

Operating Instructions for the HYB-XT Unloading system, Tractor Unit with V340 Electrical Distributor

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1. Safety instructions

- 1.1. Only allow a qualified, specialized workshop to work on the system, especially when the work is related to safety. The workshop must possess the required specialized tools and knowledge to perform the required work.
- 1.2. Hydraulic systems are subject to special potential hazards. Media under pressure can cause serious injuries. The medium can escape from pinholes in hydraulic hoses or similar pressurized parts and enter the body. Never touch hoses under pressure in any case. If an accident should occur in which the medium enters the body, contact a doctor immediately.
During operation, the applicable legal safety regulations as well as the safety regulations specified by the operator must be followed. Country-specific regulations must also be followed. This applies in particular to the German Ordinance on Industrial Safety and Health (BetrSichV) as well as the special requirements for loading and unloading stations.
Damage and malfunctions must be remedied immediately by a qualified specialized workshop. Oil leaks and damaged hydraulic hoses or couplings must be repaired or serviced immediately. Oil leaks can cause serious damage to the environment.
- 1.3. Make sure that no unauthorized persons are located near the vehicle while the pump is in operation.
- 1.4. You absolutely must use original spare parts for repairs. If non-original spare parts be used in spite of this, then proper function cannot be guaranteed.
- 1.5. No additional parts may be mounted on the HYB-XT unit. Please always mount additional parts directly on the frame or a similar location.
- 1.6. When operating the HYB-XT system, always make sure that all hydraulic couplings are tightly connected. If there are any couplings that are not connected tightly enough, then proper operation cannot be guaranteed.

- 1.7. **Soft start:**
A soft-start valve is integrated into the system. The valve ensures the oil is pumped gradually at the start and prevents massive hydraulic shocks upon startup that can cause damage to the power take-off and vehicle transmission.
A defective valve can cause severe mechanical damage. It is also possible for the cryopump to start up uncontrollably.
Do not use the system any more if the soft-start valve is faulty or malfunctions and take the vehicle to a workshop!

2. Operation

- 2.1. Engage the parking brake.
Turn the ignition on. The lamp test is executed (1 red indicator lamp for the electronic immobilizer).
Depending on the type of vehicle, this indicator lamp may also be integrated into the instrument panel.
- 2.2. Depending on the version, the diesel engine and power take-off are either switched on in the control box of the trailer or need to be switched on manually according to manufacturer's instructions. The splitter group must be switched according to the adhesive label on the dashboard. Depending on the manufacturer, the splitter group is switched automatically in the programmed group. Slowly engage the clutch.
- 2.3. In automatic transmissions, the power take-off is enabled after 6 seconds and the splitter group is switched according to the adhesive label on the dashboard or is switched automatically in the programmed group.
- 2.4. You may not press the accelerator pedal or the cruise control switch after switching on the power take-off.
- 2.5. Perform the rest of the unloading procedure according to the operating instructions of the operator/tank manufacturer.
- 2.6. Special note regarding the Mercedes Benz Actros 5: The touch power take-off switch on the MB display is deactivated! It can only be activated using the additionally installed hardware switch.

3. Reading the fault memory

All vehicles have a V340 electric distributor on the HYB-XT mounted unit. This unit has an integrated fault memory that stores all fault conditions of the unloading system. Depending on the version, it may also be possible to read all fault messages on the operator display panel in the control compartment. This is the preferred method.

To read the last fault recorded, please proceed as follows:

- 3.1.1. Park the vehicle, engage the parking brake, and switch off the power take-off.
- 3.1.2. Close the tailgate of the trailer/box
- 3.1.3. Turn on the ignition and wait for the lamp test to complete.
Turn the switch for the control compartment lighting on and off again two times.
This switch must be turned on and off again twice within 3 seconds.
- 3.1.4. After activating by pressing the switch, a warning buzzer will sound for about 1 second.
The last fault is now indicated by the blink code displayed by the red indicator lamp for the immobilizing system (see the table in chapter 4). If more than one fault occurs at the same time, then the fault with the highest value is displayed.
- 3.1.5. The fault memory can be read out repeatedly as many times as you want as long as the vehicle is standing still (parking brake is engaged) and the tailgate is closed.

4. Overview of fault codes

Fault code (red indicator lamp(s))	Meaning	Cause/Action
1	Oil level in hydraulic system below minimum	<ul style="list-style-type: none"> Hydraulic system lost oil Check the oil level on the display in the oil tank according to section 6.1.2; eliminate leakage
2	Not used	
3	Return oil filter dirty	<ul style="list-style-type: none"> Replace the dirty filter cartridge; Eliminate the cause of the dirty filter See section 6.1.4 and 6.2.3
4	Temperature monitor 90°C	<ul style="list-style-type: none"> Hydraulic oil temperature too high; Let the system cool down See section 6.1.3 and 6.2.2
5	Emergency stop on control box in the trailer/tanker was triggered	<ul style="list-style-type: none"> Pressure switch of leak oil circuit triggered: Check the leak oil connection between the tractor unit and trailer Leakage in the area of the hydraulic motor: Check/eliminate the leak Emergency stop button on the control box was pressed

5. Unloading system fuses

- 5.1. The main fuse for the power supply of the HYB-XT pump system is located in/on the battery box depending on the type of vehicle. The fuse is either designed as a screw fuse or a plug fuse in the battery box or is mounted as a connection box on the power distributor near the battery of the vehicle.
- 5.2. The subfuses are all located in the V340 distributor. The distributor is mounted on the HYB-XT unit under the top cover. The fuses are labeled.

6. Possible faults of the HYB-XT unloading system

- 6.1. The diesel engine is turned off after switching on the power take-off.

- 6.1.1. The indicator lamp for the parking brake does not light up.
Cause: Control switch defective.
Solution: Take vehicle to a workshop, check control devices.
- 6.1.2. Oil level in the oil tank is too low.
Check the fill level on the hydraulic tank.
The upper sight glass should be filled up to the middle.
The specified fill levels apply when the oil is cool (ambient temperature), the power take-off is switched off, and the vehicle is horizontal!
A lower oil level is normal when the power take-off is running, and the oil level is higher when the oil is warm.
Cause: Hydraulic system leaks (loss of oil).
Solution: Take vehicle to workshop; eliminate the oil loss, refill with oil (only use the specified type of oil), see section 7.1.
- 6.1.3. Shutdown due to temperature sensor:
Cause: Temperature sensor or the related evaluation unit is defective.
Solution: Contact a workshop.
- 6.1.4. Shutdown due to differential pressure switch being switched continuously by the return filter.
Cause: Oil filter is very dirty or the differential pressure switch is defective. The LEDs on the connector indicate whether or not a differential pressure switch has actually switched (when the ignition is switched on).



Pin 4: Differential pressure switch triggered
Pin 2: Differential pressure switch OK

Solution: Contact a workshop.

- 6.2. Diesel engine shuts down during the unloading process.
- 6.2.1. Oil level in the oil tank is too low. Note the information under 6.1.2.
- 6.2.2. Temperature evaluation unit has switched the system off.
(Depending on the equipment features, the temperature value of the oil is displayed in the control box.)
- 6.2.2.1. Cause: Temperature of the hydraulic oil too high (higher than 90°C);
Outside temperature is very high combined with simultaneous operation under full load over a longer period of time.
Solution: Let the hydraulic system cool off for a while. To let it cool off, start the diesel engine, engage the power take-off, and let the oil cool down.
- 6.2.2.2. Cause: Fan drive of the heat exchanger is not working properly;
Solution: Check the fuse for the fan drive and replace if necessary. If the fan drive is defective, contact a workshop. When this fault occurs, the unloading system is still operable to a certain extent, but the system may shut down several times during the pumping operation due to overheating.
- 6.2.3. Differential pressure switch of the return filter has switched:
Cause: Filter is extremely dirty.
Solution: Do not operate the unloading system anymore. Take the truck to a workshop and have the hydraulic system checked.
- 6.3. After turning on the ignition, the lamp test is not executed and the unloading process cannot be started:
Contact a workshop.

7. Maintenance instructions for the HYB-XT system

- 7.1. Check the oil level in the hydraulic oil tank regularly (at least weekly). The vehicle should be parked on a level surface and the oil should be at ambient temperature before checking the oil level. The power take-off must not be engaged.
When the oil level is optimal, the upper sight glass should be half full.
Never put too much oil in the oil tank. At higher operating temperatures, the oil could leak out of the vent cap.

Use only approved types of oil:

- Shell Tellus STX32
- Shell Naturelle HF-E 46 (provided that a biodegradable oil is required)

No other types of oil may be used, and the oils listed may not be mixed together.

7.2.

Gear lock:

The vehicle must be equipped with a gear lock that prevents a driving gear and the power take-off from being engaged at the same time.

If the vehicle does not have a gear lock, then the driver must make sure that the the power take-off is switched off after the unloading process has completed. If the power take-off is not switched off, then substantial damage to the power take-off, drive shaft, and hydraulic pump can be expected.

7.3.

Visual inspection of the hydraulic hoses and threaded connections:

The hydraulic hoses, and especially the drop hoses, must be subject to a visual inspection at regular intervals. During the inspection, check for abrasion, porous areas, corrosion, and leaks.

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