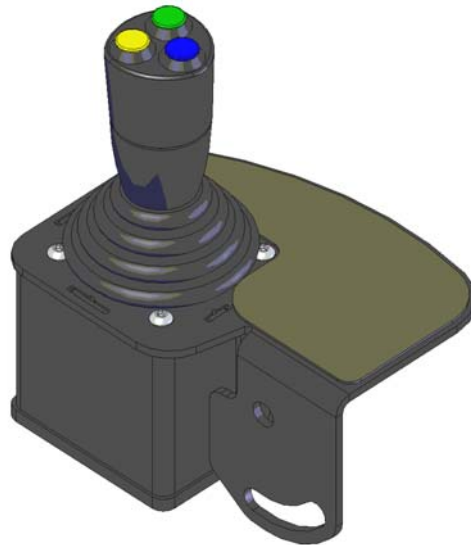


ECO - Proportional Valve

Installation Instructions (Including Operating Instructions)



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Installation instructions ECO - Proportional Valve

Before starting the installation of the system, please ensure that all parts required according to the parts list are available.

Important: No damages are to incur during transport, installation or use as these may lead to malfunctions.

The installation of the complete system should only be carried out while the power for the tractor is turned off. **Once the installation has been completed, please read the operating instructions completely as basic settings will have to be carried out.**

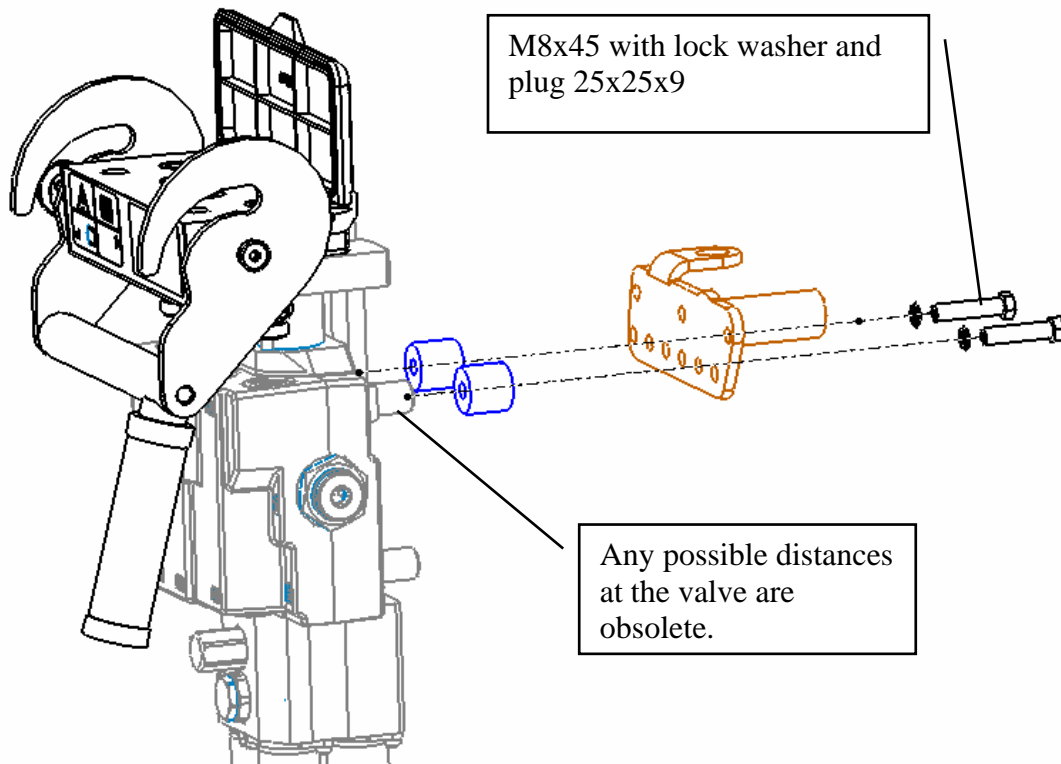
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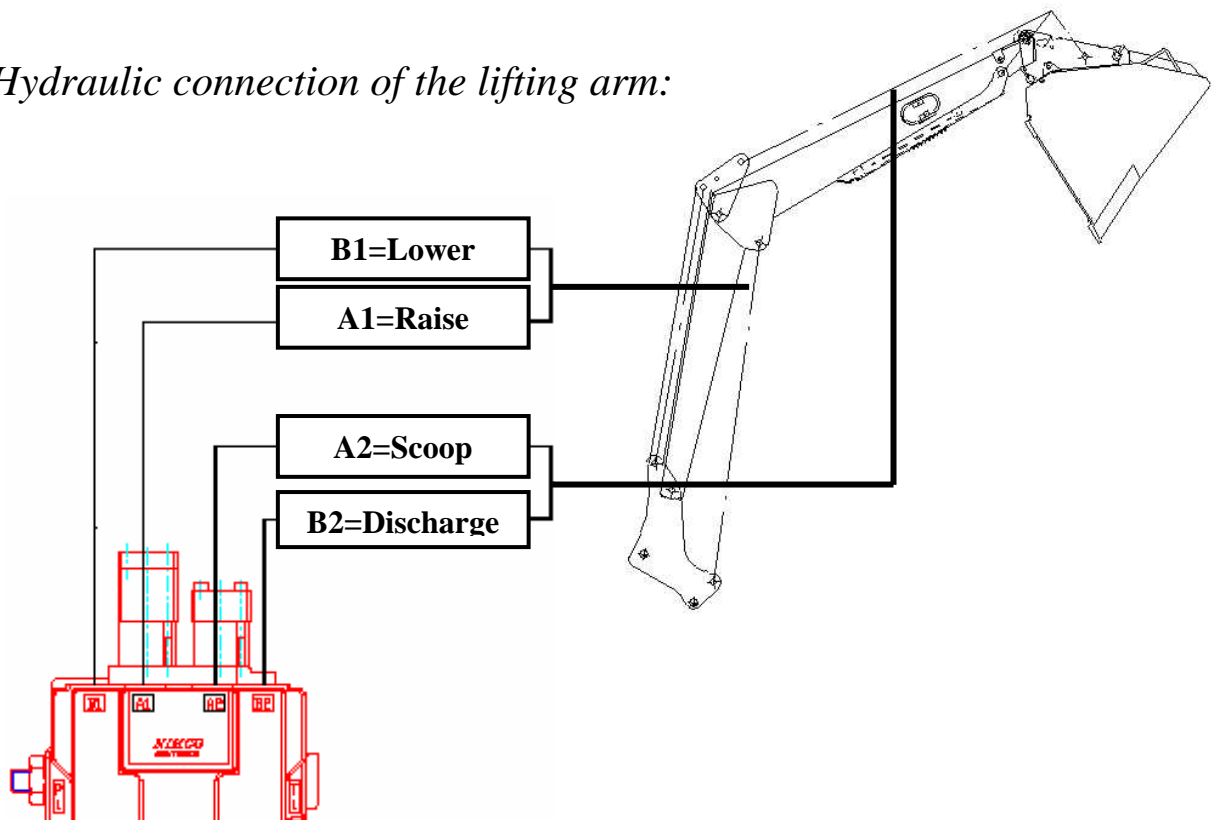
1. Hydraulics

Installation of the proportional valve:

The proportional valve is not screwed onto the Hydrofix but to the valve itself!



Hydraulic connection of the lifting arm:



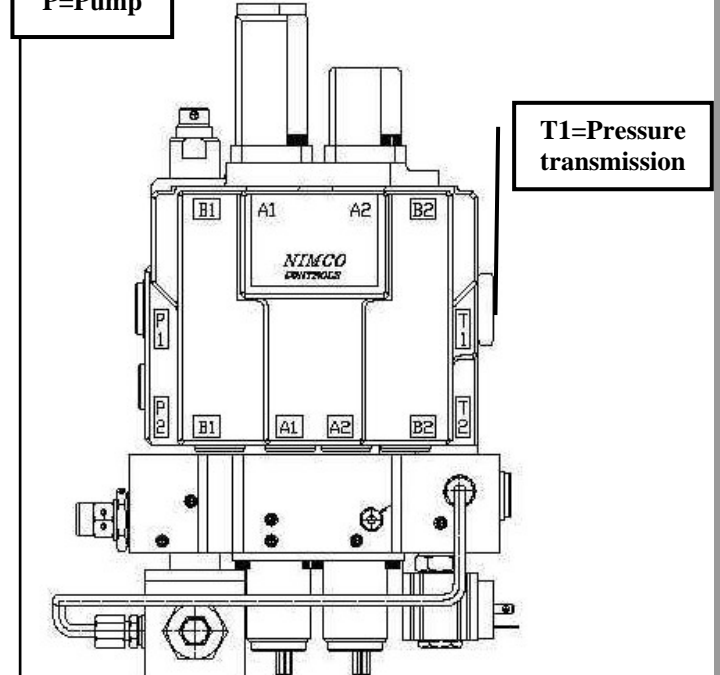
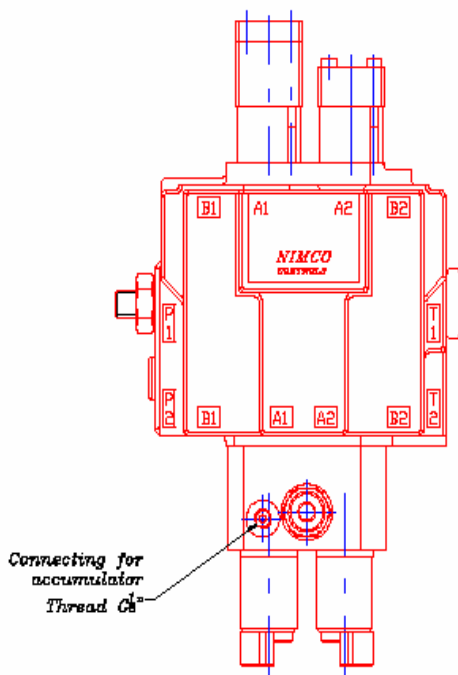
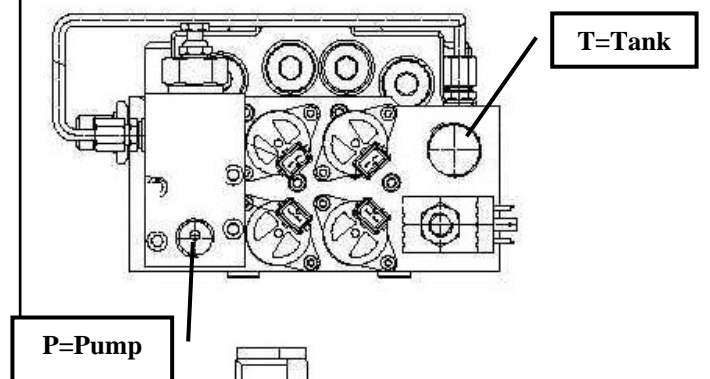
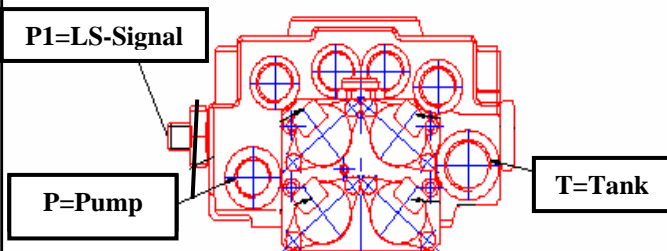
Hydraulic connection on the tractor:

The installation of the hydraulics is carried out according to the set of pictures, which is included in the delivery (tractor specific). The relevant valve is connected as described below:

Nimco valves:

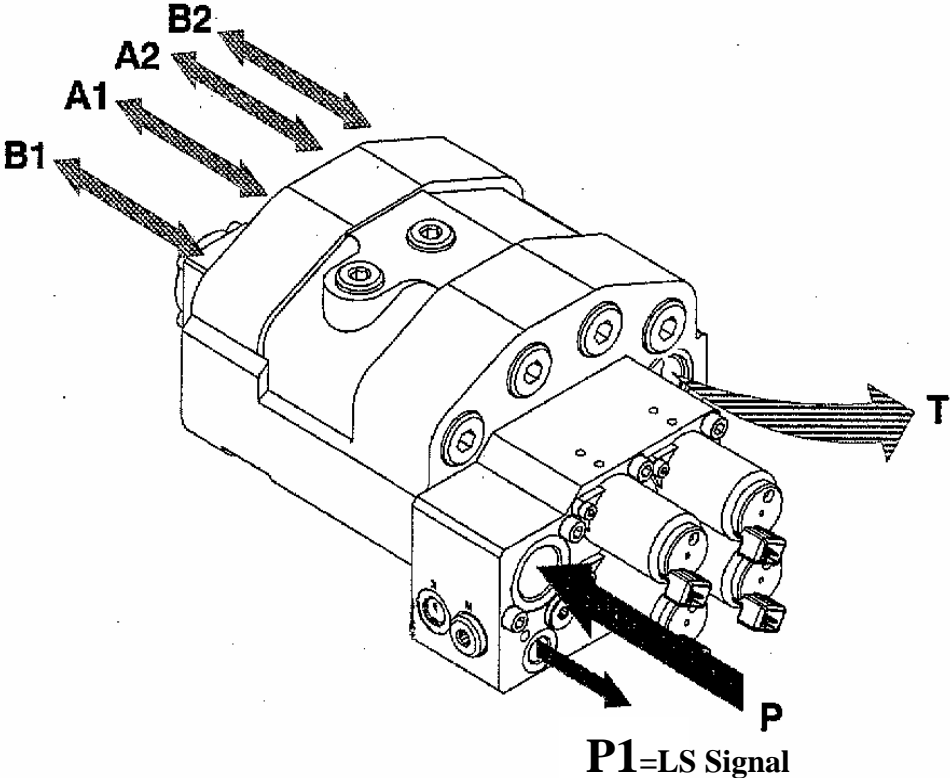
EPCV 452 LS & EPCV 452 LS-LSP:

PRMC 200 BYPASS:

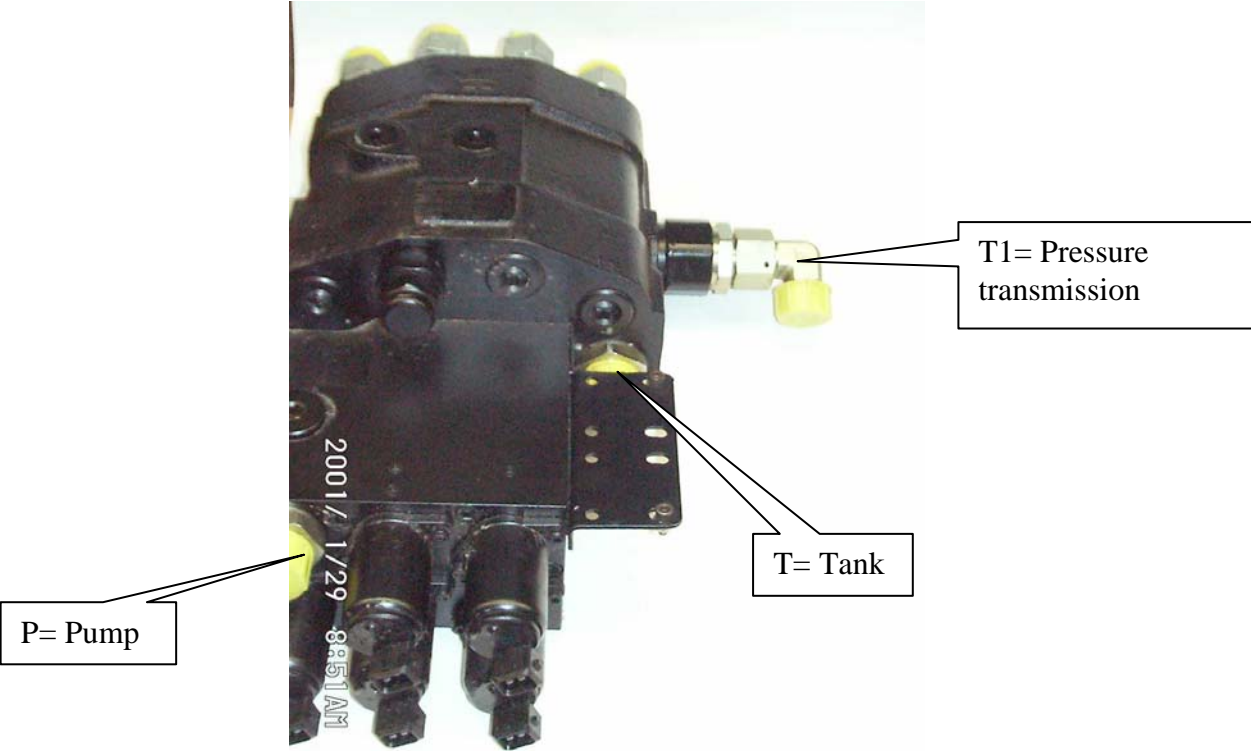


Walvoil valves:

Walvoil DLM 142/2 APF LS:

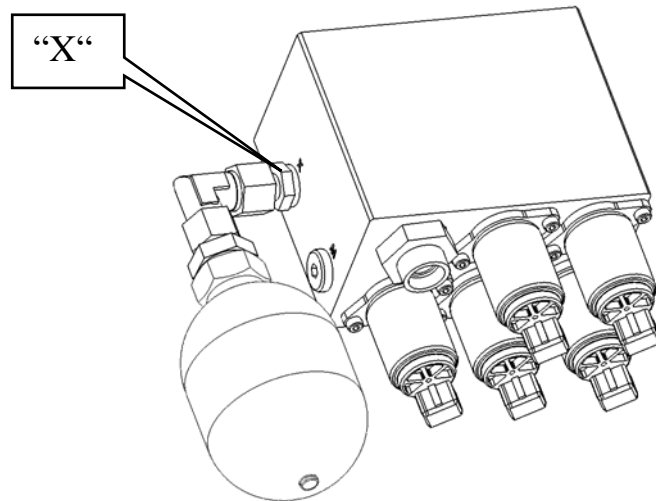


Walvoil SDM 143/2-PF OC:



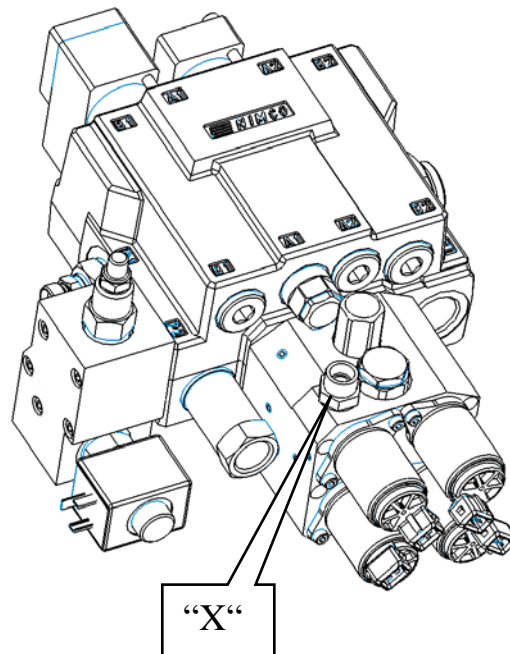
Installation of pressure reservoir (Walvoil valves):

The pressure reservoir is attached to the valve at “Point X” according to the following picture. If space is restricted a hydraulic hosepipe may have to be employed to lay the pressure reservoir.



Installation of the pressure reservoir (Nimco valve):

The pressure reservoir is attached to the valve at “Point X” with a hydraulic hosepipe, which is included in the delivery, according to the following picture. The pressure reservoir is fed under the tractor cabin and is fastened with cable connectors.



2. Electronics

Installation of the safety button:

The safety button should be positioned at a fairly accessible place on the dashboard or the side panel. An opening with a Ø30mm is required for this.

Attention: Do not spot drill any supporting cabin parts!

Installation of the joystick:

The joystick is attached to the seat with the help of two holders and screws, which are included in the delivery. The additional holder, which may be included, is not required for a control lever activated by Bowden wire.

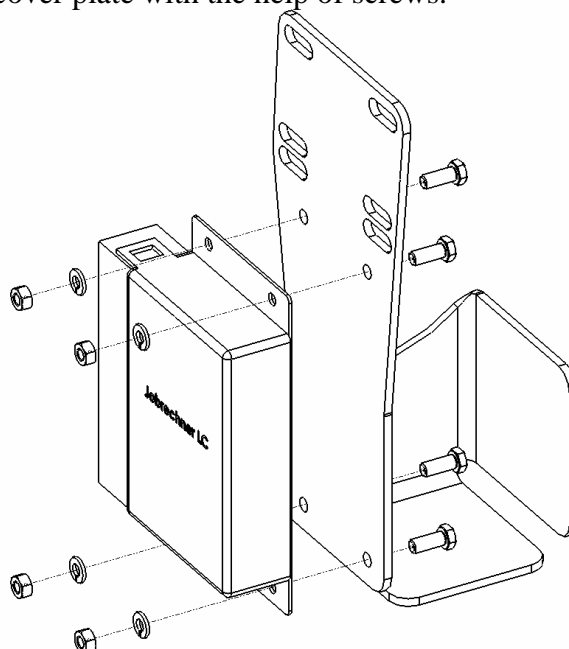


The holder is screwed into the existing holes sideways from the outside or (if sufficient distance available) at the pivotal point between seat plate and back rest (Grammer and Sears seats). The plastic cover may have to be omitted in this area. If the tractor is equipped with a multifunctional arm rest, the joystick has to be attached individually unless a special holder is also included in the delivery.

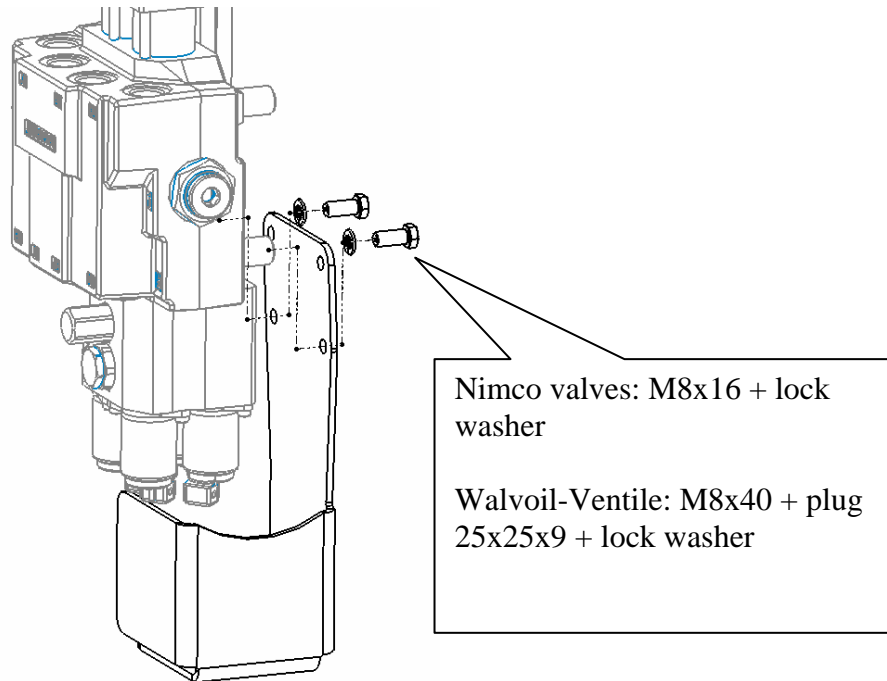
Installation of the job calculator:

The job calculator is attached to the cover plate with the help of screws.

M6x16 + lock washer + nut



Installation of the cover plate:

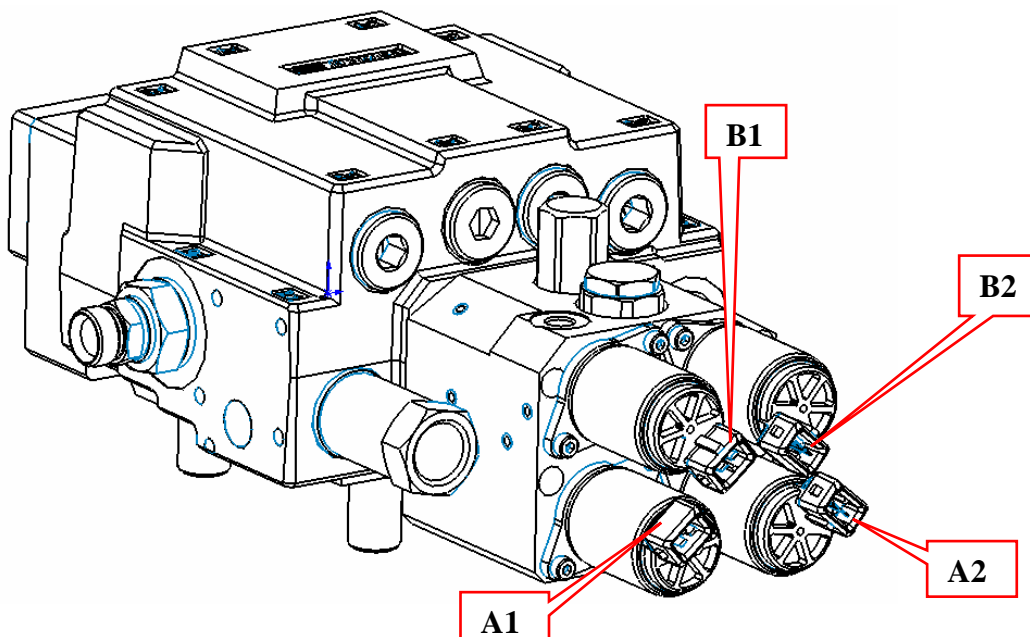


Install the cover plate as high as possible!

Electrical connection:

- Connect the periphery cable (Art.-no. 426C3000) to the job calculator (Art.-No. 426C2000).
- The four marked cables (A1, A2, B1, B2) must be connected correctly according to the following diagram.

Attention: If connected incorrectly, malfunctions may occur.



- For the following types of valve, the cable Y0 is superfluous and does not need to be connected:

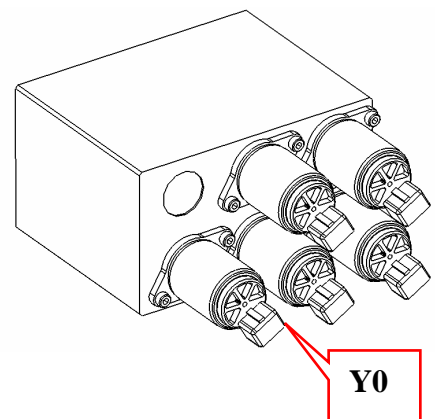
Nimco EPCV 452 LS (Load Sensing/ Type: 100 36)
Walvoil DLM 142/2 APF LS (Load Sensing)

- Cable Y0 is required for the following types of valve and is plugged in and screwed by the help of an adapter cable (Art no. 426A6000) into the additional valve on the proportional valve:

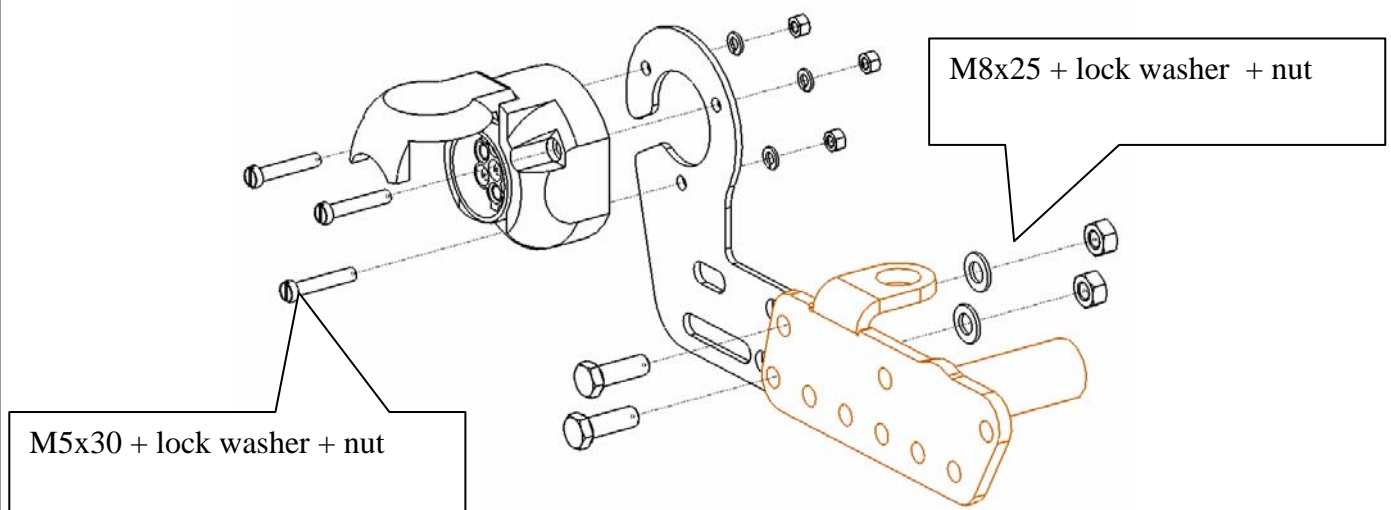
Nimco EPCV 452 LS – LSP (load sensing for low standby pressure/ Type: 18060-1 S):
Nimco PRMC 200 BYPASS (open centre):

- The cable Y0 is required for the following type of valve and is plugged in and screwed into the additional valve on the proportional valve:

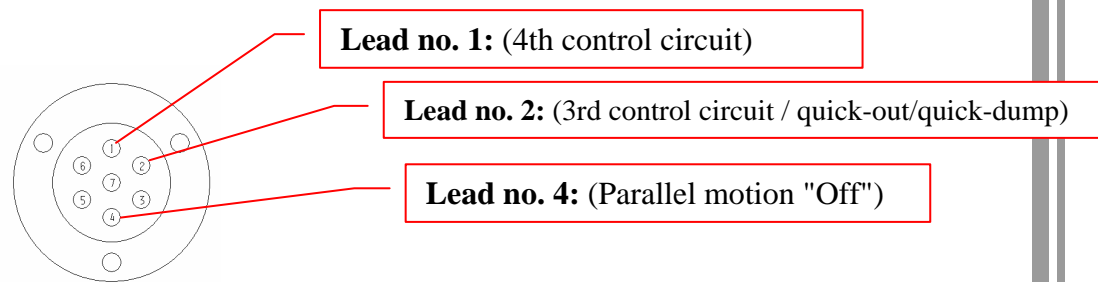
Walvoil SDM 143/2-PF OC (open centre):



- The cable with the 3-pin socket should be connected to the safety button in the cabin. For this, a feed-through (Ø 35mm) must be found first at a position convenient for the type of tractor in order to feed the cable into the cabin.
- The cable with the 9-pin socket should be connected to the joystick. For this, a feed-through (Ø 35mm) must be found first at a position convenient for the type of tractor in order to feed the cable into the cabin.
- The cable with the 7-pin socket should be screwed with the socket to the clutch support.



The assignment of keys to the socket outputs are described below and preinstalled.



Key functions:

- Yellow key → quick out/quick dump (HD and HDP lifting arms) + 3rd control circuit
- Green key → parallel motion "Off" (HDP lifting arms)
- Blue key → 4th control circuit + (floating position)

The assignment of keys is restricted, i.e. the following assignments are not possible:

1. The function "parallel motion" cannot be assigned to the blue key. (Malfunctions)
2. The floating position is exclusively dedicated to the blue key and cannot be changed.

The connection of further equipment (Comfort Drive + Hydraulic attachment locking) is described in the instruction manual!

- The brown cable with the 5A fuse and the name "UZ" must be connected to a connectable and disconnectable power supply via an ignition lock via the enclosed line connector. For more current tractors, which are equipped with a power supply socket according to DIN 9680 (3-pin socket) this is fairly simple.
- The red cable with the 15 A fuse and the name "+12 V" must be connected directly to the +pole of the battery with the help of the enclosed cable shoes. The fuses should be positioned at a fairly accessible place. For more current tractors, which are equipped with a power supply socket according to DIN 9680 (3-pin socket) , power can also be taken from there. If both options are not feasible, a cable should be found (possibly in the fuse box) which is able to provide the required amperage.
- The earth cable with the name "T" must be connected directly to the –pole of the battery with the help of the enclosed cable shoes. For more current tractors, which are equipped with a power supply socket according to DIN 9680 (3-pin socket), earth can also be connected here. Should neither option be feasible, a cable or a circuit connection (perhaps in the fuse box) should be found, which ensures a save bonding.

The cables are attached with the help of cable connectors.

Basic settings:

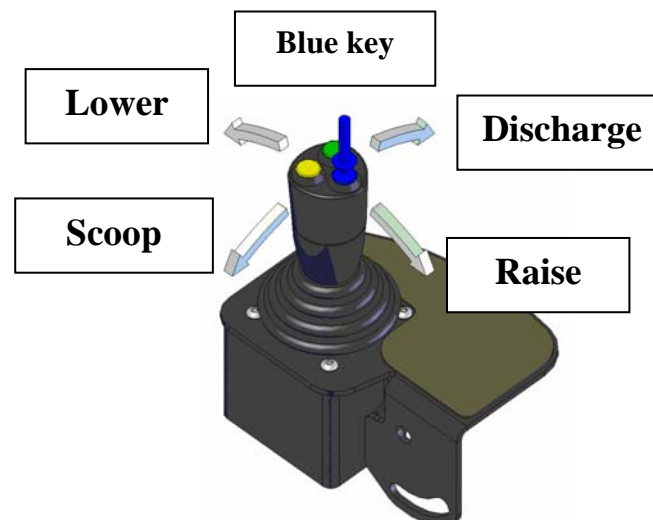
From 01/2008 the basic settings are preset ex works. This means that the calibration of the joystick and the selection of the valve must not be carried out any more!

Calibration of the joystick:

The zero position and the maximum displacement of the joy stick always imply certain amounts of tolerances and have to be calibrated before first use and after replacement of joystick or processor.

Working steps:

- Press and hold the blue key.
- Move joystick forward.
- Switch on power supply. The light-emitting diode in the safety button flashes quickly.
- Displace the joystick consecutively in the four directions and wait for one second. The blue key must be pressed and held down during this time.
- Release the joystick and the blue key. The zero position will be measured and saved after two seconds.



Set valve type:

Three piloting programmes exist for the three proportional valve types:

Working steps:

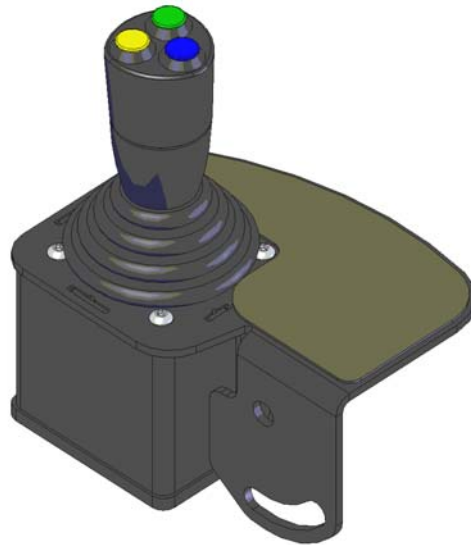
- Joystick in centre position and press one key
 - Yellow key → Prog. 1 for Walvoil LS a. OC Proportional valve
 - Green key → Prog. 2 for Nimco LS (Type: 100 36) a. Nimco OC (Type: 1S-4899)
 - Blue key → Prog. 3 for Nimco LS for low standby pressure (Type: 10860-1S)

(For valve type see name plate or delivery note)

- Switch on power supply. The light-emitting diode in the safety button flashes quickly.
- Release key after two seconds. The controller is ready for operation.
- The valve type during activation is indicated by the first five flashing cycles.
 - 1x short flash: Prog. 1
 - 2x short flashes in succession: Prog. 2
 - 3x short flashes in succession: Prog. 3

ECO - Proportional Valve

Operating instructions



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Operating instructions

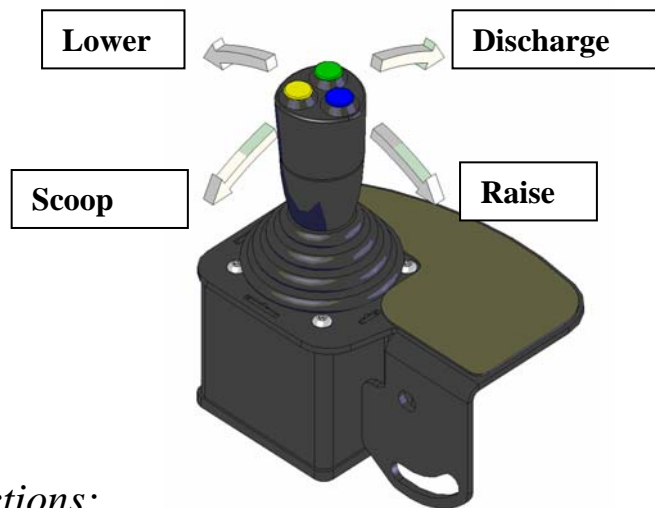
Version 1.7

The controller is started via the ignition of the tractor remaining in stand-by mode. In this mode, displacement of the joystick is not followed by a reaction of the lifting arm. The light-emitting diode (LED) in the safety button is illuminated.

Shortly press the safety button to activate the controller. (The valve block activated is indicated by the five flashing cycles). The front loader is ready for use with the joystick now. Shortly press the safety button to reactivate the standby-mode of the controller (road operation lock).

In addition to these instructions follow the general front loader operating instructions P1359 and P13160!

Basic functions:



Additional functions:

- Quick-out/Quick-dump (HD a. HDP) (i. C. with Discharge/Scoop)



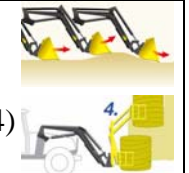
- 3rd control circuit (i. C. with Discharge/Scoop)



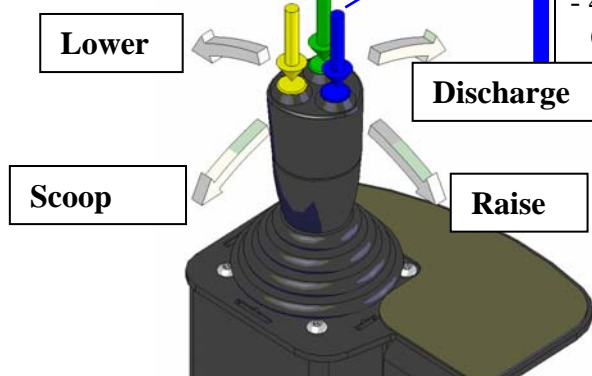
- Parallel Motion "Off" (HDP) (i. C. with Raise/Lower)



- Floating position (i. C. with Lower)



- 4th control circuit (Prg. 4) (i. C. with Discharge/Scoop)



Maintenance notes:



ATTENTION.

Put on individual protective equipment (protective suit, gloves, safety glasses, safety shoes etc.) before beginning any maintenance work.



GENERAL MAINTENANCE INSTRUCTIONS:

- Never perform maintenance with the front loader raised.
- Avoid carrying out maintenance operations if lighting is insufficient.
- Only carry out maintenance if the machine is at a temperature of below 55°C
- If normal maintenance of the tractor is to be performed, disconnect the loader so as to allow safe access to the parts to be checked, replaced or adjusted.
- Maintenance of the loader must be carried out when the loader is connected to the machine.
- Before performing maintenance operations on the loader, clean it carefully and, if necessary, wash the parts to be lubricated (greasing nipples); this applies above all when carrying out controls on the hydraulic circuit.
- Before inspecting the hydraulic equipment and connections, drain residual pressure completely.

Fault finding:

Fault finding only applies to the controller. The correct hydraulic connection of the valve is a precondition!

Problem:	Cause:	Solution:
Battery discharged.	Cable connected incorrectly.	Connect the brown cable with the name UZ according to the installation instructions.
The controller does not comprise a ready indication (LED is illuminated in the safety button).	Damaged fuse.	Replace fuse. There are two different fuses (5A and 15 A)!
The controller cannot be switched from the standby mode to the working mode.	Joystick not calibrated.	Calibrate the joystick according to the instructions.
	The light-emitting diode in the safety button flashes quickly.	Damaged electrical harness. (Cable break).
		Operating voltage too high or too low (cable cross sections undersized).
Lifting arm not raised when displacing the joystick.	Controller not in working mode.	Press safety button (see operating instructions).
	Valve type not set correctly.	Set valve type (see operating instructions).
	Circulation pressure in hydraulic system (OC-system) too low.	Displace joystick at a maximum of 30% and hold. The lifting arm should move after 5 sec. at the latest.
	Pressure in hydraulic system (LS system) too low < 14 bar.	Use an additional controller from the tractor in connection with the joystick. After this the pressure reservoir has to take over.
		Incorrect valve ⇒ Use proportional valve for LS system with low standby pressure. ⇒ Customer service.
After each short working break no reaction of the lifting arm when displacing the joystick.	Valve type not set correctly.	Set valve type (see operating instructions).

	Damaged valve pressure reservoir.	Check the pressure reservoir. (Membrane still connected to the threaded connection? ⇨ If not, replace pressure reservoir).
Tolerance too high at start or end point of displacement. Joystick has to be displaced too far until lifting arm/attachment moves or maximum speed of lifting arm/attachment is achieved before joystick is displaced in full.	Valve type not set correctly.	Set valve type (see operating instructions).
Malfunction of lifting arm/attachment Raise instead of lower etc.	Cable connected incorrectly to the valve block.	Connect cable correctly. (See installation instructions).
	Joystick installed the wrong way round.	Install joystick correctly (see installation instructions).
Additional functions (3 control circuits etc.) do not work.	7-pin socket not connected.	Connect 7-pin socket.
	Cable break.	Check electrical harness of tractor and lifting arm. Please find the connection diagram in the instruction manual of the front loader.
	Grounding problems.	Solve grounding problems with the corresponding solenoid on the cross tube.
HDP lifting arm does not lower in floating position?	Valve type not set correctly.	Set valve type (see operating instructions).
	Toggle bolt on the valve block completely closed.	Turn toggle bolt twice to open.