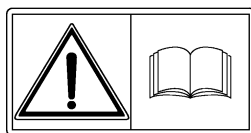


Operation- and Maintenance Instructions

MT-Level Block with LS and RV NG 08

MT- Mobile - Pressure Compensator MDW 10-R-XX-DW-XX

Hydro-Pneumatic Axle Suspension System Errors, Causes and recommended Solutions



Vor Inbetriebnahme sorgfältig lesen!

Für künftige Verwendung aufbewahren!

Diese Betriebs- Montageanleitung ist ein Teil der Maschine. Lieferanten von Neu- und Gebrauchtmachines sind gehalten, schriftlich zu dokumentieren, dass die Betriebs- Montageanleitung mit der Maschine ausgeliefert und dem Kunden übergeben wurde.

Please read carefully before using the machine!

Store carefully for future use!

This Operator Manual / Assembly Instruction is a part of the machine. Suppliers of new and second-hand machines are obliged to indicate in writing that the Operator Manual / Assembly Instruction is delivered with the machine and given to the customer.

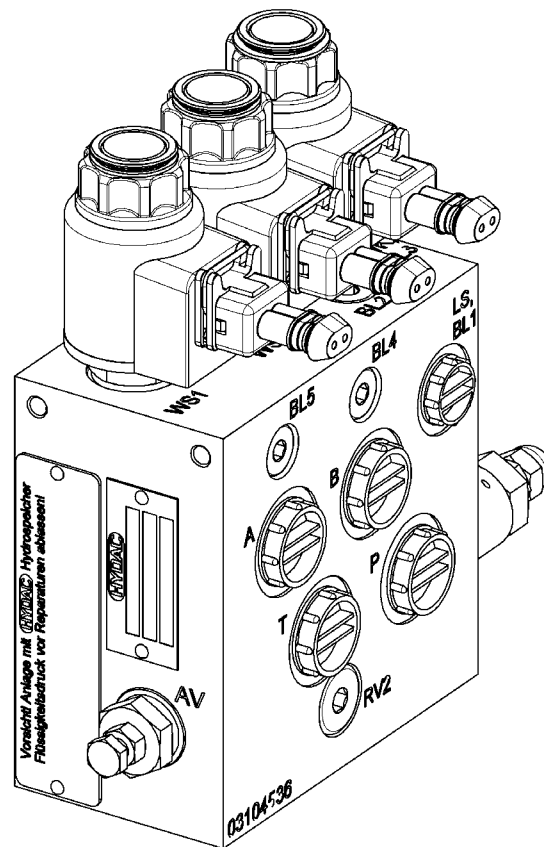
A lire attentivement avant utilisation!

A conserver pour toute utilisation ultérieure!

Cette notice doit être considérée comme une partie de la machine. Les fournisseurs de machines neuves ou d'occasion sont tenus de documenter par écrit que la notice d'instructions a été fourni avec la machine au client.

Operation and Maintenance Instructions

MT- Level Block with LS and RV NG 08



Contents:

1. Description
2. Supply Control
3. Installation and Mounting
4. Connection
5. Commissioning and Safety Instructions
6. Inspection and Maintenance
7. Storage and Conservation
8. Disassembly, Inspection and Assembly
9. Spare Parts and Tools
10. Customer Service

1. Description:

These operation and maintenance instructions are valid for:

HYDAC- MT- Level Block with LS and RV NG 08

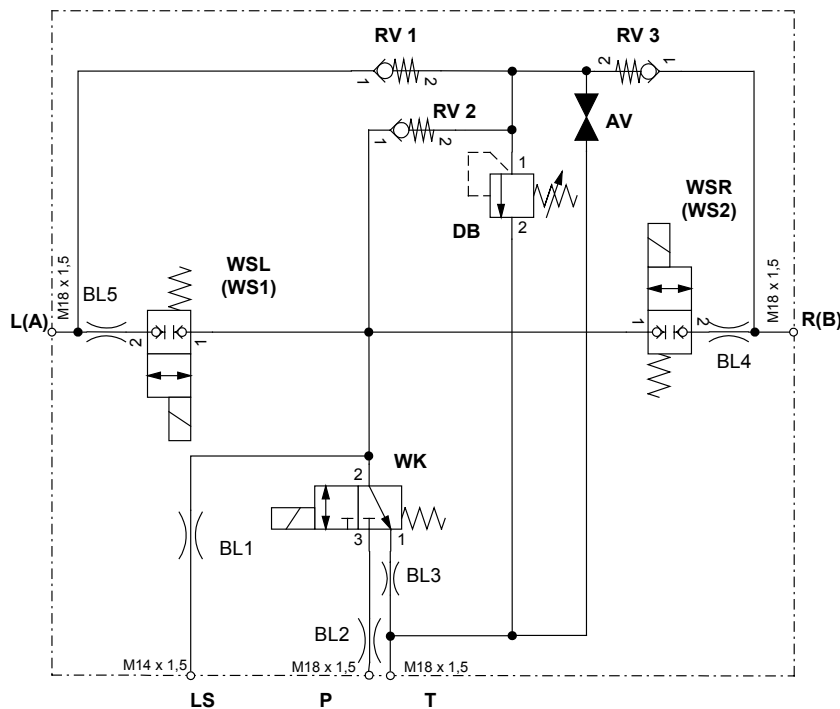
1.1 Technical Data:

Nominal Pressure:	$P_N = 260 \text{ bar}$	
Maximum Volume Flow:	$Q_{\text{max}} = 20 \text{ l/min}$	
Pipe Connections: with O-ring sealing in accordance with DIN ISO 6149-1 or DIN 3852	L (A), R (B), P, T : LS:	M 18 x 1.5 M 14 x 1.5
Operating Medium:	Hydraulic Oil in accord. with DIN	51524 Part 1 and 2
Operating Temperature Range:	- 10 to + 80°C	
Filtration:	Max. permissible con- tamination in accord. with ISO 4406	Class 21/19/16
Surface protection valve block:	Fe / Zn-5 C	Accord. to DIN 50961
Nominal voltage:	$U_N = 12 \text{ V DC}$	
Coil resistance at 20 °C:	$R_{20} = 8 \Omega$	
Nominal flow I at 20°C:	$I_N = 1.5 \text{ A}$	
Connection plug for the solenoid valves:	AMP - Junior - Timer 2-polig	

Manufacturer:

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1.2 Hydraulic Schematic:



1.3 Functioning:

The MT-level block is utilised in vehicles for the hydro-pneumatic suspension with level control.

The cylinders for the hydraulic level control are connected to the ports A and B.

The hydraulic pressure supply is connected to the port P and the non-pressurised feedback of the oil to the port T. It has to be assured that port T towards the tank is open in all operational modes of the hydraulic supply (e.g. valve circuit of the supplying vehicle).

The LS-port is for the control of an external pressure compensator or the feedback of the LS-Signal to an LS-capable vehicle.

Raising the level:

When the suspension system requires additional hydraulic oil in order to raise the level (filling of suspension cylinder), the solenoid valve WK is activated together with the solenoid valve WSL (WS1) and / or WSR (WS2). For the ports L (A) and R (B) the valves can also be activated differently.

	Selector Valve WSL (WS1 - left) Port L (A)	Selector Valve WK Up/Down	Selector Valve WSR (WS2 - right) Port R (B)
Lifting Right + Left	X	X	X
Lifting Left	X	X	
Lifting Right		X	X

The flow is restricted by the orifices BL2, BL4 and BL5.

In the port LS the orifice BL1 is designed to adapt the LS Signal.

All orifices are optimised at the commissioning with respect to their design and dimensions and can differ depending on the vehicle design.

By the arrangement of the check valves RV1, RV2 and RV3 the highest pressure is transmitted to the firmly adjusted pressure relief valve DB. This valve has been adjusted to the maximum system pressure limit according to the parts list and sealed.

Lowering the Level:

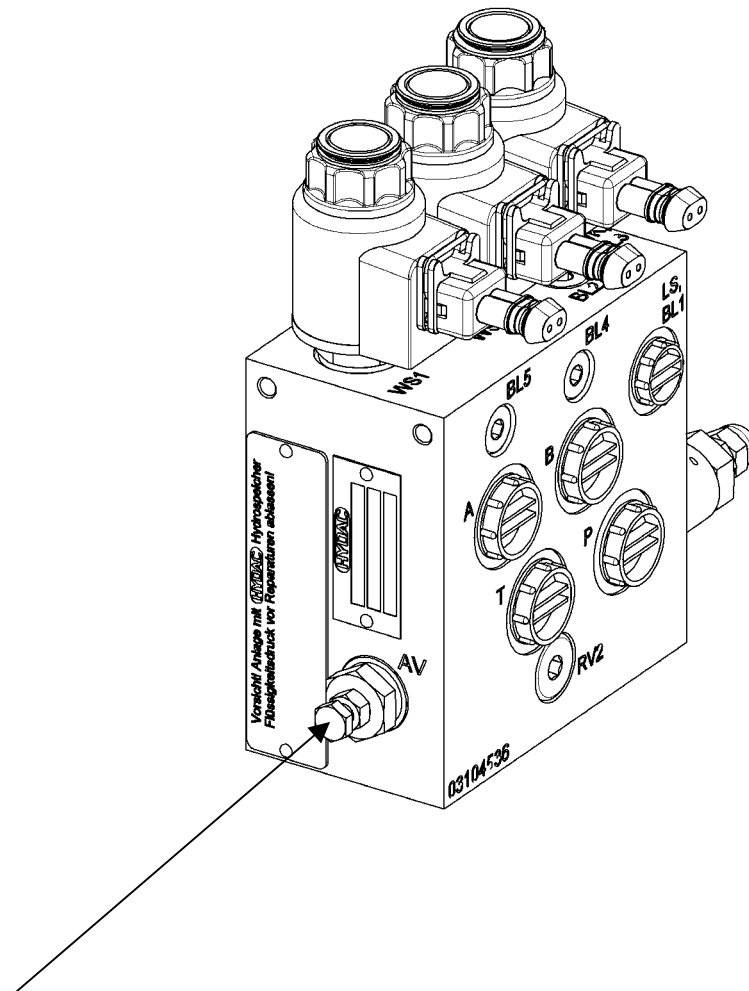
In order to discharge the suspension system (lowering the vehicle level) the solenoid valve WSL (WS1) and / or WSR (WS2) are activated. In doing so the suspension system is connected to the port T by the orifices BL4, BL5 and BL5. . Thus the oil of the suspension system can flow off to the tank.

In order to adapt the velocity during the lowering of the vehicle a restriction and adaptation of the oil flow is firmly pre-set via the orifices. The orifices can be exchanged in installed condition. The solenoid valve WK has to be disassembled in order to remove orifice BL3.



The system has to be depressurised by the mechanical bleeder screw "AV" (see page 5) in consideration of the safety instructions at oil side before components are removed.

	Selector Valve WSL (WS1 - left) Port L (A)	Selector Valve WK Up/Down	Selector Valve WSR (WS2 - right) Port R (B)
Lowering Right + Left	X		X
Lowering Left	X		
Lowering Right			X



Depressurising the system:

For disassembly and maintenance works the suspension system has to be depressurised by the manual relief valve AV at oil side towards the tank!

The valve can only be opened or closed with a tool (hexagonal wrench SW 10). Due to the inner design of the valve it is prevented that the access plug (M6) is loaded with pressure.

Effective from the series 2004 the port- and valve designations are changed:

until 2003 effective 2004

port A → port L

port B → port R

valve WS1 → valve WSL

valve WS2 → valve WSR

2. Supply Control:

The HYDAC-MT level blocks with LS and RV NG 08 are subject to a painstaking control prior to their delivery.

At delivery of the block it has to be checked if:

transport damages occurred, especially the solenoid valves and the pressure relief valves, as well as the hydraulic ports have to be visually checked for damages,

the hydraulic ports are closed with the protective plugs.

3. Installation and Mounting:

The MT-level blocks can be installed vertically as well as horizontally.

Attention has to be paid so that enough space is available for the installation and de-installation of the valves and solenoids.

The blocks have threaded mounting holes M6 and M8 and with which they can be directly fastened.

CAUTION!

In no case mounting elements may ever be welded to the block.

4. Connection:

The piping of the MT-level block with LS and RV NG 08 with the pipeline must be free of moment and strain. We recommend the use of HYDAC mounting brackets for the mounting of the pipe lines.

5. Commissioning and Safety Instructions:

Before the MT-level block is pressurised in the system, the system and the piping should once again be checked.

5.2 Safety Instructions:

CAUTION

If the MT-level block is run in systems with hydro-accumulators, the operation instructions for hydro-accumulators have to be observed!

For the filling the operating instructions of the filling- and testing devices for accumulators have to be observed. Only nitrogen may be used, at no event use oxygen or compressed air **.(Explosion Hazard)**

If the overpressure in the nitrogen bottle exceeds the permissible operating over pressure, a pressure release valve or gas pressure valve have to be operated first, during filling the accumulator.

The safety and accident prevention instructions for compressed gases and compressed gas bottles have to be observed.

6. Inspection and Maintenance:

HYDAC-MT- level blocks are virtually maintenance-free. The components have to be visually checked in regular intervals with respect to damages and leakage.

7. Storage and Conservation:

If the storage period until commissioning does not exceed 3 months, it is sufficient to store the MT-level block at a dry and cool place where it is protected from direct sunlight. The block can be stored in any position. In order to prevent dirt from entering the block attention has to be paid that the hydraulic ports are shut.

If the block is supposed to be stored over a period exceeding one year, the manufacturer should be contacted.

8. Disassembly, Inspection and Assembly:



Prior to disassembly works at the MT-level block the suspension system has to be depressurised at by opening the manual pressure relief valve AV.!

The equipment parts can be exchanged. When the valves and the accumulators are installed the required tightening torque has to be observed.

Component	Spanner Size	Tightening Torque
Solenoid Valves in Block	SW 7/8" (22,3 mm)	25 - 30 Nm
Mounting nuts of the solenoids on the valves	manual	4 – 5 Nm
orifice in block	SW 5 internal hexagon	finger-tight
locking screw of orifices	SW 5 internal hexagon	10 Nm
Pressure relief valve DB4E in Block	SW 21	25 + 5 Nm
locking screw of manual relief valve AV	SW 10	finger-tight
shut-off valve AV in Block	SW 19	20 + 5 Nm

CAUTION

When solenoid valves with higher tightening torque are screwed in, malfunctions may occur. In this case the valves are not energised.

Before the components are mounted, attention has to be paid that the components are clean and that the o-rings are not damaged.

9. Spare Parts:

The available spare parts can be gathered from the spare part list of the MT-level block with LS and RV NG08.

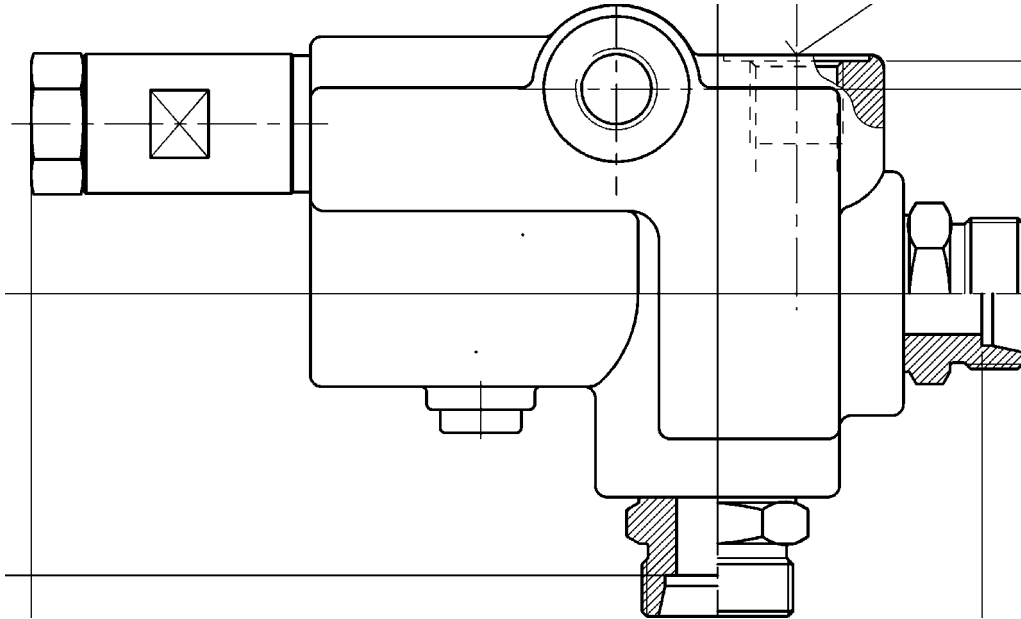
10. Customer Service:

The customer service, especially repair can be performed at the parent company.

HYDAC Technology GmbH
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Operation- and Maintenance Instructions

MT- Mobile-Pressure Compensator MDW 10- R – XX – DW - XX



Contents:

1. Description
2. Delivery control
3. Installation and Mounting
4. Connection
5. Commissioning and Safety Instructions
6. Inspection and Maintenance
7. Storage and Preservation
8. Disassembly, Inspection and Assembly
9. Spare Parts and Tools
10. Customer Service

1. Description

These operation and maintenance instructions are valid for:

MT- Mobile-Pressure Compensator MDW 10- R – XX – DW - XX

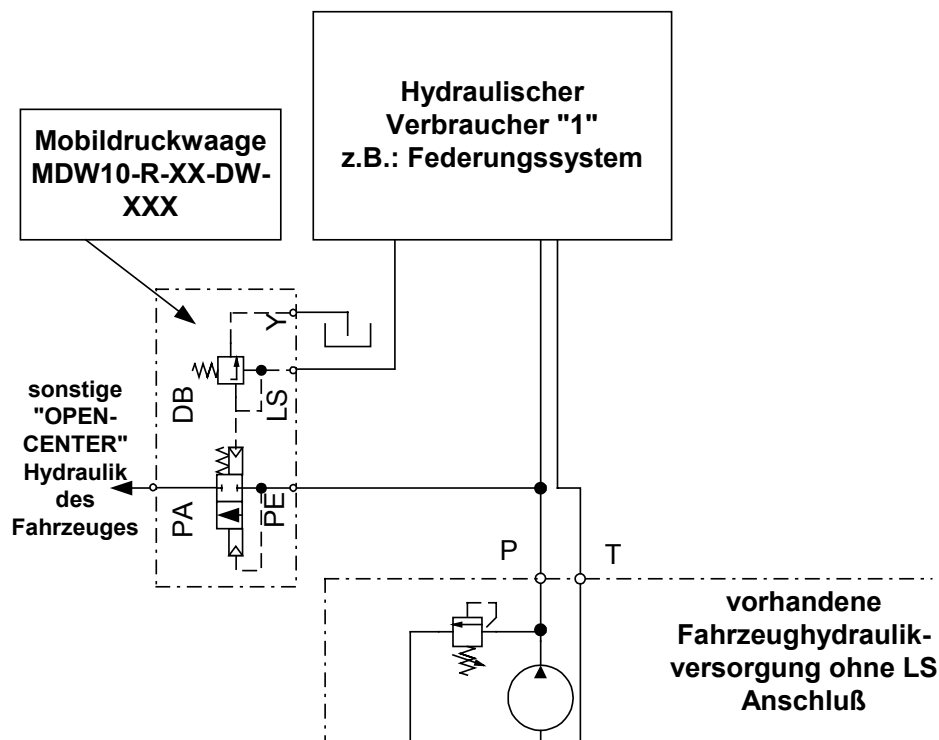
1.1 Technical Data:

Nominal Pressure:	$P_N = 210$ bar	
Maximum Volume Flow:	$Q_{max} = 80 - 100$ l/min	
Pipe Connections	PA, PE :	straight screw-in cartridge for pipe 18-L M 14 x 1.5 M 16 x 1.5
Screw Holes in accordance with DIN 3852 T1, Form X,Y	LS: Y:	
Operating Medium:	Hydraulic Oil in accord. with DIN	51524 part 1 and 2
Operating Temperature Range:	- 10 to + 80°C	
Filtration:	Max. permissible con- tamination in accord. with ISO 4406	Class 21/19/16
Surface Protection Valve Housing:	oil finish	

Manufacturer:

HYDAC SYSTEM GmbH
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1.2 Hydraulic Schematic:



1.3 Functioning:

The mobile pressure compensator MDW 10 – R – XX – DW - XXX is a two-way pressure compensator for the use in OPEN CENTER hydraulic systems.

If no pilot pressure arises at port LS, the inner piston is opened against the spring force via port PE and the medium can flow to port PA. From this port it is transferred to the other actuators in the hydraulic system of the vehicle.

When at the hydraulic actuator "1" (e.g.: suspension system) oil is required, the respective pilot pressure is transferred to the lock-side of the main piston of the pressure compensator and the piston is closed up to the point where a balance between the spring recess and the piston area is reached. The maximum pressure in the spring recess is limited by the pressure valve which was adjusted by the manufacturer to a fixed setting.

The port Y must be depressurised to the tank. When a pressure head occurs in this line to the tank, the set pressure of the pressure valve increases by the value that corresponds to the pressure head.

The control connection line between the actuator "1" and the port LS of the mobile pressure compensator should have a maximum length of 0,5m. The pipe line should have a minimum of 12L (Pipe 12x1). Smaller diameters may lead to malfunctions of the mobile pressure compensator. At the commissioning the LS pilot line has to be ventilated first, as otherwise the function is not guaranteed. If the LS-signal is transmitted to the port of the vehicle via a change-over valve chain LS Signal attention has to be paid so that no internal loss or leakage in the LS-line lead to a pressure loss at the LS-port at the pressure compensator.

In the hydraulic pressure supply a maximum pressure relief setting at the pump has to be available.

2. Delivery Control:

The HYDAC-MT- mobile pressure compensators are subject to a thorough control prior to their delivery.

At delivery of the pressure compensators it has to be checked whether

transport damages occurred, especially the thread ports and the pressure relief valve have to be visually checked with respect to damages

the hydraulic ports are shut with protective plugs.

3. Installation and Mounting:

The MT- mobile pressure compensators shall be mounted horizontally whereby the port PA shall be directed downwards. In the connection line to port LS no air cushion shall arise due to the arrangement, as the function of the mobile pressure compensator can not be guaranteed in this case.

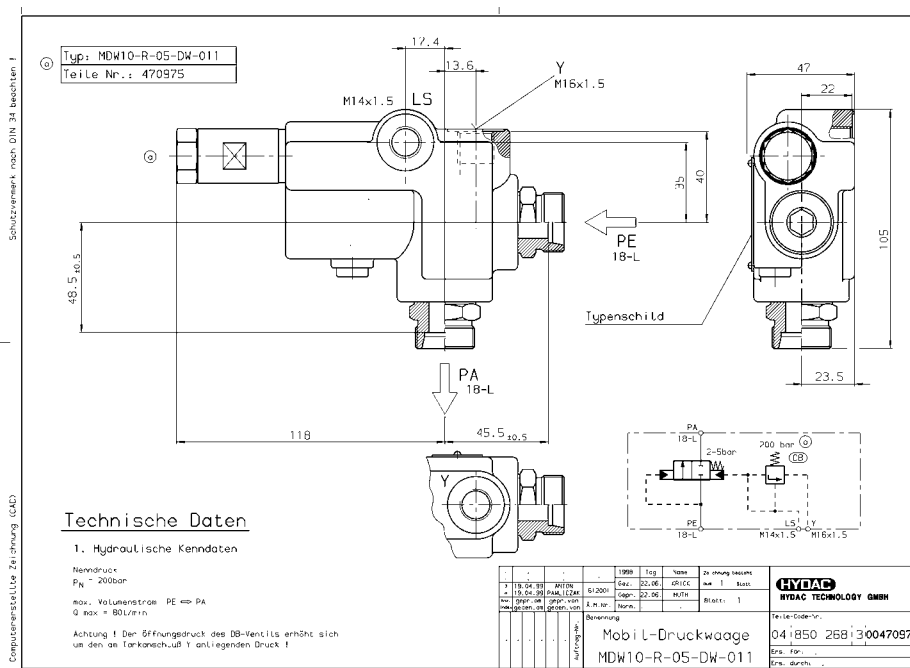
Attention has to be paid so that enough space for the installation and de-installation is available.

CAUTION !

In no case may mounting elements be welded to the valve housing.

4. Connection:

The piping of the MT-mobile pressure compensator MDW with the pipeline has to be free of stress and moment. We recommend the use of HYDAC mounting brackets for the installation of the pipe lines.



5. Commissioning and Safety Instructions:

5.1 Commissioning:

Before the MT Mobile pressure compensator MDW is pressurised in the system, an additional inspection of the piping and the system should be carried out. The connection line to the LS-port has to be de-aerated prior to the commissioning!

5.2 Safety Instructions

CAUTION

If the MT- mobile pressure compensator is used in systems comprising a hydro-accumulator, the operation instructions for hydro-accumulators will have to be observed!

For filling the operating manuals of the filling and testing equipment have to be observed. Solely nitrogen should be used, in no case use oxygen or compressed air. (Explosion Hazard)

When the overpressure of the nitrogen bottle exceeds the permissible operating pressure, a pressure relief valve or gas pressure valve first has to be activated when filling the accumulator.

The regulations for Safety- and Accident Prevention for the handling of pressure gases and pressure gas bottles have to be observed.

6. Inspection and Maintenance:

HYDAC-MT- Mobile Pressure Compensators MDW are virtually maintenance-free. The components have to be visually checked in regular intervals with respect to damages and leakage.

7. Storage and Conservation:

When the storage period until the commissioning does not exceed 3 months, it is sufficient to store the MT-mobile pressure compensator at a dry and cool place where it is protected from direct insolation. The position of the mobile pressure compensator can be arbitrary. In order to avoid the contamination of the valve, attention has to be paid that the hydraulic ports are shut. In case the mobile pressure compensator is supposed to be stored for a period exceeding one year, the manufacturer should be consulted.

8. Disassembly, Inspection and Assembly



Before the pressure compensator MDW is disassembled it generally has to be depressurised at fluid side!

The components can be exchanged. At installation the required tightening torques have to be observed.

Component	Spanner Size	Tightening Torque
Straight screw-in plugs 18-L (special design) in valve housing	SW 32 mm	140 Nm
Locking screw for de-aeration in valve housing	SW 5 internal hexagon	10 Nm
Pressure Relief valve DB4E in valve housing	SW 21	25 + 5 Nm
Screw-in plug of spring recess in valve housing (special design)	SW 10 internal hexagon	60 Nm

CAUTION

If the components are screwed in with a higher tightening torque, malfunctions and damages of the valve housing may occur. The straight screw-in plugs 18-L cannot be replaced by straight standard screw-in plugs, as these special parts are intended for the piston stop!

Prior to the assembly attention has to be paid that the components are clean and that the o-rings are not damaged.

9. Spare Parts:

The available spare parts are listed in the spare part list of the mobile pressure compensator MDW 10.

10. Customer Service:

Customer service especially repair can be performed at the parent company.

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Errors, Causes and recommended Solutions

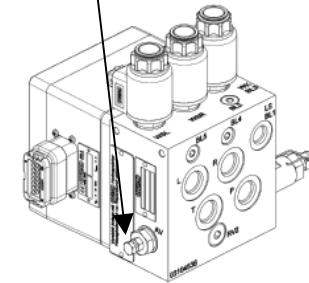


(Foto: Exemplary Equipment Parts for Tandem Axles)

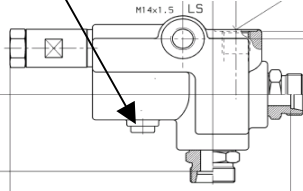
Hydro-Pneumatic Axle Suspension System for Tracked Vehicles



Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Axle is not lifted (Suspension cylinder does not extract)</p>	<p>Hydraulic pressure not existent</p>	<p>Hydraulic supply of vehicle is not activated.</p> <p>Hydraulic lines or hoses are not connected.</p> <p>Manual pressure relief valve in valve block of level control unit open</p>	<p>Activate hydraulic supply at tractor vehicle.</p> <p>Check quick couplings and insert correctly at tractor vehicle.</p> <p>Shut valve screw M6 with wrench SW 10 and lock valve screw.</p>
	<p>No switching function of solenoid valves in level control unit. (Check valve function with solenoid coil tester)</p>	<p>No voltage supply of control electronics existent.</p> <p>Valve plug damaged or pulled off</p> <p>Error reports of electronics control</p> <p>Check electrical resistance of solenoid coil (Ω value engraved on coil)</p>	<p>Activate voltage supply</p> <p>Check valve plug and access lines</p> <p>See separate description of control electronics</p> <p>Exchange coil when short circuit or infinite resistance occur</p>

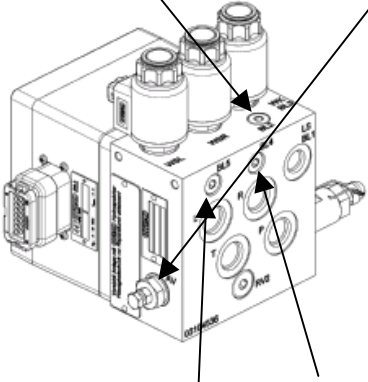


Hydro-Pneumatic Axle Suspension System for Tracked Vehicles

Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Axle is not lifted (Suspension cylinder does not extract)</p>	<p>At hydro-pneumatic axle suspension systems with mobile pressure compensator MDW:</p> <p>Mobile pressure compensator MDW does not pressurise.</p> <p>At vehicles with LS (Power-Beyond) port.:</p> <p>Load Sensing Pump of vehicle does not create any hydraulic pressure</p> <p>At vehicles with pressure filtration in P-supply line.</p>	<p>Connecting pipe line between LS control block level control unit to LS port of MDW not de-aerated.</p> <p>Load-Sensing signal line not connected</p> <p>Load-Sensing signal line not de-aerated.</p> <p>Filter element contaminated</p>	<p>Carefully de-aerate mobile pressure compensator MDW at de-aeration screw while lifting valve "WK" is activated.</p>  <p>CAUTION: <u>DE-AERATION SCREW CAN LOOSEN UNDER PRESSURE DURING DE-AERATION PROCESS!!</u></p> <p>Establish LS port (Power Beyond) at vehicle.</p> <p>LS Line at all change-over valves and at transfer- or connecting point to the vehicle de-aerate (plug-in circuit board) at activated lifting valve "WK".</p> <p>Exchange filter element in accordance with operating and maintenance instructions of the filter manufacturer.</p>

Hydro-Pneumatic Axle Suspension System for Tracked Vehicles



Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Axle does not lift (suspension cylinder does not extract)</p>	<p>Control block of level control unit does receive any hydraulic oil.</p>	<p>Inlet orifice in level control unit BL2 contaminated or clogged.</p>  <p>Outlet orifices BL5 and BL4 contaminated or clogged.</p> <p>Solenoid valves in control block of the level control unit clogged.</p>	<p>Completely de-pressurise system with manual drain valve AV!</p> <p>Disassemble orifices with Allen wrench SW5 and pointed tweezers, clean orifices and re-install them. Tightening torques of orifices and locking screw in accordance with operating- and maintenance instructions of "MT level block with LS and RV NG 08".</p> <p>Disassemble solenoid valves with wrench SW 7/8" (SW 22,3 mm) , check function, clean and blow-out solenoid valves. Re-install solenoid valves and tighten with 25-30 Nm and additionally perform complete de-aeration of the system.</p>

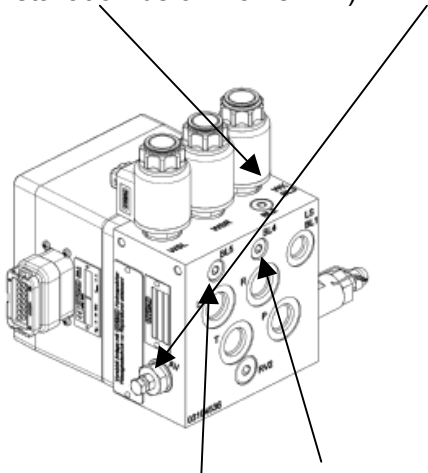
Hydro-Pneumatic Axle Suspension System for Tracked Vehicles

Error	Cause of Errors	Fault diagnosis	Clearing of Errors
<p>Axle jerkily moves UP or DOWN (Suspension cylinder jerkily extracts or retracts)</p>	<p>Hydro-pneumatic suspension system with air pockets.</p> <p>Cylinder has high friction values</p>	<p>Suspension cylinder and connection lines not sufficiently de-aerated.</p> <p>Swivel eyes of the cylinder ports not sufficiently lubricated. Mechanical stresses in axle system.</p> <p>Cylinder seals defective</p>	<p>While manually controlling complete system several times to upper and lower end stop, completely de-aerate system.</p> <p>De-aerate hoses and pipe lines at mini-measuring port of the cylinder rod sides.</p> <p>De-aerate suspension cylinder at rod side with fully extracted suspension cylinder (axle at highest point) at the de-aeration screws (if existing at cylinder)</p> <p><u>CAUTION:DE-AERATION SCREWS CAN LOOSEN UNDER PRESSURE DURING DE-AERATION!!</u></p> <p>Lubricate cylinder port eyes in accordance with operating instructions.</p> <p>Check complete axle in accordance with the operating instructions of the axle manufacturer.</p> <p>Check cylinder in accordance with operating instructions of the axle or cylinder manufacturer and subsequently perform complete de-aeration of the system.</p>

Hydro-Pneumatic Axle Suspension System for Tracked Vehicles

Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Axle does not lower (cylinder does not re-tract)</p>	<p>Hydraulic oil cannot flow back from the suspension cylinders to the tank.</p> <p>No switching function of the solenoid valves in the level control unit. (check valve function with solenoid coil tester)</p>	<p>Hydraulic valve plate at vehicle not in correct switching position.</p> <p>Return line or return hose not connected.</p> <p>Voltage supply of control electronics not existent.</p> <p>Valve plug damaged or pulled off.</p> <p>Error messages of electronic control.</p> <p>Check electrical resistance of solenoid coil (desired Ω value is engraved on coil)</p>	<p>Control hydraulic valve plate so that the return (T-port) to the tank is open.</p> <p>Check quick coupling of tank port and correctly insert at tracked vehicle.</p> <p>Switch on voltage supply</p> <p>See separate description of electronics.</p> <p>Check valve plug and access lines</p> <p>Exchange coils.</p>

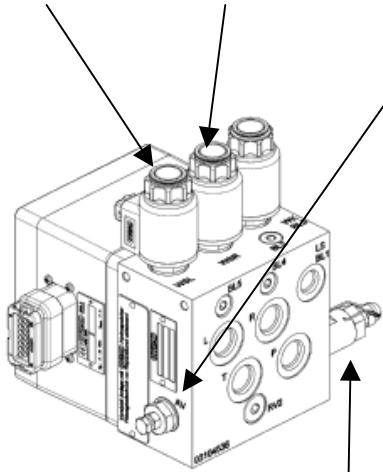
Hydro-Pneumatic Axle Suspension System for Tracked Vehicles

Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Axle does not lower (Cylinder does not retract)</p>	<p>Hydraulic oil cannot flow from the suspension cylinders back to the tank.</p>	<p>Return orifice in level control unit BL3 contaminated or clogged (Installation below valve WK)</p>  <p>Outlet orifices BL5 and BL4 contaminated or clogged.</p> <p>Solenoid valves in control block of the level control unit clogged.</p>	<p>Completely de-pressurize system with manual drain valve AV!</p> <p>Disassemble orifices with Allen wrench SW5 and pointed tweezers, clean and re-install orifices. Tightening torque of orifices and locking screw in accordance with operation and maintenance instructions of the "MT level block with LS and RV NG 08"</p> <p>Disassemble solenoid valves with wrench SW 7/8" (SW 22,3 mm), check function, clean and blow out solenoid valves.</p> <p>Assemble solenoid valves again, and tighten with 25-30 Nm and subsequently perform complete de-aeration of the system.</p>

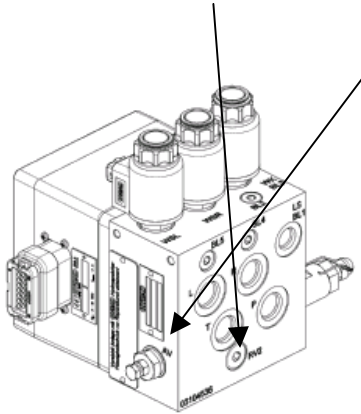
Hydro-Pneumatic Axle Suspension System for Tracked Vehicles

Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Axle autonomously lowers without valve activation (cylinders retract autonomously)</p>	<p>Leakage in hydro-pneumatic suspension system.</p>	<p>Hydraulic- and hose line leaky.</p> <p>Cylinder seals defective.</p> <p>Manual relief valve AV in control block of level control leaky or contaminated..</p> <div data-bbox="1160 1018 1518 1353" data-label="Image"> </div>	<p>Optical control of complete pipe line- and hose systems.</p> <p>Seal leakage.</p> <p>Exchange of defective pipe line or hose components and subsequently complete de-aeration of system.</p> <p>Replace cylinder seals in accordance with operation and maintenance instructions of the axle and cylinder manufacturers and subsequently perform complete de-aeration of the system.</p> <p>Open manual pressure relief valve AV with wrench SW10 and completely de-pressurise system before disassembly..</p> <p>Completely disassemble, clean and assemble valve AV, (SW19 tightening torque 20 Nm). Tighten fixing screw SW10 with wrench and subsequently lock fixing screw.</p>

Hydro-Pneumatic Axle Suspension System for Tracked Vehicles

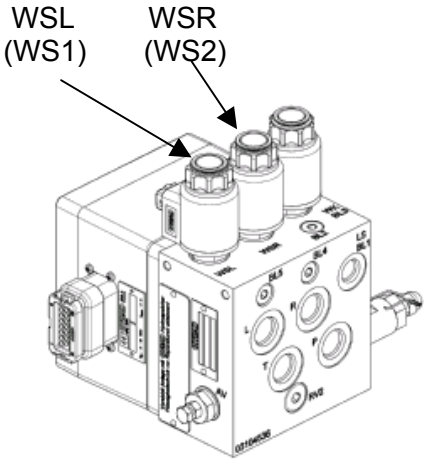
Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Achse senkt sich ohne Ventilsteuerung selbständig ab (Zylinder fahren selbständig ein)</p>	<p>Leakage in hydro-pneumatic suspension system.</p>	<p>Solenoid valves for lowering WSL (WS1) and WSR (WS2) leaky.</p>  <p>Safety pressure relief valve DB leaky.</p>	<p><u>Completely depressurise system with manual drain valve AV.</u></p> <p>Disassemble solenoid valves with wrench SW 7/8" (SW 22,3mm) check function, clean and blow out solenoid valves.</p> <p>Install solenoid valves and tighten with 25-30 NM and subsequently perform complete de-aeration of the system.</p> <p><u>Completely de-pressurise system with manual drain valve AV!</u></p> <p>De-install safety pressure relief valve DB (SW21), check optically, blow out safety pressure relief valve and reassemble valve . (Tightening torque 25+5 Nm) and subsequently perform de-aeration of system.</p>

Hydro-Pneumatic Axle Suspension System for Tracked Vehicles

Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Axle independently lowers without valve activation (cylinder retract independently)</p>	<p>Leakage in hydro-pneumatic suspension system</p>	<p>Check valve RV2 in control block of level control unit leaky.</p>  <p>The diagram shows a control block with several valves. An arrow points to a specific valve labeled 'RV2' on the front panel.</p>	<p>Completely de-pressurise system with manual relief valve AV!</p> <p>Disassemble and clean check valve cartridge assembly RV2, perform optical control of sealing lip and subsequently re-install cartridge assembly (Tightening torque of locking screw 30 Nm). Subsequently perform complete de-aeration of system.</p> <p>When damages at the valve poppet can be optically perceived, completely exchange parts..</p>

Hydro-Pneumatic Axle Suspension System for Tracked Vehicles



Error	Cause of Errors	Fault Diagnosis	Clearing of Errors
<p>Axle is in an extremely inclined position after control processes (Extensions of left and right cylinders differ extremely from each other)</p>	<p>Solenoid valves WSL (WS1) and WSR (WS2) are interchanged when activated.</p>	<p>Valve plugs WSL (WS1) and WSR (WS2) were interchanged when slipped over the solenoid coils <u>after maintenance operations</u>.</p> 	<p>Contra-wise slip valve plugs WSL (WS1) and WSR (WS2) over the solenoid coils.</p> <p>If additionally maintenance operations were performed at the sensors, the system has to be recalibrated in accordance with the description of the control electronics after interchanging the valve plugs.</p>