ELECTRO-HYDRAULIC TORQUE PUMP UNIT

MANUAL

TORC | TECH
GERMANY

Hydraulic electrical pumps have been specially designed and manufactured in accordance with our quality standards and the controls demanded by the ISO 9001 standard. It is important that the machine should only be used under perfect technical conditions and in accordance with the considerations outlined in this manual.

1.0 RECEIVING INSTRUCTION

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

2.0 SAFETY ISSUES

Read all instructions and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. The machine is designed exclusively for the applications described in this manual. The manufacturer accepts no responsibility for damage resulting from any other application or improper use.

CAUTION !

Wear proper personal protective gear when operating hydraulic equipment.

Boots | Helmets | Googles | Gloves | Protective clothing

CAUTION !

Do not exceed equipment ratings. Never set the relief valve to a higher pressure than the maximum rated pressure of the pump. Higher settings may result in equipment damage and/or personal injury. The pump designed for max. 700 bar Pressure [10,000 psi].

CAUTION !

Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose leading to premature hose failure.

- Do not drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.
- Do not lift hydraulic equipment by the hoses or swivel couplers. Use the carrying handle or other means of safe transport.
Protect hoses and cylinders from weld spatter.
- Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin, causing serious injury.

CAUTION !

Keep hydraulic equipment away from flames and heat. Excessive heat will soften packing and seals, resulting in fluid leaks. Heat also weakens hose materials and packing. For optimum performance do not expose equipment to temperatures of 70°C or higher.

CAUTION !

Immediately replace worn or damaged parts by genuine parts. Standard grade parts will break causing personal injury and property damage.

CAUTION !

Only use hydraulic equipments in a coupled system. Never use equipments with unconnected couplers.

CAUTION !

To help prevent pump failure, check hydraulic reservoir fluid level prior to pump operation. If fluid level is low, add recommended oil. Always be sure tools are fully retracted before adding fluid to the reservoir.

NOTE

! Hydraulic equipment must only be serviced by a qualified hydraulic technician. To protect your warranty, use only recommended oils.

3.0 CONTROL

1. Check oil level in reservoir. Oil level should be 2,5 cm below vent/fill plug opening. If necessary, add hydraulic oil to reservoir. You can check the level from oil indicator. In other words, level must be in between the markings on the indicator.

(See figure 2)

2. Vent reservoir by turning vent/fill plug 1 to 2 turn clockwise from fully closed position.

3. Connect pump, hoses and hydraulic tool correctly.

(See figure 4)

4. Be sure the electrical power source is the correct one for your pump (220 V). The higher voltages may damage the engine. (380 V optional)

Figure 1 - Pressure adjustment valve

Figure 2 - Oil indicator & Thermometer

3.1 HOSE CONNECTIONS

1. Couple hoses to pump outlet manifold shown in Figure3. Be sure usable hose never be under 700 bar (10.000 psi).

"A" port (male, nipple) is for advancing and "B" port (female) is for retracting the piston in the torque wrench. Pumps are supplied with the specified coupling halves already connected to the pump ports to prevent incorrect coupling of hoses to wrench.

2. Couple hoses to torque wrench as shown in Figure 4. Lock the rings. When using the Torque pump and torque wrench combination, do not forget that the advance port can only be connected to the wrench advance port, and the pump retract port can only be connected to the wrench retract port.

Figure 3
Pump Connections (A - B)

Torque Pump **Torque Wrench**

Figure 4 - Connection with torque wrench

4.0 OPERATION

1. Check all system fittings and connections to be sure they are tight and leak free.

2. Check oil level in reservoir. (Operating pump without a sufficient amount of oil will damage pump. Add oil only when system components are retracted.

3. Close vent reservoir plug

4. Connect pump to electricity.

5. Press "↑" on the pump switch to turn power on. Pressing the "↑" activates the pump.

If "↑" button is continuously pressed the pump will advance. When you back out pressing button the pump begin retracting.

Operation Principle :

If pressed "↑" button continiously, selenoid valve opens and lets oil to advance A lines. When releasing "↑" button, selenoid valve is closed and the oil in system start to return from B line to oil tank. So, torque wrench act as advance and retract.

Figure 5 - Cable Control

Press ON button "↑" consistently for "Advance". When you release "Advance" and the torque wrench piston will retract. Pressing OFF button "↓" will stop the pump.
(See figure 5)

Figure 6 - Automatic Cable Control

With three switch button you have a choice for automatic operation. If pressed cconsistently this button, the pump will advance and retract automatically.
There is no need to release a button for retracting.
(See figure 6)

4.2 PRESSURE ADJUSTMENT

CAUTION: Make these adjustments before putting torque wrench on nut or bolt head. The pump pressure setting may be above the pressure needed to provide the required torque for your application. Exceeding required torque will cause equipment damage and may lead to serious personal injury.

1. The pump is supplied with a pressure gauge installed. See torque wrench instructions for amount of pressure required to produce desired torque.
Note that the maximum pressure varies for different wrenches and accessories.

2. Loosen locknut and back out relief valve to prevent unintended pressure build-up. ***(See figure 1)***

3. Turn the pump on.

4. Press and hold the "Advance" pushbutton and read pressure gauge

5. While holding the "Advance" pushbutton, turn relief valve in (clockwise) to increase pressure. To decrease pressure, completely empty the valve and turn relief valve in clockwise again until the desired pressure obtained.

6. Tighten locknut on relief valve to maintain setting.

7. Run the pump several times to test the pressure setting.

4.3 AIR REMOVAL

When the wrench is first connected to the pump, air will be trapped in the components. To ensure smooth and safe operation, remove air by cycling wrench several times without load. Cycle until wrench advances and retracts without hesitation. Check oil level before operation.

NOT: Perform "Pressure (Torque) Adjustment" and "Air Removal"

1. During initial operation or start-up.
2. When connecting a different wrench to the pump.
3. When changing torque value (relief valve adjustment only).

5.0 AFTER OPERATION

1. Switch off the motor by using remote control ***(See figure 5)***

2. Be sure that the hydraulic pressure has been released. After switching off, wait until oil pressure goes down to zero.

3. Disconnect pump from electricity

4. You can disconnect the twin hose.

6.0 MAINTENANCE

6.1 OIL ADDITION

Check reservoir hydraulic oil level every 30-35 hours of operation. Add hydraulic oil when necessary.

6.2 OIL CHANGEMENT

Completely drain the reservoir after every 100 hours of operation. If pump is operated in very dusty areas or at high temperatures, drain and refill after 50 hours of operation.

1. Remove the vent/fill plug from reservoir.

2. Tip the pump until all old oil has drained out.

3. Add new hydraulic oil through vent/fill opening until the oil level is 2,5 cm below the vent/fill opening. You can check the level from oil indicator. ***(See figure 2)***

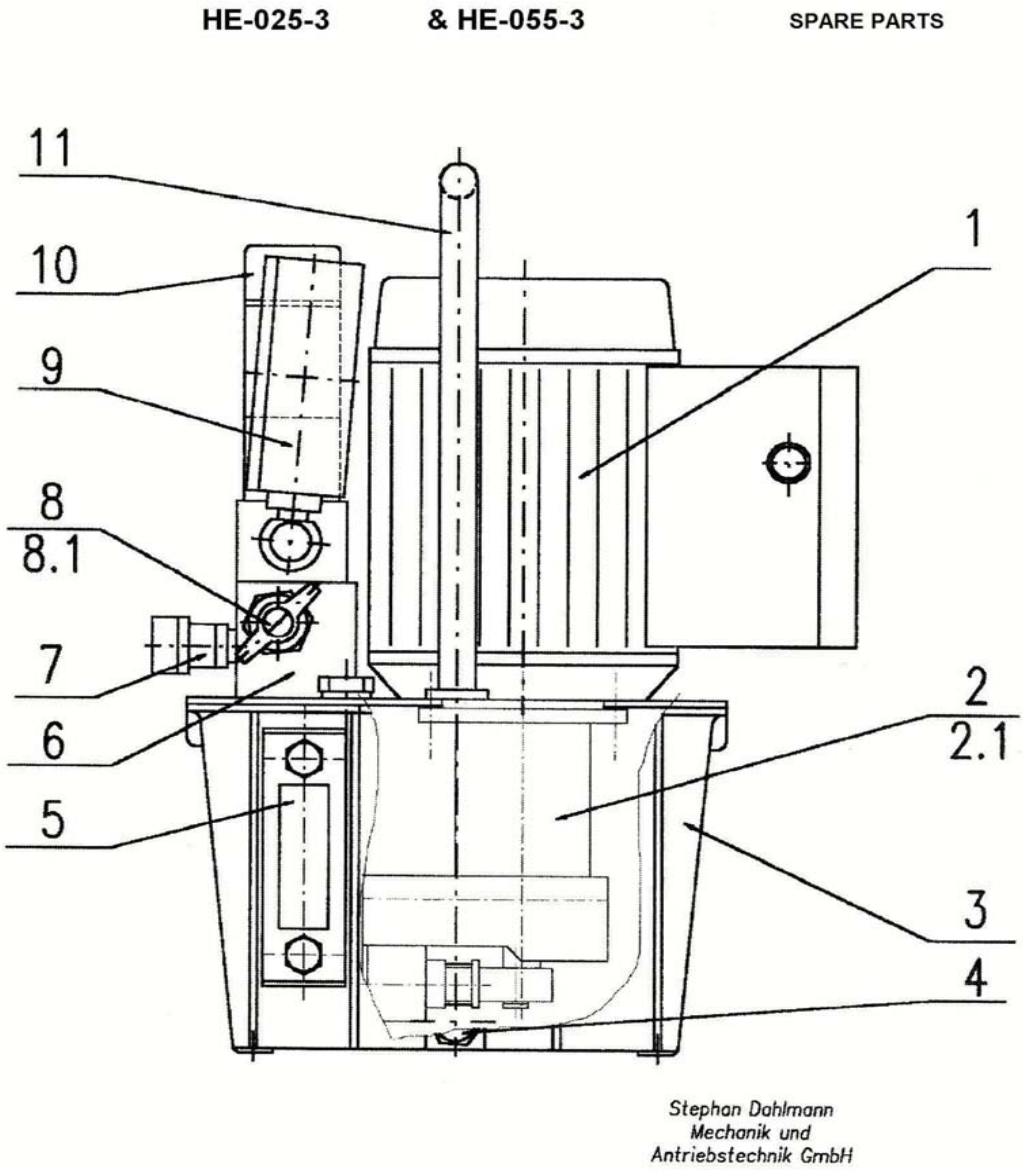
4. Replace the fill plug.

5. Dispose of used oil properly.

7.0 TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Motor current draw is excessive.	1. Defective motor.	1. Remove the motor. Test and replace if necessary.
	2. By-pass valve malfunction.	2. Inspect and test the by-pass valve if required. Valve is preset. If damaged or incorrectly set, replace.
	3. Damaged or worn piston blocks.	3. Test and inspect the piston blocks. Replace if necessary.
Noisy pump operation.	1. Piston blocked or piston sticking. Springs or balls damaged.	1. Remove the piston blocks. Inspect and replace as required. Each piston block is non-serviceable.
Pump fails to maintain pressure.	1. Oil leaking from one or more components within the reservoir.	1. Remove the pump from the reservoir and perform the back pressure test. Contact service for test procedure.
Low oil output.	1. Pump component parts leaking.	1. Perform the back pressure test to isolate leaks.
	2. By-pass valve may be malfunctioning.	2. Test and inspect by-pass valve. Replace and set if necessary.
	3. Oil intake screens on piston blocks may be clogged with debris.	3. Flush all components of contamination. Replace damaged components.
	4. Low oil level.	4. Fill reservoir to proper level.
Pump builds pressure slowly or erratically.	1. Internal leakage in valve.	1. Disassemble valve and replace worn or failed parts.
Pump is overheating.	1. Nylon tubing to heat exchanger is disconnected	1. Reconnect nylon tubing under pumping unit. Tubing will click into place when it is properly connected.
	2. Thermostat malfunctions	2. Replace the thermostat.

REFER TO TORQUE WRENCH INSTRUCTIONS FOR WRENCH OPERATING PROCEDURE!



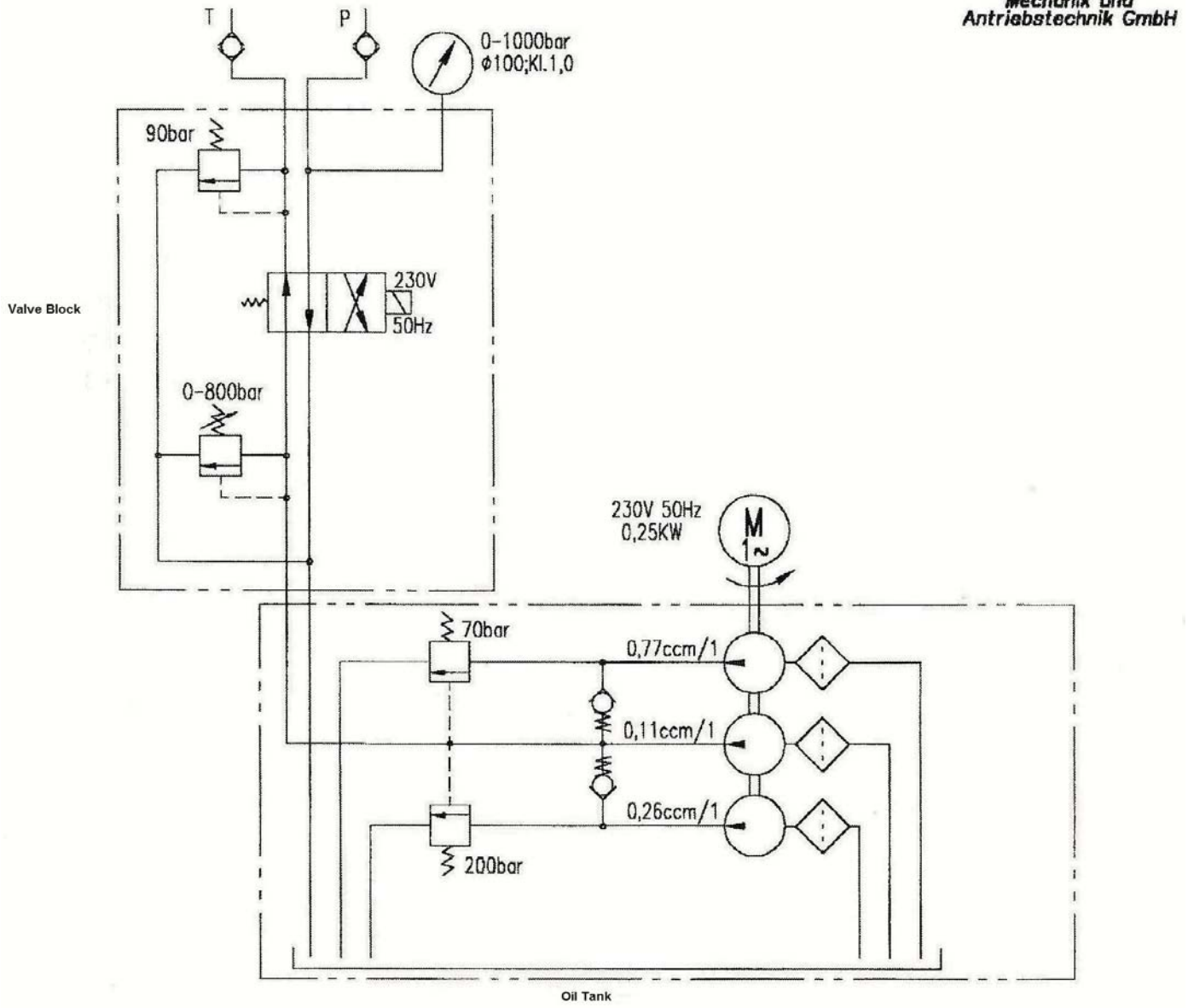
NO	PART NAME	PART NUMBER
1	Elektro engine with steering	ECS63G2-230-50 k
2	Pump unit (completely)	KP301-230
2.1	Wear set for pump unit	VS KP301
3	Oil tank incl. gasket	AB 3,5 D GK
4	Drain plug	GN740-G1/4
5	Oil indicator with thermometer	GN650-76-B
6	Valve block completely	MI 230V 800bar
7	Coupling connection set	Cejn 115
8	Pressure relief valve	MVE4AR-800
8.1	Pressure relief valve (changeable)	MVE4AR-800 AT
9	Manometer (gauge)	NG100 1000b KI1,0
10	Selenoid valve	WG4-1 R WG230V
11	Protection and carrying handle	TR DKW 3,3

8.0 RECOMMENDED HYDRAULIC OILS

Mobil	DTE 13M /15M /16M
Mobil	DTE 24 / 25
Shell	Tellus 32 / 37 / 46
Shell	Tellus S46
Shell	Morlina 22 / 32 / 46
Petrol Ofisi	Hydro_Oil HD serisi 32
Petrol Ofisi	Hydro_Tech HVI serisi 32 /37
BP	Energol SHF-HV 32 / 46
Castrol	Hyspin AWH-M 32 / 46

HYDRAULIC PLAN

Stephan Dahlmann Mechanik und Antriebstechnik GmbH



ELECTRICAL PLAN