

Operating Manual for EPT 4 pumping unit, road tractor with V330 electric distributor

Index of contents

1.	Safety instructions	2
2.	Operation.....	3
3.	Warnings/Faults	4
4.	Fault memory read out	4
5.	Overview of fault codes.....	6
6.	Fuses for the pump system	7
7.	Maintenance instructions for the EPT4 system	7
8.	Important NOTE generator.....	8

1. Safety instructions

- 1.1. All work on the system, especially safety-relevant work, must always be carried out in a qualified specialist workshop. The workshop must have the necessary specialist knowledge and tools to carry out the necessary work.
- 1.2. Repairs to the generator, associated wiring and the safety devices of the system may only be performed by a qualified electrician.
- 1.3. An electrical system with hazardous voltages is associated with special potential hazards that can cause serious injury. Any improper repairs to the system can lead to serious accidents.
- 1.4. The electrical system must be regularly checked for safe operation. The respective country-specific standards and laws must be observed.
In particular, these include, e.g.: the technical regulations for operational safety TRBS 1201 (testing of work equipment and systems requiring monitoring), DIN VDE 0105-100 (testing of electrical and operating equipment), DIN VDE 0701-0702, BGV A3 (accident prevention regulations for electrical equipment and operating equipment). Appropriate inspection intervals depending on use and risk assessment shall be determined by the operator.
- 1.5. During operation, the applicable safety regulations must be observed both from the legal side as well as from the operators. Country-specific regulations must be observed. This applies in particular to applicable operational safety regulations as well as specific requirements at the loading and unloading points. Damage and malfunctions must be rectified directly by a qualified specialist workshop. Defective cables, plug-in devices etc. are immediate cause for the operator to switch off the system.
- 1.6. Operation with a damaged or non-lubricated Cardan shaft at the secondary output can in extreme cases lead to mechanical damage by tearing the joints. Maintenance instructions for the Cardan shaft must be observed.
- 1.7. Ensure that there are no unauthorized persons in the vicinity of the vehicle during pump operation.
- 1.8. If attachments on the vehicle are removed or altered, care must be taken to ensure that corresponding protection is provided in the vicinity of the Cardan shaft.

- 1.9. Please use only original spare parts. If you don't use them, a proper operation cannot be guaranteed.
- 1.10. No additional attachments may be attached to the EPT4 unit; always use direct frame mounting or similar one.

2. Operation

- 2.1. Apply the parking brake.
- 2.2. Switch on ignition; lamp test is conducted (one red warning light for immobilizer, one yellow warning light for isolator).
- 2.3. Depending on the design, the diesel engine and auxiliary output can either be switched on from the control panel of the trailer or must be switched on manually according to the manufacturer's specifications. The ballast must be switched on the dashboard according to the adhesive label. Depending on the manufacturer, the ballast is automatically switched to the programmed group. Engage the clutch slowly.
- 2.4. With automatic gearboxes, the power take-off (PTO) is switched on after approximately 6 seconds and the ballast is switched to the dashboard according to the adhesive label or automatically switched to the programmed group.
- 2.5. After switching on the PTO, the accelerator pedal and the cruise control can no longer be operated. The function is locked in the secondary mode for most manufacturers.
- 2.6. Conduct further tanking operations according to the operating instructions of the operator/tank manufacturer.
- 2.7. Exception for the model Mercedes Benz Actros 5: The activation of the PTO via the touch symbol on the MB display is deactivated. The activation is only possible with the additional mounted hardware switch.

3. Warnings/Faults

- 3.1. If the insulation resistance of the generator or of the cabling (resistance value $<85\text{ k}\Omega$) deteriorates, this is indicated to the driver by the flashing of the ISO indicator light. The dispensing system is still ready for use in this case, but it should be checked promptly in a specialist workshop. If the ISO indicator light is permanently lit, the insulation resistance of the generator system is no longer sufficient (resistance value $<46\text{ k}\Omega$). In this case, the generator is no longer ready for use. When the secondary output is engaged, the diesel engine is switched off immediately to prevent operation. Insulation resistance can be read on the display of the -F11 device on the V330 distributor with the ignition switched on.
- 3.2. If the diesel engine is switched off when the power take-off is switched on or during the unloading of the tank, this can have the following causes:
 - 3.2.1. Emergency stop button on trailer actuated (remedy: pull out emergency stop button)
 - 3.2.2. Insulation monitor has tripped (remedy: contact specialist workshop)
 - 3.2.3. Line circuit breaker has tripped (remedy: consult the workshop or have a circuit breaker inserted by an electro-technical specialist)
- 3.3. For further possible causes please check the readout of the fault memory, as described in chapter 4 and chapter 5.

4. Fault memory read out

- 4.1. All vehicles have a V330 electrical distributor attached to the EPT4 attachment unit. This has an integrated fault memory read out, which records all fault conditions of the sampling system. Depending on the design, all faults can also be read in the control panel in the dashboard, which should be the preferred method.

To read the last fault state, proceed as follows:
- 4.1.1. Stop the vehicle, apply the parking brake, turn on the ignition. Please wait for the lamp test of the immobilizer and insulation monitor lights. After this, it is possible to display the error code on the red WFS indicator light as a flash code by switching the switch for the dashboard lighting on and off twice.

- 4.1.2. Successful entry into the fault memory is announced by a single sounding of the buzzer. The last fault is now signaled by a flashing code of the red WFS indicator light (immobilizer). If several errors have occurred simultaneously, the different blinking codes follow one after the other. If, in the meantime, the vehicle is started, the power take-off (PTO) is engaged or the parking brake is released, the fault memory switches off.

5. Overview of fault codes

Error code corresponds to the number of flashing frequencies of the red WFS indicator light.

Faultcode (red WFS indicator light)	Meaning	Cause / Action
1	Insulation monitor triggered	<ul style="list-style-type: none">• Generator insulation resistance or connected cabling very low. System is switched off. Insulation resistance can be read on the display of the -F11 device on V330 distributor with ignition switched on.
2	Circuit breaker tripped	<ul style="list-style-type: none">• -F10 circuit breaker in V330 distributor tripped due to short circuit or overload
3	Trailer Emergency-OFF actuated	<ul style="list-style-type: none">• Check the emergency-off switch on the control panel of the trailer; Please pull out if pressed in
4	Truck Emergency-OFF actuated	<ul style="list-style-type: none">• Special equipment!• Check the emergency-off switch on the truck. Please pull out if pressed in.
5	PTO feedback is interrupted	<ul style="list-style-type: none">• PTO fault acknowledgment, possibly transmission circuit is defective, contact a specialist workshop
6	Diesel control interrupted	<ul style="list-style-type: none">• Problem with steering the vehicle, contact a specialist workshop
7	Generator overtemperature	<ul style="list-style-type: none">• Special equipment• Switch-off by evaluating the internal temperature monitoring of the generator. Allow the generator to cool down and restart the system
8	Group faults	<ul style="list-style-type: none">• CAN communication error, device error. Visit a specialist workshop.

6. Fuses for the pump system

- 6.1. The main fuse for the voltage supply of the EPT4 pump system is located in the battery box, depending on the vehicle version. Either this is designed as a screw-in or plug-in fuse in the battery box or as a junction box on the power distributor in the area of the vehicle battery.
- 6.2. The subfuses are all located in the V330 distributor. The distributor is mounted on the EPT4 unit. The fuses are labeled.

7. Maintenance instructions for the EPT4 system

- 7.1. Important instructions for the maintenance of the PTO Cardan shaft: the Cardan shaft must be lubricated with a lithium-saponified grease of consistency class 2 with 265/295 penetration and a drop point at approximately 180 ° C. The lubricants must not contain MoS₂ additives.
original grease: Shell Gadus S3 V220C 2
If the Cardan joints are lubricated with a different type of grease, the manufacturer warranty is invalidated.
- 7.2. Lubrication intervals:
Due to very different operating conditions, a sensible relubrication interval can vary in principle. We recommend a lubrication interval of 4 weeks. Depending on the average condition (the amount of required grease during re-lubrication), it may be necessary to shorten this interval. Conversely, depending on the application profile, an expansion over a longer period of time can also be completely sufficient. Therefore the Cardan shaft must be regularly checked for sufficient lubrication and, if necessary, the interval must be adjusted.
- 7.3. Lubrication:
Each Cardan shaft has 3 lubrication points (joint at the fixed flange and on the sliding flange as well as on the sliding coupling). Clean the lubricating nipples before greasing! The needle and roller bearings must be lubricated until the used grease visibly exudes from the seals. Do not cause any pressure surges during lubrication to avoid damaging the seals. The maximum pressure is 20 bar.

7.4.

Wear:

Wear and tear on the Cardan shafts is normal and can only be minimized by regular maintenance. Therefore, the Cardan shaft must be checked for play in the cross joints and the sliding part at each relubrication interval. If the play is palpable, replace the Cardan shaft (assessment by specialist workshop). The assembly may only be performed with suitable 10.9-grade hexagonal screws and 10-grade hexagon nuts. The screws and nuts must be replaced.

7.5.

Gear lock:

The vehicle must have a gear lock, which prevents the driver from engaging the driving gear and the PTO gear at the same time. If the vehicle is not equipped with a gear lock, the driver must ensure that the PTO gear is switched off after the tank has been unloaded. If this is not done, considerable damage to the PTO, the Cardan shaft and the generator can be expected in short time.

7.6.

Visual inspection of electrical cables/connectors, etc.:

At regular intervals, the electrical cables, in particular the cables with a dangerous voltage (> 50V) and plug-in connections, must be subjected to a visual inspection. Attention must be paid to any damage to the insulation, porous areas and cracks in housings. In addition, the safety instructions in point 1.4 must apply.

8.

Important NOTE generator

8.1.

Do not drive through water deep enough to cover the generator. In such cases, the generator will be dampened internally and can no longer be used. If this is unavoidable, the generator must then be removed, disassembled, and dried.

Created		Revised		Approved		Version
By	Jens Stötzel	By	Jens Stötzel	By	Jens Stötzel	01.03
On	07.11.2016	On	28.01.2021	On	28.01.2021	