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Removing

⚠ WARNING

You could be killed or injured if the boom drops while you are working under it. Fit the safety strut as instructed before doing any maintenance work with the boom raised.

Keep people away from the machine while you fit or remove the strut.

5-3-1-2_1

1 Lift the boom to remove the weight from the strut.

2 Stop the engine. Make sure the park brake is engaged and the transmission is in neutral. Remove the starter key.

⚠ CAUTION

You will have to climb onto the machine to fit or remove the strut. Take care, especially if the machine is wet. Remove mud and oil before climbing onto the machine. Do not use the exhaust as a handhold. It can burn you.

5-3-1-4_1

3 Remove the strut.

4 Attach the strut to its stowage position.

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⚠ 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

8 Check for leaks:

a Make sure the filler cap is replaced, then run the engine for a few minutes.

b Make the machine safe.

c Check for leaks at the filter.

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and the two pin connector **13-E** that was connected to the transducer.

Continuity Test: Switch the multimeter to the Ohms scale and measure the electrical resistance between:

- Test point TP3 and pin 2 of connector **13-E**.

- Test point TP5 and pin 1 of connector **13-E**.

Expected reading: Less than 3 ohms.

Short Circuit Test: Measure the electrical resistance between:

- Test points TP1 and TP5

- Test points TP3 and TP5

- Test points TP1 and TP3

Expected reading: Open Circuit.

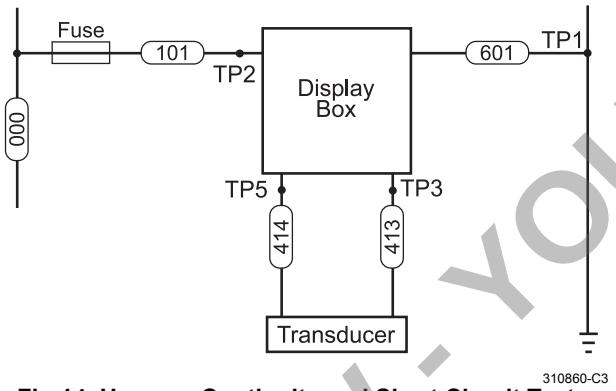


Fig 14. Harness Continuity and Short Circuit Tests

If the test box is not available, disconnect the display box harness from the machine wiring harness, turn OFF the ignition switch and using a multimeter check for continuity or short circuits in the harness wiring between the display box and transducer electrical connectors.

4 If the expected readings are not obtained, check for damaged wiring and faulty connections.

If the expected readings are obtained, but the expected voltage reading from ***Transducer Output Test (V3)*** is not achieved, test the transducer output with the transducer removed from the axle.

⇨ *Transducer Output Test (V4) - with Transducer Removed from the Axle (B4-16)*

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Removal of the Complete Mudguard Assembly

1 Remove the roadwheel if greater access required see ***Section F - Wheel Removal and Replacement.*** ⇨ *Related Topics (B13-2)*

2 Remove the top guard assembly ⇨ *Removal of the Top Guard Assembly (B13-6)*

3 Remove the mounting arm bolts, nuts and washers **A** and remove the arm assembly **B**.

4 Remove the support bracket nuts **E**.

5 Remove the bracket **C** from the trunnion studs **D**.

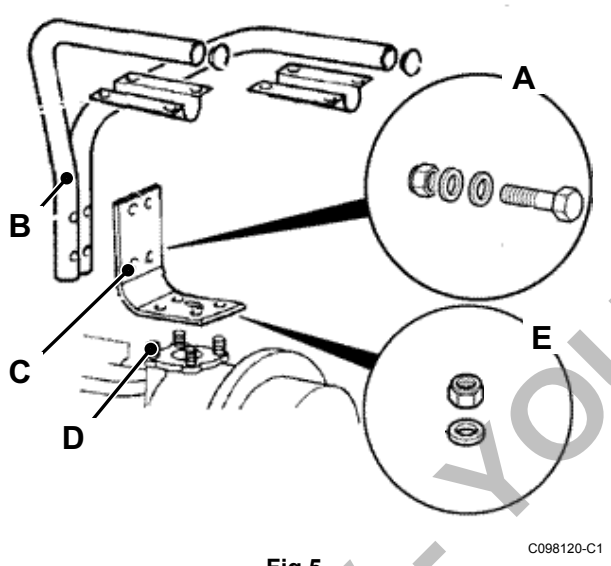


Fig 5.

Replacement

Replacement is the opposite of the removal procedure.

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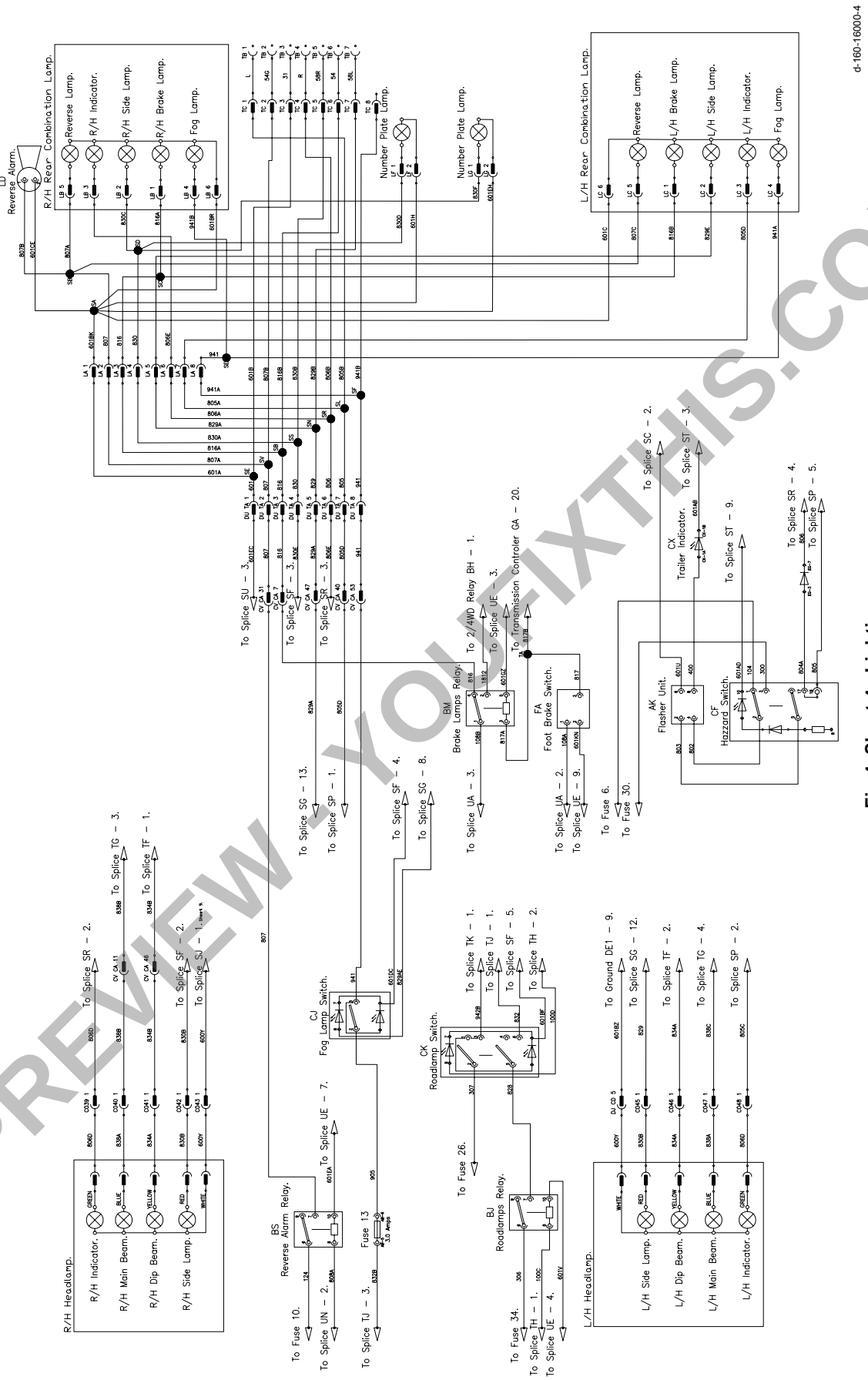
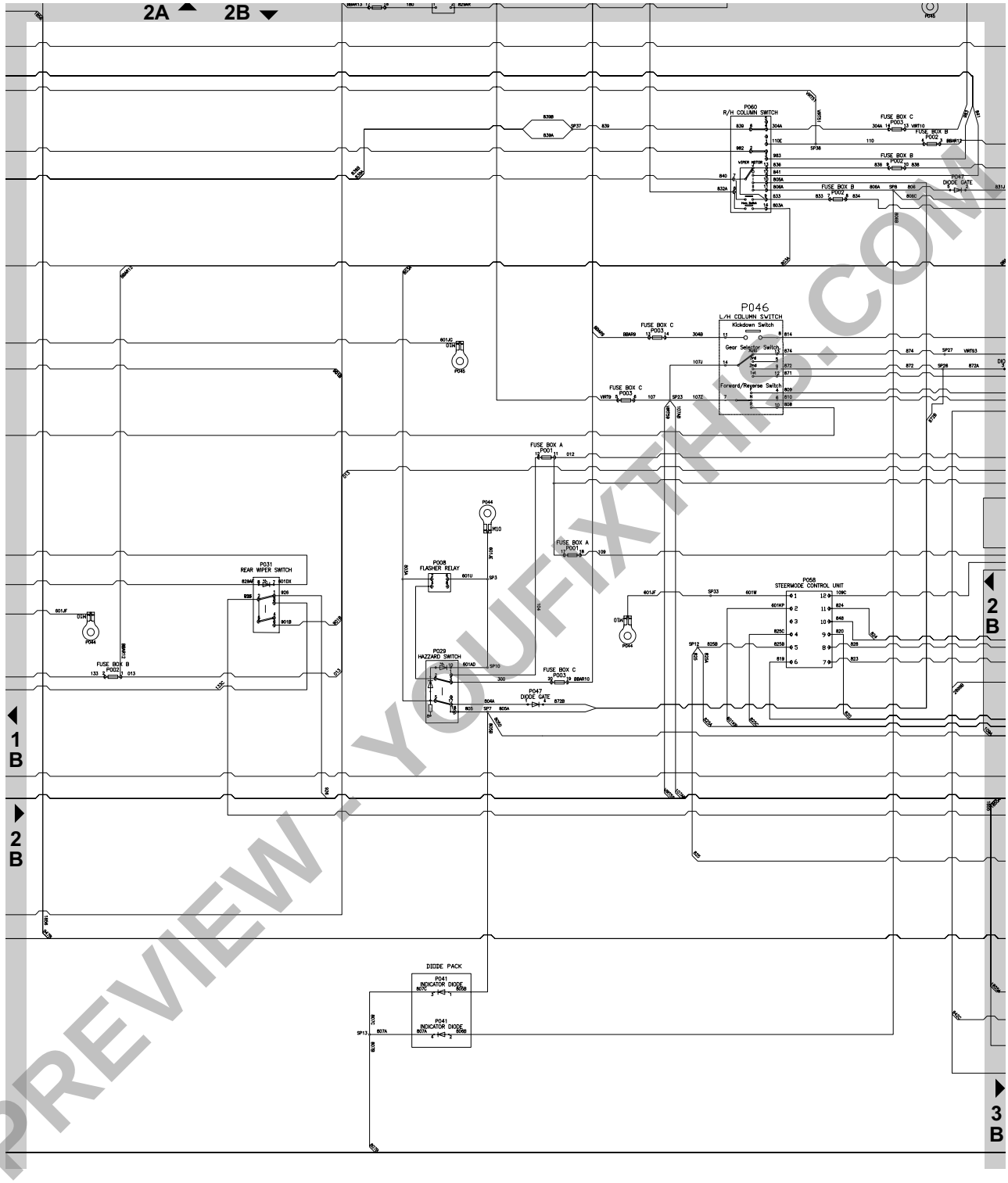


Fig 4. Sheet 4 - Lighting

⇒ Component Keys (C2-24) | ⇒ Sheets (C2-25)

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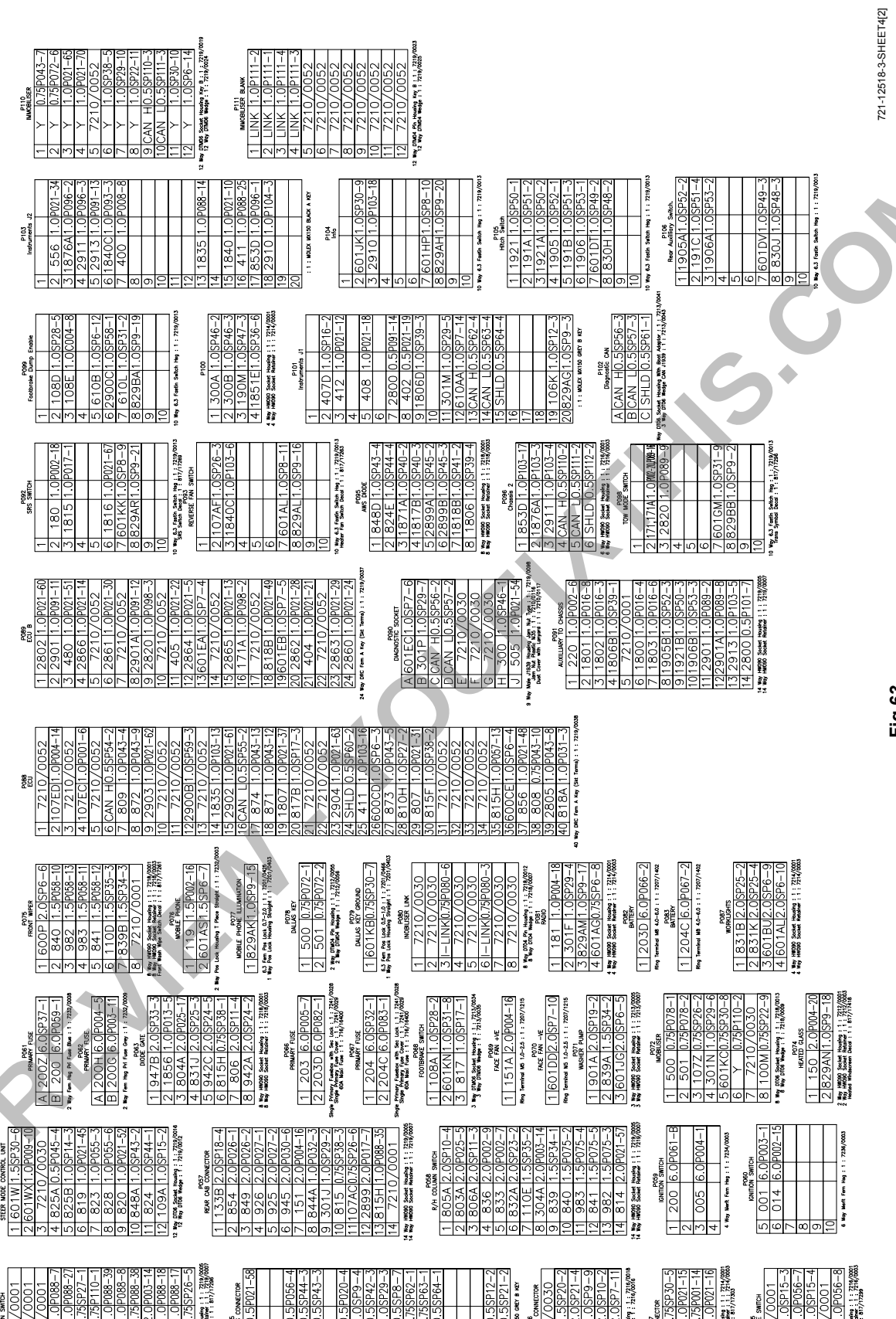


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Fig 95. Sheet 2B

⇒ *Sheet 1B (C2-112)* | ⇒ *Sheet 3B (C2-114)* | ⇒ *Sheet 2A (C2-107)* | ⇒ *Component Keys (C2-118)*

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721-12518-3-SHEET4[2]

Fig 63.

⇒ *Panel/Cab - CAD 721/12518 Issue 3 (C3-94)*

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Chassis - CAD 721/G0082 Issue 3

⇒ *Fig 142. (C3-206)*

Key to Connectors	
C001	Chassis to Engine Harness Connector
C002	Chassis to Cold Start Harness Connector
C003	Earth
C004	Vacuum Switch
C005	Agglomerator (water in fuel switch)
C006	Reverse Fan Solenoid
C007	Chassis to Transmission harness Connector
C008	Front Steer Proximity Switch
C009	Headlamp RH
C010	LLMI Transducer
C011	Rear Steer Proximity Switch
C012	Chassis to Boom Harness Connector
C013	Boom Worklight
C014	Chassis to Valve Block Harness Connector
C015	Chassis to Panel Harness Connector
C016	Auxiliary Change Over Valve
C017	Horn
C018	Hydraulic ECU Connector J1
C019	2 Wheel Steer Solenoid
C020	All Wheel Steer Solenoid
C021	Crab Steer Solenoid
C022	4 Wheel Steer Solenoid
C023	Hydraulic ECU Connector J2
C024	Hydraulic ECU Supply
C025	Battery Connector
C029	Joystick 4

Key to Connectors	
C030	Joystick 2
C031	Fuel Level Sender
C032	Earth
C033	Joystick 3
C034	Joystick 1
C035	Hydraulic Isolation Solenoid
C037	Chassis Angle Sensor
C038	Joystick Isolation Switch
C039	Auxiliary Change over Valve
C043	Chassis to Rear Lights Harness Connector
C045	Tilt Lock Switch
C046	Constant Auxiliary Enable Switch
C047	Hydraulic Stop Switch
C048	Speed Sensor
C049	Earth Connector
C050	CAN Termination
C051	Chassis to SRS Harness Connector
C073	SRS Drain Solenoid
C074	Boom Angle Sensor

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Table

			Machine models						
Topic Ref	Title	Variant	531-70, 531-T70	535-95, 535-T95	536-60, 536-T60	541-70, 541-T70	533-105	536-70, 536-T70	526-56
E26	***Control Lever - Electro Servo (S1)***	Agri Xtra	●		●	●		●	
E27	***Control Lever - Electro Servo (S2)***	Agri, Agri Plus, Agri Super November 2009 to October 2010[1]	●	●	●	●		●	
E28	***Control Lever - Servo Parallel***	SLC							●
E29	***Extension Ram***		●	●	●	●	●	●	●
E30	***Lift Rams***		●	●	●	●	●	●	●
E31	***Tilt Ram***		●	●	●	●	●	●	●
E32	***Displacement Ram***		●	●	●	●	●	●	●
E33	***Sway Ram***		●	●		●		●	
E34	***Stabiliser Rams***						●		
E35	***Ram Maintenance***		●	●	●	●	●	●	●
E36	***Sway/Fan Changeover Valve***		●	●		●		●	

(1) For details of LLMC machines from October 2010 refer to the service manual 9813/0900.

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Related Topics

Table 2. Related Topics in This Publication

The table lists other topics in the manual that contain information related to this topic. Refer to the applicable topics to complete your procedures. Where applicable the text in this section contains cross references to this page to help you find the correct information. Some machines have different systems and devices. Make sure you refer to the correct topic, refer to ***Section 1 - Applications***.		
Sections	**Topic Titles**	**Sub Titles**
1	***Applications***	ALL
1	***Service Tools***	ALL
2	ALL (Care and Safety)(1)	ALL
3	***Hydraulic System***	***Checking the Hydraulic Fluid Level***
E	***⇨ Systems and Schematics (E1-1)***	
E	***⇨ Flowshare (LSP) Control Valve (E15-1)***	ALL
E	***⇨ Inloader Valve (E18-1)***	ALL
E	***⇨ Servo Pilot Valve (E19-1)***	ALL
E	***⇨ Main Pump - Gearpump (E24-1)***	ALL
E	***⇨ Cooling Fan Motor (E25-1)***	ALL
E	***⇨ Sway/Fan Changeover Valve (E36-1)***	ALL
H	***Manual Steer Mode SYSTEM***	ALL
H	***Auto Steer Mode SYSTEM***	ALL
H	***Priority Valve***	***Test Procedures***
M	***CANbus SYSTEM***	ALL

(1) You must obey all of the relevant care and safety procedures.

Table 3. Service Tools

The table lists the service tools you will need to do some of the procedures in this topic. Make sure you have the correct service tools BEFORE you start the procedures	
Tool Part Number	**Description**
892/00268(1)	Flow Monitoring Kit and Relevant Adaptors
892/00253(1)	Hydraulic Pressure Test Kit and Relevant Adaptors
892/00270(1)	Load Valve

(1) Tool available from JCB Service, refer to Section 1 - Service Tools

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Checking the Servo Pilot Pressure

⚠ WARNING

Make the machine safe before working underneath it. Park the machine on level ground, lower the attachments to the ground. Apply the park brake, put the transmission in neutral and stop the engine. Block both sides of all four wheels.

Disconnect the battery, to prevent the engine being started while you are beneath the machine.

GEN-4-1_1

Make sure that the hydraulic oil is at working temperature, i.e. 50°C (122°F).

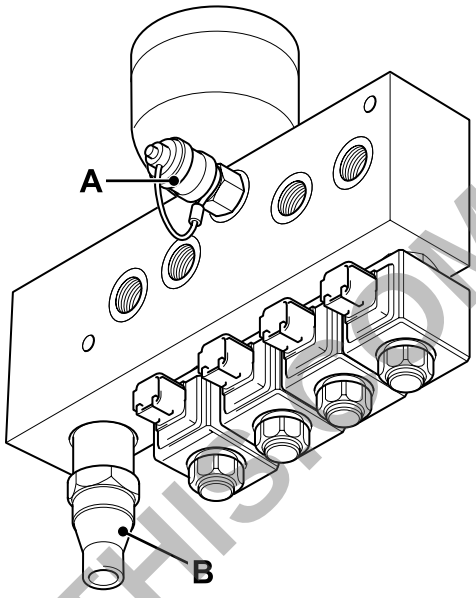
1 Working under the machine, connect a 0 - 70 bar (0 - 1000 lbf/in^2) pressure gauge to the servo pressure test point **A** (at the servo pressure supply valve as shown).

2 With the engine running at 1500 rpm, check the reading on the pressure gauge. The servo pressure should be as stated below:

30 bar (30.6 kgf/cm^2, 435 lbf/in^2)

Note: *The servo pressure regulating valve **B** is factory set and sealed with a plastic tamper proof cap.*

Important: *The extent of permissible servicing is the renewal of the solenoid coils. Further dismantling of the valve is not recommended. If the valve is suspected as being faulty it must be renewed as a complete assembly. Note also that the pilot circuit accumulator is a non serviceable part and is sealed for life. It is not possible to recharge the accumulator with nitrogen.*



C050600

Fig 33.

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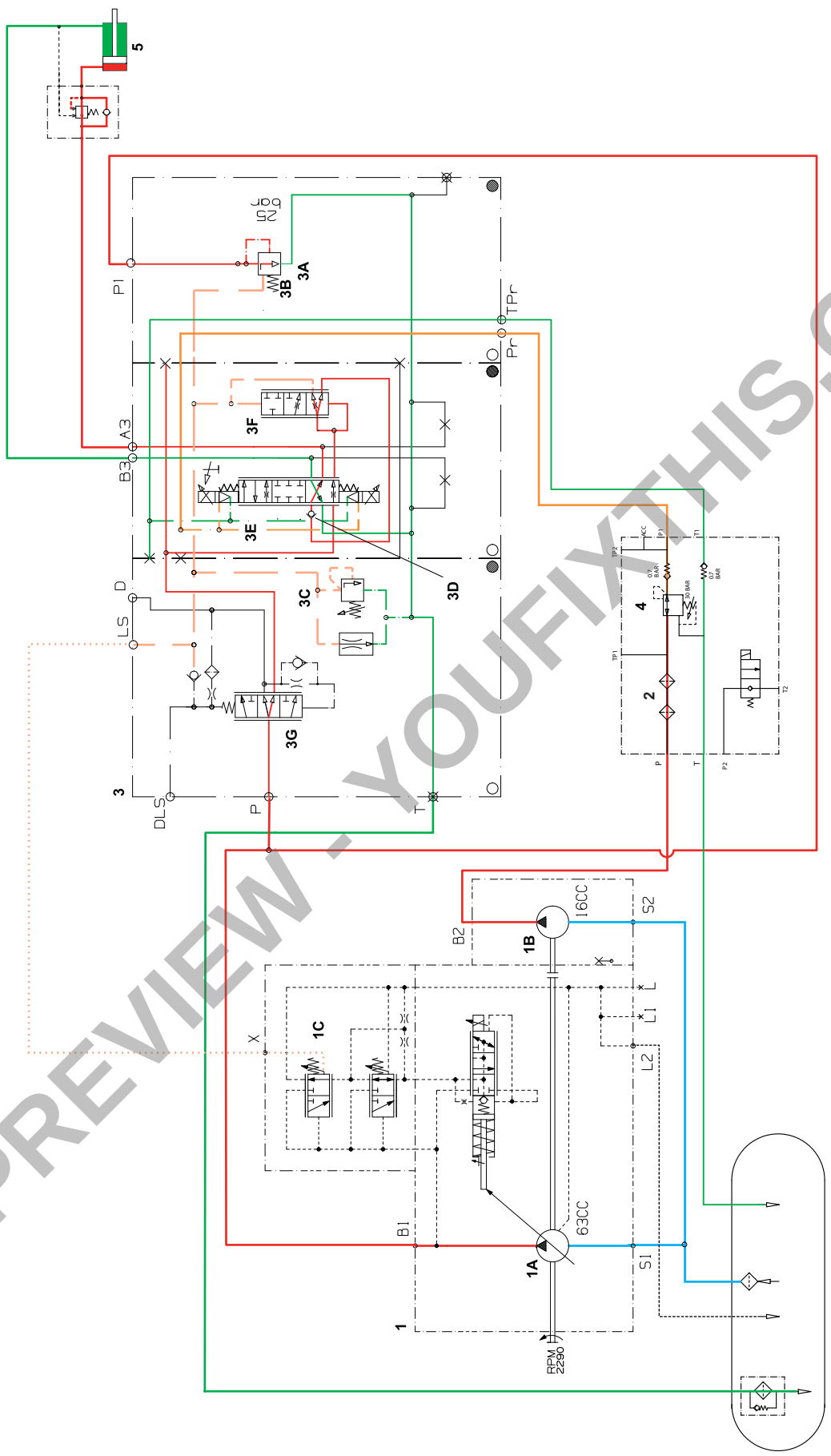


Fig 7. Main System Pressure Relief

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Table 12. Boom Ext/Ret slow, or low flow from auxiliary service

Possible Cause	Action
Fault in electrical circuit wiring, or operation of joystick: – Thumbwheel switch defective. – Solenoid at the valve block not energising. – Solenoid coil faulty.	Check the condition of the associated electrical wiring for damage and that the fuses are intact. – Check the function of the applicable thumbwheel switch. – Check the condition of the associated electrical wiring for damage. – Check the applicable solenoid coil for open or short circuits. Measure the solenoid coil resistance. Renew the solenoid coil.
Boom lift/lower pressure switch/transducer faulty	– Check relevant electrical circuit i.e. switches, relays, wiring, etc. and rectify as required. – Renew switch/transducer.

Table 13. The engine tends to stall when hydraulics are under load

Possible Cause	Action
MRV valve setting incorrect	Check and adjust as required.
Engine performance.	Check engine performance.

Table 14. Ram creep

Possible Cause	Action
Associated ram or pipe lines from ram leaking.	Check and rectify as required.
Check valve.	Check operation and rectify as required.

Table 15. Forks creep down

Possible Cause	Remedy
Circuit hosed incorrectly. Has any work been completed on the machine recently?	Check circuit. Re-route the hoses if necessary.
Tilt ram HBCV leaking, tilt ram seals leaking, control valve spool leaking or valve block section leaking internally.	Check for leakage in the tilt ram circuit.

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Discharging

1 Remove the accumulator(s) from the machine.

2 Remove gas valve guard **10-A** and gas valve cap **10-B**.

3 Screw valve **10-C** all the way out (counter clockwise) before attaching charging tool (part no. 892/00948) to accumulator gas valve.

4 Close bleed valve **10-D**.

5 Either connect charging tool to a bottle of compressed nitrogen gas which is turned off or remove hose **10-F** and fit a suitable blank on charging tool.

6 Screw valve **10-C** all the way in (clockwise), this will depress the core in the gas valve.

7 Open bleed valve **10-D** until all the gas charge is relieved from the accumulators. Remove the charging tool.

8 Install the accumulator(s) to the machine.

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2 Fit new O ring seals to the pump to gearbox casing mating face and inlet and outlet hose flanges. Lubricate the O rings with clean hydraulic fluid.

3 Apply JCB threadlocker and sealer to the flange bolts **1-J** and tighten to the correct torque.

4 Remove cap **1-K** and fill the pump case with clean hydraulic fluid. Refit the cap

5 Reconnect the hydraulic hoses and suction hose at the pump.

6 Connect the electrical connectors at the hydraulic fluid temperature switch and the pump control solenoid.

7 Refill the hydraulic tank to the correct level with clean hydraulic fluid.

8 Loosen cap **1-K** and allow any trapped air to escape from the pump body and drain hose **1-H**. Tighten the cap.

Table 2. Torque Settings

Item	Nm	Kgf. m	lbf. ft
1J	97	9.9	71.5
1K	84-92	8.5-9.4	62-68

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Notes:

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Transmission Technical Data Checklist

Please refer to the relevant section of Transmission Service Manual for reference data.

Company ..... Contact Name .....

Transmission Serial Number..... E-mail address & .....
Tel Number .....

Machine Make/Model ..... Installation Date .....

M/C Serial ..... Machine Hours .....

Oil Used ..... Oil Sample Available Yes/No

1. Stall Test results

Stall Test Results	**RPM**	
Gear	Forward	Reverse
1st		
2nd		
3rd		
4th		

2. Pressures (in neutral) at 50^0C

	1000rpm	2000rpm
Converter In		
Converter Out		
Lubrication		
Mainline		
Forward High Clutch		
Forward Low Clutch **		
Reverse High Clutch		
Reverse Low Clutch **		
Layshaft Clutch **		
Mainshaft Clutch **		
5th or 6th Spd Clutch ##		
2/4 wd Clutch		
Converter Inlet Relief Valve		

** not applicable to synchromesh transmissions
only applicable to PS750 5spd or PS760 6spd

3. Flow Rates (in neutral) @ 50^0C

	1000rpm	2000rpm
Cooler		
Pump		

4. Summary of symptoms / fault / previous history

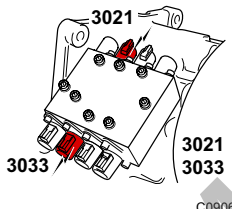
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Signature ..... Date .....

Fig 13.

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6th GEAR FORWARD	15(3033), 6(3021)	+1, 2 (C057)	 C090680-C16

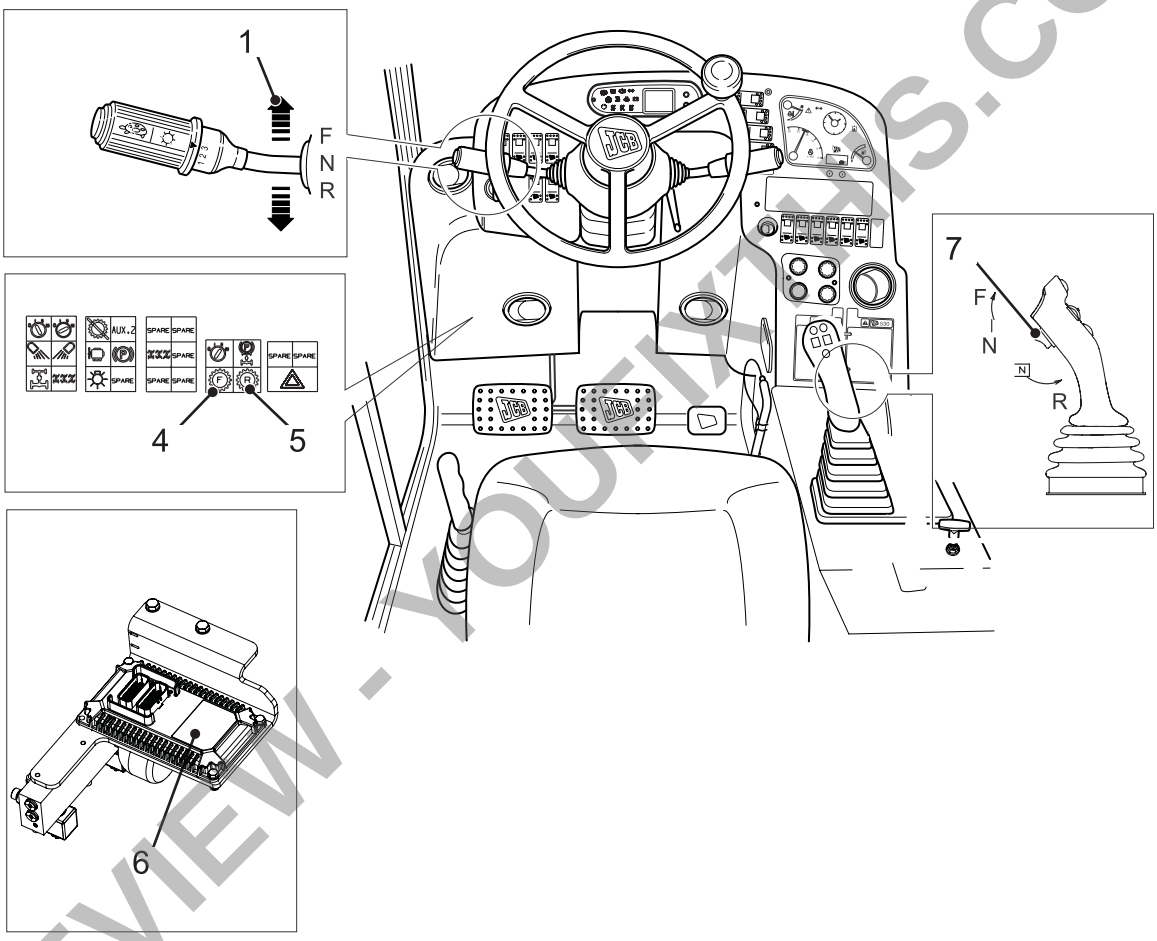
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Component Identification

ECU Input Devices	
1	Column Forward / Neutral / Reverse selection switch
4	Forward Drive Relay
5	Reverse Drive Relay

ECU Input Devices	
6	Machine Control ECU
7	Joystick Forward / Neutral / Reverse selection switch



C053460-C8

Fig 1. Components

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Related Topics

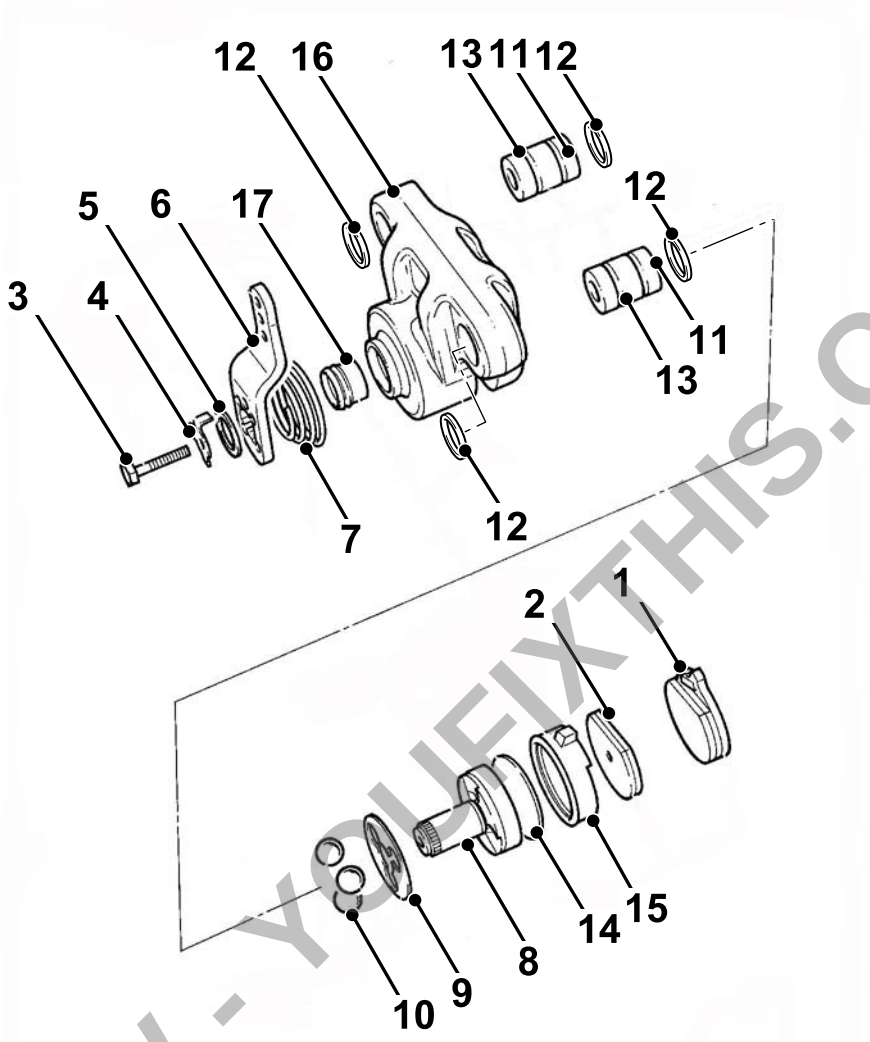
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Sections	**Topic Titles**	**Sub Titles**
1	Applications	ALL
2	ALL (Care and Safety)(1)	ALL
F	⇨ *PS750 Gearbox (F15-1)*	⇨ *Removal and Replacement (F15-14)*
F	⇨ *PS760 Gearbox (F17-1)*	⇨ *Removal and Replacement (F17-21)*
F	⇨ *SS700 Gearbox (F18-1)*	⇨ *Removal and Replacement (F18-13)*
K	***Engine***	***Removal and Replacement***

(1) You must obey all of the relevant care and safety procedures.

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Fig 3. Park Brake Calliper

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Related Topics

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2	ALL (Care and Safety)(1)	ALL
3	***Hydraulic System***	***Checking the Hydraulic Fluid Level***
E	***Electro Servo LSP Control Valve***	ALL
H	***⇨ Steering SYSTEM (H1-1)***	ALL

(1) You must obey all of the relevant care and safety procedures.

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Throttle Cable

Note: One end of the cable is located outside the cab, below the heater, between the cab and the chassis. The other end is attached to the fuel injection pump on the rear of the engine.

Access to the cab end of the cable is limited. Access can be improved by removing the cab front panel.

Removal

1 Park the machine on firm level ground and engage the parking brake, see ***Section 2 - General Procedures***. ⇨ *Related Topics (K10-2)*

2 Raise the boom and fit the safety strut, see ***Section 2 - General Procedures***. ⇨ *Related Topics (K10-2)*

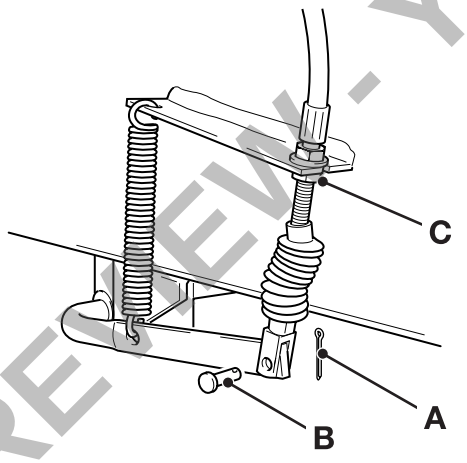
3 Stop the engine and remove the starter key. Raise the engine cover.

⚠ 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

4 Remove locking pin **2-A** and withdraw clevis pin **2-B**.



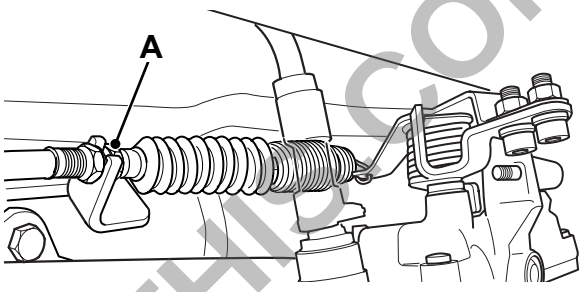
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Fig 2.

5 Loosen locknuts **2-C** (13 mm AF). Screw the locknut to the bottom of the threaded section on the outer cable.

6 Lift the outer cable through the bracket and pass the inner cable through the slot in the front of the bracket.

7 Loosen locknut **3-A** and lift the cable through the slot in the support bracket.



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Fig 3.

8 Disconnect the spring from the arm on the fuel injection pump and withdraw the cable.

Replacement

Replacement is the opposite of the removal procedure.

During the replacement procedure do this work also:

Throttle Pedal Stop Adjustment (if fitted)

Some machine variants have a throttle pedal stop. Make sure that the throttle pedal stop position is correct before the cable is adjusted. ⇨ *Throttle Pedal Stop Adjustment (K10-5)*

Cable Adjustment

The cable can be adjusted at the fuel injection pump and the throttle pedal. When adjusting the cable make sure that the fuel injection pump throttle lever **4-B** returns to the closed position when the throttle pedal is not pressed.

Slacken locknut **4-A** to adjust the cable at the fuel injection pump. Remove slack in the cable without moving lever **4-B** from its closed position.

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Fault Code	Description	Warning Displays	Severity
E119	Water in fuel detected – data valid but above normal operating range.	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E122	Water in fuel indicator fault – voltage above normal or shorted high	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E126	Inlet manifold air pressure sensor fault – data erratic, intermittent or incorrect.	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E127	Power supply fault – data erratic, intermittent or incorrect.	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E129	Battery voltage fault – data valid but below normal operating range.	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E130	Battery voltage fault – data valid but above normal operating range.	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E133	Fuel pump delivery pressure - data valid but above normal operating range.	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E134	Injector metering rail #1 pressure - voltage above normal or shorted high	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E135	Injector metering rail pressure - voltage below normal or shorted low	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E159	Cylinder power imbalance – data erratic, intermittent or incorrect	Fault Logged	
E172	Engine coolant temperature sensor fault - data erratic, intermittent or incorrect.	MIL lamp activated (Amber). Message displayed on LCD. Buzzer activated for 1 second.	SERVICE
E183	Injector metering rail #1 pressure - data erratic, intermittent or incorrect.	Fault Logged	
E202	Minimum drive pulse drift (injector #2) - mechanical system not responding or out of adjustment.	Fault Logged	
E203	Minimum drive pulse drift (injector #1) - mechanical system not responding or out of adjustment.	Fault Logged	
E204	Minimum drive pulse drift (injector #3) - mechanical system not responding or out of adjustment.	Fault Logged	

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