Maintenance table

Maintenance work	Remark	Running-ininspect. (50 op. hours)	every 10 oper. hours	every 50 oper. hours	every 250 oper. hours	every 500 oper. hours	every 1000 oper. hours	every 2000 oper. hours	every 3000 oper. hours	as required
Tighten all bolted connections on air intake, exhaust, oil sump and engine mounts		X								
Check the engine for leaks.		X								
Check, adjust the valve clearance		X								
Change engine oil and oil filter		X								
Tighten the bolted connections on the machine		X								
Tighten the wheel studs with the specified torque		X								
Change the oil in the axle		X								
Change the oil in the planetary drives		X								
Change the oil in the vibrator housings drives	only after 500 op. hours	X								
Check the V-belt tension, tighten if necessary		X								
Check the engine oil level	Dipstick mark		X	X	X	X	X	X		
Check fuel filter water separator			X	X	X	X	X	X		
Check the fuel level	approx. 110 l		X	X	X	X	X	X		
Check the hydraulic oil level	Inspection glass		X	X	X	X	X	X		
Check the tire pressure	1.8 bar			X	X	X	X	X		
Adjust the scrapers				X	X	X	X	X		
Check the radiator cooling fins					X	X	X	X		
Clean the hydraulic oil cooler					X	X	X	X		

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Checking and adjusting the valve clearance

Excessive or insufficient valve clearance can cause failure of the engine as a result of mechanical and thermal overloads. The valve clearance must therefore be checked and, if necessary, adjusted at the intervals specified in the operating and maintenance instructions and whenever required.

Note:

The valve clearance is measured between the valve stem and the rocker arm. The correct valve clearance **on a cold engine (engine oil temperature <80°C)** is as follows:

Intake valve **= 0.3 mm** (immediately after replacing the cylinder head gasket 0.4mm)
Exhaust valve **= 0.5 mm** (immediately after replacing the cylinder head gasket 0.6 mm)

- Remove the valve cover.
- Turn the crankshaft by the V-belt pulley, until both valves on cylinder 1 are overlapping (exhaust valve not yet completely closed, intake valve starts to open).

Note:

Cylinder 1 is located at the flywheel end of the engine; sensor of rotation: V-belt pulley from front in clockwise direction.

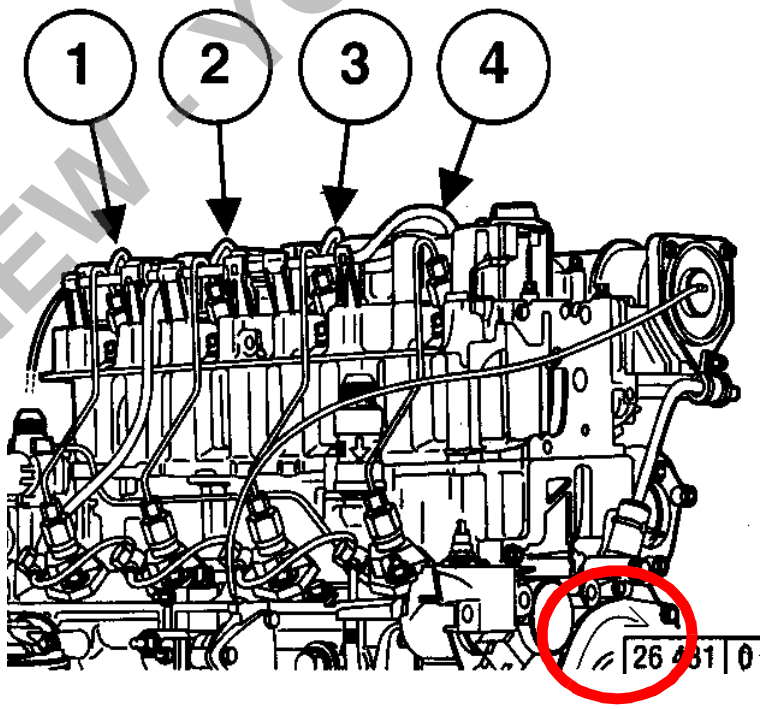


Fig. 5: Numbering of cylinders and sense of rotation of BF4L 1011 F

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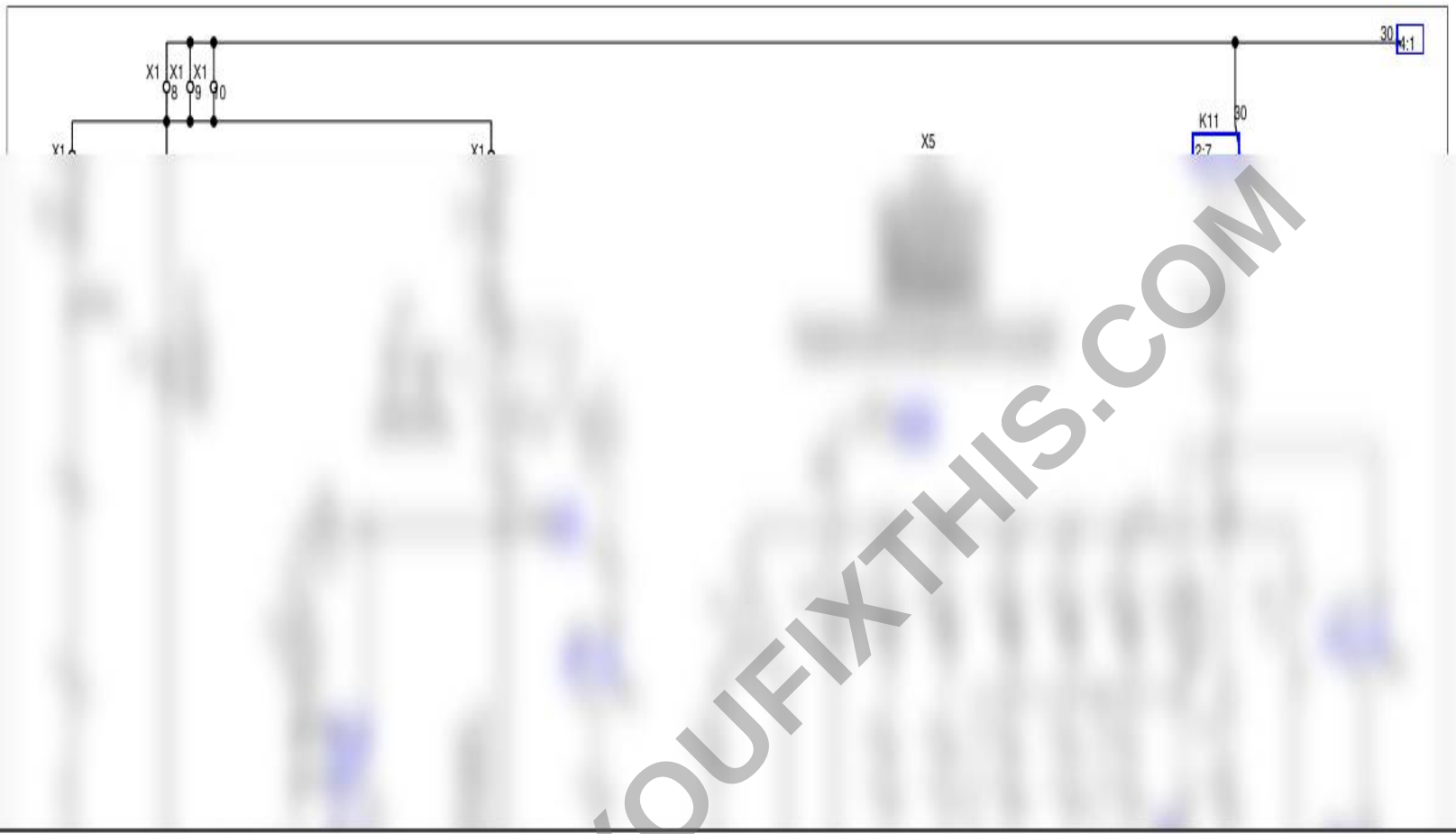
TROUBLE SHOOTING TRAVEL SYSTEM BW 145-FAMILY

POSSIBLE CAUSES	SYMPTOMS	Machine does not drive (in either direction)	Machine drives only in one direction	Machine drives with travel lever in 'neutral' position	Max.Travel speed is not reached	Hydraulic oil too hot					
Bake valve (electrical/mechanical/hydraulical)		1									
Bremse in Fahrmotor / Achse (mechanisch/hydraulisch)		3			2	3					
Speed range selector switch Position /defective/wiring					1						
Charge pump / Charge pressure relief valve(s) ditry/defective		2			3						
Pump control (Servo control)		3	1	2	3						
High pressure cut off/ High pressure relief valves travel pump dirty/misadjusted/defective		3	2		3	3					
Travel cable adjustment				1	2						
mech. Neutral position travel pump				3	3						
Adjustment of actuation kinematics travel pump (DH/PDH only)					2	2					
Travel pump(s) defective		3		3	2						
Qmax-Adjustment Axle drive motor						2					
Qmin-Adjustment Axle drive motor					2	2					
Flushing valve Axle drive motor sticks			3								
Travel Motor(s) defective		3			3						
Hydraulic oil cooler dirty (internally/externally)						1					
Thermostat (Hydraulic) dirty/sticky/defective						2					
Coupling Engine-Pump		2									
Diesel Engine					1						

TROUBLE SHOOTING

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BW 145 D-3	E 1
BW 145 DH/PDH-3	E 3
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Foreword

Reliable construction equipment is of greatest advantage for all parties involved:

- for the customer/user it is a basis for an exact calculation of utilization periods and the completion of projects as scheduled.
- in the rental business it means that the equipment can be reliably used and planned without having to stock a large number of stand-by machines.
- for the manufacturer it means that customers are satisfied, provides him with a good image and gives him a feeling of confidence.

It is BOMAG's philosophy to design and produce the machines with highest possible reliability. This aspect of simple and easy maintenance was one of the key issues when developing and designing the machine:

- the location of components in the machine eases maintenance work,
- the high quality standard of BOMAG is the basis for the considerable extension of the service and maintenance intervals.
- the After Sales Service of BOMAG, including excellent operating and maintenance instruction manuals, high quality training courses and on-site machine demonstrations helps the customer to maintain their machines in good condition over a long period of time.

Permanent training of BOMAG's own service personnel as well as the service personnel of BOMAG Profit Centres and dealers is therefore a general prerequisite for BOMAG's excellent world-wide service.

This program of permanent training is only possible with appropriate and up-to-date training material for trainers as well as persons attending the training courses.

This training manual has not only been written as a support for the professional work of the trainer, but also for the trainees attending these training courses.

The different levels of product training demand, that the training performed by BOMAG, its Profit Centres or its dealers reflects the high quality of the training conducted at the Training Centre at BOMAG in Boppard. For this reason we invested a lot of time in the preparation of these materials .

The structure of this training manual enables us to change or up-date individual chapters in case of alterations to the machine.

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Fuel circuit

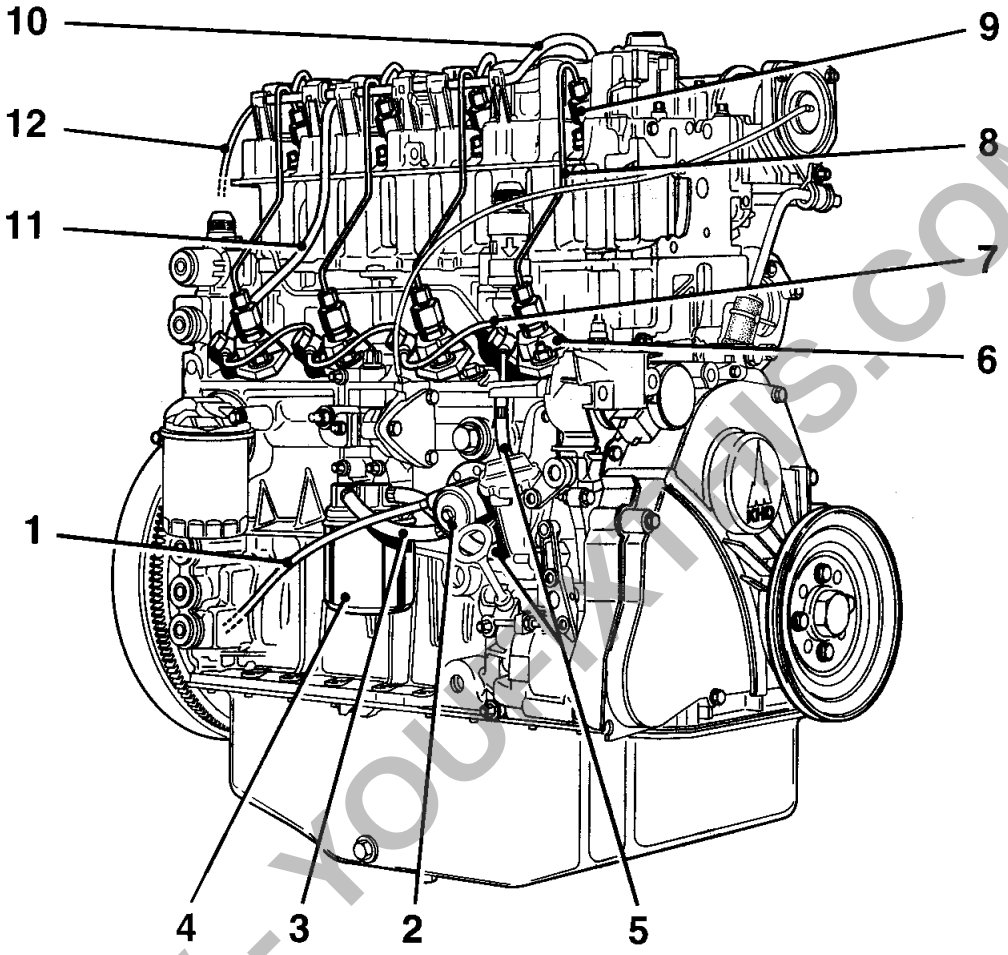


Fig. 4: Fuel circuit

1 Fuel line from tank to fuel lift pump
2 Fuel lift pump
3 Fuel line from fuel lift pump to fuel filter
4 Fuel filter
5 Fuel line from filter to injection pump
6 Injection pumps
7 Fuel distribution line
8 Injection lines
9 Injection valves
10 Fuel leakage line
11 Fuel overflow line
12 Fuel return line to tank

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Fig. 2 Hy

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A flushing valve integrated in the travel motor permanently flushes oil out of the low pressure side into the motor housing, in order to supply the circuit permanently with cooled and filtered oil. The flushed out oil leaves the motor together with the leak oil and flows to the tank thermostat.

Test and adjustment points, travel system

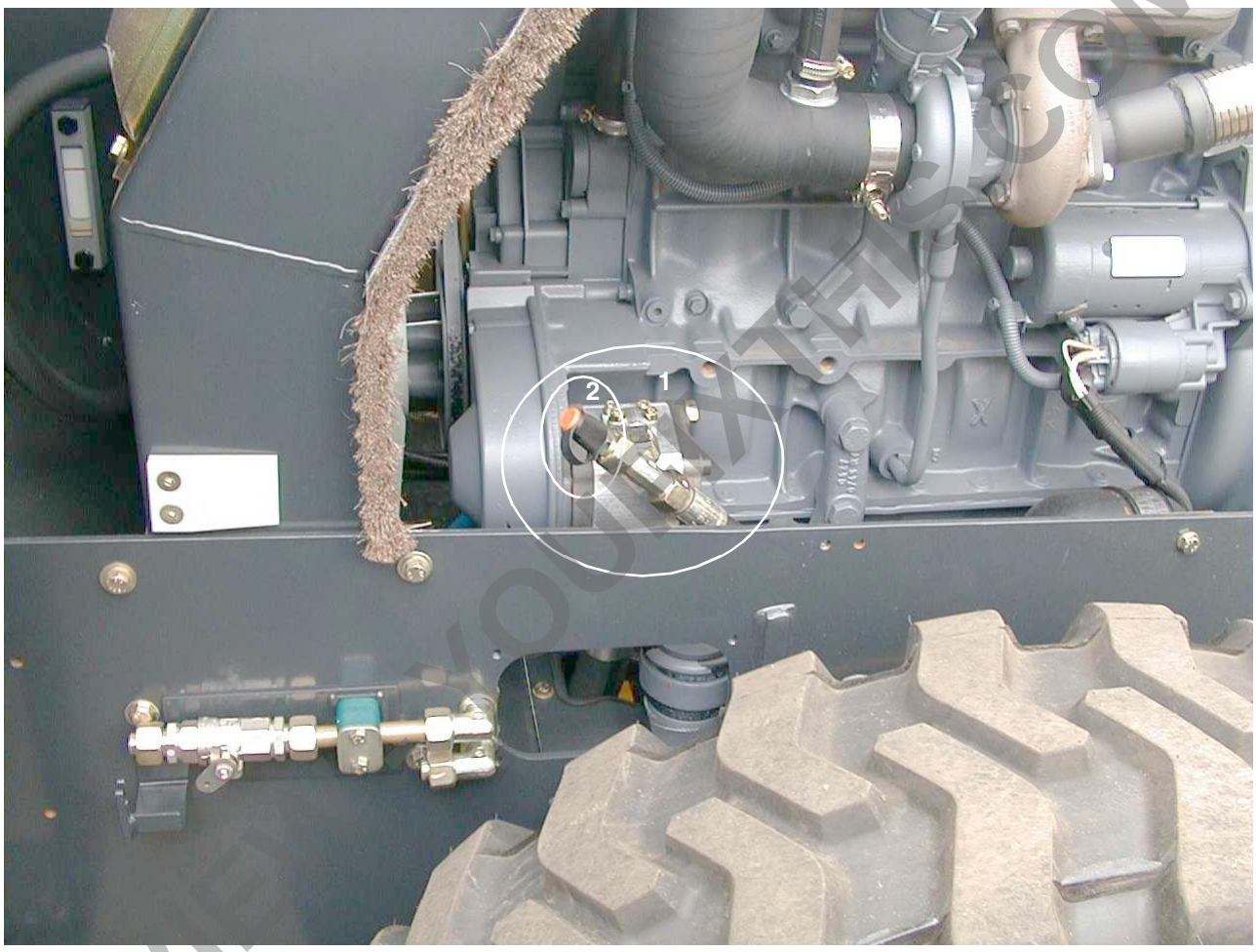


Fig. 15 Charge and steering pump

Pos.	Designation	Pos. in wiring diagram	Pos. in hydraulic diagram	Measuring values
1	Charge and steering pump		09	
2	Steering pressure test port		MB	170 +/- 15 bar

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Pressure relief valves

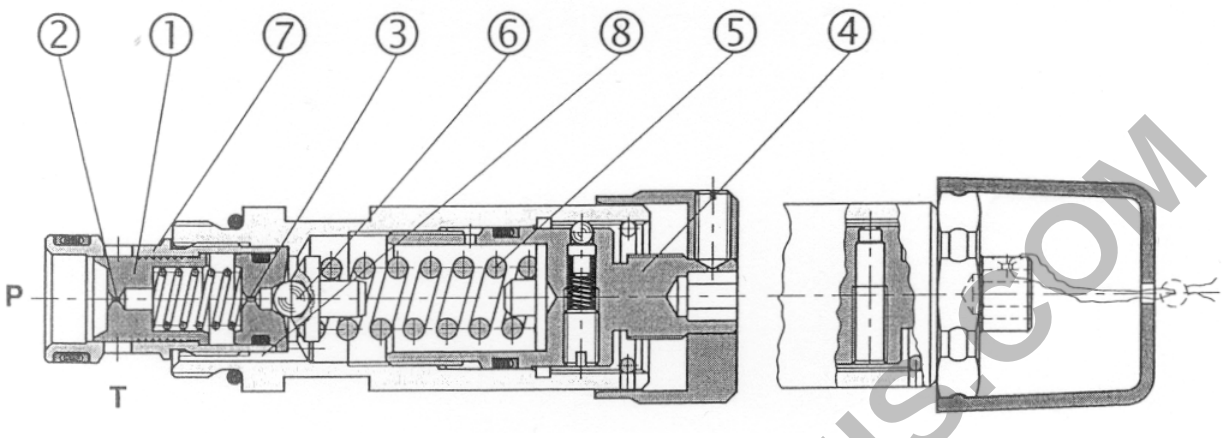


Fig. 4: Primary and secondary pressure relief valve

1 Control piston
2 Nozzle
3 Nozzle
4 Setscrew
5 Spring
6 Ball, pilot control valve
7 Bushing
8 Groove

The pressure relief valves on primary and secondary side are similar in design and pressure setting. These valves are pilot controlled pressure relief valves. The primary valve limits the vibration start-up pressure, the secondary valve protects the system against overpressure when switching the vibration off.

The pressures are adjusted by the setscrew (*Fig. 4, Pos. 4).* If no pressure is applied the valve is closed. Pressure is applied to the front face of the control piston *(Pos.1)* and, at the same time, through nozzle *(Pos. 2)* on its spring loaded back and also through nozzle *(Pos. 5).* on the ball *(Pos. 6)* of the pilot control valve.
When the increasing pressure reaches the value determined by spring *(Pos.5)*, the pilot control valve will open and the pilot oil flow is released. The spring loaded side of the control piston is relieved, the function edge of the control piston opens the radially arranged bores in the bushing *(Pos. 7)* and the oil flows from P to T. The pilot oil is discharged through the groove *(Pos.8)* to port T.

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Electrics

Electric circuit diagrams

Electric circuit diagrams are graphic presentations of control logical conditions in the electric system. They do not contain any information on the type of wiring, their purpose is solely the clarification of control logics. Circuit diagrams are of help when performing trouble shooting and enable the fault free connection during modifications or changes to the electric equipment of the machine.

Structure:

- 1. Table of contents
- 2. Function groups
- 3. List of components

1. Table of contents

The table of contents lists all function groups, component lists and control module presentations of the machine.

The arrangement of all sheets in a sequence results in the total wiring diagram.

2. Function groups

Electric circuits with a function oriented interrelationship are combined on individual sheets (sheet-no.: 1, 2, ...) in function groups (brake, warning systems ...) and subdivided into 10 current paths (along the bottom end of the page). This allows easy tracking of functional interrelationships of the electric circuits.

Arrangement of current paths

The individual current paths must be read as follows:

- from top (plus potential) to bottom (minus potential)
- from left to right (current path 1 to 10, along the bottom of the page, Fig.1)

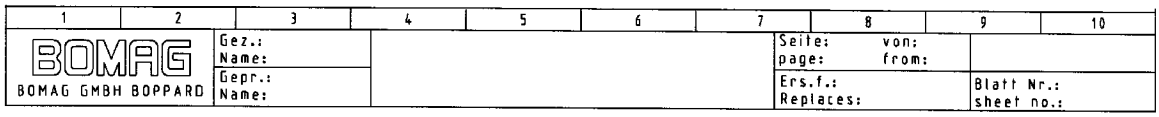


Fig. 1:

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