

## 6.0.1 Work Hydraulics

### Contents, work hydraulics

<b>Inhalt/ Contents</b>	<b>Seite/ Page</b>
Safety regulations regarding working on hydraulic systems	4
Guidelines on error location in hydraulic systems	5
Installation location of the hydraulic pumps (drive pump and gear pump 1 (ZP1))	6
Gear pump 1 (ZP1) drive for suction turbine CM 1200 or mower CT 4200	7
Pump circuit 1, work hydraulic with ZP1 and solenoid valve Y4	8- 9
Hydraulic circuit diagram, pump circuit 1 drive for suction turbine, CM 1200 or mower Y4	10
Hydraulic circuit diagram, pump circuit 1 drive for mower CT 4200 and solenoid valve Y4	11
Pump circuit 1, location of measuring point M1; location of solenoid valve Y4; measured values for solenoid valve Y4	12
Function description: work hydraulics valve manifold, hydraulic circuit 1 (ZP1) and solenoid valve Y4	13
Mechanical actuation of solenoid valve Y4 to test hydraulic + mechanical function	14
Gear pump 2 (ZP2) pump circuit 2, oil supply for work hydraulics and steering	15
Pump circuit 2 (ZP2) hydraulic manifold with solenoid valves Y2 - Y10 + Y12	17
Hydraulics diagram, pump circuit 2, work hydraulics and steering	18

## 6.0.1 Work Hydraulics

### Contents, work hydraulics

<b>Inhalt/ Contents</b>	<b>Seite/ Page</b>
<b>Function description: work hydraulics valve manifold, hydraulic circuit 2 (ZP2) and solenoid valves Y2 - Y10 + Y12</b>	<b>19</b>
<b>Mechanical actuation of solenoid valves on main valve manifold to test hydraulic + mechanical function</b>	<b>20</b>
<b>Location of solenoid valves on work hydraulics main valve manifold, location of measuring points M1 + M2</b>	<b>21</b>
<b>Location of valves Y4, Y6, Y7, Y10, Y12 on main valve manifold; location of pressure control valves 60 + 195 bar (ZP1)</b>	<b>22</b>
<b>Location of solenoid valves on work hydraulics main valve manifold</b>	<b>23</b>
<b>Tightening torques for solenoid valves on work hydraulics main valve manifold</b>	<b>24</b>
<b>Electrical measured values for solenoid valves on work hydraulics main valve manifold</b>	<b>25</b>
<b>Gear pump 2 (ZP2) pump circuit 2, oil supply for work hydraulics and <a href="#">steering</a></b>	<b>26</b>
<b>Proportional valve Y5, brush speed or spreader drive control unit; description and electrical measured values</b>	<b>27</b>
<b>Hydraulics diagram, pump circuit 2 (ZP2) and proportional valve Y5, circular brush speed control unit</b>	<b>28</b>
<b>Installation location of steering unit + steering cylinder</b>	<b>29</b>
<b>Steering unit</b>	<b>30</b>
<b>Position of current regulation valve and flow distributor (8 l hydraulic oil/min.) for steering</b>	<b>31</b>
<b>Hydraulic function diagram - steering</b>	<b>32</b>

## 6.0.1 Work Hydraulics

### Contents, work hydraulics

<b>Inhalt/ Contents</b>	<b>Seite/ Page</b>
Steering - functional faults and fault location	33
Hydraulic contact pressure adjustment, front attachment support or Citycleaner version, solenoid valves Y16- Y18 (option)	34
Hydraulic contact pressure adjustment, solenoid valves Y16 - Y18, installation location and electrical measured values	35
Solenoid valve Y19 (option), contact pressure adjustment, front attachment support or scrubbing unit (Citycleaner version)	36
Solenoid valve Y19 (option), hydraulic contact pressure adjustment, front attachment), function and elec. measuring values	37
Hydraulics diagram, hydraulic contact pressure adjustment (option) or scrubbing unit (Citycleaner version)	38
Installation location of solenoid valves Y20 + Y22, Citycleaner version 6150.10 (option) on scrubbing unit	39
Installation location of solenoid valves Y20 and Y22 Citycleaner version 6150.10 (option) electrical measured values	40
Hydraulics diagram, Citycleaner version 6150.10 with contact pressure adjustment	41
Hydraulic connections (hydraulic couplings), front attachments	42- 43
Rear hydraulic connections (hydraulic couplings) and sockets for device detection, X60 and X64	44
Notes	45- 47

## 6.0.1 Work Hydraulics

### Safety regulations

- The hydraulic system is under high pressure!

 High-pressure fluids (fuel, hydraulic oil) escaping at high pressure can penetrate the skin and cause severe injuries. Therefore, seek medical attention immediately to prevent the possibility of developing a severe infection!

- Use the applicable tools when searching for leaks to prevent the risk of injury!
- Before starting work on the hydraulic system, it must be depressurised and any devices attached must be lowered!
- When working on the hydraulic system, it is essential to switch the engine off and secure the vehicle against rolling away (parking brake, wheel chock)!
- When connecting hydraulic cylinders and motors, pay strict attention to the method of connecting hydraulic hoses prescribed!
- If connections are swapped, there is a risk of reversed functioning (e.g. raise/lower) - risk of accident!
- Check hydraulic lines at regular intervals and replace them in the event of signs of damage or ageing!  
The replacement hoses must fulfil the technical requirements stipulated by the equipment manufacturer!

 Dispose of oils, fuel and filters according to the applicable laws!

## 6.0.1 Work Hydraulics

### Guidelines on error location on hydraulic systems

Check the following before beginning any work:

- The hydraulic system is sufficiently filled with hydraulic oil, top up if necessary!
- The hydraulic oil filters are clean, replace if necessary.

**Before beginning the tests, ensure that the function of the function/component to be tested is detected properly. It is essential to use the circuit diagram and hydraulic diagram for reference!**

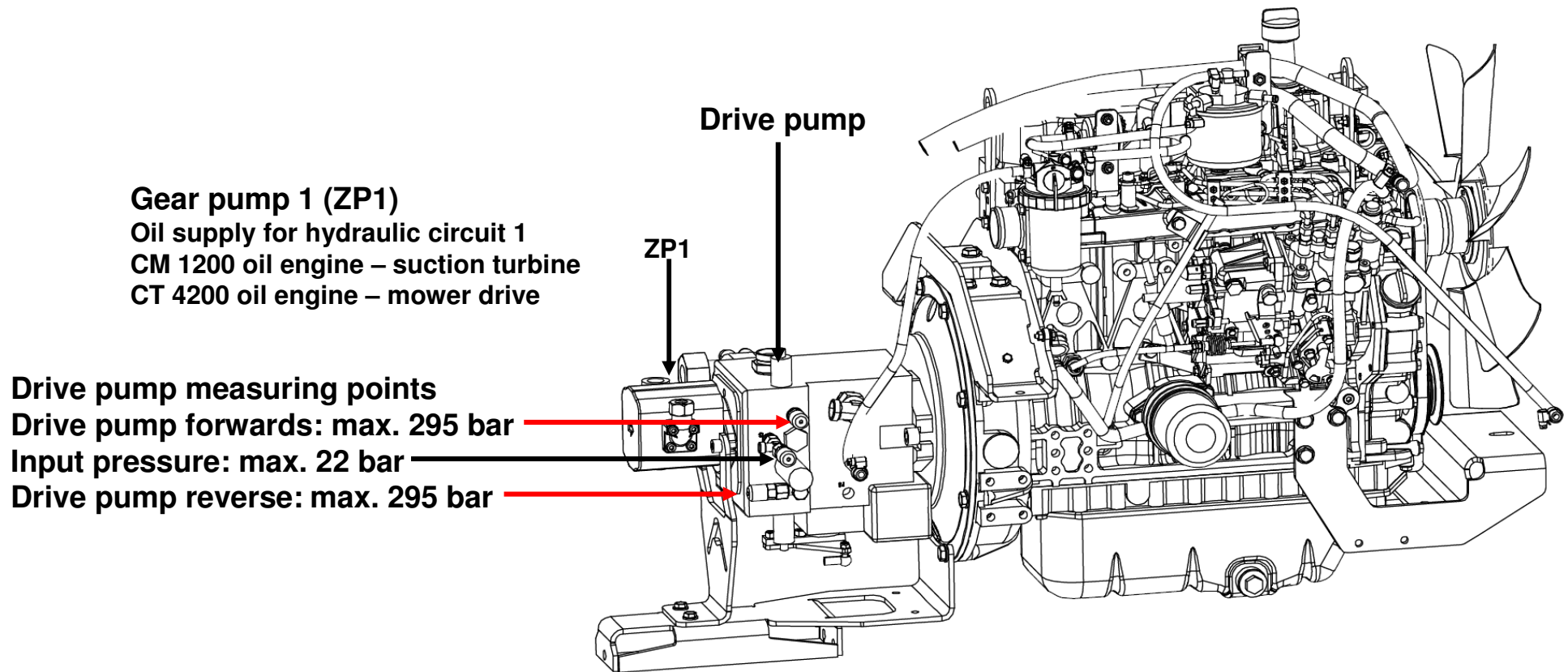
Complete the tests in the following order:

- **In the case of components which are electrically controlled (e.g. solenoid valves), always check the electrics first! It is essential to use the electrical circuit diagrams and electrical function diagrams for reference.**
- In the case of functions controlled by solenoid valves, actuate the solenoid valves mechanically.  
To do this, press in the pin located in the center of the solenoid valve using a screwdriver or another suitable tool.
- Check the hydraulic oil pressure with an appropriate manometer.
- In the case of hydraulic functions operated by a double-acting hydraulic cylinder (example: steering, raise/lower dirt hopper) always check the hydraulic cylinder for internal leaks.

**Note:** To check hydraulic system, it is essential to use appropriate manometers (e.g. hydraulics measuring kit, Hako spare part number [03501830](#)). To measure flow rates (e.g. for controlling hydraulic pumps) a flow meter (measuring turbine) must be used (e.g. hydraulic flow meter kit, Hako spare part number [03501840](#)).

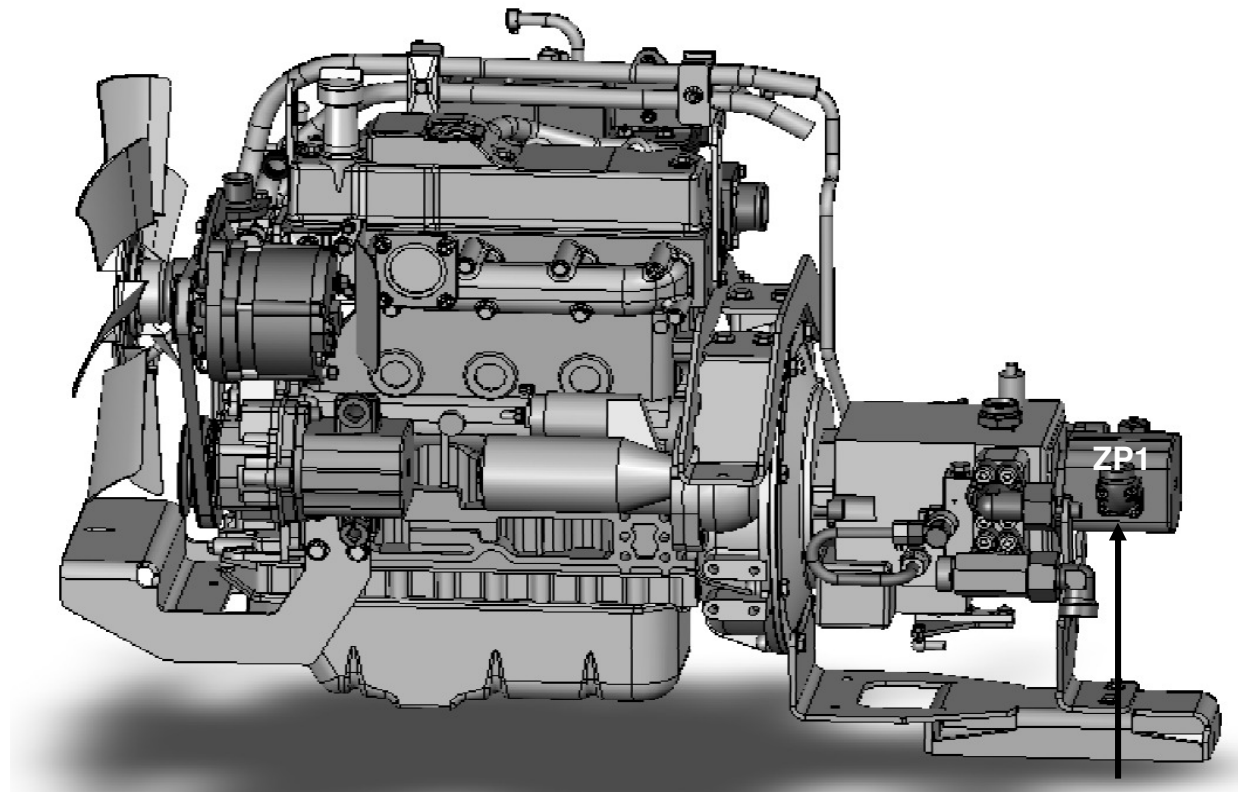
## 6.0.1 Work Hydraulics

### Installation location of the hydraulic pumps - drive pump and gear pump 1 (ZP1)



## 6.0.1 Work Hydraulics

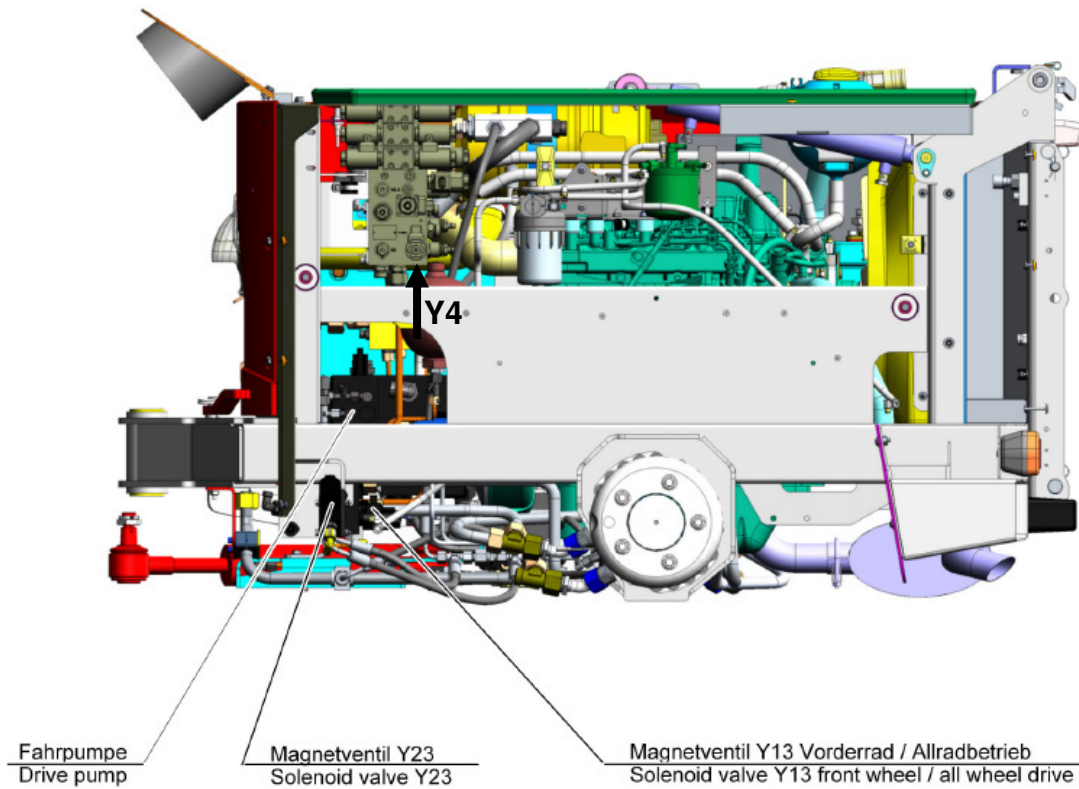
**Gear pump 1 (ZP1), drive for suction turbine CM 1200 or mower CT 4200**



**Gear pump 1 (ZP1), type: Sauer - Sundstrand SNP 2/17**  
**Feed capacity: 46 l/ min. at engine speed of 2450 rpm**  
**Oil supply for pump circuit 1:**  
**CM 1200 oil supply, hydraulic motor, suction turbine**  
**CT 4200 hydraulic motor, mower**

### 6.0.1 Work Hydraulics

#### Pump circuit 1 (ZP1) with solenoid valve Y4

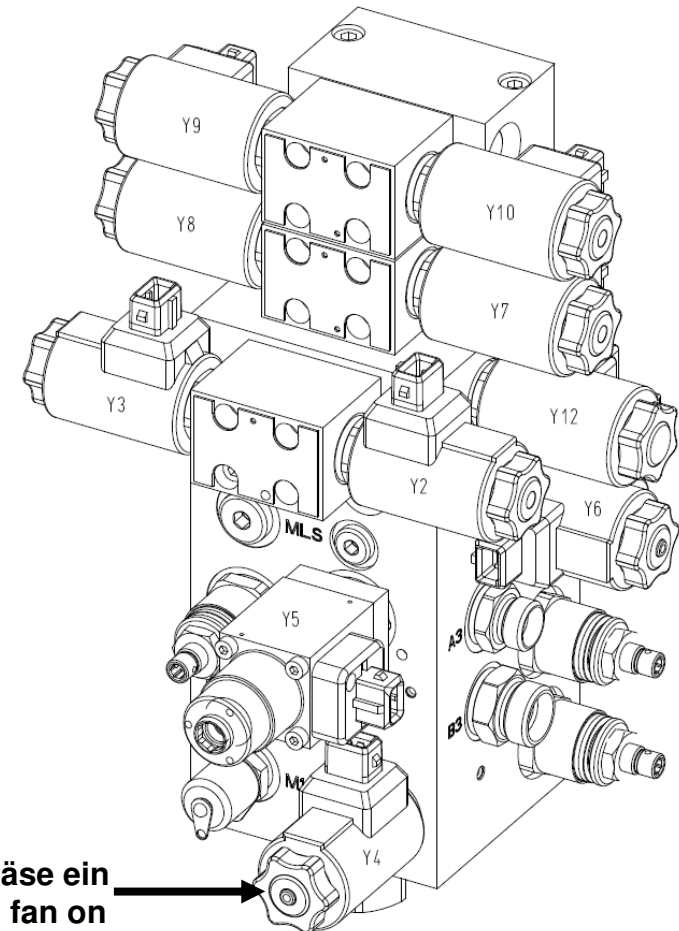


Fahrpumpe  
Drive pump

Magnetventil Y23  
Solenoid valve Y23

Magnetventil Y13 Vorderrad / Allradbetrieb  
Solenoid valve Y13 front wheel / all wheel drive

Ⓣ Hydraulikblock  
hydraulic block

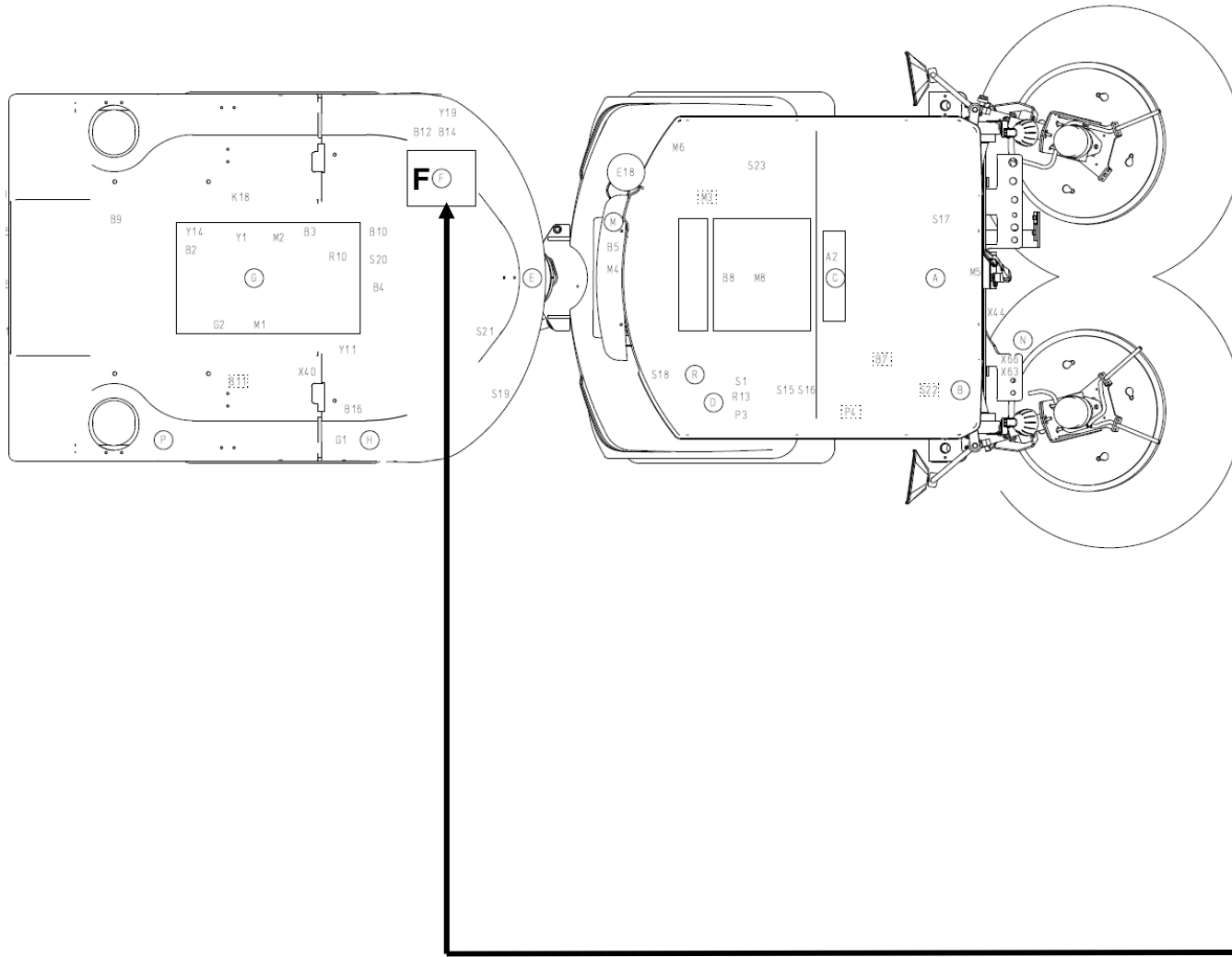


**Y4 Magnetventil Sauggebläse ein**  
**Y4 Solenoid valve suction fan on**



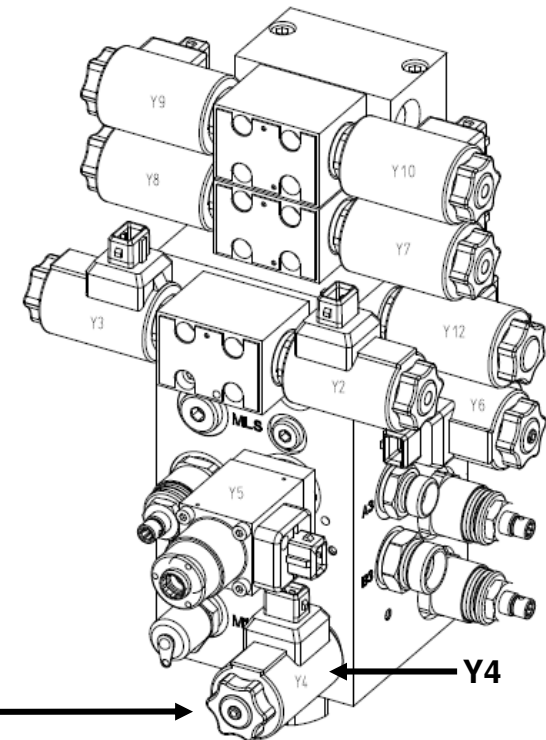
### 6.0.1 Work Hydraulics

#### Pump circuit 1 (ZP1) with solenoid valve Y4



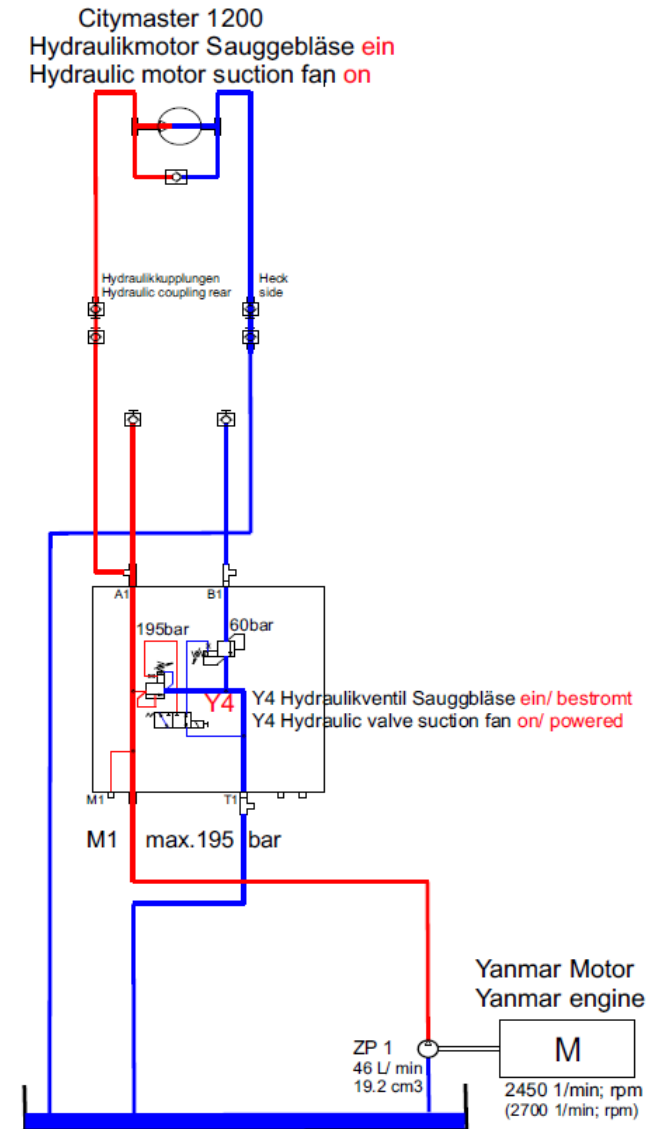
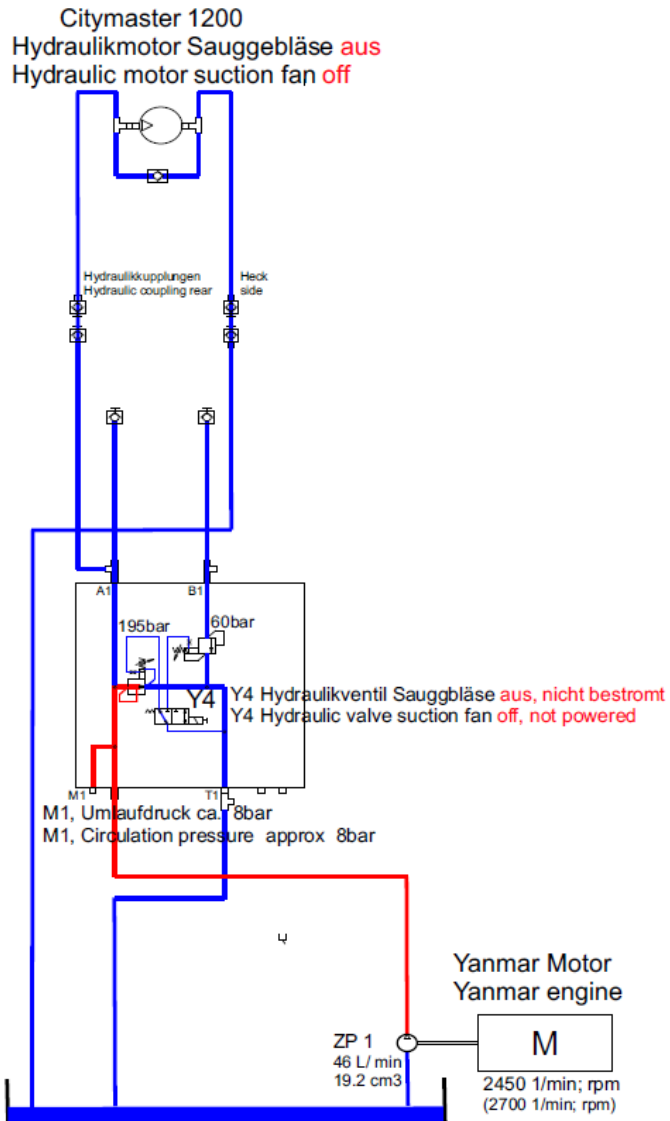
**F- Hydraulikblock**  
**F- Hydraulic manifold**

Ⓡ Hydraulikblock  
hydraulic block



## 6.0.1 Work Hydraulics

### Pump circuit 1 (ZP1), drive for suction turbine CM 1200 – solenoid valve Y4

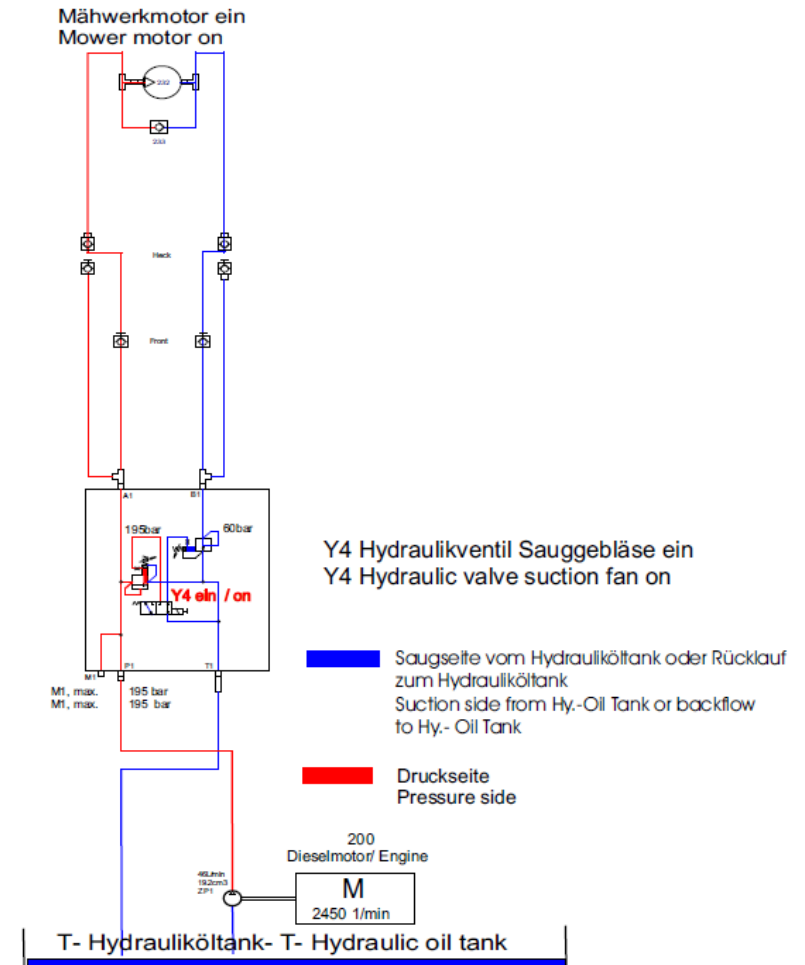
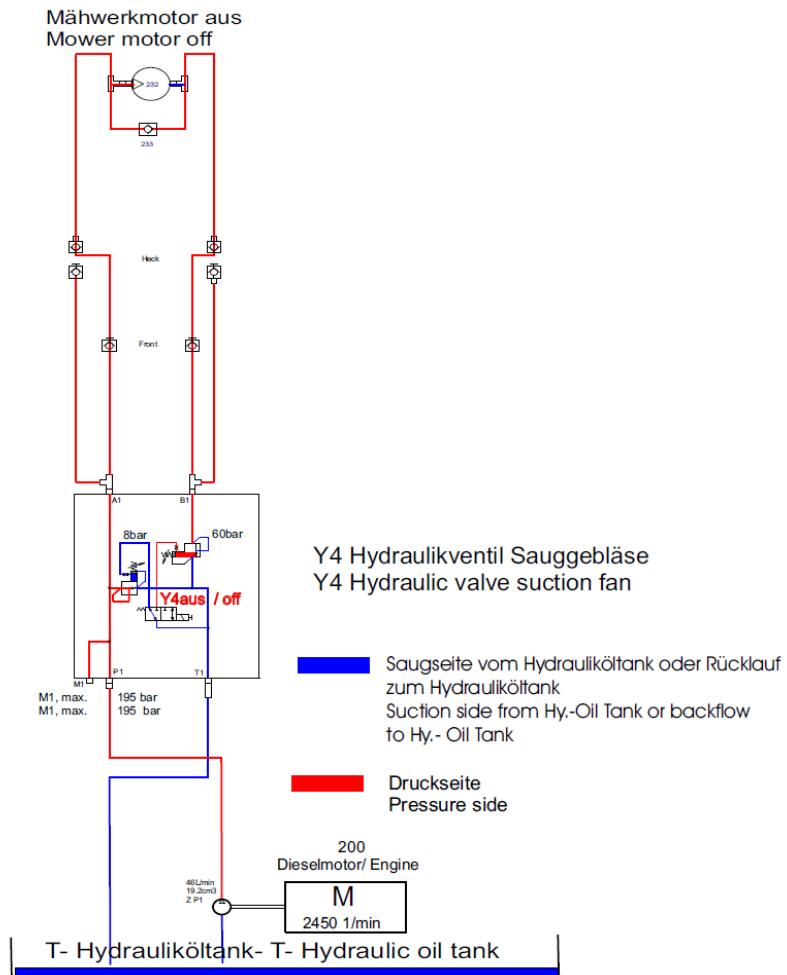


## 6.0.1 Work Hydraulics

### Pump circuit 1 (ZP1), drive for mower CT 4200 – solenoid valve Y4

CT 4200 Mähwerk aus, Y4 aus, nicht bestromt  
 CT 4200 mower off, Y4 ff, not powered

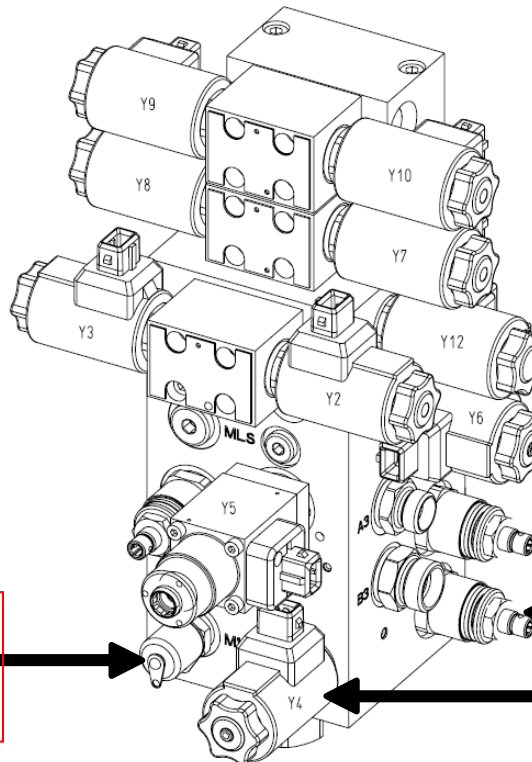
CT 4200 Mähwerk ein, Y4 ein bestromt  
 CT 4200 mower on, Y4 on, powered



## 6.0.1 Work Hydraulics

### Pump circuit 1 (ZP1), drive for suction turbine CM 1200 or mower CT 4200

(F) Hydraulikblock  
hydraulic block



Druckbegrenzungsventil 60bar (Pos. 5.2)  
Pressure relief valve 60 bar (Pos. 5.2)

Druckbegrenzungsventil 195bar (Pos. 5.1)  
Pressure relief valve 195 bar (Pos.5.1)

**M1** Messpunkt Sauggebläse / Mähwerk  
**M1** Measuring point suction fan/  
mower deck

**Y4** Magnetventil Sauggebläse/ Mähwerk  
**Y4** Solenoid valve suction fan/ mower deck

	Beschreibung- Description	Spannung (V) Voltage(V)	Stromstärke (A) Current flow (A)	Widerstand der Spule (Ω) Resistance of the coil (Ω)
<b>Y4</b>	Hydraulikventil Sauggebläse ein/ Mähwerk ein Hydraulic valve vacuum fan ( suction turbine) on/ mower on	12V	2000mA	6Ω

## 6.0.1 Work Hydraulics

### Function description, valve manifold hydraulic circuit 1 (ZP1 and solenoid valve Y4)

#### Valve manifold function description ZP1 and Y4

The oil is fed (46 l/min) from the gear pump ZP1 to connection P1 in the valve manifold. If valve Y4 (Pos.2) is not energised (CT 4200 mower drive; CM 1200 suction fan), the drive is switched off because the combined pressure control/circulation valve (Pos. 5.3.3) DVPA-2 is opened via the pump side control line and the oil flows either via the bypass or through the oil cooler (Pos.205) and return flow suction filter (Pos.204), depending on its temperature, back into the hydraulic oil tank. The circulating pressure is approx. 8 bar with an oil temperature of 50°C. All the measurements for the drive must be taken at measuring point M1.

If valve Y4 (Pos.2) is energised (CT 4200 mower drive, CM 1200 suction fan), the drive is switched on. Y4 switches the connection of the control line of the pressure control valve to the hydraulic oil tank. The force of the spring in the DBV takes effect and a maximum of 195 bar can be generated (measuring point M1)

**Note: If the pressure control valve needs to be replaced, it is essential to set the pressure control valve to the prescribed pressure (195 bar).**

If the drive is switched off (Y4 is no longer energised), the control slide moves from valve Y4 back to its initial position and the connection of the control line from pressure control valve 5.1 is reconnected to the hydraulic oil tank. The hydraulic oil can then flow via the pressure control valve again into the hydraulic oil tank. The circulation pressure is approx. 8 bar.

At the same time, the control line to pressure control valve 5.2 is closed by the control slide in Y4, the force of the spring in pressure control valve 5.2 then takes effect so that pressure control valve 5.2 opens at 60 bar. This ensures that the front attachment device (CT 4200 mower drive) comes to a stop within 7 seconds (work safety).

**Note: If the pressure control valve needs to be replaced, it is essential that the pressure control valve is set to the prescribed pressure (60 bar). In this case, the pressure control valve 5.1 and 5.2 must be swapped over for the adjustment process.**

## 6.0.1 Work Hydraulics

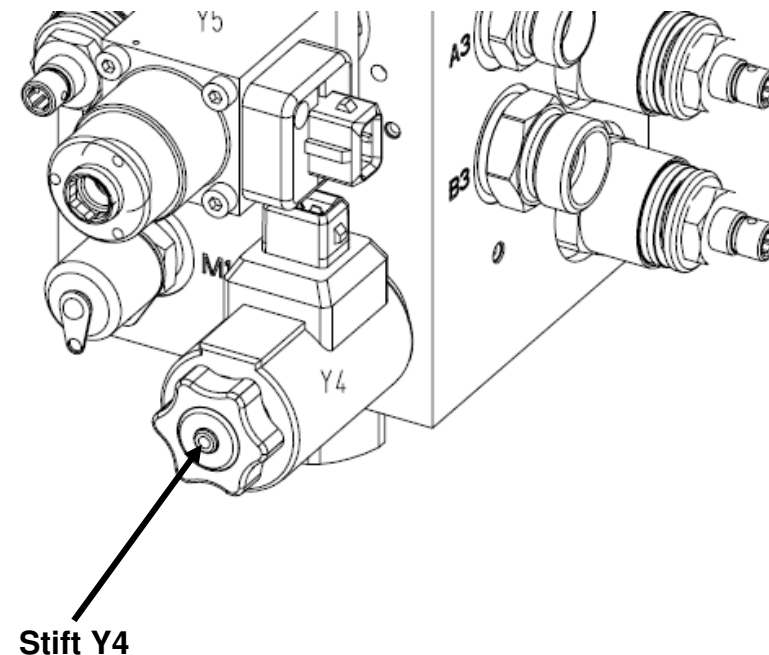
### Mechanical actuation of solenoid valve Y4 to test the hydraulic + mechanical function

#### Note:

The solenoid valve Y4 (CM 1200 suction turbine on - CT 4200 mower on) can be actuated mechanically to test the hydraulic function!

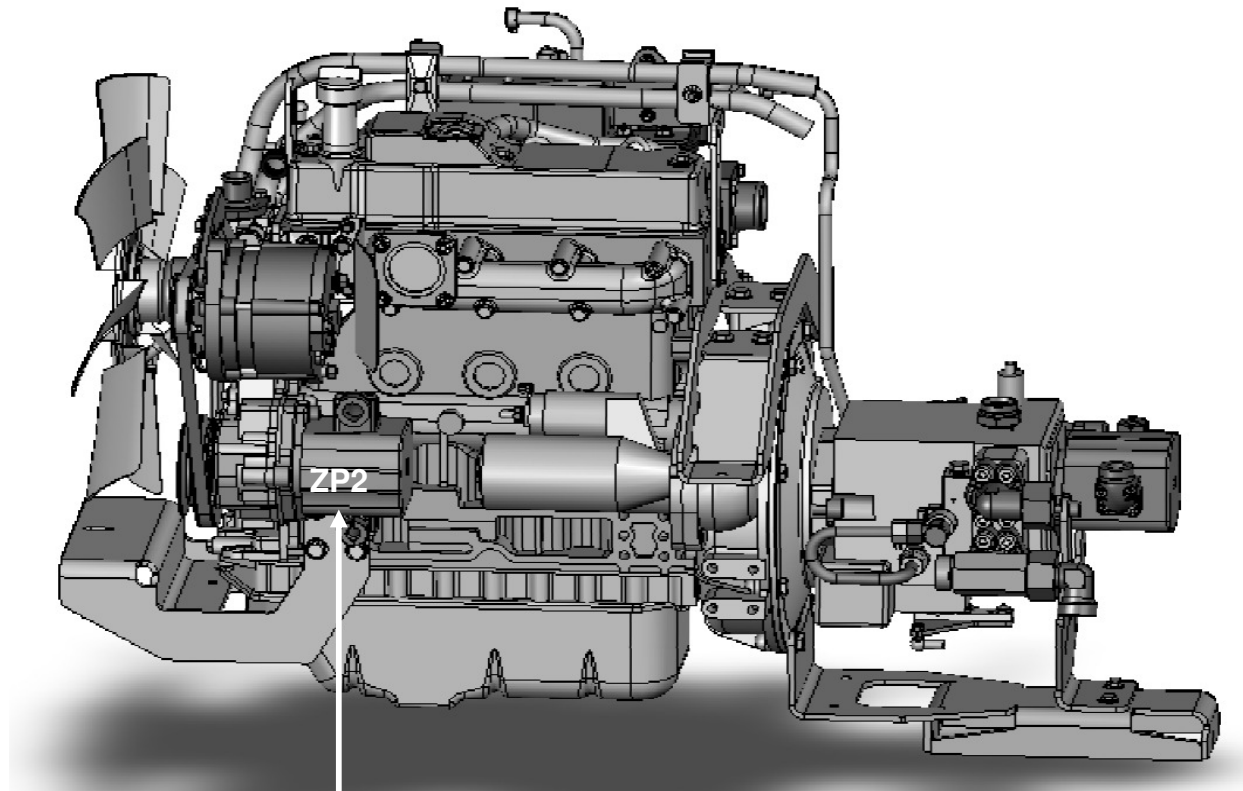
To do this, press in the pin, located in the center of the solenoid valve, using a screwdriver or another appropriate tool.

Mechanical actuation can only be used to test the hydraulic + mechanical function of the solenoid valve.  
The electrical control must be checked in a separate test!



## 6.0.1 Work Hydraulics

### Gear pump 2 (ZP2) pump circuit 2, oil supply for work hydraulics and steering



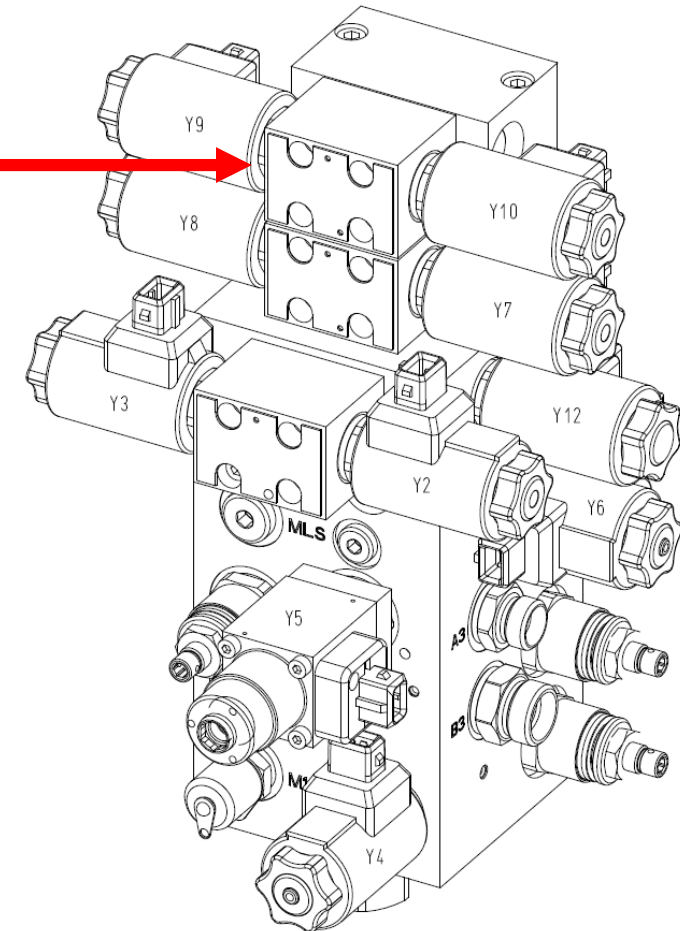
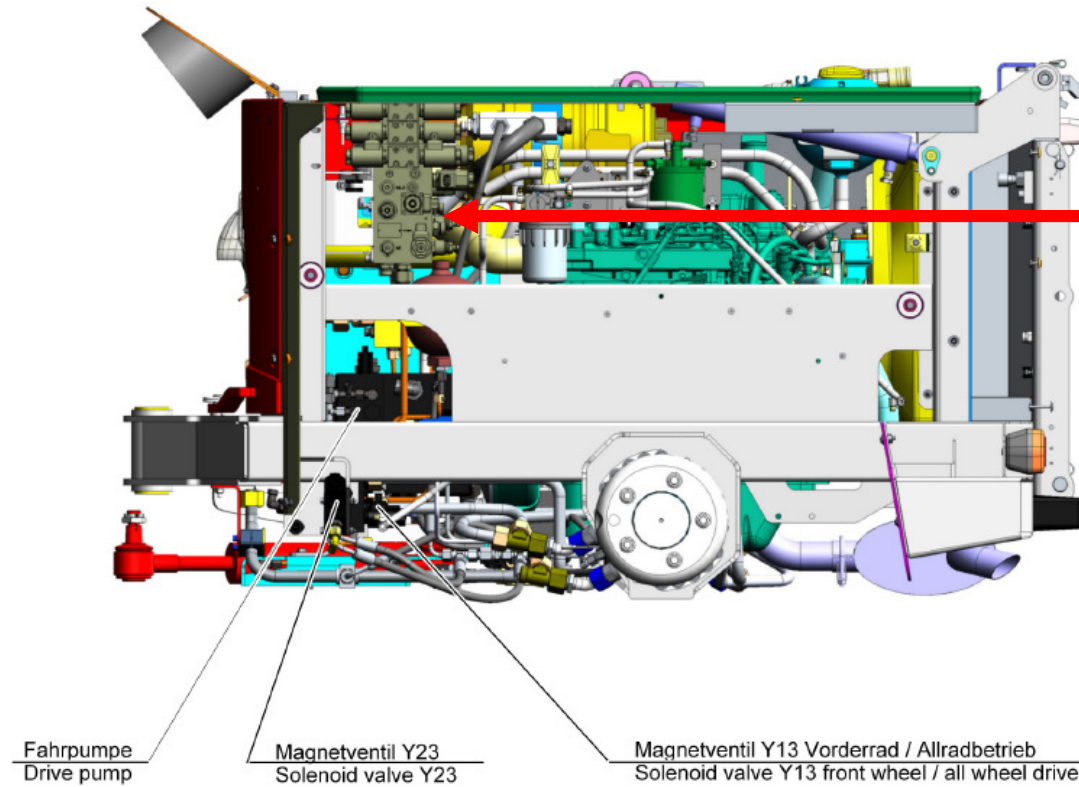
**Gear pump 2 (ZP2), type: Sauer - Sundstrand SNP 2/17**  
**Feed capacity: 36 l/min. at 2212 rpm on auxiliary drive from Yanmar engine**  
**Oil supply for pump circuit 2, work hydraulics:**  
**Side brush drive or spreader drive**  
**Raise/Lower attachment support; raise/lower dirt hopper or platform**  
**Pivot circular brush in/out**  
**Also for oil supply to the steering at 8 l/min.**



## 6.0.1 Work Hydraulics

### Pump circuit 2 (ZP2) hydraulic manifold with solenoid valves Y2- Y12

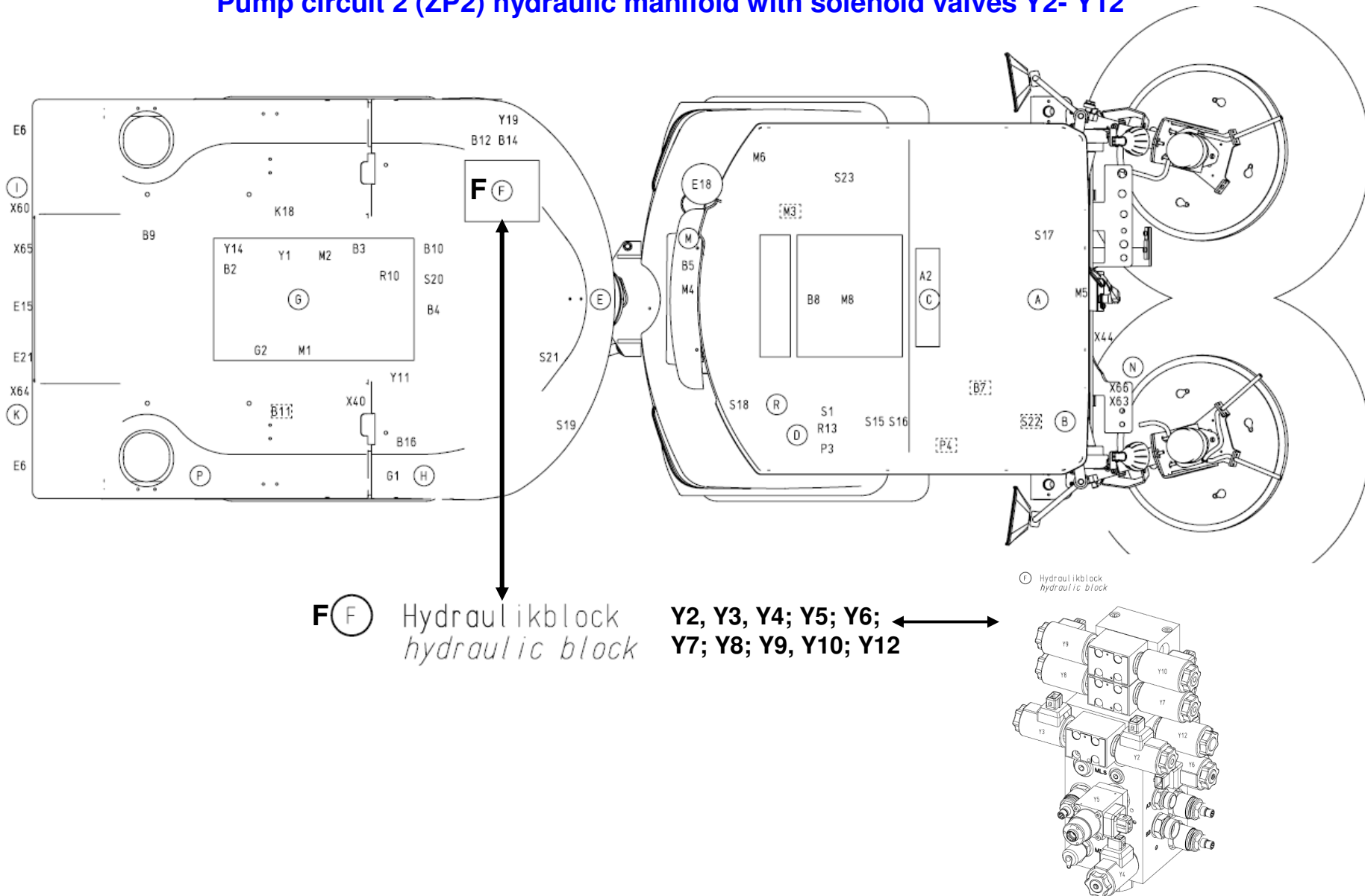
(F) Hydraulikblock  
hydraulic block





### 6.0.1 Work Hydraulics

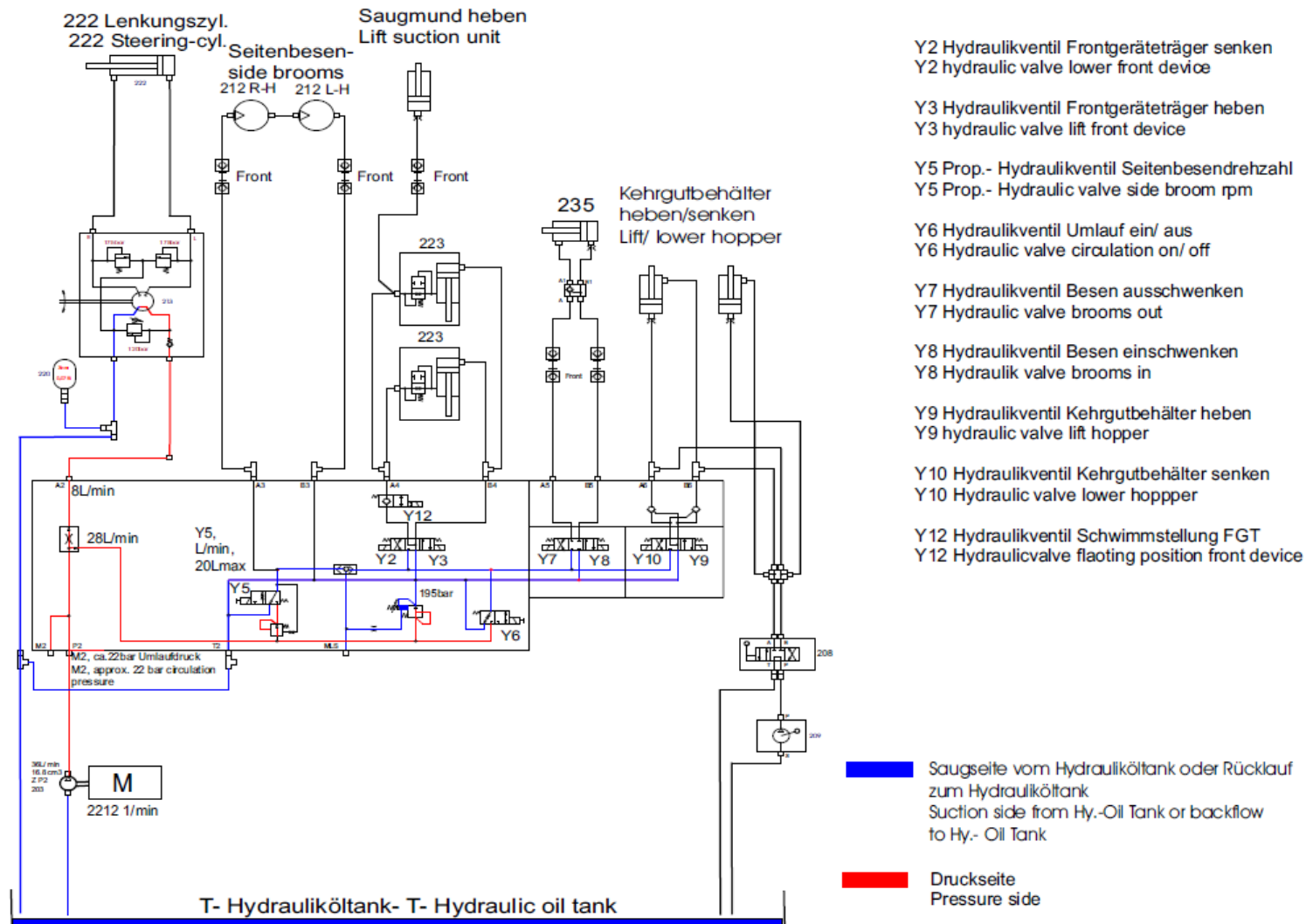
#### Pump circuit 2 (ZP2) hydraulic manifold with solenoid valves Y2- Y12



## 6.0.1 Work Hydraulics

### Hydraulics diagram, pump circuit 2, work hydraulics and steering

Umlauf, kein Verbraucher aktiv; Arbeitshydraulik aus  
 Circulation, no consumer activ; work hydraulic off



## 6.0.1 Work Hydraulics

### Function description: work hydraulics valve manifold, hydraulic circuit 2 (ZP2) and solenoid valves Y2 - Y10 + Y12

The oil from the gear pump ZP2 is fed via connection P2 to the valve manifold (approx. 36 l/min) up to the feed quantity distributor. At this point, a constant 8 l/min. is extracted at connection Z for the steering. A further 28 l/min. are available at connection B for the remaining functions in the manifold.

If no consumer is switched on (raise/lower front attachment support, pivot front attachment devices, raise/lower loading platform/container), the pressure regulator (Pos. 6) is opened via the control line on the pump side. The oil then flows back through the open pressure regulator via connection T2 into the hydraulic oil tank.

If proportional valve Y5 is activated (energised), a quantity of oil adjustable between 5 and 20 l/min flows to the hydraulic clutch . This additional quantity is also used for those front attachment devices which require an increased quantity of hydraulic oil (e.g. mulchmower). The pressure regulator is closed by Y5 via the control line and shuttle valves . The mechanical spring then takes effect against the oil flow and a maximum of 195 bar can be generated before the pressure regulator (DBV) opens and enables the connection to the hydraulic oil tank.

In order to activate the raise front attachment support / pivot front attachment devices / raise platform/container functions, valve Y6 (Pos.10) is always triggered parallel. The hydraulic oil is fed to the valves (Y2 + Y3, Y7 + Y8, Y9 + Y10) via the connecting valve Y6. In addition, Y6 also closes the pressure regulator via the control line and shuttle valve (Pos. 8). The mechanical spring then restricts the flow of oil and a maximum of 195 bar is possible before the pressure regulator (DBV) opens and the connection to the hydraulic oil tank is enabled (also refer to the description of Y5).

**Note: In the event of a fault on the connecting valve Y6 (electrical/mechanical), the downstream valves Y2 + Y3 , Y7 + Y8 , Y 9 + Y10 are not supplied with oil, i.e. following a failure of the work hydraulics, **always check Y6 first.****

## 6.0.1 Work Hydraulics

### Mechanical actuation of solenoid valves to test hydraulic function

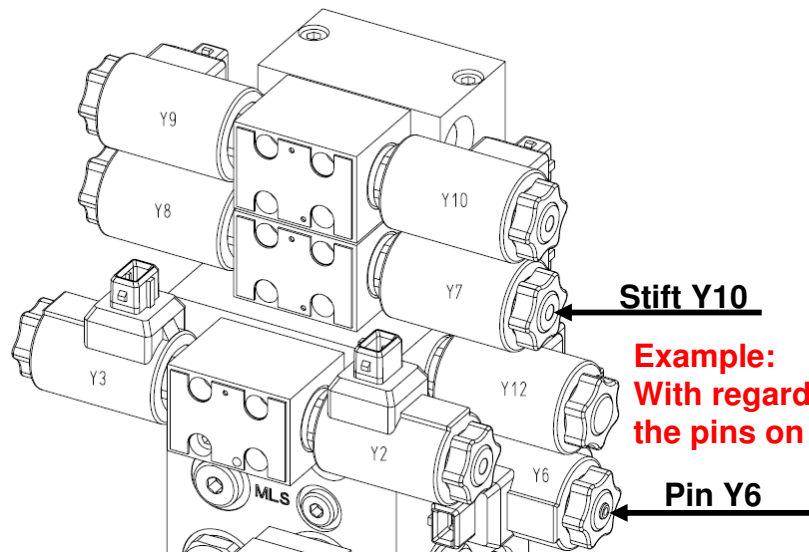
**Note:**

**All the solenoid valves must be mechanically actuated to test the hydraulic function!**

**To do this, press in the pin, located in the center of the solenoid valve, using a screwdriver or another appropriate tool.**

**Attention: Sometimes, 2 solenoid valves must be actuated mechanically, depending on the function!**

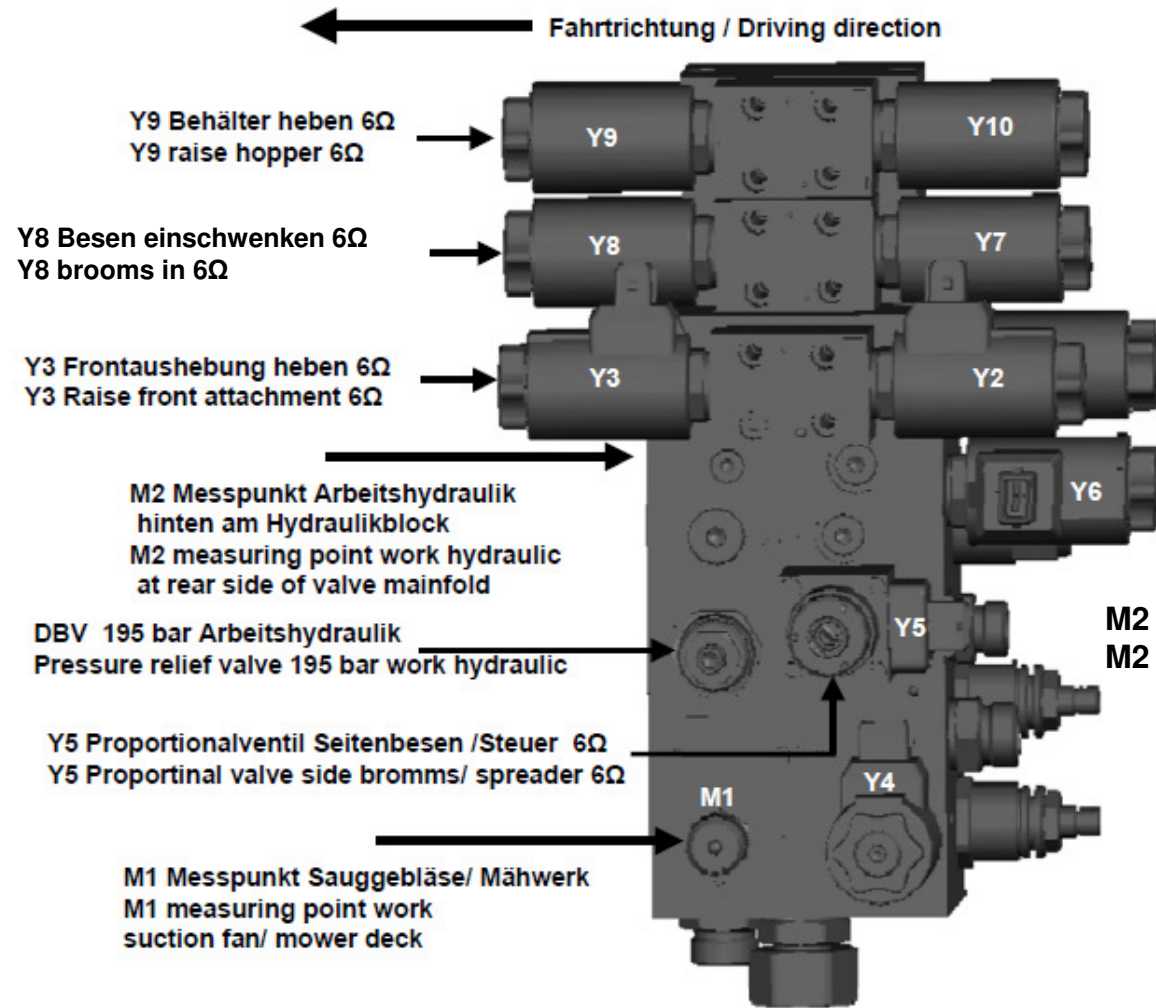
**The mechanical actuation can only be used to test the hydraulic + mechanical function of the solenoid valve.  
The electrical control must be checked in a separate test!**



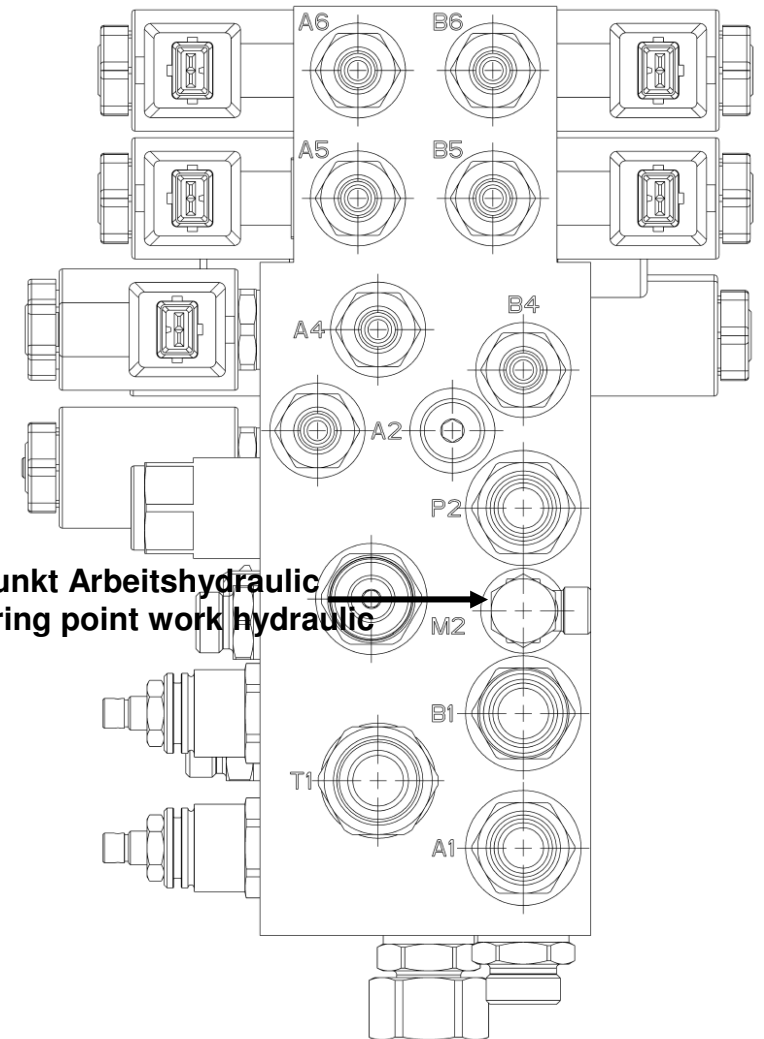
**Example:**  
**With regard to the pivot circular brush function, actuate the pins on solenoid valves Y7 + Y6 simultaneously!**

## 6.0.1 Work Hydraulics

### Magnetventile Hauptsteuerblock Arbeitshydraulik - Solenoid valves, hydraulic manifold, work hydraulics



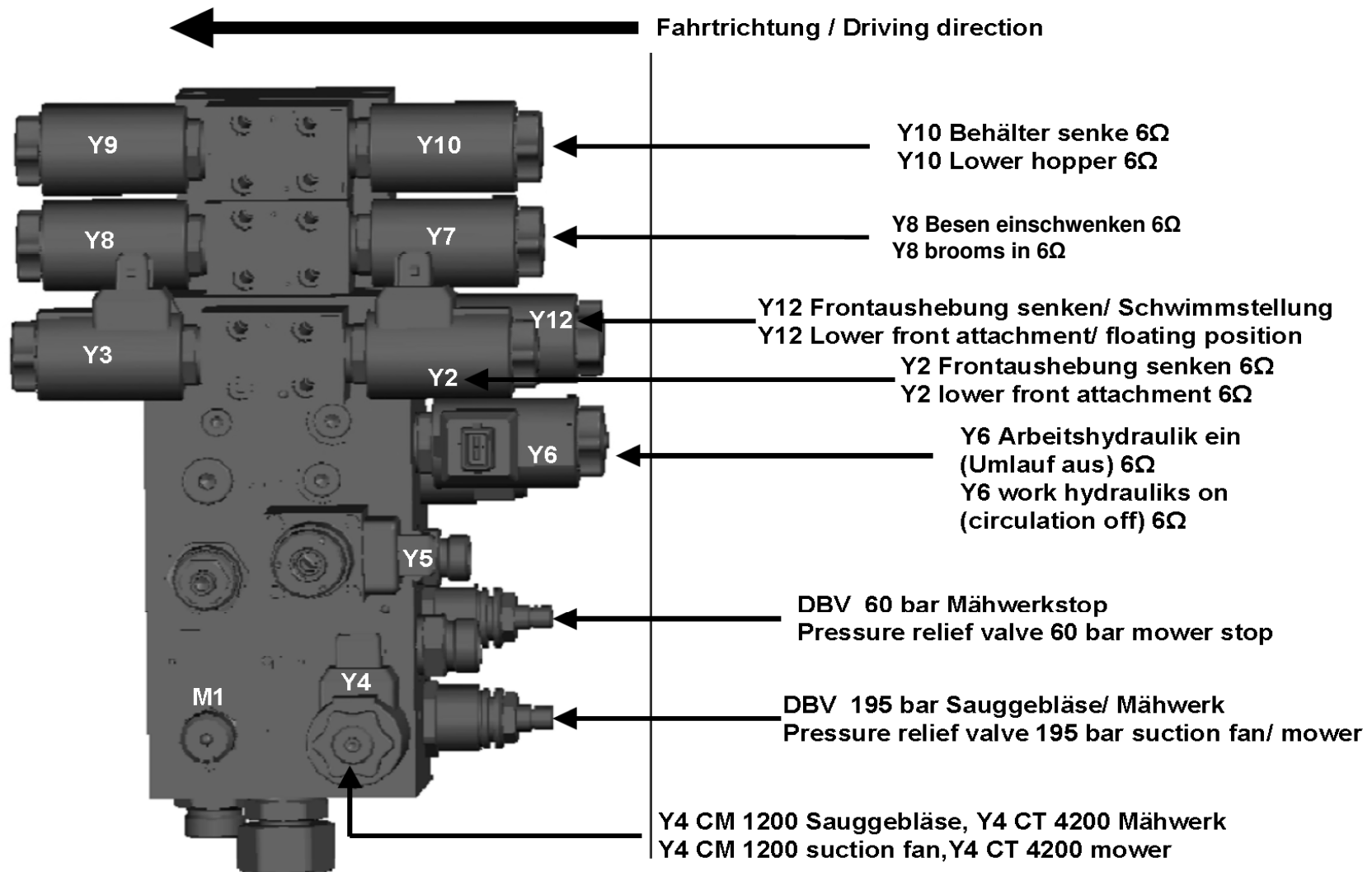
**Hydrauliksteuerblock Sicht von hinten**  
Hydraulic manifold, view from rear side



**M2 Messpunkt Arbeitshydraulik**  
**M2 Measuring point work hydraulic**

### 6.0.1 Work Hydraulics

#### Magnetventile Hauptsteuerblock - Solenoid valves, hydraulic manifold

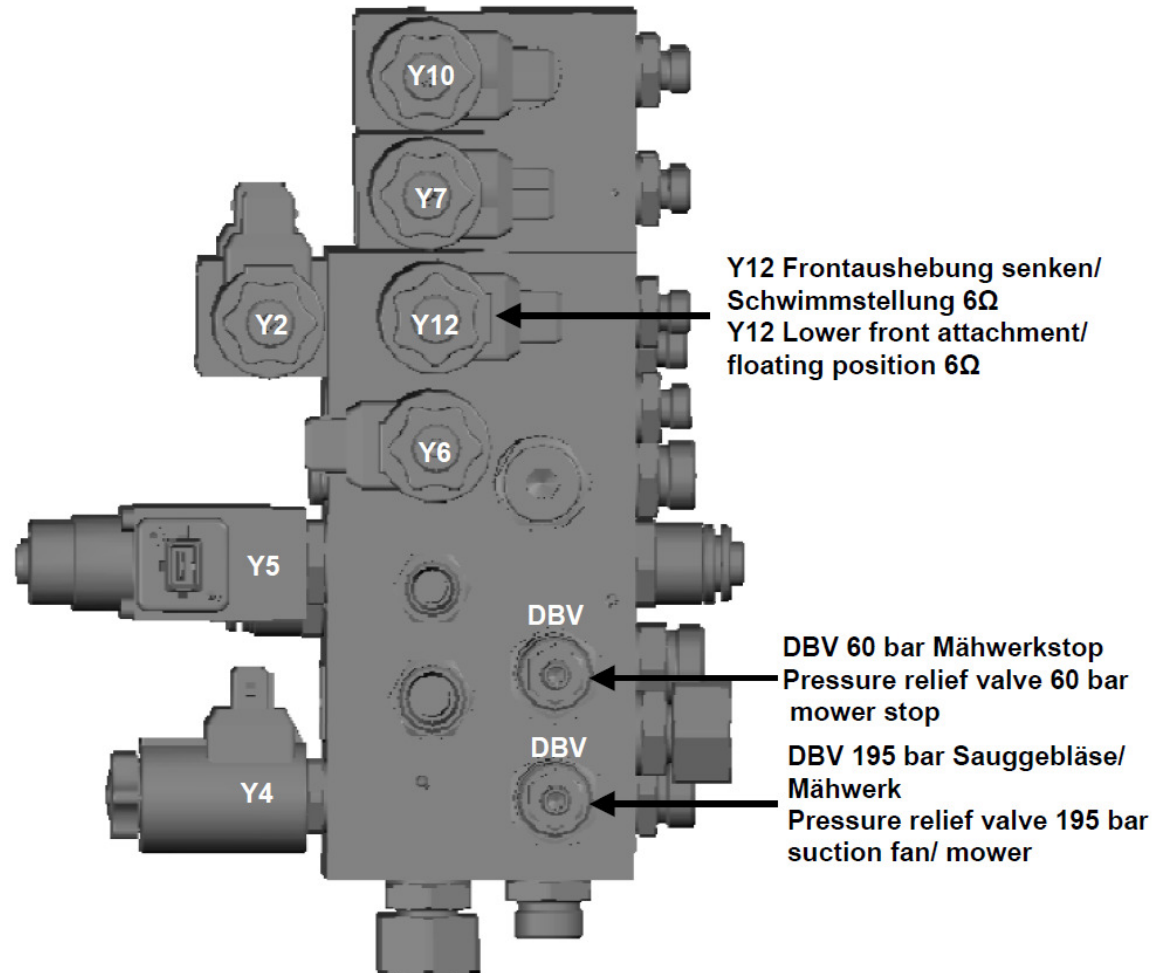
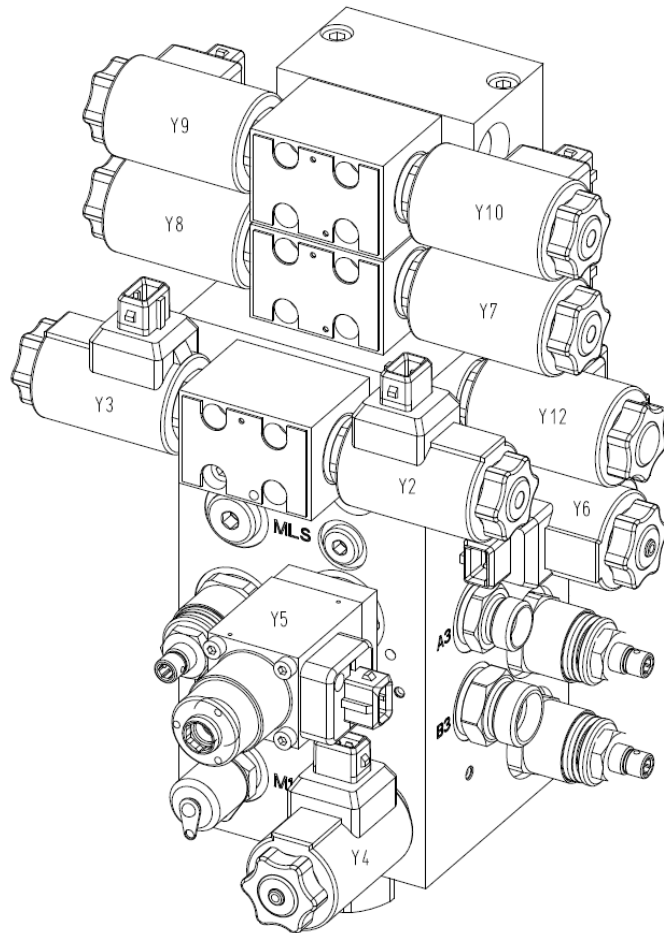




## 6.0.1 Work Hydraulics

### Magnetventile Hauptsteuerblock - Solenoid valves, hydraulic manifold

Ⓡ Hydraulikblock  
hydraulic block



## 6.0.1 Work Hydraulics

### Anzugsdrehmomente - Tightening torques

**STB CT4200 NEW 2-015356B**  
**VENTILKOMBINATION**

Seite 1 von 2      Freigabestatus:      SERIE      Zeichnungs-Nr.: 400-5-015356-D  
Artikel-Nr.: 400671444

Anzugsdrehmomente - VSTI - Verschlussachr.		PLM-MV-001
G 1/4" ; i-6kt SW 6 ; Ma=30[Nm]		Pos. 18.
G 1/8" ; i-6kt SW 5 ; Ma=12[Nm]		Pos. 19.

LAB-System Pro/Engineer (PTC)      Schutzvermerk nach DIN ISO 9016 beachten. Änderungen vorbehalten.      Projekt-Nr.:

Gezeichnet: GuentertH      **Bucher Hydraulics AG Postfach CH-3714 Frutigen**      22.05.2012

letzte Aend.-Nr.:      3D-Modell: 400-2-015356 Forepart 08 DIN A3



## 6.0.1 Work Hydraulics

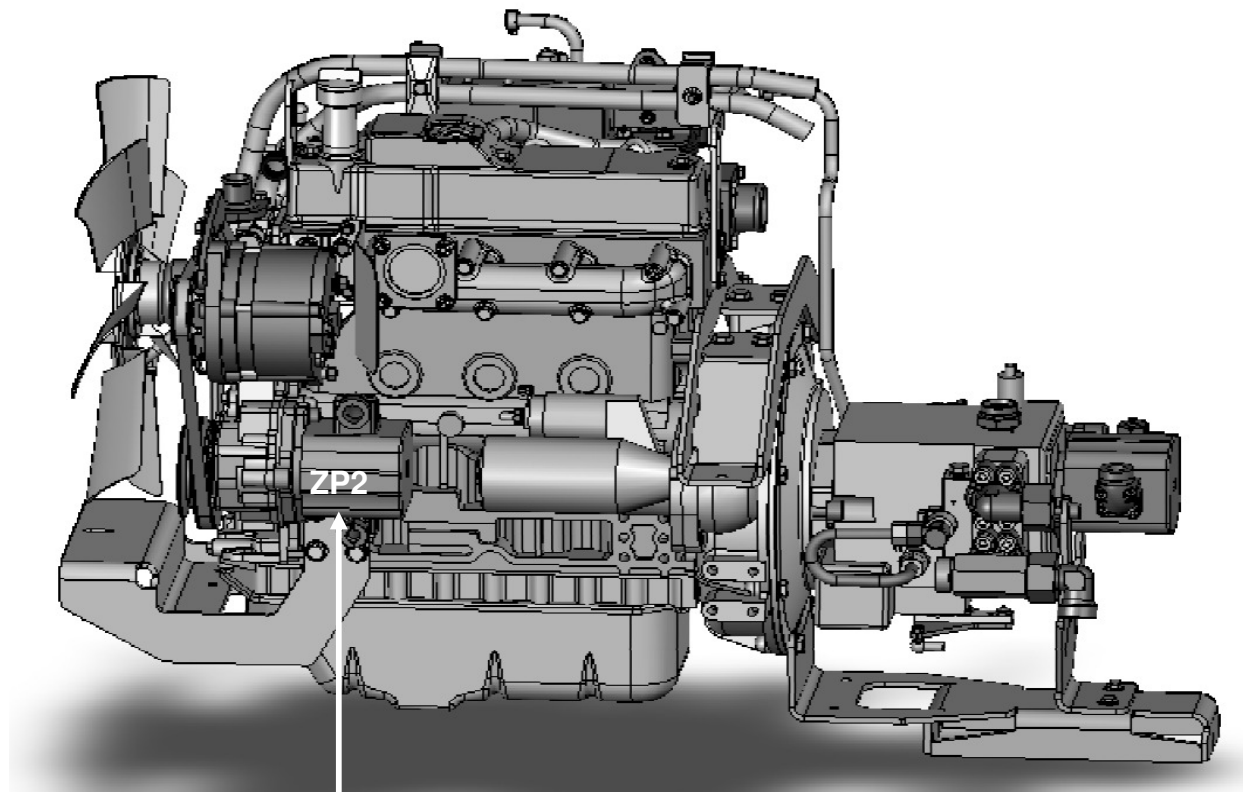
**Meßwerte Magnetventile Y2 - Y12 - Measuring values, solenoid valves Y2 - Y12**

	<b>Beschreibung- Description</b>	<b>Spannung (V) Voltage(V)</b>	<b>Stromstärke (A) Current flow ( A)</b>	<b>Widerstand der Spule (Ω) Resistance of the coil (Ω)</b>
Y2	Hydraulikventil Geräteträger senken Hydraulic valve front carrier down	12V	2000mA	6Ω
Y3	Hydraulikventil Geräteträger heben Hydraulic valve front carrier up	12V	2000mA	6Ω
Y5	Proportionalventil Seitenbesen/ Streuer Proportional valve side brooms/ spreader	4- 8V	700-1250mA	6Ω
Y6	Hydraulikventil Umlauf aus; Arbeitshydraulik ein Hydraulic valve circulation off; work hydraulic on	12V	2000mA	6Ω
Y7	Hydraulikventil Besen auf ( Besen ausschwenken) Hydraulic valve brooms wide ( side brooms out)	12V	2000mA	6Ω
Y8	Hydraulikventil Besen ein (Besen einschwenken) Hydraulic valve brooms wide (side brooms in)	12V	2000mA	6Ω
Y9	Hydraulikventil Behälter heben Hydraulic valve hopper up	12V	2000mA	6Ω
Y10	Hydraulikventil Behälter senken Hydraulic valve hopper down	12V	2000mA	6Ω
Y12	Hydraulikventil Frontgeräteträger senken/ Schwimmstellung Hydraulic valve lowering / floating position front device	12V	2000mA	6Ω

**Achtung: Meßtoleranz +/- % durch unterschiedliche Meßgerätemöglich  
Caution: Measuring tolerance of +/- 20% due to different measuring devices**

## 6.0.1 Work Hydraulics

### Gear pump 2 (ZP2), work hydraulics + steering



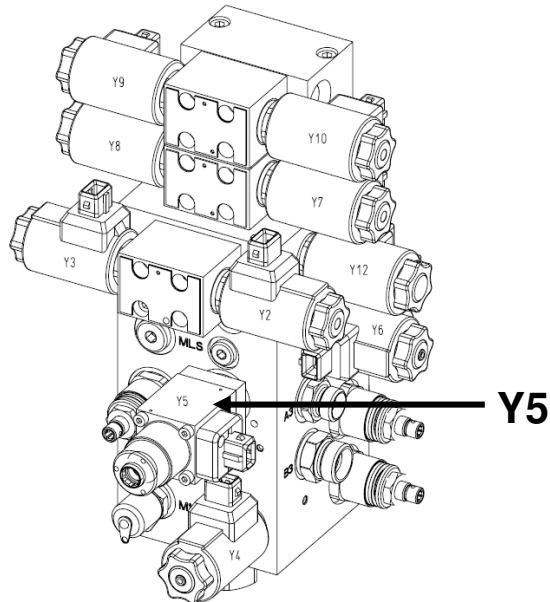
**Gear pump 2 (ZP2), type: Sauer - Sundstrand SNP 2/17**  
**Feed capacity: 36 l/min. at 2212 rpm on auxiliary drive from Yanmar engine**  
**Oil supply for pump circuit 2, work hydraulics:**  
**Side brush drive or spreader drive**  
**Raise/Lower front attachment; raise/lower dirt hopper or loading platform**  
**Pivot circular brush in/out**  
**Also for oil supply to the steering at 8 l/min.**

## 6.0.1 Work Hydraulics

### Proportional valve Y5, brush speed or spreader drive control unit

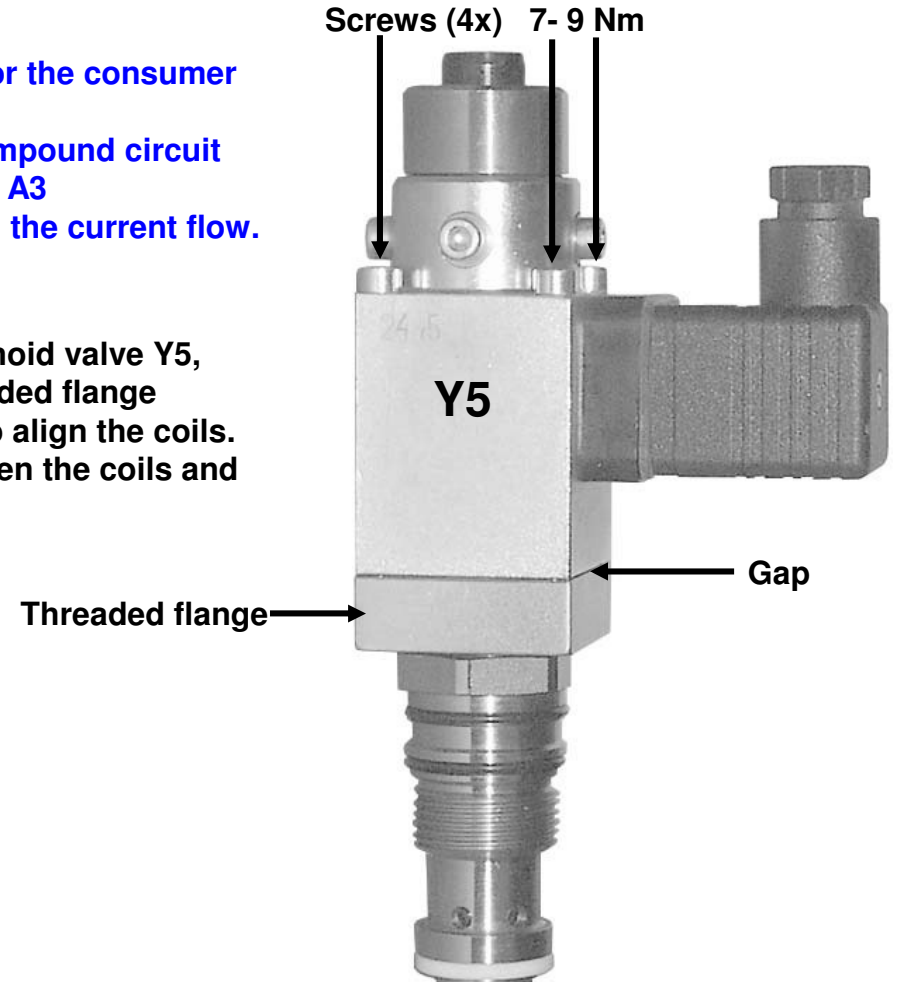
The solenoid valve Y5 regulates the oil quantity between 5 and 20 l/min. for the consumer Side brush speed (CM 1200); salt and grit spreader (CM 1200/ CT 4200) Fan for foliage and grass vacuum (CM 1200/ CT 4200) or mulch mower compound circuit The oil quantity is regulated by the potentiometer R13 and electronics A1/ A3 (A3 with “distance-dependent spreading”). The oil quantity increases with the current flow.

Ⓣ Hydraulikblock  
hydraulic block



#### Assembly instructions:

When assembling the solenoid valve Y5, pay attention that the threaded flange is only rotated clockwise to align the coils. There must be a gap between the coils and threaded flange!

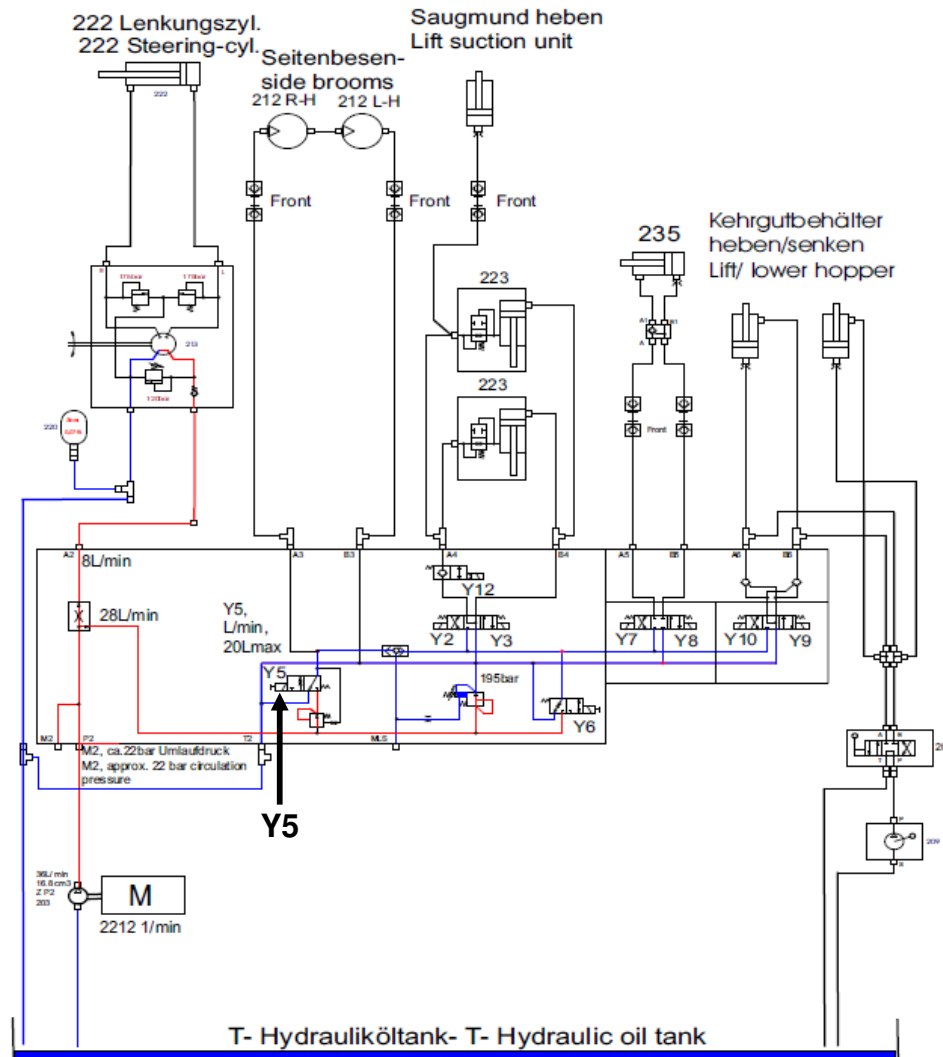


	Beschreibung- Description	Spannung (V) Voltage(V)	Stromstärke (A) Current flow ( A)	Widerstand der Spule (Ω) Resistance of the coil (Ω)
<b>Y5</b>	Proportionalventil Seitenbesen/ Streuer Proportional valve side brooms/ spreader	4- 8V	700- 1250mA	6Ω

## 6.0.1 Work Hydraulics

### Pump circuit 2 (ZP2), work hydraulics + proportional valve Y5, circular brush speed control unit

Umlauf, kein Verbraucher aktiv; Arbeitshydraulik aus  
 Circulation, no consumer activ; work hydraulic off

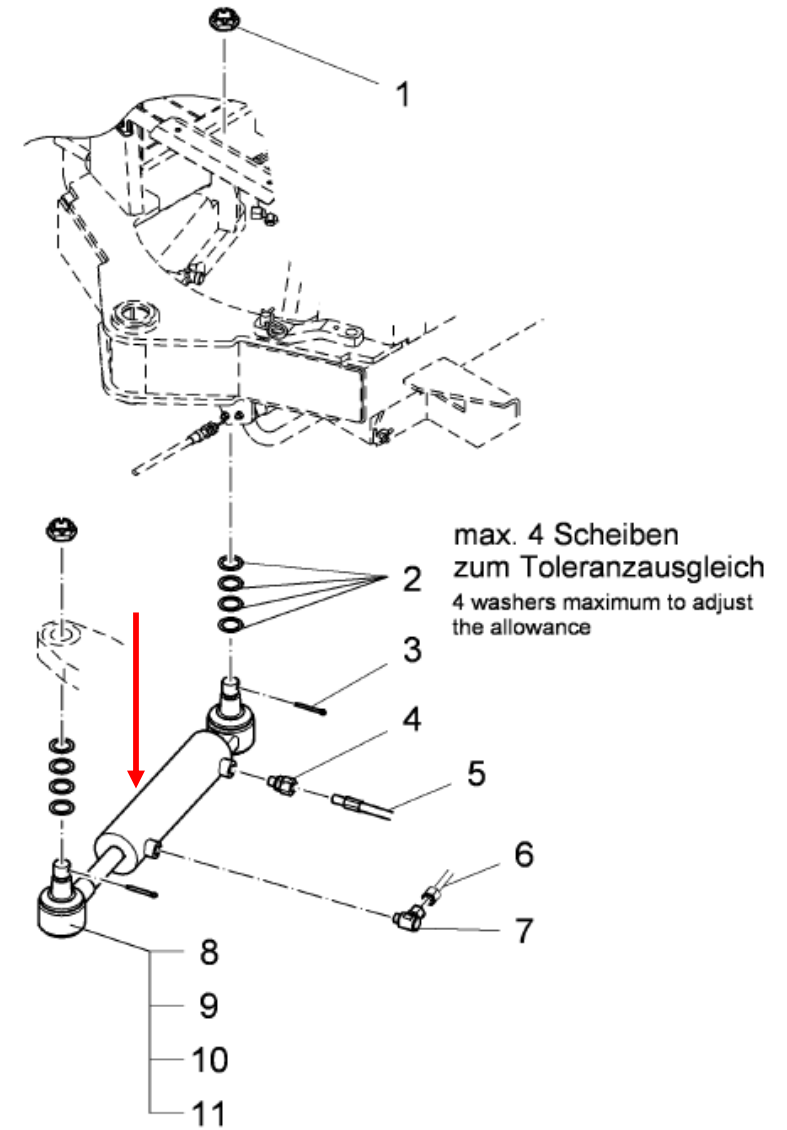
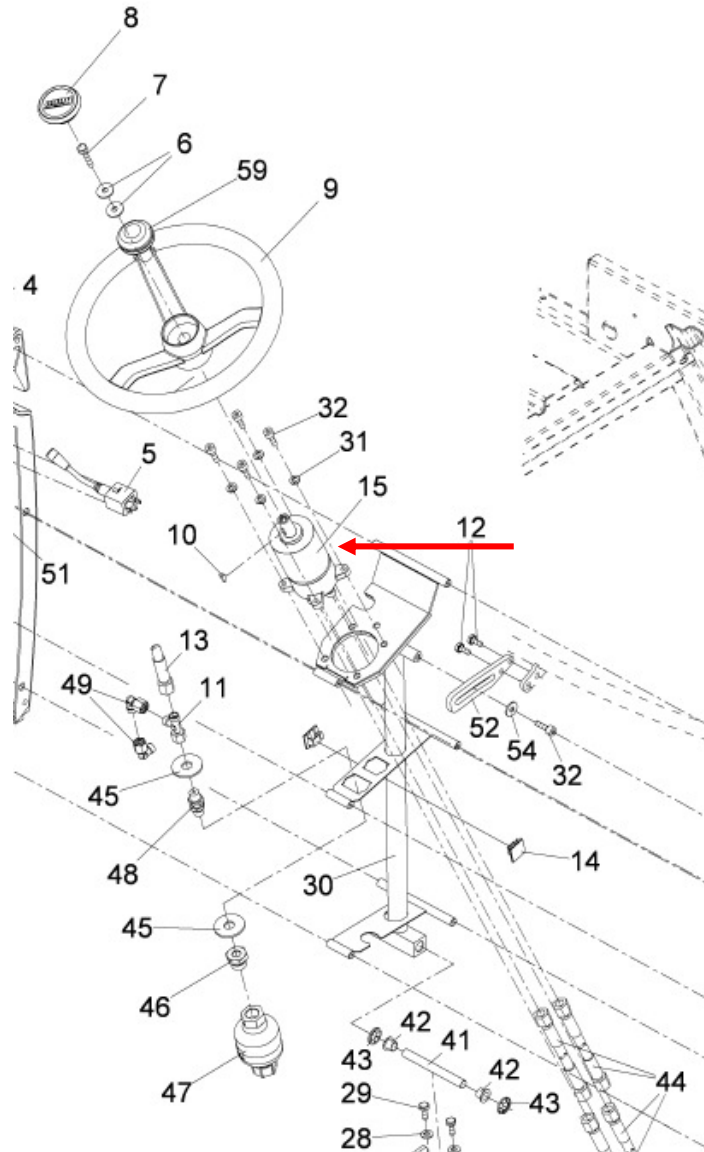


- Y2 Hydraulikventil Frontgeräteträger senken  
Y2 hydraulic valve lower front device
- Y3 Hydraulikventil Frontgeräteträger heben  
Y3 hydraulic valve lift front device
- Y5 Prop.- Hydraulikventil Seitenbesendrehzahl  
Y5 Prop.- Hydraulic valve side broom rpm ←
- Y6 Hydraulikventil Umlauf ein/ aus  
Y6 Hydraulic valve circulation on/ off
- Y7 Hydraulikventil Besen ausschwenken  
Y7 Hydraulic valve brooms out
- Y8 Hydraulikventil Besen einschwenken  
Y8 Hydraulic valve brooms in
- Y9 Hydraulikventil Kehrgutbehälter heben  
Y9 hydraulic valve lift hopper
- Y10 Hydraulikventil Kehrgutbehälter senken  
Y10 Hydraulic valve lower hopper
- Y12 Hydraulikventil Schwimmstellung FGT  
Y12 Hydraulic valve floating position front device

- █ Saugseite vom Hydrauliköltank oder Rücklauf zum Hydrauliköltank  
Suction side from Hy.-Oil Tank or backflow to Hy.- Oil Tank
- █ Druckseite  
Pressure side

### 6.0.1 Work Hydraulics

#### Steering – steering unit and steering cylinder



## 6.0.1 Work Hydraulics

### Steering unit

SEE ALSO CATALOGUE FOR HYDROSTATIC STEERING COMPONENTS

**5x6,5 DIN 6888 (Key not incl.)**

**ISO symbol**

**Sauer-Danfoss symbol**

Check valve in P	INCLUDED
Shock valves	175-195 bar
Pressure relief valve	120-125 bar
P,T,L and R	9/16-18 UNF ORFS ISO 8434-3
BLACK PAINTED	

Scale 0 10 20 30 40 50 60 70 80 90 100mm

**SAUER DANFOSS**

1:1  
Date 28.06.2005  
Design BP / Approv. BP

Mini steering unit  
Type OSPM 80 ON

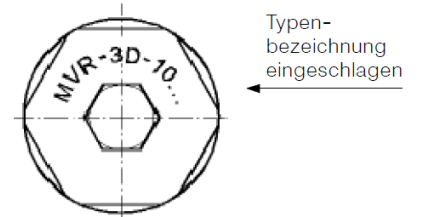
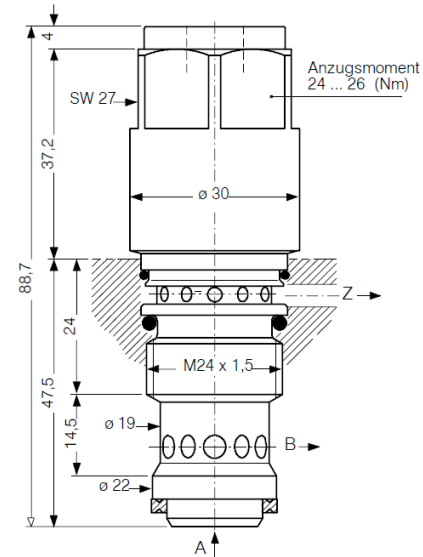
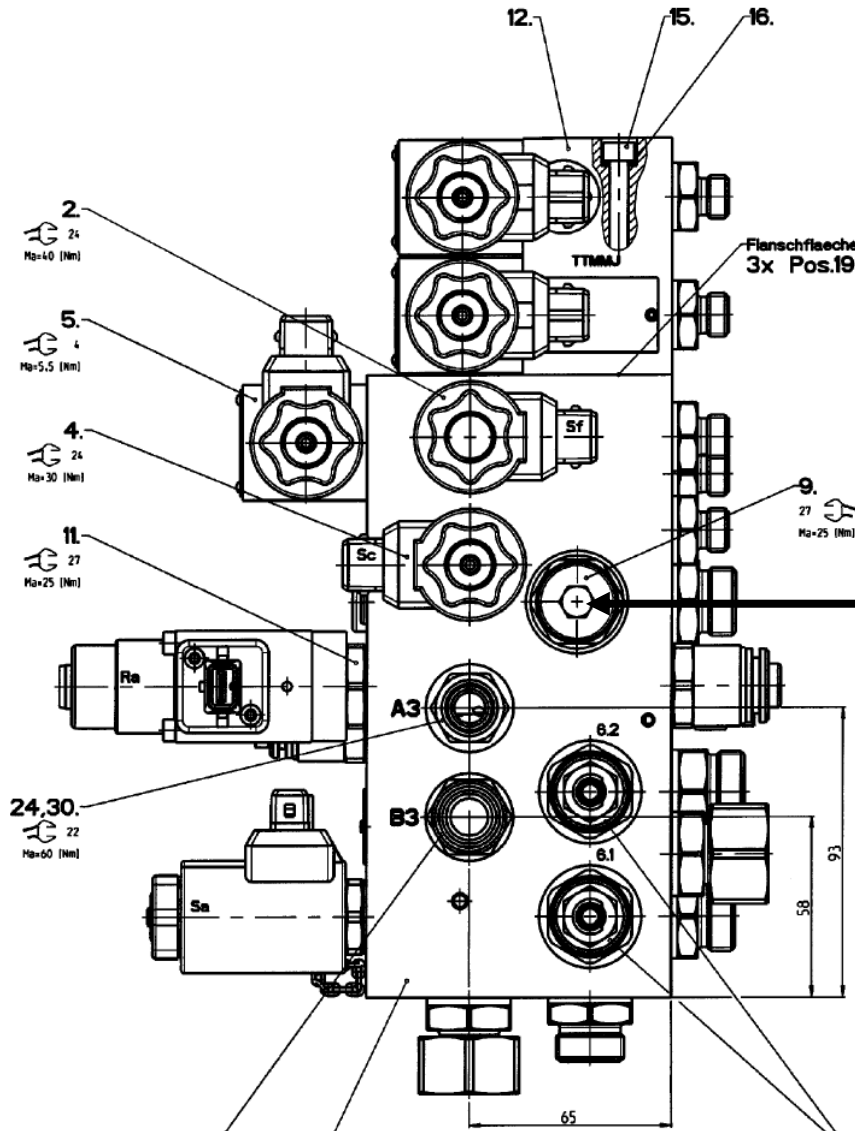
No. 150L0182



### 6.0.1 Work Hydraulics



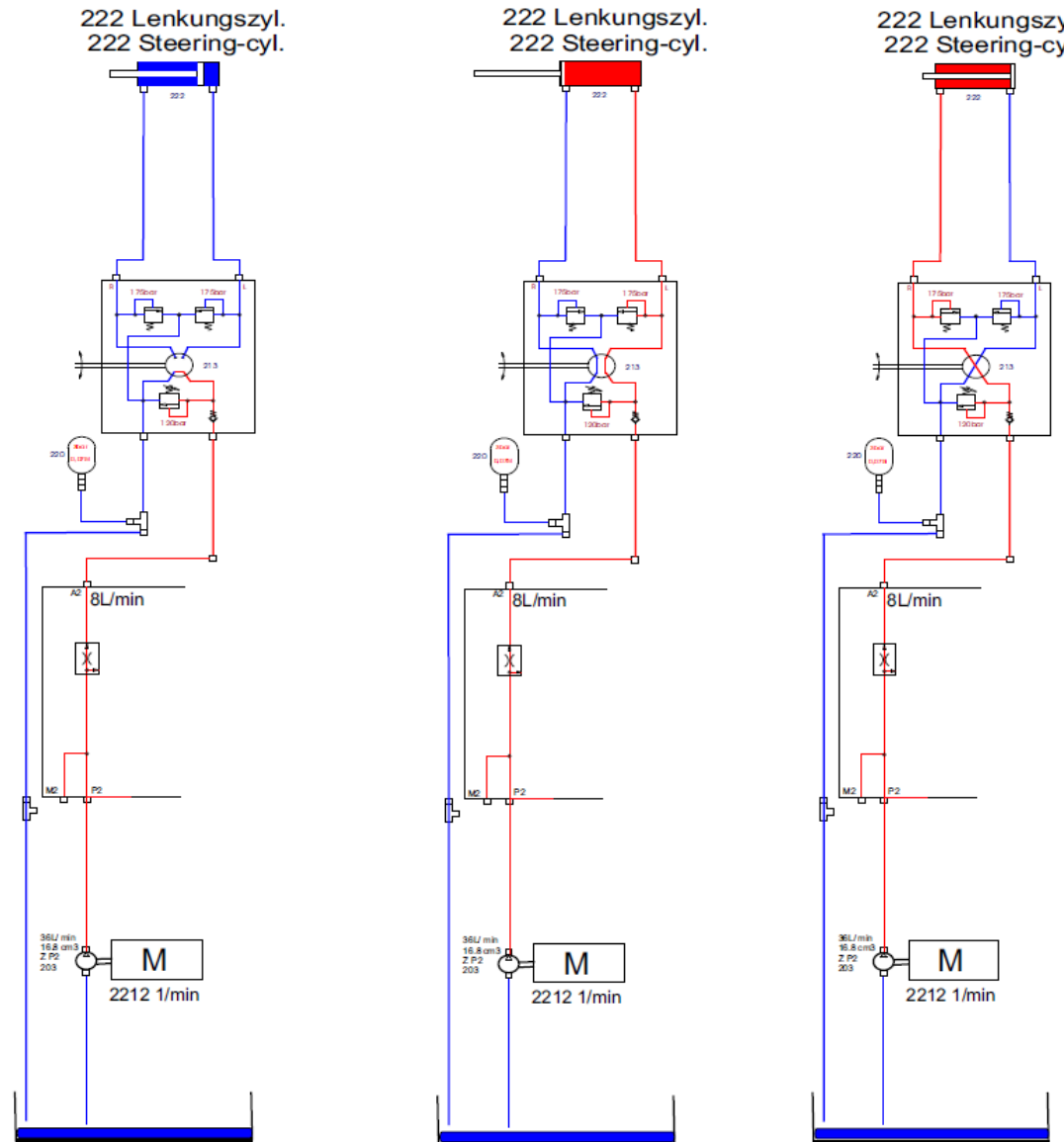
#### Position of current regulation valve and flow distributor 8l for steering in main valve manifold



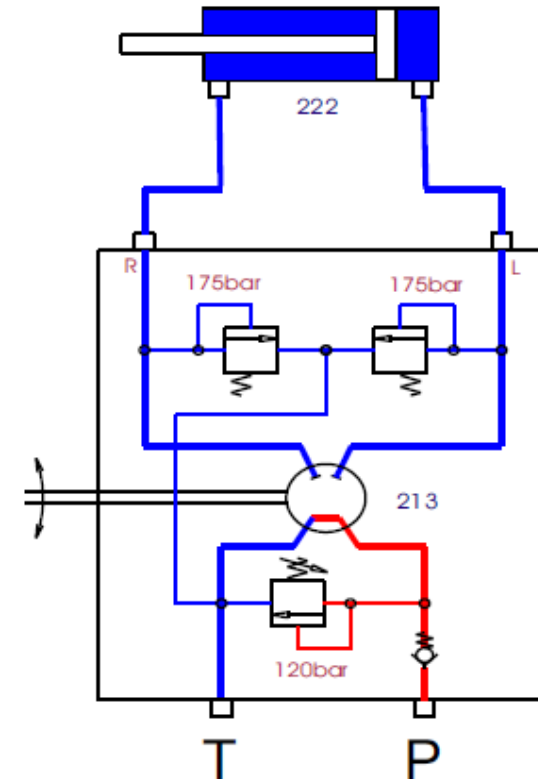
Flow distributor (Pos.9)  
steering/work hydraulics  
steering 8l/min.  
work hydraulics valve manifold  
26l/min.

### 6.0.1 Work Hydraulics

#### Hydraulics – function diagram - steering



222 Lenkungszykl.  
222 Steering-cyl.



213 Lenkeinheit  
213 Steering Unit



## 6.0.1 Work Hydraulics

### Steering - functional faults and fault location

I. The steering is sluggish or jumps when the hydraulic oil is warm:

**Corrective measure: Check the steering cylinder for internal leaks!**

To do this, turn the steering wheel as far as possible to press in the steering cylinder and disassemble the return flow hydraulic hose. Hold the steering wheel to keep the steering cylinder in this position. No oil should escape from screw connection of the hydraulic cylinder. If oil escapes, the seal in the steering cylinder is defective. In this case, replace the hydraulic cylinder.

If no oil escapes, repeat the test in the other steering direction.

**Attention: Reassemble the hydraulic hose beforehand, otherwise oil will escape!**

If no oil escapes in the other steering direction either, measure the hydraulic oil pressure using a manometer.

Note: The oil must be warm to complete the pressure test (50- 55 °C). Never measure hydraulic oil when it is cold!

The hydraulic oil pressure should be approx. 120 bar when the steering is locked. If the measured value is under 100 bar or the measured value constantly changes, disassemble the flow distributor in the main valve manifold and inspect it for signs of dirt and damage. Clean the flow distributor or replace it, in the event of damage.

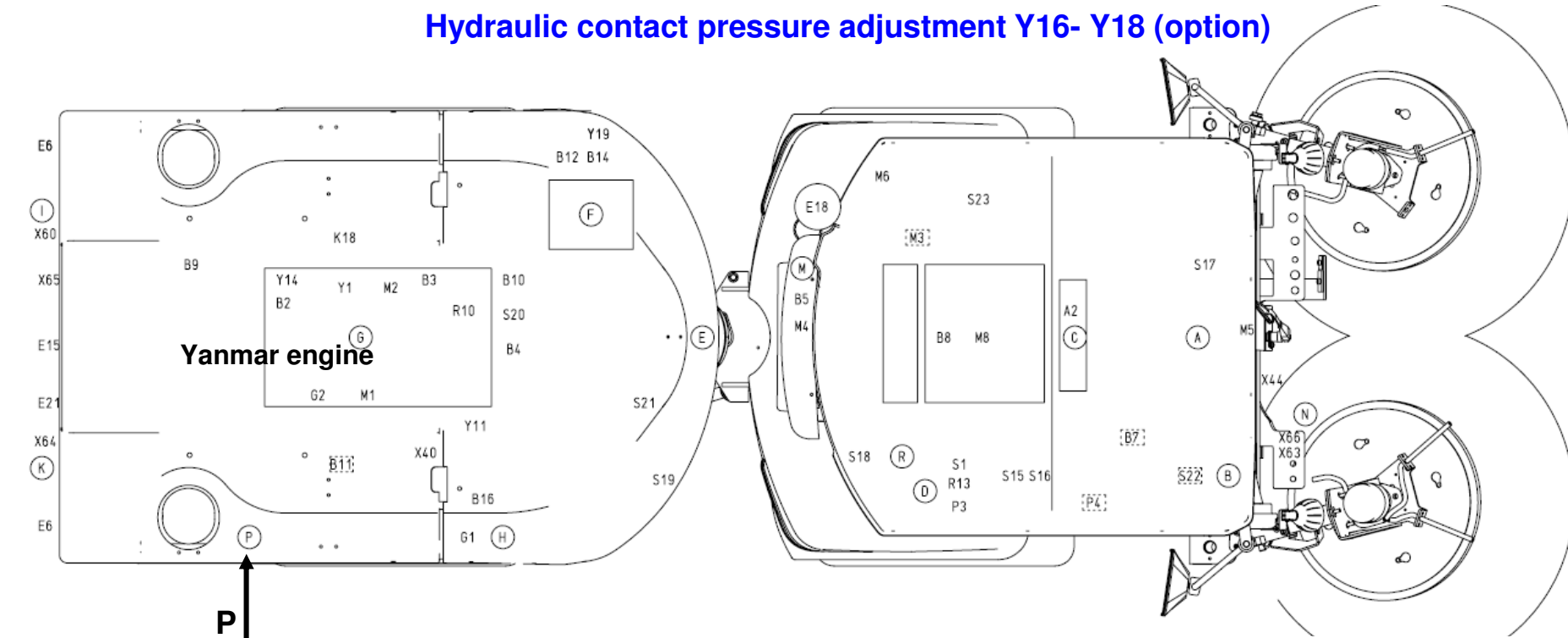
II. The steering emits noises:

Corrective measure: Check as in the case of a **“The steering is sluggish or jumps when the hydraulic oil is warm”** fault (see Section 1).

III. If all the tests have been completed (steering cylinder checked for internal leaks + flow distributor) and there is no sign of improvement, change the steering unit.

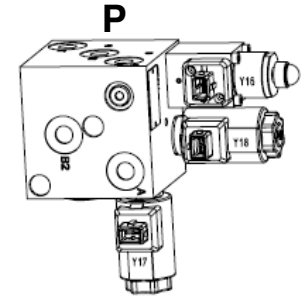
### 6.0.1 Work Hydraulics

#### Hydraulic contact pressure adjustment Y16- Y18 (option)



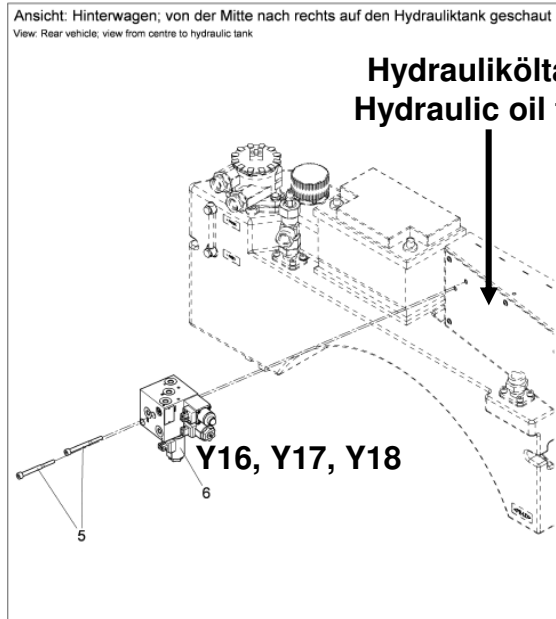
**(P)** Hydraulikblock Opt. Drücken/Entlasten **Y16, Y17; Y18;**  $\longleftrightarrow$   
*hydraulic block opt. front carrier pressure*

**(P)** Hydraulikblock Opt. Drücken/Entlasten  
*hydraulic block opt. front carrier pressure*

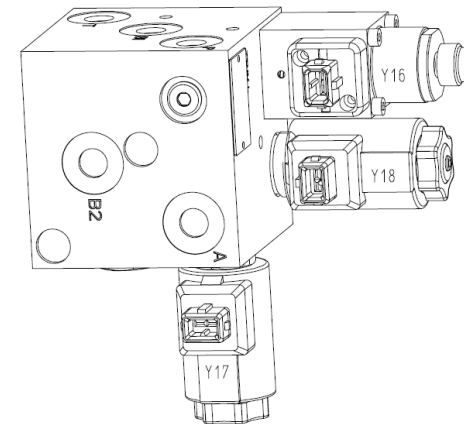


## 6.0.1 Work Hydraulics

### Hydraulic contact pressure adjustment Y16- Y18 (Option)



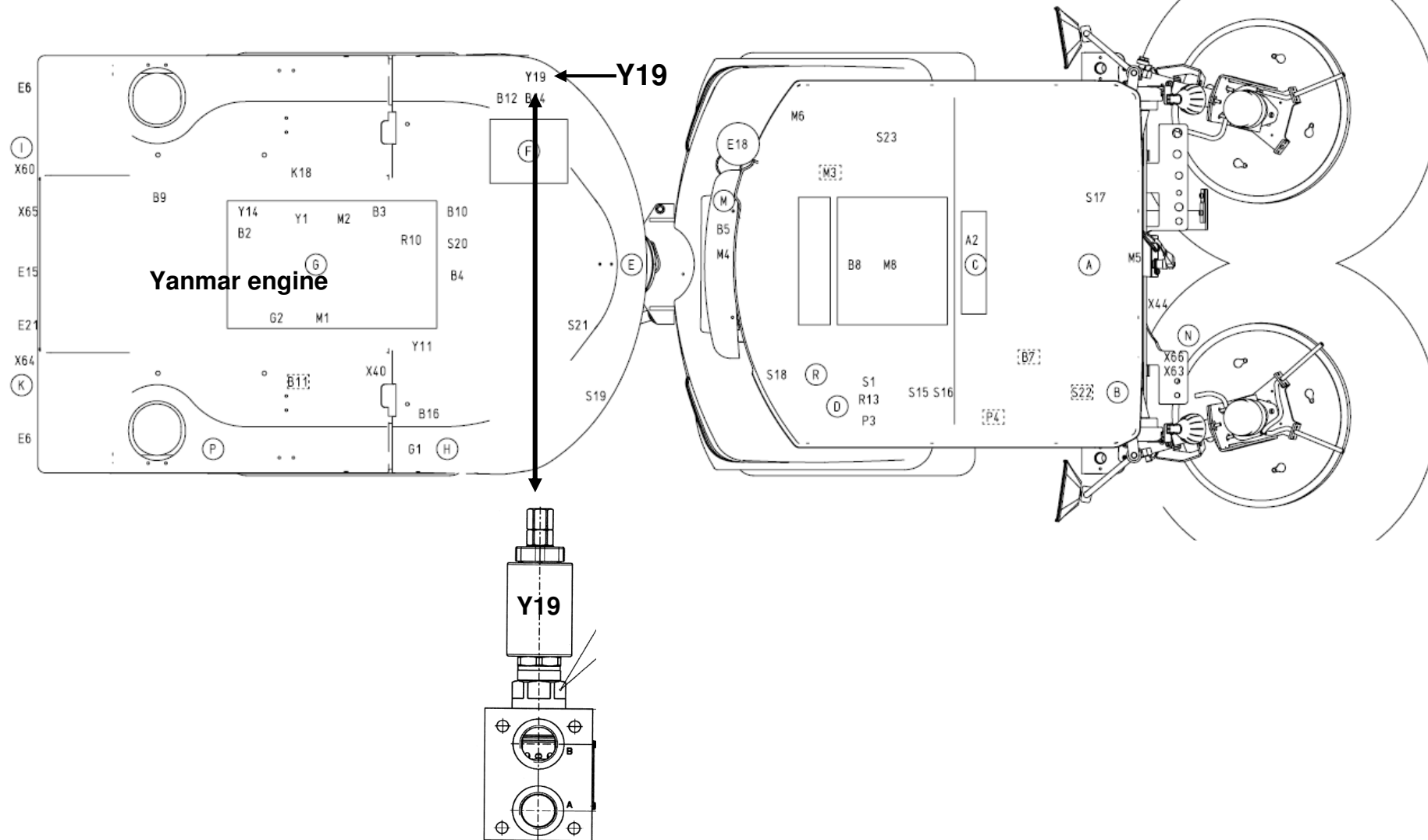
Ⓟ Hydraulikblock Opt. Drücken/Entlasten  
hydraulic block opt. front carrier pressure



	Beschreibung- Description	Spannung (V) Voltage(V)	Stromstärke (A) Current flow ( A )	Widerstand der Spule (Ω) Resistance of the coil (Ω)
Y16	Hydraulikventil Geräteträger drücken (Option Citycleaner) Hydraulic valve front carrier pressure (Option Citycleaner)	0.95- 2.5V	150- 450mA	6.3Ω
Y17	Hydraulikventil Geräteträger Schwimmstellung (Opt.Citycleaner) Hydraulic valve front carrier released (floating) (Opt.Citycleaner)	12V	1280mA	9.1Ω
Y18	Hydraulikventil Umschaltung Druck/ Entlastung (Opt.Citycleaner) Hydraulic valve weight/ unweight (Opt.Citycleaner)	12V	1765mA	6.1Ω

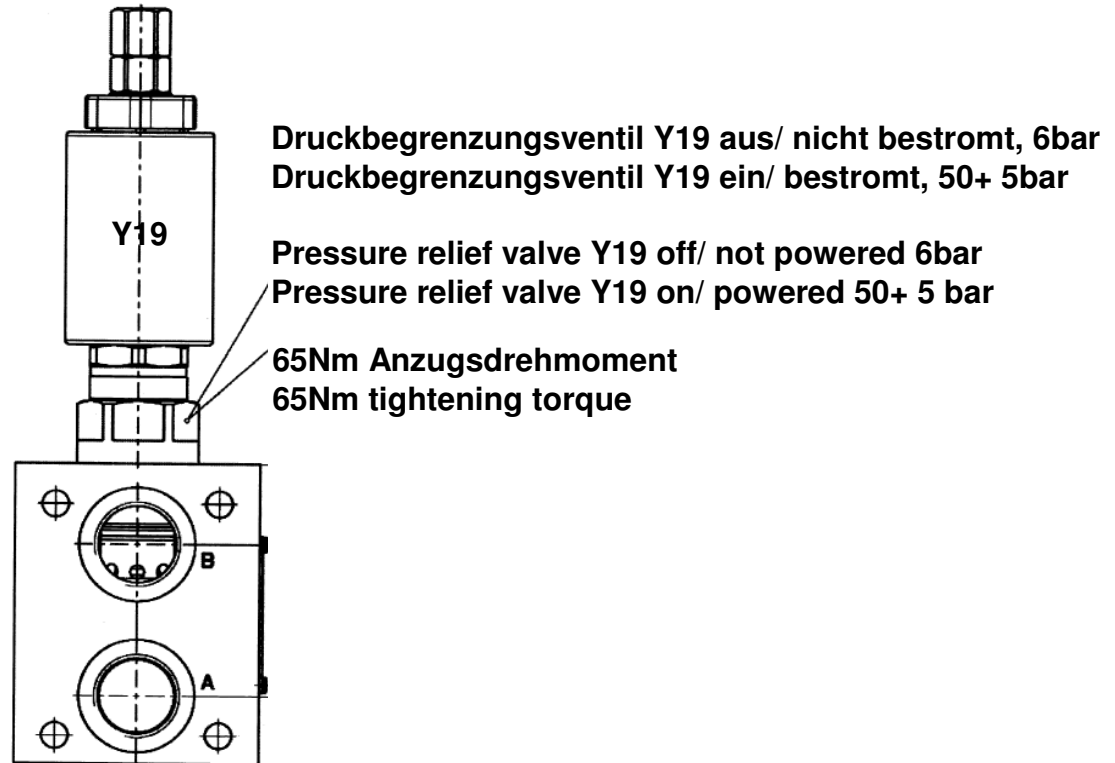
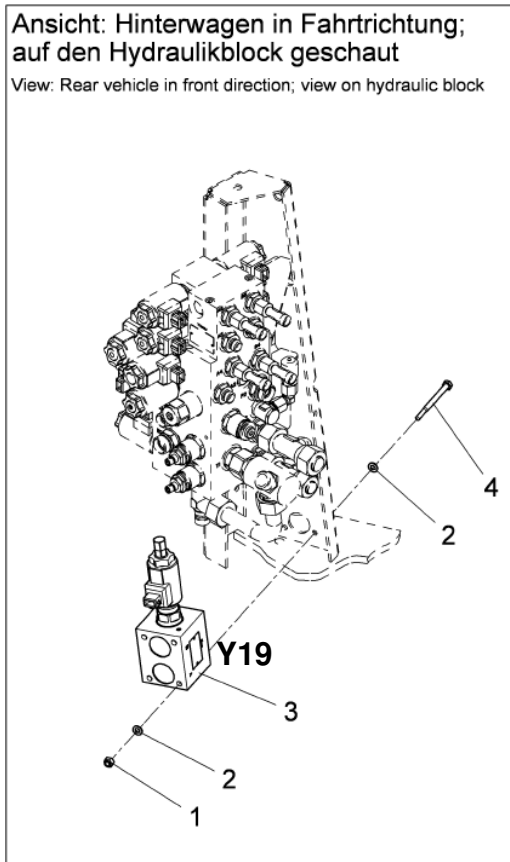
### 6.0.1 Work Hydraulics

Solenoid valve Y19 (option), contact pressure adjustment, front attachment or scrubbing unit (Citycleaner)



## 6.0.1 Work Hydraulics

### Solenoid valve Y19 (option), contact pressure adjustment, front attachment support or scrubbing unit

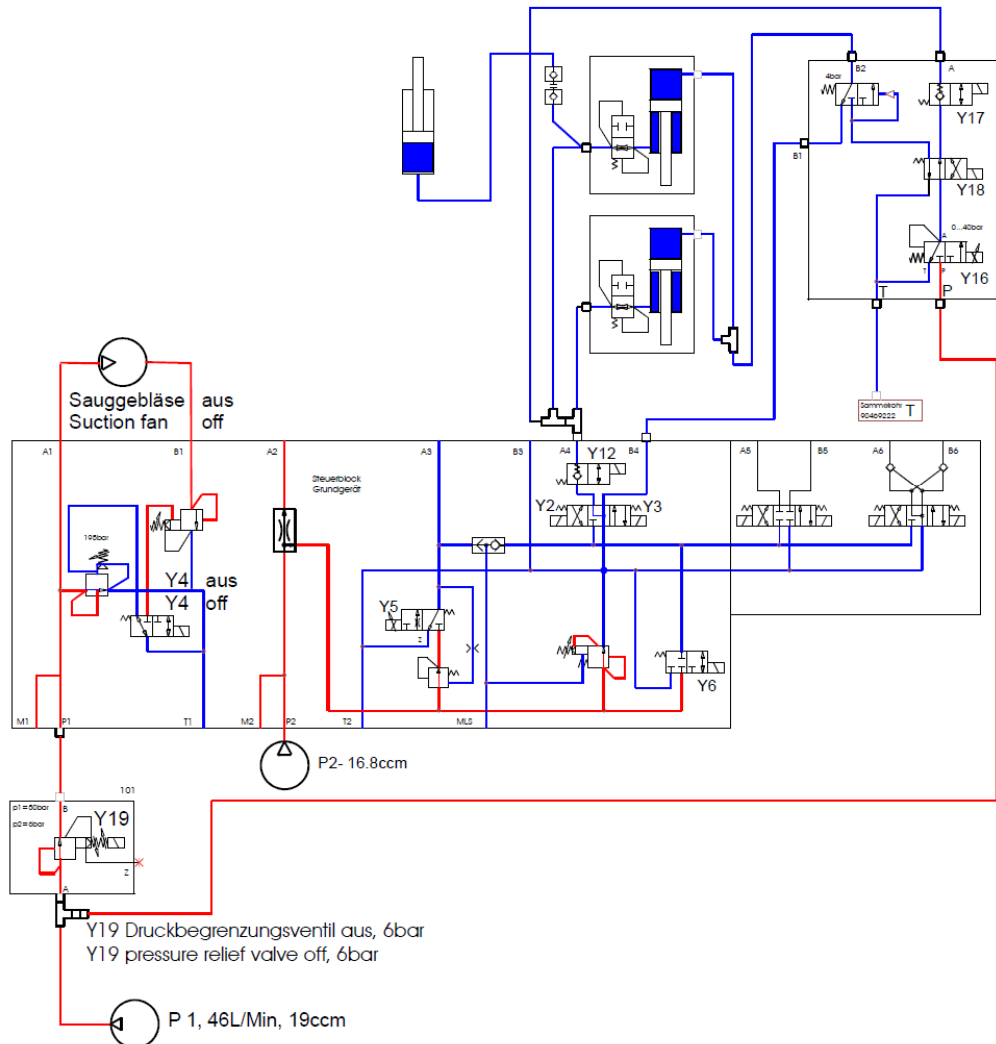


	Beschreibung- Description	Spannung (V) Voltage(V)	Stromstärke (A) Current flow ( A)	Widerstand der Spule (Ω) Resistance of the coil (Ω)
Y19	Hydraulikventil Vordruck (Opt.Citycleaner) Hydraulic valve input pressure (Opt.Citycleaner)	12V	1825mA	6.2Ω

## 6.0.1 Work Hydraulics

### Hydraulics diagram, hydraulic contact pressure adjustment (option) or scrubbing unit (Citycleaner option)

Hydraulik Citycleaner (6150) - Hydraulic Citycleaner (6150)  
 1.Umlauf, kein Verbraucher aktiv- 1.Circulation, no consumer activ

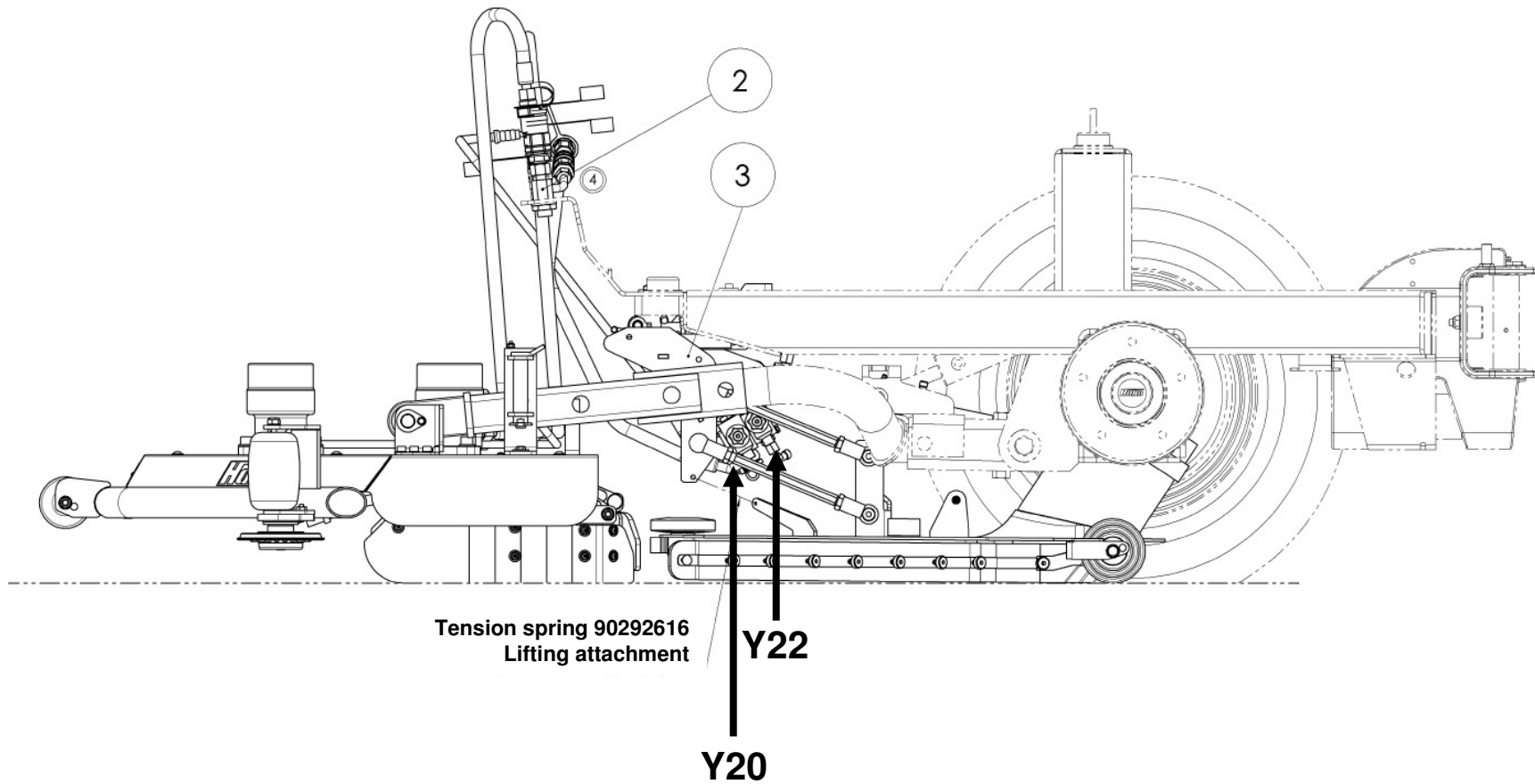


- Y2 Hydraulikventil Geräteträger senken  
Y2 Hydraulic valve front carrier down
- Y3 Hydraulikventil Geräteträger heben  
Y3 Hydraulic valve front carrier up
- Y4 Hydraulikventil Gebläse ein- aus  
Y4 Hydraulic valve suction fan on- off
- Y6 Hydraulikventil Umlauf ein- aus  
Y6 Hydraulic valve circulation on- off
- Y12 Hydraulikventil  
Geräteträger Schwimmstellung  
Y12 Hydraulic valve front carrier released
- Y16 Propventil Geräteträger drücken  
Y16 Prop. Valve front carrier pressure  
(0.95 - 2.5V, 150 - 450 mA)
- Y17 Geräteträger Schwimmstellung  
Y17 Hydraulic valve front carrier released
- Y18 Hydraulikventil Umschaltung  
Druck- Entlastung Geräteträger  
Y18 Hydraulic valve weight- unweight  
front carrier
- Y19 Umschaltbares Druckbegrenzungsventil  
nicht geschaltet max. 6bar  
geschaltet max. 50bar  
Y19 Pressure relief valve  
not powered max. 6 bar  
powered max. 50 bar

Blau, Tank, blue Tank  
 Rot, Pumpe, red pump

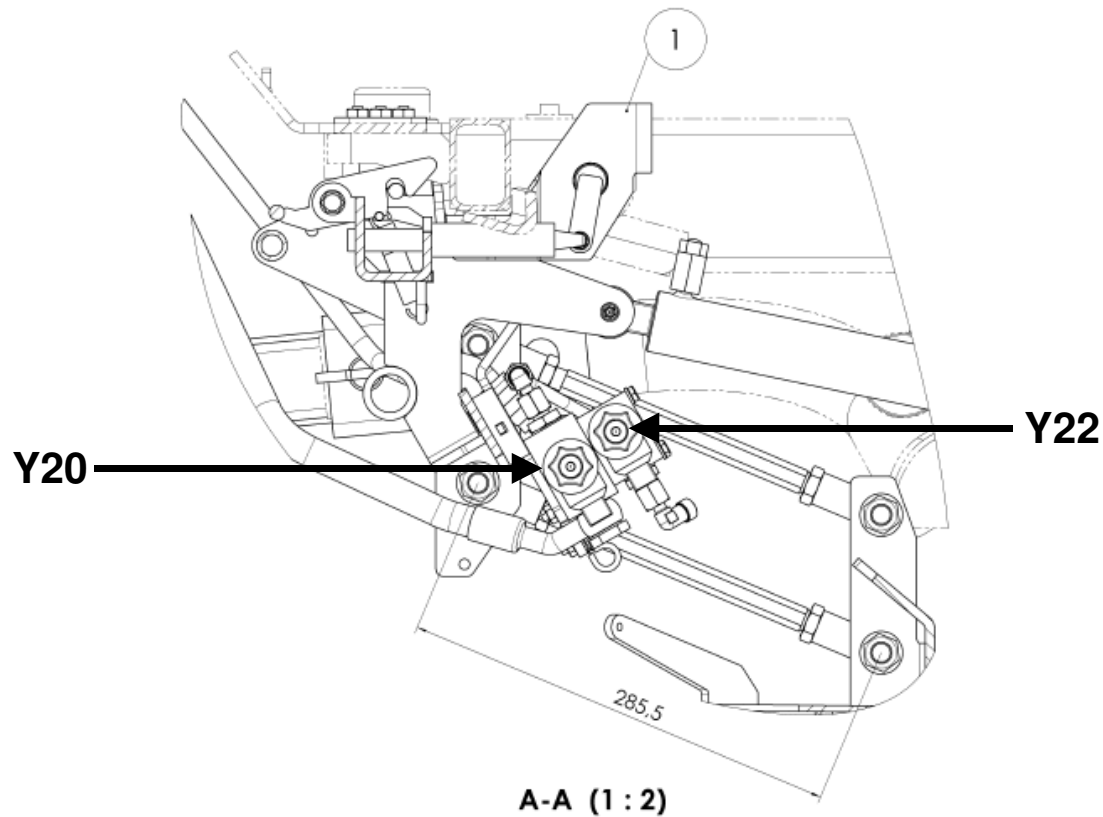
### 6.0.1 Work Hydraulics

Installation location of solenoid valves Y20 + Y22 on scrubbing unit, Citycleaner version 6150.10 (option)



### 6.0.1 Work Hydraulics

#### Installation location of solenoid valves Y20 and Y22 on scrubbing unit, Citycleaner version 6150.10 (option)

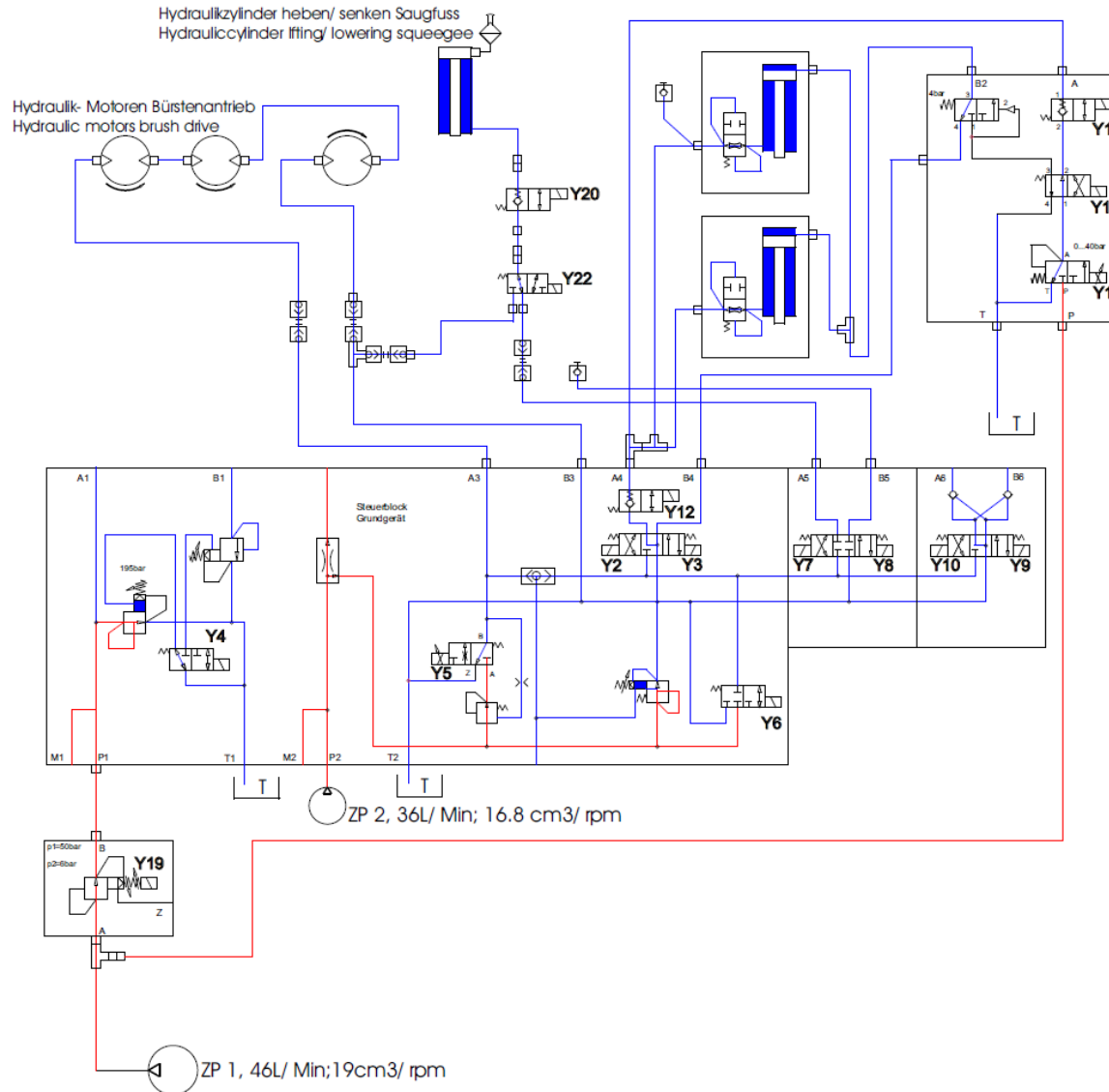


Y20	Hydraulikventil Saugfuss senken/ Schwimmstellung Hydraulic valve squeegee released (floating)	12V	1600mA	6.5Ω
Y22	Hydraulikventil Saugfuss senken/ Schwimmstellung Hydraulic valve squeegee released (floating)	12V	1600mA	6.5Ω



## 6.0.1 Work Hydraulics

### Hydraulics diagram, Citycleaner version 6150.10



- Y2 Magnetventil Geräteträger senken  
Y2 Hydraulic valve front carrier down
- Y3 Magnetventil Geräteträger heben  
Y3 Solenoid valve front carrier up
- Y5 Prop.-Magnetventil Bürstendrehzahl (0-20 Ltr.)  
Y5 Prop.- Solenoid valve brush rpm (0-20 Ltr.)  
(4- 8V, 700 - 1250 mA)
- Y4 Magnetventil Saugbläse ein- aus  
Y4 Solenoid valve Suction fan on- off
- Y6 Magnetventil Umlauf ein- aus  
Y6 Solenoid valve circulation on- off
- Y8 Magnetventil Saugfuss heben  
Y8 Solenoid valve raise squeegee
- Y12 Magnetventil Geräteträger Schwimmstellung  
Y12 Hydraulic valve front carrier released
- Y16 Prop. Magnetventil Geräteträger drücken  
Y16 Prop. Solenoid valve front carrier pressure  
(0.95 - 2.5V, 150 - 450 mA)
- Y17 MagnetventilGeräteträger Schwimmstellung  
Y17 Solenoid valve front carrier released
- Y18 Magnetventil Umschaltung  
Druck- Entlastung Geräteträger  
Y18 Solenoid valve weight- unweight  
front carrier
- Y19 Umschaltbares Druckbegrenzungsventil  
nicht geschaltet, aus; max. 6bar  
geschaltet, ein max. 50bar
- Y19 Pressure relief valve  
not powered; off, max. 6 bar  
powered; on max. 50 bar
- Y20 Magnetventil Saugfuss senken/ Schwimmstellung  
Y20 solenoid valve squeegee lowering/ floating position
- Y22 Magnetventil Saugfuss senken/ Schwimmst.  
Y22 Solenoid valve squeegee lowering/ floating position

Blau; Tank,Rücklauf zum Tank  
Blue; Tank, backflow to Tank  
Rot, Ölversorgung d.Hy.- Pumpe,  
Red; oil flow from hy.-pump

## 6.0.1 Work Hydraulics

### Schema Scrubber system- connections for water, hydraulic and electric

#### Schema Scrubber system

I = Scrubber system without option

II = Scrubber system with option

III = Hydraulic schema

1 Nozzle

2 Distributor

3 Hose 850 mm

4 Dosage system (option)

5 Water recycling system (option)

M9 = Water pump

Y21 = Valve for Solution/Circulation water

A = Solution

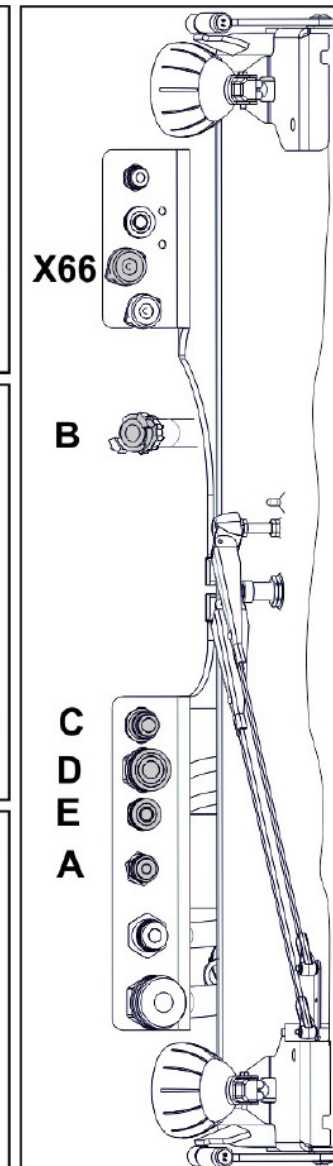
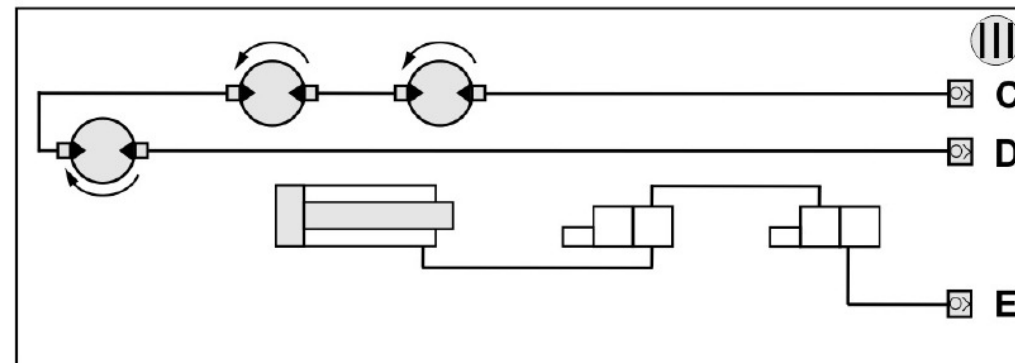
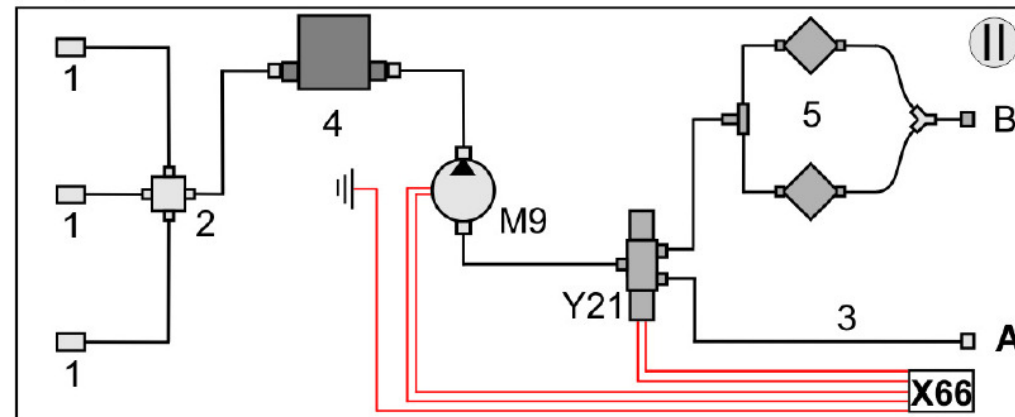
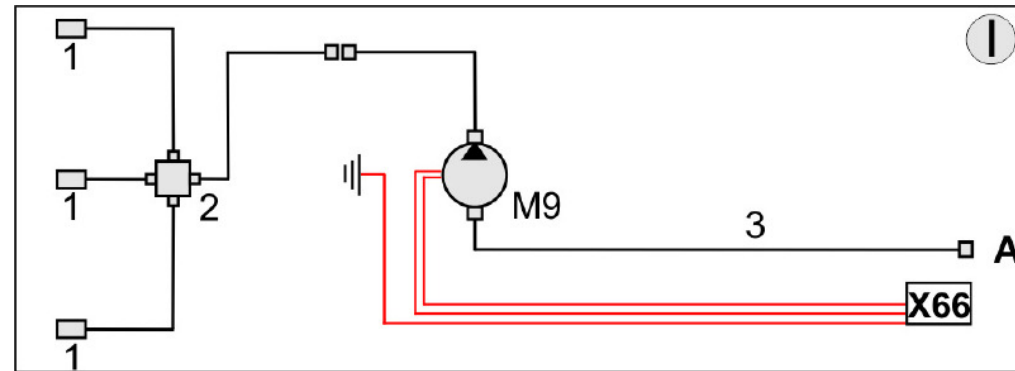
B = Circulation water

C = Flow brush motors

D = Return brush motors

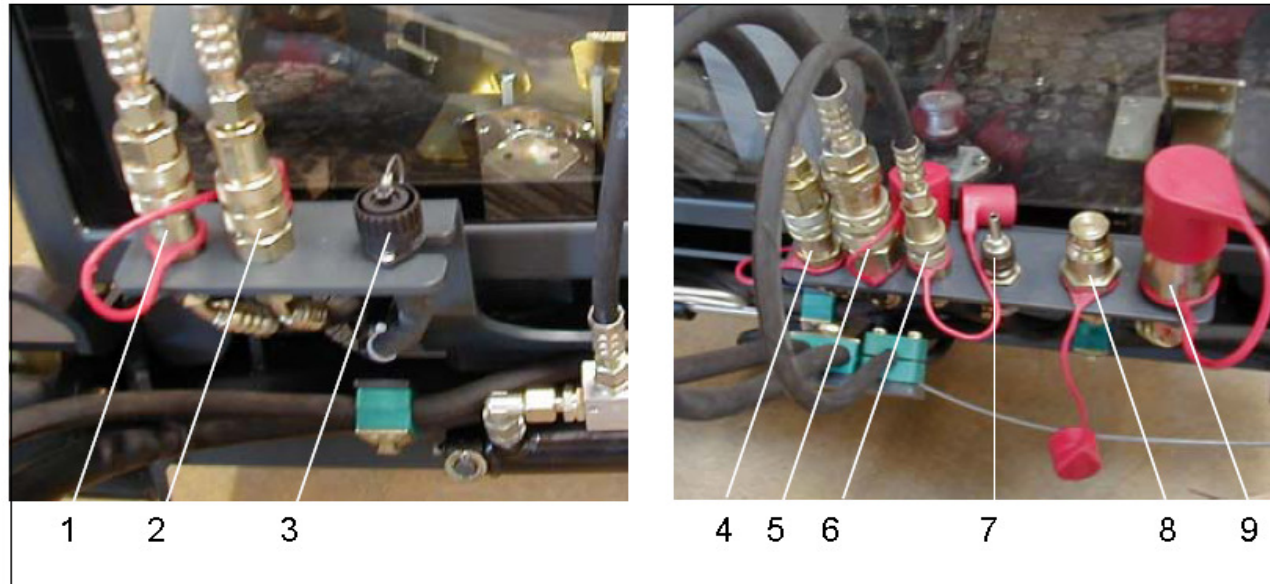
E = Hydraulics for squeegee

X66 = Encoding connector



## 6.0.1 Work Hydraulics

### Hydraulikanschlüsse Frontgeräte Hydraulic connections, front attachments



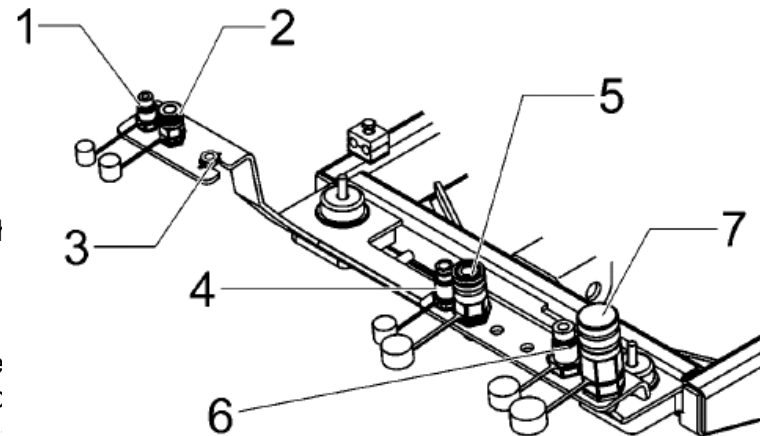
- 1 Pivot the working devices in and out, circular brush; snow plow, front rotary brush; forward + reverse
- 2 Pivot the working devices in and out, circular brush; snow plow, front rotary brush; forward + reverse
3. Coded plug, **X63**, for device detection and lighting for front attachment devices
4. Proportional regulation of the oil quantity 0-20 l/min., e.g. circular brush drive, forward
5. Proportional regulation, e.g. circular brush drive, reverse
6. Vacuum nozzle holding attachment
7. Water connection for circular brush
8. Hydraulic circuit 1 (ZP1) e.g. mower drive, forward (max. 46 l/min.)
9. Hydraulic circuit 1 (ZP1) e.g. mower drive, reverse

## 6.0.1 Work Hydraulics

### Hydraulikanschlüsse Frontgeräte Hydraulic connections, front attachment

#### Frontanbaugeräte Front attachments

- 1) Schwenken Frontanbaugeräte – Vor- Rücklauf  
(z.B. Räumschild, Kehrbesen)  
swings front-attachments - out of – reverse  
(for example: snowblade, brooms)
- 2) Schwenken Frontanbaugeräte – Vor- Rücklauf  
(z.B. Räumschild, Kehrbesen)  
swings front-attachments - out of – reverse  
(for example: snowblade, brooms)
- 3) Kodierstecker X63 zur Geräteerkennung / Beleucht  
Coding plug to the appliance-recognition / lighting
- 4) Proportionalkanal (max. 20Ltr.) Vorlauf  
(z.B. Summschaltung Mulchmäher, Seitenbese)  
proportionally-regulation (maximum 20 Ltrs.) out c  
(for example: sum circuit big mowers, side-broom)
- 5) Proportionalregelung (max 20 Ltr.) Rücklauf  
(z.B. Seitenbesenantrieb)  
proportionally-regulation (maximum 20 Ltrs.) reverse  
(for example: side-broom-drive)
- 6) Arbeitspumpe Vorlauf (max. 46Ltr.)  
(z.B. Mäher, Kehrbesen)  
work-pump (maximum 46 Ltrs.) out of  
(for example mowers, brooms)
- 7) Arbeitspumpe Rücklauf  
(z.B. Mäher, Kehrbesen, Mulchmäher)  
work-pump reverse (for example mowers, brooms, big mowers)



## 6.0.1 Work Hydraulics

### Rear hydraulic connections and coded plugs X60 and X64



1. Proportional regulation (max 20ltr) forward, e.g. salt- sand-
2. Proportional regulation return to hydraulic oil tank
3. Coding plug X60 spreader. Do not forget the jumper X60 pin 3 to pin 12!
4. Rear attachment device/ trailer lift
5. Rear attachment device/ trailer lower
6. Coding plug X64 grass and leaf collector. Caution: Do not forget the jumper X64 pin 4 to pin 7!



## 6.0.1 Work Hydraulics

**Further information on the work hydraulics is provided in :**

**6.0.2 Hydraulic functional diagram work hydraulic CM 1250**

**6.0.3 Hydraulic functional diagram work hydraulic Citycleaner CM 1250**

**6.0.4 Hydraulic circuit diagram CM 1250**

**6.0.5 Hydraulic circuit diagram Citycleaner (6150.10)**

**6.0.6 Hydraulic functional diagram pressure control front tool carrier**

**6.0.7 Hydraulic diagram high pressure cleaner**

## 6.0.1 Work Hydraulics

### Notes





## 6.0.1 Work Hydraulics

### Notes

