

TRUCK CARGO MEDIUM CRANE NC2 - CRANE  
HYDRAULIC CONTROL VALVES

MODIFICATION INSTRUCTION

This EMEI is authorised for issue by the CGS. It provides direction, mandatory controls and procedures for the maintenance and support of equipment. Personnel are to obey the instructions and follow the procedures contained in this publication.

Introduction

1. This instruction details the replacement of the Main Lift Port Relief valve so as to increase the relief pressure from 21.0 mPa to 23.0 mPa. This will give the crane a maximum lift capacity of 2010 kg.
2. The full procedure is shown to enable Army tradesmen to carry out inspections and subsequent testing or repair.
3. Estimated Manhours to Perform. 1.0 (planning purposes only).
4. Priority. Group 2.
5. Modification to be Applied to. All crane trucks.
6. Item Affected. Main Lift Port Relief Valve.
7. Action Required. The modification is to be carried out by REPUTABLE HYDRAULIC REPAIR Agents.

TABLE 1 - STORES REQUIRED

Item	NSN	Designation	Qty per Equip
1.	2530-97-221-1696	RELIEF VALVE ASSEMBLY, MANUFACTURE, CONSOLIDATED HYDRAULIC EQUIPMENT PART NO EA 226/230	1
2.	NIC	PLUG, MANUFACTURE (HMC) PART NO EA 343	1
3.	NIC	PRESSURE GAUGE CONNECTOR, MANUFACTURE (HMC) PART NO EA 180	1
4.	NIC	ADAPTOR, MANUFACTURE (HMC) PART NO EA 181	1

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TABLE 2 - STORES REMOVED (To be disposed of in accordance with GEN P series)

Item	NSN	Designation	Qty per Equip
1.	NIC	RELIEF VALVE ASSEMBLY, MANUFACTURE (HMC) PART NO EA 226/210	1

Detail

WARNING:

1. Ensure crane jib is lowered to the ground, the engine stopped and all hydraulic pressure relieved on the control valves prior to the removal of any hydraulic pipe or fitting.

8. To carry out the modification proceed as follows:

- a. Remove valve bank protection cover, refer to Fig 1 (cover removed).
- b. Remove pipe from the overload protection assembly, (Item 1, Fig 2).
- c. Remove set screws, (Item 2, Fig 2).
- d. Blocking cylinder (Item 3, Fig 2) will now be able to be removed.
- e. The plastic cap of the valve (Item D, Fig 3), will now be exposed. Remove by flicking out with a small screwdriver or scriber.
- f. Remove stud (Item C, Fig 3), from the Main Valve Body by undoing the nuts at the opposite end of the valve bank and drawing out completely.
- g. The valve assembly will now be able to be removed by using a sharp hooked wire or small pointed screwdriver placed into the hole provided in the piston. The piston will be reasonably tight, therefore pressure will need to be applied to remove the assembly. The spring assembly will follow as the piston is drawn out.
- h. Fit Item 1, Table 1, into the cavity (approximately 25 mm in), spring assembly first, as shown in Fig 3, Item E. Make sure it is well home. Replace stud (C) and torque to 18 Nm. Replace the plastic cap by tapping in lightly with a small hammer.
- i. Replace the overload assembly, ensuring that the notch (drain hole) is facing down. Refer to Fig 2.
- j. Ensuring that the transmission is in neutral, disconnect the gear lever at the transmission.
- k. Remove the blanking plug on the end of the valve body, Fig 1 and fit the Pressure Gauge Connector, Item 3, Table 1.
- l. Fit a 0-30 mPa hydraulic pressure gauge onto the connector.
- m. Start the engine and set to 1400 RPM.

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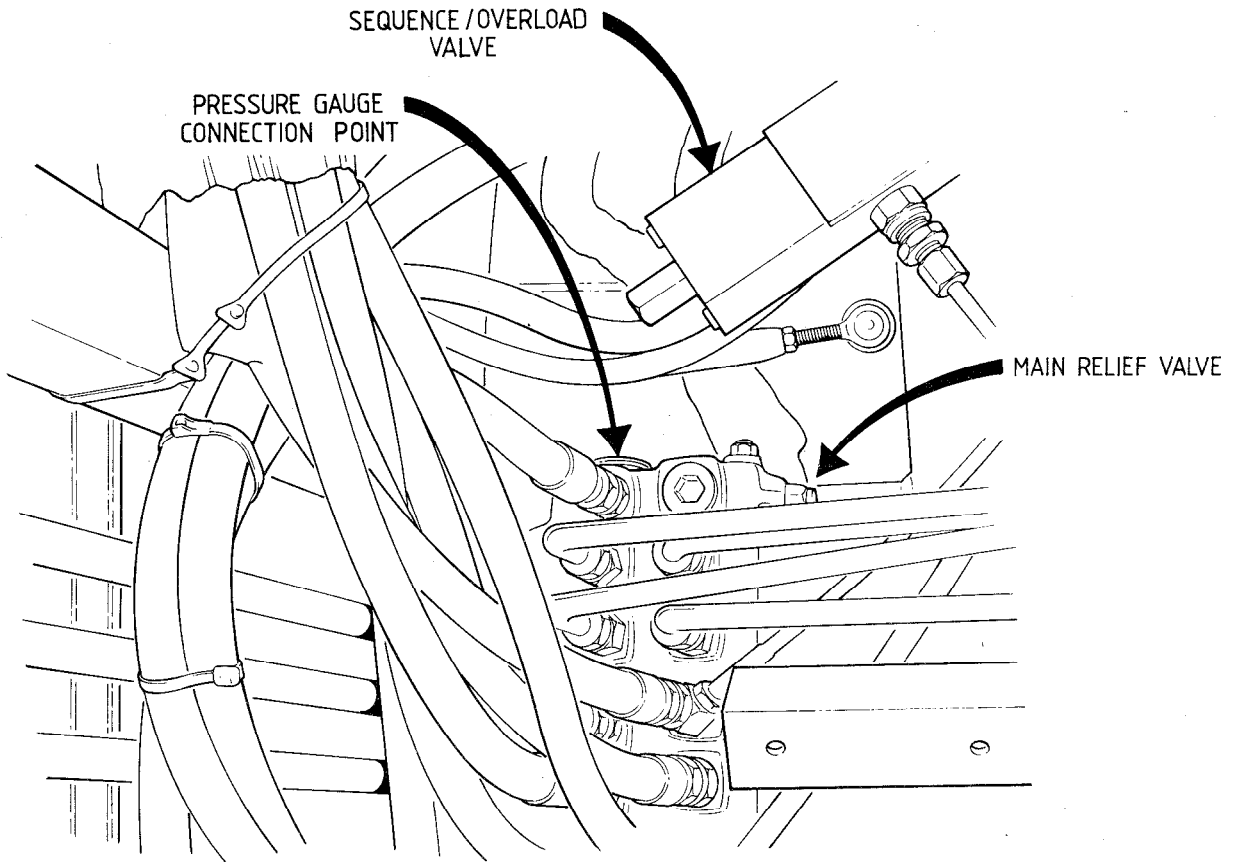


FIG 1 - VALVE BANK, PROTECTION COVER REMOVED

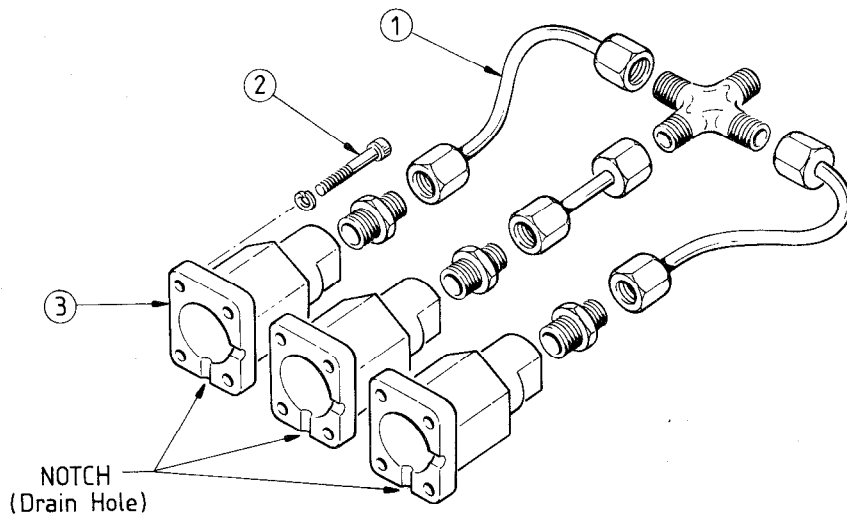


FIG 2 - OVERLOAD PROTECTION ASSEMBLY

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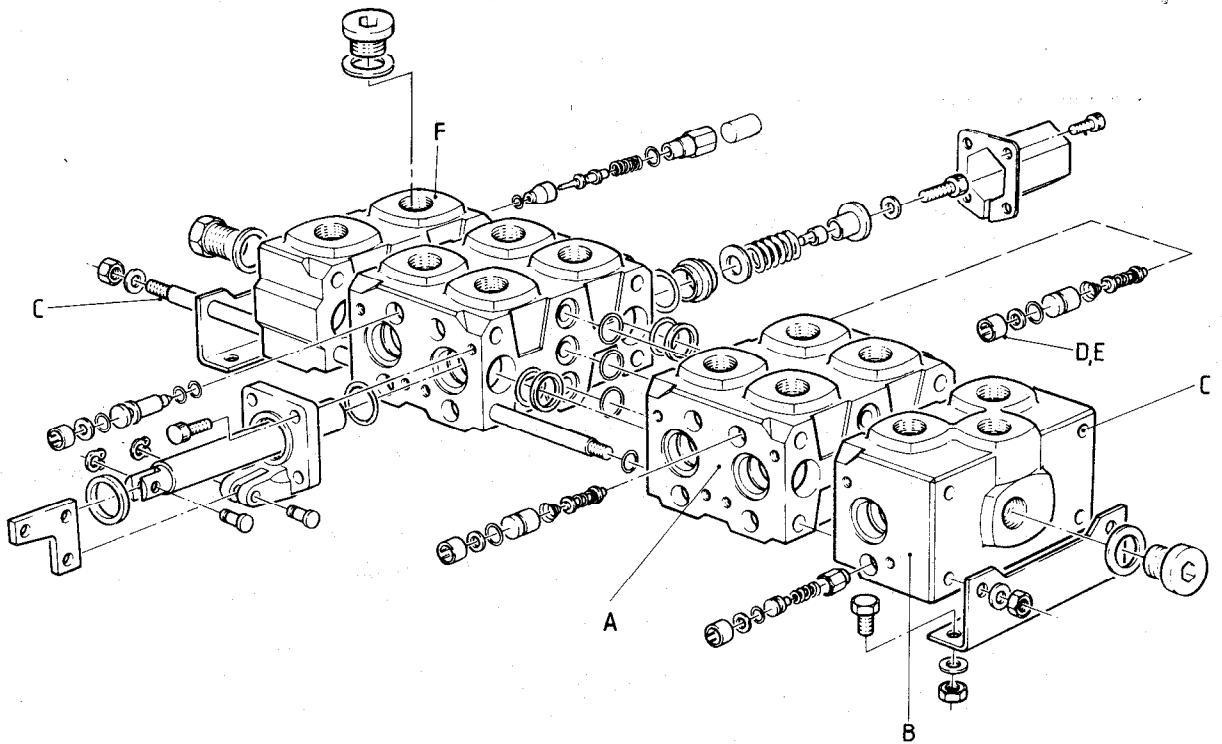


FIG 3 - VALVE BANK ASSEMBLY

Note:

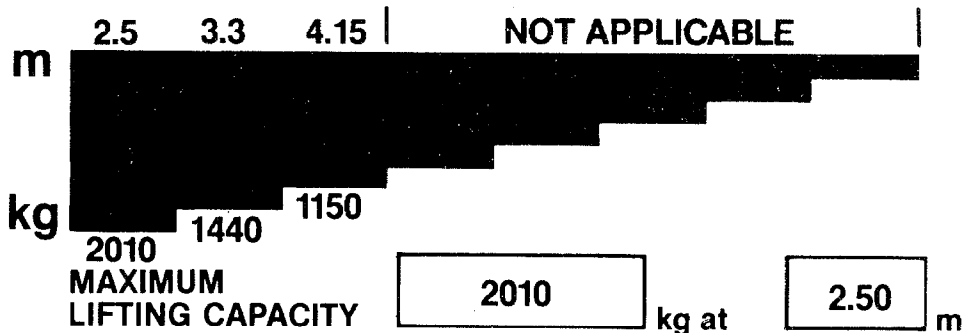
1. It is imperative that the engine remain at 1400 RPM ( $\pm$  50 RPM) during all testing.
- n. Operate the Stabilizer Leg Valve so that the Stabilizer Legs are fully retracted. With the Stabilizer Leg Valve Lever held across, take a reading on the Pressure Gauge. Let the Valve Lever spring back to the mid position.
- o. Adjust the Main Relief Valve (Fig 1), clockwise by approximately 1/4 turn. This is achieved by breaking the lead seal and turning clockwise the castellated nut on the Main Relief Valve twice at the rear of the Valve Bank. Take another Pressure Gauge reading by operating the Stabilizer Leg Valve Bank. Continue the procedure until the gauge reads 25.0 mPa.
- p. Operate the Main Lift Ram Valve to fully extend the ram. When the ram is fully extended, take a reading on the pressure gauge located on the control console. This reading should be 23.0 mPa, or higher. This indicates the new Port Relief Valve is working correctly. If the reading does not reach 23.0 mPa, it will be necessary to fit another Port Relief Valve.
- q. Break the lead seal and remove the cap from the Sequence/Overload Valve, Fig 1.
- r. This will expose a set screw configuration. Using a 4 mm Allen Key, turn the screw clockwise approximately 1/8 turn. Replace the cap. Take a Pressure Gauge reading by activating the Main Lift Valve Lever with the ram at the end of its stroke. The reading should be taken from the crane gauge mounted on the control console. Continue this procedure until the gauge reads 22.0 mPa. At this pressure or slightly higher, the hand control should be forced back to the neutral position. If not adjust the set screw accordingly ie, clockwise if pressure is low or anti-clockwise if the pressure is high. When this is established, work the Main Lift Ram down and up again to check the reading is constant.

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- s. Readjust the Main Relief Valve back to 21.5 mPa following the procedure as detailed in paragraph 8o.
  - t. Do a practical lift test with a weight on the crane and check that the crane goes into overload at 22.0 mPa and holds the load. The test weight should be such that the crane goes into overload before maximum outreach is obtained.
  - u. Remove pressure gauge and connector from the line. Testing is now complete.
  - v. Reseal the protective caps.
9. Fit new lifting capacity information plate to support column (Fig 4) - ensure old plate is destroyed.

# PALFINGER

TYPE: **PK 4000/46/244** YEAR: **1984**  
SERIAL No.



**CONSOLIDATED HYDRAULIC EQUIPMENT**  
(AUSTRALIA) PTY LTD

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FIG 4 - LIFTING CAPACITIES INFORMATION PLATE

- 10. Plate will only be issued when upgrading of crane has been completed.
- 11. Plate is available from, HQ LOG COMD, MM DIV, B VEHICLES, TO3 MAINTENANCE (03) 282 6617 DNATS 832 6617 FAX 282 6193 (03).
- 12. Modification Record Plate. On completion of the modification deface the numeral 26 from the modification record plate situated on the right hand side of the driver's seat base.
- 13. Recording. Enter the details of the modification in Part 3 of the GM 120, Record Book for Service Equipment, for the subject vehicles.

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