

**Operating manual
for rear tipping bodies
S1**

Abridged instruction for driver



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Dear customer,
thank you for Your decision and congratulations on Your purchase
of the vehicel/tipping body of the brand VS-mont.

VS-mont

Operating manual for rear tipping bodies S1

Type VSPN, variant S1

The tipping platform VSPN S1 is designed for transport of various types of material with the possibility of one-way tipping. Tipping of the loading area is provided by a hydraulic system from the company HYVA (or by other producer).

Connection of the hydraulic system with a description of constituent components is on the picture 1 - standard tipping set S1 – type: KICZ-0301

TIPPING AND LOWERING OF THE LOADING AREA.

Before tipping the loading area, ensure your own view on the process of tipping and do not rely on other people. Before tipping the loading area, make sure, that nobody is in the working space of the tipping device (also in case of turning over). Beware of instability of the vehicle due to the contents sticking or freezing, or uneven distribution of the load. The base on which the vehicle is standing during tipping, must be stable and the vehicle must stand firmly on the ground in all directions. During tipping on a hill, the vehicle must always stand, it means when tipping backwards and to the sides, inclined with the cabin uphill or downhill and its axles must stand horizontally, to avoid any pressure on the tipping cylinder from the sides.

ATTENTION when tipping backwards:

- a) when the vehicle is in a position with the cabin facing downhill, there will be problems with unloading the load by tipping backwards (in regard to the horizontal plane the angle will be small and the cylinder will be weak) or
- b) when the vehicle is in a position with cabin facing uphill, during tipping it is necessary to finish tipping of the loading area before the cylinder reaches the lifting limiter (otherwise the vehicle will overturn).

High speed of the engine during tipping can cause the cylinder to eject at high speed and therefore it will be damaged.

It is generally valid, that the transfer from the pump to

(see the label on the vehicle) PTO = 0.8 max. allowed revolutions can be 1500

1 max. allowed revolutions can be 1200

1.2 max. allowed revolutions can be 1000

If it is necessary due to releasing of the load from the loading area, the vehicle can be slowly moved, max. 2 - 3 m, during tipping with the loading area in the upright position, but the driver must not jerk the vehicle i.e. accelerate quickly and brake sharply.

- **Always** check and grease all hinges and pistons during regular technical inspections. Make sure, that all hose connections are in good condition and liquid does not leak. Hydraulic liquid can cause health problems, endanger environment and must not leak from closed system.
- **Always** check, if hydraulic hoses are not swollen and if they do not rub against bodywork.

FOR LIFTING AND LOWERING THE SUPERSTRUCTURE, IT IS NECESSARY TO USE THE FOLLOWING PROCESS:

1. Switch on the hydraulic pump using the PTO switch (picture 1) located in the driver's cabin. Clutch pedal must be pressed down when the pump is being switched on and off.
2. After switching on the pump and using the pneumatic control for lifting and lowering (see picture 2), which is placed in the driver's cabin, it is possible to control the lifting and lowering of the loading area. Individual directions are marked directly on the control.

3. The final position when the loading area is lifted, is secured with a final switch, which is located next to the hydraulic cylinder. After pressing the switch with the hydraulic cylinder, lifting of the loading area will be stopped.
4. During lowering of the loading area, it is possible to affect the speed of the descent of the loading area with a proportional valve. Switch off PTO. Slowly switch the control to the 'lowering' position. When the bed descends into the support frame, wait approximately 1 minute before switching the control to the "neutral" position.
5. Before each journey, it is necessary to perform a visual inspection of the following: check the tyres and the state of depreciation, all of the nuts must be tight, check the support frame and superstructure, their entire condition, cracks and other marks of depreciation, tighten each individual closure, moveable parts and places where equipment is fitted. Apart from these, check also the hydraulic cylinder, air distributions and hydraulics, check the pressure and level of loudness to ensure, that air is not escaping and oil is not leaking from under the vehicle.

ABRIDGED INSTRUCTION FOR DRIVER

1. Operating instruction

1.1 PTO (Power Take Off = secondary drive from the gearbox)

Tip: If there already is PTO from the production on your vehicle, then check the user manual or consult it with the manufacturer.

The PTO drives the pump and so the whole hydraulic system. Normally it is pneumatically (airpressure) controlled and has two positions

0 – off 1 – on

In the "on" position the PTO and pump are activated. Control lamp on the control is on.

! ATTENTION: The PTO must be switched on, when the car is not moving.

I. Switch on the PTO

Every vehicle manufacturer has the switch on of PTO, in the most cases it is located direct on the vehicle dashboard (example picture 1)



Picture 1 – original switching on the PTO

Stop the vehicle into the parking position. Put the gearbox in neutral position. Press the clutch and wait about 5 seconds. Check if the indicator lamp illuminates and slowly release the clutch pedal. The PTO is now switched on.

! WARNING: Do not drive with the PTO switched on.

II. Switch off the PTO

With the tipping control in neutral position, press the clutch. Switch off the PTO by switching the lever to the required position. The indicator lamp switches off. Slowly release the clutch. The PTO is now off.

1.2 Unsecuring, securing and lifting the tailgate

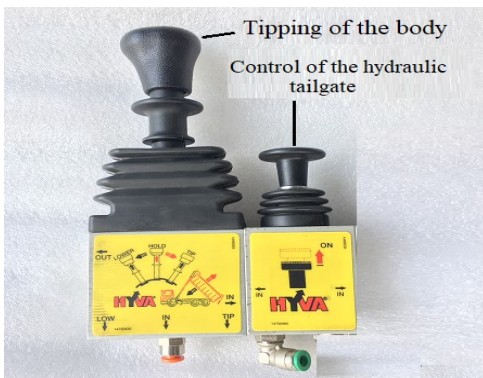
The tipping bodies VS-mont can be equipped with:

„**Mechanical**“ - automatic unsecuring of the tailgate – the tailgate is unsecured automatically by lifting the body and it secures automatically by tipping the body. The tailgate opens and closes by gravity - „**PENDEL**“.

„**Hydraulic**“ - lifting of the tailgate, here it is necessary to unsecure the tailgate before tipping backwards and to lift the tailgate by means of pneumatic HYVA control, located near to the driver's seat (picture 2), or by means of electric switch located on the dashboard (picture 3) and after the tipping we let the tailgate to descend and secure by means of this control.

The tailgate in this design is lifted and closed forced – hydraulically.

„**Chain**“ - lifting of the tailgate – the tailgate is constructionally designed similar as by the hydraulic opening, but it is opened and closed automatically – by means of connecting chains (ropes).



Picture 2



Picture 3

The tipping body can be equipped with a „VIBRATOR“ (surcharge equipment), which helps to empty the sticky material. It is controlled by means of a button switch on the dashboard (pict. 3).

ATTENTION: The vibrator shall not be switched on for more than 5 seconds in one cycle (on one push), otherwise the body and the vibrator may be damaged. Use only when necessary.

Lifting the body

Switch on the control of the body (picture 2) into the position „lifting the body“, hydraulic oil starts to fill the system, to extend the cylinder and to tilt the body. Tipping can be interrupted at any time by switching the control into the "neutral" position.

Air control – pneumatic (picture 2)

The air control pneumatically activates the tipping valve, which opens the flow of oil. The air control has three positions (see picture 2), middle - "neutral", which holds the body in definite position, lever up - „lifting the body“, lever down – „descent the body“.

Button control of the body – electropneumatic – for control of lifting and lowering the body, the electric switch can also be used, which is located on the dashboard of the vehicle. Such control is used and mounted on customer's request in some regions of northern Europe.

Neutral

In "neutral" the oil circulates into the tank and the cylinder remains in the position in which it was stopped.

Lowering the body

When the control is switched into the position "lowering the body", hydraulic oil returns from the cylinder to the tank, the cylinder is retracting and the body is slowly lowering.

1.4 Tipping and lowering the body (for more details see Safe tipping instructions)

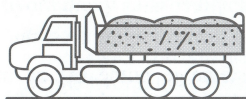
1.4.1 Tipping in general

! ATTENTION: Ensure always your own view of the process of tipping and do not rely on other people. Before tipping the body, make sure that nobody is in the working area of the tipper (also for case of overturning).

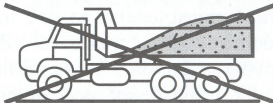
Beware of instability of the vehicle due to the contents sticking or freezing, or uneven distribution of the load. The base on which the vehicle is standing during the tipping must be stable and the vehicle must stand firmly on the ground in all directions.

Enclosed diagrams clearly show how to use a tipper.

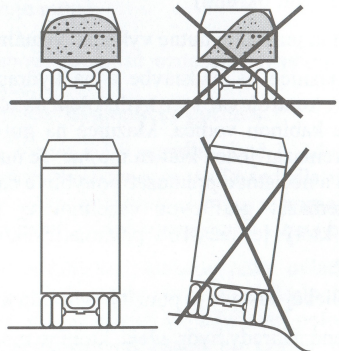
Jump out of the cabin when tipping body gets in contact with high voltage wires.



Do not jump out of the cabin from an overturning vehicle.



Increased caution is the best way to avoid accidents.



During the tipping on a hill, the cabin of the vehicle must always, when tipping backwards and to the side, be facing uphill or downhill and its axles must stand horizontally, to avoid any pressure on the tipping cylinders from the sides.

! ATTENTION when tipping backwards:

- a) when the vehicle is in a position with the cabin facing downhill, there will be problems with tipping and unloading the load (the angle with the horizon will be reduced and the cylinder will be weak) or
- b) when the vehicle is in a position with cabin facing uphill, during tipping it is necessary to finish tipping of the body before the cylinder reaches the lifting limiter (otherwise the vehicle will overturn).

**High revolutions of the engine during tilting can cause the cylinder to eject at high speed and therefore it will be damaged. Maximum allowed engine revolutions when tilting are set according to the bodybuilder for this vehicle as follows:
maximumrevolutions/1 minute.**

If it is necessary due to releasing of the load from the loading bed, the vehicle can be slowly moved, max. 2 - 3 m, during the tipping with the body in the upright position, but the driver must not jerk the vehicle i.e. accelerate quickly and brake sharply.

As soon as the body is empty, it is necessary immediately without any further vehicle move, to lower the tipping body to the chassis and to wait about one minute before you switch the control into the position „neutral“. Do not drive with the control lever in the position „lowering“, as this will allow all of the oil to drain from the cylinder.
If there is a trailer connected to the motor vehicle, trailer and motor vehicle must be in one line during the tipping. The same applies to towing vehicle with semi-trailer.

1.4.2 Tipping backwards

! ATTENTION: Tipping with a locked (secured) or blocked tailgate is danger to life.

Remove any sheeting of the load. If there is a risk it may foul up the tailgate, restrict the discharge of the load during the tipping. Switch the control into the „tipping“ position. Switch the control to “neutral” at the end of cylinder stroke restricted with limiter.

1.4.3 Lowering the body

The proportional control makes it possible to control the lowering speed of the body. Disengage the PTO. Put the control slowly into “lowering” position. As soon as the tipping body lowers on the chassis, wait about one minute before you switch the control to position „neutral“.

!ATTENTION: Before driving, always make sure all locks are properly secured.

When loading make sure the load is evenly spreaded on all lenght and width of the tipping body.

1.5 Hydraulic system



Standard tipping set S1 – type: KICCZ-030

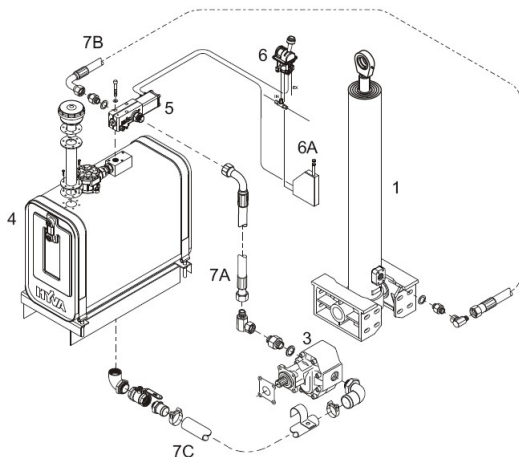
The hydraulic system is controlled from the driver's cabin and consists of the following components:

- hydraulic tank,
- hydraulic pump,
- hydraulic cylinder,
- air control of tilting,
- hydraulic valve

HYDRAULIC OIL

The hydraulic oil used in the hydraulic system is FUCHS - RENOLIN OHM 15 - 46

Recommended replacement of hydraulic oil which can be combined: see the Operating and maintenance instructions HYVA



Part list

Pos	Part. no	Description	Qty.
1	71535300	FE	1
	01506050	Chassis bracket FC/FE 149-191	2
	NK1616H	Nippelkit 1"d – 1"d 90°	1
3	CB082BD	Gear pump 82L-BI-4H	1
4	DC079MF	Oil tank CM100L/079L-MP-RF	1
	SKT2428	Ball valve kit	1
5	ED190AC	Tipping valve PT 1220 – 190 bar	1
6	FB151AB	Air control for tipping valve	1
7A	14794433	H.P.hose 1" – L = 1500 mm – 00 – 90°	1
7B	14794457	H.P. 1" – L = 2500 mm – 00 – 90°	1
7C	GM100AB	Suction hose 1 3/4" – 2500 mm	1

2. Accident instruction

- 2.1 In case of hydraulics failure, DO NOT move anything !
- 2.2 Ensure attendance of VS-MONT/HYVA service technician (in case of rejected claims the cost will be charged to vehicle users).
- 2.3 Call VS-MONT/HYVA service technician to the accident site.
- 2.4 The attending service technician shall take photographs of: the accident site, the tractor – number plate and VIN, the trailer – number plate and VIN, damage of the cylinder of the trailer or the tractor, overall situation, ground at the place of tipping, ...
- 2.5 Copy labels of all components of the hydraulic system (not only HYVA).
- 2.6 Ensure inspection at the HYVA authorized service point to perform detailed defect identification (VS-MONT/HYVA shall not cover the cost associated with transport of the vehicle to the service point, not even in case of claim approval).
- 2.7 Ensure order for repair of VS-MONT/HYVA components in case of claim rejection.
- 2.8 Further procedure shall conform to the Service Conditions (see section 3. of Service Instructions), Warranty Conditions and the General Conditions set forth by VS-mont/HYVA.

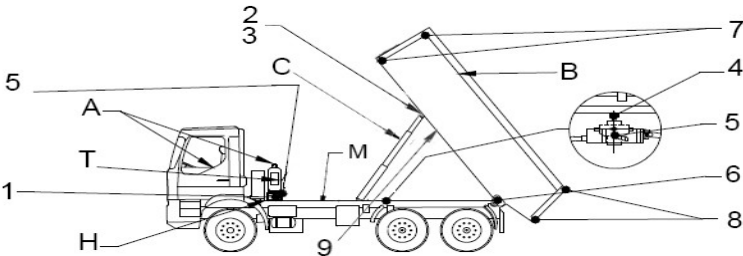
3. Service instruction

- 3.1 HYVA provides service activities by means of contractual service workshops in conformance with Warranty Conditions of the HYVA-Group included in the Complete Tipper Operation and Maintenance Manual and the General Conditions of HYVA.
- 3.2 Contractual service workshops ensure identification of causes and status of damage on HYVA goods, in the most ideal case this be done directly at customers, by means of service workshops or service vehicle.
- 3.3 Prior to departure of the service vehicle, the contractual workshop personnel shall supply their customer with this information by fax including a notification saying that, if the claim is not approved, its cost shall be charged to the customer, and the order of service vehicle shall be confirmed.
- 3.4 The contractual service will fill its finding concerning causes and damage into the claim protocol same as the proposed solution and such protocol shall be sent to HYVA immediately.
- 3.5 HYVA shall review the claim protocol and the solution proposed by the contractual service and it shall be decided, whether the particular claim can be approved or not.
- 3.6 The review of claim protocol shall be performed:
 - 3.6.1 without the need of HYVA to inspect the item; or
 - 3.6.2 by means of visit to the customer or a contractual service workshop paid by authorized person or engineer from HYVA; or
 - 3.6.3 the damaged item shall be sent to HYVA-Group upon request of HYVA.
- 3.7 Solution: The goods shall be either repaired or replaced with reworked or new goods from warehouses or they shall be ordered from the HYVA-Group.
- 3.8 If the new or reworked goods were to be provided to the customer prior to issuance and review of the claim protocol or completion of a repair (including issuance of a repair protocol), the customer shall first pay the price of replacement goods or/and repair, only then the replacement goods or repair may be provided and following completion of such repair or with respect to the result of claim protocol review the paid amount might be refunded.
- 3.9 The contractual service shall conduct repairs in its central workshop or by means of service vehicle upon agreement concluded between HYVA and the particular customer.
- 3.10 The service after warranty shall adopt a similar procedure to the above mentioned warranty service, i.e. there shall be one difference: HYVA will not have to review claim protocols or statements in case of after warranty activities, unless exclusively stated, e.g. in case of accident.
- 3.11 In case of accidents the contractual service shall be obliged to receive the statement of HYVA and permission from the HYVA's insurance agent prior to provision of service works.

4. Maintenance instruction

! ATTENTION: Maintenance activities in the vicinity of moving parts are hazardous. If the body is lifted for maintenance, it shall be always locked in position properly. Presence of persons under lifted platform is in hazard of life.

Maintenance plan of the hydraulic system and tipping body



Type	Description	Application	Perform always 1x:		
			Daily	Weekly	Semiannually, yearly
Maintenance	(A) Air	Air distribution Air control	Control of damage and leak Control of air working, damage and leak	Control of damage and leak	
	(H) Hydraulic system	Entire system Pump Hydraulic distributions Hydraulic valves	Cylinder control of working, damage, leak Control of damage and leak Control of damage and leak	Clean the cylinder Control of tightness	
	(T) Tanks	Oil level Oil filter Air filter Entire tanks Entire tanks Attachment	Check and fill in if missing *	Control the filter cleanness Control the air filter Control nuts and screws (tightness)	Change oil filter Change air filter Change oil Clean tank interior
Greasing period	(C) Cylinders	Entire cylinders FC types FE types DCT/UCB types DCT/UCB and FC/FE		1. Grease attachment to the chassis 2. Grease attachment 3. Grease eye under tipper body 4. Grease piston bearing 5. Grease bearing	
	(B) Tipper body	All types 1-way tipeprs 3.-way tippers (if fitted)	Visual tipper control Lock-off mechanism adjustment Control of possible cracks	6. Grease rear hinges 6. Grease front hinges 7. Grease rear and side door mechanism Grease all nuts	9. check rubber stops regularly, if damaged, replace them immediatelly
	(M) Others	Bodywork attachment Stabiliser		8. Grease tipper body attachment Grease main stabiliser (3x)	

Report immediately any tipper damage to tipper producer to remove the damage.

Note: Never use vapour to clean hydraulic components (cylinders, valves, hoses).

* Read about recommended oils!

SAFETY TIPPING INSTRUCTIONS

DRIVER'S RESPONSIBILITY WHEN TIPPING:

- **Always** report yourself to the construction site caretaker or owner at arrival, claim operating instructions for this construction site and keep them.
- **Always** tip and load on places and at times given by the customer
- **Always** remember, only driver is responsible for vehicle safety while tipping. If you are not sure on load unloading, or if it is not possible to agree with construction site caretaker, contact your employer about unloading.
- **Never** tip the material out of the tipping body until you are sure the vehicle can not overturn when tipping.
- **Always** make sure vehicle is located on a firm ground, if possible not downhill. Make sure vehicle shall remain on firm ground even if it will be moved forwards.
- **Always** make sure the tipping semi-trailer is in one line with the towing vehicle.
- **Make sure** before tipping operation nobody stands near vehicle and nobody can be endangered even if vehicle overturns.
- **Always** make sure before tipping that tailgate is opened.
- **Never** stand or walk right behind vehicle with lifted tipping body or behind vehicle during tipping the load.
- **Never** leave vehicle when tipping and make sure all cabin doors are closed safely.
- **Always** pay attention to possible obstacles, especially to high voltage wires. Do not await you will be noticed about these obstacles by construction site caretaker. If the tipping body shall touch electric wires, tipper must be lowered immediately. If you are unable to do so, jump immediately out of the vehicle, beware you must not touch the vehicle and earth at one time because thereby electric circuit would be closed. Don't allow anybody to close to vehicle when it is touching the electric wires. Call electric plant emergency service immediately.
- **Remember** electric discharge can overleap relatively great-long distance. Be therefore utmost cautious when tipping near electric line.
- **Always when the load is higher than the tailgate, make sure the load can not get stuck on it, because under given circumstances tipping body can tear off from the piston and tipper overturns rearwards under the weight of stuck load.**
- **AIR CONTROL:** automatic PTO switch off prevents from excessive PTO wear and tear and secures this device is not powered when the vehicle is in motion.
- **Remember** when you start tipping the load and the tipping angle is not 20° (i.e. at about half lifted tipper bed), stop tipping operation and check the cause. In such situation walk in sufficient distance from the vehicle.
- **Do not** try to loose the load through jerky movements of the vehicle forwards and rearwards.
- **Remember** when vehicle overturns, it is much more safe to stay in the vehicle cabin. Support yourself strong against driver's seat and hold the steering wheel. Never try to leave vehicle when it begins to overturn.
- **Do not forget** to return the lever of „tipping“ operation to neutral position in the moment when the body is lifted to its maximum.
- **Never forget** to make sure that PTO is switched off after the tipping operation has been finished.
- **Never** turn the engine revolutions to high output when tipping, this could cause oil underpressure on pump suction and following it can be damaged.

- **Do not forget** to make yourself sure the tipping body is absolutely empty. Always put the loading area in position downwards before you leave construction site, remove possible obstacles and secure tailgate.

DRIVER'S RESPONSIBILITY WHEN LOADING:

- **Always make sure** persons loading your vehicle are in charge and they will load material on your vehicle safely. If you doubt, ask the construction site owner or caretaker if they have adequate experiences.
- **Always make sure** the load is evenly spreaded across all the tipping body area to avoid overturning of the vehicle to side during tipping operation and to ensure equilibrium load on axis. Tipping device can be damaged when the load is too much at front.
- **Never** stand near vehicle when loading or parking in area of loading. Never stand on vehicle when loading.
- **Pay attention to** load that can easily freeze or stick, for example wet sand or gravel. Load frozen on one tipping body's side can cause vehicle overturning during tipping.
- **Pay attention to** loads with various density. If bigger parts of material start to pour out first and small parts remain in the vehicle stucked together and they do not pour out, vehicle can loose its balance and become unstable.

VEHICLE KEEPER'S RESPONSIBILITY

- **Never** work on vehicle with lifted tipper body without corresponding support. All safety standards related to stability when tipping valid for drivers are equally valid for serviceman and mechanics.
- **Regularly** check if there are not any sharp parts protruding out of the bodywork that could injure around walking people or construction site employees. Make sure sealing round tailgate is in good condition and material can not leak after it is closed.
- **Always** check after tipping or driving in terrain if vehicle's rear lights are not damaged.
- **Always** use only authorized supplier for all parts necessary for piston repair or renewal. Make sure all sealings are delivered in original closed package marked by producer.

SERVICEMAN AND MECHANICS RESPONSIBILITY

- **Never** work on vehicle with lifted tipper bed without CORRESPONDING SUPPORT. All safety standards related to stability when tipping valid for drivers are equally valid for serviceman and mechanics.
- **Always** check and grease all hinges and pistons during REGULAR INSPECTIONS. Make sure all hose connections are in good condition and liquid does not leak. Hydraulic liquid can cause health problems, endanger environment and must not leak from closed system.

- **Always** check if hydraulics hoses are not swollen and if they do not rub against bodywork.
- **Regularly** check if there are not any sharp parts protruding out of the bodywork that could injure around walking people or construction site employees. Make sure sealing round tailgate is in good condition and material can not leak after it is closed.
- **Always** check if vehicle's rear lights are not damaged after tipping or driving in terrain.
- **Always** use only authorized supplier for all parts necessary for piston repair or renewal. Make sure all sealings are delivered in original closed package marked by producer.

INSTRUCTIONS FOR TIPPING BODIES SPARE PARTS PURCHASE

- **Always** use first quality parts from authorized suppliers. HYVA long-term experiences in the branch ensure to produce and supply only components corresponding with all safety standards.
- **PISTONS:** High-quality pistons' steel casings DOM and increased cylinder wall strength mean greater stability and optimal resistance when tipping to side
- **HOSES:** safety coefficient is 4:1 for all high-pressure hoses
- **VALVES:** integral damping valves prevent from formation of shock overpressure and manual governor enables to adjust the safest speed of rear tipping.
-

Voice signalling during manipulation with VS-mont tipping body

To increase safety when manipulating the tipping bodies, the VS-mont company installs the signalling bleep alarm on all types of tipping bodies.

The driver and around standing people are warned by signalling bleep alarm in the moment when the manipulation with tipping body is initialized, as follows in the below mentioned cases:

- when lifting and lowering the tipping body in the direction to sides and backwards,
- when opening and closing hydraulically controlled sidewall,
- when the tipping body remains lifted due to maintenance but it is not secured with support.

The driver is warned by signalling when the tailgate is unsecured (in the case that the back face is unlocked by means of pneumatic pistons).

Signalling is connected through a fuse (3A).

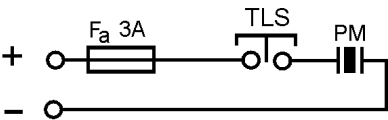
TYPE

With mechanical (hydraulic) unsecuring
of the tailgate

Vehicle fuse location
by the tipping bodies



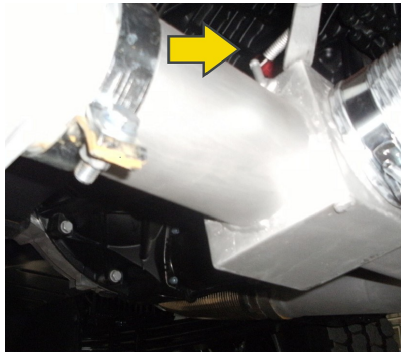
Electrical connection diagram:



F _a – fuse 3A/32V	
TLS – pressure switch 4 bar	
PM – alarm A – ST810 – 24V	

Heating of the tipping body VS-mont (if it is in the equipment)

A flap (lever) of the heating is marked on the picture 1, which directs hot exhaust gas into the bumper of the exhaust or into the body.



Picture 1

Further, the gas is guided through a pipeline (picture 2) and seating mechanism (picture 3) into the spiracles on the body.



Picture 2



Picture 3

The possibility of this design is in the equipment for extra charge.

Service centres of the company VS-mont

(FOR REGULAR OBLIGATORY SERVICE INSPECTIONS)

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