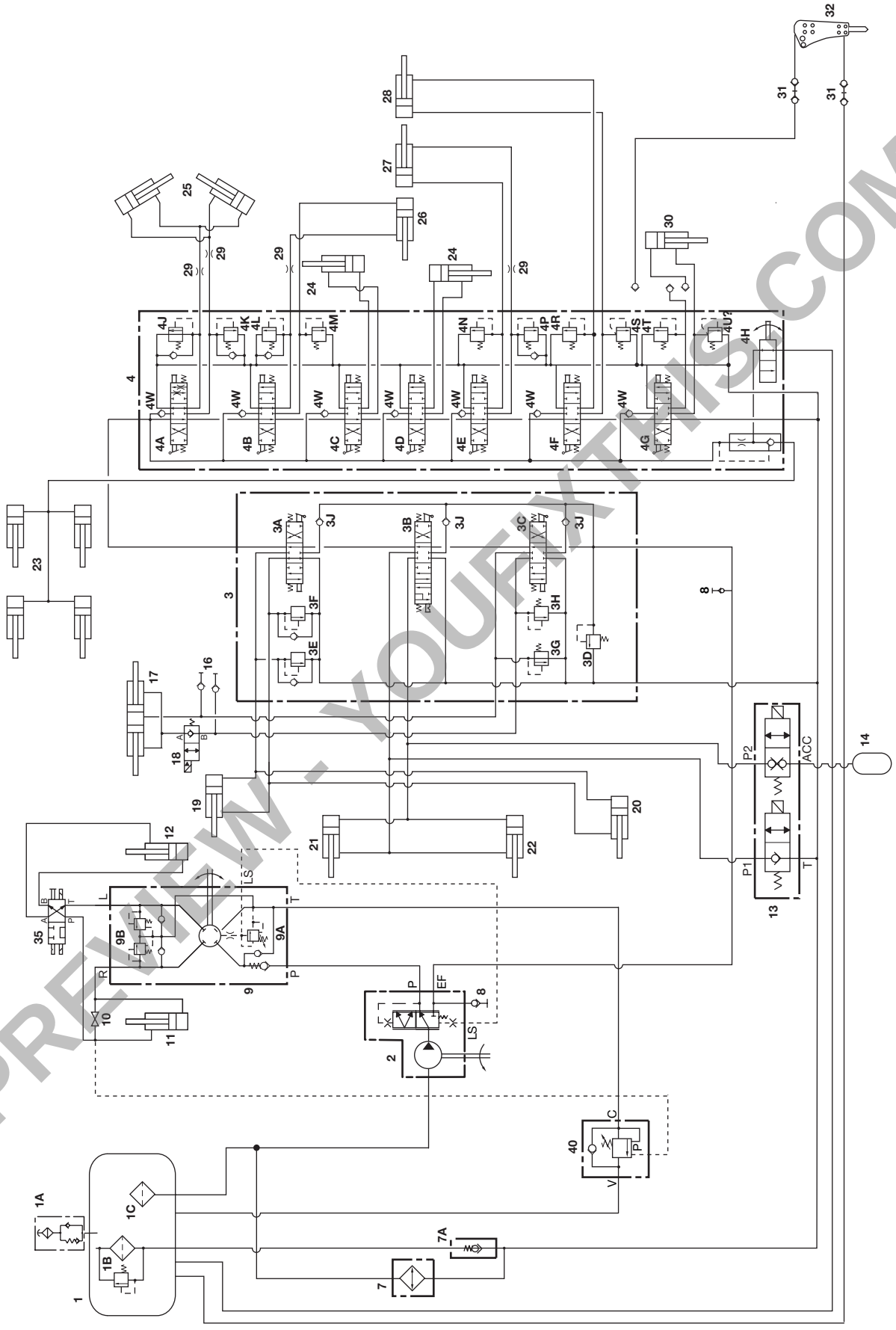


Fig 4. 2CX, 210S Backhoe Loader

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Electric Detent Spool

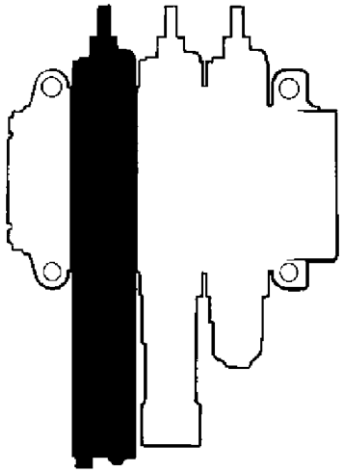


Fig 10.

⇒ *Fig 11. (E-100)*. The numerical sequence shown on the illustration is intended as a guide to dismantling.

For assembly the sequence should be reversed.

The following points MUST be avoided when dismantling and assembling the valve:

- **Contamination**
- **Damage to spool**
- **Damage to seal grooves**

All or any of the above points may result in possible problems with the valve.

Dismantle

Remove the lever linkage from the tang (lever) end of the spool.

When removing 'O' rings and seals, use an appropriately rounded tool that WILL NOT cause any damage to the spool or seal grooves, for instance, item **3**, which is a wiper seal and is a press fit in the counterbore.

Discard ALL `O' rings. DO NOT use worn or damaged items.

Care must be taken to ensure that the spool **16** is not damaged when removing it from the valve block.

Hold the spool in a suitable clamp, remove screw **9** and 'clapper' **10**. Unscrew spool end **12** and remove spring **14** with cups **13** and **15**.

Inspect the valve components for scratches, nicks or any other type of damage, replace with new if required.

Check for surface contamination on the under side of the seal plate **2** and spacer **17**. Clean if necessary. Check for the flatness of the seal plate. If found to be bent - replace with new (any work previously carried out on this valve may have resulted in the bending of the seal plate).

Assemble

Renew wiper **3** and 'O' rings **4**, **19** and **22**.

When fitting spool end **12**, clean the threads thoroughly using JCB Cleaner and Degreaser, leave it for 10 minutes then apply a small quantity of JCB Threadlocker and Sealer to the threads of the spool.

Check the operation of the solenoid **7** after assembly by connecting a 12V supply. The spool should be held when it is pushed into the detent position and returned when the supply is disconnected.

Re-connect the lever mechanism to the tang (lever) end of the spool.

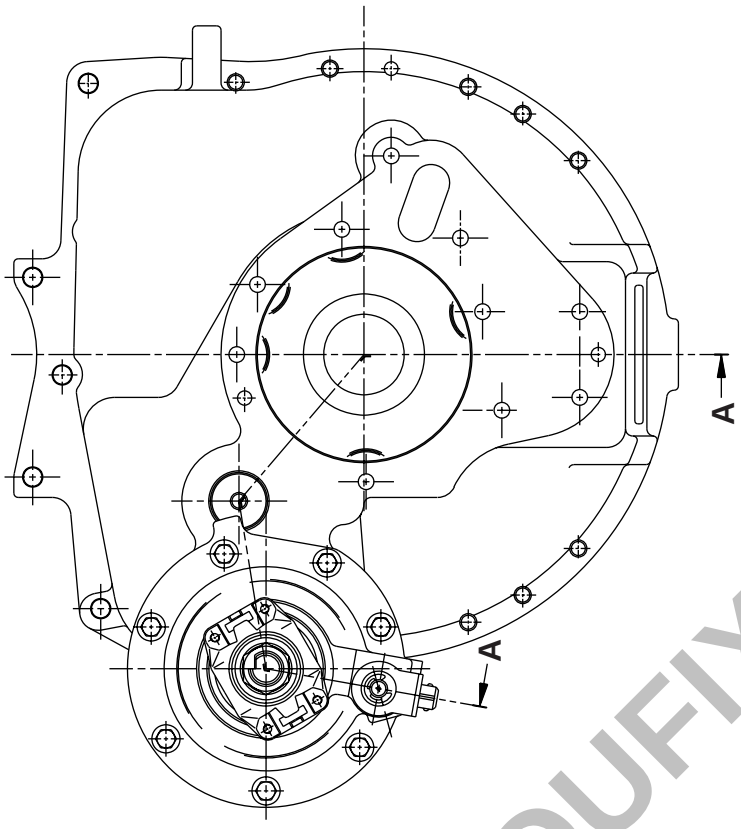
Run the engine and inspect the valve for external leaks.

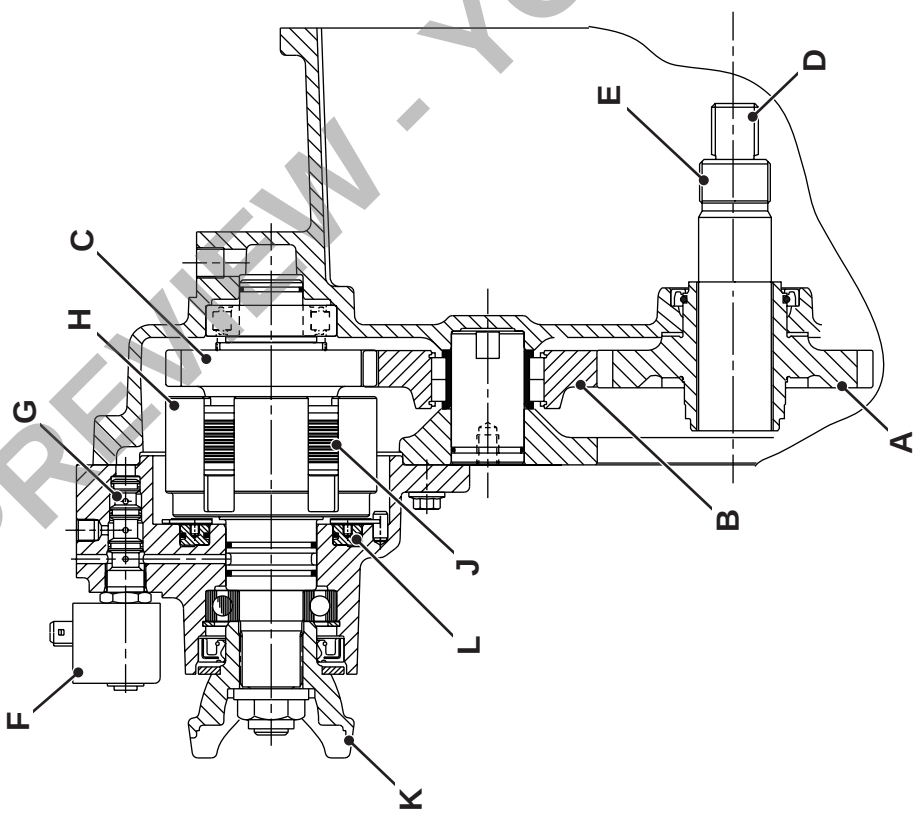
Table 5. Torque Settings

Item	Nm	kgf m	lbf ft
5	6.1 - 7.5	0.62 - 0.76	4.5 - 5.5
9	6.1 - 7.5	0.62 - 0.76	4.5 - 5.5
12	9.5 - 10.9	0.97 - 1.11	7 - 8

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SECTION THROUGH A - A

Fig 5. Power Take-Off Unit

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Turning

⇒ *Fig 8. (H-33)*. As the steering unit **43** is operated, pressure is applied to the spring end of the priority valve spool **2B** via sensing line **LS** from the steering unit.

This reduces the pressure differential across the spool, causing it to move to the right under spring force. This allows priority valve flow to the steering unit which directs the flow to the steer rams **40** and **41** until the required steering lock is reached. When the steering lock is held the pressure signal across the side port **LS** of the steering unit ceases, restoring the pressure differential across spool **2B**. The spool moves back to the left, allowing full pump flow to the loader control valve **3**.

Because the pump output is always greater than the flow required to operate the steering system, flow to the loader valve is never completely cut off.

Maximum steering system pressure is controlled by relief valve **43B**, located in the steering unit **43**.

Component Key:

LS	Load Sensing Port
P	From Pump
T	To Loader Valve
2	Priority Valve
2A	Spring
2B	Spool
2C	Drilling
3	Loader Valve
40	Front Steer Ram
41	Rear Steer Ram
43	Steer Unit
43B	Relief Valve

⇒ *Table 1. Colour Key to Oil Flow and Pressure (H-19)*.

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