

# AS 1600 Swing loader



FIN: Valid from W09S15001GBA08812...

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Product	Swing loader AS 1600		
FIN	as from W09S15001GBA08812		
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	Subject to change without notice.		
Foreword	This service manual contains all the information and instructions required for the correct execution of service tasks required for the wheel loader. Read this service manual before commencing the tasks and always keep it to hand for reference.		
Validity	This Service manual applies together with the operator's manual of the Swing loader AS 1600.		
Suggestions and comments	regarding this documentation or the wheel loader can be sent to the above- mentioned address.		
Most recent amend- ment	28.04.2016		

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## **1** Notes for the Reader

In this chapter you will find information regarding the use of the Service manual:

- Validity (Page 5)
- Illustrations (Page 5)
- Accentuated text (Page 5)

## 1.1 Validity

This service manual contains information and codes of behaviour for service tasks on the Swing loader AS 1600. Read this service manual carefully before the first service. Always use the service manual when performing service tasks. Store the service manual at a central point and to hand for the responsible technical personnel. In accordance with current usage in the industry, the term wheel loader is used in this service manual.

This Service manual applies together with the operator's manual of the Swing loader AS 1600. This service manual applies to technical personnel.

### 1.2 Illustrations

The illustrations in this service manual show the wheel loader in partially simplified form.

### 1.3 Accentuated text

In this service manual, important information is highlighted by symbols or special formatting. The following examples illustrate the most important types of highlighting.

#### 1.3.1 Pictograms

#### Pictograms used

Pictogram	Meaning			
	Further useful information.			
	Conditions that must be fulfilled in order to perform an action			
×	Tools or material required in order to perform an action.			

### 1.3.2 Safety Note

Safety instruction: Special note for an informatory section

Explanation of the note.

• The dot identifies measures that relate to the note.

#### 1.3.3 Safety instructions

### Safety Instruction

To ensure the safe implementation, ensure compliance with the following steps:

- 1. First step of a safety instruction
  - *I* Important note regarding a safety instruction
- 2. Second step of a safety instruction.
- → The result of this step.

✓ The safety instruction is complete, the goal of the of a safety instruction has been achieved.

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#### 1.3.4 Warning notes

#### Warning of injuries leading to fatality

Failure to observe the safety instruction will result in serious damage to health, including death.

→ The arrow identifies a precautionary measure you have to take to avoid the hazard.



#### Warning: Serious Injuries.

Failure to observe the warning can cause serious damage to health, or even death.
 → The arrow identifies a precautionary measure you have to take to avoid the hazard.



#### Warning: Injuries.

Failure to observe the warning can result in serious damage to health.

➔ The arrow identifies a precautionary measure you have to take to avoid the hazard.

### NOTICE

#### Warning: Damage to property.

Ignoring the warning instructions can result in serious damage to the wheel loader or in its surroundings

→ The arrow identifies a precautionary measure you have to take to avoid the hazard.

#### 1.3.5 Guideline

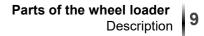
Carry out the following steps: = Start of a set of instructions.

First step in a sequence of operations.

Required settings . . . . . . . Setting values

- **2.** Second step in a sequence of operations.
- $\rightarrow$  The result of this step.

 $\checkmark$  The operation is complete, the goal has been achieved.

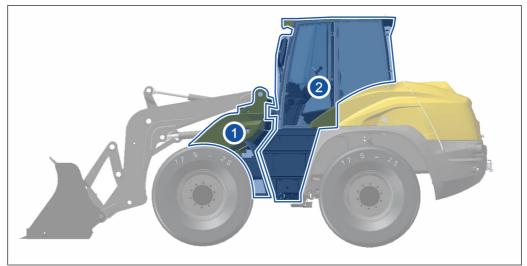




## 2 **Description**

In this chapter you will find additional information regarding the parts of the wheel loader that are not described in the operator's manual.

- Parts of the wheel loader (Page 9)
- Front section (Page 10)
- Cab interior (Page 11)



## 2.1 Parts of the wheel loader

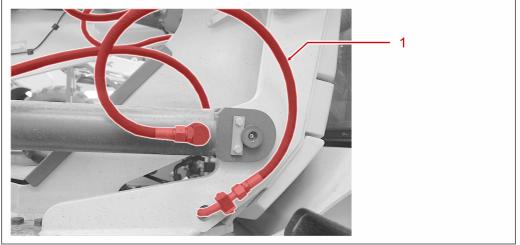
Overview - Parts of the wheel loader

Key

No.	Designation	Function
1	Front section	See Chapter "Front section" (Page 10).
2	Cab - interior	See Chapter "Cab - interior" (Page 11).

#### 2.2 **Front section**

#### 2.2.1 **Overview**



Overview - Front section | Hydraulic hoses

Key		
No.	Designation	Function
1	Hydraulic hoses	See section "Hydraulic hoses" (Page 10).

#### 2.2.2 Hydraulic hoses

Hydraulic lines must be checked within the framework of the service intervals. Detailed instructions in this regard are to be found in BGR 237.

A recommendation as to the replacement intervals has been compiled on the basis of DIN 20066.

Depending on the demands made on the hoses, the specified replacement intervals can be extended. The replacement interval remains the responsibility of the operator.

Descript	ion of	the r	epla	cen	nent	intervals of the hyd	Iraulic hoses	
							_	

Demands on the hydraulic hose	Recommended replacement interval
Normal use	6 years (operating life, including a maximum of 2 years' storage)
<ul> <li>Enhanced demands:</li> <li>Increased time in use; for example multi-shift operation or brief cycle times of the machine or pressure impulses</li> <li>Severe external and internal influences (via the medium) that markedly reduce the period of use of the hydraulic hose.</li> <li>manually-operated hydraulic tools, for example portable shears in scrap yards.</li> </ul>	2 years (operating life)

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## 2.3 Cab - interior

#### 2.3.1 Multi-function panel



Multi-function panel

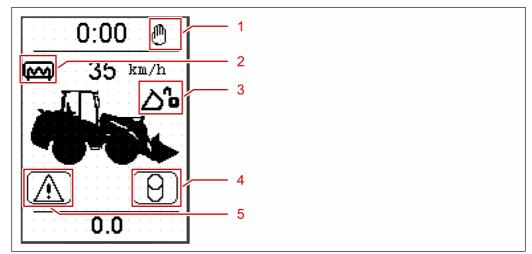
Key		
No.	Designation	Function
1	Display	See Chapter "Display" (Page 11).

### 2.3.2 Display

#### 2.3.2.1 Overview

The function of the display is expanded in the new AS 1600 series. In the new component, CAN bus messages are displayed in addition to the familiar operating parameters. As a rule, these are error messages from the vehicle control system. The actual meaning of the error messages is described in Chapter "Error messages". An error message appears in the display for only as long as the cause remains active.

2.3.2.2 Start

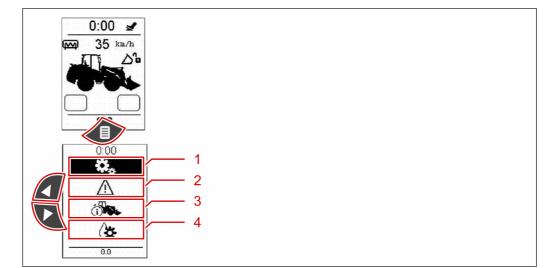


Display – Start

Key

No.	Figure	Description
1	0 🖌 🖉	Engine speed control by M-Drive or accelerator.
2	<b>6</b>	Rear window is activated.
3	<b>∆</b> Ъ	Unlocking of the quick-change device.
4	Θ	Boom suspension is activated.
5	1	A fault is present on the engine or wheel loader.

# Mecalac

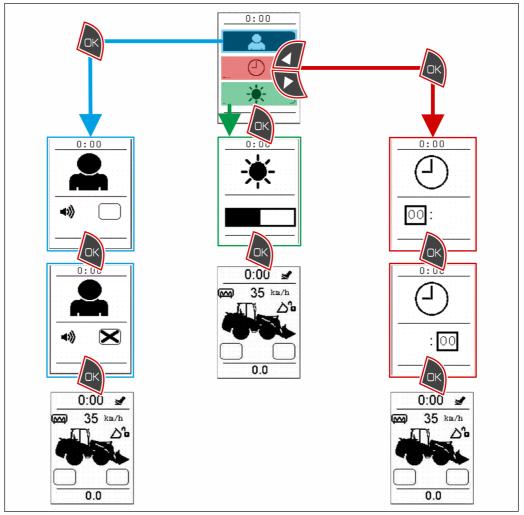


Display – Main menu

#### Key

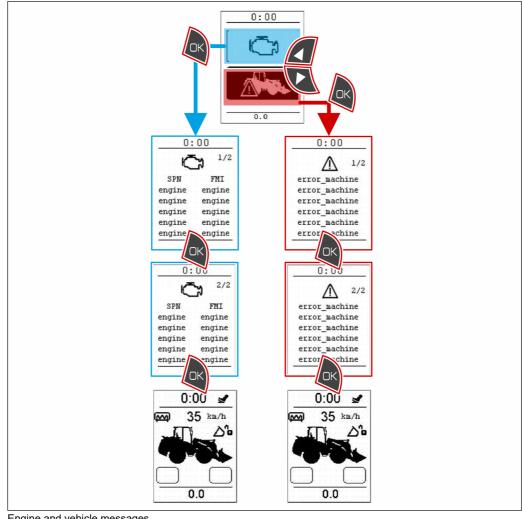
No.	Description
1	Proceeds to the SETTINGS – DISPLAY (See page 14: Settings - Display) sub- menu.
2	Proceeds to the ENGINE AND VEHICLE MESSAGES (See page 15: Engine and vehicle messages) sub-menu.
3	Proceeds to the INFORMATION (See page 16: Information) sub-menu.
4	Proceeds to the SETTINGS – HYDRAULICS (See page 18: Settings - Hydrau- lics) sub-menu.

2.3.2.3 Settings - Display



Settings - Display

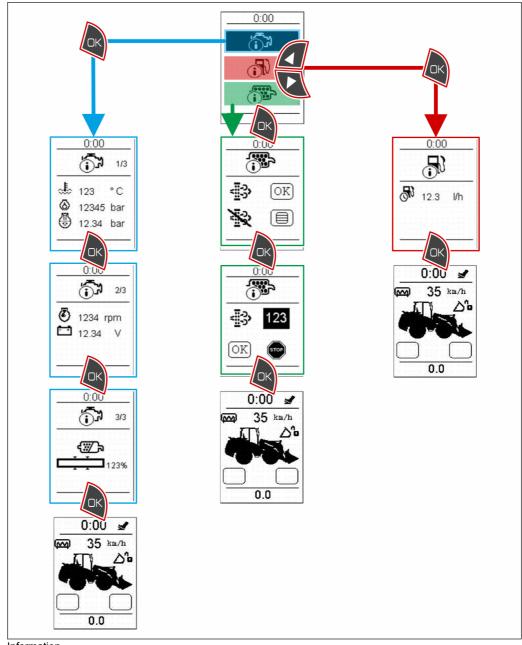




#### 2.3.2.4 Engine and vehicle messages

Engine and vehicle messages

2.3.2.5 Information



Information



#### Figures – Information

Figure	Description	Unit
	Coolant temperature	degrees Celsius [°C]
6	Engine oil pressure	bar
٩	Air filter differential pressure	bar
3	Engine revolutions	Revolutions per minute [rpm]
<u>.</u>	On-board voltage	Volt [V]
{ <u>///</u> }	Ash loading - diesel particulate filter	Percent [%]
<b>B</b>	Fuel consumption	Litres per hour [i/h

0:00 Πk 0.0 0:00 0:00 Oł **\_\_**000U ОΚ ОΚ 0:00 0:00 1 2. 1. 35 km/h 8 ∆₀ 100 100 0 100 ş 0.0 ОК ОК 0:00 🖌 0:00 🖌 35 km/h 35 km/h **6 6** 26 2℃ Б 0.0 0.0

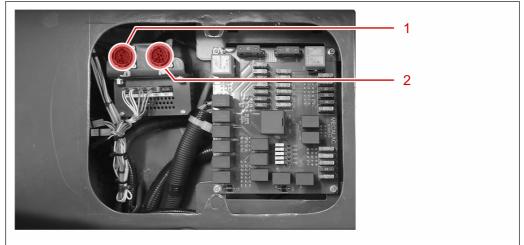
2.3.2.6 Settings - Hydraulics

Settings - Hydraulics

## Mecalac

#### 2.3.3 Central electrical system

With the implementation of the currently required emission directives, a new generation of vehicle control system has been introduced in the AS product segment. Electronic control of the power unit that is taken for granted in today's automotive industry in order to achieve the required emission values, has been enhanced in this stage of development to include electronic control of the hydraulic movement function. Furthermore, communication of the control signals has been optimised by the implementation of a CAN bus system between the control units in the vehicle.



Diagnosis interface - Overview

Key		
No.	Designation	Function
1	Diagnosis interface - engine control system	The diagnostic unit is connected to the engine control system diagnosis interface. Further infor- mation regarding the diagnostic unit can be found in Section: "Diagnostic unit" (Page 20).
2	Diagnosis interface - vehicle control system	The diagnostic unit is connected to the vehicle control system diagnosis interface. Further infor- mation regarding the diagnostic unit can be found in Section: "Diagnostic unit" (Page 20).

#### 2.3.4 Diagnostic unit

#### 2.3.4.1 Overview

The stand-alone diagnostic unit (TKZ 23115585) serves as a reader to read and display engine and vehicle data from the CANbus system. In addition, stored error messages can be read and reset. The list of the error messages are to be found in Section Error messages (Page 20).

Active errors are displayed in the display. In addition, this error is stored in the main memory of the controller. The error memory is read and analysed within the framework of the recurring service.

Once the error has been processed, the error memory is deleted (reset).

The engine control diagnosis interface and the vehicle control diagnosis interface permit various diagnostic units to be used.



Diagnostic unit

#### 2.3.5 Error messages

The controller messages that are shown in the display are listed in the following table. By using this information and a standard multimeter, the causes of the error can be identified and the function of the electrical components can be checked with tools available on the wheel-loader.

Errors from the engine control system are based on the mandatory SAE j1939 protocol. This is used internationally by various manufacturers.

The list of all messages from the "U05" engine controller are to be found in the annex of this service manual (See page 99: Annex).

Messages from the vehicle control system are generated as "M-messages (Mecalac)". As is the case with engine messages, they are shown in the display (only if active).

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#### Error messages from the driving control system

Error	Meaning	Remedy
M002	Differential lock valve error	Check Valve Y55, check Circuit 1010
M003	Oil temperature sensor error	Check Sensor P06, check Circuit 1015 and GND_S2_U01
M004	Quick-change device error	Check Valve Y16/Y16A, check Circuit 1003
M005	Direction of travel valve error	Check Valves Y33 and Y34, check Circuits1006, 1011
M006	Valve, burst pipe detection system, boom suspension error	Check Valves Y52, Y53; check Circuits1004,1005
M007	Inching pedal signal error	Check Sensor P05, check Circuit 1027
M008	Hand throttle signal error	Check Potentiometer JS05, check Circuit 1026
M009	Accelerator pedal signal error	Check Accelerator pedal P11, check Circuits 1016, 1017
M010	Engine communication error	Check Circuits CAN3-H, CAN3-L, check contact on Controller U01 and Engine Controller U05
M011	Controller communication error	Check Circuits CAN1-H, CAN1-L, check contact on Instrument U06 and Controller U01
M012	Option 1 control error	Check Relay K02, check Circuit 6003
M013	Option 3 control error	Check Relay K01, check Circuit 6015
M014	Option 4 control error	Check Relay K05, check Circuit 6016
M015	Control relay K14 (KI.50) error	Check Relay K14, check Circuit 6009
M016	Traction pump valve error	Check Valve Y37, check Circuit 1024
M017	Parking brake valve error	Check Valve Y18, check Circuit 1040
M018	Steering valve error	Check Valves Y17, Y22 and Y29; check Circuits1039, 1038 and 1037
M019	Clutch switch error	Check Switch SW42, check Circuit 1058
M020	Traction motor 1 error	Check Valve Y01A, check Circuit 1009
M021	Traction motor 2 error	Check Valve Y01B, check Circuit 1036
M022	Cluth valve error	Check Valve Y05, check Circuit 1044
M013 M014 M015 M016 M017 M018 M019 M020 M021	Option 3 control error Option 4 control error Control relay K14 (KI.50) error Traction pump valve error Parking brake valve error Steering valve error Clutch switch error Traction motor 1 error Traction motor 2 error	Check Relay K02, check Circuit 6003 Check Relay K01, check Circuit 6015 Check Relay K05, check Circuit 6016 Check Relay K14, check Circuit 6009 Check Valve Y37, check Circuit 1024 Check Valve Y18, check Circuit 1040 Check Valves Y17, Y22 and Y29; check Circuits1039, 1038 and 1037 Check Switch SW42, check Circuit 1009 Check Valve Y01A, check Circuit 1009 Check Valve Y01B, check Circuit 1036

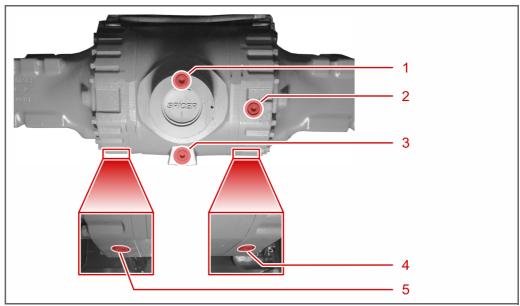


## 3 Service tasks

In this chapter you will find information regarding service tasks for technical personnel:

- Checks (Page 23)
- Repair work (Page 36)
- Changing the consumables (Page 71)
- Lubrication (Page 93)

## 3.1 Checks



#### 3.1.1 Checking the front axle oil level

Location of the bolts on the front axle

Key	
No.	Designation
1	Filler plug
2	Oil level plug
3	Drain plug
4	Drain plug
5	Drain plug



#### Requirement

- The wheel loader is warmed up.
- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The ignition key has been removed.

#### Tools required:

- Allen key SW 12
- · Oil drip tray
- Protective gloves
- Suitable, fresh gearbox oil, if necessary
- New copper ring for sealing



#### Health hazard posed by gearbox oil!

The gearbox oil is hazardous to health. Frequent skin contact can be carcinogenic.

- ➔ Avoid continuous skin contact with the gearbox oil.
- $\rightarrow$  Always wear gloves when carrying out this job.

## NOTICE

#### Environmental hazard posed by gearbox oil!

The used gearbox oil of the wheel loader is hazardous to the environment!

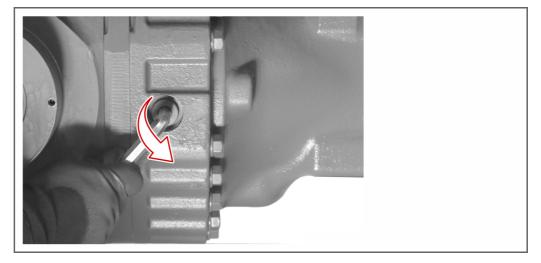
- $\Rightarrow$  Dispose of the used gearbox oil according to the local statutory provisions,
- $\Rightarrow$  Catch the draining gearbox oil in a suitable container.
- ➔ Prevent the gearbox oil from entering the soil.

Carry out the following steps:

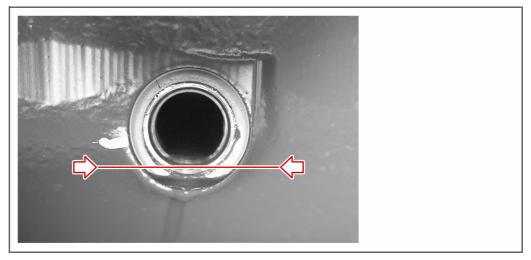
- **1.** Place an oil drip tray beneath the front axle.
- → The oil drip tray prevents the gearbox oil from penetrating the subsoil.



**2.** Using an Allen key, unscrew the oil level plug.

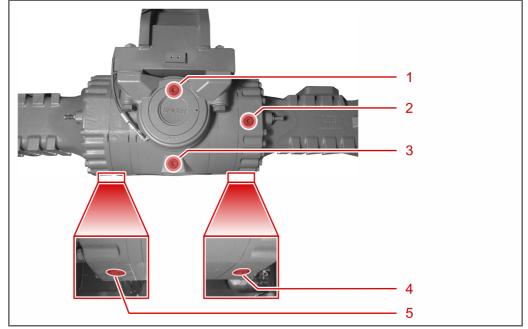


- **3.** Catch any escaping gearbox oil in the oil drip tray immediately.
- **4.** Check the oil level of the front axle.
  - ! The oil level must reach precisely below the lower edge of the inspection port.



- 5. If required, top up with fresh gearbox oil up to the lower edge of the inspection port
  - *I* In order to top up, the filler plug must be unscrewed, see Chapter "Changing the gearbox oil of the front axle" (Page 74).
- 6. Fit a new copper ring.
- **7.** Using an Allen key, secure the oil level plug.
- **8.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,





### 3.1.2 Checking the rear axle oil level

Location of the bolts on the rear axle

#### Key

No.	Designation
1	Filler plug
2	Oil level plug
3	Drain plug
4	Drain plug
5	Drain plug



#### 

#### Requirement

- The wheel loader is warmed up.
- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The ignition key has been removed.

## X

- Tools required:
- Allen key SW 12Oil drip tray
- Protective gloves
- Suitable, fresh gearbox oil, if necessary
- New copper ring for sealing



### Health hazard posed by gearbox oil!

The gearbox oil is hazardous to health. Frequent skin contact can be carcinogenic.

- Avoid continuous skin contact with the gearbox oil.
- ➔ Always wear gloves when carrying out this job.

## NOTICE

### Environmental hazard posed by gearbox oil!

The used gearbox oil of the wheel loader is hazardous to the environment!

- ➔ Dispose of the used gearbox oil according to the local statutory provisions,
- $\rightarrow$  Catch the draining gearbox oil in a suitable container.
- ➔ Prevent the gearbox oil from entering the soil.

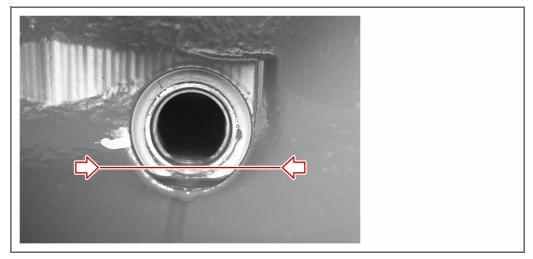
Carry out the following steps:

- 1. Place an oil drip tray beneath the rear axle.
- → The oil drip tray prevents the gearbox oil from penetrating the subsoil.

2. Using an Allen key, unscrew the oil level plug.



- **3.** Catch any escaping gearbox oil in the oil drip tray immediately.
- 4. Check the oil level of the rear axle.
  - ! The oil level must reach precisely below the lower edge of the inspection port .



- **5.** If required, top up with fresh gearbox oil up to the lower edge of the inspection port, see Chapter "Changing the gearbox oil of the rear axle" (Page 79).
- 6. Fit a new copper ring.
- **7.** Using an Allen key, secure the oil level plug.
- **8.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,
- ✓ Done.

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#### 3.1.3 Checking the planetary gear oil level

#### 

- The wheel loader is warmed up.
- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The ignition key has been removed.

## X

### Tools required:

Requirement

- Allen key SW 12
- Oil drip tray
- Protective gloves
- Suitable, fresh gearbox oil, if necessary



#### Health hazard posed by gearbox oil!

The gearbox oil is hazardous to health. Frequent skin contact can be carcinogenic.

- ➔ Avoid continuous skin contact with the gearbox oil.
- ➔ Always wear gloves when carrying out this job.

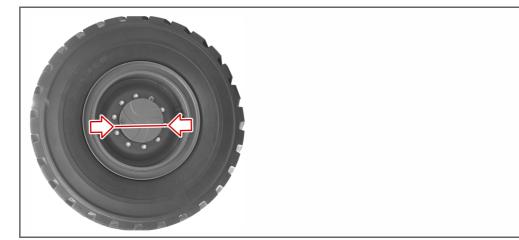
## NOTICE

#### Environmental hazard posed by gearbox oil!

- The used gearbox oil of the wheel loader is hazardous to the environment!
- ➔ Dispose of the used gearbox oil according to the local statutory provisions,
- → Catch the draining gearbox oil in a suitable container.
- ➔ Prevent the gearbox oil from entering the soil.



Carry out the following steps:



**1.** Move the wheel loader so that the **Oil Level** fill level line of the planetary gear is horizontal.

- 2. Place an oil drip tray in the tyre rim.
- → The oil drip tray prevents the gearbox oil from penetrating the subsoil.
- **3.** Using an Allen key, unscrew the oil level plug.
- 4. Catch any escaping gearbox oil in the oil drip tray immediately.
- 5. Check the oil level of the planetary gear.

! The oil level must reach precisely below the lower edge of the inspection port.

- 6. If required, top up with fresh gearbox oil up to the lower edge of the inspection port
- 7. Using an Allen key, secure the oil level plug.
- **8.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,
- Done.

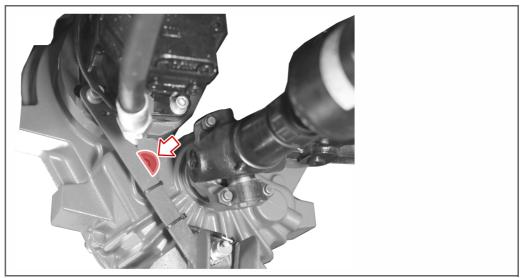


### 3.1.4 Checking the transfer case oil level

The transfer case has two oil level plugs. One at the front (in the direction of travel) and one at the rear (in the direction of travel).



Location of the inspection and oil filler plug - at the front, in the direction of travel.



Location of the inspection and oil filler plug - at the rear, in the direction of travel.



#### Requirement

- The wheel loader is warmed up.
- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The ignition key has been removed.

#### Tools required:

- Allen key SW 12
- Oil drip tray
- Protective gloves
- Suitable, fresh gearbox oil, if necessary

Oil level check - at the front, in the direction of travel

 $\overline{}$ 



#### Health hazard posed by gearbox oil!

The gearbox oil is hazardous to health. Frequent skin contact can be carcinogenic.

- → Avoid continuous skin contact with the gearbox oil.
- $\rightarrow$  Always wear gloves when carrying out this job.

## NOTICE

#### Environmental hazard posed by gearbox oil!

The used gearbox oil of the wheel loader is hazardous to the environment!

→ Dispose of the used gearbox oil according to the local statutory provisions,

- → Catch the draining gearbox oil in a suitable container.
- ➔ Prevent the gearbox oil from entering the soil.



Carry out the following steps:

1. Using an Allen key, unscrew the oil level plug.



2. Check the oil level of the transfer case.

! The oil level must reach precisely below the lower edge of the inspection port .

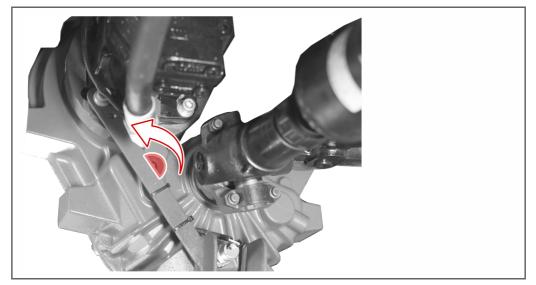
- **3.** If required, top up with fresh gearbox oil up to the lower edge of the inspection port .
- **4.** Using an Allen key, secure the oil level plug.
- **5.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,

Done.

Oil level check - at the rear, in the direction of travel

Oil level check - at Carry out the following steps:

**1.** Using an Allen key, unscrew the oil level plug.



- **2.** Check the oil level of the transfer case.
  - ! The oil level must reach precisely below the lower edge of the inspection port .
- 3. If required, top up with fresh gearbox oil up to the lower edge of the inspection port
- 4. Using an Allen key, secure the oil level plug.
- **5.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,

Done.

🗸 Done.

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#### 3.1.5 Checking the electrical functions and connections

Carry out the following steps:

- 1. Test all electrical functions
- 2. Check that the electrical plugs and sockets are securely seated.
- ➡ Fuses
- ➡ Relays
- **3.** Perform a visual inspection of the cable harnesses.

*!* Check that they are seated securely.

- **4.** Measure the battery voltage.
- 5. Measure and check the functioning of the alternator.
- 6. Check that the main battery switch functions correctly.
- 7. Check that the bodywork is electrically isolated.

🗸 Done.

#### 3.1.6 Checking the hydraulic hoses

Carry out the following steps:

1. Check all hydraulic hoses for leaks and mechanical damage.

*!* Detailed instructions are to be found in BGR 237.

- 2. Exchange damaged hydraulic hoses immediately.
- 🗸 Done.

Info



The recommended replacement intervals for the hydraulic hoses to be found in Chapter: "Description" > "Hydraulic hoses" (Page 10).

## 3.2 Repair work

#### 3.2.1 Changing a wheel

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The direction of travel toggle switch must be in the neutral position.
- The ignition key has been removed.

#### Tools required:

- Two persons
- One jack suitable for the mass of the wheel loader
- A suitable base for the jack
- Safety block
- Protective gloves
- · Wheel-brace
- A torque wrench
- A new wheel

# Dismount the wheel



#### Hazard of crush injuries to limbs!

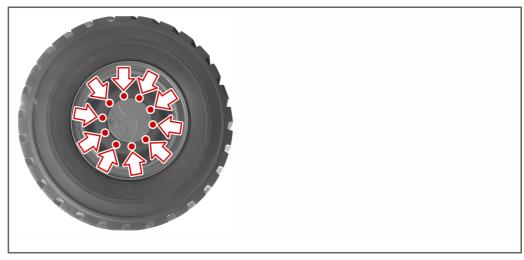
The tyre of the wheel loader is large and heavy. You can be crushed if it tips over!

- → Always wear protective gloves!
   → Always wear safety shoes!
- → Always work carefully!
- → Always carry out a wheel change with two persons!

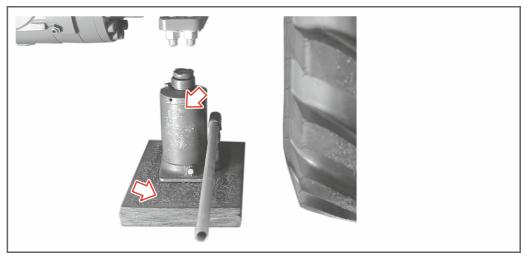


Carry out the following steps:

**1.** Using the wheel-brace loosen all ten wheel nuts by approximately half a turn.



**2.** Position a suitable base beneath the jack below the jacking points of the axle of the wheel to be changed.

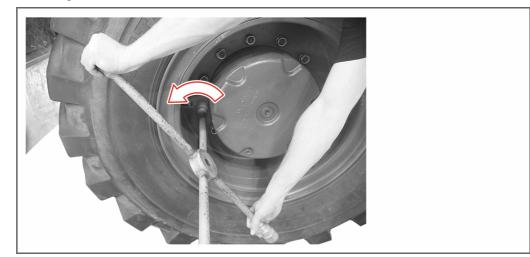


**3.** Place the safety blocks centrally on the upper end of the jack.

- **4.** Using the jack lift up the wheel loader.
  - ! The wheel must be lifted approximately one centimetre off the ground.



- → The wheel has been lifted.
- 5. Using the wheel-brace remove all ten wheel nuts.



6. With two persons, carefully lift the wheel off the axle .

The wheel has been dismounted.

Carry out the following steps:

- 1. With two persons, carefully lift the new wheel onto the axle .
- 2. Screw in the ten wheel nuts on the wheel loader.
  - ! Only fasten the wheel nuts finger-tight.
- 3. Loosen the jack.
- 4. Remove the jack, the base and the safety blocks.

Mounting the wheel.

# Mecalac

5. Tighten all ten wheel nuts to 550 Nm.

*!* For fastening, use a suitable torque wrench.



The wheel has been mounted.



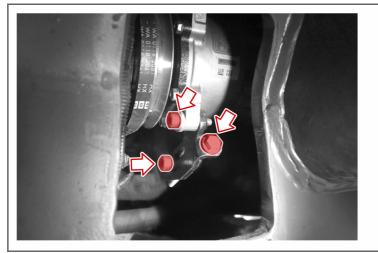


# Info

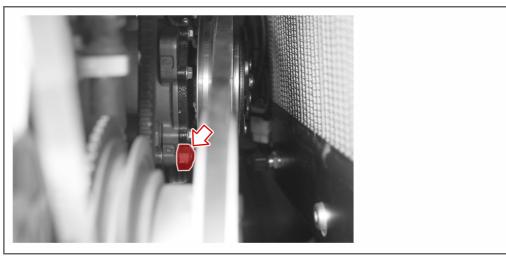
After approximately ten hours of operation, re-tighten the wheel nuts of the wheel that has been changed.

# 3.2.2 Changing the air-conditioner V-belt

3.2.2.1 Fixing and tensioning screws



Location of the fixing and tensioning screws - view of the installation cover



Location of the fixing screws - view of the engine compartment

# Mecalac

## 3.2.2.2 Removing the air-conditioner V-belt

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The diesel engine must be cold.
- The parking brake is applied.
- The ignition key has been removed.



#### Tools required:

- Protective gloves
- Suitable working platform
- New V-belt
- Ratchet with extension and SW 16 socket
- Wrench SW 16
- Allen key SW 6



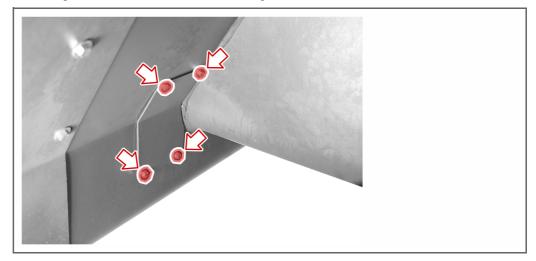
#### Hazard of injuries to limbs by crushing and cutting!

The engine bay of the wheel loader is very cramped. You can be cut and crushed when performing maintenance tasks!

- ➔ Always wear protective gloves!
- ➔ Always work carefully!

Carry out the following steps:

1. Using the ratchet, loosen the four fixing screws of the installation cover.



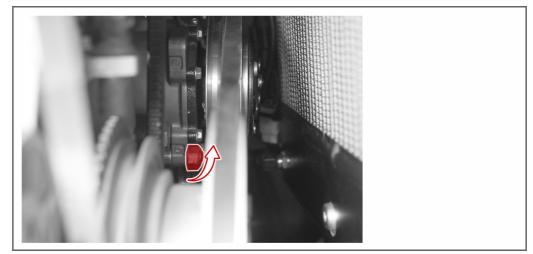


- 2. Loosen the tensioning screw with the aid of an Allen key.

**3.** Loosen the belt tensioning screw with the aid of a ratchet.



4. Loosen the tensioning screw with the aid of an Allen key.





5. Remove the air-conditioner V-belt.





#### 3.2.2.3 Installing the air-conditioner V-belt

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The diesel engine must be cold.
- The parking brake is applied. .
- The ignition key has been removed.
- The air-conditioner V-belt is installed (See "Removing the air-conditioner V-belt" (Page 41))



#### Tools required:

- Protective gloves
- Suitable working platform
- New V-belt
- Ratchet with extension and SW 16 socket
- Wrench SW 16
- Allen key SW 6



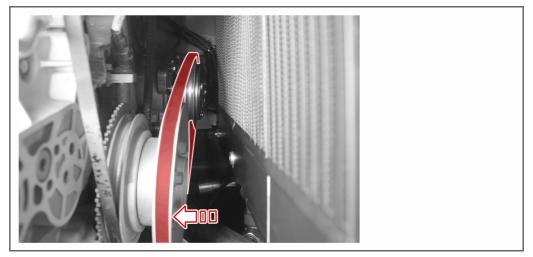
## Hazard of injuries to limbs by crushing and cutting!

The engine bay of the wheel loader is very cramped. You can be cut and crushed when performing maintenance tasks!

- ➔ Always wear protective gloves!
- ➔ Always work carefully!

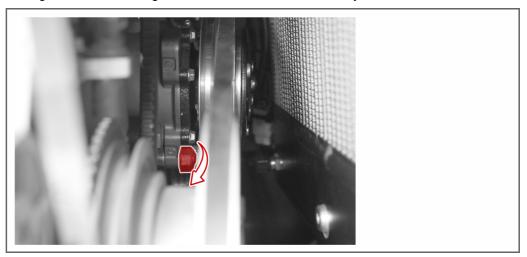
Carry out the following steps:

**1.** Fit the air-conditioner V-belt.





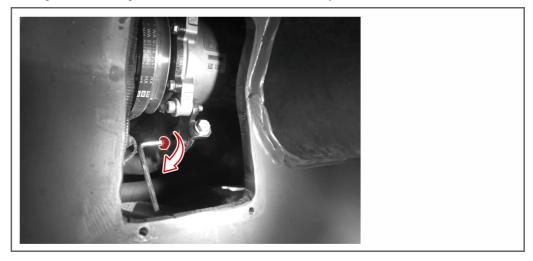
**2.** Tighten the tensioning screw with the aid of an Allen key.

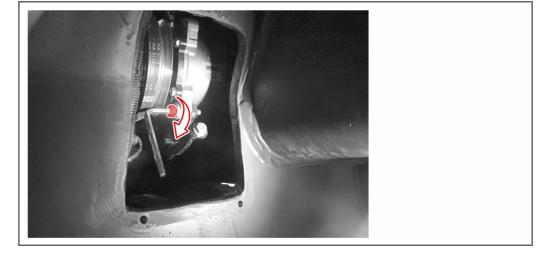


**3.** Tension the V-belt by means of the belt tensioning screw.



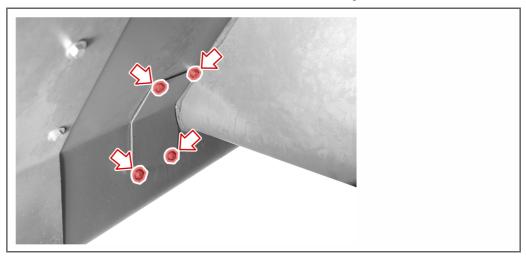
**4.** Tighten the fixing screw with the aid of an Allen key.





**5.** Tighten the fixing screw with the aid of an Allen key.

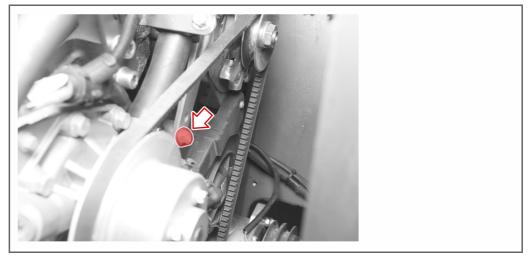
6. Install the installation cover with the aid of the four fixing screws.



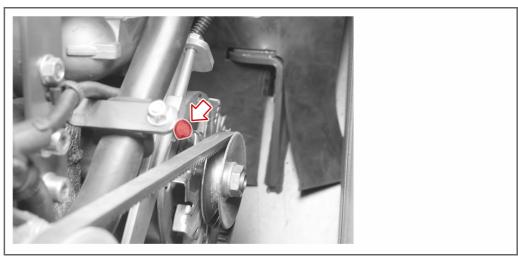
V Done.

# 3.2.3 Changing the alternator/water pump V-belt

3.2.3.1 Fixing and tensioning screws



Location of the fixing screw - view of the engine compartment



Location of the fixing screw - view of the engine compartment



Location of the fixing screw - view of the engine compartment



Location of the belt tensioning screw - view of the engine compartment

# Mecalac

#### 3.2.3.2 Removing the alternator/water pump V-belt

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The diesel engine must be cold.
- The parking brake is applied.
- The ignition key has been removed.
- The air-conditioner V-belt has been removed (See "Removing the air-conditioner Vbelt" (Page 41))

Tools required:

- Protective gloves
- Suitable working platform
- New V-belt
- Ratchet with extension and SW 10 socket
- Ratchet with extension and SW 13 socket
- Wrench SW 10
- Wrench SW 13



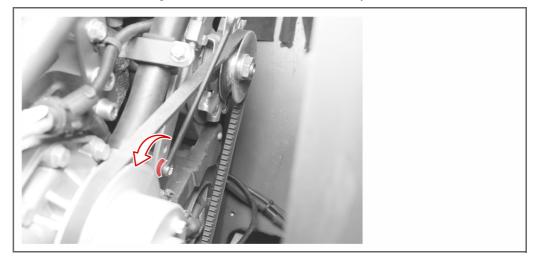
### Hazard of injuries to limbs by crushing and cutting!

The engine bay of the wheel loader is very cramped. You can be cut and crushed when performing maintenance tasks!

- ➔ Always wear protective gloves!
- Always work carefully!

Carry out the following steps:

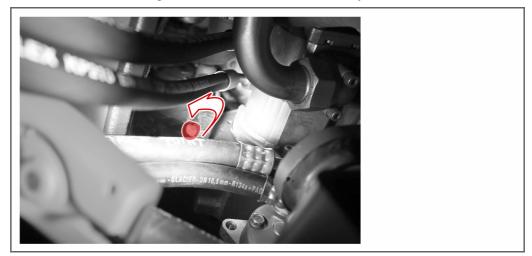
1. Loosen the tensioning screw with the aid of an Allen key.



3

- 2. Loosen the tensioning screw with the aid of an Allen key.

3. Loosen the tensioning screw with the aid of an Allen key.

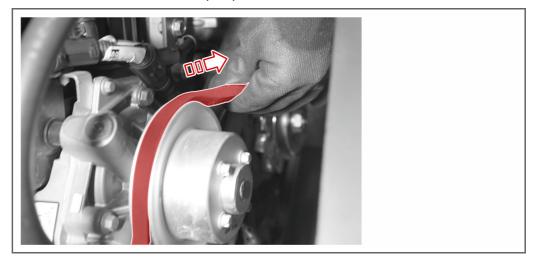


4. Loosen the belt tensioning screw with the aid of a ratchet.





**5.** Remove the alternator/water pump V-belt.





### 3.2.3.3 Installing the alternator/water pump V-belt

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The diesel engine must be cold.
- The parking brake is applied.
- The ignition key has been removed.
- The alternator/water pump V-belt has been removed (See "Removing the alternator/water pump V-belt" (Page 49))



#### Tools required:

- Protective gloves
- Suitable working platform
- New V-belt
- Ratchet with extension and SW 10 socket
- Ratchet with extension and SW 13 socket
- Wrench SW 10
- Wrench SW 13



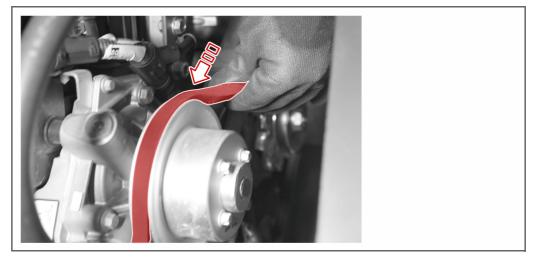
## Hazard of injuries to limbs by crushing and cutting!

The engine bay of the wheel loader is very cramped. You can be cut and crushed when performing maintenance tasks!

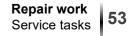
- ➔ Always wear protective gloves!
- ➔ Always work carefully!

Carry out the following steps:

1. Install the alternator/water pump V-belt.

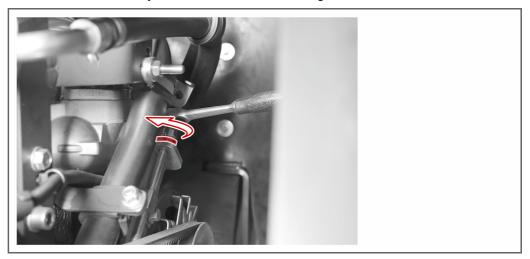




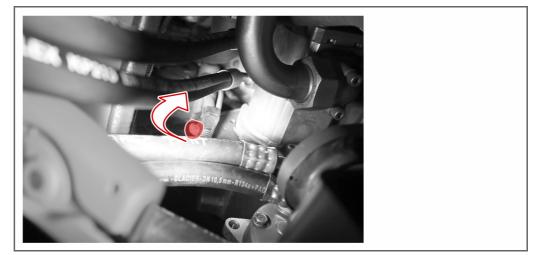




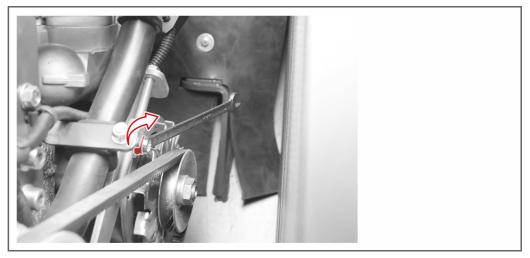
2. Tension the V-belt by means of the belt tensioning screw.

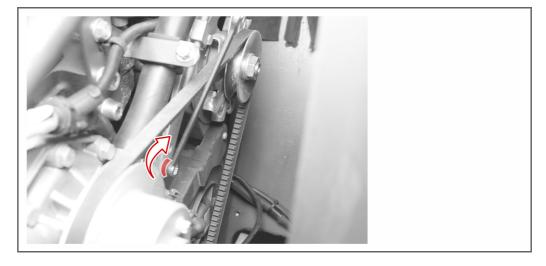


**3.** Tighten the tensioning screw with the aid of an Allen key.



**4.** Tighten the tensioning screw with the aid of an Allen key.





 $\textbf{5.} \ \ \text{Tighten the tensioning screw with the aid of an Allen key}.$ 

Done.



## 3.2.4 Changing the fuel pre-filter



#### The wheel loader is standing on a horizontal surface.

- The wheel loader is switched off.
- The diesel engine must be cold.
- The parking brake is applied.
- The engine hood of the wheel loader is open.
- The ignition key has been removed.



Tools required:

Requirement

- Strap wrench
- Protective gloves
- A new fuel pre-filter

Changing the fuel pre-filter



## Fire hazard due to ignition of the diesel fuel!

Burns may result. In addition, the wheel loader will be damaged by the fire!

- Smoking is prohibited when working on the fuel filter of the wheel loader!
- ➔ Immediately clean up any diesel fuel that has spilled.



#### Health hazard posed by diesel fuel!

- The diesel fuel is hazardous to health. Frequent skin contact can be carcinogenic.
- → Avoid continuous skin contact with the diesel fuel.
- ➔ Always wear gloves when carrying out this job.

# NOTICE

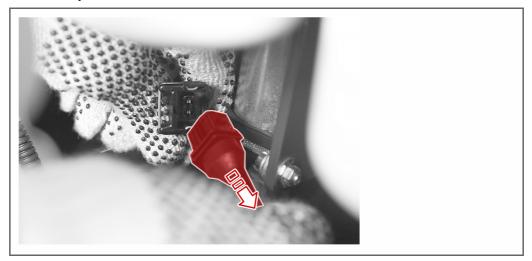
## Environmental hazard posed by diesel fuel!

The diesel fuel used by the wheel loader is hazardous to the environment!

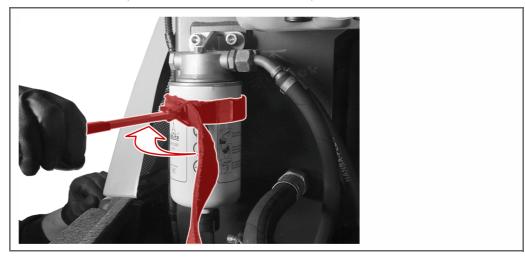
- ➔ Dispose of the diesel fuel according to the local statutory provisions,
- → Catch the draining diesel fuel in a suitable container.
- → Prevent the diesel fuel from entering the soil.

Carry out the following steps:

1. Carefully detach the connection cable for the water level sensor .

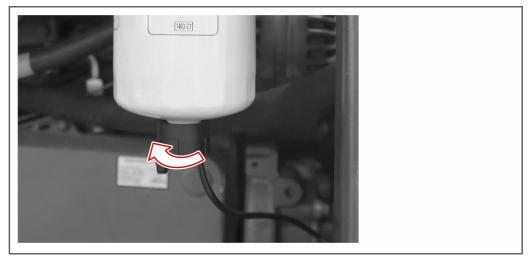


- 2. Place the strap of the strap wrench around the fuel pre-filter.
- **3.** Loosen the fuel pre-filter with the aid of the strap wrench.



**4.** Carefully pull the fuel pre-filter from the mounting.





5. Unscrew the water separator valve from the fuel pre-filter .

- 6. Fasten the water separator valve onto the new fuel pre-filter .
- 7. Screw the new fuel pre-filter into the mounting.
- **8.** Install the connection cable for the water level sensor.

The fuel pre-filter has been changed.

Bleeding the fuel system

Carry out the following steps:

- 1. Insert the ignition key of the wheel loader into the ignition lock.
- **2.** Turn the ignition key clockwise to Position **I**.
- → The ignition system of the wheel loader is switched on.
- $\rightarrow$  The fuel feed pump is switched on.
- 3. Wait 20 seconds.
- **4.** Turn the ignition key anti-clockwise to Position **0**.
- → The ignition system of the wheel loader is switched off.
- 5. Repeat steps <1 TO 4> twice.
- → The fuel system is bled piece by piece.
- → The fuel pressure required for operation is built up.

The fuel system has been bled.



## 3.2.5 Changing the fuel filter

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The diesel engine must be cold.
- The parking brake is applied.
- The engine hood of the wheel loader is open.
- The ignition key has been removed.

#### Tools required:



- Strap wrench
- Protective gloves
- two new fuel filters



### Fire hazard due to ignition of the diesel fuel!

Burns may result. In addition, the wheel loader will be damaged by the fire!

- → Smoking is prohibited when working on the fuel filter of the wheel loader!
- ➔ Immediately clean up any diesel fuel that has spilled.



#### Health hazard posed by diesel fuel!

The diesel fuel is hazardous to health. Frequent skin contact can be carcinogenic.

- → Avoid continuous skin contact with the diesel fuel.
- → Always wear gloves when carrying out this job.

# NOTICE

#### Environmental hazard posed by diesel fuel!

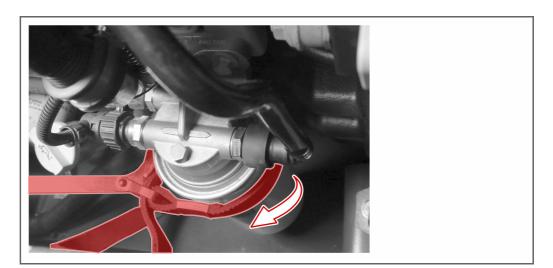
The diesel fuel used by the wheel loader is hazardous to the environment!

- → Dispose of the diesel fuel according to the local statutory provisions,
- $\rightarrow$  Catch the draining diesel fuel in a suitable container.
- → Prevent the diesel fuel from entering the soil.

Carry out the following steps:

- **1.** Place the strap of the strap wrench around the first fuel filter.
- **2.** Loosen the fuel filter with the aid of the strap wrench.





- 3. Carefully pull the fuel filter from both the mounting.
- **4.** Screw the new fuel filter into the mounting.



# 3.2.6 Changing the hydraulic fluid filter

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The diesel engine must be cold.
- The parking brake is applied.
- The engine hood of the wheel loader is open.
- The ignition key has been removed.

#### Tools required:



- Protective gloves
- Oil-absorbent mat
- Oil drip tray
- Drainage hose with Bochumer socket
- A new hydraulic fluid filter
- A suitable tool for the cap of the hydraulic fluid reservoir

# Drain the excess hydraulic fluid



## Health hazard posed by hydraulic fluid!

The hydraulic fluid is hazardous to health. Frequent skin contact can be carcinogenic.

- → Avoid continuous skin contact with the hydraulic fluid.
- → Always wear gloves when carrying out this job.

# NOTICE

## Environmental hazard posed by hydraulic fluid!

The used hydraulic fluid of the wheel loader is hazardous to the environment!

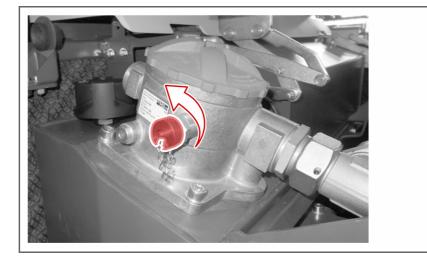
- ➔ Dispose of the used hydraulic fluid according to the local statutory provisions,
- → Catch the draining hydraulic fluid in a suitable container.
- → Prevent the hydraulic fluid from entering the soil.

Carry out the following steps:

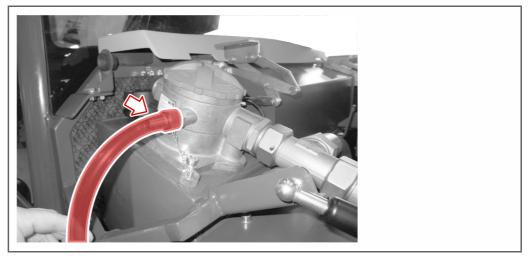
- **1.** Place the oil-absorbent mats around the hydraulic fluid reservoir.
- → The oil-absorbent mat protect the interior of the engine bay from contamination.



**2.** Loosen the protective cap of the hydraulic fluid reservoir drain valve.



- 3. Screw the drainage hose onto the drain valve of the hydraulic fluid reservoir.
  - *!* Catch the draining hydraulic fluid in a suitable container.



- → The excess hydraulic fluid begins draining.
- 4. Wait until the excess hydraulic fluid has drained completely.
- 5. Unscrew the drainage hose from the drain valve of the hydraulic fluid reservoir.
- 6. Fasten the protective cap of the hydraulic fluid reservoir drain valve.

The excess hydraulic fluid has been drained.

Remove the hydraulic fluid filter



# Health hazard posed by hydraulic fluid!

The hydraulic fluid is hazardous to health. Frequent skin contact can be carcinogenic.

- → Avoid continuous skin contact with the hydraulic fluid.
- $\rightarrow$  Always wear gloves when carrying out this job.

# NOTICE

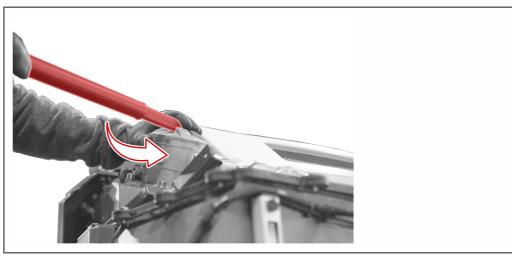
# Environmental hazard posed by hydraulic fluid!

The used hydraulic fluid of the wheel loader is hazardous to the environment!

- → Dispose of the used hydraulic fluid according to the local statutory provisions,
- → Catch the draining hydraulic fluid in a suitable container.
- → Prevent the hydraulic fluid from entering the soil.

Carry out the following steps:

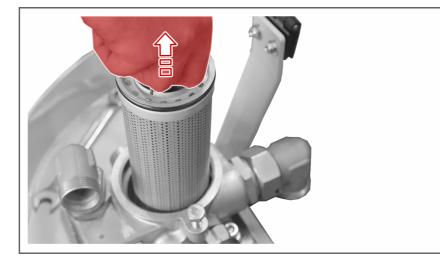
**1.** Using a suitable tool, loosen the cap of the hydraulic fluid reservoir.



2. Unscrew the cap by hand.







3. Withdraw the hydraulic fluid filter by the handle .

4. Allow the surplus hydraulic fluid to run into the hydraulic fluid reservoir .



- 5. Place the hydraulic fluid filter in the oil drip tray.
  - *!* The oil drip tray must be held by a second person.

The hydraulic fluid filter is dismounted.

Install the hydraulic fluid filter

- Carry out the following steps:
  - 1. Insert the new hydraulic fluid filter into the hydraulic fluid reservoir .
    - *!* The hydraulic fluid filter must engage.
  - 2. Screw the lid back onto the hydraulic fluid reservoir by hand.
  - **3.** Using a suitable tool, tighten the cap on the hydraulic fluid reservoir.
  - 4. Remove the oil-absorbent mats.

**5.** Dispose of the hydraulic fluid that has been collected, according to the local statutory provisions,

The hydraulic fluid filter is installed.

Done.

## 3.2.7 Changing the engine oil filter

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The diesel engine must be cold.
- The parking brake is applied.
- The engine hood of the wheel loader is open.
- The ignition key has been removed.

Tools required:

- Strap wrench
- Protective gloves
- A new engine oil filter
- Oil drip tray

# Dismounting the engine oil filter



#### Health hazard posed by engine oil!

The engine oil is hazardous to health. Frequent skin contact can be carcinogenic.

- → Avoid continuous skin contact with the engine oil.
- ➔ Always wear gloves when carrying out this job.

# NOTICE

#### Environmental hazard posed by engine oil!

The used engine oil of the wheel loader is hazardous to the environment!

→ Dispose of the used engine oil according to the local statutory provisions,

- → Catch the draining engine oil oil in a suitable container.
- ➔ Prevent the engine oil from entering the soil.

Carry out the following steps:

- **1.** Place the oil drip tray beneath the engine oil filter.
- ➡ The oil drip tray prevents the engine oil from penetrating the subsoil or entering the interior of the engine bay.
- 2. Place the strap of the strap wrench around the engine oil filter.







**3.** Loosen the engine oil filter with the aid of the strap wrench.

4. Carefully pull the engine oil filter from both the hose ends .

The engine oil filter has been removed.

Install the new engine oil filter

Carry out the following steps:

- **1.** Coat the sealing surfaces of the new engine oil filter with fresh lubricating oil.
- 2. Screw the new engine oil filter into the mounting.
- **3.** Tighten the engine oil filter by hand.
- 4. Check the oil level of the engine.
- **5.** Dispose of the engine oil that has been collected, according to the local statutory provisions,

The new engine oil filter has been installed.

Done.

# 3.2.8 Changing the air filter

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The diesel engine must be cold.
- The engine hood of the wheel loader is open.
- The ignition key has been removed.

# Tools required:

- A new air filter cartridge
- A new safety cartridge

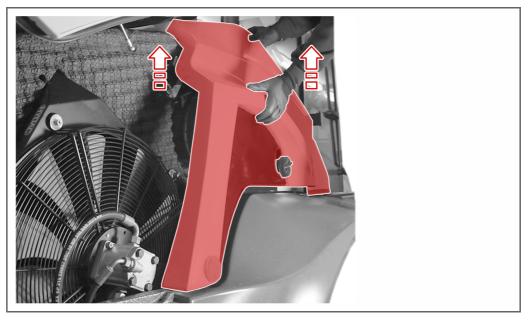
Carry out the following steps:



**1.** Open the cladding closure.



**2.** Remove the cladding.



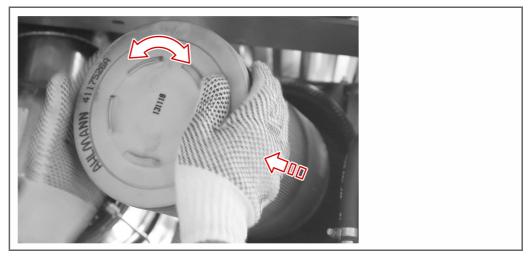


**3.** Open the three locking mechanisms of the lid.



**4.** Remove the air filter cartridge.

*!* Loosen the air filter cartridge with gentle rotating movements left and right.

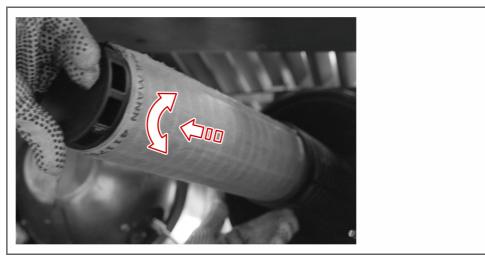


The air filter cartridge has been removed.

Exchanging the safety cartridge.

Carry out the following steps:

- **1.** Remove the safety cartridge.
  - *I* Loosen the safety cartridge with gentle rotating movements left and right.



- 2. Check the interior of the filter housing for dust and dirt.
  - *!* If necessary, carefully clean the interior of the filter housing with a cloth.





**3.** Slide the new safety cartridge carefully into the filter housing.

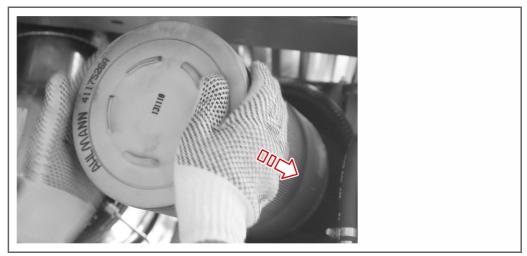


The safety cartridge has been exchanged.

Re-install the air filter cartridge

Carry out the following steps:

**1.** Slide the new air filter cartridge into the holder.



- 2. Re-install the lid.
  - ${\it I}$  When re-installing, take care that the dust ejection valve faces downwards .
- **3.** Secure the three locking mechanisms of the lid.



4. Install the cladding.

The air filter cartridge has been installed.

Done.

# 3.3 Changing the consumables

# 3.3.1 Changing the engine oil

### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The ignition key has been removed.
- The engine must be warm.



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#### Tools required:

- A sufficiently large oil collection container
- a drainage hose with Bochumer socket
- Wrench SW 13
- Protective gloves

Draining the engine oil

# WARNING

# Health hazard posed by engine oil!

The engine oil is hazardous to health. Frequent skin contact can be carcinogenic.

- ➔ Avoid continuous skin contact with the engine oil.
- Always wear gloves when carrying out this job.

# NOTICE

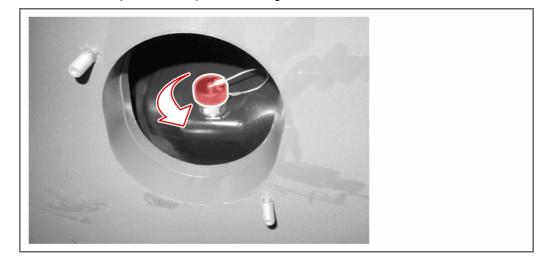
## Environmental hazard posed by engine oil!

The used engine oil of the wheel loader is hazardous to the environment!

- $\Rightarrow$  Dispose of the used engine oil according to the local statutory provisions,
- → Catch the draining engine oil oil in a suitable container.
- ➔ Prevent the engine oil from entering the soil.

Carry out the following steps:

- 1. Loosen the two mounting screws of the sump guard.
- 2. Remove the sump guard.
- **3.** Place the oil drip tray next to the wheel loader.



**4.** Unscrew the protective cap from the engine oil drain valve.

- 5. Screw the drainage hose onto the engine oil drain valve.
- *!* Catch the draining engine oil in a suitable container.

- → The engine oil begins draining.
- 6. Wait until the engine oil has drained completely.
- 7. Unscrew the drainage hose from the engine oil drain valve.
- **8.** Screw the protective cap onto the engine oil drain valve.

The engine oil has been drained.



Topping up the engine oil

Carry out the following steps:

1. Open the cap of the engine oil filler nozzle.



- **2.** Using a suitable funnel pour the engine oil into the open engine oil filler nozzle.
- **3.** Close the cap of the engine oil filler nozzle.
- 4. Wipe off any spilled engine oil with a cloth .

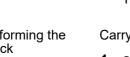
The engine oil has been changed.

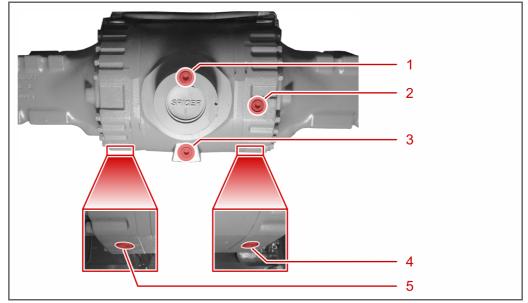
Performing the check

- Carry out the following steps:
- **1.** Switch on the diesel engine.
- **2.** Allow the diesel engine to idle for a short while.
- **3.** Switch off the diesel engine.
- **4.** Inspect the sump and the oil drain plug for leaks.
- 5. Remove the oil collection container.
- **6.** Re-install the sump guard on the wheel loader using the two mounting screws.
- 7. Dispose of the engine oil that has been collected according to the local statutory provisions.
- **8.** Using the engine oil dipstick, check the engine oil level.
- **9.** Top up the engine oil as required.

The check is complete.







### 3.3.2 Changing the gearbox oil of the front axle

Location of the bolts on the front axle

#### Key

No.	Designation
1	Filler plug
2	Oil level plug
3	Drain plug
4	Drain plug
5	Drain plug



#### Requirement

- The wheel loader is warmed up.
- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The ignition key has been removed.



Tools required:

- Allen key SW 12
- new copper sealing ring
- Oil drip tray
- Protective gloves
- · Suitable, fresh gearbox oil

Draining the gearbox oil



#### Health hazard posed by gearbox oil!

The gearbox oil is hazardous to health. Frequent skin contact can be carcinogenic.

- ➔ Avoid continuous skin contact with the gearbox oil.
- ➔ Always wear gloves when carrying out this job.

## NOTICE

#### Environmental hazard posed by gearbox oil!

The used gearbox oil of the wheel loader is hazardous to the environment!

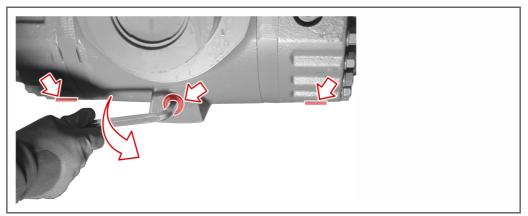
- → Dispose of the used gearbox oil according to the local statutory provisions,
- → Catch the draining gearbox oil in a suitable container.
- ➔ Prevent the gearbox oil from entering the soil.

Carry out the following steps:

- **1.** Place an oil drip tray beneath the front axle.
- → The oil drip tray prevents the gearbox oil from penetrating the subsoil.

- **2.** Using an Allen key, unscrew the oil level plug.

**3.** Using an Allen key, unscrew the three oil drain plugs.



- → The gearbox oil drains immediately.
- 4. Wait until the gearbox oil has drained completely.
- **5.** Using an Allen key, screw the three drain plugs back into the front axle.

The gearbox oil has been drained.

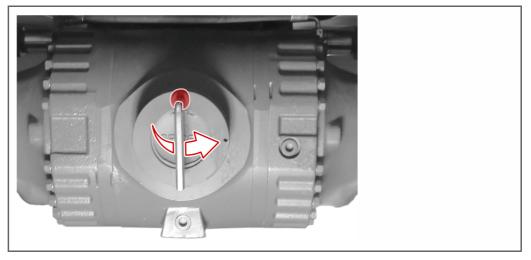




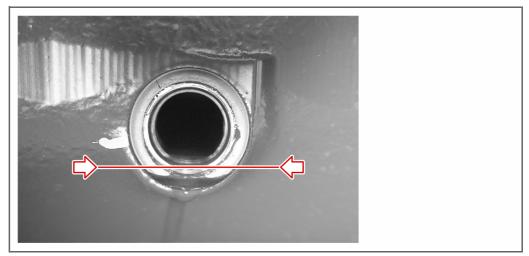
Refilling the gearbox oil

Carry out the following steps:

**1.** Using an Allen key, unscrew the oil drain plug.



**2.** Pour fresh gearbox oil into the filler gallery until the oil level reaches the lower edge of the inspection port.



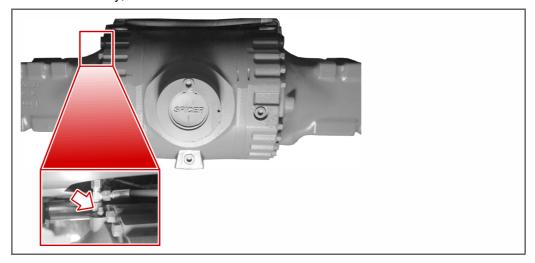
- **3.** Fit a new copper ring in the inspection port.
- **4.** Using an Allen key, secure the oil level plug.
- **5.** Using an Allen key, secure the oil filler plug.
- **6.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,

The gearbox oil has been refilled.

Performing the check

Carry out the following steps:

- **1.** Check that the axle vent valve is free of contamination.
  - *!* If necessary, clean the axle vent valve .

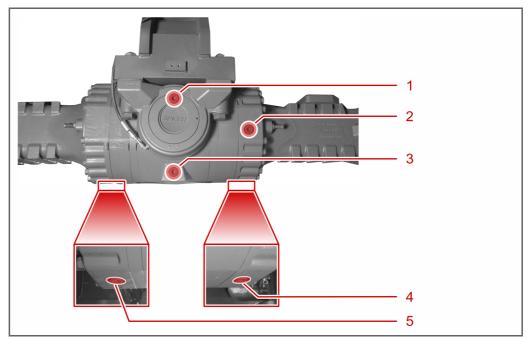


**2.** Inspect the rear axle and the oil drain bolt for leaks.

The check is complete.

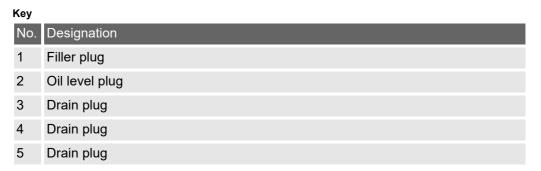
Done.





### 3.3.3 Changing the gearbox oil of the rear axle

Location of the bolts on the front axle





#### Requirement

- The wheel loader is warmed up.
- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The ignition key has been removed.

#### Tools required:

- - Oil drip tray
  - Protective gloves

Allen key SW 12

- · Suitable, fresh gearbox oil
- new copper ring for sealing the inspection port



# WARNING

#### Health hazard posed by gearbox oil!

The gearbox oil is hazardous to health. Frequent skin contact can be carcinogenic.

- $\Rightarrow$  Avoid continuous skin contact with the gearbox oil.
- ➔ Always wear gloves when carrying out this job.

# NOTICE

#### Environmental hazard posed by gearbox oil!

The used gearbox oil of the wheel loader is hazardous to the environment!

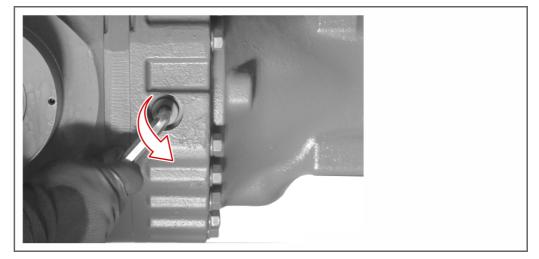
- → Dispose of the used gearbox oil according to the local statutory provisions,
- → Catch the draining gearbox oil in a suitable container.
- → Prevent the gearbox oil from entering the soil.

Carry out the following steps:

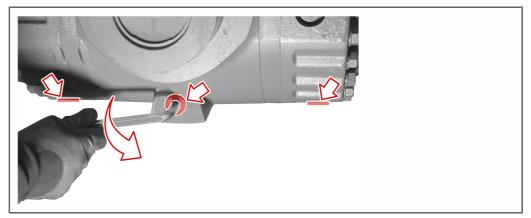
- **1.** Place an oil drip tray beneath the rear axle.
- → The oil drip tray prevents the gearbox oil from penetrating the subsoil.



**2.** Using an Allen key, unscrew the oil level plug.



3. Using an Allen key, unscrew the three oil drain plugs.



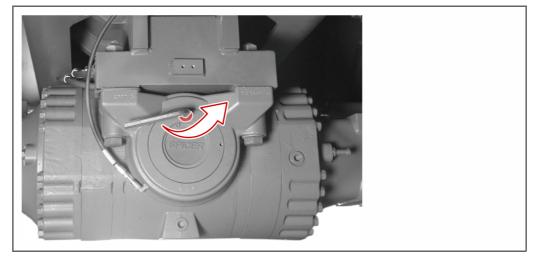
- → The gearbox oil drains immediately.
- 4. Wait until the gearbox oil has drained completely.
- **5.** Using an Allen key, screw the three drain plugs back into the rear axle.

The gearbox oil has been drained.

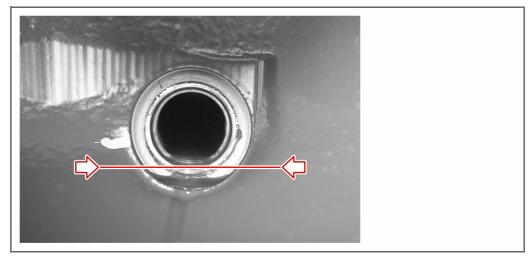
Refilling the gearbox oil

Carry out the following steps:

**1.** Using an Allen key, unscrew the oil drain plug.



**2.** Pour fresh gearbox oil into the filler gallery until the oil level reaches the lower edge of the inspection port.



- **3.** Fit a new copper ring in the inspection port.
- **4.** Using an Allen key, secure the oil level plug.
- **5.** Using an Allen key, secure the oil filler plug.
- **6.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,

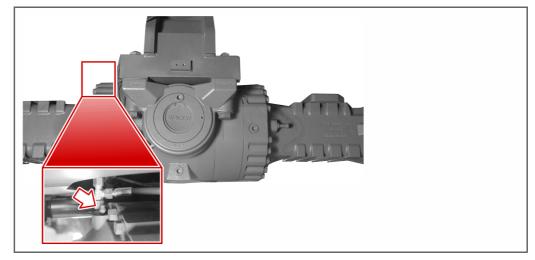
The gearbox oil has been refilled.



Performing the check

Carry out the following steps:

- **1.** Check that the axle vent valve is free of contamination.
  - *!* If necessary, clean the axle vent valve .



**2.** Inspect the rear axle and the oil drain bolt for leaks.

The check is complete.



#### 3.3.4 Changing the gearbox oil of the planetary gear

#### Requirement

- The wheel loader is warmed up.
- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The ignition key has been removed.

#### Tools required:

- Allen key SW 12
- Oil drip tray
- Protective gloves
- Suitable, fresh gearbox oil

#### Draining the gearbox oil < /



#### Health hazard posed by gearbox oil!

The gearbox oil is hazardous to health. Frequent skin contact can be carcinogenic.

- → Avoid continuous skin contact with the gearbox oil.
- $\rightarrow$  Always wear gloves when carrying out this job.

# NOTICE

#### Environmental hazard posed by gearbox oil!

- The used gearbox oil of the wheel loader is hazardous to the environment!
- → Dispose of the used gearbox oil according to the local statutory provisions,
- → Catch the draining gearbox oil in a suitable container.
- → Prevent the gearbox oil from entering the soil.



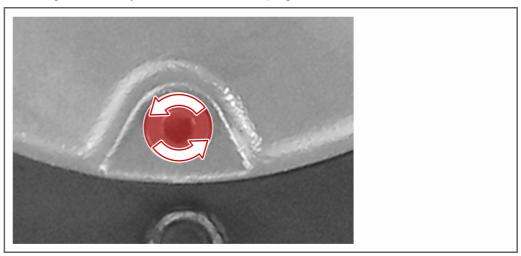
# Mecalac

Carry out the following steps:

**1.** Move the wheel loader so that the oil level plug of the planetary gear is at the lowest position.



- **2.** Place an oil drip tray in the tyre rim.
- $\rightarrow$  The oil drip tray prevents the gearbox oil from penetrating the subsoil.
- **3.** Using an Allen key, unscrew the oil level plug.



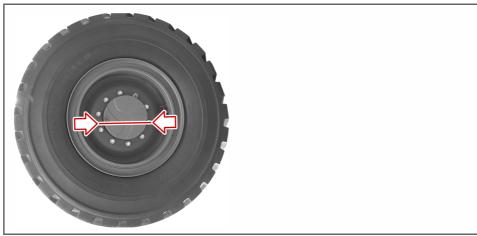
- → The gearbox oil drains immediately.
- **4.** Wait until the gearbox oil has drained completely.
- **5.** Using an Allen key, fasten the oil level plug in teplanetary gear.

The gearbox oil has been drained.

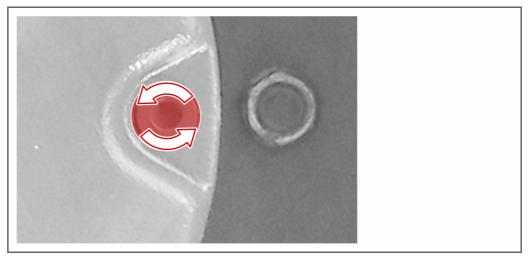
Refilling the gearbox oil

Carry out the following steps:

**1.** Move the wheel loader so that the inspection plug of the planetary gear is horizontal .



**2.** Using an Allen key, unscrew the oil level plug.



**3.** Pour fresh gearbox oil into the inspection port.

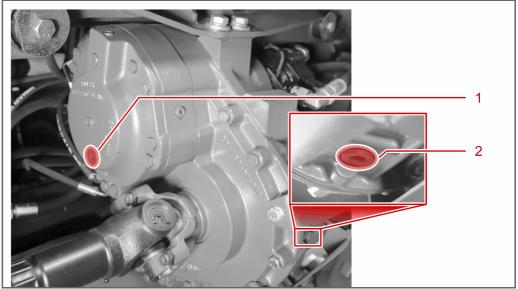
! The oil level must reach precisely below the lower edge of the inspection port.

- **4.** Using an Allen key, secure the oil level plug.
- 5. Wipe off any escaping gearbox oil with a cloth .
- **6.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,

The gearbox oil has been refilled.

✓ Done.

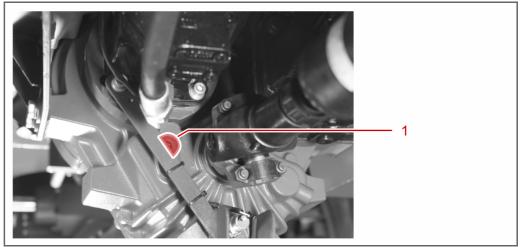




3.3.5 Changing the gearbox oil of the reduction gear

Location of the bolts on the of the reduction gear

Key	
No.	Designation
1	Filler and inspection plug
2	Drain plug



Location of the bolts on the of the reduction gear

Key

No.	Designation
1	Filler and inspection plug



#### Requirement

- The wheel loader is warmed up.
- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The parking brake is applied.
- The ignition key has been removed.

#### Tools required:

- Allen key SW 12
- Oil drip tray
- Protective gloves
- Suitable, fresh gearbox oil

Draining the gearbox oil

# 

#### Health hazard posed by gearbox oil!

The gearbox oil is hazardous to health. Frequent skin contact can be carcinogenic.

- → Avoid continuous skin contact with the gearbox oil.
- $\rightarrow$  Always wear gloves when carrying out this job.

# NOTICE

#### Environmental hazard posed by gearbox oil!

The used gearbox oil of the wheel loader is hazardous to the environment!

→ Dispose of the used gearbox oil according to the local statutory provisions,

- $\rightarrow$  Catch the draining gearbox oil in a suitable container.
- ➔ Prevent the gearbox oil from entering the soil.

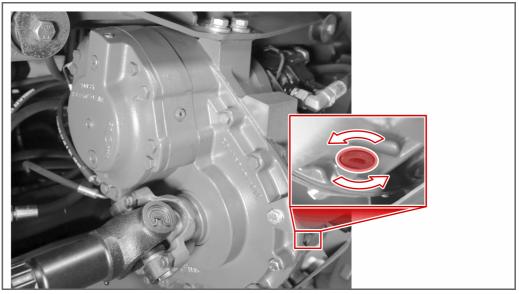
Carry out the following steps:

- **1.** Place an oil drip tray beneath the reduction gear.
- → The oil drip tray prevents the gearbox oil from penetrating the subsoil.
- 2. Using an Allen key, unscrew the filler and inspection plug.





**3.** Using an Allen key, unscrew the oil drain plug.



- → The gearbox oil drains immediately.
- 4. Wait until the gearbox oil has drained completely.
- **5.** Using an Allen key, secure the oil drain plug.

The gearbox oil has been drained.

Refilling the gearbox oil

Carry out the following steps:

**1.** Pour fresh gearbox oil into the reduction gear.

! The oil level must reach precisely below the lower edge of the inspection port .

- 2. Using an Allen key, screw in the filler and inspection plug until tight.
- **3.** Remove the oil collection container.
- **4.** Dispose of the gearbox oil that has been collected, according to the local statutory provisions,

The gearbox oil has been refilled.

🗸 Done.

#### 3.3.6 Topping up the hydraulic fluid

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The ignition key has been removed.
- The parking brake is applied.

#### Tools required:



- Cloths
- Protective gloves
- Wrench SW 30
- Suitable, fresh gearbox oil

Carry out the following steps:

- **1.** Using a ratchet, unscrew the screw plug for topping up the hydraulic fluid.
- **2.** Pour in the hydraulic fluid.
- **3.** Using a ratchet, screw in the screw plug for topping up the hydraulic fluid until tight.
- 4. Wipe off any spilled hydraulic fluid with a cloth .
- ✓ Done.

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### 3.3.7 Refilling with diesel fuel



- The wheel loader is standing on a horizontal surface.
- The wheel loader is switched off.
- The ignition key has been removed.
- The parking brake is applied.

#### Tools required:

Requirement

- Cloths
  - Ignition key
  - Protective gloves
  - Allen key SW 6
  - Diesel fuel collection container
  - suitable fresh diesel fuel

Drain the diesel fuel

## WARNING

#### Fire hazard due to ignition of the diesel fuel!

Burns may result. In addition, the wheel loader will be damaged by the fire!

- → Refuel the wheel loader only once it has cooled down.
- → Smoking is strictly prohibited when refuelling the wheel-loader!
- ➔ Immediately clean up any diesel fuel that has spilled.



#### Health hazard posed by diesel fuel!

The diesel fuel is hazardous to health. Frequent skin contact can be carcinogenic.

- ➔ Avoid continuous skin contact with the diesel fuel.
- ➔ Always wear gloves when carrying out this job.

### NOTICE

#### Environmental hazard posed by diesel fuel!

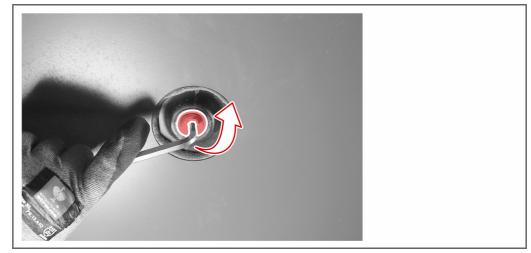
The diesel fuel used by the wheel loader is hazardous to the environment!

- $\twoheadrightarrow\,$  Dispose of the diesel fuel according to the local statutory provisions,
- → Catch the draining diesel fuel in a suitable container.
- ➔ Prevent the diesel fuel from entering the soil.

Carry out the following steps:

- 1. Place a diesel fuel collection container beneath the diesel fuel tank.
- ➡ The diesel fuel collection container prevents the diesel fuel from penetrating the subsoil.

**2.** Using an Allen key, unscrew the oil drain plug.



- → The diesel fuel drains immediately.
- 3. Wait until the diesel fuel has drained completely.
- 4. Using an Allen key, secure the oil drain plug.

The diesel fuel has been drained.

Refilling diesel fuel Carry out the following steps:

 $\checkmark$ 

- **1.** Open the tank cap of the diesel fuel filling nozzle.
- **2.** Carefully pour the diesel fuel into the tank.
- **3.** Close the tank cap of the diesel fuel filling nozzle.
- 4. Wipe off any spilled diesel fuel with a cloth .

The diesel fuel has been topped up.

Done.



## 3.4 Lubrication

In this chapter you will find information regarding the lubrication of the wheel loader.

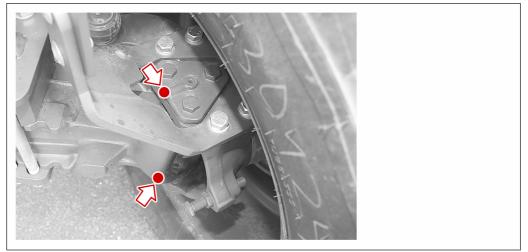
#### 3.4.1 Lubrication plan

In this chapter you will find information regarding the greasing of the wheel loader. In addition, you may find further lubrication points on the installed attachments.

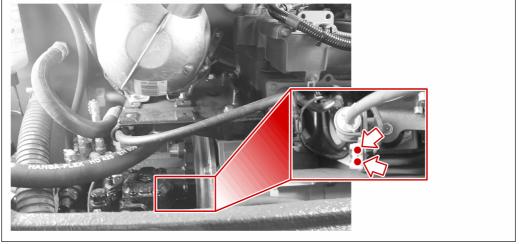
Lubrication intervals	Part on wheel loader	Number of lubrication points
after 50 hours of opera- tion	Front and rear axles	<b>8</b> lubrication points, see Section "Lubrication points - front and rear axles" (Page 93).
	Interior of engine compart- ment	<b>2</b> lubrication points, see Section "Lubrication points - interior of engine compart- ment" (Page 94).
after 500 hours of opera- tion	Turntable chain	<b>s</b> ee Section "Lubricating the turntable chain" (Page 94)
	Return	<b>s</b> ee Section "Return" (Page 96)
	Support valve	<b>s</b> ee Section "Support valve" (Page 96)

Swing loader lubrication plan AS 1600

#### 3.4.2 Lubrication points - front and rear axles



Front and rear axles | 2 kingpin lubrication points per wheel



#### 3.4.3 Lubrication points - interior of engine compartment

Interior of engine compartment | 2 lubrication points

#### 3.4.4 Lubricating the turntable chain

#### Requirement

- The wheel loader is standing on a horizontal surface.
- The parking brake is applied.

#### Tools required:

- A second person who operates the wheel loader.
- Protective gloves
- Suitable working platform
- Grease brush
- Multi-purpose grease
- Wrench SW 13

# CAUTION

#### Hazard of injuries to limbs by crushing and cutting!

The engine bay of the wheel loader is very cramped. You can be cut and crushed when performing maintenance tasks!

- ➔ Always wear protective gloves!
- → Always work carefully!

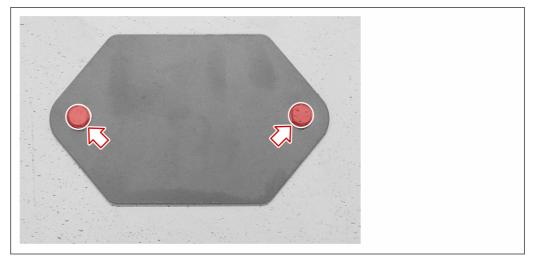
Carry out the following steps:

- 1. Lift the lift arm
- 2. Secure the lift arm support.

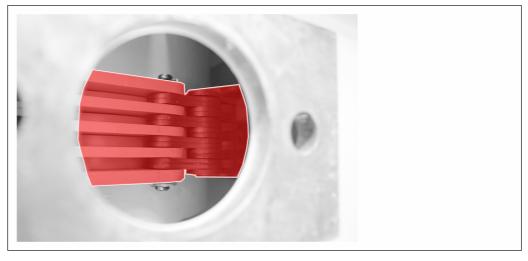




**3.** Using an Allen key, loosen the protective plate of the turntable chain.

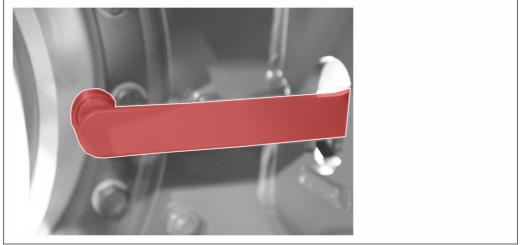


- **4.** Slowly move the lift arm completely to the right and to the left once.
  - *!* While moving, lubricate the turntable chain by means of a grease brush.



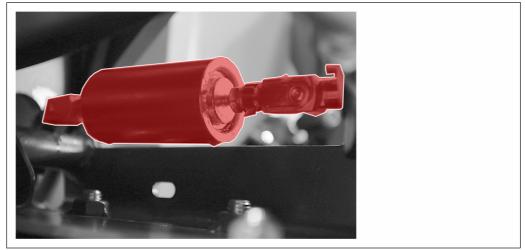
The turntable chain has been lubricated.

3.4.5 Return



Lubricate fork, return and roller

### 3.4.6 Support valve



Support valve



# 4 Circuit diagrams

Circuit diagrams can be obtained from Mecalac on request.

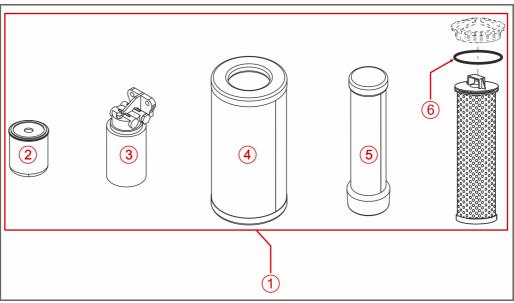


# 5 Annex

# 5.1 Spare Parts

#### 5.1.1 Filter

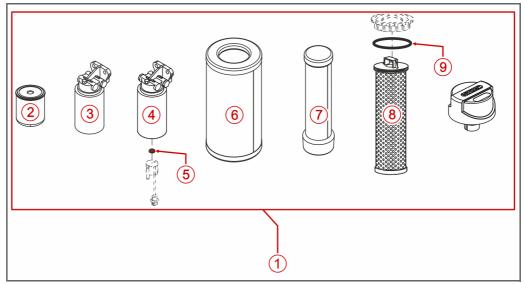
### 5.1.1.1 Filter set after 500 operating hours



Filter set after 500 operating hours – Overview

Key		
No.	Designation	Mecalac TKZ
1	Filter set after 500 operating hours	23133676
2	Engine oil filter	23110650
3	Fuel filter	23133679
4	Air filter insert	4110553A
5	Safety cartridge	4110552A
6	Hydraulic fluid filter	23133680
7	O-ring	4197692A

#### 5.1.1.2 Filter set after 1000 operating hours



Filter set after 1000 operating hours – Overview

Key		
No.	Designation	Mecalac TKZ
1	Filter set after 1000 operating hours	23133677
2	Engine oil filter	23110650
3	Fuel filter	23133679
4	Fuel pre-filter	23133338
5	Round sealing ring	23124774
6	Air filter insert	4110553A
7	Safety cartridge	4110552A
8	Hydraulic fluid filter	23133680
9	O-ring	4197692A
10	Breather filter	6050206

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### 5.1.2 Consumables

Кеу		
Designation	Quantity	Mecalac TKZ
Engine oil	8,0 Litre	2320062
Gearbox oil	35,8 Litre	23104578
Hydraulic fluid	140,0 Litre	6761056
Lubricating grease cartridge	1	4117807
Coolant	19,0 Litre	23129554
Gearbox oil/transfer box oil	3,4 Litre	2320066

# 5.2 Deutz error messages

C-List	nosis- and Errorcodes
DTC-L	Diagnos

referrenced ECU-Software P490\_: 220, 310, 501 P491\_: 220, 310, 400, 501

P492\_: 213 P513\_: 214, 300

Deuts-Code / SPN / Fehlername Seite	701 /	58 / 701 / Dummv1CD Min	701 /	702 /	702 /	702 /	2791	2791/	. ~	_		190 /		78 / 190 / EngMOfsCaSCrS	79 / 190 / EngPrtSysReacFOC	80 / 190 / EngPrtSvsReacORC	81 / 703 / ESĽpCD	82 / 1074 / ExFICD.	83 / 975 / FanCD.	85 / 1639 / FanCDEval	86 / 523602 / FanCDSysReac	87 / 97 / FIFCD	89 / 97 / FIFCD_WtLvl	90 / 94 / FIPSCD	91 / 94 / FIPSCDSysReac	94 / 523239 / FrmMngDecV1	95 / 523240 / FrmMngFunModCtl	106 / 523212 / FrmMngTOEngPrt.	110 / 523216 / FrmMngTOPrHtEnCmd	112 / 523218 / FrmMngTORxCCVS	113 / 523604 / FrmMngTORxEngTemp	117 / 523238 / FrmMngTOSwtOut	523222 /	
<mark>Deultz-Corde / SDN / Eahlername Seite</mark>	12/91/APP1 3			6 / 108 / APSCD 4		18 / 730 / ArHt2 5	676	676 /	22 / 168 / BattCD 6	168 /	5235	523563 /	523564	523565 /	<mark>29</mark> / 523566 / BIPCýl6	<mark>30</mark> / 523567 / BIPCVI7	<mark>31</mark> / 523568 / BIPCVI8		33 / 102 / BPSCDSysReac	7 / 111 / CLSCDSvsReac10	38 / 1323 / CmbChbMisfire1	<mark>39</mark> / 1324 / CmbChbMisfire2	40 / 1325 / CmbChbMisfire3	1 / 1326 / CmbChbMisfire4	42 / 1327 / CmbChbMisfire5	43 / 1328 / CmbChbMisfire612	44 / 1450 / CmbChbMisfire7	45 / 1451 / CmbChbMisfire8	46 / 1322 / CmbChbMisfireMul13	7 / 1346 / CmbChbSysReac13	48 / 1109 / CoEngShÓffDemlgr13	<mark>52</mark> / 1072 / CRERCD14	1081/	704 / 0

 Deutz-Code / SPN / Fehlername Seite
 2 / 523607 / FrmMndTOTSC1DF
 23 / 523608 / FrmMngTOTSC1DR
 23609 / FrmMngTOTSC1P
 / FrmMngT
 <mark>6</mark> / 520 / Frm
 610 / FrmMngTOTSC1VE
 8 / 523611 / FrmMngTOTSC1VR
 1 / 523500 / FrmMngTxTO
 3 / 174 / FTSCD
 4 / 17
 <mark>6</mark> / 523618 / GO
 7/5
 138 / 29 / HdThrt
 139 / 1638 / HOTSCD
 140 / 1638 / HOTSCDSysReac32
 141 / 523617 / HWEMonCom
 0 / HWEMonEEPROM
 312 / HWEMonRcyLocked
 3612 / I
 3612 / HWEMonRcyVisible
 6 / 523612 / HWEMonUMaxSupply
 147 / 523612 / HWEMonUMinSupply
 <mark>9</mark> / 105 / I
 0 / 105 / IATSCDSysReac
 153 / 523350 / InjVlvBnk1A
 154 / 523351 / InjVIvBnk1B
 155 / 523352 / InjVlvBnk2A
 156 / 523353 / InjVlvBnk2B
 157 / 523354 / InjVIvChipA37
 23355 / Inj\
 3
 51 / InjVlvCýl1B
 1 / 652 / InjVIvCyl2A
 <mark>62</mark> / 652 / InjVIvCyl2B
 3 / 653 / InjVIvCyI3A
 4 / 653 / InjVIvCyI3B
 165 / 654 / InjVIVCyI4A

	Erroro
List	iosis- and I
DTC-	Diagno

odes

referrenced ECU-Software P490\_: 220, 310, 501 P491\_: 220, 310, 400, 501

P492\_: 213 P513\_: 214, 300

Deutz-Code / SPN / FehlernameSeite	Deutz-Code / SPN / FehlernameSeite
166 / 654 / InjVIvCyI4B	211 / 523613 / RailMeUn0
167 / 655 / IniVIvCyl5A 40	212 / 523613 / RailMeUn1
168 / 655 / IniVIvCvI5B40	
169 / 656 / InjVIvCýl6A	523613 /
170 / 656 / InjVIvCýl6B	215 / 523613 / RailMeUn453
171 / 657 / InjVIvCyI7A	216 / 523613 / RailMeUn7
172 / 657 / InjVIvCyI7B	218 / 523490 / SOPTst54
173 / 658 / InjVIvCýl8A	219 / 1079 / SSpMon1
174 / 658 / InjVIvCyI8B	221 / 1080 / SSpMon255
175 / 523370 / InjVivErrDet	222 / 523601 / SSpMon355
176 / 523615 / MeUnCD_ADC	223 / 677 / StrtCDHS
177 / 523615 / MeUnCDNoLoad43	224 / 677 / StrtCDLS
178 / 523615 / MeUnCDSCBat	225 / 624 / SysLamp56
179 / 523615 / MeUnCDSCGnd	
182 / 2634 / MnRly1_SCB	227 / 523550 / T50CD57
183 / 2634 / MnRly1_SCG.	228 / 523550 / TPUMon57
184 / 523420 / Montr	232 / 84 / VSSCD1
186 / 2634 / MRIVCD	235 / 523600 / WdCom
187 / 563 / MRIyCDMnRIy2	236 / 523470 / PRVMonSysReac
188 / 2634 / MŘlyCDMnŘly3	237 / 523006 / APPCDSwinSel
189 / 523450 / MSSCD1	238 / 523007 / FrmMng_TORxEngPress59
190 / 523451 / MSSCD247	239 / 523008 / MplCtl
191 / 523452 / MSSCD3	240 / 98 / OLSCD
192 / 639 / NetMngCANAOff47	241 / 98 / OLSCDSysReacHi60
193 / 1231 / NetMngCANBOff48	242 / 107 / ADPSCDAna60
	~
705 /	<sup>/</sup> 523009 / PrvMonWear
100 /	523010 / RailMeUn8
197 / 100 / OPSCD1	523650 / FISys_FLPFMSysReac
198 / 100 / OPSCDSysReacHi 49	247 / 523651 / FISys_FTSFMSysReac62
199 / 100 / OPSCDSysReacLo50	248 / 523652 / FISys_FlushStateEngineOff62
/ OSwCD	523653 /
201 / 175 / OTSCD	250 / 523654 / FrmMngDieselLvl63
teac	251 / 523655 / FrmMngFuelTemp63
208 / 523470 / PRVMon51	523656
$\sim$	/ FrmM
210 / 157 / RailCDOtsTst52	254 / 523658 / FrmMngRapeOilLvI64

Seite	64	65	65	92	99	99
Deutz-Code / SPN / FehlernameSeite	255 / 523659 / FrmMngRapeOilVIv1	256 / 523660 / FrmMngRapeOilVIv2	257 / 523661 / FrmMngRapeOilVIv3	258 / 523662 / FrmMngRapeOilVlv4	259 / 523663 / FrmMngRapeOilVlv5	260 / 523664 / FrmMngSTIN1RX

DEUTZ AG, TE-CE, Fi

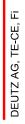
Seite 2

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	D
11 / 107 / AirFltSysReac	12 / 91 / APP1		14 / 91 / APPPwm
Error description AIR FILTER COND.	Error description THROTTLE 1		Error description THROTTLE 1
Air filter differential pressure: the pressure difference of the intake	Analog accelerator pedal sensor 1 or double accelerator pedal	le accelerator pedal	Digital accelerator pedal sensor (PWM): the signal received by
air between the filter inlet and outlet calculated by ECU is above the tarnet ranne and the ECU activates a system reaction	sensor: the voltage measured by ECU is out of the target range or the calculated nedal nosition is implausible compared with the	ut of the target range	ECU is detective or implausible or the pulse-duty factor is out of the farnet ranne
Error codes	position of the second pedal		Error codes
DEUTZ-Errorcode: 11	Error codes		DEUTZ-Errorcode: 14
BlinkCode (short-long-short): 1 - 3 - 6	DEUTZ-Errorcode: 12		BlinkCode (short-long-short): 2 - 2 - 2
SPN: 10/ mossible EMI:	BlinkCode (short-long-short): 2 - 2 - 6		SPN: 91 Doceihle FMI:
0: data valid, but above normal working area	possible FMI:		8: unusual frequency. pulse or period.
12. Errormode not identifiable	3: Voltage to high or short circuit to +Ubatt	0 +Ubatt	8: unusual frequency, pulse or period.
12. Errormode not identifiable	4: Voltage to low or short circuit to -Ubatt	-Ubatt	2: data stream is defective
12. Errormode not identifiable	12. Errormode not identifiable		8: unusual frequency, pulse or period.
Errordetection	2: data stream is defective		Errordetection
Errorlamp shows permanent light. Entry in errormemory	Errordetection		Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Possible reason for error
Pressure loss above target range with system reaction, air filter	Possible reason for error		Duty cycle outside target range, signal erroneous or implausible
clogged or defective, sensor not working, connection cable	Voltage outside target range, signal implausible compared to	sible compared to	(pedal 1), sensor defective, onnection cable demaged
aemagea Tako aationa far arrar ranair	signal of redundant pedal (analog pedal 1), sensor defective, connection cable democed	sensor derective,	Phote actions for error repair Chote actions and active action active activ
Lake actions for error repair Check airfilter and if necessary clean or renew it icheck cabling	Take actions for error repair		Criteck cabling, criteck accetator peual serisor and it riecessary renlace it check connection cable and if necessary renair or
check air filter and if necessary replace the filter component.	Check cabling check accelator pedal sensor and if necessary	or and if necessary	replace it arow compound again and in recorded 7 repair of
check sensor and if necessary replace it, check connection cable	replace it, check connection cable and if necessary repair or	ecessary repair or	other error properties
and if necessary repair or replace it	replace it		System reaction: Warning, switching to substitute value
other error properties	other error properties		correspond to Priority-Chain or Limp Home
System reaction: Warning or Warning and power reduction	System reaction: Warning, switching to substitute value	stitute value	Behaviour error lamp: permanent light
Benavlour error lamp: permanent light Salfhaaling: vas	Correspond to Priority-Chain or Limp Home Behaviour arror Jamo: narmanent licht		Settnealing: yes Signal Drivity: A
Sinnal Priority: 2	Selfhealing: no		oignar i nonity. 4 Measurement @ errortime: actual value
Measurement @ errortime: actual value	Signal Priority: 4		
	Measurement @ errortime: actual value		

Seite 3

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	Personal
15 / 01 / ADDWmDer	16 / 108 / APSCD		17 / 700 / ArHt1
<ul> <li>15, 191 / APPPwmPer</li> <li>Error description THROTTLE 1</li> <li>digital accelerator pedal sensor (PWM): the frequence of the signal received by ECU is out of the target range Error codes</li> <li>DEUTZ-Errorcode: 15</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>DEUTZ-Errorcode: 15</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>DEUTZ-Errorcode: 15</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>DEUTZ-Errorcode: 15</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>DEUTZ-Errorcode: 15</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>DEUTZ-Errorcode: 15</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>DEUTZ-Errorcode: 15</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>DEUTZ-Errorcode: 15</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>DEUTZ-Errorcode: 16</li> <li>Blink Gel (short-long-short): 2 - 2 - 2</li> <li>Spn: 91</li> <li>Deute and frequency, pulse or period.</li> <li>Terrorlamp shows permanent light. Entry in errormemory.</li> <li>Terrorlamp shows permanent light. Entry in errormemory.</li> <li>Terrorlamp shows permanent light. Entry in errormemory.</li> <li>Detror able demaged</li> <li>Tarteror able demaged</li> <li>Tarke actions for error</li> <li>Possible reason for error</li> <li>Deek cabling, check accelator pedal sensor and if necessary repair or replace it.</li> <li>Check cabling, switching to substitute value or replace it.</li> <li>Check cabling to rlimp Home</li> <li>Behaviour error lamp: permanent light</li> <li>Signal Priority: 4</li> <li>Measurement @ errorime: actual value</li> </ul>	<ul> <li>16 / 108 / APSCD</li> <li>Error description BAROMETRIC PRESS.</li> <li>Ambient air pressure sensor (in ECU): the voltage measured by ECU is out of the target range or the calculated ambient air pressure is implausible compared with the charge air pressure ErC codes</li> <li>DEUTZ-Errorcode: 16</li> <li>BlinkCode (short-long-short): 2 - 9 - 2</li> <li>SpinkCode (short-long-short): 2 - 9 - 2</li> <li>Spink Code (short-long-short): 2 - 9 - 2</li> <li>Spink Code (short-long-short): 2 - 9 - 2</li> <li>Spink Eron de not identifiable</li> <li>2: data stream is defective</li> <li>2: data stream is defective, ECU defective</li> <li>2: data stream is defective, ECU defective</li> <li>Possible reason for error</li> <li>Possible reason for error</li> <li>Possible reason for error</li> <li>Spistem reaction: Warning, substitute value (0,85bar)</li> <li>Behaviour error lamp: permanent light</li> <li>Selfhealing: yes</li> <li>Signal Priority: 4</li> <li>Measurement @ errortime: default value</li> </ul>	<b>ESS.</b> voltage measured by lated ambient air charge air pressure -Ubatt -Ubatt errormemory. U defective (0,85bar)	<ul> <li>17.1.729 / ArHt1</li> <li>Eror description AIR HEATER RELAY Air heater relay: the current drain measured by ECU is out of the target range Eror codes DEUT2-Erorcode: 17 Binkcodes Shin 729 Shin 720 Shi</li></ul>

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<mark>18</mark> / 730 / ArHt2	19 / 676 / ArHtCD NoLd		20 / 676 / ArHtCD RIVErr
Error docorintion AID UEATED VALVE			Error docorintion AID LEATED
Air heater mannet valve: the current drain measured by FCII is	Air heater relay: the FCII detects no switching operation at the	itching operation at the	Air heater relay: the FCII detects an implausible signal at the
out of the target range	input of a readback process		input of a readback process
Error codes	Error codes		Error codes
DEUTZ-Errorcode: 18	DEUTZ-Errorcode: 19		DEUTZ-Errorcode: 20
BlinkCode (short-long-short): 2 - 6 - 3 SPN: 730	BlinkCode (short-long-short): 2 - 6 - 3 SPN: 676	3	BlinkCode (short-long-short): 2 - 6 - 3 SPN: 676
possible FMI:	possible FMI:		possible FMI:
3: Voltage to high or short circuit to +Ubatt	12. Errormode not identifiable		5: current to low or broken wire
<ol><li>Voltage to low or short circuit to -Ubatt</li></ol>	4: Voltage to low or short circuit to -Ubatt	t to -Ubatt	2: data stream is defective
5: current to low or broken wire	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	' in errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Cable break or short circuit, valve defective, connection cable	Relay energized, but no feedback on sense line, relay defective	ense line, relay defective	Relay not energized, but working voltage on sense line, relay
demaged	or wrong wired, preheat component defective, connection cable	ective, connection cable	defective (can not disconnect or switch off), preheat component
Take actions for error repair	demaged		defective, connection cable demaged
Check valve and if necessary replace it, check connection cable	Take actions for error repair		Take actions for error repair
and if necessary repair or replace it	Check cabling of preheat component, if relay not working, check	relay not working,check	Check cabling of preheat component, if relay not working, check
other error properties	relay and if necessary replace it, check preheat component and if	preheat component and if	relay and if necessary replace it, check preheat component and if
System reaction:	necessary replace it, check connection cable and if necessary	cable and if necessary	necessary replace it, check connection cable and if necessary
Behaviour error lamp: permanent light	repair or replace it		repair or replace it
Selfhealing: yes	other error properties		other error properties
Signal Priority: 2	System reaction: Warning		System reaction: Warning
Measurement @ errortime: shut off value	Behaviour error lamp: permanent light		Behaviour error lamp: permanent light
	Selfhealing: no		Selfhealing: no
	Signal Priority: 3		Signal Priority: 3
	Measurement @ errortime: setpoint for output status	output status	Measurement @ errortime: setpoint for output status
		_	



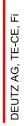
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DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	B
22 / 168 / BattCD	<mark>23</mark> / 168 / BattCDSysReac		<mark>24</mark> / 523561 / BIPCyl1
Error description BATTERY VOLTAGE	Error description BATTERY VOLTAGE	ï	Error description INJECT. PERIOD ZYL.1
Battery voltage: the voltage measured by ECU is out of the target	Battery voltage: the voltage measured by ECU is out of the target	CU is out of the target	Begin of injection of cylinder 1: the ECU can not identify the
range Error codos	range; the ECU activates a system reaction		magnet valve or the injection pump with the measured value of
DEUTZ-Errorcode: 22	DEUTZ-Errorcode: 23		Error codes
BlinkCode (short-long-short): 3 - 1 - 8	BlinkCode (short-long-short): 3 - 1 - 8		DEUTZ-Errorcode: 24
SPN: 168 nossihls FM:	SPN: 168 nossible FMI:		BlinkCode (short-long-short): 5 - 3 - 1 SDN: £23561
0: data valid, but above normal working area	2: data stream is defective		possible FMI:
1: data valid, but below normal working area	2: data stream is defective		2: data stream is defective
12. Errormode not identifiable	12. Errormode not identifiable		2: data stream is defective
12. Errormode not identifiable	12. Errormode not identifiable		2: data stream is defective
Errordetection	Errordetection		2: data stream is detective
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errordetection
Possible reason for error	Possible reason for error	-	Errorlamp shows permanent light. Entry in errormemory
Voltage below target range, battery defective, too high power	Above target range with system reaction, too high power supply	to high power supply	Possible reason for error
supply voltage, too high contact resistance, wiring demaged,	voltage, parametering inaccurate, ECU detective	ective	Value outside target range or missing (cylinder 1), magnet valve
energie system overloaded, parametering inaccurate, EUU defective	Choold detect of collibration of working works	actor confice	or injection pump detecnve Tabo actiona for orrar romair
uelecuve Take actions for error repair	Criteck dataset of calibration of working voltage for application, check I IMA2 Check voltage of generator check the parameters	age ior application, heck the narameters	Lake actions tot entor repair Check magnatic value or inigation numb
Check LIMA?. ECU. cabling. contact resistance. safety fuses. too	and if necessary correct them. replace ECU		
high load in energy system, check battery and if necessary	other error properties		other error properties
replace it, check battery pole and if necessary clean it, check	System reaction: Warning		System reaction: No function at the moment/ Allocation check
connection cable and if necessary repair or replace it, check volta	Behaviour error lamp: permanent light		cylinder!
other error properties	Selfhealing: yes		Behaviour error lamp: permanent light
System reaction: Warning, substitute value, dependent upon sumely voltage (13V, 24V)	Signal Priority: 4 Measurement @ arrortime: actual value		Setthealing: yes Signal Drivrity: 3
Setfhealing: verse (14.5, 24.7) Behaviour error lamp: permanent light Setfhealing: ves			Measurement @ errortime: actual value
Signal Priority: 3			
Measurement @ errortime: actual value			
		_	

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	BEOTZ
25 / 523562 / BIPCYIZ	26 / 523563 / BIPCy13		2/ / 523564 / BIPCyI4
Error description INJECT. PERIOD ZYL.2	Error description INJECT. PERIOD ZYL.3	) ZYL.3	Error description INJECT. PERIOD ZYL.4
Begin of injection of cylinder 2: the ECU can not identify the	Begin of injection of cylinder 3: the ECU can not identify the	can not identify the	Begin of injection of cylinder 4: the ECU can not identify the
magnet valve or the injection pump with the measured value of	magnet valve or the injection pump with the measured value of	the measured value of	magnet value or the injection pump with the measured value of
current drain at the begin of the injection			current urain at the begin of the injection
DEUIZ-Errorcode: 23	DEUIZ-Errorcode: 20		DEUIZ-Errorcode: Z/
BlinkCode (short-long-short): 5 - 3 - 2 CDN: 623562	BlinkCode (short-long-short): 5 - 3 - 3 CDN: 523563	~	BIINKCODE (SNORT-IONG-SNORT): 5 - 3 - 4 SDN: 573564
possible FM:	Dossible FMI:		Dossible FMI:
2: data stream is defective	2: data stream is defective		2: data stream is defective
2: data stream is defective	2: data stream is defective		2: data stream is defective
2: data stream is defective	2: data stream is defective		2: data stream is defective
2: data stream is defective	2: data stream is defective		2: data stream is defective
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	in errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Value outside target range or missing (cylinder 2), magnet valve	Value outside target range or missing (cylinder 3), magnet valve	/linder 3), magnet valve	Value outside target range or missing (cylinder 4), magnet valve
or injection pump defective	or injection pump defective		or injection pump defective
	Take actions for error repair		Take actions for error repair
Check magnetic valve or injection pump	Check magnetic valve or injection pump	and if	q
necessary change them	necessary change them		other error properties
other error properties	other error properties		System reaction: No function at the moment/ Allocation check
System reaction: No function at the moment/ Allocation check	System reaction: No function at the moment/ Allocation check	ient/ Allocation check	cylinder!
cylinder!	cylinder!		Behaviour error lamp: permanent light
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Selfhealing: yes
Selfthealing: yes	Selfhealing: yes		Signal Priority: 3 Meconicomost @ accordination coluci
			INEASULEITIE (CETOTITIE ACIUAL VAIUE
Measurement @ errortime: actual value	Measurement @ errortime: actual value		
	_	_	

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DECTZ
<mark>28</mark> / 523565 / BIPCVI5	29 / 523566 / RIPCVI6		30 / 523567 / RIPCVI7
		3 177 0	Error docortington IN IECT BEDIOD 7VI 7
Error description invocut. FERIOU 21 L.S Barin of injection of evilinder 5: the ECU can not identify the	ETUT description INJECT : FENOU ZT L.0 Benin of injection of cylinder 6: the FCI ran not identify the	D 21 L.0 Can not identify the	EII OI UESCIPUOII INJECT. FENOU ZI L./ Barin of injaction of cylinder 7: the FCI I can not identify the
magnet valve or the injection pump with the measured value of	magnet valve or the injection pump with the measured value of	the measured value of	magnet valve or the injection pump with the measured value of
current drain at the begin of the injection	current drain at the begin of the injection		current drain at the begin of the injection
Error codes	Error codes		Error codes
DEUTZ-Errorcode: 28	DEUTZ-Errorcode: 29		DEUTZ-Errorcode: 30
BlinKCode (short-long-short): 5 - 3 - 5 SDN: 523565	BlinKCode (short-long-short): 5 - 3 - 6 SPN: 523566	0	BlinKCode (short-long-short): 5 - 3 - 7 SPN: 523567
possible FMI:	possible FMI:		possible FMI:
2: data stream is defective	2: data stream is defective		2: data stream is defective
2: data stream is defective	2: data stream is defective		2: data stream is defective
2: data stream is defective	2: data stream is defective		2: data stream is defective
Z: data stream is defective	Z: data stream is derective		Z: data stream is defective
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	in errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error			Possible reason for error
value outside target range or missing (cylinder 5), magnet valve or inioction primo defective	value outside target range or missing (cylinder o), magnet valve or iniection nume defective	cylinder o), magnet valve	value outside target range or missing (cylinder /), magnet valve or inication numn defective
Take actions for error renair	Take actions for error repair		or injection pump detective Take actions for error renair
Check magnetic valve or injection pump	Check magnetic valve or injection pump	and if	Check magnetic valve or injection pump
	necessary change them		
other error properties	other error properties		other error properties
System reaction: No function at the moment/ Allocation check	System reaction: No function at the moment/ Allocation check	ment/ Allocation check	System reaction: No function at the moment/ Allocation check
cyllnger: Behaviour error lamn: permanent light	cylinder: Behaviour error lamo: permanent licht		cylinder: Behaviour error lamo: nermanent licht
Selffhealing: yes	Selfhealing: yes		Selfhealing: yes
Signal Priority: 3	Signal Priority: 3		Signal Priority: 3
Measurement @ errortime: actual value	Measurement @ errortime: actual value		Measurement @ errortime: actual value
		_	

<mark>31</mark> / 523568 / BIPCyl8	32 / 102 / BPSCD		33 / 102 / BPSCDSysReac
Error description INJECT. PERIOD ZYL.8	Error description CHARGE AIR PRESS.	PRESS.	Error description CHARGE AIR PRESS.
Benin of injection of colinder 8: the FCI I can not identify the	Charge air pressure sensor: the measured voltage of sensor hv	sured voltage of sensor by	Charge air pressure: the charge air pressure calculated by FCU
magnet valve or the injection numb with the measured value of	ECU is out of the target range: the calculated charge air pressure	Iculated charge air pressure	is above the farget range: the ECU activates a system reaction
current drain at the begin of the injection	is implausible or the received value via CAN is defective	a CAN is defective	Error codes
Error codes	Error codes		DEUTZ-Errorcode: 33
DEUTZ-Errorcode: 31	DEUTZ-Errorcode: 32		BlinkCode (short-long-short): 2 - 2 - 3
BlinkCode (short-long-short): 5 - 3 - 8	BlinkCode (short-long-short): 2 - 2 - 3	-3	SPN: 102
SPN: 523568	<b>SPN:</b> 102		possible FMI:
possible FMI:	possible FMI:		2: data stream is defective
2: data stream is defective	<ol><li>Voltage to high or short circuit to +Ubatt</li></ol>	cuit to +Ubatt	2: data stream is defective
2: data stream is defective	4: Voltage to low or short circuit to -Ubatt	uit to -Ubatt	12. Errormode not identifiable
2: data stream is defective	2: data stream is defective		12. Errormode not identifiable
2: data stream is defective	2: data stream is defective		Errordetection
Errordetection	Errordetection		Errorlamp shows permanent light
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	try in errormemory.	oder
Possible reason for error	Possible reason for error		blinking. Entry in errormemory.
Value outside target range or missing (cylinder 8), magnet valve	Cable break or short circuit, sensor defective, onnection cable	efective, onnection cable	Possible reason for error
or injection pump defective	demaged		Outside target range with system reaction, air system demaged,
Take actions for error repair	Take actions for error repair		sensor defective, onnection cable demaged
Check magnetic valve or injection pump	Check cabling, if LDF6T sensor not working, check sensor and if	orking, check sensor and if	Take actions for error repair
necessary change them	necessary replace it, check connection cable and if necessary	in cable and if necessary	Check air system, inspect air system and if necessary repair it,
other error properties	repair or replace it		check sensor and if necessary replace it, check connection cable
System reaction: No function at the moment/ Allocation check	other error properties		and if necessary repair or replace it
cylinder!	System reaction: Warning, substitute value	value	other error properties
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light	t	System reaction: Advice: BPSCD_stSysReacReq
Selfhealing: yes	Selfhealing: yes		Behaviour error lamp: permanent light
Signal Priority: 3	Signal Priority: 4		oder
Measurement @ errortime: actual value	Measurement @ errortime: default value	lue	blinking
			Seinneaiing: yes Signal Priority: 4
			Measurement @ errortime: actual value



DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DECTS
<mark>37</mark> / 111 / CLSCDSysReac	<mark>38</mark> / 1323 / CmbChbMisfire1		<mark>39</mark> / 1324 / CmbChbMisfire2
Error description ENG COOLANT LEVEL	Error description MISFIRE CYL. 1		Error description MISFIRE CYL 2
Coolant level: the coolant level calculated by ECU is underneath	Mistire at cylinder 1: the number of the mistire detected by ECU	sfire detected by ECU	Mistire at cylinder 2: the number of the mistire detected by ECU
ure allowed minimum Frror codes	is out of the allowed liftiit value Frint rodes		is out of the allowed lifting value <b>Frior cordes</b>
DEUTZ-Errorcode: 37	DEUTZ-Errorcode: 38		DEUTZ-Errorcode: 39
BlinkCode (short-long-short): 2 - 3 - 5	BlinkCode (short-long-short): 2 - 4 - 1		BlinkCode (short-long-short): 2 - 4 - 1
SPN: 111 possible EMI:	SPN: 1323		SPN: 1324 mossible EMI:
1. data valid but helow normal working area	12. Defective component		12. Defective component
1: data valid, but below normal working area	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
oder	Possible reason for error		Possible reason for error
blinking. Entry in errormemory.	Misfire detected (cylinder 1), magnet valve or injection pump	e or injection pump	Misfire detected (cylinder 2), magnet valve or injection pump
	derective, ruel system derective, motor engineering demaged	gineering demaged	derective, ruei system derective, motor engineering demaged
Uutside target range with system reaction, cooling system	lake actions for error repair	-	lake actions for error repair
unugnu, serisor delecuve, ormection capie demaged	there was a supression of the second se	nd if necessary replace	Check magnetic valve or injection pump and if necessary replace
Phode actions for error repair Chode actions found shock adding increase and if	them, check tuel system and if necessary repair it, check motor	repair it, cneck motor	them, check rule system and it necessary repair it, check motor
Check coolant level, check cabing, inspect cooling system and it	engineering and in necessary repair it		
checkssary repair it, check serisor and in necessary replace it,			
check contriection cable and it necessary repair or replace it	System reaction:		System reaction:
Suctom montion: Advisor Of SCD stoveDoneDon	Solfhooling: permanent light		Benaviour error laring. permanent lignt Solfhooding: so
System reaction. Autrice: CLSOD_sicysneatched Behaviour error lamo: permanent light	Signal Priority: 0		Signal Priority: 0
oder	Measurement @ errortime: actual value		Measurement @ errortime: actual value
blinking Selffhealina: no			
Signal Priority: 3			
Measurement @ errortime: actual value			
	-	-	

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
40 / 1325 / CmbChbMisfire3	41 / 1326 / CmbChbMisfire4		42 / 1327 / CmbChbMisfire5
Error description MISFIRE CYL. 3	Error description MISFIRE CYL. 4		Error description MISFIRE CYL. 5
Misfire at cylinder 3: the number of the misfire detected by ECU	Misfire at cylinder 4: the number of the misfire detected by ECU	sfire detected by ECU	Misfire at cylinder 5: the number of the misfire detected by ECU
is out of the allowed littin value Error codes	IS OUT OF LIFE ANOWED NITHE VALUE Error codes		is out of the allowed litting value Error codes
DEUTZ-Errorcode: 40	DEUTZ-Errorcode: 41		DEUTZ-Errorcode: 42
BlinkCode (short-long-short): 2 - 4 - 1	BlinkCode (short-long-short): 2 - 4 - 1		BlinkCode (short-long-short): 2 - 4 - 1
Desciple FMI:	DOSSIBLE FMI:		JEN. 132/ Dossible FMI:
12: Defective component	12: Defective component		12: Defective component
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		<ol> <li>Errormode not identifiable</li> </ol>
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Misfire detected (cylinder 3), magnet valve or injection pump	Misfire detected (cylinder 4), magnet valve or injection pump	e or injection pump	Misfire detected (cylinder 5), magnet valve or injection pump
defective, fuel system defective, motor engineering demaged	defective, fuel system defective, motor engineering demaged	jineering demaged	defective, fuel system defective, motor engineering demaged
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check magnetic valve or injection pump and if necessary replace	Check magnetic valve or injection pump and if necessary replace	nd if necessary replace	Check magnetic valve or injection pump and if necessary replace
them, check fuel system and if necessary repair it, check motor	them, check fuel system and if necessary repair it, check motor	repair it, check motor	them, check fuel system and if necessary repair it, check motor
engineering and it necessary repair it	engineering and if necessary repair it		engineering and if necessary repair it
other error properties	other error properties		other error properties
System reaction:	System reaction:		System reaction:
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Behaviour error lamp: permanent light
Seithealing: no Sizeo Deiostru O	Serred Driverty to O		Seithealing: no
olgital Filority. U Mocentroment @ creatimo: catual value	Mooring & and a mortime of the		Noncritromont @ orrortimo: ontrial value
			Measurement @ enormer.acual value



DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
43 / 1328 / CmbChbMisfire6	44 / 1450 / CmbChbMisfire7		45 / 1451 / CmbChbMisfire8
Error description MISFIRE CYL. 6	Error description MISFIRE CYL. 7		Error description MISFIRE CYL. 8
Misfire at cylinder 6: the number of the misfire detected by ECU	Misfire at cylinder 7: the number of the misfire detected by ECU	fire detected by ECU	Misfire at cylinder 8: the number of the misfire detected by ECU
is out of the allowed liftiit value Frint rodae	is out of the allowed lifting value Frror codes		is out of the allowed liftlit value Frior codes
DEUTZ-Errorcode: 43	DEUTZ-Errorcode: 44		DEUTZ-Errorcode: 45
BlinkCode (short-long-short): 2 - 4 - 1 SDN - 1328	BlinkCode (short-long-short): 2 - 4 - 1 SDN: 1450		BlinkCode (short-long-short): 2 - 4 - 1
Dossible FMI:	possible FMI:		possible FMI:
12: Defective component	12: Defective component		12: Defective component
12. Errormode not identifiable	12. Errormode not identifiable		<ol> <li>Errormode not identifiable</li> </ol>
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Misfire detected (cylinder 6), magnet valve or injection pump	Misfire detected (cylinder 7), magnet valve or injection pump	or injection pump	Misfire detected (cylinder 8), magnet valve or injection pump
defective, fuel system defective, motor engineering demaged	defective, fuel system defective, motor engineering demaged	lineering demaged	defective, fuel system defective, motor engineering demaged
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check magnetic valve or injection pump and if necessary replace	Check magnetic valve or injection pump and if necessary replace	nd if necessary replace	Check magnetic valve or injection pump and if necessary replace
them, check tuel system and if necessary repair it, check motor	them, check tuel system and if necessary repair it, check motor	epair it, check motor	them, check tuel system and if necessary repair it, check motor
engineering and it necessary repair it	engineering and it necessary repair it		engineering and it necessary repair it
Outer error properues	Outer error properties		Outer error properties
Oyacini racuon. Rahavianir arrar lama: narmanant linht	Opsicini reaction: Behaviour error Iamo: permanent licht		Oysicin reaction. Rehaviant error lama: nermanent licht
Selfhealing: no	Selfhealing: no		Selfhealing: no
Signal Priority: 0	Signal Priority: 0		Signal Priority: 0
Measurement @ errortime: actual value	Measurement @ errortime: actual value		Measurement @ errortime: actual value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DECT
46 / 1322 / CmbChbMisfireMul	<mark>47</mark> / 1346 / CmbChbSysReac		48 / 1109 / CoEngShOffDemlgr
Error description MULTIPL. CYL. MISFIRE	Error description MISFIRE SYST. REACT	LEACT	Error description SHUT OFF REQUEST
Misfire at more cylinders: the number of the misfire detected by	Misfire at more cylinders: the number of the misfire detected by	ne misfire detected by	Request of engine off: the operator ignors the engine off request
ECU is out of the allowed limit value	ECU is out of the allowed limit value; the ECU activates a system	ECU activates a system	within an allowed period.
Error codes	reaction		
DEUIZ-Errorcode: 46	ELTOT CODES		DEULZ-Errorcode: 48
BIIRKOODE (SIIOT-FIOTIG-SIIOTU): 2 - 4 - 1 SPN: 1322	UEUIZ-Errorcoue: 4/ BlinkCode (short-long-short): 2 - 4 - 1		BILIRCODE (SHORT-JOING-SHORT): 3 - 4 - 1 SPN: 1109
possible FMI:	<b>SPN:</b> 1346		possible FMI:
12: Defective component	possible FMI:		2: data stream is defective
12. Errormode not identifiable	0: data valid, but above normal working area	orking area	12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormoue not idenuitable Errordetection	12. Errormode not identifiable		12. Errormode not identifiable Errordstoction
EITUUGIGOUUII			FILUTUCICCIUII
Erronamp snows permanent lignt. Entry in errormemory.	Errorlamo chowc normanant licht Entry in arramamory		Erronamp snows permanent iigni. Enity in errormernory.
Niefire detected magnet valve or injection numb defective file	Desible resear for error		Chilt off realised invoced by operator
misme detected, magnet varye or injection painp detective, radi system defective motor enrineering demagned	Misfire detected with system reaction magnet valve or injection	anet valve or injection	Take actions for orror remain
Take actions for error repair	pump defective. fuel system defective, motor engineering	stor engineering	Warranty relevant
Check magnetic valve or injection pump and if necessary replace	demaged	<b>)</b>	other error properties
them, check fuel system and if necessary repair it, check motor	Take actions for error repair		System reaction: Warning
engineering and if necessary repair it	Check magnetic valve or injection pump and if necessary replace	and if necessary replace	Behaviour error lamp: permanent light
other error properties	them, check fuel system and if necessary repair it, check motor	repair it, check motor	Selfhealing: no
System reaction:	engineering and if necessary repair it		Signal Priority: 4
Behaviour error lamp: permanent light	other error properties		Measurement @ errortime: actual value
Seimealing: no Simal Drivrity: 0	System reaction: Rehaviour error Jamo: nermanent licht		
ognar i torig. o Measurement @ errortime: actual value	Selfhealing: no		
	Signal Priority: 0		
	Measurement @ errortime: actual value		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490 : 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
DZ / IU/Z / CKENCD	DO 1 1001 / COLDICA		
Error description ENGINE BRAKE INT.	Error description PREHEAT LAMP	•	Error description TEMP. LAMP
Engine brake actuator (internal): the current drain measured by	Indicator lamp of air heater relay: the current drain measured by	rrent drain measured by	Warning lamp for coolant temperature: the current drain
ECU is out of the target range or the maximum permissble	ECU is out of the target range or the maximum permissble	ximum permissble	measured by ECU is out of the target range or the maximum
temperature of the ECU component for power supply of the	temperature of the ECU component for power supply of the lamp	ower supply of the lamp	temperature of the ECU component for power supply of the lamp
actuator is exceeded.			
UEUIZ-Errorcode: 32 BlinkCode (short-Jono-short): 5 - 2 - 8	UEUIZ-Errorcode: 53 BlinkCode (short-long-short): 3 - 7 - 8	~	UEUIZ-ERFORCODE: 34 BlinkCode (short-Jong-short): 1 - 2 - 3
	SPN: 1081		
possible FMI:	possible FMI:		possible FMI:
3: Voltage to high or short circuit to +Ubatt	3: Voltage to high or short circuit to +Ubatt	t to +Ubatt	12. Errormode not identifiable
4: Voltage to low or short circuit to -Ubatt	4: Voltage to low or short circuit to -Ubatt	to -Ubatt	12. Errormode not identifiable
5: current to low or broken wire	5: current to low or broken wire		12. Errormode not identifiable
12. Errormode not identifiable	2: data stream is defective		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	in errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
cable break or short circuit, sensor defective, connection cable	Cable break or short circuit, lamp defective, connection cable	ive, connection cable	Cable break or short circuit, lamp defective, connection cable
demaged			demaged
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check actuator and it necessary replace it, check connection	Check cabling and load, check lamp and it necessary replace it,	l it necessary replace it,	Check cabling and load, check lamp and if necessary replace it,
caule and in necessary repaire or replace it other error properties	UTECK CUTITECTION CADE AND IT TECESSALY TEPAIL OF TEPTACE IL	repair or reprace it	cifect confilection cable and in recessary repair of replace it
Ouner en or properues Protection Momins christian in consistentian in		-	
System reaction: Warming, snutori output, capacity reduction via second toncritrie?	System reaction: Warning, Shuton output Behaviour error lamo: permanent licht		System reaction: warming, snutori output Behaviour error lamn: permanent linht
Behaviour error lamo: nermanent light	Selfhealing: no		Selfhealing no
Selfhealing: no	Signal Priority: 1		Signal Priority: 1
Signal Priority: 2	Measurement @ errortime: setpoint for output status	output status	Measurement @ errortime: setpoint for output status
Measurement @ errortime: setpoint for output status			

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	BEOTZ
<ul> <li>55/110 / CTSCD</li> <li>55/110 / CTSCD</li> <li>Fror description ENG COOLANT TEMP.</li> <li>Colant temperature sensor: the voltage of the sensor measured by ECU is out of the target range; the coolant temperature calculated by ECU is implausible compared with the oil temperature or the received value via CAN is defective Error codes</li> <li>DEUTZ-Errorcode: 55</li> <li>BinkCode (short-long-short): 2 - 2 - 5</li> <li>SPN: 110</li> <li>SPN: 110</li> <li>SV0tlage to high or short circuit to +Ubatt 4: Voltage to high or short circuit to +Ubatt 4: Voltage to high or short circuit to +Ubatt 4: Voltage to high or short circuit to -Ubatt 2: data stream is defective</li> <li>2: data stream is defective</li> <li>2: data stream is defective, connection cable demaged</li> <li>Errordence Connection cable and if necessary repair or replace it, check sensor and if necessary repair or replace it.</li> <li>System reaction: Warning, substitute value gehaviour error lamp: permanent light.</li> <li>System reaction: Warning, substitute value gehaviour error lamp: permanent light sensor and if necessary repair or figural priority: 4</li> </ul>	<ul> <li>56 / 110 / CTSCDSysReac</li> <li>56 / 110 / CTSCDSysReac</li> <li>Error description ENG COOLANT TEMP.</li> <li>Coolant temperature: the coolant temperature calculated by ECU is above the target range; the ECU activates a system reaction.</li> <li>EDUT2-Errorcodes: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>DEUT2-Errorcode: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>DEUT2-Errorcode: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>DEUT2-Errorcode: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>DEUT2-Errorcode: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>DEUT2-Errorcode: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>DEUT2-Errorcode: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>DEUT2-Errorcode: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>DEUT2-Errorcode: 56</li> <li>BlinkCode (short-long-short): 2 - 3 - 2</li> <li>SPN: 110</li> <li>Dessible FMI:</li> <li>Dessible FMI:</li> <li>Dessible FMI:</li> <li>Dessible FMI:</li> <li>Dessible FMI:</li> <li>Dessible range with system reaction, cooling area</li> <li>12. Errornde not identifiable</li> <li>12. Errornde of demaged, cooling compressor dropped out, sensor defective, onnection cable demaged, cooling compressor dropped out, sensor defective, onnection cable and fi necessary repair or replace it, check cooling system and compressor replace it, check cooling system and fi necessary replace it, check coo</li></ul>	<b>:MP.</b> Lire calculated by ECU is a system reaction king area king area king area cooling system not cooling compressor able demaged or, inspect cooling ofing compressor and necessary replace it pair or replace it coReq	<ul> <li>57 / 701 / Dummy1CD_Max</li> <li>Error description RESERVE 2</li> <li>Error description RESERVE 2</li> <li>Reserve output 1: the ECU detects a short circuit to battery terror codes</li> <li>DEUTZ-Errorcode: 57</li> <li>BlinkCode (short-long-short): 1 - 0 - 0</li> <li>SPN: 701</li> <li>DEUTZ-Errorcode: 57</li> <li>BlinkCode (short-long-short): 1 - 0 - 0</li> <li>SPN: 701</li> <li>DEUTZ-Errorcode: 57</li> <li>BlinkCode (short-long-short): 1 - 0 - 0</li> <li>SPN: 701</li> <li>DEUTZ-Errorcode: 57</li> <li>BlinkCode (short-long-short): 1 - 0 - 0</li> <li>SPN: 701</li> <li>DEUTZ-Errorcode: 57</li> <li>BlinkCode (short-long-short): 1 - 0 - 0</li> <li>SplinkTode (short-long-short): 1 - 0 - 0</li> <li>Signal Priority: 1</li> <li>Measurement (@ errortime: shut off value</li> </ul>

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<ul> <li>58 / 701 / Durmmy1CD_Min</li> <li>Error description RESERVE 2</li> <li>Reserve output 1: the ECU detects a short circuit to ground Error codes</li> <li>DEUTZ-Errorcode: 58</li> <li>DEUTZ-Errorcode not identifiable</li> <li>1.2 Errormode not identifiable</li> <li>2.2 Formode not identifiable</li> <li>2.2 Errormode not ide</li></ul>	<ul> <li>59 / 701 / Durmny1CD_SigNpl</li> <li>Error description RESERVE 2</li> <li>Reserve output 1: the ECU detects no load or excess temperature of the ECU component for power supply of the connected components</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 59</li> <li>BlinkCode (short-long-short): 1 - 0 - 0</li> <li>Signal Priority: 1</li> <li>Contaction: Shut of neutifiable</li> <li>Signal Priority: 1</li> </ul>	or excess er supply of the rrormemory. , connection cable , parametering of the pair or replace it,	<ul> <li>60 / 702 / Dummy2CD_Max</li> <li>Error description THRUST MODE</li> <li>Reserve output 2: the ECU detects a short circuit to battery</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 60</li> <li>BlinkCode (short-long-short): 1 - 0 - 0</li> <li>Signal Priority: 1</li> <li>Measurement @ error is shut off value</li> </ul>

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DEC
	_		
<mark>61</mark> / 702 / Dummy2CD_Min	62 / 702 / Dummy2CD_SigNpl		<mark>69</mark> / 2791 / EGRCD_Max
Error description THRUST MODE	Error description THRUST MODE		Error description EGR ACTUATOR
Reserve output 2: the ECU detects a short circuit to ground	Reserve output 2: the ECU detects no load or excess	d or excess	Actuator of the external EGR valve: the ECU detects a short
Error codes	temperature of the ECU component for power supply of the	wer supply of the	circuit to battery
DEUTZ-Errorcode: 61	connected components		Error codes
BlinkCode (short-long-short): 1 - 0 - 0	Error codes		DEUTZ-Errorcode: 69
SPN: 702 nossihle FMI	UEUIZ-Errorcode: 02 BlinkCode (short-long-short): 1 - 0 - 0		BIINKCOODE (SNORT-IONG-SNORT): 4 - 1 - 4 SDN: 2791
12. Errormode not identifiable	SPN: 702		possible FMI:
12. Errormode not identifiable	possible FMI:		3: Voltage to high or short circuit to +Ubatt
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	12. Errormode not identifiable		12. Errormode not identifiable
Errorlamp shows permanent light. Entry in errormemory.	12. Errormode not identifiable		Errordetection
Possible reason for error	Errordetection		Errorlamp shows permanent light. Entry in errormemory
Short circuit to ground (output 2), connection cable demaged	Errorlamp shows permanent light. Entry in errormemory	errormemory.	Possible reason for error
Take actions for error repair	Possible reason for error		Short circuit to Ubatt, connection cable demaged
Check connection cable and if necessary repair or replace it	Cable break or ECU internal error (output 2), connection cable	2), connection cable	Take actions for error repair
other error properties	demaged, connected components defective, parametering of the	e, parametering of the	Check cabling, sensor defect, check sensor and if necessary
System reaction: Warning, shutoff output	Tological terminate, EUU defective		replace it, check connection cable and it necessary repair or
Behaviour error lamp: permanent light	Phone actions for error repair Chone commention and if management remain or realized it	ti ochoo it	
	Criteck confilection cable and if noncentry correct	t it ronhoo ECU	Other error properties
	crieck parameters and in necessary correct it, replace ECU	I II, replace EUU	System reaction: Warning, shutoff output, power reduction via
Measurement @ errortime: shut off value	Other error properties		Second topcurve?
	System reaction. Walting, Shuton output Rehaviour error famo: permanent licht		Dellaviour eriori arrip. permanent light Seffheeling: no
	Selfhealing: no		Signal Priority: 3
	Signal Priority: 1		Measurement (@ errortime: shut off value
	Measurement @ errortime: shut off value		
	_		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513 <u>_</u> : 214, 300	
70/2701/ECPCD Min	71 / 2701 / ECBCD SigNel		70 / 2701 / ECEPCINAFECE
Eror description EGR ACTUATOR Actuator of the external EGR valve: the ECU detects a short circuit to ground Eror codes DEUTZ-Erorcode: 70 BinKCode (short-long-short): 4 - 1 - 4 SPN: 2791 DOW of short-long-short): 4 - 1 - 4 SPN: 2791 DOW of short SPN: 2791 DOW of SPN: 2791 DOW of short SPN: 2791 DO	Error description EGR ACTUATOR Actuator of the external EGR valve: the ECU detects no load or excess temperature of the ECU component for power supply of the connected components Error codes DEUTZ-Errorcode: 71 BlinkCode (short-long-short): 4 - 1 - 5 SPN: 2791 DEUTZ-Errorcode: 71 BlinkCode (short-long-short): 4 - 1 - 5 SPN: 2791 DeStible FMI: 1.2. Errormode not identifiable 5: current to low or broken wire 2. data stream is defective 5: current to low or broken wire 2. data stream is defective Errordence Errordence Crable break or excess temperature, sensor defective, connection cable demaged Terrordence and if necessary repair or replace it, check censor and if necessary replace it. Check connection cable and if necessary repair or replace it.	U detects no load or for power supply of arrormemory. defective, connection defective, connection cessary cessary repair or ower reduction via	Eror description EGR ACTUATOR Actuator of the intermal EGR valve: the ECU detects no load or excess temperature of the ECU component for power supply of the actuator Eror codes DEUTZ-Errorcode: 72 BinkCode (short-long-short): 4 - 1 - 6 SPN: 2791 DinkCode (short-long-short): 4 - 1 - 6 SPN: 2791 District to hubatt 5: current to low or bhort circuit to -Ubatt 5: current to low or bhort wire 5: current to low or bhort eror 2: data stream is defective Errordence Crable break, short circuit to -Ubatt 5: current to low or bhort 5: current to low or bhort 6: current to low or bhort 5: current to low or bhort 6: check connection cable and if necessary repair or 7: place it 7: check sensor and if necessary repair or 7: place it 7: check sensor and if necessary repair or 7: place it 7: check sensor and if necessary repair or 8: place it 8: contention cable and if necessary repair or 7: place it 7: check sensor and if necessary repair or 8: place it 8: contention cable and if necessary repair or 8: place it 8: contention cable and if necessary repair or 8: place it 8: contention cable and if necessary repair or 8: place it 8: contention cable and if necessary repair or 8: place it 8: contention cable and if necessary repair or 8: place it 8: contention cable and if necessary repair or 8: place it 8: contention cable and if necessary repair or 8: place it 8: contention cable and if necessary repair or 8: place it 8: contention cable and i

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490 : 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
74 / 923 / EngCDTrqCalcOut	<mark>75</mark> / 190 / EngMBackUp		<mark>76</mark> / 190 / EngMCaS1
Error description ENGINE POWER OUT	Error description ENGINE SPEED		Error description ENGINE SPEED
Output with PWM signal of the engine power: the current drain	Crankschaft speed sensor: the ECU receives no signal and uses	o signal and uses	Camschaft speed sensor: the ECU receives no signal or the
measured by ECU is out of the target range or the maximum	the signal from camschaft speed sensor as alternative to	ernative to	signal is defective
permissible temperature of the ECU component to control the	calculate the engine speed		
output is exceeded Frror codes	DFILT7-Francode: 75		UEUI2-Errorcoge: /0 BlinkCode (short-long-short)· 2 - 1 - 2
DEUTZ-Errorcode: 74	BlinkCode (short-long-short): 2 - 1 - 2		SPN: 190
BlinkCode (short-long-short): 5 - 5 - 5	SPN: 190		possible FMI:
SPN: 923	possible FMI:		12: Defective component
possible FMI:	12. Errormode not identifiable		8: unusual frequency, pulse or period.
<ol><li>Voltage to high or short circuit to +Ubatt</li></ol>	12: Defective component		12. Errormode not identifiable
4. Voltage to low or short circuit to -Ubatt	12. Errormode not identifiable		12. Errormode not identifiable
5: current to low or broken wire	12. Errormode not identifiable		Errordetection
2: data stream is defective	Errordetection		Errorlamp shows permanent light. Entry in errormemory.
Errordetection	Errorlamp shows permanent light. Entry in errormemory.	memory.	Possible reason for error
Errorlamp shows permanent light. Entry in errormemory	Possible reason for error		Speed signal from cam-shaft defectiveiv or missing, transmitter
Possible reason for error	Engine running only with cam-shaft speed signal, transmitter	al, transmitter	detective, connection cable demaged, parametering of the sensor
Engine Power output: cable break or short circuit, output	defective, connection cable demaged		wheel inaccurate
uelecuve, connection caple demageu Tako actione for orror romair	They extreme to the second	alcohoff concor	Phode actions for error repair Chode adding abode accorded concorrent if noncorrent realing
Phode activits 101 51101 15 pail Phode applied concer defect where concer and if necessary	CIECK CAUIIII OI CIAIIKSCIAIL SEISUI, CIECK CIAI	titkscriatt serisor	Uteck cautility, citeck califiscitati serisul altu li riecessaty replace it abook configuration of concor whool, abook composition cablo
uneck cabing, sensor derect, uneck sensor and in necessary replace it check connection cable and if necessary repair or	and it necessary replace it, check connection capte and it necessary renair or replace it		it, crieck coningulation of sensol wheet, crieck coninection capie and if necessary ranair or replace it icheck narameters and if
replace it	other error properties		necessary correct them
other error properties	System reaction: Warning, calculation of injektion initation point	on initation point	other error properties
System reaction: Warning, shutoff output	will be incorrect		System reaction: Warning, difficult start
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Behaviour error lamp: permanent light
Setthealing: no Signal Drivity: 1	Setthealing: yes Signal Drivrity, 3		Selfnealing: yes Signal Drivity: /
Measurement @ errortime: shut off value	Measurement @ errortime: -		Jerren i Norry - + Measurement @ errortime: 0

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	Berra
77 / 190 / EngMCrS1	78 / 190 / EngMOfsCaSCrS		79 / 190 / EngPrtSysReacFOC
Error description ENGINE SPEED	Error description ENGINE SPEED		Error description ENGINE SPEED
Crankschaft speed sensor: the ECU receives no signal or the	Speed sensor of crankschaft and camschaft: the received signals	ft: the received signals	Engine speed: the engine speed calculated by ECU is above the
signal is defective Error codes	are out of phase Error codes		target range; the ECU activates a system reaction <b>Error codes</b>
DEUTZ-Errorcode: 77	DEUTZ-Errorcode: 78		DEUTZ-Errorcode: 79
BlinkCode (short-long-short): 2 - 1 - 2	BlinkCode (short-long-short): 2 - 1 - 3		BlinkCode (short-long-short): 2 - 1 - 4
possible FMI:	possible FMI:		possible FMI:
12: Defective component	2: data stream is defective		0: data valid, but above normal working area
8: unusual frequency, pulse or period.	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable 13. Errormode not identifiable
	Errordetection		
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory	errormemory.	Errorlamp shows blinking. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Speed signal from crankshaft defectiveiv or missing, transmitter	Speed signals of crank-shaft and cam-shaft are phase-shifted,	t are phase-shifted,	Engine overspeed detected with system reaction, maximum
defective, connection cable demaged, sensor wheel installed	sensor wheel installed in wrong position, sensor wrong wired	ensor wrong wired	engine speed exceeded
inaccurately	Take actions for error repair		Take actions for error repair
Take actions for error repair	Check position from crankschaft sensor wheel to camschaft	eel to camschaft	other error properties
Check cabling, check camschaft sensor and if necessary replace	sensor wheel, polarisation crankschaft or camschaft sensor,	amschaft sensor,	System reaction:
it, check configuration of sensor wheel, check connection cable	check position of sensor wheel and if necessary correct it, check	ssary correct it, check	Behaviour error lamp: blinking
and if necessary repair or replace it, check the position of sensor wheal and if necessary correct it	cabling and if necessary correct it		Selfhealing: no Signal Drightin E
other error properties	Sustem reaction: Warning not nossible to start engine	start enrine	oignar Filolity. 3 Measurement @ errortime: actual value
System reaction: Warning, power reduction via second topcurve	Behaviour error lamp: permanent light		
Behaviour error lamp: permanent light	Selfhealing: no		
Selfhealing: yes	Signal Priority: 4		
Signal Priority: 4 Messurament @ errortime: 0	Measurement @ errorume: -		
Measuellent @ en onume. O			
	_		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	BEUTZ
	01 / 103 / ECI ~CD		00   1071   Evelue
OU / 13U / Engrisyskeacoro	01 / 103 / ESEPUD		07   10/4   EXFICD
Error description ENGINE SPEED	Error description ENG. RUNNING LAMP	LAMP	Error description BRAKE FLAP ACTUATOR
Engine speed: under overrun conditions, the engine speed	Indicator lamp for engine running: the current drain measured by	irrent drain measured by	Engine brake flap actuator: the current drain measured by ECU is
calculated by ECU is above the target range; the ECU activates a system reaction	ECU IS OUT OF THE TARGE TANGE OF THE MAXIMUM PERMISSIBLE temperature of the ECUL component for power supply of the lamp	Ximum permissible Jower supply of the lamp	out of the target range or the maximum permissible temperature of the ECII commonent for nower sumply of the actuator is
Error codes	is exceeded		exceeded
DEUTZ-Errorcode: 80	Error codes		Error codes
BlinkCode (short-long-short): 2 - 1 - 4	DEUTZ-Errorcode: 81		DEUTZ-Errorcode: 82
SPN: 190	BlinkCode (short-long-short): 1 - 4 - 2 SDN: 703	2	BlinkCode (short-long-short): 2 - 1 - 9 SDN: 1074
Jussible r Wil. 14: Special Instructions	SFN. 703 possible FMI:		Drv. 1074 Dossible FMI:
12. Errormode not identifiable	3: Voltage to high or short circuit to +Ubatt	t to +Ubatt	3: Voltage to high or short circuit to +Ubatt
12. Errormode not identifiable	4: Voltage to low or short circuit to -Ubatt	to -Ubatt	4: Voltage to low or short circuit to -Ubatt
12. Errormode not identifiable	5: current to low or broken wire		5: current to low or broken wire
Errordetection	2: data stream is defective		12. Errormode not identifiable
Errorlamp shows permanent light. Entry in errormemory.	Errordetection		Errordetection
Possible reason for error	Errorlamp shows permanent light. Entry in errormemory.	in errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Overrun conditions detected with system reaction, maximum	Possible reason for error	:	Possible reason for error
engine speed exceeded	Cable break or internal ECU error, lamp detective, connection	defective, connection	Engine brake flap actuator: cable break or short circuit, sensor
l ake actions for error repair	Taka antione for arrar ranair		uerective, contrection cable definaged Taka antione for array romair
Other error properties	Lake actions for ending repair Check cabling and load check lamp and if peressany replace it	l if naraccany ranlara it	Take activits tot ettor tepail Chark rabling cansor defart chark sensor and if neressary
Systerin reaculori. Rehaviolir error lamo: nermanent licht	Check connection cable and if necessary repair or replace it	r rebair or replace it	replace it. check connection cable and if necessary repair or
Selfhealing: yes	other error properties	-	replace it
Signal Priority: 4	System reaction: Warning, shutoff output	t	other error properties
Measurement @ errortime: actual value	Behaviour error lamp: permanent light		System reaction: Warning, shutoff output
	Selfhealing: no		Behaviour error lamp: permanent light
	Signal Priority: 1 Measurement @ errortime: shurt off value	a	Seinealing: no Sional Priority: 2
			Measurement @ errortime: shut off value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	<b>Performan</b>
83 / 075 / EanCD	85 / 1630 / EanCDEval		<mark>86</mark> / 523603 / EanCDSveBaar
83/975 / FanCD Error description FAN ACTUATOR Far description FAN ACTUATOR Far description FAN ACTUATOR Far power stage: the current drain measured by ECU is out of the larget range or the maximum permissible temperature of the ECU component for power supply of the actuator is exceeded ECU component for power supply of the actuator is exceeded ECU component for power supply of the actuator is exceeded ECU component for power supply of the actuator is exceeded ECU component for power supply of the actuator is exceeded ECU component for power supply of the actuator is exceeded ENTZ-Firrorcode (short-long-short): 2 - 3 - 8 Sinki 975 possible FMI: 3: Voltage to high or short circuit to +Ubatt 5: current to low or shorken wire 5: current to low or shorken wire 6: current to low or shorken wire 7: data stream is defective, connection cable demaged 7: for the sensor defect, check sensor and if necessary repair or replace it, check connection cable and if necessary repair or replace it. 6 other error lamp: permanent light 8 Stale Priority: 2 Measurement @ errorime: Sollwert	85 / 1639 / FanCDEval Error description Fan speed sensor: the current drain measured by ECU is out of the target range Error codes DEUTZ-Errorcode: 85 BilinkCode (short-long-short): 2 - 3 - 8 SPN: 1639 SPN:	sured by ECU is out of to +Ubatt o -Ubatt n errormemory. ged, fan speed outside check connectionn check fan	86 / 523602 / FanCDSysReac Error description FAN SPEED Fan speed: the fan speed calculated by ECU is above the target range; the ECU activates a system reaction Error codes DEUTZ-Errorcode: 86 BlinkCode (short-long-short): 2 - 3 - 8 SPN: 523602 DEUTZ-Errorcode: 86 BlinkCode (short-long-short): 2 - 3 - 8 System reaction Denator arror lamp: permanent light. Entry in errormemory. Possible reason for error Above target range with system reaction Trordeneties System reaction: Behaviour error lamp: permanent light Signal Priority: 3 Measurement @ errortime: actual value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P513_: 213 P513_: 214, 300	BEUTS
87 / 97 / FIFCD	89/97/FIECD WHVI		90 / 94 / FIPSCD
Error description WATER IN FUEL	Error description WATER IN FUEL		Error description FUEL PRE PRESS.
Fuel filter water level sensor: the voltage of sensor measured by	Water in fuel: the water level calculated by ECU is above the	<ul> <li>ECU is above the</li> </ul>	Low fuel pressure sensor: the voltage of sensor measured by
	ELTOT CODES		
BlinkCode (short-long-short) 2 - 2 - 8	BlinkCode (short-long-short): 2 - 2 - 8		BlinkCode (short-lond-short): 2 - 1 - 6
	SPN: 97		<b>SPN</b> : 94
possible FMI:	possible FMI:		possible FMI:
3: Voltage to high or short circuit to +Ubatt	12: Defective component		<ol><li>Voltage to high or short circuit to +Ubatt</li></ol>
4: Voltage to low or short circuit to -Ubatt	12. Errormode not identifiable		4: Voltage to low or short circuit to -Ubatt
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
cable break or short circuit, sensor defective, connection cable	Above target range, excess of maximum permissible water level	ermissible water level	cable break or short circuit, sensor defective, connection cable
demaged	in fuel filter		demaged
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check cabling, if sensor not working, check sensor and if	flush water seperator		Check cabling, if sensor not working, check sensor and if
necessary replace it, check connection cable and if necessary	other error properties		necessary replace it, check connection cable and if necessary
repair or replace it	System reaction: Warning		repair or replace it
other error properties	Behaviour error lamp: permanent light		other error properties
System reaction: Warning, substitute value	Selfhealing: no		System reaction: Warning, substitute value
Behaviour error lamp: permanent light	Signal Priority: 3		Behaviour error lamp: permanent light
Selfhealing: yes	Measurement @ errortime: actual value		Selfhealing: yes
Measurement @ errortime: default value			Measurement @ errortime: default value
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DEUTZ AG, TE-CE, Fi

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
91 / 94 / FIPSCDSysReac	<mark>94</mark> / 523239 / FrmMngDecV1		<mark>95</mark> / 523240 / FrmMngFunModCtl
Error description FUEL PRE PRESS.	Error description CAN ERROR DEC-V1	-11	Error description CAN ERROR FUNMODCTL
Low fuel pressure: the low fuel pressure calculated by ECU is	CAN message DecV1 (Pseudo Pedal): the message can not be	e message can not be	CAN message FunModCtl (Function Mode Control): the message
underneath the target range; the ECU activates a system	received by ECU or the received value is above the target range	above the target range	can not be received by ECU
reaction Frror codes	Error codes DFIIT7-Errorcode: 04		EFFOF CODES DELITZ-Errorcode: 05
DEUTZ-Errorcode: 91	BlinkCode (short-long-short): 5 - 2 - 6		BlinkCode (short-long-short): 5 - 2 - 7
BlinkCode (short-long-short): 2 - 1 - 6	<b>SPN</b> : 523239		SPN: 523240
SPN: 94	possible FMI:		possible FMI: 10. Defective commenced
2. data stream is defective	12. Defective component		12. Detective component
2: data stream is defective	12: Defective component		12. Errormode not identifiable
12. Errormode not identifiable	2: data stream is defective		12. Errormode not identifiable
12. Errormode not identifiable	Errordetection		Errordetection
Errordetection	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Errorlamp shows permanent light. Entry in errormemory.	Possible reason for error		Possible reason for error
Possible reason for error	Missing or value above target range (message "DecV1" = pseudo	sage "DecV1" = pseudo	Missing message "FunModCtl" = function mode control, CAN bus
Below target range with system reaction, interruption in cycling	pedal), CAN bus wrong cabled, wiring is demaged, receiver	emaged, receiver	wrong cabled, wiring is demaged, receiver (sender of the
process of low fuel pressure (for example, fuel pump defective),	(sender of the message) work inaccurately, parametering	v, parametering	message) work inaccurately, parametering inaccurate
sensor defective, connection cable demaged			Take actions for error repair
lake actions for error repair		-	Check CAN Bus cabling (Bus sheduling, polarity, short circuit,
Check low tuel pressure loop system, Check tuel pump, inspect	Check CAN Bus cabling (Bus sheduling, polarity, short circuit,	olarity, short circuit,	power interrupt), test protocol of receiver, check CAN functional
nuel system and in necessary repair it, check sensor and it necessary renlace it check connection cable and if necessary	power interrupty, test protocol of receiver, crieck CAN functional range		laliye Athar arror nronartias
repair or replace it	other error properties		System reaction: Warning, changing to substitute values
other error properties	System reaction: Warning, changing to substitute values	bstitute values	according to customers configuration.
System reaction: Advice: FLPSCD_stSysReacReq	according to customers configuration		Behaviour error lamp: permanent light
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Selfhealing: yes
Seimealing: yes Signal Priority: 3	Seimealing: yes Signal Driority: 1		Signal Priority: 1 Measurement @ errortime: default valuee
Monoritoment @ arrottime: actual value	Mocurromont @ orrortimo: dofoult voluo		
weasurement (@ en onime, actual value	Inteasurement & enotaine. Uerault value		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	<b>E</b>
<ul> <li>106 / 523212 / FrmMngTOEngPrt Error description CAN ERROR ENGPRT CAN message EngPrt (Engine Protection): the message can not be received by ECU</li> <li>CAN message EngPrt (Engine Protection): the message can not be received by ECU</li> <li>CAN message EngPrt (Engine Protection): the message can not be received by ECU</li> <li>CAN message EngPrt (Engine Protection): a - 3 - 3</li> <li>SpN: 523212</li> <li>DEUTZ-Errorcode: 106</li> <li>BlinkCode (short-long-short): 3 - 3 - 3</li> <li>SpN: 523212</li> <li>DEUTZ-Errorcode: 106</li> <li>BlinkCode (short-long-short): 3 - 3 - 3</li> <li>SpN: 523212</li> <li>DEUTZ-Errorcode: 106</li> <li>BlinkCode (short-long-short): 3 - 3 - 3</li> <li>SpN: 523212</li> <li>DEUTZ-Errorcode: 106</li> <li>BlinkCode (short-long-short): 3 - 3 - 3</li> <li>SpN: 523212</li> <li>DEUTZ-Errorcode: 106</li> <li>BlinkCode (short-long-short): 3 - 3 - 3</li> <li>SpN: 523212</li> <li>DEUTZ-Errorcode: 106</li> <li>BlinkCode (short-long-short): 3 - 3 - 3</li> <li>SpN: 523212</li> <li>DEUTZ-Errorcode: 106</li> <li>Broncon error lamp: promonent light. Entry in errormemory.</li> <li>Check CAN Bus cabling (Bus sheduling, polarity, short circuit, power interrupt), test protocol of receiver, check CAN functional mage</li> <li>Check CAN Bus cabling (Bus sheduling, polarity, short circuit, power interrupt), test protocol of receiver, check CAN functional mage</li> <li>Check CAN Bus cabling (Bus sheduling, polarity, short circuit, power interrupt), test protocol of receiver, check CAN functional mage</li> <li>Check CAN Bus cabling (Bus sheduling, polarity, short circuit, power interrupt), test protocol of receiver, check CAN functional mage</li> <li>Check CAN Bus cabling (Bus sheduling, polarity, short circuit, power interrupt), test protocol of receiver, check CAN functional mage</li> <li>Check CAN Bus cabling (Bus sheduling ister and test and test and test and test and test and</li></ul>	<ul> <li>110 / 523216 / FrmMngTOPrHtEnCmd</li> <li>Error description CAN ERROR PRHTENCMD</li> <li>CAN message PrHtEnCmd (Preheat and Engine Command): the message received can not be received by ECU</li> <li>CAN message PrHtEnCmd (Preheat and Engine Command): the message received (short-long-short): 3 - 3 - 7</li> <li>SPN: 523216</li> <li>DEUTZ-Errorcode: 110</li> <li>BlinkCode (short-long-short): 3 - 3 - 7</li> <li>SPN: 523216</li> <li>DEUTZ-Errorcode: 110</li> <li>BlinkCode (short-long-short): 3 - 3 - 7</li> <li>SPN: 523216</li> <li>DEUTZ-Errorcode: 110</li> <li>BlinkCode (short-long-short): 3 - 3 - 7</li> <li>SPN: 523216</li> <li>DEUTZ-Errorcode: 110</li> <li>BlinkCode (short-long-short): 3 - 3 - 7</li> <li>SPN: 523216</li> <li>DEUTZ-Errorcode: 110</li> <li>BlinkCode (short-long-short): 3 - 3 - 7</li> <li>SpN: 523216</li> <li>DEUTZ-Errorcode: 110</li> <li>BlinkCode (short-long-short): 3 - 3 - 7</li> <li>SpN: 523216</li> <li>Defective component</li> <li>Cantode not identifiable</li> <li>Lerormode not identifiable</li> <li>Lerormode not identifiable</li> <li>Lerormode not identifiable</li> <li>Lerordamp shows permanent light. Entry in errormemory.</li> <li>Possible reason for error</li> <li>Messing message "PrHtEnCmd" = preheat and engine command:</li> <li>CAN bus wrong cabled, wiring is demaged, receiver (sender of the message) work inaccurately, parametering inaccurate</li> <li>Take actions for error</li> <li>Messing message (Presender)</li> <li>Messing message (Presender)</li> <li>Errordamp shows permanent light.</li> <li>System reaction: Warning, changing to substitute values according to customers configuration.</li> <li>Behaviour error lamp: permanent light.</li> <li>Signal Prioting: 1</li> <li>Meantimer of Amory error for and the error lamp.</li> </ul>	EnCmd TENCMD ingine Command): the errormemory. errormemory. and engine command; receiver (sender of ring inaccurate stitute values stitute values	112 / 523218 / FrmMngTORxCCVS Error description CAN ERROR RXCCVS CAN message RxCCVS (Cruise Control): the message can not be received by ECU Error codes DEUTZ-Errorcode: 112 BlinkCode (short-long-short): 1 - 1 - 1 SPN: 523218 DEUTZ-Errorcode: 112 BlinkCode (short-long-short): 1 - 1 - 1 DEUTZ-Errorcode: 112 BlinkCode (short-long-short): 1 - 1 - 1 BlinkCode (short-long-short): 1 - 1 - 1 Defective component BlinkCode (short-long-short): 1 - 1 - 1 Defective component BlinkCode (short-long-short): 1 - 1 - 1 Defective component BlinkCode (short-long-short): 1 - 1 - 1 - 1 Defective component BlinkCode (short-long-short): 1 - 1 - 1 - 1 Defective component BlinkCode (short-long-short): 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DEUTS
<mark>113</mark> / 523604 / FrmMngTORxEngTemp	117 / 523238 / FrmMngTOSwtOut	Out	118 / 523222 / FrmMngTOTCO1
Error description CAN ERROR RxEngTemp	Error description CAN ERROR SWTOUT	TOUT	Error description CAN ERROR TCO1
CAN message RxEngTemp (Engine Temperature): the message	CAN message SwtOut (Switching Output): the message can not	i: the message can not	CAN message "TCO1" (Speedo Signal): the message can not be
can not be received by ECU	be received by ECU		received by ECU
Error codes	Error codes		Error codes
DEULZ-Errorcode: 113 Distro-do (choet loss choef): 1 - 2	DEULZ-Errorcode: 11/ Distr Cada /short loss short/: 1 1 E		Distrection (cheat loss cheat) 4 6
<b>BILINCOUE</b> (SHOLFIOIIG-SHOLD). 1 - 1 - 2 SPN: 523604	SPN: 523238		<b>BIIIINCOUR</b> (SIIUI HUIIG-SIIUI). 1 - 1 - 0 SPN: 523222
possible FMI:	possible FMI:		possible FMI:
12: Defective component	12: Defective component		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12: Defective component
	IZ. Errormode not identifiable		12. Errormoge not Igenuitable
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory	n errormemory.	Errorlamp shows permanent light. Entry in errormemory
Possible reason for error	Possible reason for error		Possible reason for error
Missing message "RxEngTemp" = engine temperature, CAN bus	Missing message "SwtOut" = switch outputs, CAN bus wrong	uts, CAN bus wrong	Missing message "TCO1" = speedo signal, CAN bus wrong
wrong cabled, wrring is demaged, receiver (sender of the	cabled, wiring is demaged, receiver (sender of the message)	ler of the message)	cabled, wiring is demaged, receiver (sender of the message)
message) work inaccurately, parametering inaccurate	work inaccurately, parametering inaccurate	e	work inaccurately, parametering inaccurate
lake actions for error repair	lake actions for error repair	-	lake actions for error repair
Check CAN Bus cabling (Bus sheduling, polarity, short circuit,		oolarity, short circuit,	Check CAN Bus cabling (Bus sheduling, polarity, short circuit,
power interrupty, test protocol of receiver, cneck CAN functional	power interrupt), test protocol of receiver, check UAN tunctional	Check UAN TUNCTIONAL	power interrupt), test protocol of receiver, check CAN functional
other error eronerties	ange other error properties		other error properties
Sustem reaction.	Sustem reaction:		Sustem reaction:
Behaviour error lamo: permanent light	Behaviour error lamo: permanent light		Behaviour error lamo: permanent light
Selfhealing: yes	Selfhealing: yes		Selfhealing: yes
Signal Priority: 1	Signal Priority: 1		Signal Priority: 1
Measurement @ errortime: default value	Measurement @ errortime: default valuee		Measurement @ errortime: default value
	_	_	

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	BEOTZ
<mark>120</mark> / 523605 / FrmMngTOTSC1AE	121 / 523606 / FrmMngTOTSC1AR	1AR	<mark>122</mark> / 523607 / FrmMngTOTSC1DE
Error description CAN ERROR TSC1-AE	Error description CAN ERROR TSC1-AR	1-AR	Error description CAN ERROR TSC1-DE
CAN message TSC1-AE (Torque/Speed Control #1 from	CAN message TSC1-AR (Torque/Speed Control #1 from	ontrol #1 from	CAN message TSC1-DE (Torque/Speed Control #1 from
Automatic Traction Control to Engine): the message can not be	Automatic Traction Control to Retarder): the message can not be	e message can not be	Driveline to Engine): the message can not be received by ECU
received by ECU	received by ECU		Error codes
Error codes	Error codes		DEUTZ-Errorcode: 122
DEUTZ-Errorcode: 120	DEUTZ-Errorcode: 121		BlinkCode (short-long-short): 1 - 1 - 8
BlinkCode (short-long-short): 1 - 1 - 8 SDN: ୫୨3ରମନ	BlinkCode (short-long-short): 1 - 1 - 9 SDN・523606		SPN: 523607 mossihle FMI
possible FMI:	possible FMI:		12: Defective component
12: Defective component	12: Defective component		12: Defective component
12: Defective component	12: Defective component		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		Errordetection
Errordetection	Errordetection		Errorlamp shows permanent light. Entry in errormemory.
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Possible reason for error
Possible reason for error	Possible reason for error		Missing message "TSC1-DE", CAN bus wrong cabled, wiring is
Missing message "TSC1-AE", CAN bus wrong cabled, wiring is	Missing message "TSC1-AR", CAN bus wrong cabled, wiring is	ong cabled, wiring is	demaged, receiver (sender of the message) work inaccurately,
demaged, receiver (sender of the message) work inaccurately,	demaged, receiver (sender of the message) work inaccurately,	<li>e) work inaccurately,</li>	parametering inaccurate
parametering inaccurate	parametering inaccurate		Take actions for error repair
Take actions for error repair	Take actions for error repair		Check CAN Bus cabling (Bus sheduling, polarity, short circuit,
Check CAN Bus cabling (Bus sheduling, polarity, short circuit,	Check CAN Bus cabling (Bus sheduling, polarity, short circuit,	blarity, short circuit,	power interrupt), test protocol of receiver, check CAN functional
power interrupt), test protocol of receiver, check CAN functional	power interrupt), test protocol of receiver, check CAN tunctional	check CAN tunctional	range
range	range		other error properties
		-	System reaction: Warning, changing to substitute values
System reaction: Warming, changing to substitute values	System reaction: Warning, changing to substitute values	ostitute values	according to priority chain. Behaviour error lamo: nermanent licht
Behaviour error lamo: nermanent licht	Behaviouring to priority crianit. Rehaviour error lamo: nermanent licht		Selfhealing: no
	Selfhealing: no		Signal Priority: 1
Signal Priority: 1	Signal Priority: 1		Measurement @ errortime: default value
Measurement @ errortime: default value	Measurement @ errortime: default value		)

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DEC
123 / 523608 / FrmMngTOTSC1DR	124 / 523609 / FrmMngTOTSC1PE	1PE	125 / 898 / FrmMngTOTSC1TE
Error description CAN ERROR TSC1-DR	Error description CAN ERROR TSC1-PE	1-PE	Error description CAN ERROR TSC1-TE
CAN message TSC1-DR (Torque/Speed Control #1 from	CAN message TSC1-PE (Torque/Speed Control #1 from Power	Control #1 from Power	CAN message TSC1-TE (Torque/Speed Control #1 from Traction
Driveline to Retarder): the message can not be received by ECU	Take Off to Engine): the message can not be received by ECU	be received by ECU	Control to Engine): the message can not be received by ECU
Error codes DFUTZ-Errorcode: 123	Error codes DFUTZ-Frrorcode: 124		Error coues DFIITZ-Frrorcode: 125
BlinkCode (short-long-short): 1 - 1 - 9	BlinkCode (short-long-short): 1 - 1 - 8		BlinkCode (short-long-short): 1 - 1 - 8
SPN: 523608	SPN: 523609		SPN: 898
12: Defective component	12: Defective component		12: Defective component
12: Defective component	12: Defective component		12: Defective component
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable Errordstaction	12. Errormode not identifiable Frrordetection		12. Errormoge not igenuitable Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errortamp shows permanent light. Entry in errormemory.	errormemorv.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Missing message "TSC1-DR", CAN bus wrong cabled, wiring is	Missing message "TSC1-PE", CAN bus wrong cabled, wiring is	rong cabled, wiring is	Missing message "TSC1-TE", CAN bus wrong cabled, wiring is
demaged, receiver (sender of the message) work inaccurately,	demaged, receiver (sender of the message) work inaccurately,	e) work inaccurately,	demaged, receiver (sender of the message) work inaccurately,
parametering inaccurate	Take actions for arror consist		parametering inaccurate
Lake actions for error repair Check CAN Bus cabling /Bus shedulling polarity short circuit	Check CAN Bus cabiling (Bus sheduling notarity short circuit	olarity short circuit	Lake actions for error repair Check CAN Bus cabling (Bus shedriling polarity short circuit
power interrupt), test protocol of receiver, check CAN functional	power interrupt), test protocol of receiver, check CAN functional	check CAN functional	power interrupt), test protocol of receiver, check CAN functional
range	range		range
Other error properties	Other error properties		Other error properties
System reaction: warning, changing to substitute values according to briority chain.	System reaction: warning, cnanging to substitute values according to priority chain.	ositute values	System reaction: Warming, changing to substitute values according to priority chain.
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Behaviour error lamp: permanent light
Selfhealing: no	Selfhealing: no		Selfhealing: no
əignai Priority: T Measurement @ errortime: default value	Signal Priority: 1 Measurement @ errortime: default value		Signal Priority: T Measurement @ errortime: default value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	B
126 / 520 / FrmMngTOTSC1TR	<mark>127</mark> / 523610 / FrmMngTOTSC1VE	1VE	128 / 523611 / FrmMngTOTSC1VR
Error description CAN ERROR TSC1-TR	Error description CAN ERROR TSC1-VE	1-VE	Error description CAN ERROR TSC1-VR
CAN message TSC1-TR (Torque/Speed Control #1 from Traction	CAN message TSC1-VE (Torque/Speed Control #1 from Vehicle	ontrol #1 from Vehicle	CAN message TSC1-VR (Torque/Speed Control #1 from Vehicle
Control to Retarder): the message can not be received by ECU	Control to Engine): the message can not be received by ECU	e received by ECU	Control to Retarder): the message can not be received by ECU
Error codes DELITZ-Errorode: 126	Error CODES DELITZ-Errorcode: 107		Error codes DELITZ_Errorcode: 128
BlinkCode (short-long-short): 1 - 1 - 9	BlinkCode (short-long-short): 1 - 1 - 8		BlinkCode (short-long-short): 1 - 1 - 9
SPN: 520	<b>SPN:</b> 523610		SPN: 523611
possible FMI:	possible FMI:		possible FMI:
12: Defective component	12: Defective component		12: Defective component
12: Delecuve component 13: Errormodo not identificable	12: Delective component 13 Errormode not identifiable		12. Delective component 13. Errormodo not idontificablo
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Missing message "TSC1-TR", CAN bus wrong cabled, wiring is	Missing message "TSC1-VE", CAN bus wrong cabled, wiring is	ong cabled, wiring is	Missing message "TSC1-VR", CAN bus wrong cabled, wiring is
demaged, receiver (sender of the message) work inaccurately,	demaged, receiver (sender of the message) work inaccurately,	<ul> <li>e) work inaccurately,</li> </ul>	demaged, receiver (sender of the message) work inaccurately,
parametering inaccurate	Take actions for curate		parametering inaccurate
l ake actions for error repair Chooly CAN Due cobline (Due choduline included included)	Chook CAN Bus solding (Bus shoduling as	clority chort circuit	Phoof: Constructions for error repair Choof: CAN Due adding a (Due aboduling a clority, about aired it
Uneck CAN bus capiling (bus sileduling, polarity, short circuri, power interrupt), test protocol of receiver, check CAN functional	Criteck CAN bus cability (bus srieduling, porarity, sriort cricult, power interrupt), test protocol of receiver, check CAN functional	olarity, snort circuit, check CAN functional	URECK CAN BUS CADING (BUS SHEUUINIG, POTATILY, SHORT CH CUR, power interrupt), test protocol of receiver, check CAN functional
range	range		range
other error properties	other error properties		other error properties
System reaction: Warning, changing to substitute values	System reaction: Warning, changing to substitute values	ostitute values	System reaction: Warning, changing to substitute values
according to priority criain. Behaviour error lamo: nermanent licht	accoraing to priority chain. Behaviour error lamo: permanent lidht		according to priority criain. Behaviour error lamo: permanent light
Selfhealing: no	Selfhealing: no		Selfhealing: no
Signal Priority: 1	Signal Priority: 1		Signal Priority: 1
Measurement @ errortime: default value	Measurement @ errortime: default value		Measurement @ errortime: default value
		_	

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	BEAT
131 / 523500 / FrmMngTxTO	133 / 174 / FTSCD		134 / 174 / FTSCDSysReac
Error description CAN MESS. IIMEOUI CAN message: the ECU detects a timeout for one or more posted message Frror codes	Error description FUEL LEMP. SENSOR Fuel temperature sensor: the voltage measured by ECU is out of the target range Frror codes	SOR sured by ECU is out of	Error description FUEL LEMP. SENSOR Fuel temperature: the fuel temperature calculated by ECU is above the target range; the ECU activates a system reaction Frror codes
DEUTZ-Errorcode: 131 BlinkCode (short-long-short): 2 - 7 - 1 SPN: 523500 possible FMI:	DEUTZ-Errorcode: 133 BlinkCode (short-long-short): 2 - 2 - 7 SPN: 174 possible FMI:		DEUTZ-Errorcode: 134 BlinkCode (short-long-short): 2 - 3 - 7 SPN: 174 possible FMI:
<ol> <li>12. Errormode not identifiable</li> <li>12. Errormode not identifiable</li> <li>12: Defective component</li> <li>12. Errormode not identifiable</li> </ol>	<ul> <li>3: Voltage to high or short circuit to +Ubatt</li> <li>4: Voltage to low or short circuit to -Ubatt</li> <li>12. Errormode not identifiable</li> <li>12. Errormode not identifiable</li> </ul>	o +Ubatt -Ubatt	0: data valid, but above normal working area 0: data valid, but above normal working area 12. Errormode not identifiable 12. Errormode not identifiable
Errordetection Errorlamp shows permanent light. Entry in errormemory. Possible reason for error Timeout for sent messages T-lo actions for error remain	Errordetection Errorlamp shows permanent light. Entry in errormemory. Possible reason for error Fuel temp. sensor: cable break or short circuit, sendor defective,	errormemory. cuit, sendor defective,	Errordetection Errorlamp shows permanent light oder blinking. Entry in errormemory. Possible reason for error
other error properties System reaction: Behaviour error lamp: permanent light	Take actions for error repair Check cabling if sensor not working, check sensor and if necessary replace it, check connection cable and if necessary remain rendare it	k sensor and if ble and if necessary	Above target range with system reaction, interruption of fuel loop (for example, rail pressure relief valve defective), sensor defective, connection cable demaged Take actinous for error renair
seinteainty. 1es Signal Priority: 1 Measurement @ errortime: -	other error properties System reaction: Warning, substitute value Behaviour error lamp: permanent light Selfhealing: yes Signal Priority: 4 Measurement @ errortime: default value		Check fuel system and if necessary repair it, check sensor and if necessary replace it, check connection cable and if necessary repair or replace it other error properties System reaction: Advice: FTSCD_stSysReacReq Behaviour error lamp: permanent light oder blinking Selfhealing: yes Signal Priority: 4 Measurement @ errortime: actual value

DEUTZ AG, TE-CE, Fi

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<mark>136</mark> / 523618 / GOTSCD	137 / 523619 / GOTSCDSvsReac	ac	<mark>138</mark> / 29 / HdThrt
Customer specific temperature sensor 1: the voltage of sensor	Customer specific temperature 1: the temperature calculated by	perature calculated by	Hand throttle pedal sensor: the voltage measured by ECU is out
measured by ECU is out of the target range or the received value	ECU is above the target range; the ECU activates a system	ctivates a system	of the target range or the calculated pedal position is implausible
or temperature via CAN IS defective			compared with the position of accelerator pedal 1
Error codes	Error codes		Error codes
DEUTZ-Errorcode: 136	DEUTZ-Errorcode: 137		DEUTZ-Errorcode: 138
BlinkCode (short-long-short): 1 - 3 - 3 SDN: 523648	BlinkCode (short-long-short): 1 - 3 - 3 SDN: 523610		BlinkCode (short-long-short): 1 - 2 - 6
Dossible FMI:	Dossible FMI:		bossible FMI:
3: Voltage to high or short circuit to +Ubatt	2: data stream is defective		3: Voltage to high or short circuit to +Ubatt
4: Voltage to low or short circuit to -Ubatt	2: data stream is defective		4: Voltage to low or short circuit to -Ubatt
2: data stream is defective	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		2: data stream is defective
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light		Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	oder		Possible reason for error
Cable break or short circuit (sensor 1), sensor defective,	blinking. Entry in errormemory		Cable break or short circuit, signal implausible compared to
connection cable demaged, CAN bus wrong cabled, wiring	Possible reason for error		signal of idle sensor, transmitter defective, connection cable
demaged, receiver (sender of the message) work inaccurately,	Outside target range with system reaction (temperature 1),	(temperature 1),	demaged
parametering inaccurate	dependant on the application		Take actions for error repair
Take actions for error repair	Take actions for error repair		Check cabling, check sensor and if necessary replace it, check
Customer specific bugfixing, check sensor and if necessary	Customer specific bugfixing, denpendant on application	on application	connection cable and if necessary repair or replace it
replace it, check connection cable and if necessary repair or	other error properties		other error properties
replace it, Check CAN Bus cabling (Bus sheduling, polarity, short	System reaction: Advice: GOTSCD_stSysReacReq	ReacReq	System reaction: Warning, changing to substitute values
circuit, power interrupt), test protocol of receiver, check CAN fun	Behaviour error lamp: permanent light		according to priority chain or limp home
other error properties	oder		Behaviour error lamp: permanent light
System reaction: Warning, substitute value (customer specific)	blinking		Selfhealing: no
Behaviour error lamp: permanent light	Selfhealing: yes		Signal Priority: 4
Selfhealing: yes	Signal Priority: 3		Measurement @ errortime: actual value
Signal Priority: 2	Measurement @ errortime: actual value		
Measurement @ errortime: default value			
	-		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
139 / 1638 / HOTSCD	140 / 1638 / HOTSCDSysReac		141 / 523617 / HWEMonCom
Error description CUSTOMER TEMPSENS 2	Error description CUSTOMER TEMPSENS 2	SENS 2	Error description INTERNAL COMM. ERROR
Customer specific temperature sensor 2: the voltage of sensor	Customer specific temperature 2: the temperature calculated by	erature calculated by	Internal hardware monitoring: the ECU detects a communication
measured by ECU is out of the target range or the received value	ECU is above the target range; the ECU activates a system	ctivates a system	distrubance
Error codes	Error codes		EITOL COUES DEUTZ-Errorcode: 141
DEUTZ-Errorcode: 139	DEUTZ-Errorcode: 140		BlinkCode (short-long-short): 5 - 5 - 5
BlinkCode (short-long-short): 3 - 1 - 4	BlinkCode (short-long-short): 3 - 1 - 4		SPN: 523617
SPN: 1036 DOSSIDIE FMI:	Dossible FMI:		possible rivit: 12. Defective component
3: Voltage to high or short circuit to +Ubatt	2: data stream is defective		12. Errormode not identifiable
4: Voltage to low or short circuit to -Ubatt	2: data stream is defective		12. Errormode not identifiable
12: Defective component	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		Errordetection
Errordetection			Errorlamp shows permanent light. Entry in errormemory.
Erioriarip snows permanent lignt. Entry in eriormernory.			Construction for effor
Possible reason for error Pablo broad or chart circuit (concor 2) concor defective	buei blinking Entry in errormemory		Communication with chip CJ 34U disturbed, ECU defective
connection cable demaged. CAN his wrong cabled, within	Possible reason for error		I are activits for error repair If cannot delete the error change FCI
demaged, receiver (sender of the message) work inaccurately.	Outside target range with system reaction (temperature 2).	(temperature 2).	n cannot defete the end, orange ECO
parametering inaccurate	dependant on the application		System reaction: Warning
Take actions for error repair	Take actions for error repair		Behaviour error lamp: permanent light
Customer specific bugfixing, check sensor and if necessary	Customer specific bugfixing, denpendant on application	n application	Selfhealing: no
replace it, check connection cable and if necessary repair or	other error properties		Signal Priority: 4
circuit, power interrupt), test protocol of receiver. check CAN fun	System reaction: Advice: HUI SUD_stoysReacked Behaviour error lamo: nermanent light	кеаскед	Measurement @ errorume: -
other error properties	oder		
System reaction: Warning, substitute value (customer specific)	blinking		
Behaviour error lamp: permanent light	Selfhealing: yes		
Setthealing: yes	Signal Priority: 3		
əigilal Friolity. z Measurement @ errortime: default value			

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
142 / 630 / HWEMonEEPROM	<mark>143</mark> / 523612 / HWEMonRcyLocked	cked	<mark>144</mark> / 523612 / HWEMonRcySuppressed
Error description EEPROM MEM. ACCESS	Error description INT. RECOVERY		Error description INT. RECOVERY
Internal hardware monitoring: the ECU finds an error during the access to ist EEPROM memory or works with an alternative	Internal hardware monitoring: the CPU of the ECU is reset and the cause is logged internally; no item will be created in error	he ECU is reset and be created in error	Internal hardware monitoring: the CPU of the ECU is reset and the cause is logged internally; no item will be created in error
value	memory		memory
Error codes	Error codes		Error codes
DEUTZ-Errorcode: 142 BlinkCode (short-long-short): 2 - 8 - 1	DEUTZ-Errorcode: 143 BlinkCode (short-long-short): 5 - 5 - 5		DEUTZ-Errorcode: 144 BlinkCode (short-long-short): 5 - 5 - 5
SPN: 630	SPN: 523612		SPN: 523612
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12: Defective component	12. Errormode not identifiable		12. Errormode not identifiable
12: Defective component	12. Errormode not identifiable		12. Errormode not identifiable
12: Defective component	14: Special Instructions		14: Special Instructions
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows blinking. Entry in errormemory.	mory.	Errorlamp shows blinking. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Error during EEPROM memory access or EEPROM works with	A recovery occurred which is stored as protected	itected	A recovery occurred which is not stored
substitute value, programming error, ECU defective	Take actions for error repair		Take actions for error repair
	Recoverey occured which is stored as protected	ected	Recoverey occured which is stored as protected
If not programmed, EEPROM is defect -> ECU is defect,	With parameter HWEMon_numRexxxxxx the recovery nummer	the recovery nummer	With parameter HWEMon_numRexxxxxx the recovery nummer
reprogram ECU and if necessary replace it	and the subsequent position can be identified. See especially	ied. See especially	and the subsequent position can be identified. See especially
other error properties	SW-Doku _rcy_auto.pdf		SW-Doku rcy_auto.pdf
System reaction: vvarning Doborition: second from the fictor			Outler error properties
benaviour error larinp: permanent lignt Selfhealing: no	System reaction: Recovery of ECO Rehaviour error lamo: Minking		oystern reaction: vvarning, snown at error paur Rehaviour error lamn: hlinking
Signal Priority: 4	Selfhealing: no		Selfhealing: no
Measurement @ errortime: -	Signal Priority: 5		Signal Priority: 5
)	Measurement @ errortime: -		Measurement @ errortime: -

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DEVIZ
	_		
<mark>145</mark> / 523612 / HWEMonRcyVisible	<mark>146</mark> / 523612 / HWEMonUMaxSupply	supply	<mark>147</mark> / 523612 / HWEMonUMinSupply
Error description INT. RECOVERY	Error description INT. RECOVERY		Error description INT. RECOVERY
Internal hardware monitoring: the CPU of the ECU is reset and	Internal hardware monitoring: the ECU detects an excess of the	ects an excess of the	Internal hardware monitoring: the ECU detects an undershooting
an item will be created in error memory Error codes	target range for the power supply of ist communication module	Imunication module	of the target range for the power supply of ist communication module
DEUTZ-Errorcode: 145	DEUTZ-Errorcode: 146		Error codes
BlinkCode (short-long-short): 5 - 5 - 5	BlinkCode (short-long-short): 5 - 5 - 5		DEUTZ-Errorcode: 147
SPN: 523612	<b>SPN:</b> 523612		BlinkCode (short-long-short): 5 - 5 - 5
possible FMI: 13 Errormode not identifiable	2. Voltade t MI: 3. Voltade to biob or chort direntit to 41 both	+  ho#	SPN: 523612 Mossible EMI
12. Errormode not identifiable	3. Voliage to high of short circuit to 12 Errormode not identifiable		12 Frormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		4: Voltage to low or short circuit to -Ubatt
14: Special Instructions	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		12. Errormode not identifiable
Errorlamp shows blinking. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errordetection
Possible reason for error	Possible reason for error		Errorlamp shows permanent light. Entry in errormemory.
A recovery occurred which is visible in the error memory	Overvoltage at CJ940, power supply voltage too high, ECU	je too high, ECU	Possible reason for error
Take actions for error repair			Undervoltage at CJ940, power supply voltage too low, ECU
Recoverey occured which is stored as protected	Take actions for error repair		defective
With parameter HWEMon_numRexxxxxx the recovery nummer	Check working voltage and if necessary correct it, Check ECU	rrect it, Check ECU	Take actions for error repair
and the subsequent position can be identified. See especially	and if necessary replace it		Check working voltage and it necessary correct it, Check ECU and if necessary rankers it
	System reaction: Power stage shut off		
System reaction: Recovery or ECU Rehaviour error lamo: hlinking	Selfhealing: no		System reaction: Power stage snut on Behaviour error lamn: nermanent licht
Selfhealing: no	Signal Priority: 4		Selfhealing: no
Signal Priority: 5	Measurement @ errortime: -		Signal Priority: 4
Measurement @ errortime: -	1		Measurement @ errortime: -

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DECT
149 / 105 / IATSCD	150 / 105 / IATSCDSvsReac		<mark>153</mark> / 523350 / IniVIvBnk1A
Error description CHARGE AIR TEMP.		AP.	Error description INJECTOR BANK A
Charge air temperature sensor: the voltage of sensor measured	Charge air temperature: die charge air temperature calculated by	perature calculated by	Injector cylinder bank 1: the current drain measured by ECU is
by ECU is out of the target range or the received value of	ECU is above the target range; the ECU activates a system	ctivates a system	above the target range
ieiiiperature via vaiv is defective Error codes			Error coues DEUTZ-Errorcode: 153
DEUTZ-Errorcode: 149	DEUTZ-Errorcode: 150		BlinkCode (short-long-short): 1 - 5 - 1
BlinkCode (short-long-short): 1 - 2 - 8 SDN - 105	BlinkCode (short-long-short): 2 - 3 - 3 SPN - 105		SPN: 523350 possible FMI:
possible FMI:	possible FMI:		3: Voltage to high or short circuit to +Ubatt
<ol><li>Voltage to high or short circuit to +Ubatt</li></ol>	0: data valid, but above normal working area	orking area	4: Voltage to low or short circuit to -Ubatt
4: Voltage to low or short circuit to -Ubatt	0: data valid, but above normal working area	orking area	13: out of calibrated range
<ol> <li>Z: data stream is derective</li> <li>Errormode not identifiable</li> </ol>	12. Errormode not identifiable		12. Errormode not identifiable
	Errordetection		Errorlamo shows permanent light Entry in errormemory
Errorlamo shows permanent light. Entry in errormemory.	Errorlamp shows permanent light		Possible reason for error
Possible reason for error	oder		Short circuit (cylinder bank 1), injector defective, connection
Cable break or short circuit, sensor defective, connection cable	blinking. Entry in errormemory		cable demaged
demaged, CAN bus wrong cabled, wiring demaged, receiver	Possible reason for error		Take actions for error repair
(sender of the message) work inaccurately, parametering	Above target range with system reaction, air system demaged,	air system demaged,	Check cabling, check injectors and if necessary replace them,
	sensor defective, connection caple demaged	led	check connection cable and if necessary repair or replace it
Choole actions for error repair Choole aching Threat access and more thank access and if	Chool construction of LDEET chool const	ion northolophools oir	other error properties
Uneck cabling, LUF01-Sensor not working, check sensor and it necessary replace if check connection cable and if necessary	Uneck construction of LDF01, check suction parts, check all system and if necessary repair if check sensor and if necessary	ion parts, cneck air ensor and if necessary	System reaction: Warning, cylinder shut off Reheviour error lamo: nermeneet licht
repair or replace it. Check CAN Bus cabling (Bus sheduling,	replace it, check connection cable and if necessary repair or	ecessary repair or	Setthealing: ves
polarity, short circuit, power interrupt), test protocol of receiver, c	replace it	-	Signal Priority: 4
other error properties	other error properties	Ĺ	Measurement @ errortime: actual value
system reaction: vvarning, substitute value Behaviour error lamo: permanent light	System reaction: Advice: IA I SCU_stSysReacKed Behaviour error lamp: permanent light	eacked	
Selfhealing: yes	oder		
Signal Priority: 4	blinking		
weasurement @ errortime: default value	Serricaling: yes		
	Algorithm Fritority: 4 Measurement @ errortime: actual value		
	)		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<mark>154</mark> / 523351 / InjVlvBnk1B	<mark>155</mark> / 523352 / lnjVlvBnk2A		<mark>156</mark> / 523353 / InjVlvBnk2B
Error description INJECTOR BANK A	Error description INJECTOR BANK B	KB	Error description INJECTOR BANK B
Injector cylinder bank 1: the current drain measured by ECU is	Injector cylinder bank 2: the current drain measured by ECU is	n measured by ECU is	Injector cylinder bank 2: the current drain measured by ECU is
underneath the target range	above the target range		underneath the target range
Error codes DEITT2_Errorcode: 154	Effor codes DFIITZ-Errorcode: 155		Error codes DFIITZ-Froncode: 156
BlinkCode (short-long-short): 1 - 5 - 1	BlinkCode (short-long-short): 1 - 5 - 2	2	BlinkCode (short-long-short): 1 - 5 - 2
SPN: 523351	<b>SPN:</b> 523352		SPN: 523353
possible FMI:	possible FMI:		possible FMI:
13: out of calibrated range 13: out of calibrated range	<ol> <li>Voltage to high or short circuit to +Ubatt</li> <li>Voltage to low or short circuit to -I lhaft</li> </ol>	t to +Upatt to _I lhatt	13: out of calibrated range 13: out of calibrated range
5: current to low or broken wire	13: out of calibrated range		5: current to low or broken wire
13: out of calibrated range	12. Errormode not identifiable		13: out of calibrated range
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	in errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Cable break (cylinder bank 1), injector defective, connection	Short circuit (cylinder bank 2), injector defective, connection	efective, connection	Cable break (cylinder bank 2), injector defective, connection
cable demaged	cable demaged		cable demaged
Take actions for error repair	Take actions for error repair	-	Take actions for error repair
Check cabling, check injectors and if necessary replace them, check connection cable and if necessary renair or replace if	Check cabling, check injectors and if necessary replace them, where connection cable and if necessary ranging replace it	cessary replace them, repair or replace it	Check cabling, check injectors and if necessary replace them, check connection cable and if necessary repair or replace it
dieux duiniediun daule and in nedessary repair di reprace n Athar arror nronartiae	other error properties	י ובאמוו טו ובאומים וו	citeck contrection date and it recessary repair of replace it of the error hronerfies
Svetam reaction: Marning svilinder shirt off	Svetem reaction: Warning Avlinder shut off	off	Svetam raaction: Warning cylindar shut off
System reaction. wanning, cynnoer snut on Behaviour error lamo: bermanent licht	Behaviour error lamp: permanent light		oysterin reaction. waiting, cynnoer snut on Behaviour error lamp: permanent light
Selfhealing: yes	Selfhealing: yes		Selfhealing: yes
Signal Priority: 4	Signal Priority: 4		Signal Priority: 4
Measurement @ errortime: actual value	Measurement @ errortime: actual value		Measurement @ errortime: actual value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	<b>E</b>
<mark>157</mark> / 523354 / InjVlvChipA	158 / 523355 / InjVIvChipB		<mark>159</mark> / 651 / InjVIvCyI1A
Error description PWR. INJ. BANK B	Error description PWR. INJ. BANK B		Error description INJECTOR 1
Internal hardware monitoring: the ECU detects an error of ist	Internal hardware monitoring: the ECU detects a disturbance in	ects a disturbance in	Injector 1: the current drain measured by ECU is above the target
Injector high current output	Its injector high current output		range Error codoc
EIIUI COUES DEUTZ-Errorcode: 157	DEUTZ-Errorcode: 158		EITOL COURS DEUTZ-Errorcode: 159
BlinkCode (short-long-short): 1 - 5 - 3	BlinkCode (short-long-short): 1 - 5 - 3		BlinkCode (short-long-short): 1 - 5 - 4
SPN: 523354	SPN: 523355		SPN: 651 nossihle EMI:
3: Voltage to high or short circuit to +Ubatt	12: Defective component		3: Voltage to high or short circuit to +Ubatt
2: data stream is defective	12: Defective component		13: out of calibrated range
14: Special Instructions	12: Defective component		4: Voltage to low or short circuit to -Ubatt
12: Defective component	12: Defective component		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows blinking. Entry in errormemory.	Errorlamp shows blinking. Entry in errormemory.	mory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
High power stage Injector A, ECU defective	High power stage Injector B, ECU defective	d)	Short circuit (cylinder 1), injector defective, connection cable
I ake actions for error repair			t 4: f f f
If error is not removable, change ECU	If error is not removable, change ECU		
other error properties	other error properties		Check cabling, check injectors and it necessary replace them,
System reaction: Warninig, outputs shut off Behaviour error lamo: blinking	System reaction: Warninig, outputs shut off Behaviour error lamo: blinking	<b>+</b>	cneck connection caple and it necessary repair of replace it other error properties
Deliavioui error iarrip. Jiiriniig Salfhaalina: na			Custom rootion: Worning fuel injection failed shut off wonn the
Signal Priority: 5	Signal Priority: 5		oysterin reaction. Warning, tuer injection raneu, shut on wenn ure number of active cylinders below minimum
Measurement @ errortime: actual value	Measurement @ errortime: actual value		Behaviour error lamp: permanent light
			Selfhealing: yes
			Signal Priority: 4 Measurement @ errortime: actual value
	_		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	B
	V Ch. J. Mun ( 1 2 2 1 1 2 1		160 / 660 / IniV/v/19D
100 / 031 / InjVIVCyLB Error description IN.IECTOR 1	Front description INJECTOR 2		102 / 032 / INJVIVCYIZB Error description INJECTOR 2
Injector 1: the current drain measured by ECU is underneath the	Injector 2: the current drain measured by ECU is above the target	ECU is above the target	Injector 2: the current drain measured by ECU is underneath the
target range Error codes	range Error codee		target range Error codes
DEUTZ-Errorcode: 160	DEUTZ-Errorcode: 161		DEUTZ-Errorcode: 162
BlinkCode (short-long-short): 1 - 5 - 4 SPN: 651	BlinkCode (short-long-short): 1 - 5 - 5 SPN: 652		BlinkCode (short-long-short): 1 - 5 - 5 SPN: 652
possible FMI:	possible FMI:		possible FMI:
13: out of calibrated range	3: Voltage to high or short circuit to +Ubatt	o +Ubatt	13: out of calibrated range
13. Out of callor acted range 5: current to low or broken wire	13. Out of callor area range 4: Voltage to low or short circuit to -Ubatt		13. out of calibrated range 5: current to low or broken wire
13: out of calibrated range	12. Errormode not identifiable		13: out of calibrated range
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason tor error	Possible reason for error		Possible reason tor error
caule ofean (cymruer 1), mijecuu uerecuve, conmecuon caule demaged	demaged		cable break (cynnicer z), nijecioù dereciive, conniecioni cable demaged
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check cabling, check injectors and if necessary replace them,	Check cabling, check injectors and if necessary replace them,	ssary replace them,	Check cabling, check injectors and if necessary replace them,
dieck connection capie and in necessary repair or replace it other error properties	check connection capie and in necessary repair or replace n other error properties	epair or reprace it	creck confribution cable and in recessary repair of replace it other error properties
System reaction: Warning fiel injection failed shut off wenn the	Svetem reaction: Warning fuel injection failed shut off wenn the	iled shut off wenn the	System reaction: Warning fuel injection failed shut off wenn the
number of active cylinders below minimum	number of active cylinders below minimum		Description warming, last injourned and on warming number of active cylinders below minimum
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Behaviour error lamp: permanent light
Selfhealing: yes Sional Drivition 3	Selfhealing: yes Signal Drivity. /		Selfhealing: yes Signal Driority: 3
Description of the sectual value	Measurement @ errortime: actual value		Measurement @ errortime: actual value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<ul> <li>163 / 653 / InjVIvCyI3A</li> <li>Error description INJECTOR 3</li> <li>Injector 3: the current drain measured by ECU is above the target range</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 163</li> <li>BlinkCode (short-long-short): 1 - 5 - 6</li> </ul>	164 / 653 / InjVIvCyI3B Error description INJECTOR 3 Injector 3: the current drain measured by ECU is underneath the target range Error codes DEUT2-Errorcode: 164 BlinkCode (short-lona-short): 1 - 5 - 6	:CU is underneath the	<ul> <li>165 / 654 / InjVIvCyI4A</li> <li>Error description INJECTOR 4</li> <li>Injector 4: the current drain measured by ECU is above the target range</li> <li>Error codes</li> <li>DEUT2-Errorcode: 165</li> <li>BlinkCode (short-long-short): 1 - 6 - 1</li> </ul>
<ul> <li>SPN: 653</li> <li>possible FMI:</li> <li>3: Voltage to high or short circuit to +Ubatt</li> <li>13: out of calibrated range</li> <li>4: Voltage to low or short circuit to -Ubatt</li> <li>12. Errormode not identifiable</li> <li>Errordetection</li> <li>Errordetection</li> <li>Errorlamp shows permanent light. Entry in errormemory</li> <li>Possible reason for error</li> <li>Short circuit (cylinder 3), injector defective, connection cable</li> </ul>	<ul> <li>SPN: 653</li> <li>possible FMI:</li> <li>13: out of calibrated range</li> <li>13: out of calibrated range</li> <li>5: current to low or broken wire</li> <li>13: out of calibrated range</li> <li>5: current to low or broken wire</li> <li>13: out of calibrated range</li> <li>Errordetection</li> <li>Errordetection</li> <li>Errordetection</li> <li>Cable break (cylinder 3), injector defective, connection cable</li> </ul>	errormemory. . connection cable	<ul> <li>SPN: 654</li> <li>possible FMI:</li> <li>3: Voltage to high or short circuit to +Ubatt</li> <li>13: out of calibrated range</li> <li>4: Voltage to low or short circuit to -Ubatt</li> <li>12. Errormode not identifiable</li> <li>Errordetection</li> <li>Frordencetion</li> <li>Forsible reason for error</li> <li>Short circuit (cylinder 4), injector defective, connection cable</li> </ul>
Lake actions for error repair Check cabling, check injectors and if necessary replace them, check connection cable and if necessary repair or replace it other error properties System reaction: Warning, fuel injection failed, shut off wenn the number of active cylinders below minimum Behaviour error lamp: permanent light Signal Priority: 4 Measurement @ errortime: actual value	Lake actions for error repair Check cabling, check injectors and if necessary replace them, check connection cable and if necessary repair or replace it other error properties System reaction: Warning, fuel injection failed, shut off wenn the number of active cylinders below minimum Behaviour error lamp: permanent light Signal Priority: 3 Measurement @ errortime: actual value	ssary replace them, spair or replace it led, shut off wenn the	Lake actions for error repair Check cabling, check injectors and if necessary replace them, check connection cable and if necessary repair or replace it other error properties System reaction: Warning, fuel injection failed, shut off wenn the number of active cylinders below minimum Behaviour error lamp: permanent light Signal Priority: 4 Measurement @ errortime: actual value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	B
<mark>166</mark> / 654 / InjVIvCyI4B	<mark>167</mark> / 655 / InjVIvCyI5A		168 / 655 / InjVIvCyI5B
Error description INJECTOR 4	Error description INJECTOR 5		Error description INJECTOR 5
Injector 4: the current drain measured by ECU is underneath the	Injector 5: the current drain measured by ECU is above the target	y ECU is above the target	Injector 5: the current drain measured by ECU is underneath the
Error codes	Error codes		Error codes
DEUTZ-Errorcode: 166	DEUTZ-Errorcode: 167		DEUTZ-Errorcode: 168
BlinkCode (short-long-short): 1 - 6 - 1	BlinkCode (short-long-short): 1 - 6 - 2	2	BlinkCode (short-long-short): 1 - 6 - 2
Dossible FMI:	DOSSIBLE FMI:		Dossible FMI:
13: out of calibrated range	3: Voltage to high or short circuit to +Ubatt	it to +Ubatt	13: out of calibrated range
13: out of calibrated range	13: out of calibrated range		13: out of calibrated range
5: current to low or broken wire	4: Voltage to low or short circuit to -Ubatt	t to -Ubatt	5: current to low or broken wire
13: out of calibrated range Errordotoction	12. Errormode not identifiable		13. out of callorated range Errordetection
Ell'Oldecelloll Escalama abaina normanant liabt. Estar la assemanant			Ell'Olderection
Erroriamp snows permanent lignt. Entry in errormemory.	Erronamp snows permanent light. Entry in errormemory	r In errormemory.	Erroriamp snows permanent light. Entry in errormemory.
Cable heak (cylinder 4) injector defective connection cable	Short circuit (cylinder 5) injector defective connection cable	ve connection cable	Cable hreak (cylinder 5) injector defective connection cable
demaged	demaged		
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check cabling, check injectors and if necessary replace them,	Check cabling, check injectors and if necessary replace them,	cessary replace them,	Check cabling, check injectors and if necessary replace them,
check connection cable and if necessary repair or replace it	check connection cable and if necessary repair or replace it	y repair or replace it	check connection cable and if necessary repair or replace it
other error properties	other error properties		other error properties
System reaction: Warning, fuel injection failed, shut off wenn the	System reaction: Warning, fuel injection failed, shut off wenn the	i failed, shut off wenn the	System reaction: Warning, fuel injection failed, shut off wenn the
number of active cylinders below minimum	number of active cylinders below minimum	nm	number of active cylinders below minimum
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Behaviour error lamp: permanent light
Selinealing. yes Sional Drivrity 3	Selfnealing: yes Signal Drionity: /		Selfnealing: yes Sirnal Drivritur: 3
Dignar i norrig. S Measurement @ errortime: actual value	Measurement @ errortime: actual value		Measurement @ errortime: actual value
	_		_

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	B
169 / 656 / InjVIvCyI6A	<mark>170</mark> / 656 / InjVIvCyI6B		171 / 657 / InjVIvCyI7A
Error description INJECTOR 6	Error description INJECTOR 6		Error description INJECTOR 7
Injector 6: the current drain measured by ECU is above the target	Injector 6: the current drain measured by ECU is underneath the	ECU is underneath the	Injector 7: the current drain measured by ECU is above the target
range	target range		range Error oodoo
DEUTZ-Errorcode: 169	DEUTZ-Errorcode: 170		DEUTZ-Errorcode: 171
BlinkCode (short-long-short): 1 - 6 - 3	BlinkCode (short-long-short): 1 - 6 - 3		BlinkCode (short-long-short): 1 - 6 - 4
SPN: 656	SPN: 656		SPN: 657
3. Voltage to high or short circuit to +I lhatt	13: out of calibrated range		2. Voltare to high or short circuit to +1 lhatt
<ol> <li>voluge to inglify or short checking a construction of calibrated range</li> </ol>	13: out of calibrated range		3. where we have a short chean to 100 and 13. out of calibrated range
4: Voltage to low or short circuit to -Ubatt	5: current to low or broken wire		4: Voltage to low or short circuit to -Ubatt
12. Errormode not identifiable	13: out of calibrated range		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	n errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Short circuit (cylinder 6), injector defective, connection cable	Cable break (cylinder 6), injector defective, connection cable	e, connection cable	Short circuit (cylinder 7), injector defective, connection cable
demaged	demaged		demaged
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check cabling, check injectors and if necessary replace them,	Check cabling, check injectors and if necessary replace them,	essary replace them,	Check cabling, check injectors and if necessary replace them,
check connection capte and in necessary repair or replace it other error properties	crieck confriection cable and in necessary repair or replace n other arror properties	epair or replace it	check connection capie and it necessary repair or replace it other error properties
ourie error properties		1	ourier error properties
System reaction: Warning, ruel injection railed, shut on wenn the number of active cylinders below minimum	System reaction: Warming, tuel injection falled, shut off wenn the number of active cylinders helow minimum	alled, snut off wenn the n	System reaction: Warning, tuel injection talled, snut off wenn the number of active cylinders helow minimum
Rehaviour error lamo: nermanent licht	Behaviour error lamor permanent light		Rehaviour error lamor nermanent licht
Selfhealing: ves	Selfhealing: yes		Selffrealing: ves
Signal Priority: 4	Signal Priority: 3		Signal Priority: 4
Measurement @ errortime: actual value	Measurement @ errortime: actual value		Measurement @ errortime: actual value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	Devi 2
172 / 657 / InjVIVCyI7B Error description INJECTOR 7 Injector 7- the current drain measured by FCU is underneath the	173 / 658 / InjVIvCyI8A Error description INJECTOR 8 Injector 8: the current drain measured by FCII is above the target	FCUL is above the target	174 / 658 / InjVIVCyI8B Error description INJECTOR 8 Injector 8: the current drain measured by FCII is underneath the
target range Error codes	range Error codes		target range Error codes
DEUTZ-Errorcode: 172 BlinkCode (short-lono-short): 1 - 6 - 4	DEUTZ-Errorcode: 173 BlinkCode (short-long-short): 1 - 6 - 5		DEUTZ-Errorcode: 174 BlinkCode (short-lona-short): 1 - 6 - 5
SPN: 657 SPN: 657 mossible FMI	SPN: 658 nossible FMI:		SPN: 668 SPN: 668 mossible FMI
13: out of calibrated range	3: Voltage to high or short circuit to +Ubatt	to +Ubatt	13: out of calibrated range
13: out of calibrated range 5: current to low or broken wire	<ol> <li>13: out of calibrated range</li> <li>4: Voltage to low or short circuit to -Ubatt</li> </ol>	to -Ubatt	13: out of calibrated range 5: current to low or broken wire
13: out of calibrated range	12. Errormode not identifiable		13: out of calibrated range
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory. Descible reacon for error	Errorlamp shows permanent light. Entry in errormemory.	in errormemory.	Errorlamp shows permanent light. Entry in errormemory. Descipio reason for error
Cable break (cylinder 7), injector defective, connection cable	Short circuit (cylinder 8), injector defective, connection cable	e, connection cable	Cable break (cylinder 8), injector defective, connection cable
demaged	demaged		demaged
Take actions for error repair	Take actions for error repair	-	Take actions for error repair
Check cabling, check injectors and it necessary replace them, check connection cable and if necessary repair or replace it	Check cabling, check injectors and it necessary replace them, check connection cable and if necessary repair or replace it	sessary replace them, repair or replace it	Check cabling, check injectors and if necessary replace them, check connection cable and if necessary repair or replace it
other error properties	other error properties		other error properties
System reaction: Warning, fuel injection failed, shut off wenn the	System reaction: Warning, fuel injection failed, shut off wenn the	failed, shut off wenn the	System reaction: Warning, fuel injection failed, shut off wenn the
number of active cylinders below minimum	number of active cylinders below minimum	E	number of active cylinders below minimum
benavlour error lamp: permanent light Salfhaalinn: vas	Benaviour error lamp: permanent light Selfhealing: ves		Benaviour error lamp: permanent light Selfhealinn: ves
Signal Priority: 3	Signal Priority: 4		Signal Priority: 3
Measurement @ errortime: actual value	Measurement @ errortime: actual value		Measurement @ errortime: actual value
		_	

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	Person
175 / 523370 / InjVIvErrDet Error description RAIL PRESS. MON. DISABLED Rail pressure monitoring: the monitoring of the rail pressure will be deactivated by ECU because of the activation of the function "compression test" by user Error codes DEUT2-Errorcode: 175 BlinkCode (short-long-short): 5 - 5 - 5 SPN: 523370 DEUT2-Errorcode: 175 DEUT2-Errorcode: 175 DEUT2-Errorcod	<b>176 / 523615 / MeUnCD_ADC Error description METERING UNIT</b> Farer description METERING UNIT         Farer description Unit         Farer description Unit         Euror description METERING UNIT         Farer description Unit         Euror description METERING UNIT         Farer description METERING UNIT         Farer description METERING UNIT         Farer description METERING UNIT         Euror description         Farer description         Services         Services         System reaction         Euror properties         System reaction:         Benaviour error lamp: permanent light. Entry in errormemory.         Percented         Faromade to tidentificable         Colage trange	calculated by ECU at target range -Ubatt -Ubatt errormemory.	<ul> <li>177 / 523615 / MeUNCDNOLOAG</li> <li>177 / 523615 / MeUNCDNOLOAG</li> <li>177 / 523615 / MeUNCONOLOAG</li> <li>Teror description METERING UNIT</li> <li>Valve at outlet of the fuel metering unit: the ECU detects no load or temperature excess of the ECU component for power supply of the valve</li> <li>Valve at outlet of the fuel metering unit: the ECU detects no load of the valve</li> <li>Teror codes</li> <li>Teror codes</li> <li>Split Error code: 177</li> <li>BinkCode (short-long-short): 1 - 3 - 5</li> <li>Split Error code: 177</li> <li>BinkCode (short-long-short): 1 - 3 - 5</li> <li>Split Error code: 177</li> <li>BinkCode (short-long-short): 1 - 3 - 5</li> <li>Split Error code: 177</li> <li>Split Error component</li> <li>Error mode not identifiable</li> <li>Error codes</li> <li>Corrende not identifiable</li> <li>Error codes</li> <li>Split Error component</li> <li>Defective component</li> <li>Defective component</li> <li>Split Fallin</li> <li>Corrende not identifiable</li> <li>Error codes</li> <li>Error codes</li> <li>Split Fallin</li> <li>Defective component</li> <li>Defective component</li> <li>Terror and in the factive, connection cable</li> <li>Split Faraor or ECU output is switched of because of overtemperature, fuel metering unit defective, connection cable</li> <li>Max extraction of FCU -&gt; open rail</li> <li>Terror properties</li> <li>Stem reaction: Warning, max extraction of FCU -&gt; open rail</li> <li>Persons repair or replace it, check connection cable and if necessary replace it, check connection</li></ul>

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DECT
<mark>178</mark> / 523615 / MeUnCDSCBat	179 / 523615 / MeUnCDSCGnd		<mark>182</mark> / 2634 / MnRly1_SCB
Error description METERING UNIT	Error description METERING UNIT		Error description MAIN RELAY
Valve at outlet of the fuel metering unit: the current drain	Valve at outlet of the fuel metering unit: the current drain	current drain	Main relay 1: the current drains measured by ECU is above the
measured by ECU is above the target range	measured by ECU is above the target range	0	target range
Error codes	Error codes		Error codes
UEUI2-Errorcoue: 1/8 BlinkCode (short-Jong-short): 1 - 3 - 5	UEUIZ-Errorcode: 1/9 BlinkCode (short-long-short): 1 - 3 - 5		UEUI2-Errorcoae: 182 BlinkCode (short-long-short): 1 - 3 - 7
SPN: 523615	SPN: 523615		SPN: 2634
possible FMI:	possible FMI:		possible FMI:
12: Defective component	12. Errormode not identifiable		3. Voltage to high or short circuit to +Ubatt
12. Errormode not identifiable	12: Defective component		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light, 15s before shut off. Entry in	Errorlamp shows permanent light, 15s before shut off. Entry in	re shut off. Entry in	Errorlamp shows permanent light. Entry in errormemory.
errormemory.	errormemory.		Possible reason for error
Possible reason for error	Possible reason for error		Short circuit to Ubatt (relay 1), relay defective, connection cable
Short circuit to Ubatt, fuel metering unit defective, connection	Short circuit to ground, fuel metering unit defective, connection	efective, connection	demaged
cable demaged	cable demaged		Take actions for error repair
ake actions for error repair	lake actions for error repair	1,	Check cabling, check ECU, check relay and it necessary replace
Check cabling , it necessary cneck FCU, cneck tuel metering unit and if necessary ranlace it check connection cable and if	Uneck cabling , it necessary cneck FCU, cneck tuel metering unit and if necessary replace it check connection cable and if	ieck tuel metering unit in cable and if	It, check connection cable and if necessary repair or replace it
and in necessary replace it, oneco connection caste and it necessary repair or replace it	and in necessary replace it, check connection necessary repair or replace it		Svetem reaction: Warning shritoff the outputs MDROP
other error properties	other error properties		Behaviour error lamo: permanent licht
System reaction: Warning, rail pressure relief valve will open	System reaction: Warning, rail pressure relief valve will open	ef valve will open	Selfhealing: no
Béhaviour error lamp: permanent light, 15s before shut off	Béhaviour error lamp: permanent light, 15s before shut off	before shut off	Signal Priority: 3
Selfhealing: no	Selfhealing: no		Measurement @ errortime: actual value
Signal Priority: 4	Signal Priority: 4		
Measurement @ errortime: actual value	Measurement @ errortime: actual value		
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DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	B
<ul> <li>183 / 2634 / MnRly1_SCG</li> <li>Error description MAIN RELAY</li> <li>Main relay 1: the current drains measured by ECU is above the target range</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 183</li> <li>BlinkCode (short-long-short): 1 - 3 - 8</li> <li>SPN: 2634</li> <li>DSN: 264</li> <li>DSN: 264<th>184 / 523420 / Montr Error description WATCHDOG COUNTER Internal hardware monitoring: the ECU detects an disturbance in ist monitoring module (Wachtdog) Error codes DEUTZ-Errorcode: 184 BlinkCode (short-long-short): 1 - 3 - 9 SPN: 523420 possible FMI: 1.2. Errormode not identifiable 1.2. Errormode not identifiable 1.2. Errormode not identifiable 1.4. Special Instructions Errordamp shows blinking. Entry in errormemory. Possible reason for error Watchdog counter exceeds maximum, ECU defective Tare actions for error repair f error is not removable, change ECU Other error properties System reaction: Recovery of ECU Behaviour error lamp: blinking Signal Priority: 5 Measurement @ errortime: -</th><th><b>VTER</b> ects an disturbance in U defective</th><th><ul> <li>186 / 2634 / MRIYCD</li> <li>186 / 2634 / MRIYCD</li> <li>Error description MAIN RELAY</li> <li>Main relay. during the switching off, main relay does not switch on within an allowed time</li> <li>Error codes</li> <li>Euro codes</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>Defective component</li> <li>Connection cable demaged; generally: rapid shut-off of the ECU</li> <li>EDC7: if error is not realy open in allowed time or short circuit of main relay. check cabling</li> <li>Connection cable demaged; generally: rapid shut-off of the ECU</li> <li>Mitho</li> <li>Mitho</li></ul></th></li></ul>	184 / 523420 / Montr Error description WATCHDOG COUNTER Internal hardware monitoring: the ECU detects an disturbance in ist monitoring module (Wachtdog) Error codes DEUTZ-Errorcode: 184 BlinkCode (short-long-short): 1 - 3 - 9 SPN: 523420 possible FMI: 1.2. Errormode not identifiable 1.2. Errormode not identifiable 1.2. Errormode not identifiable 1.4. Special Instructions Errordamp shows blinking. Entry in errormemory. Possible reason for error Watchdog counter exceeds maximum, ECU defective Tare actions for error repair f error is not removable, change ECU Other error properties System reaction: Recovery of ECU Behaviour error lamp: blinking Signal Priority: 5 Measurement @ errortime: -	<b>VTER</b> ects an disturbance in U defective	<ul> <li>186 / 2634 / MRIYCD</li> <li>186 / 2634 / MRIYCD</li> <li>Error description MAIN RELAY</li> <li>Main relay. during the switching off, main relay does not switch on within an allowed time</li> <li>Error codes</li> <li>Euro codes</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>DEUTZ-Errorcode: 186</li> <li>BlinkCode (short-long-short): 2 - 6 - 1</li> <li>SPN: 2634</li> <li>Defective component</li> <li>Connection cable demaged; generally: rapid shut-off of the ECU</li> <li>EDC7: if error is not realy open in allowed time or short circuit of main relay. check cabling</li> <li>Connection cable demaged; generally: rapid shut-off of the ECU</li> <li>Mitho</li> <li>Mitho</li></ul>

DEUTZ AG, TE-CE, Fi

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
187 / 563 / MRIyCDMnRly2	188 / 2634 / MRIyCDMnRly3		189 / 523450 / MSSCD1
Error description MAIN RELAY 2	Error description MAIN RELAY		Error description MULTISTATE SWITCH 1
Main relay 2 (in ECU): during the switching off, main relay does	Main relay 3 (in ECU): during the switching off, main relay does	ng off, main relay does	Multi state switch 1: the voltage measured by ECU is out of the
not switch on within an allowed time	France on within an allowed time		target range or the swith setting is not plausible
Error codes DFI177_Francode: 187	Error codes DELITZ_Errorde: 188		DELITZ-Errorcode: 180
BlinkCode (short-long-short): 2 - 6 - 1	BlinkCode (short-long-short): 2 - 6 - 1		BlinkCode (short-long-short): 1 - 4 - 3
SPN: 563	<b>SPN:</b> 2634		SPN: 523450
possible FMI:	possible FMI:		possible FMI:
7: Mechanical system not OK	7: Mechanical system not OK		3: Voltage to high or short circuit to +Ubatt
12: Defective component	12: Defective component		<ol><li>Voltage to low or short circuit to -Ubatt</li></ol>
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		2: data stream is defective
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory	n errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
rapid shut-off of the ECU (without waiting till the end of the	Short circuit to ground or emergency shut-off (relay 3 internal),	t-off (relay 3 internal), ۱۱۱۰ the cood of the	Cable break or short circuit, input voltage outside target range
alterrary, ECO delective T-1-2			
I ANC ACTIVITS TOT ETTOT TEPAIL	Take actions for error renair		Phote activities for terrar shock switch and if management replace
il ellui ilui telluvaule, citatige ECO othor orror aronation	Check cabiling check FOLL if arror not removed le chenne FOLL	movahla, changa ECH	Uteon cautity and sensor, origon switch and it necessary replace it chack connection cable and if necessary renair or replace it
ourier error properties System reaction:	OTEON CAUTING, CHECK ECO, IL ETTOL TOLTE Other error properties	IIIUVADIE, UIAIIYE EOU	II, UIEUN UUTITEUTUT LADIE ATA IL TEUESSALY TEPAIL UL TEPIAUE IL Athar arror arromartiae
oyston reaction. Behaviour error lamo: nermanent linht	System reaction: Warning shutoff the outputs MDROD (see	thirts MDROD (see	Sustem reaction: Warning Substitute value
Selfhealing: no	Opacent reaction. Warming, and on a BOSCH-Flectricity operating blan)	and interview	Debaviori reaction: vramming, substitute value Rehaviori rierror lamo: permanent licht
Signal Priority: 3	Behaviour error lamo: permanent light		Selfhealing: ves
Measurement @ errortime: actual value	Selfhealing: no		Signal Priority: 2
	Signal Priority: 3		Measurement @ errortime: default value
	Measurement @ errortime: actual value		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	B
100 / 523751 / MCSCD2	101   633163   MCCCD3		
190 / 323431 / MOSCUZ	191 / 323432 / MISSUD3		192 / 039 / NetivingCANAOTT
Error description MULTISTATE SWITCH 2	Error description MULTISTATE SWITCH 3	TCH 3	Error description CAN A BUS OFF
Multi state switch 2: the voltage measured by ECU is out of the	Multi state switch 3: the voltage measured by ECU is out of the	by ECU is out of the	CAN bus A: the ECU is not allowed to send messages, because
		2010	
ETTOL COURS DFILTZ-Friorcode: 190	DFUTZ-Frrorcode: 191		EITOI COUES DFILTZ-Francode: 192
BlinkCode (short-long-short): 1 - 4 - 3	BlinkCode (short-long-short): 1 - 4 - 3		BlinkCode (short-long-short): 2 - 7 - 1
SPN: 523451	SPN: 523452		SPN: 639
possible FMI:	possible FMI:		possible FMI:
<ol><li>Voltage to high or short circuit to +Ubatt</li></ol>	<ol> <li>Voltage to high or short circuit to +Ubatt</li> </ol>	o +Ubatt	14: Special Instructions
4: Voltage to low or short circuit to -Ubatt	4: Voltage to low or short circuit to -Ubatt	-Ubatt	<ol> <li>Errormode not identifiable</li> </ol>
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
2: data stream is defective	2: data stream is defective		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Cable break or short circuit, input voltage outside target range	Cable break or short circuit, input voltage outside target range	outside target range	Cable break or short circuit, off-state (CAN bus A), CAN bus
(switch 2), switch defective, connection cable demaged	(switch 3), switch defective, connection cable demaged	ole demaged	deactivated, connection cable demaged
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check cabling and sensor, check switch and if necessary replace	Check cabling and sensor, check switch and if necessary replace	nd if necessary replace	Check cabling of CAN bus and if necessary repair it, check
it, check connection cable and if necessary repair or replace it	it, check connection cable and if necessary repair or replace it	/ repair or replace it	connection cable and if necessary repair or replace it
other error properties	other error properties		other error properties
System reaction: Warning, substitute value	System reaction: Warning, substitute value		System reaction:
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Behaviour error lamp: permanent light
Seimealing: yes	Seimealing: yes		Seimealing: yes
Noncrumment @ orrectime: defently value	Monantement @ amatima: dafault value		Signal Priority: 2 Moccursmont @ creating:
Measurennenn @ enorunne. Jeaun value	Ivieasuleritetit @ errortitte. delaut value		Measulement @ en ormine.
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DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	<b>E</b>
193 / 1231 / NetMngCANBOff	194 / 1235 / NetMngCANCOff		195 / 705 / OPLpCD
Error description CAN B BUS OFF	Error description CAN C BUS OFF		Error description OIL PRESS LAMP
CAN bus B: the ECU is not allowed to send messages, because	CAN bus C: the ECU is not allowed to send messages, because	messages, because	Warning lamp for oil level: the current drain measured by ECU is
the status "BusOff" is detected	the status "BusOff" is detected		out of the target range or the maximum temperature of the ECU
DEILOF COURS	DELITY-Errorcode: 10/		curriporterit tot power suppry or trie ramp is exceeded
BlinkCode (short-long-short): 2 - 7 - 1	BlinkCode (short-long-short): 2 - 7 - 1		DEUTZ-Errorcode: 195
SPN: 1231	<b>SPN:</b> 1235		BlinkCode (short-long-short): 1 - 3 - 5
possible FMI:	possible FMI:		SPN: 705
	14: Special Instructions		possible FMI:
12. Errormode not identifiable	12. Errormode not identifiable		3: Voltage to high or short circuit to +Ubatt
12. Errormode not identifiable 13. Errormode not identifiable	1.2. Errormode not identifiable 1.3. Errormode not identifiable		4: Voltage to low or short circuit to -upatt 5: current to low or broken wire
Errordetection	Errordetection		2: data stream is defective
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	rrormemorv.	Errordetection
Possible reason for error	Possible reason for error		Errorlamp shows permanent light. Entry in errormemory.
Cable break or short circuit, off-state (CAN bus B), CAN bus	Cable break or short circuit, off-state (CAN bus C), CAN bus	ous C), CAN bus	Possible reason for error
deactivated, connection cable demaged	deactivated, connection cable demaged		Cable break or short circuit, lamp defective, connection cable
Take actions for error repair	Take actions for error repair		demaged
Check cabling of CAN bus and if necessary repair it, check	Check cabling of CAN bus and if necessary repair it, check	repair it, check	Take actions for error repair
connection cable and if necessary repair or replace it	connection cable and if necessary repair or replace it	replace it	Check cabling and load, check lamp and if necessary replace it,
other error properties	other error properties		check connection cable and if necessary repair or replace it
System reaction:	System reaction:		other error properties
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		System reaction: Warning, shutoff output
Setthealing: yes	Selthealing: yes		Behaviour error lamp: permanent light
Signal Friority. z Measi irement @ errortime	olgriar Friority. Z Measurement @ errortime:		Sinnal Priority: 10
			Measurement @ errortime: default value
			)

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	BEOTZ
130 / INN / OLSON	131 / INU / OLSCUI		130 / 100 / OPOCUOSKEACH
Error description ENG OIL PRESS.	Error description ENG OIL PRESS		Error description ENG OIL PRESS.
Oil pressure sensor: the voltage of sensor measured by ECU is	Oil pressure: the oil pressure calculated by ECU is implausibly	by ECU is implausibly	Oil pressure: the oil pressure calculated by ECU is above the
out of the target range or the received value of oil pressure via	- -		target range; the ECU activates a system reaction
CAN IS Implausible (UII pressure is above the target range with			
nigner oli temperature at the same time) <b>Frror codos</b>	DEUIZ-Errorcode: 19/ BlinkCode (short-long-short): 2 - 3 - 1	-	UEUIZ-Errorcode: 198 BlinkCode (short-lang-short): 2 - 3 - 1
DEUTZ-Errorcode: 196	SPN: 100		
BlinkCode (short-long-short): 2 - 2 - 4	possible FMI:		possible FMI:
SPN: 100	12. Errormode not identifiable		0: data valid, but above normal working area
possible FMI:	12. Errormode not identifiable		0: data valid, but above normal working area
<ol><li>Voltage to high or short circuit to +Ubatt</li></ol>	12. Errormode not identifiable		12. Errormode not identifiable
4: Voltage to low or short circuit to -Ubatt	1: data valid, but below normal working area	vorking area	12. Errormode not identifiable
2. data stream is defective	Errordetection		Errordetection
0: data valid, but above normal working area	Errorlamp shows permanent light. Entry in errormemory	in errormemory.	Errorlamp shows permanent light
Errordetection	Possible reason for error		oder
Errorlamp shows permanent light. Entry in errormemory.	Oil pressure implausible low, sensor defective, connection cable	ective, connection cable	blinking. Entry in errormemory.
Possible reason for error	demaged		Possible reason for error
Cable break or short circuit, sensor defective, connection cable	Take actions for error repair	:	Above target range, oil volume too large, sensor detective, oil
demaged, CAN bus wrong cabled, wiring demaged, receiver	Check cabling, if sensor not working, check sensor and if	eck sensor and if	pump defective, connection cable demaged
(serider of the message) work maccurately, parametering inaccurate	Inecessary replace it, check connection cable and in necessary repair or replace it	able and in necessary	Check oil level and if necessary correct it check oil pump and if
Take actions for error repair	other error properties		Direction of revealed in recessed y concern, check of party and in necessary replace it, check sensor and if necessary replace it.
Check cabling, if sensor not working, check sensor and if	System reaction: Warning, substitute value	en e	check connection cable and if necessary repair or replace it
necessary replace it, check connection cable and if necessary	Behaviour error lamp: permanent light	0	other error properties
repair or replace it, Check CAN Bus cabling (Bus sheduling,	Selfhealing: yes		System reaction: Advice: OPSCD_stSysReacRegHi
polarity, short circuit, power interrupt), test protocol of receiver,	Signal Priority: 2		Behaviour error lamp: permanent light
chec	Measurement @ errortime: actual value		oder
other error properties			blinking
System reaction: Warning, substitute value			Selfhealing: yes
Selfaction: 100 January permanent light			Signal Priority: 4 Moost research @ association actual value
Seinealing. yes Signal Priority: 4			imeasurement @ enormine: actual value
Measurement @ errortime: default value			

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<ul> <li>199 / 100 / OPSCDSysReacLo</li> <li>199 / 100 / OPSCDSysReacLo</li> <li>Error description ENG OIL PRESS.</li> <li>Oil pressure: the oil pressure calculated by ECU is underneath the target range; the ECU activates a system reaction.</li> <li>EUTZ-Errorcodes: 199</li> <li>BlinkCode (short-long-short): 2 - 3 - 1</li> <li>SPN: 100</li> <li>DEUTZ-Errorcodes: 196</li> <li>BlinkCode (short-long-short): 2 - 3 - 1</li> <li>SPN: 100</li> <li>DEUTZ-Errorcodes: 196</li> <li>BlinkCode (short-long-short): 2 - 3 - 1</li> <li>SPN: 100</li> <li>DEUTZ-Errorcodes: 196</li> <li>BlinkCode (short-long-short): 2 - 3 - 1</li> <li>SPN: 100</li> <li>DEUTZ-Errorcodes: 196</li> <li>BlinkCode (short-long-short): 2 - 3 - 1</li> <li>SPN: 100</li> <li>DEUTZ-Errorcodes: 196</li> <li>BlinkCode (short-long-short): 2 - 3 - 1</li> <li>SPN: 100</li> <li>DEUTZ-Errorcodes: 196</li> <li>SPN: 100</li> <li>DEUTZ-Errorcodes: 196</li> <li>BlinkCode (short-long-short): 2 - 3 - 1</li> <li>SPN: 100</li> <li>DEUTZ-Errorcodes: 196</li> <li>Blinking: Error and identifiable</li> <li>12. Errormode not identifiable</li> <li>13. Errormode not identifiable</li> <li>14. Errormode not identifiable</li> <li>15. Errormode not identifiable</li> <li>16. Errormode not identifiable</li> <li>17. Errormode not identifiable</li> <li>18. Errormode not identifiable</li> <li>19. Errormode not identifiable</li> <li>19. Errormode not identifiable</li> <li>19. Errormode not identifiable</li> <li>19. Errormode not identifiable</li> <li>10. Errormode not identifiable</li> <li>12. Errormode not identifiable</li> <li>13. Errormode not identifiable</li> <li>14. Errormode not identifiable</li> <li>15. Errormode not identifiable</li> <li>16. Errormode not identifiable</li> <li>17. Errormode not identifiable</li> <li>18. Errormode not identifiable</li> <li>19. Errormode not identifiable</li> <li>10. Error replace it oder<th>200 / 1237 / OSwCD Error description OVERRIDE SWITCH Bridgeover switch: the ECU receives a permanent signal Error codes DEUTZ-Errorcode: 200 BlinkCode (short-long-short): 1 - 4 - 5 SPN: 1237 possible FMI: 12. Errormode not identifiable 12. Errormode not identifiable 12. Errormode not identifiable 12. Errormode not identifiable 13. Errormode not identifiable 13. Errordetection Errordetection Errordetection Switch is blocked, taster locked, connection cable and if necessary relace it, check connection cable and if necessary repair or replace it Check cabling, if sensor not working, check switch and if necessary relace it check cabling, if sensor not working, check switch and if necessary replace it Signal Priority: 2 Measurement @ errortime: actual value</th><th>CH imanent signal n errormemory. on cable demaged ck switch and if able and if necessary</th><th><ul> <li>201/175/OITSCD</li> <li>201/175/OITSCD</li> <li>Error description OIL TEMP. SENSOR</li> <li>Oil temperature sensor: the ollarge of sensor measured by ECU is implausible compared with coolant temperature or the received value via CAN is defective</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 201</li> <li>BlinkCode (short-long-short): 1 - 4 - 4</li> <li>SPN: 175</li> <li>DEUTZ-Errorcode: 201</li> <li>BlinkCode (short-long-short): 1 - 4 - 4</li> <li>SPN: 175</li> <li>Soltage to high or short circuit to +Ubatt</li> <li>Stoltage to low or short circuit to +Ubatt</li> <li>S. data stream is defective</li> <li>2: data stream is defective</li> <li>2: data stream is defective</li> <li>2: data stream is defective</li> <li>Connection</li> <li>Errordencion</li> &lt;</ul></th></li></ul>	200 / 1237 / OSwCD Error description OVERRIDE SWITCH Bridgeover switch: the ECU receives a permanent signal Error codes DEUTZ-Errorcode: 200 BlinkCode (short-long-short): 1 - 4 - 5 SPN: 1237 possible FMI: 12. Errormode not identifiable 12. Errormode not identifiable 12. Errormode not identifiable 12. Errormode not identifiable 13. Errormode not identifiable 13. Errordetection Errordetection Errordetection Switch is blocked, taster locked, connection cable and if necessary relace it, check connection cable and if necessary repair or replace it Check cabling, if sensor not working, check switch and if necessary relace it check cabling, if sensor not working, check switch and if necessary replace it Signal Priority: 2 Measurement @ errortime: actual value	CH imanent signal n errormemory. on cable demaged ck switch and if able and if necessary	<ul> <li>201/175/OITSCD</li> <li>201/175/OITSCD</li> <li>Error description OIL TEMP. SENSOR</li> <li>Oil temperature sensor: the ollarge of sensor measured by ECU is implausible compared with coolant temperature or the received value via CAN is defective</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 201</li> <li>BlinkCode (short-long-short): 1 - 4 - 4</li> <li>SPN: 175</li> <li>DEUTZ-Errorcode: 201</li> <li>BlinkCode (short-long-short): 1 - 4 - 4</li> <li>SPN: 175</li> <li>Soltage to high or short circuit to +Ubatt</li> <li>Stoltage to low or short circuit to +Ubatt</li> <li>S. data stream is defective</li> <li>2: data stream is defective</li> <li>2: data stream is defective</li> <li>2: data stream is defective</li> <li>Connection</li> <li>Errordencion</li> &lt;</ul>

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513 <u>_</u> : 214, 300	
203 / 175 / OTSCDSvsReac	208 / 523470 / PRVMon		209 / 157 / RailCD
Error description OIL TEMP SENSOR	Error description RAII DRESS 1 IM VAI VE	M VALVE	Error description PAIL DEESS SENSOR
CITOL DESCRIPTION OIL TEMP. SENSOR		ini. VALVL o formed to enser the	Doil according concord the voltation of concord model in EOU is
On terriperature, the on terriperature calculated by ECO is above the target range: the ECU activates a system reaction	Tail pressure relief valve. Is open, will be lorced to open, ure forced-open failed	וווב וחונכת נו סטבווי וווב	rail pressure serisor. The voltage of serisor inteasured by ECO is out of the target range
Error codes	Error codes		Error codes
DEUTZ-Errorcode: 203	DEUTZ-Errorcode: 208		DEUTZ-Errorcode: 209
BlinkCode (short-long-short): 1 - 4 - 4	BlinkCode (short-long-short): 1 - 4 - 6	6	BlinkCode (short-long-short): 1 - 4 - 7
Brn. 173 possible FMI:	DEN: 020410 DOSSIDIE FMI:		Dossible FMI:
0: data valid, but above normal working area	14: Special Instructions		3: Voltage to high or short circuit to +Ubatt
0: data valid, but above normal working area	2: data stream is defective		4: Voltage to low or short circuit to -Ubatt
12. Errormode not identifiable	12: Defective component		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light	Errorlamp shows permanent light, 15s before shut off. Entry in	before shut off. Entry in	Errorlamp shows permanent light, 15s before shut off. Entry in
oder	errormemory.		errormemory.
blinking. Entry in errormemory.	Possible reason for error		Possible reason for error
Possible reason for error	Rail pressure relief valve open or forced open abortive	d open abortive	Cable break or short circuit, sensor defective, connection cable
Above target range with system reaction, oil volume too small, oil	(interpretation of the rail pressure gradient), operating voltage too	ent), operating voltage too	demaged
loop disturbed, sensor defective, connection cable demaged	low, rail pressure sensor defective, fuel metering unit defective,	metering unit defective,	Take actions for error repair
Take actions for error repair	rail pressure relief valve defective, air in fuel system	n fuel system	Check cabling, check rail pressure sensor and if necessary
Check cycle cooling system and compressor, check oil level and	Take actions for error repair		replace it, check connection cable and if necessary repair or
if necessary correct it, check sensor and if necessary replace it,	Check working voltage and if necessary correct it, check rail-	/ correct it, check rail-	replace it
check oil loop and if necessary repair it, check connection cable	pressure sensor and if necessary replace it, check FCU and if	ce it, check FCU and if	other error properties
and it necessary repair or replace it	necessary replace it, check rail pressure relief valve and it	e relief valve and if	System reaction: Warning, max extraction of FCU> open rail
other error properties	necessary replace it, pleed the luer-system	lem	pressure relief valve -> shut the engine off in about 5 minutes
System reaction: Advice: UISCU_stSysReacKed	other error properties		Behaviour error lamp: permanent light, 15s before shut off
Behaviour error lamp: permanent light	System reaction: Warning, shut the engine off in about 5 minutes	Ine off in about 5 minutes	Selfthealing: no
blinking			Olyrial Friority. 4 Monetinement @ arrentime: defentit volue
ulli Ikiriy Salfhaalina: vas	Science Induction A		Measurement @ enformme. verauit value
Signal Priority: 4	Measurement @ errortime: actual value		
Measurement @ errortime: actual value	)		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
	0-11-111:-01/ CF3CC3/ FFC		1.010 / 500540 / 0-11144
210 / 137 / Kalledols Ist			212 / 323013 / Kalliweult I
Error description RAIL PRESS. SENSOR	Error description RAIL PRESSURE		Error description RAIL PRESSURE
Rail pressure sensor: the change of the voltage measured by	Rail pressure: the fuel pressure in rail calculated by ECU is	culated by ECU is	Rail pressure: the fuel pressure in rail calculated by ECU is
ECU during the engine start or the atter-run is out of the target rance	above the target range which is dependant on the engine speed	it on the engine speed	above the target range which is dependant on the volume flow rafe
Error codes	DEUTZ-Errorcode: 211		Error codes
DEUTZ-Errorcode: 210	BlinkCode (short-long-short): 1 - 3 - 4		DEUTZ-Errorcode: 212
BlinkCode (short-long-short): 1 - 4 - 7	SPN: 523613		BlinkCode (short-long-short): 1 - 3 - 4
OFN. 10/ Doceible FMI:	0. data valid hut above normal working area	orking area	JEN. 020010 Doceible FMI:
0: data valid, but above normal working area	12. Errormode not identifiable		0: data valid. but above normal working area
1: data valid, but below normal working area	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	Errordetection		<ol> <li>Errormode not identifiable</li> </ol>
Errordetection	Errorlamp shows permanent light		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	oder		Errorlamp shows permanent light
Possible reason for error	blinking. Entry in errormemory.		oder
Deviation of signal during start or after-run above target range,	Possible reason for error		blinking. Entry in errormemory.
sensor defective	1) Leakage in high pressure system (external)	rnal),	Possible reason for error
Take actions for error repair	2) Leakage at rail pressure relief valve (internal),	ternal),	1) Leakage in high pressure system (external)
Replace sensor	<ol> <li>Needle clampt in open position,</li> <li>Abrasion at injector</li> </ol>		<ol> <li>Leakage at rail pressure reliet valve (internal),</li> <li>Moorlia clamat in open position</li> </ol>
	4) Abrasion at high processing pump.		<ul> <li>Vecus varipuint open position;</li> <li>A) Abrasian of initratar</li> </ul>
System reaction: Warning	<ul> <li>b) Abrasion at high pressure punip;</li> <li>6) Too low primary pressure on low pressure side, sensor d</li> </ul>	ure side. sensor d	4) Abrasion at injector, 5) Abrasion at high pressure nump.
Deriavioui error iarrip. permanent ligint Saffhaalinn: vas	Take actions for error repair		6) Too low primary pressure on low pressure side, sensor d
Signal Priority: 2	(A) Check for leakage		Take actions for error repair
Measurement @ errortime: actual value	(B) Chek fuel-primary pressure		(A) Check for leakage
	(C) Change components, check sensor and if necessary replace	nd if necessary replace	(B) Chek fuel-primary pressure
	it, check tuel system and it necessary repair it	air it	(C) Change components, check sensor and if necessary replace
	other error properties	ممالم المعالم معالمه المعالم الم	It, check tuel system and it necessary repair it
	System reaction: warning or warning and power reduction	a power reduction	
	Behaviour error lamp: permanent light		System reaction: Warning or Warning and power reduction Reheviour error lown: nermonent light
	blinking		oder
	Selfhealing: yes		blinking
	Signal Priority: 4		Selfhealing: yes
	Measurement @ errorume: actual value		əıgnar Priorriy: 4 Measurement @ errortime: actual value
			)

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491 <u>_</u> : 220, 310, 400, 501	P492_: 213 P513_: 214, 300	B
<mark>213</mark> / 523613 / RailMetIn2	214 / 523613 / RailMelln3		<mark>215</mark> / 523613 / RailMel In4
Error description DAIL DDFSCIIDE	Error description DAII DDESSUBE		Error description DAIL DDESCIIDE
Rail pressure: the fuel pressure in rail calculated by ECU is	Rail pressure: the fuel pressure in rail calculated by ECU is	ulated by ECU is	Rail pressure: the fuel pressure in rail calculated by ECU is
underneath the target range which is dependent on the engine	underneath the target range which is dependent on the volume	endant on the volume	above the absolute target range
speed	flow rate		Error codes
Error codes	Error codes		DEUTZ-Errorcode: 215
DEUTZ-Errorcode: 213	DEUTZ-Errorcode: 214		BlinkCode (short-long-short): 1 - 3 - 4
BlinkCode (short-long-short): 1 - 3 - 4 SDN: 523613	BlinkCode (short-long-short): 1 - 3 - 4		SPN: 523613
bossible FMI:	Dossible FMI:		0: data valid, but above normal working area
0: data valid, but above normal working area	1: data valid, but below normal working area	orking area	12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		Errordetection
Errordetection	Errordetection		Errorlamp shows permanent light
Errorlamp shows permanent light	Errorlamp shows permanent light		
oder			blinking. Entry in errormemory.
blinking. Entry in errormemory.	blinking. Entry in errormemory		Possible reason for error
Possible reason for error	Possible reason for error		1) No power supply in FCU, 2) ZMF clossed is case section
1) No power supply In FOU, 2) ZME clamped in onen position	i) Leakage in nign pressure system (external) , 2) Leakare at rail pressure relief valve (internal)	nal), ernal)	<ol> <li>ZMIE Glamped in open position,</li> <li>Too high presente position Multificitiendences (FCUI)</li> </ol>
<ol> <li>ZMLE clamped in open position;</li> <li>Too high pressure nach Nullförderdrossel (FCU),</li> </ol>	<ol> <li>S) Needle clampt in open position,</li> </ol>	-ci i i di j,	4) Nullförderdrossel clogged,
4) Nullförderdrossel clogged,	4) Abrasion at injector,		5) Too high primary pressure on low pressure side, sensor
5) Too high primary pressure on low pressure side, sensor	5) Abrasion at high pressure pump,		defective, fuel system disturbed
defective, fuel system disturbed	6) Too low primary pressure on low pressure side, sensor d	ure side, sensor d	Take actions for error repair
Take actions for error repair	Take actions for error repair		(A) Check return-pressure FCU
(A) Check return-pressure FCU	(A) Check for leakage		(B) Check flow-pressure
(B) Oneck now-pressure (C) Change FCIL check sensor and if peressary replace if check	(b) Unek tuel-primary pressure (C) Change components check sensor and if necessary replace	nd if necessary renlace	(u) unange Fou, check sensor and it necessary replace it, check fuel system and if necessary renair it
fuel system and if necessary repair it	it, check fuel system and if necessary repair it	air it	other error properties
other error properties	other error properties		System reaction: Warning or Warning and power reduction
System reaction: Warning or Warning and power reduction	System reaction: Warning or Warning and power reduction	power reduction	Behaviour error lamp: permanent light
benaviour error tamp: permanent light	Benaviour error lamp: permanent light		oder hlinking
blinking	blinking		Selfhealing: yes
Selfhealing: yes	Selfhealing: yes		Signal Priority: 4
Signal Priority: 4 Measurement @ errortime: actual value	Signal Priority: 4 Measurement @ errortime: actual value		Measurement @ errortime: actual value
)	)		

<ul> <li><b>219 / 1079 / SSpMon1</b></li> <li><b>Error description 5V SUPPLY 1 FAIL.</b> Internal hardware monitoring: the ECU detects a deviation of the target range of the power supply voltage of sensor 1</li> <li><b>Error codes</b></li> <li><b>DEUTZ-Errorcode:</b> 219</li> <li><b>BlinkCode</b> (short-long-short): 2 - 8 - 2</li> <li><b>SpN:</b> 1079</li> <li><b>SPN:</b> 1070</li> <li><b>SPN:</b> 1070&lt;</li></ul>
3: Voltage to high or short cir 4: Voltage to low or short cir 4: Voltage to low or short cir 12. Errormode not identifiab 12. Errormode not identifiab brdetection rlamp shows permanent light. Er sisible reason for error ensor supply voltage 1 outside t ge too high or to low, connection cive e actions for error repair or not removable, change ECU, ponents, check working voltage & connection cable and if neces e e actions working voltage e e actions the second cive e actions the second if neces er error properties em reaction. Warning aviour error lamp: permanent ligh nealing: yes all Priority: 3 surement @ errortime: actual va

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DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	Sec. 2
<mark>221</mark> / 1080 / SSpMon2	<mark>222</mark> / 523601 / SSpMon3		223 / 677 / StrtCDHS
Error description 5V SUPPLY 2 FAIL.	Error description 5V SUPPLY 3 FAIL.	AIL.	Error description START RELAY
Internal hardware monitoring: the ECU detects a deviation of the	Internal hardware monitoring: the ECU detects a deviation of the	detects a deviation of the	Start relay (high side power stage): the current drain measured
target range of the power supply voltage of sensor 2	target range of the power supply voltage of sensor 3	e of sensor 3	by ECU is above the target range
Error codes DEUTZ-Errorcode: 221	Error codes DEUTZ-Errorcode: 222		Error coues DEUTZ-Errorcode: 223
BlinkCode (short-long-short): 2 - 8 - 2	BlinkCode (short-long-short): 2 - 8 - 2	2	BlinkCode (short-long-short): 5 - 1 - 2
SPN: 1080	SPN: 523601		SPN: 677
3. Voltage to high or short circuit to +1 lhatt	3: Voltare to high or short circuit to +1 lhatt	it to +I Ihatt	3. Voltane to high or short circuit to +1 lhatt
4: Voltage to low or short circuit to -Ubatt	4: Voltage to low or short circuit to -Ubatt	to -Ubatt	4: Voltage to low or short circuit to -Ubatt
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	in errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
5V sensor supply voltage 2 outside target range, operating	Wrong voltage of internal 5V reference source 3, operating	source 3, operating	Start relay (high side): short circuit, relay defective, conncection
voltage too high or to low, connection cable demaged, ECU	voltage too high or too low, connection cable demaged, ECU	cable demaged, ECU	cable defective
defective			Take actions for error repair
l ake actions for error repair	lake actions for error repair	- - - -	Check cabling and start relay and it necessary replace it, check
If error not removable, cnange ECU, check cabling of external	If error not removable, change ECU, check cabling of external	eck cabling of external	connection cable and if necessary repair or replace it
cumputerus, cueck working vouage and in necessary conect it, check connection cable and if necessary repair or replace it	cumpunents, check working voltage and in inecessary contect it, check connection cable and if necessary renair or replace if	u ir riecessary correct it. v renair or renlace it	ouner error properues Svetem reaction: Warning shi troff output
other error properties	other error properties		Opsicin reaction. Warning, Shuxon output Rehaviour error lamor nermanent light
System reaction: Warning	System reaction: Warning		Selffhealing: no
Béhaviour error lamp: permanent light	Behaviour error lamp: permanent light		Signal Priority: 1
Selfhealing: yes Signal Deficition 3	Selfhealing: yes		Measurement @ errortime: default value
oigitati itotity. J Measurement @ errorrime: actual value	Bugnar Fronty: J Measurement @ errortime: actual value		
Measurement & enounne, actual value			

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
	_	_	
224 / 677 / StrtCDLS	<mark>225</mark> / 624 / SysLamp		226 / 158 / T15CD
Error description START RELAY	Error description DIAGNOSTIC LAMP	ИР	Error description TERMINAL 15
start relay (low side power stage): the current drain measured by	Error lamp (diagnositic lamp): the current drain measured by	drain measured by	Terminal 15: ECU receives no signal
ECU is out of the target range	ECU is out of the target range or the maximum permissble	mum permissble	Error codes
Error codes	temperature of the ECU component for power supply of the lamp	wer supply of the lamp	DEUTZ-Errorcode: 226
DEUTZ-Errorcode: 224	is exceeded		BlinkCode (short-long-short): 5 - 1 - 4
BlinkCode (short-long-short): 5 - 1 - 2	Error codes		<b>SPN</b> : 158
SPN: 677	DEUTZ-Errorcode: 225 Dimtrodo (chort long chord): E 1 2		possible FMI: 10 Erromodo not idontificable
2: Voltant of black or chart aired it to 11 hot			12. EHOTHOUE HOUDEHOUTEMADE 13. Errormodo pot idontificialo
<ol> <li>voltage to high of short circuit to +Obatt</li> <li>Voltage to low or short circuit to -Ubatt</li> </ol>	SFN. 024 DOSSIDIA FMI:		12. Errorinoue nou reminable 12. Defective component
5: current to low or broken wire	3: Voltage to high or short circuit to +Ubatt	to +Ubatt	12. Errormode not identifiable
12. Errormode not identifiable	4: Voltage to low or short circuit to -Ubatt	o -Ubatt	Errordetection
Errordetection	5: current to low or broken wire		Errorlamp shows permanent light. Entry in errormemory
Errorlamp shows permanent light. Entry in errormemory.	2: data stream is defective		Possible reason for error
Possible reason for error	Errordetection		Ignition ON not detected, ignition switch defective, connection
Start relay (low side): cable break or short circuit, disabled by	Errorlamp shows - Entry in errormemory.		cable demaged
ECU, relay defective, connection cable demaged	Possible reason for error		Take actions for error repair
Take actions for error repair	Cable break or short circuit, disabled by ECU, lamp defective,	.CU, lamp defective,	Check cabling, if sensor not working, check ignition switch and if
Check cabling and start relay and if necessary replace it, check	connection cable demaged		necessary replace it, check connection cable and if necessary
connection cable and if necessary repair or replace it	Take actions for error repair		repair or replace it
other error properties	Check cabling and load, check lamp and if necessary replace it,	f necessary replace it,	other error properties
System reaction: Warning, shutoff output	check connection cable and if necessary repair or replace it	epair or replace it	System reaction: Warning, engine can not start
Behaviour error lamp: permanent light	other error properties		Behaviour error lamp: permanent light
Selfhealing: no	System reaction: only error memory item		Selfhealing: no
Signal Priority: 1	Behaviour error lamp:		Signal Priority: 2
Measurement @ errortime: default value	Seithealing: no		Measurement @ errortime: actual value
	Monantana ( ) and incompared in the first		
	Measurement @ errorume: serpoint Diagnosticiamp	losuciamp	
	_	_	

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DEUTS
			232   84 / VSSCD1
Error description TERMINAL 50	Error description TERMINAL 50		Error description VEHICLE SPEED
Terminal 50: ECU receives a permanent signal	Internal hardware monitoring: ECU detects a deviation between	ects a deviation between	Vehicle speed: over the maximum, signal invalid or implausible
Error codes	the signal of time module and the system time	m time	compared with the injection quantity and the engine speed, offset
DEUTZ-Errorcode: 227	Error codes		factors unlearned
BlinkCode (short-long-short): 5 - 1 - 5	DEUTZ-Errorcode: 228		Error codes
SPN: 523550	BlinkCode (short-long-short): 5 - 5 - 5	5	DEUTZ-Errorcode: 232
possible FMI:	<b>3PN:</b> 323330U		BIINKCODE (Snort-Tong-Snort): 2 - 2 - 1
12: Defective component	possible FIMI: 4.0 Farmando ant idontificablo		
12. Effortioue flot laentificiale	12. ELI OLITIQUE FIOL IUEIULIADIE		0. data valid hut abava namad varidan ana
12. ETTOTITOUE TOU IDENUTIABLE 13. Errormodo pot idontificablo	12. EITOITIOUE HOL IUEIUIIADIE		U. uata valiu, but above iloririal working alea
	2. data atroam in dafaatiina		
			o. uriusuar riequericy, puise or periou.
Errorlamp shows permanent light. Entry in errormemory	Errordetection		
Possible reason for error	Errorlamp shows blinking. Entry in errormemory.	memory.	Errordetection
Engine start switch stuck, start switch clamped, connection cable	Possible reason for error		Errorlamp shows permanent light. Entry in errormemory
demaged	Time processing unit (TPU) defective, ECU defective	ECU defective	Possible reason for error
Take actions for error repair	Take actions for error repair		Speed above target range, signal invalid or implausible compared
Check cabling, if sensor not working, check start switch and if	If error not removable, change ECU		to injection volume and engine speed, distance factor not
necessary replace it, check connection cable and if necessary	other error properties		learned, sensor defective, connection cable demaged
repair or replace it	System reaction: Recovery of ECU		Take actions for error repair
other error properties	Behaviour error lamp: blinking		Check cabling, if sensor not working, check sensor and if
System reaction: Warning	Selfhealing: no		necessary replace it, check connection cable and if necessary
Behaviour error lamp: permanent light	Signal Priority: 5		repair or replace it
Selfhealing: no	Measurement @ errortime: -		other error properties
Signal Priority: 1			System reaction: Warning
Measurement @ errortime: actual value			Behaviour error lamp: permanent light
			Selfhealing: yes
			Signal Priority: 3
			Measurement @ errortime: default value

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DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
235 / 523600 / WdCom Error description SERIAL INTERFACE DEF. Internal hardware monitoring: the ECU detects a disturbance in internal communication Error codes DEUTZ-Errorcode: 235 BlinkCode (short-long-short): 5 - 5 - 5 BlinkCode (short-long-short): 5 - 5 - 5 - 5 BlinkCode (short-long-short): 5 - 5 - 5 - 5 - 5 - 5 - 5 BlinkCode (short-long-short-long-short): 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5	<ul> <li>236 / 523470 / PRVIMONSysReac</li> <li>Z36 / 523470 / PRVIMONSysReac</li> <li>Error description RAIL PRESS. LIM. VALVE</li> <li>Rail pressure relief valve: is open, will be forced to open, the forced-open failed; the ECU activates a system reaction</li> <li>Error codes</li> <li>DEUT2-Errorcode: 236</li> <li>BlinkCode (short-long-short): 1 - 4 - 6</li> <li>SPN: 523470</li> <li>DEUT2-Errorcode: 236</li> <li>BlinkCode (short-long-short): 1 - 4 - 6</li> <li>SPN: 523470</li> <li>DEUT2-Errorcode: 236</li> <li>BlinkCode (short-long-short): 1 - 4 - 6</li> <li>SPN: 523470</li> <li>DEUT2-Errorcode: 236</li> <li>BlinkCode (short-long-short): 1 - 4 - 6</li> <li>SPN: 523470</li> <li>Dessible FMI:</li> <li>12: Defective component</li> <li>12: Errormode not identifiable</li> <li>12: Errordetection</li> <li>Possible reason for error</li> <li>Possible reason for error</li> <li>Rail pressure relief valve open or forced open abortive (interpretation of the rail pressure gradient), power supply voltage to olow, rail pressure gradient), power supply voltage to olow, rail pressure relief valve and if necessary replace it, check rail-pressure relief valve and if necessary replace it, check rail-pressure relief valve and if necessary replace it, check rail-pressure relief valve and if necessary replace it, check rail-pressure relief valve and if necessary replace it, obeck rail-pressure relief valve and if necessary replace it, check rail-pressure relief valve and if necessary replace it, obeck rail-pressure relief valve and if necessary replace it, obeck rail-pressure relief valve and if necessary replace it, obeck rail-pressure relief valve and if necessary replace it, obeck rail-pressure relief valve and if necessary replace it, obeck rail-pressure relief valve and if necessary replace i</li></ul>	ac . VALVE forced to open, the forced to open, the /stem reaction ore shut off. Entry in pen abortive th, power supply voltage al metering unit ve, air in fuel system orrect it, check rail- it, check rail- it, check rail- it, check rail- it about 5 minutes s before shut off	237 / 523006 / APPCDSwtnSel Error description CONTR. MODE SWITCH Controller mode switch: the signal received by ECU is defective or implausible. Error codes DEUTZ-Errorcode: 237 BlinkCode (short-long-short): 2 - 4 - 2 SPN: 523006 DEUTZ-Errorcode: 237 BlinkCode (short-long-switch defective, connection cable demaged Terror and if necessary replace it, check connection cable and if necessary replace it deference Signal Priority: 2 Measurement @ erroriteme: actual value
	Signal Priority: 4 Measurement @ errortime: actual value		

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	<b>E</b>
238 / 523007 / FrmMng_TORxEngPress Error description CAN ERROR RxEngPress. Error codes DEUTZ-Errorcode: 238 BinkCode (short-long-short): 2 - 1 - 5 SPN: 523007 DEUTZ-Errorcode: 238 BinkCode (short-long-short): 2 - 1 - 5 SPN: 523007 Desible FMI: 1.2. Defective component 1.2. Errormode not identifiable 1.2. Errormode no	239 / 523008 / MpICt Error description MANIPULATION CONTROL Data monitoring: the torque curve does not match the specification Error codes DEUTZ-Errorcode: 239 BinkCode (short-long-short): 4 - 2 - 4 SPN: 553008 DEUTZ-Errorcode: 239 DEUTZ-Errorcode: 239 DEUTZ-ERRORCO	A CONTROL not match the working area a manipulation, too slow	<ul> <li>240.198./ OLSCD</li> <li>Error description OIL LEVEL SWITCH</li> <li>Oil level sensor: the voltage of sensor measured by ECU is out of the target range or the received value of oil level via CAN is defective or the signal value is implausible</li> <li>Error codes: 240</li> <li>BinkCode (short-long-short): 2 - 1 - 1</li> <li>Sroltage to high or short circuit to +Ubatt</li> <li>Sroltage to high or short circuit to +Ubatt</li> <li>Stata stream is defective</li> <li>C data stream is defec</li></ul>

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DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	<b>Performance</b>
<mark>241</mark> / 98 / OLSCDSysReacHi	242 / 107 / ADPSCDAna		<mark>243</mark> / 98 / OLSCDSysReacLo
Error description OIL LEVEL SWITCH	Error description AIR FILTER COND	D.	Error description OIL LEVEL SWITCH
Oil level: the oil level calculated by ECU is above the target	Air filter differential pressure sensor: the voltage of sensor	voltage of sensor	Oil level: the oil level calculated by ECU is underneath the target
range; the ECU activates a system reaction	measured by ECU is out of the target range	ge	range; the ECU activates a system reaction
Error codes DEUTZ-Errorcode: 241	Error codes DEUTZ-Errorcode: 242		Error coues DEUTZ-Errorcode: 243
BlinkCode (short-long-short): 2 - 5 - 1	BlinkCode (short-long-short): 1 - 3 - 6		BlinkCode (short-long-short): 2 - 5 - 2
SPN: 98 mossible FMI:	SPN: 107 possible FMI:		SPN: 98 mossible FMI:
0: data valid. but above normal working area	3: Voltage to high or short circuit to +Ubatt	to +Ubatt	1: data valid. but below normal working area
12. Errormode not identifiable	4: Voltage to low or short circuit to -Ubatt	o -Ubatt	12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	n errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error	aldaa aafiraaaaa aafira	Possible reason for error
Oll level too nign with system reaction, oll volume too large, sensor defective connection cable demaged. CAN data error	Voltage outside target range, sensor gerective, connection caple demaged	ective, connection caple	UII level too low with system reaction, oil volume too small, sensor defective connection cable demaged. CAN data error
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check oil level and if necessary correct it, check sensor and if	Check cable harness, check sensor and if necessary replace it,	f necessary replace it,	Check oil level and if necessary correct it, check sensor and if
necessary replace it, check connection cable and if necessary	check connection cable and if necessary repair or replace it	repair or replace it	necessary replace it, check connection cable and if necessary
repair or replace it	other error properties		repair or replace it
other error properties	System reaction: Warning, substitute value	le	other error properties
System reaction: Advice: OLSCD_stSysReacReq	Behaviour error lamp: permanent light		System reaction: Advice: OLSCD_stSysReacReg
Benaviour error lamp: permanent light	Seithealing: yes		Behaviour error lamp: permanent light Solfthooling: voo
Signal Priority: 4	Jughar Friority. J Measurement @ errortime: default value		Signal Priority: 4
Measurement @ errortime: actual value	)		Measurement @ errortime: actual value

24.1 52000 FUNURAT       24.1 52000 FUNURAT         24.1 52000 FUNURAT       Enderofinito IEAACE DEFECTION         Enderofinito IEAACE DEFECTION       Enderofinito IEAACE         Enderofinito IEAACE DEFECTION       Enderofinito IEAACE         Enderofinito IEAACE DEFECTION       Enderofinito IEAACE         Enderofinito IEAACE       Enderofinito IEAACE         Enderofinito IEAACE       Enderofinito IEAACE         Enderofinito IEAACE       Enderofinito	DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_ : 220, 310, 501 P491_ : 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
LVE       Error description LEAKAGE DETECTION         y or for a longer       Wem the engine is in idle running, the metering unit compares is output and rail pressure with the default value (Parameter) and calculates a correction factor-it calibrates itself then Error codes         DEUTZ-Errorcode       DEUTZ-Errorcode         DEUTZ-Errorcode       DEUTZ-Errorcode         DEUTZ-Errorcode       DEUTZ-Errorcode         DEUTZ-Errorcode       SinkCode         DEUTZ-Errorcode       C: data valid, but above normal working area         DEUTZ-Errorcode       0: data valid, but above normal working area         DEUTZ-Errorcode       12. Errormode not identifiable         Denory.       Teromode not identifiable         Torolard       12. Errormode not identifiable         Denory.       Terodard         Torolard       Teromode not identifiable         Torolard       Terodard         Torolard       Teromode not identifiable         Torolard       Teromode not identifiable         Torolard       Terodard         Torolard       Teromode not identifiable         Torolard       Terodard         Torolard       Terodard         Torolard       Terodard         Torolard       Terodard         Torolard       Terorande	<mark>244</mark> / 523009 / PrvMonWear	<mark>245</mark> / 523010 / RailMeUn8		246 / 523650 / FISys FLPFMSysReac
And the contract of the contract of the contract of the transmetter) and calculates a correction factor it calibrates itself then calculates itself then calculates a correction factor it calibrates itself then calculates itself then calculates itself then calculates a correction factor it calculates itself then calculated itsel				
y or nor a noger wem the engines is in one normag, the meaning unit compares its output and rail pressure with the default value (Parameter) and calculates a correction factor-it calibrates itself then Error codes DEUTZ-Errorcodes. 245 BilkUTZ-Errorcodes. 245 DEUTZ-Errorcodes. 245 BilkUTZ-Errorcodes. 245 BilkUTZ-Errorcodes. 245 DEUTZ-Errorcodes. 245 BilkUTZ-Errorcodes. 245 DEUTZ-Errorcodes. 245 DEITZ-Errorcodes. 245 DEITZ-Errorcodes. 245 DEITZ-Errorcodes. 245 DEITZ-Errorcodes and identifiable 1.2. Errormode not identifiable 1.3. Errorerormode not identifiable 1.3. Errormode not identifiable	Error description REPL. KAIL PRESS. VALVE			
Image: State of the state	time then what the technical specification allows	wenn the engine is in late furning, the output and rail pressure with the default	Inetering unit compares its It value (Parameter) and	EOW luet pressure preser. Inte IOW luet pressure calculated by FCI1 is undemeath the target range: the FCI1 activates a system
Einstroncede: 244         Einstroncede: 244         2000         36 FMI:         2000         36 FMI:         2000         36 FMI:         2000         36 FMI:         20 Abnormal rate of change         31 FMI:         2. Enromode not identifiable         2. Enromode not identifiable         2. Enromode not identifiable         2. Enromode not identifiable         3. Special Instructors:         2. Enromode not identifiable         2. Enromode not identifiable         3. Stores permanent light: Entry in enromenory.         2. Enromode not identifiable         3. Stores permanent light: Entry in enromenory.         3. Enromode not identifiable         3.	Error codes	calput and rain prosource with the defaute calculates a correction factor-it calibrate	it value (r arameter) and es itself then	
code (silort-long-short): 2 - 5 - 3       EUTZ-Errorcode: 245         23000       EMII         23000       Ahnomal rate of therage         0. Ahnomal rate of therage       0. Ahnomal rate of change         0. Ahnomal rate of therage       0. Ahnomal rate of change         0. Ahnomal rate of change       0. Ahnomal rate of change         0. Ahnomal rate of change       0. Ahnomal rate of change         0. Ahnomal rate of change       0. Ahnomal rate of change         1. Errormode not identifiable       0. at the sterimation         2. Errormode not identifiable       1. Errormode not identifiable         1. Errormode not identifiable       1. Errormode not identifiable         1. at allowed, rail pressure relief valve open more if caluently than the technical on allowed, rail pressure relief valve open more if apartitiable       1. Errormode not identifiable         1. at allowed, rail pressure relief valve open more if apartitiable       1. Errormode not identifiable         1. at allowed, rail pressure relief valve       1. Errormode not identifiable         1. at allowed, rail pressure relief valve       2. Errormode not identifiable         1. at allowed, rail pressure relief valve       2. Errormode not identifiable         1. at allowed, rail pressure relief valve       2. Errormode not identifiable         1. at allowed, rail pressure relief valve       2. Errormode not identifiable	DEUTZ-Errorcode: 244	Error codes		Error codes
<ul> <li>BlinkCode (short-long-short): 2 - 5 - 4</li> <li>Ja F Min</li> <li>Ja Min</li></ul>	BlinkCode (short-long-short): 2 - 5 - 3	DEUTZ-Errorcode: 245		DEUTZ-Errorcode: 246
<ul> <li>Show is 52010</li> <li>Show is 22010</li> <li>Ahommal update rated</li> <li>Anommal update rated</li> <li>Errormode not identifiable</li> <li>Error</li></ul>	SPN: 523009	BlinkCode (short-long-short): 2 - 5 -	-4	BlinkCode (short-long-short): 5 - 4 - 1
<ul> <li>Abnormal update rated</li> <li>Abnormal rate of change</li> <li>Abnorman rate of change</li> <li>Abn</li></ul>	possible FMI:	<b>SPN:</b> 523010		SPN: 523650
0. Abnormal rate of change       0. data valid, but above normal working area         1. Encomode not identifiable       1. Encomode not identifiable         2. Encomode not identifiable       1. Encomode not identifiable         2. Encomode not identifiable       1. Encomode not identifiable         3. Special instructions       1. Encomode not identifiable         a shows permanent light. Entry in errormeenory.       1. Encomode not identifiable         a shows permanent light. Entry in errormeenory.       1. Encomode not identifiable         a shows permanent light. Entry in errormeenory.       1. Encomode not identifiable         a shows permanent light. Entry in errormeenory.       1. Encomode not identifiable         a shows permanent light. Entry in errormeenory.       1. Encomode not identifiable         a shows permanent light. Entry in errormemory.       1. Encomode not identifiable         ion allowed, rail pressure relief valve and remove the error through       1. Encomode not identifiable         ion allowed, rail pressure relief valve and remove the error through       1. Encomode not identifiable         interaction       1. Encomode not identifiable       1. Encomode not identifiable         ion allowed, rail pressure relief valve       2. Encomode not identifiable       1. Encomode not identifiable         ion allowed, rail pressure relief valve       2. Encomode not identifiable       1. Encomode not identifiabl	9: Abnormal update rated	possible FMI:		possible FMI:
<ol> <li>Special Instructions</li> <li>Errormode not identifiable</li> <li>Errordetection</li> <li>Interseure relief valve open more frequently than the technical ion allowed, rail pressure relief valve</li> <li>Stemanant light. Entry in errormemory.</li> <li>Possible reason for error</li> <li>Possiple reason for error</li></ol>	10. Abnormal rate of change	0: data valid, but above normal	ll working area	2: data stream is defective
<ol> <li>2. Errormode not identifiable lection</li> <li>2. Errormode not identifiable</li> <li>is show spermanent light. Entry in errormemory.</li> <li>is reason for error solution allowed, rail pressure relief valve on allowed, rail pressure relief valve in allowed. rail pressure relief valve solution for error</li> <li>12. Errormode not identifiable</li> <li>12. Errormode not identifiable</li> <li>13. Errormode not identifiable</li> <li>14. Errormode not identifiable</li> <li>15. Errormode not identifiable</li> <li>12. Errormode not identifiable</li> <li>13. Errormode not identifiable</li> <li>14. Errormode not identifiable</li> <li>15. Errormode not identifiable</li> <li>16. Errormode not identifiable</li> <li>17. Errormode not identifiable</li> <li>17. Errormode not identifiable</li> <li>16. Errormode not identifiable</li> <li>17. Errormode not identifiable</li> <li>18. Errormode not identifiable</li> <li>18. Error properties</li> <li>19. Error properties</li> <li>19. Error properties</li> <li>10. Signal Priority: 3</li> <li>10. Priority: 3</li> <li>10. Error meanent light</li> <li>11. Error meanent light</li> <li>11. Errormode not identifiable</li> <li>12. Errormode not identifiable</li> <li>13. Error properties</li> <li>14. Error meanent error meanent</li> <li>14. Error meanent e</li></ol>	14: Special Instructions	12. Errormode not identifiable		2: data stream is defective
tection       12. Erromode not identifiable         a shows permanent light. Entry in errormemory.       assoms permanent light. Entry in errormemory.         a shows permanent light. Entry in errormemory.       assome relief valve open longer than ion allowed, rail pressure relief valve open longer than in error broger than in error properties       12. Errornde not identifiable         a shows permanent light. Entry in errormemory.       assocification allowed, rail pressure relief valve open longer than in pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure error allowed are action: permanent light and allowed and remove the error through allowed are action: permanent light and allowed are action: permanent light and and are action: permanent light and are action allowed are action are action allowed are action are action allowed are action atothe action are action are action are action	12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
<ul> <li>shows permanent light. Entry in errormemory.</li> <li><b>reason for error</b></li> <li><b>reason for error</b></li></ul>	Errordetection	12. Errormode not identifiable		12. Errormode not identifiable
areason for error       Errorlamp shows permanent light. Entry in errormemory.         sure relief valve open more frequently than the technical specification allowed, rail pressure relief valve open longer than ical specification allowed, rail pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through and all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and termove the error through all pressure relief valve and termove the error through all pressure relief valve and termove the error through all pressure relief valve and termove the error through all pressure relief valve and termove the error through all pressure relief valve and termove the error teror termove the error termove the error teror terror term	Errorlamp shows permanent light. Entry in errormemory.	Errordetection		Errordetection
ure relief valve open more frequently than the technical ion allowed, rail pressure relief valve cel specification allowed, rail pressure relief valve ical specification allowed, rail pressure relief valve itions for error repair other error properties System reaction: Behaviour error lamp: permanent light Signal Priority: 3 renor lamp: permanent light settimation: in 0 ing; 3 ment @ errortime: actual value	Possible reason for error	Errorlamp shows permanent light. Entry	y in errormemory.	Errorlamp shows permanent light. Entry in errormemory.
ion allowed, rail pressure relief valve open longer than cical specification allowed, rail pressure relief valve all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through all pressure relief valve and remove the error through annand for properties action: permanent light annand for properties action: permanent light section: permanent light section: permanent light action: sectual value for no for no fo	Rail pressure relief valve open more frequently than the technical	Possible reason for error		Possible reason for error
ical specification allowed, rail pressure relief valve tions for error repair tions for error repair tions for error repair tions for error repair System reaction: Behaviour error lamp: permanent light Signal Priority: 3 Measurement @ errortime: actual value action: permanent light Signal Priority: 3 Measurement @ errortime: actual value for no signal priority: 3 Measurement @ errortime: actual value for no for	specification allowed, rail pressure relief valve open longer than	Take actions for error repair		Diesel fuel pressure below target range with system reaction,
tions for error repair tions for error repair all pressure relief valve and remove the error through mand for properties action: permanent light Signal Priority: 3 Measurement @ errortime: actual value ment @ errortime: actual value inity: 3 ment @ errortime: actual value	the technical specification allowed, rail pressure relief valve	other error properties		interruption in cycling process of low fuel pressure (for example,
Behaviour error lamp: permanent light Selfhealing: no Signal Priority: 3 Measurement @ errortime: actual value	defective	System reaction:		tuel pump detective), sensor detective, connection cable
Selfhealing: no Signal Priority: 3 Measurement @ errortime: actual value	Take actions for error repair	Behaviour error lamp: permanent light		demaged
Signal Priority: 3 Signal Priority: 3 Measurement @ errortime: actual value erectaine: actual value	Change rail pressure relief valve and remove the error through	Selfhealing: no		Take actions for error repair
e asage, unerasable by Measurement @ errortime: actual value	Serdia command	Signal Priority: 3		Check Diesel low fuel pressure loop system, Check electrical fuel
sage, unerasable by	other error properties	Measurement @ errortime: actual value	Ð	pump, inspect fuel system and if necessary repair it, check
	System reaction: permanent error message, unerasable by			sensor and if necessary replace it, check connection cable and if
	"Clear EM"			necessary repair or replace it
errortime: actual value	Behaviour error lamp: permanent light			other error properties
errortime: actual value	Selfhealing: no			System reaction: Warning
	Signal Priority: 3			Behaviour error lamp: permanent light
Signal Priority: 4 Measurement @ errortime: default value	Measurement @ errortime: actual value			Selfhealing: yes
Measurement @ errortime: default value				Signal Priority: 4
				Measurement @ errortime: default value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_ : 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<ul> <li>247 / 523651 / FISys_FISFMSysReac</li> <li>Error description</li> <li>Rape Oil Fuel temperature: the fuel temperature calculated by ECU is above the target range; the ECU activates a system reaction</li> <li>Renor codes</li> <li>EUTZ=Errorcode: 247</li> <li>BinkCode (short-long-short): 5 - 4 - 2</li> <li>Sonsi 523651</li> <li>Sonsi 523651</li> <li>DEUTZ=Errorcode: 247</li> <li>BinkCode (short-long-short): 5 - 4 - 2</li> <li>Sonsible FMI:</li> <li>C. data stream is defective</li> <li>C. forornection</li> <li>C. forornection</li> <li>C. Errormode not identifiable</li> <li>L. Errormode not identifiable</li> <li>L. Errormode not identifiable</li> <li>L. Errormode not identifiable</li> <li>Lerrorlam shows permanent light. Entry in errormenoy.</li> <li>Possible reason reage and figures stream strea</li></ul>	<ul> <li>248 / 523652 / FISys_FlushStateEngineOff</li> <li>Error description</li> <li>Error description</li> <li>Error description</li> <li>Error description</li> <li>Error description</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 248</li> <li>BinkCode (short-long-short): 5 - 4 - 3</li> <li>Sonsible FMI:</li> <li>2: data stream is defective</li> <li>12: Errormode not identifiable</li> <li>12: Errormode not identifiable</li> <li>13: Errormode not identifiable</li> <li>14: Errormode not identifiable</li> <li>15: Errormode not identifiable</li> <li>16: Errormode not identifiable</li> <li>17: Errormode not identifiable</li> <li>16: Errormode not identifiable</li> <li>17: Errormode not identifiable</li> <li>18: Errormode not identifiable</li> <li>19: Errormode not identifiable</li> <li>10: Errormode not identifiable</li> <li>10: Errormode not identifiable</li> <li>11: Errormode not identifiable</li> <li>12: Errormode not identifiable</li> <li>13: Errormode not identifiable</li> <li>14: Errormode not identifiable</li> <li>15: Errormode not identifiable</li> <li>16: Errormode not identifiable</li> <li>17: Errormode not identifiable</li> <li>18: Errormode not identifiable</li> <li>19: Errormode not identifiable</li> <li>10: Errormode not identifiable</li> <li>11: Errormode not identifiable</li> <li>12: Errormode not identifiable</li> <li>13: Errormode not identifiable</li> <li>14: Errormode not identifiable</li> <li>15: Errormode not identifiable</li> <li>15: Errormode not identifiable</li> <li>16: Errormode not identifiable</li> <li>17: Errormode not identifiable</li> <li>18: Fromteeton</li> <li>19: Fromteeton</li> <li>19: Fromteeton</li> <li>10: Errormode not identifiable</li> <li>10: Errormode not identifiable</li> <li>10: Errormode</li> <li>10: Errormode not identifiable</li> <l< th=""><th>EngineOff s not already ompleted or ormemory. tem in Diesel seel operation mode everytime before</th><th><ul> <li>249 / 523653 / FISys_RapeOilHeatEX</li> <li>Error description RAPEOILSYSTEM</li> <li>Awaited temperatur rise with opened heat exchanger valve did not occur. Error in fuel heating system.</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>Catata stream is defective</li> <li>(1) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(3) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(3) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(3) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(3) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(5) Errormode not identifiable</li> <li>(6) Errormode not identifiable</li> <li>(7) Errormode not identifiable</li> <li>(7) Errormode not identifiable</li> <li>(8) Errormode not identifiable</li> <li>(9) Errormode not identifiable</li> <li>(9) Errormode not identifiable</li> <li>(1) Errormode not identifiable</li> <li>(1) Errormode not ide</li></ul></th></l<></ul>	EngineOff s not already ompleted or ormemory. tem in Diesel seel operation mode everytime before	<ul> <li>249 / 523653 / FISys_RapeOilHeatEX</li> <li>Error description RAPEOILSYSTEM</li> <li>Awaited temperatur rise with opened heat exchanger valve did not occur. Error in fuel heating system.</li> <li>Error codes</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>BlinkCode (short-long-short): 5 - 4 - 4</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>SPN: 523653</li> <li>DEUTZ-Errorcode: 249</li> <li>Catata stream is defective</li> <li>(1) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(3) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(3) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(3) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(2) Errormode not identifiable</li> <li>(3) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(4) Errormode not identifiable</li> <li>(5) Errormode not identifiable</li> <li>(6) Errormode not identifiable</li> <li>(7) Errormode not identifiable</li> <li>(7) Errormode not identifiable</li> <li>(8) Errormode not identifiable</li> <li>(9) Errormode not identifiable</li> <li>(9) Errormode not identifiable</li> <li>(1) Errormode not identifiable</li> <li>(1) Errormode not ide</li></ul>

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<mark>250</mark> / 523654 / FrmMngDieselLvl	<mark>251</mark> / 523655 / FrmMngFuelTemp	dm	<mark>252</mark> / 523656 / FrmMngLowPressureDiesel
Error description RAPEOILSYSTEM	Error description RAPEOILSYSTEM		Error description RAPEOILSYSTEM
Status DieselLvI (Diesel tank level): the voltage of the sensor	Status FuelTemp (Fuel Temperature): the voltage of the sensor	voltage of the sensor	Status LowPressureDiesel (Low fuel pressure diesel): the voltage
measured by ECU is out of the target range	measured by ECU is out of the target range	e	of the sensor measured by ECU is out of the target range
Error codes	Error codes		Error codes
DEUTZ-Errorcode: 250	DEUTZ-Errorcode: 251		DEUTZ-Errorcode: 252
BlinkCode (short-long-short): 5 - 4 - 5 SDN: 533654	BlinkCode (short-long-short): 5 - 4 - 6 SDN: 573655		BlinkCode (short-long-short): 5 - 4 - 7 SDN: 523656
possible FMI:	possible FMI:		possible FMI:
3: Voltage to high or short circuit to +Ubatt	3: Voltage to high or short circuit to +Ubatt	o +Ubatt	3: Voltage to high or short circuit to +Ubatt
<ol><li>Voltage to low or short circuit to -Ubatt</li></ol>	4: Voltage to low or short circuit to -Ubatt		4: Voltage to low or short circuit to -Ubatt
<ol> <li>Errormode not identifiable</li> </ol>	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Cable break or short circuit, sensor defective, connection cable	Cable break or short circuit, lamp defective, connection cable	e, connection cable	Cable break or short circuit, lamp defective, connection cable
demaged	demaged		demaged
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check cabling, if sensor not working, check sensor and if	Check cabling, if sensor not working, check sensor and if	k sensor and if	Check cabling, if sensor not working, check sensor and if
necessary replace it, check connection cable and if necessary	necessary replace it, check connection cable and if necessary	ble and if necessary	necessary replace it, check connection cable and if necessary
repair or replace it	repair or replace it		repair or replace it
other error properties	other error properties		other error properties
System reaction: Warning, substitute value	System reaction: Warning, substitute value	0	System reaction: Warning, substitute value
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Behaviour error lamp: permanent light
Setthealing: yes	Selfhealing: yes		Selfhealing: yes
Signal Priority: 3			
Measurement @ errortime: detault value	Measurement @ errortime: detault value		Measurement @ errortime: detault value



DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	
<mark>253</mark> / 523657 / FrmMngRapeOilln	254 / 523658 / FrmMngRapeOilLv	iLvl	255 / 523659 / FrmMngRapeOilVIv1
CIUL USUIDUULI KAFEULSI 31 EM		a violtance of the concer	Citatio Description RAFEOLS DIEM
UNI ITTESSAGENAPEUTITT (NAPE UT TIPUT). ITTE TTESSAGE CALL TUT ha racaived hv FOTI	Diatus RapeOliLVI (Rape oli tarik lever). tite vuitage of tite serisor maasurad hv EOLI is out of tha tarnat ranna	e vuitage ui tire serisui	ECT is out of the target range or the maximum nermissible
be received by ECO		le	tomorphice of the ECH component is proveded
DEUIZ-Errorcode: 203 Distrocate Arbad Jaar abada E	DEULZ-Errorcode: 234		
BIINKCODE (STIOTETOTIG-STIOTU): 2 - 0 - 1 SPN: 523657	<b>BIITIKCODE</b> (SHORT-TORIG-SHORT): 3 - 9 - 2 SPN • 523658		UEUIZ-Errorcoge: 200 BlinkCode (short-long-short): 5 - 6 - 3
possible FMI:	possible FMI:		SPN: 523659
12: Defective component	3: Voltage to high or short circuit to +Ubatt	io +Ubatt	possible FMI:
12. Errormode not identifiable	4: Voltage to low or short circuit to -Ubatt	o -Ubatt	12. Errormode not identifiable
12: Defective component	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12: Defective component
Errordetection	Errordetection		12. Errormode not identifiable
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errordetection
Possible reason for error	Possible reason for error		Errorlamp shows permanent light. Entry in errormemory.
CAN bus wrong cabled, wiring is demaged, receiver (sender of	Cable break or short circuit, lamp defective, connection cable	e, connection cable	Possible reason for error
the message) work inaccurately, parametering inaccurate	demaged		Cable break or short circuit, valve defective, connection cable
Take actions for error repair	Take actions for error repair		demaged
Check CAN Bus cabling (Bus sheduling, polarity, short circuit,	Check cabling, if sensor not working, check sensor and if	ck sensor and if	Take actions for error repair
power interrupt), test protocol of receiver, check CAN functional	necessary replace it, check connection cable and if necessary	ble and if necessary	Check cabling, if valve not working, check valve and if necessary
range	repair or replace it		replace it, check connection cable and if necessary repair or
other error properties	other error properties		replace it
System reaction: Warning, substitute values	System reaction: Warning, substitute value	Û	other error properties
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		System reaction: Warning and switchover to Diesel operation
Selfhealing: yes	Selfhealing: yes		mode
Signal Priority: 3	Signal Priority: 3		Behaviour error lamp: permanent light
Measurement @ errortime: default value	Measurement @ errortime: default value		Selfhealing: yes
			Signal Priority: 3
			Measurement @ errortime: default value

DTC-List Diagnosis- and Errorcodes	referrenced ECU-Software P490_: 220, 310, 501 P491_: 220, 310, 400, 501	P492_: 213 P513_: 214, 300	DECT
256 / 523660 / FrmMngRapeOilVIv2	<mark>257</mark> / 523661 / FrmMngRapeOilVlv3	VIv3	<mark>258</mark> / 523662 / FrmMngRapeOilVIv4
Error description RAPEOILSYSTEM	Error description RAPEOILSYSTEM		Error description RAPEOILSYSTEM
Status RapeOilVIv2 (Valve 2): the current drain measured by	Status RapeOilVIv3 (Valve 3): the current drain measured by	drain measured by	Status RapeOilVIv4 (Valve 4): the current drain measured by
ECU is out of the target range or the maximum permissible	ECU is out of the target range or the maximum permissible	num permissible	ECU is out of the target range or the maximum permissible
temperature of the ECU component is exceeded	temperature of the ECU component is exceeded	eeded	temperature of the ECU component is exceeded
	Error codes		
DEUIZ-Errorcode: 250			DEUIZ-Errorcode: 258
BlinkCode (short-long-short): 5 - 6 - 4 SDN: 573660	BlinkCode (short-long-short): 5 - 6 - 5 SDN: 573661		BlinkCode (short-long-short): 5 - 6 - 6 SDN - 523652
Dossible FMI:	possible FMI:		possible FMI:
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12. Errormode not identifiable	12. Errormode not identifiable		12. Errormode not identifiable
12: Defective component	12: Defective component		12: Defective component
12. Errormode not identifiable	12. Errormode not identifiable		<ol> <li>Errormode not identifiable</li> </ol>
Errordetection	Errordetection		Errordetection
Errorlamp shows permanent light. Entry in errormemory.	Errorlamp shows permanent light. Entry in errormemory.	errormemory.	Errorlamp shows permanent light. Entry in errormemory.
Possible reason for error	Possible reason for error		Possible reason for error
Cable break or short circuit, valve defective, connection cable	Cable break or short circuit, valve defective, connection cable	, connection cable	Cable break or short circuit, valve defective, connection cable
demaged	demaged		
Take actions for error repair	Take actions for error repair		Take actions for error repair
Check cabling, if valve not working, check valve and if necessary	Check cabling, if valve not working, check valve and if necessary	/alve and if necessary	Check cabling, if valve not working, check valve and if necessary
replace it, check connection cable and it necessary repair or	replace it, check connection cable and if necessary repair or	cessary repair or	replace it, check connection cable and if necessary repair or
replace it other error promerties	replace it other error properties		iepiace it other error properties
System reaction: Warning and switchover to Diesel operation	Svstem reaction: Warning and switchover to Diesel oneration	n Diesel oneration	Svitem reaction: Warning
ogour course maning and empired to be apprending	mode		Behaviour error lamp: permanent light
Behaviour error lamp: permanent light	Behaviour error lamp: permanent light		Selfhealing: yes
Selfhealing: yes	Selfhealing: yes		Signal Priority: 3
Signal Priority: 3	Signal Priority: 3		Measurement @ errortime: default value
Measurement @ errortime: default value	Measurement @ errortime: default value		
	_	_	

P492\_: 213 P513\_: 214, 300



# 259 / 523663 / FrmMngRapeOilVIv5

## Error description RAPEOILSYSTEM

Status RapeOiIVv5 (Valve 5): the current drain measured by ECU is out of the target range or the maximum permissible temperature of the ECU component is exceeded **Error codes** 

### DEUTZ-Errorcode: 259

BlinkCode (short-long-short): 5 - 6 - 7 SPN: 523663

#### possible FMI:

- 12. Errormode not identifiable
- 12. Errormode not identifiable
  - 12: Defective component
- 12. Errormode not identifiable

#### Errordetection

Errorlamp shows permanent light. Entry in errormemory

### Possible reason for error

Costing reason to enclore the defective, connection cable demaged

### Take actions for error repair

Check cabling, if valve not working, check valve and if necessary replace it, check connection cable and if necessary repair or replace it

### other error properties

System reaction: Warning Behaviour error lamp: permanent light Selfhealing: yes Signal Priority: 3 Measurement @ errortime: default value

# 260 / 523664 / FrmMngSTIN1RX

power interrupt), test protocol of receiver, check CAN functional CAN message STIN1 (State Inputs 1): the message can not be CAN bus wrong cabled, wiring is demaged, receiver (sender of Check CAN Bus cabling (Bus sheduling, polarity, short circuit, the message) work inaccurately, parametering inaccurate Errorlamp shows permanent light. Entry in errormemory. System reaction: Warning, substitute values Error description RAPEOILSYSTEM BlinkCode (short-long-short): 5 - 6 - 8 Measurement @ errortime: default value 12. Errormode not identifiable 12. Errormode not identifiable 3ehaviour error lamp: permanent light 12: Defective component 12: Defective component ake actions for error repair Possible reason for error **DEUTZ-Errorcode: 260** other error properties Errordetection received by ECU possible FMI: Signal Priority: 3 **SPN:** 523664 Selfhealing: yes Error codes range



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