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

Left Side, Right Side

In this manual, 'left' **A** and 'right' **B** mean your left and right when you are seated correctly in the machine.

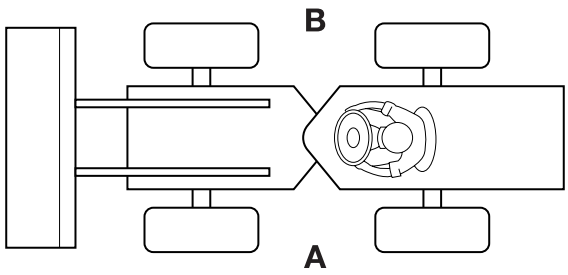


Fig 1.

Cross References

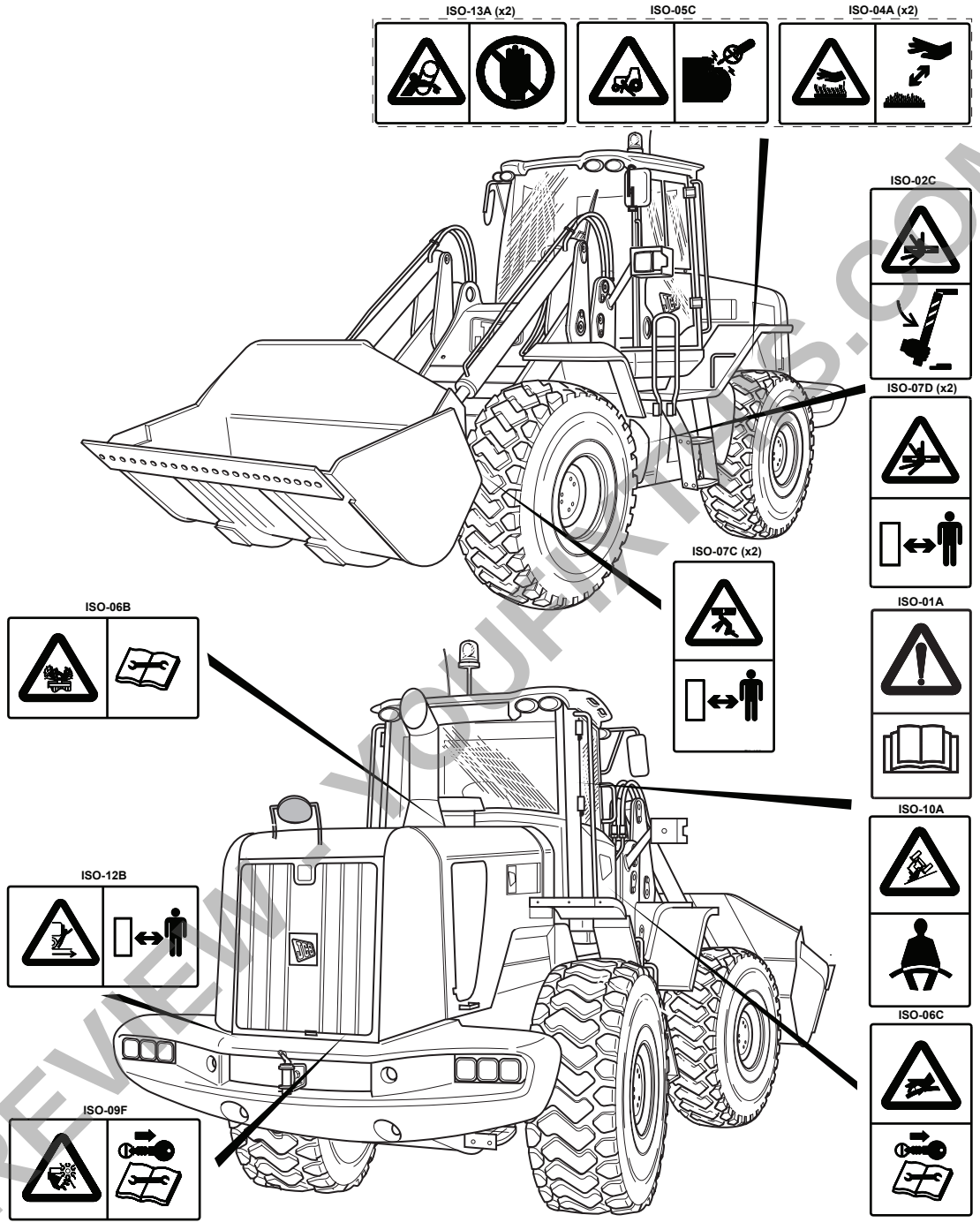
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In this publication, page cross references are made by presenting the subject title printed in bold, italic and underlined. It is preceeded by the 'go to' symbol. The number of the page upon which the subject begins, is indicated within the brackets. For example: ⇨ ***Cross References (1-2)***.

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Safety Label Identification



T010560-8

Fig 1.

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Tools

Toolbox

Keep the tools in the toolbox **A** unless you need to use them.

To get access to the toolbox, open an engine cover. Refer to ***Access Panels, Engine Covers***.

We recommend that you lock the toolbox to prevent theft or tampering.

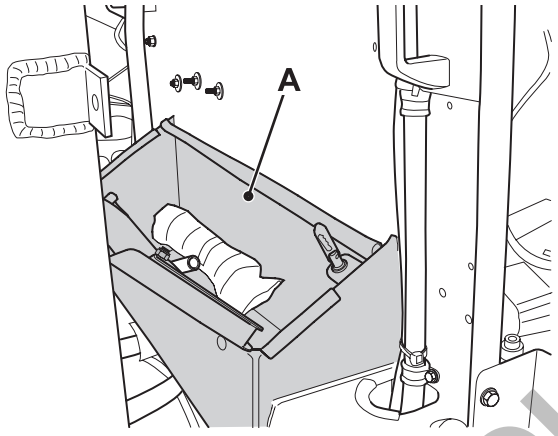


Fig 1.

Carrying Tools onto the Machine

When you carry tools onto the machine you must maintain three points of contact with the machine at all times. Lift tools onto the machine in intervals if necessary. Place the tools down before you adjust your grips on the machine. Do not try to adjust your grips on the machine while holding tools.

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Connecting Quick Release Couplings

1 Remove any residual hydraulic pressure trapped in the service line hose.

2 Wipe the two faces of the male and female couplings and make sure they are clean.

3 Make sure that ball **C** in the female coupling is located in one of its slots.

4 Fit the male coupling into the female coupling.

5 Where applicable, rotate sleeve **E** half a turn and make sure that the locking ball **C** does not align with the slot **D**.

Disconnecting Quick Release Couplings

1 Remove any residual hydraulic pressure trapped in the service line hose.

2 Where applicable, align the slot **D** with ball **C**.

3 Pull back sleeve **E** to release the coupling.

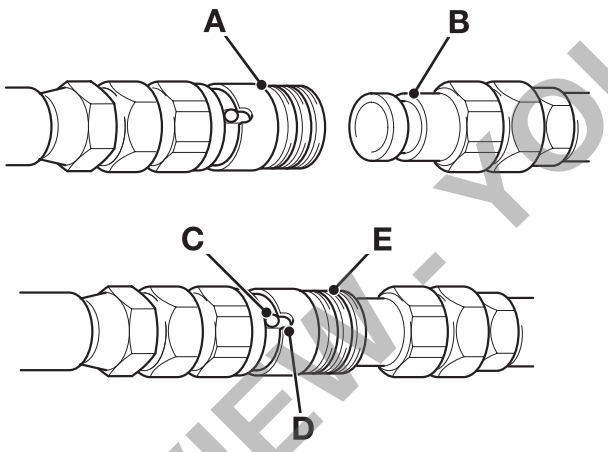


Fig 4.

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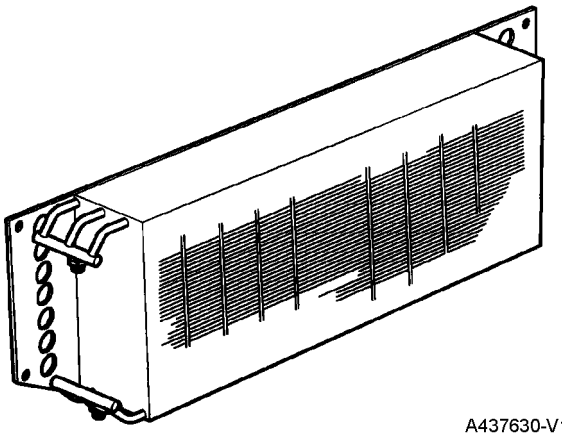


Fig 1. Typical Thick Condenser

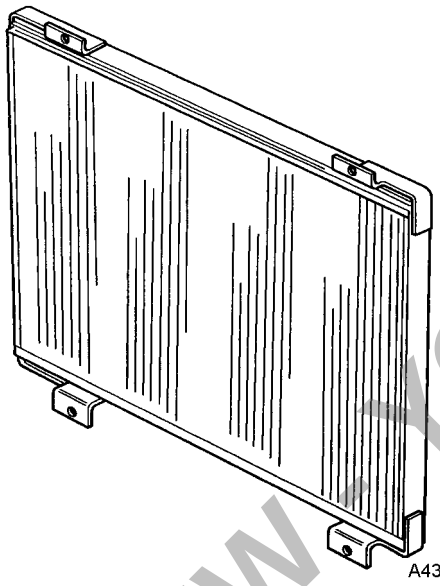


Fig 2. Typical Thin Condenser

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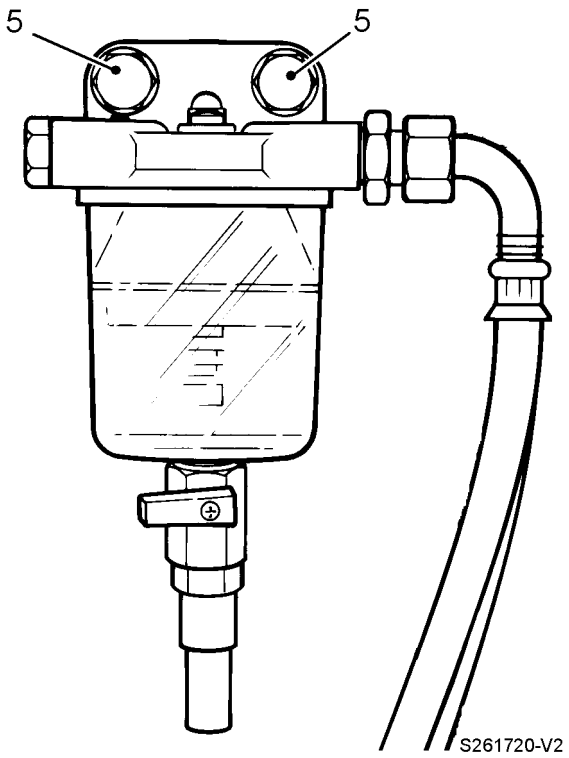


Fig 6.

13 Disconnect the wiring harness to the reverse alarm and the rear worklights and release it from its fastenings to the right hand engine cover.

14 Remove the two bolts securing the battery isolator switch to the right hand side engine cowl.

15 Remove the four rear retaining bolts **7-6**. (Two from each side in the engine cover.)

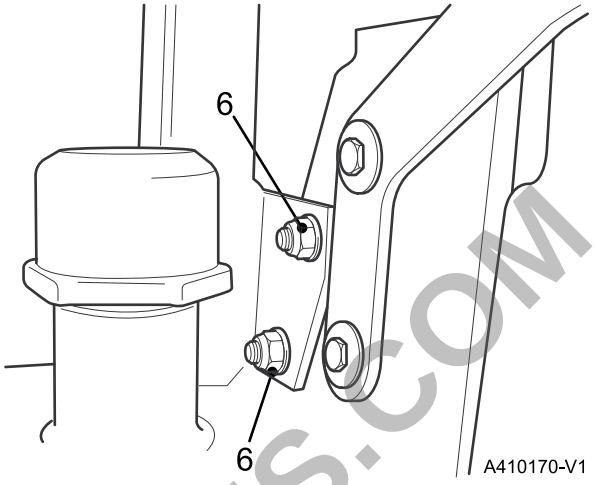


Fig 7.

16 Remove the six front retaining bolts **8-7**. (Three from each side in the engine cover.)

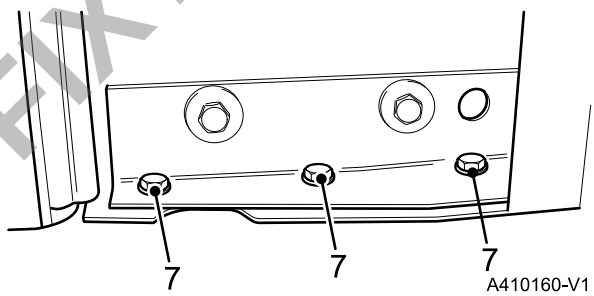


Fig 8.

17 Remove the cooling pack to engine cowl upper mounting bolts **9-8**.

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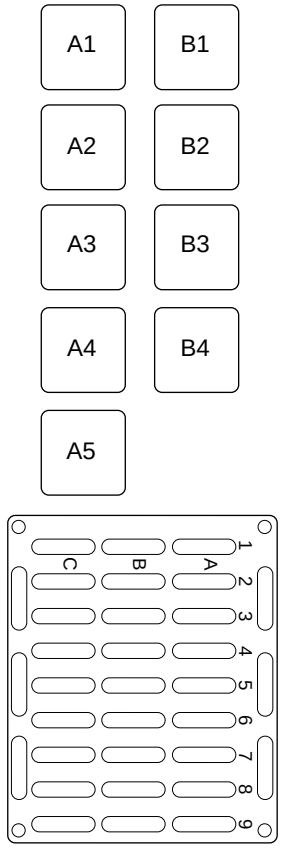


Fig 1.

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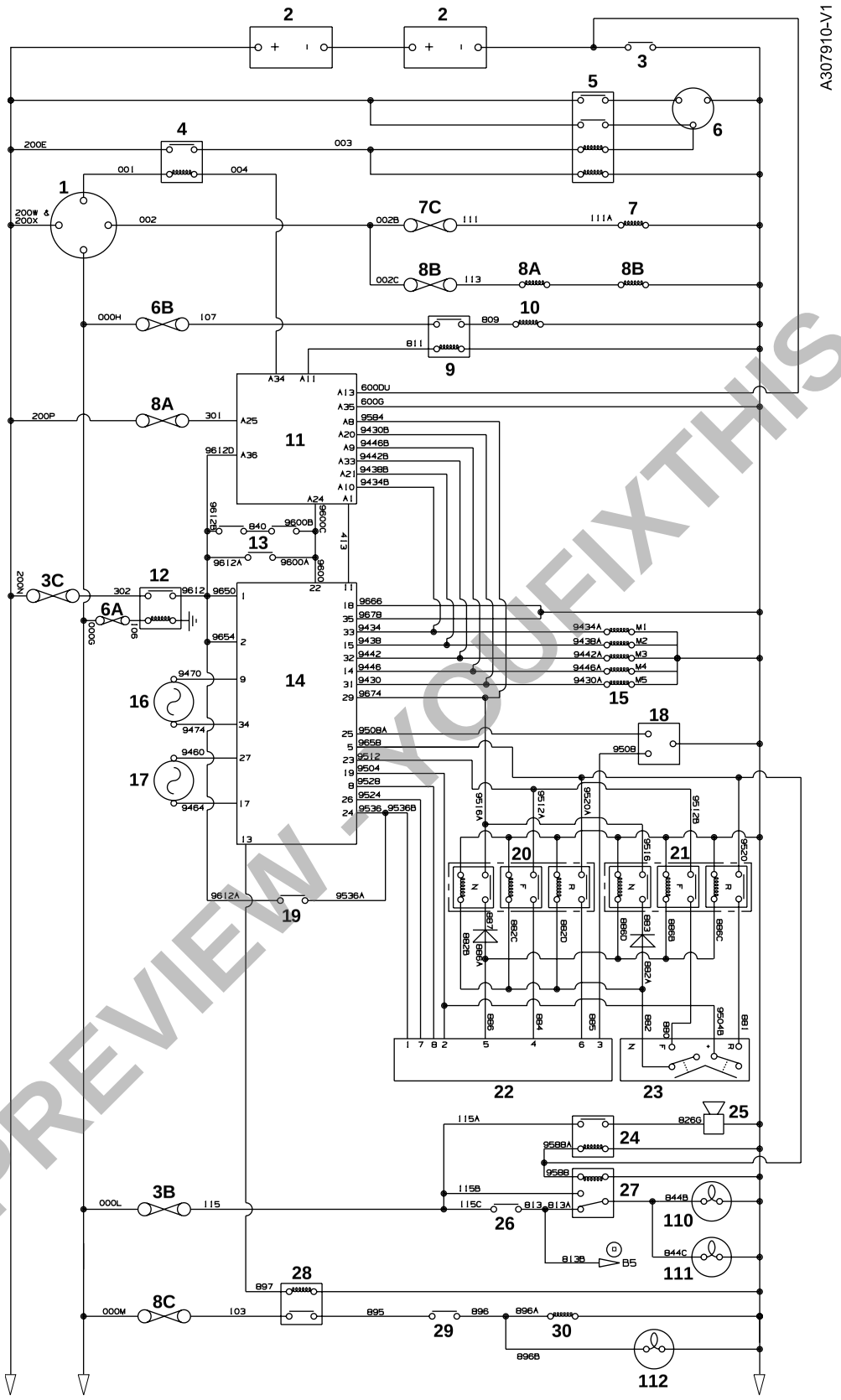


Fig 8. Sheet 1 of 4

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CC	Front Worklight Switch
CD	Dump Switch
CE	Interior Light
CF	Radio Feed
CG	Fog Light Switch
CH	Rear Worklight Switch
CJ	Rear Wash/wipe Switch
CK	R.H. Worklight
CL	Side Console Harness
CM	Side Console Harness

Front Chassis Harness: ⇨ *Fig 3. (C-243)*

FA	R.H. Front Lights
FB	L.H. Front Lights
FC	Bucket Reset
FD	Lift Arm Reset
FE	Horn
FG	Change Over
FF	Rear Chassis Harness

Rear Cab Harness: ⇨ *Fig 4. (C-244)*

FA	Parking Brake
FB	Rear Washer
FC	Brake Light Switch
FD	Dump Switch
FE	Front Washer
FG	Rear Wiper
FF	Low Pressure Switch
FH	Rear Chassis Harness

TERM	Terminal
WIRE	Wire number
SIZE	Wire Diameter
DEST	Wire Destination
TYPE	Type of Connector

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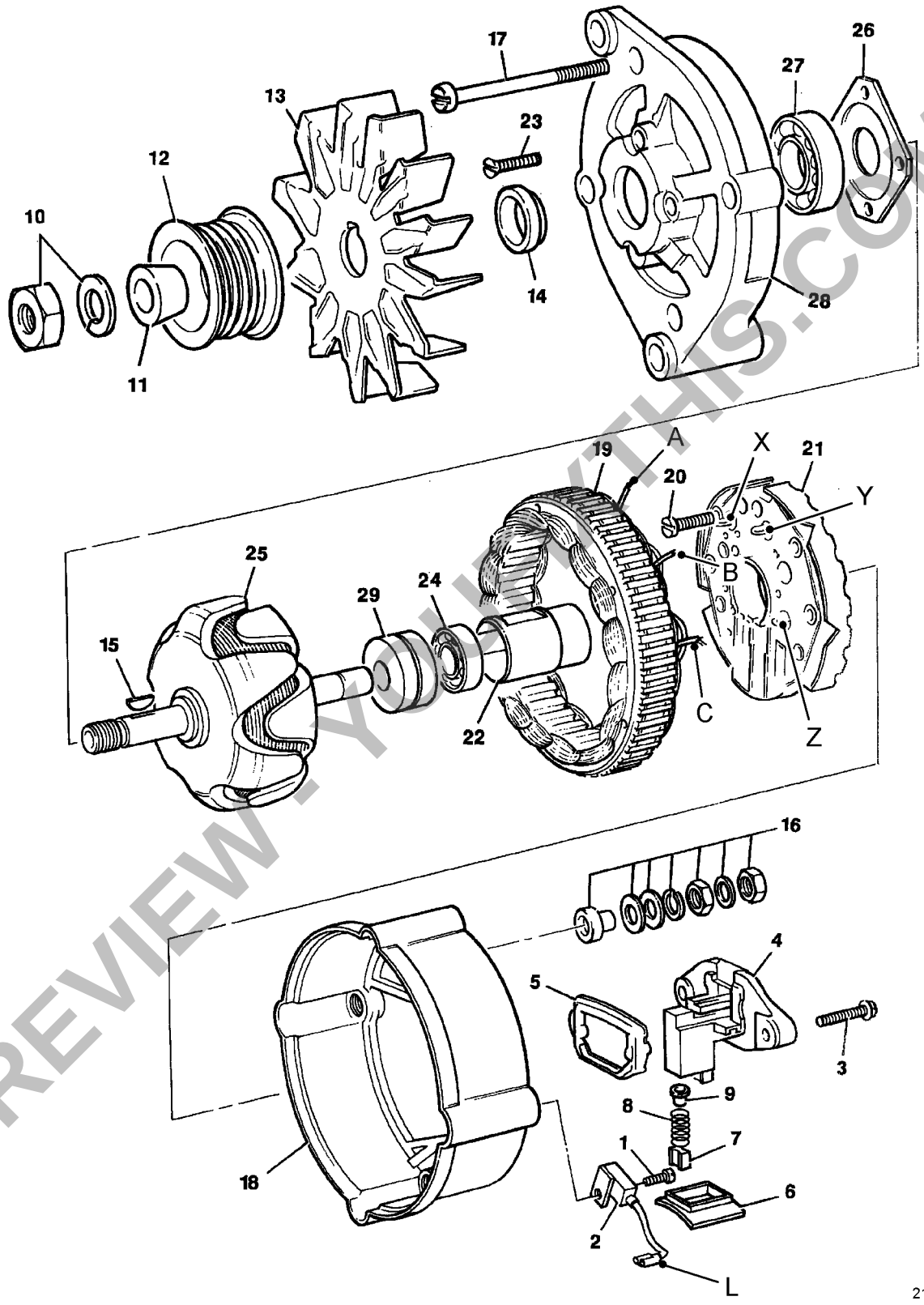


Fig 109.

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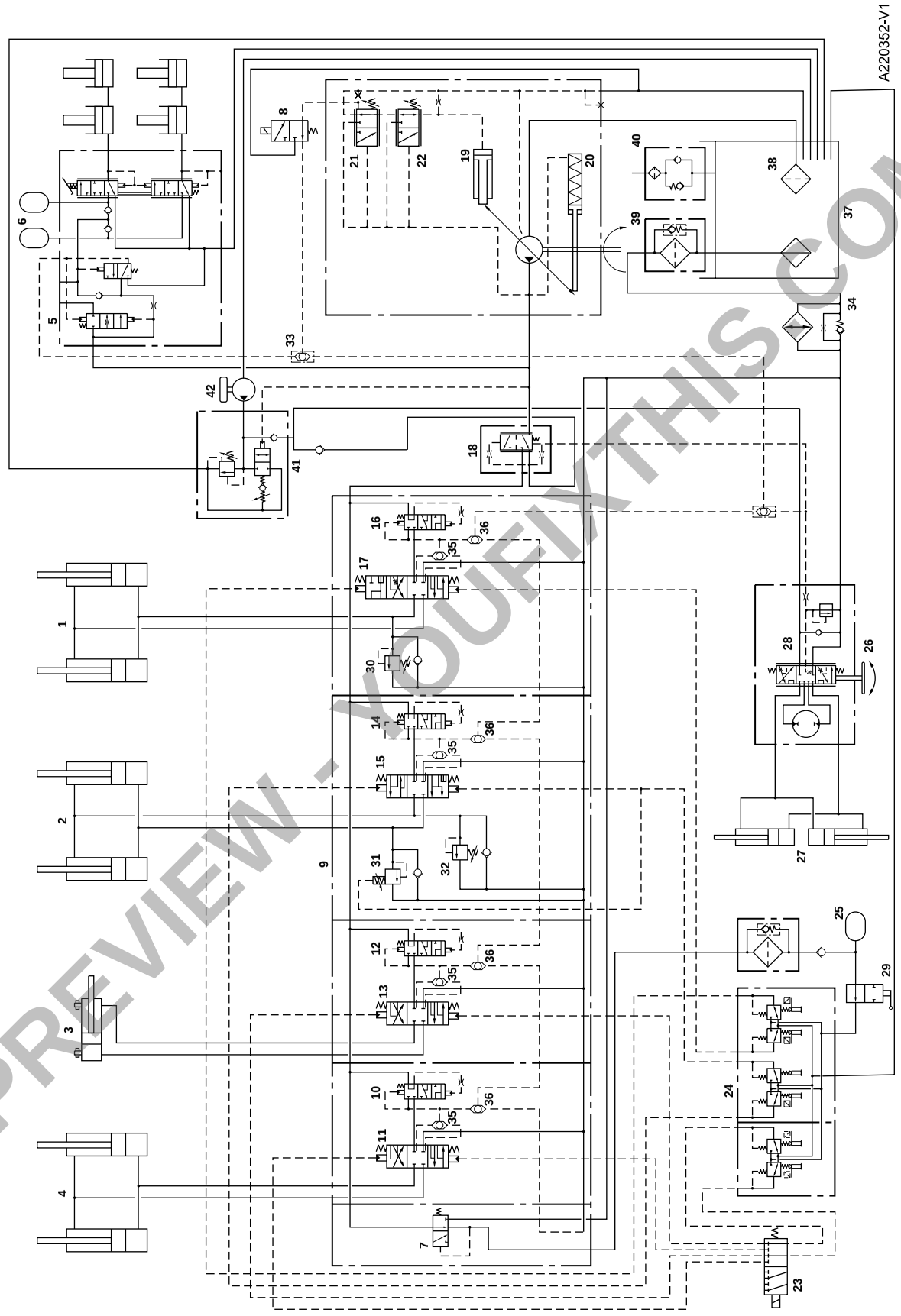


Fig 8.

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Start Up Valve

Associated with the pump and fitted adjacent to it is a start-up valve. The start-up valve operates on engine turnover prior to starting and prevents the development of a hydraulic lock in the pump circuit.

A 12 volt coil, linked to the **36HS** position of the starter switch, actuates a solenoid valve that vents the pump servo circuit back to exhaust.

A 12 volt coil is used to ensure a good start. This is because the electrical system voltage falls to about 15 - 18 volts whilst the starter is in operation.

Once the engine has started and the starter key returned to the **36IGN** position, solenoid power is switched off and the pump servo circuit is re-established in the normal run condition.

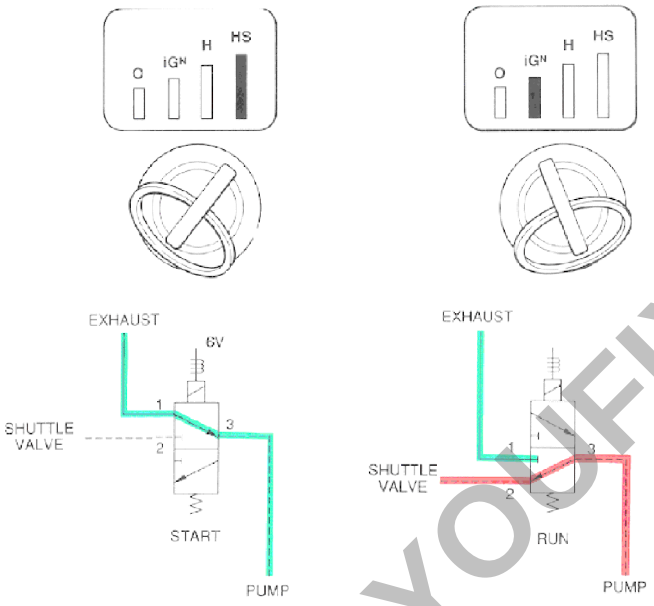


Fig 36.

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Venting the Smooth Ride System

Before attempting any maintenance work on the load suspension hydraulic system, the isolating valve must be OPEN.

The isolating valve is normally CLOSED for the SRS to be operative. When the valve is opened, the stored hydraulic pressure in the SRS valve and accumulators is vented to tank.

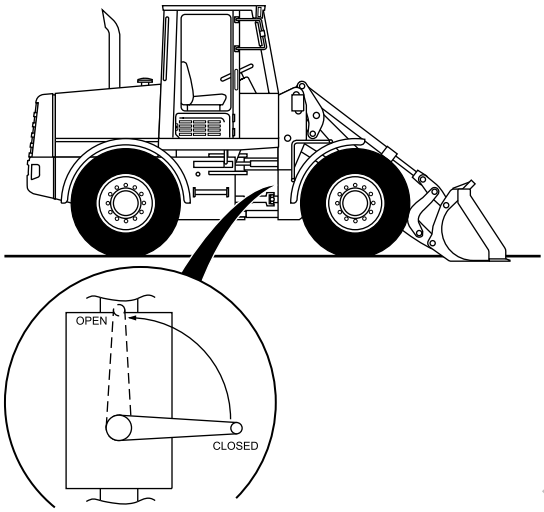


Fig 69.

⚠ WARNING

The loader arms will fall to the ground if they are not on the ground or securely supported before the isolating ball valve is opened. Ensure isolating ball valve is open before attempting any maintenance work on the load suspension hydraulic circuit. The isolating ball valve is closed for normal system operation.

0106

⚠ WARNING

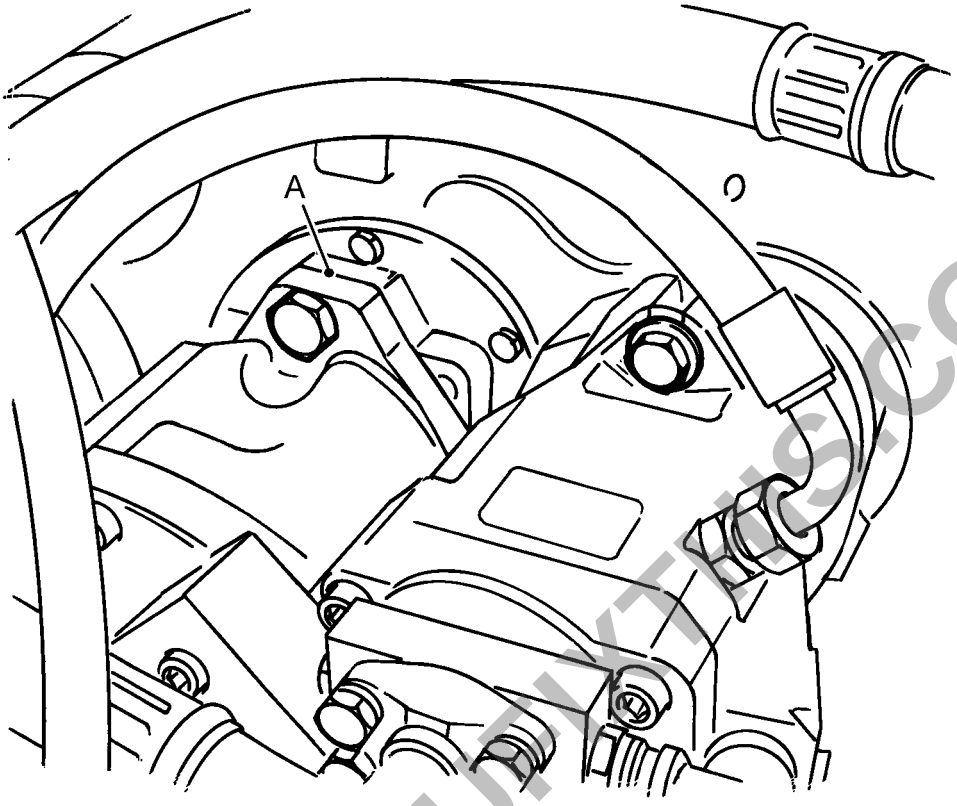
When the isolator valve is opened, lift ram head side pressure is vented to tank. Before opening the isolator valve, the loader end must be either lowered to the ground or be suitably supported to prevent unexpected movement of the loader end.

7-3-7-13

Note: *Only the stored hydraulic pressure is vented. The accumulators gas charge pressure will still be stored inside the accumulators.* ⇨ ***Accumulators (🗋 E-140)***.

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Fig 113.

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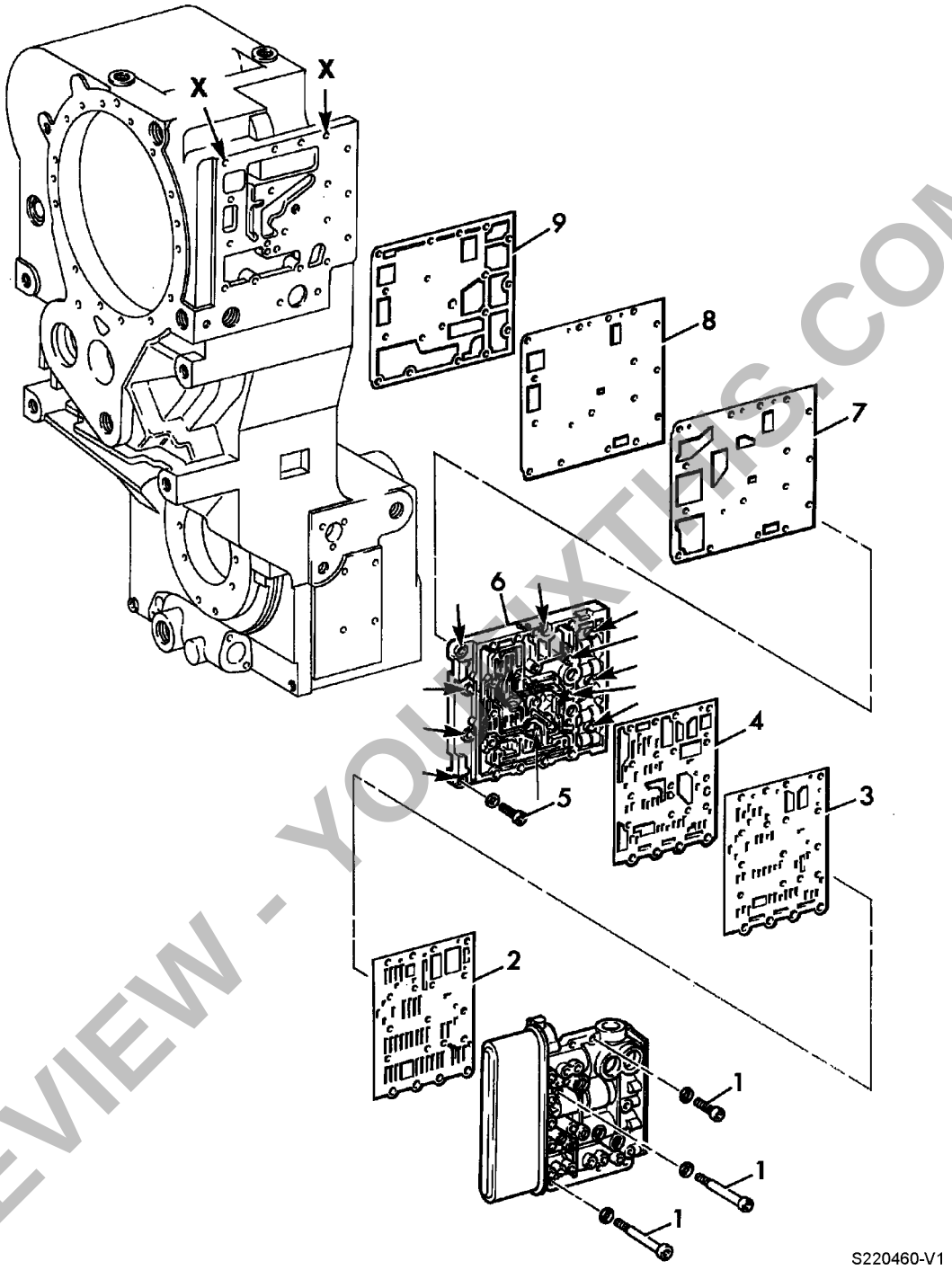


Fig 1. Control Valve

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Oil Circulation Schematic

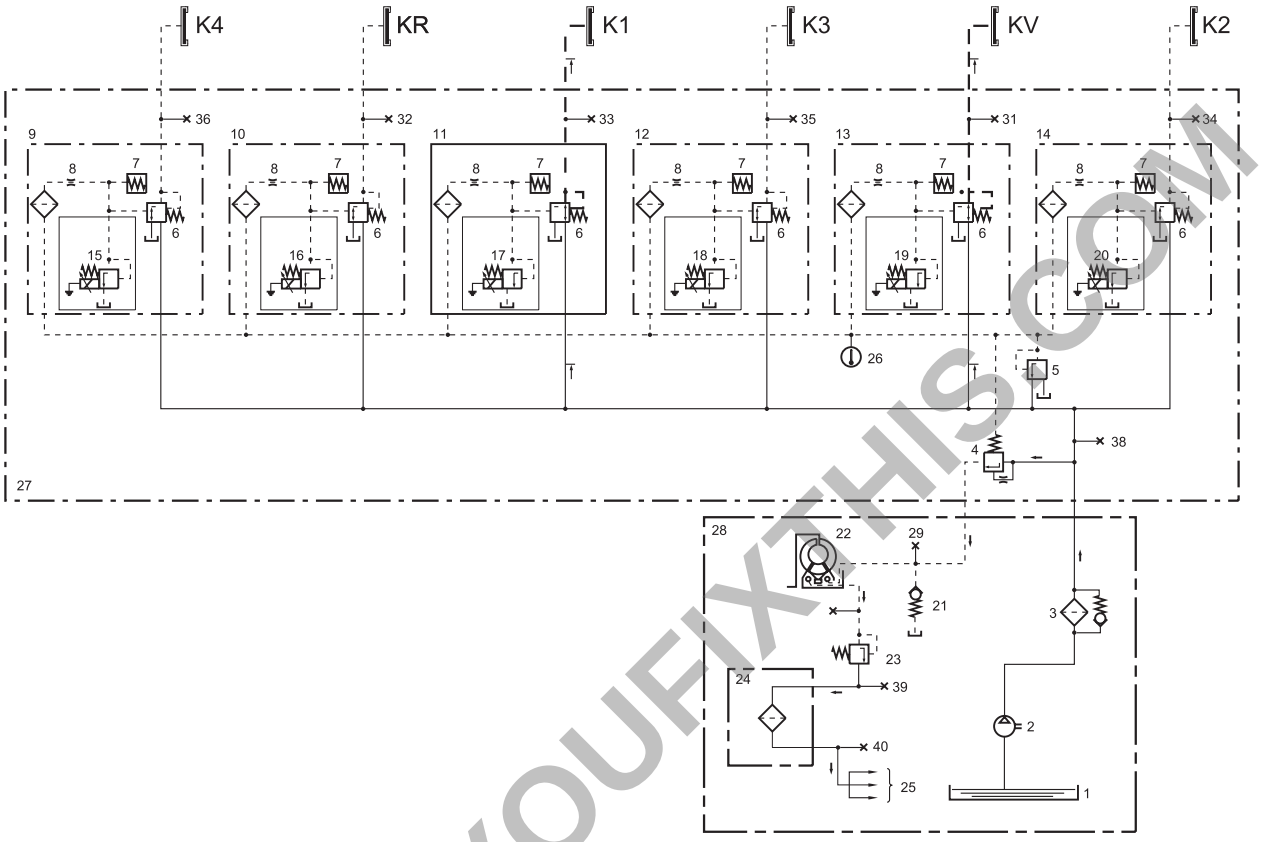


Fig 29.

Note: *This schematic shows the oil flow for forward 1st speed, as selected by the energising of the solenoids of proportional valves* ***28-11*** *and* ***28-13*** *and the subsequent pressurisation of clutches* ***29-KV*** *and* ***29-K1****. The principle is identical for the remaining forward speeds and the reverse speeds (refer to* ***⇒ Power Flow - Forward Speeds (F-40)*** *or* ***⇒ Power Flow - Reverse Speeds (F-42)*** *for the combinations of clutches which give the other speeds).*

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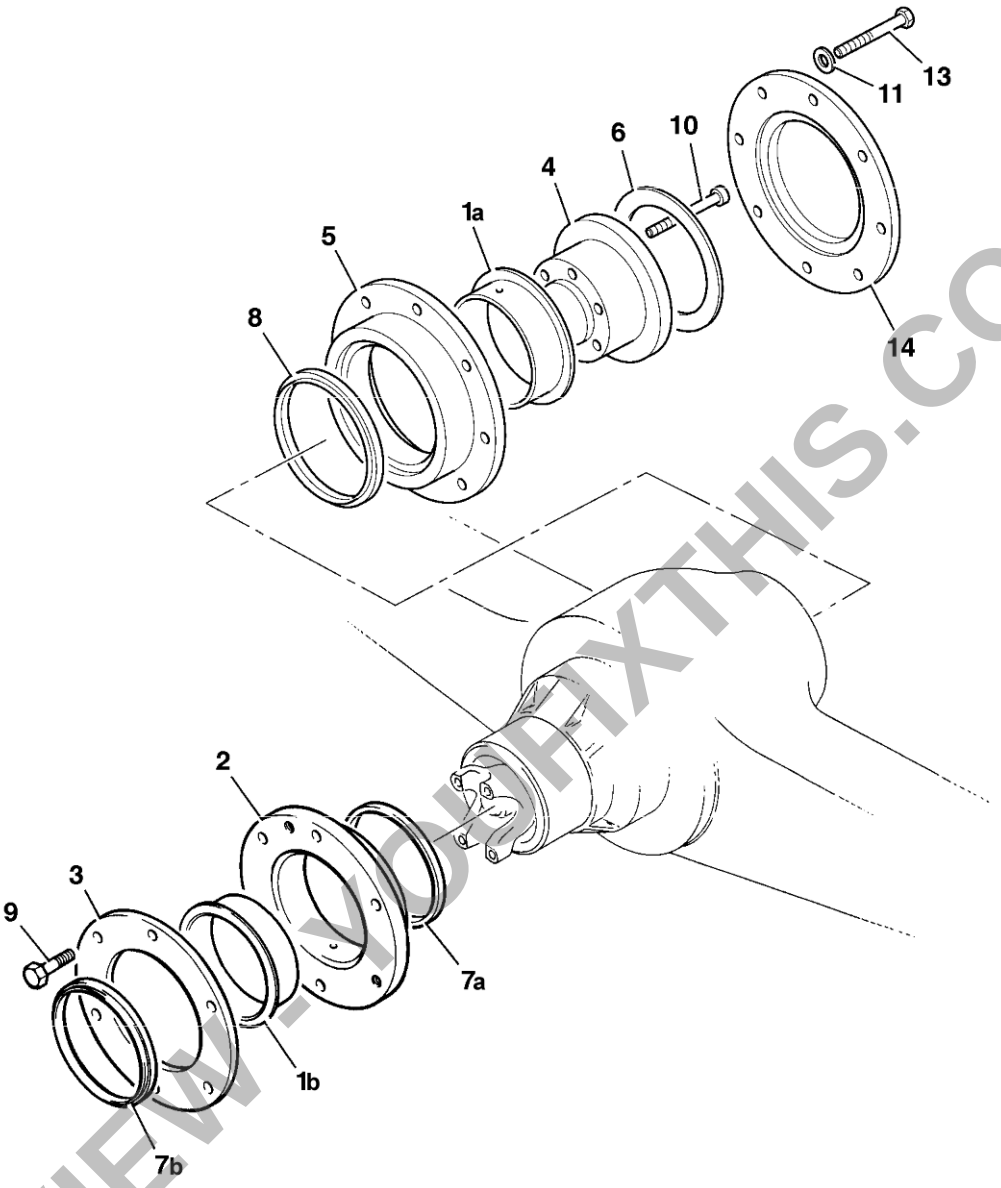


Fig 2. Heavy Duty Axle Components

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	INPUTS TO COMPUTER						OUTPUTS FROM COMPUTERS					AUXILIARY INPUTS			AUXILIARY OUTPUT		
SECTION	AS	V	R	B1	B2	B3 [3]	M1	M2	M3	M4	M5	SKD	SDA	nAb	AS	RF	WK
NEUTRAL																	
1	●			●		●		●		●					●		
2	●					●				●					●		
3	●				●	●									●		
4	●			●	●	●				●					●		
FORWARD																	
1		●		●		●		●	●	●				● [1]			
2		●				●			●	●				● [1]			
3		●		●	●	●		●	● [4]	●				● [1]			
4		●		●	●	●		●	●	●	● [5]			● [1]			
REVERSE																	
1			●	●		●	●	●		●				●		●	
2			●			●	●			●				●		●	
3			●		●	●	●							●		●	
KICKDOWN																	
ON												●					● [2]
DISCONNECT																	
ON													●				

A228911-V1

Fig 2. Drive/Gear Selection Status Lights (Automatic Transmissions)

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System Circuits

426 To 532099, 436 to 533691, 446 from 540000 to 540011

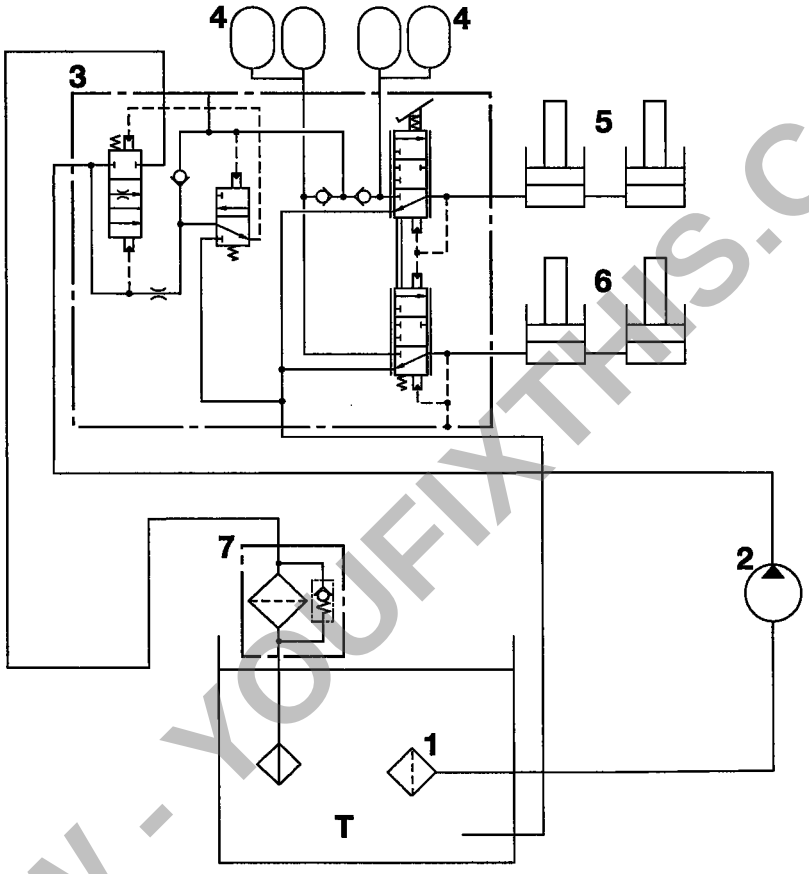


Fig 1.

T Tank

Component Key

1 Suction Strainer

2 Engine Driven Gear Pump

3 Brake Valve

4 Accumulators

5 Front Axle Brakes

6 Rear Axle Brakes

7 Return Filter/Diffuser

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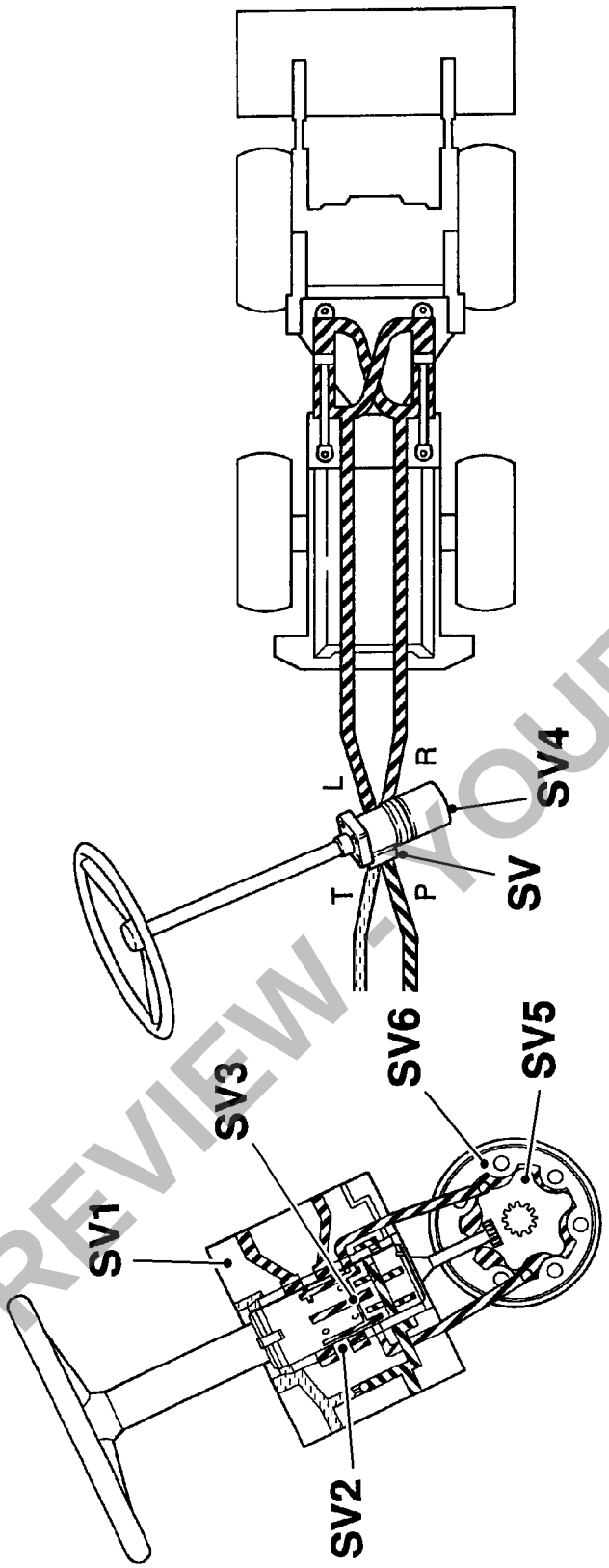


Fig 1.

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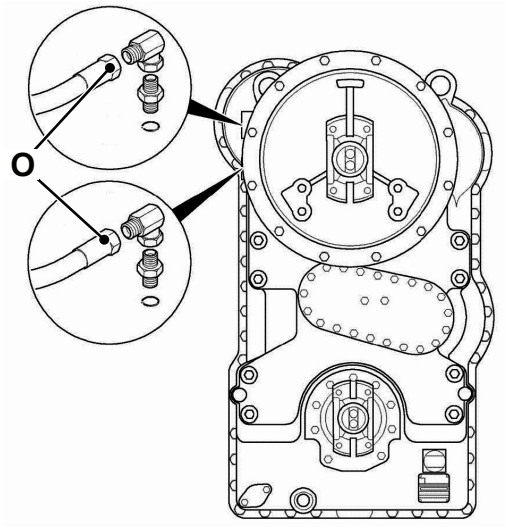


Fig 7.

20 Disconnect the cables from the starter motor.

21 Remove the bolt **P**, then disconnect the engine earth cable **Q** from the chassis.

22 Attach suitable lifting equipment to the engine and transmission lifting eyes and support the engine.

23 Remove the engine mounting nuts and bolts **R** from the rear of the engine.

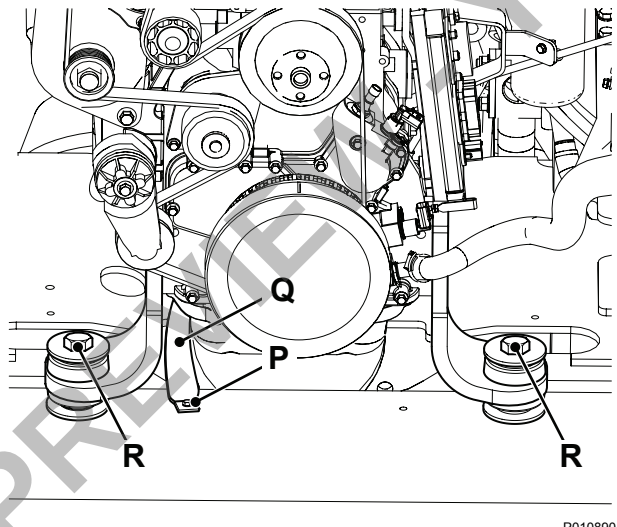


Fig 8.

24 Remove the engine mounting bolts **S**, nuts **T** and spacers **U** (x 2) from the front of the engine.

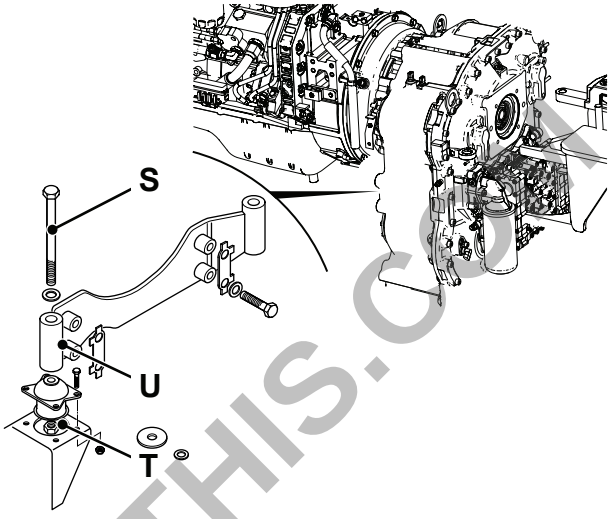


Fig 9.

25 Carefully lift the engine and transmission assembly from the machine.

Note: *Make sure that all the connectors are released.*

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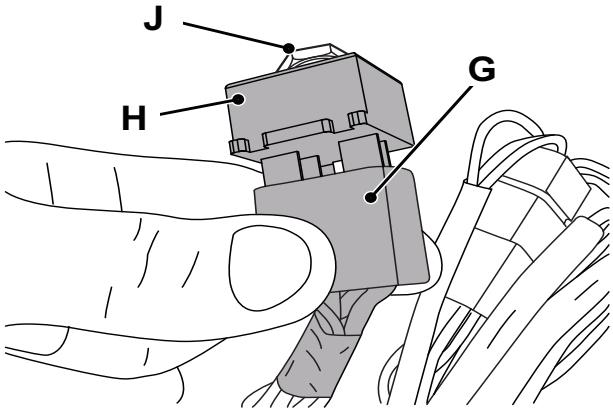


Fig 4.

7 Disconnect the electrical connectors **G** from the bottom **H** of their controls **E** and **F**.

8 Loosen the securing nuts **J**, then remove the controls **E** and **F** from the heater control panel.

Installation

The installation procedure is the reverse of the removal procedure.

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3rd Spool Harness - CAD 721/11945 Issue 1

Key to Connectors:

BA Cab Connector

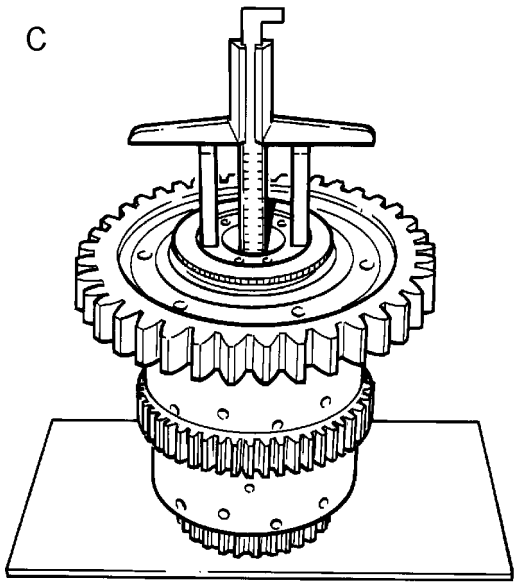
Key to Connectors:

BB 3rd Spool Solenoid C1

BC 3rd Spool Solenoid C4

Fig 69.

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S219550-V1

Fig 24.

d Add the median end play (0.20mm) to dimension (iii) to obtain the installation dimension.

e.g 227.20 + 0.20 = 227.40mm

e Subtract dimension (ii) from dimension (i) to obtain the housing dimension.

e.g 251.15 - 21.00 = 230.15mm

f Subtract the installation dimension from the housing dimension to calculate shim required.

e.g 230.15 - 227.40 = 2.75mm

10 Install clutch K4/K3 into gear housing. Fit thrust washer **35**, forked washer **36** and calculated shim **37**.

11 Fit rectangular section rings **38** to axle **39**. Ensure they are aligned concentrically. Lubricate and fit new O-ring **40**.

12 Heat housing bores using a hot air blower. Insert axle into clutch K4/K3 until axle flange is in contact with gear housing. Fit hex. nuts **41** and torque to 23Nm (17 lbf ft).

13 Recheck clutch end play and correct if necessary.

14 Check the operation of clutches K4 and K3 using compressed air. The opening and closing of the clutches should be clearly audible.

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