Service Manual

8055, 8065

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Section 2 - Care and Safety

Section 3 - Maintenance

Section A - Attachments

Section B - Body and Framework

Section C - Electrics

Section D - Controls

Section E - Hydraulics

Section F - Gearboxes

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Section K - Engine



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Introduction

About this Manual

Machine Model and Serial Number

This manual provides information for the following model(s) in the JCB machine range:

JCB 8055 from serial number 1536000 Onwards

JCB 8065 from serial number 1537500 Onwards

Using the Service Manual

T11-004

This publication is designed for the benefit of JCB Distributor Service Engineers who are receiving, or have received, training by JCB Technical Training Department.

These personnel should have a sound knowledge of workshop practice, safety procedures, and general techniques associated with the maintenance and repair of hydraulic earthmoving equipment.

The illustrations in this publication are for guidance only. Where the machines differ, the text and/or the illustration will specify.

General warnings in Section 2 are repeated throughout the manual, as well as specific warnings. Read all safety statements regularly, so you do not forget them.

Renewal of oil seals, gaskets, etc., and any component showing obvious signs of wear or damage is expected as a matter of course. It is expected that components will be cleaned and lubricated where appropriate, and that any opened hose or pipe connections will be blanked to prevent excessive loss of hydraulic fluid and ingress of dirt.

Where a torque setting is given as a single figure it may be varied by plus or minus 3%. Torque figures indicated are for dry threads, hence for lubricated threads may be reduced by one third.

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.

Finally, please remember above all else safety must come first!

Section Numbering

T11-005

The manual is compiled in sections, the first three are numbered and contain information as follows:

1 General Information - includes torque settings and service tools.

2 Care and Safety - includes warnings and cautions pertinent to aspects of workshop procedures etc.

3 Maintenance - includes service schedules and recommended lubricants for all the machine.

The remaining sections are alphabetically coded and deal with Dismantling, Overhaul etc. of specific components, for example:

A Attachments

B Body and Framework, etc.

Section contents, technical data, circuit descriptions, operation descriptions etc. are inserted at the beginning of each alphabetically coded section.

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Safety Check List

P11-1010_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	500	1000	2000
ENGINE						
Oil level	- Check	☐	☐	☐	☐	☐
Oil and Filter	- Change			☐	☐	☐
Air Cleaner Element (Dusty Conditions only)	- Change			☐	☐	☐
Air Cleaner Outer Element	- Change				☐	☐
Air Cleaner Inner Element	- Change					☐
Air Cleaner Hose Security	- Check and Adjust		☐	☐	☐	☐
Air Filter Dust Valve	- Check and Clean			☐	☐	☐
Fuel Injectors(1)	- Clean and Test					☐
Coolant Quality/Level	- Check	☐	☐	☐	☐	☐
Coolant	- Change					☐
Fuel Sedimenter	- Drain and Clean	☐	☐	☐	☐	☐
Fuel Pre-Filter/Sedimenter Element	- Change			☐	☐	☐
Primary Fuel Filter	- Change			☐	☐	☐
Electric Fuel Pump Gauze Filter	- Clean and Check			☐	☐	☐
Fan Belt Tension/Condition	- Check and Adjust		☐	☐	☐	☐
HVAC Compressor Belt Tension/Condition	- Check and Adjust		☐	☐	☐	☐
Valve Clearances(1)	- Check and Adjust				☐	☐
Cylinder Head Bolts for Tightness	- Check and Adjust			☐	☐	☐
Engine Mounting Bolts for Tightness	- Check and Adjust			☐	☐	☐
Exhaust System Security	- Check and Adjust			☐	☐	☐
Radiator	- Clean and Check	☐	☐	☐	☐	☐
TRANSMISSION						
Security of Mounting Bolts and Nuts						
- Track Wheel Motor to Undercarriage Bolts	- Check			☐	☐	☐
- Drive Sprocket Bolts	- Check			☐	☐	☐
- Slew Gearbox Bolts	- Check				☐	☐
Track Gearbox Oil	- Change			☐	☐	☐
HYDRAULICS						
Oil Level	- Check	☐	☐	☐	☐	☐

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Technical Data

All Machines

Pump

Type	Load sensing variable displacement pump driven from engine crankshaft.
Flow rate at 2400 rev/min. and at neutral circuit pressure	150 litre/min. (63 cc/rev)

Relief Valve Operating Pressures	**bar**	**lbf/in²**
Main Relief Valve (M.R.V.)	250	3625
Servo pressure:		
Maintenance valve	35	508
Auxiliary Relief Valves (A.R.V.)		
Boom rod and head side	280	4060
Dipper rod and head side	280	4060
Dozer rod side	320	4641
Bucket rod and head side	280	4060
Auxiliary rod and head side	190	2755
Swing rod and head side	Anti-cavitation valve	

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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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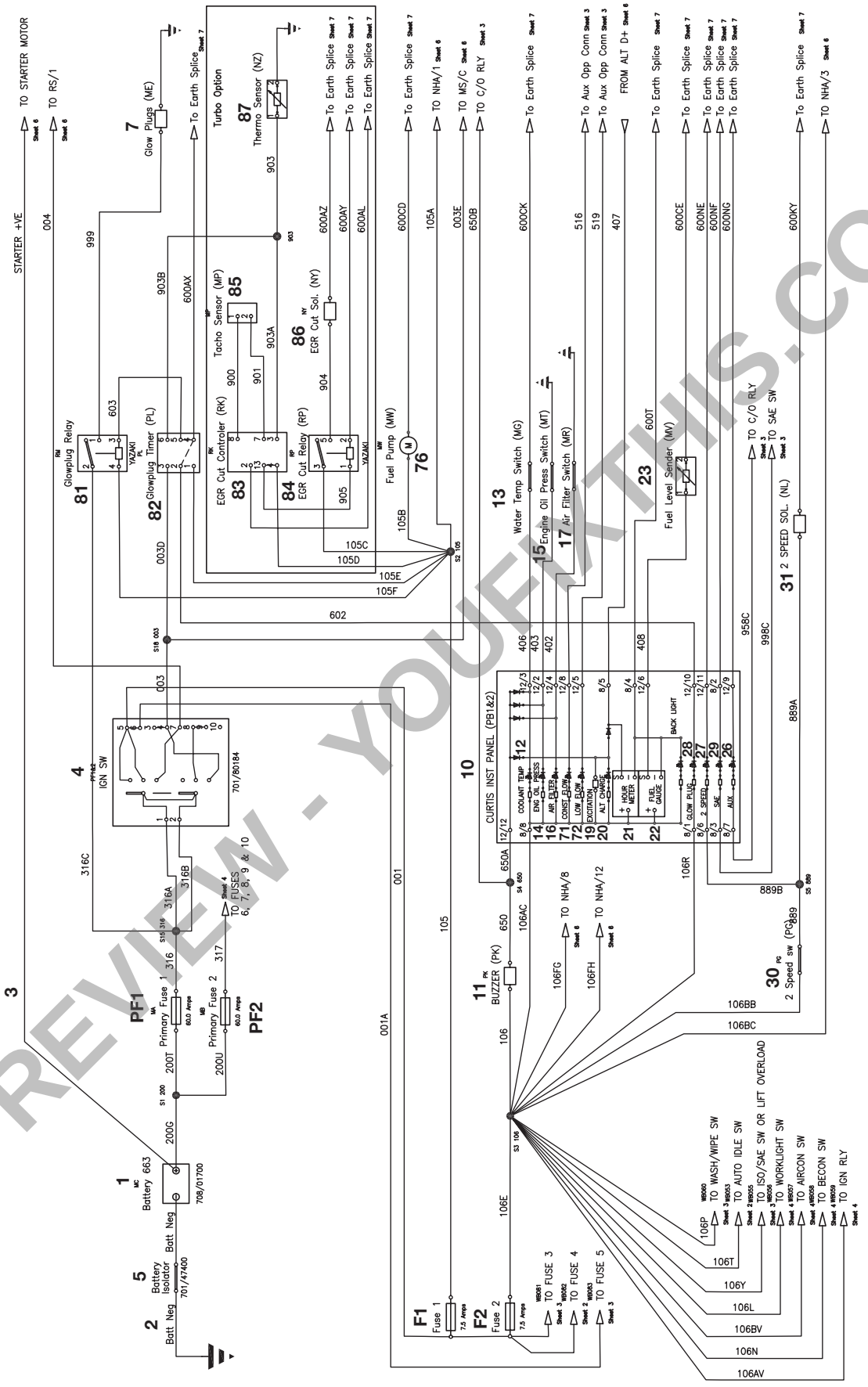


Fig 1. 332/S2072 Sheet 1 of 7

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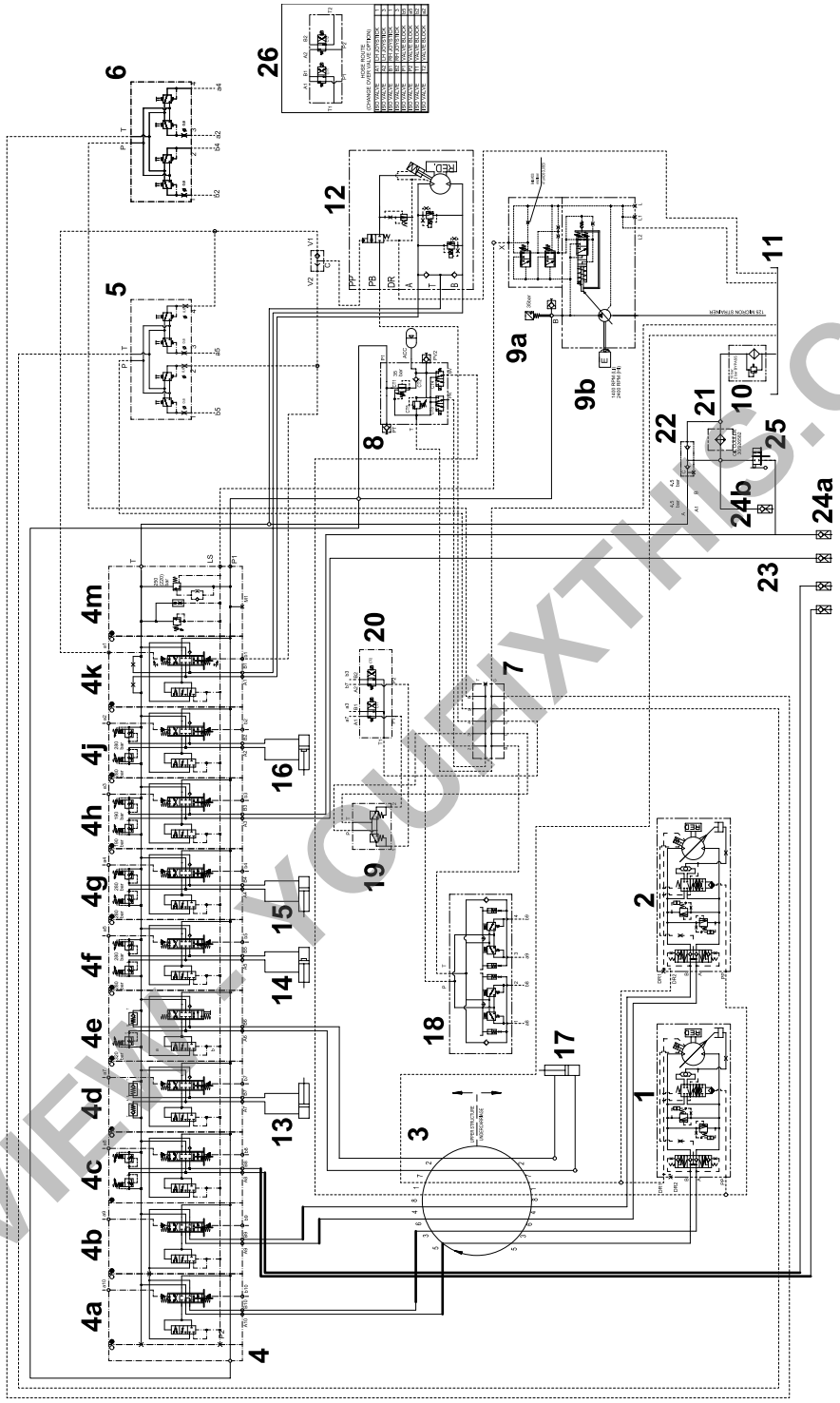


Fig 1.

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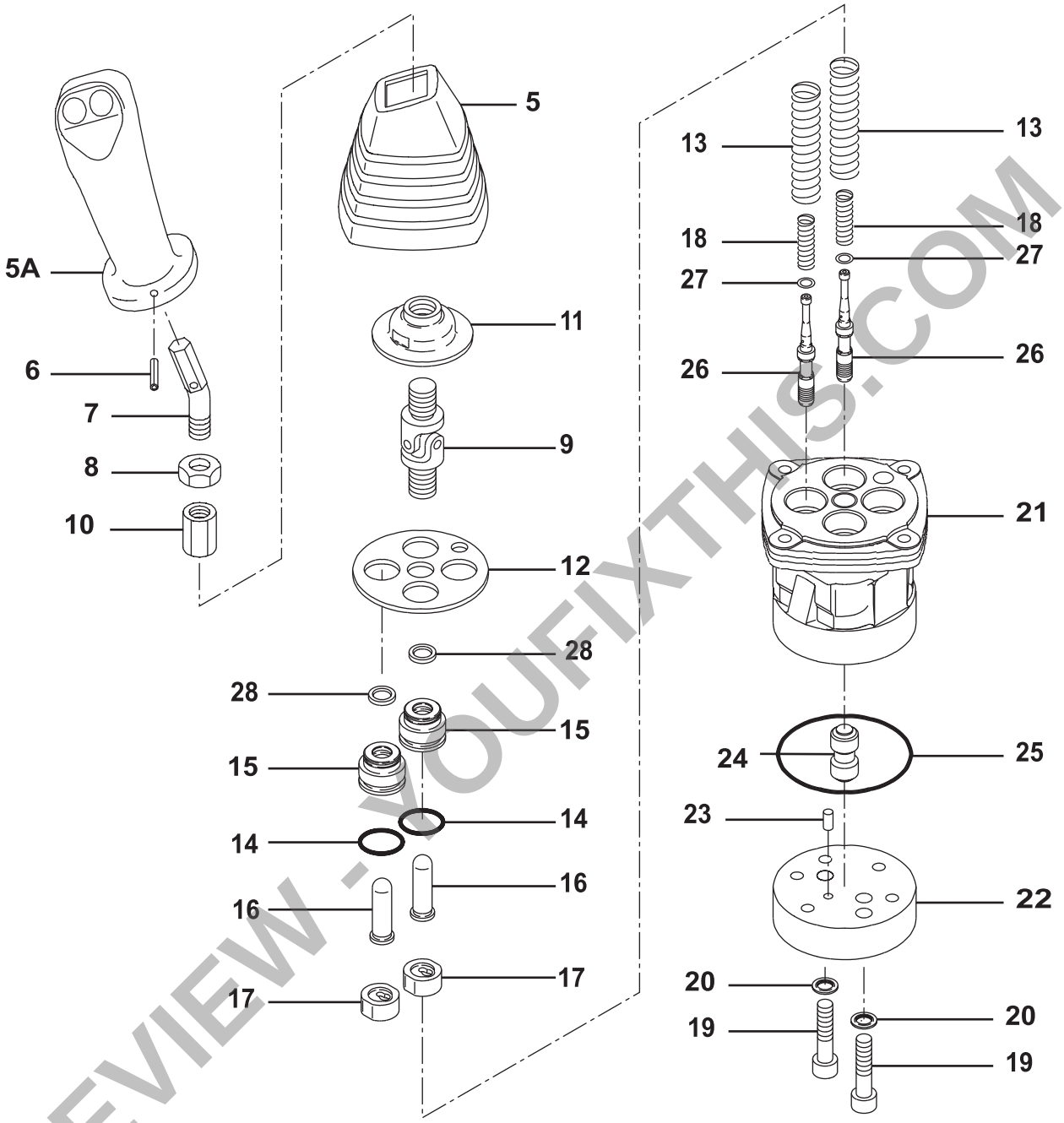


Fig 3.

⇒ *Dismantling (D-8)*.
⇒ *Assembly (D-10)*.

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Changing the Oil and Filter

WARNING

Hot oil and engine components can burn you. Make sure the engine is cool before doing this job.

Used engine crankcase lubricants contain harmful contaminants. In laboratory tests it was shown that used engine oils can cause skin cancer.

8-3-1-4

CAUTION

Keep your face away from the drain hole when removing the drain plug.

2-3-3-4

1 Place a container beneath the engine (to catch the oil). ⇒ *Fluids, Lubricants and Capacities (3-12)*, for capacity. Remove the drain plug **A**. Let the oil drain out, then clean and refit the drain plug.

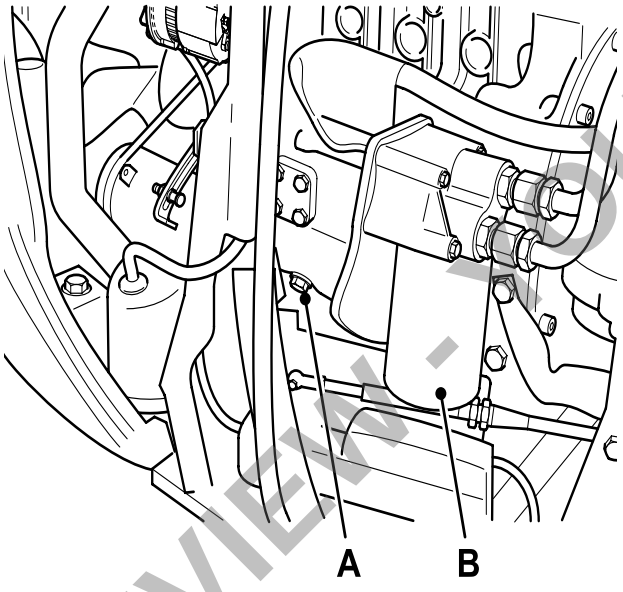


Fig 14.

CAUTION

The oil filter canister will contain some oil which could spill out when you remove the canister.

MD-3-2-1

2 Unscrew the filter canister **B**. If necessary use a chain or strap wrench. Clean the filter mounting face:

Smear the seal on the new filter canister with oil. Screw in the new canister - hand tight and then one quarter turn.

3 Fill the engine with new oil **slowly** through the filler. DO NOT insert the container neck **Z** completely into the filler hole. ⇒ *Fig 13. (3-36)*. Allow oil to flow down from the filler to the crankcase. Replace filler cap securely. Use only the recommended oil. ⇒ *Fluids, Lubricants and Capacities (3-12)*

Important: *Oil must be added slowly.*

4 Wipe off any spilt oil. Check for leaks.Make sure that the filler cap is correctly refitted.

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Fault Finding

Hydraulic System

Information

Before you do these checks, make sure that where applicable:

1 The correct hydraulic fluid is used and the system is filled to the correct level.

2 The hydraulic fluid, filter and suction strainer are clean.

3 There are no visible leaks in the system.

4 The engine maximum speed and condition is as the specification.

5 Hydraulic pressures for each service are correct to the specification.

If possible the machine should be operated to identify the fault and to bring the systems to their normal working temperature.

After the initial checks are completed:

1 If all the hydraulic services are at fault start at check 1.

2 If the servo controllers only are at fault start at check 13.

3 If the tracking services only are at fault start at check 16.

4 If the slew service only is at fault start at check 21.

General Fault Diagnosis

1 Is the fault in all services or one only?

ALL: Check 2.

ONE: Check 6.

2 Are the hydraulics inoperative or lack power?

INOPERATIVE: Check 4.

POOR PERFORMANCE: Check 3.

3 Is the servo pressure to the specification?

YES: Check 4.

NO: Adjust.

4 Does the pump operate correctly?

YES: Check M.R.V's.

NO: Check 5.

5 Is the pump noisy in operation?

YES: Remove the air from the pump casing.

NO: Check 6.

6 Is the pump drive broken?

YES: Replace

NO: Check 7.

7 Is one service only down on pressure?

YES: Check 8.

NO: Check 9.

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Controls

Controls Identification

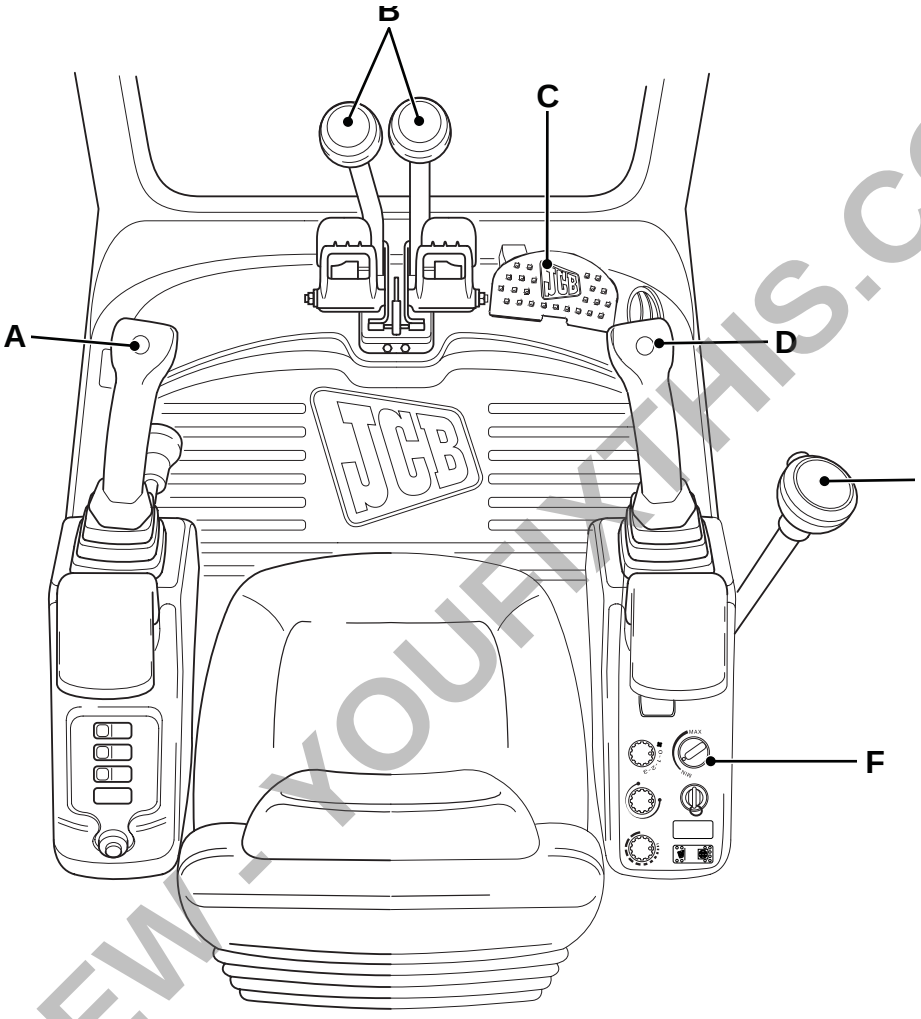


Fig 1.

A	Left Hand Control Lever
B	Track Levers
C	Swing/Auxiliary Pedal
D	Right Hand Control Lever
E	Dozer Lever
F	Engine Throttle

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Attachments

Introduction

T4-002_3

⚠ WARNING

Use only the JCB approved attachments that are specified for your machine. Operating with non-specified attachments can overload the machine, causing possible damage and machine instability which could result in injury to yourself or others.

The use of non-approved attachments could invalidate your warranty.

2-4-5-2_1

⚠ CAUTION

If you have an attachment which is not covered in the Operator Manual do not install it, use it or remove it until you have obtained, read and understood the pertinent information. Install attachments only on the machines for which they were designed.

5-5-1-1_2

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

This part of the manual includes general information on attachment operation and instructions for installation and removal of attachments.

Some attachments are supplied complete with instructions on safety, installing and removing, operation and maintenance. Read and fully understand the information before fitting, using and servicing the attachment. If there is anything you do not understand, ask your JCB Distributor.

Before using any attachment, read again ***Working With The Machine*** in the Operation section and consider how the attachment is going to affect operational safety. With the attachment fitted, there may be changes in the machine's centre of gravity or overall dimensions. This could have an effect on, for example, machine stability, the gradients on which it is safe to operate or the safe distance from power lines.

Practice using attachments off the job before working with them for the first time.

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

If your machine needs the hydraulic system adapting to facilitate the use of auxiliary attachments, you must consult your distributor. Only suitably qualified personnel must re-route hydraulic hoses.

All optional attachments will have limits on their operation. i.e. lifting capacity, speeds, hydraulic flow rates, etc. Always check in the literature supplied with the attachment or in the Specification section of this manual. Some specification limits may also be displayed on the attachments Data/Rating Plate.

⚠ CAUTION

Some attachments may contact parts of the machine when in the fully folded position. Take extra care to avoid damage to the machine.

3-4-1-4

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Fuel System

Introduction

WARNING

Fuel

Fuel is flammable; keep naked flames away from the fuel system. Stop the engine immediately if a fuel leak is suspected. Do not smoke while refuelling or working on the fuel system. Do not refuel with the engine running. Completely wipe off any spilt fuel which could cause a fire. There could be a fire and injury if you do not follow these precautions.

INT-3-2-2_3

WARNING

Fine jets of fluid at high pressure can penetrate the skin. Keep face and hands well clear of pressurised fluid and wear protective glasses. If fluid penetrates your skin, get medical help immediately.

0177

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

CAUTION

Running the engine with air in the system could damage the fuel injection pump. After maintenance, the system must be bled to remove any air.

2-3-3-11

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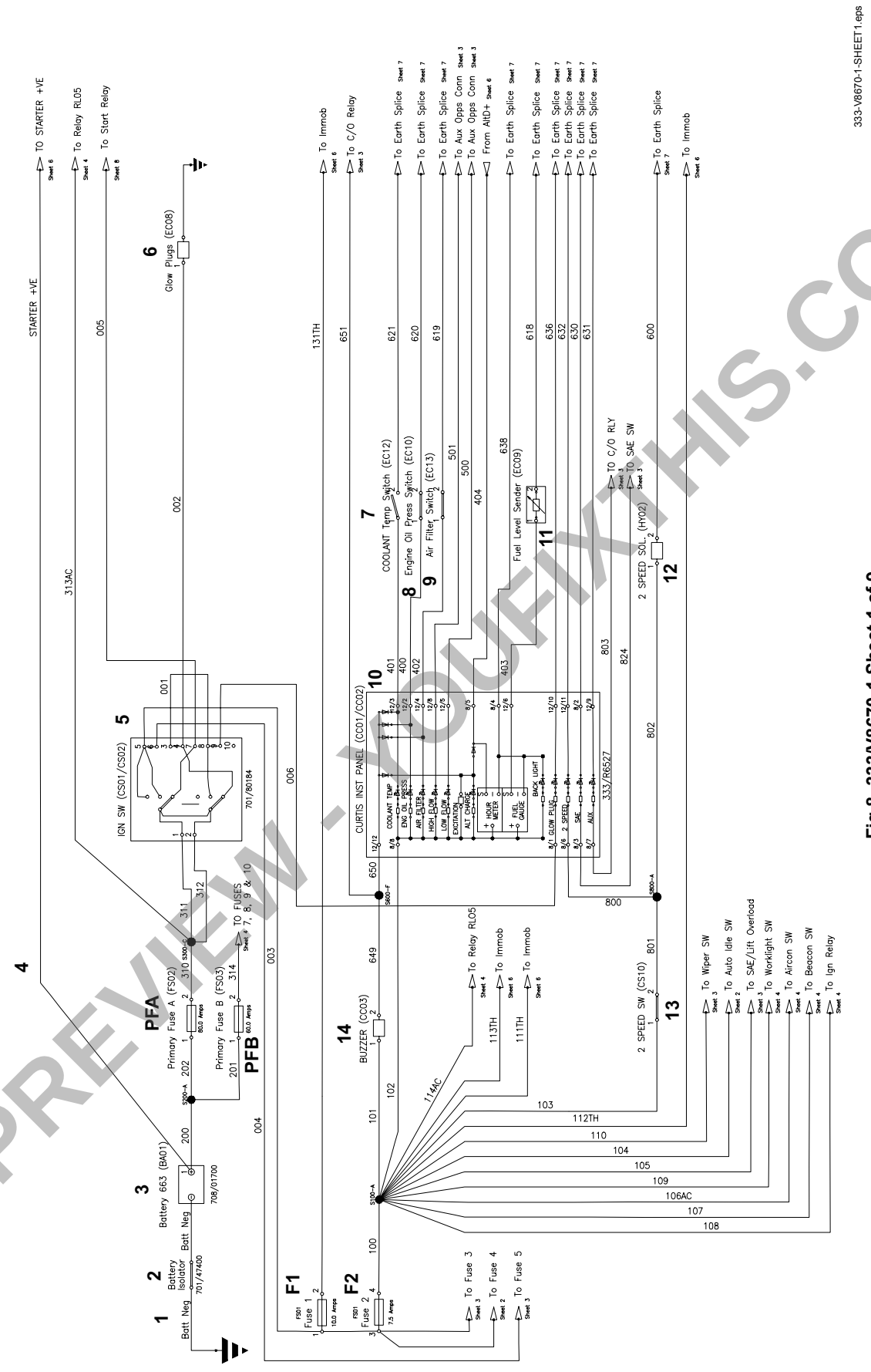


Fig 8. 333/V8670-1 Sheet 1 of 9

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Main Relief Valve

Removal and Replacement

Removal

⚠ 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

M.R.V. Location and Identification

The M.R.V. **A** is found in the input/output section of the control valve. ⇨ *Fig 1. (E-33)*.

1 Release the hydraulic pressure, disconnect and put caps on the hoses or pipes which can interfere with the removal of the M.R.V.

2 Remove the M.R.V. from the valve block, then pt a cover on the port to prevent the entry of dirt. Remove to a clean work area.

Replacement

Note: *The seals are made from special material, make sure correct replacements are used.*

Note: *The torque setting of the MRV is very important to make sure that the MRV pressure is correct and to prevent oil leakage. The adjuster cap can be removed and installed* ***once only*** *with the existing washer then tightened to 25 Nm (18 lbf ft). If the cap is removed and installed again, a new washer must be installed and the cap tightened to 22 Nm (16 lbf ft)*

1 Install the M.R.V. into the valve block and torque tighten to 50Nm (37 lbf ft).

2 Connect the hydraulics and set the valve ⇨ *Testing and Setting (E-34)*.

3 Install the components that were removed to get access to the valve.

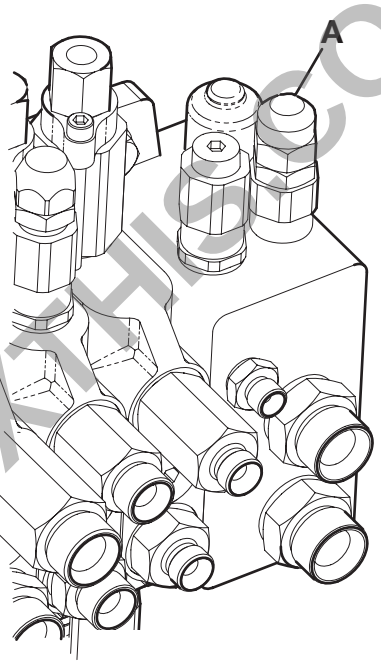


Fig 1.

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