Vehicle delivery

Vehicle pre-delivery inspection by the Service Workshop
For information, technical data etc. refer to Service Schedule

☐ Check oil level, top up if necessary.
Engine, transmission, axle drives, front axle differential, hub drives, front PTO, lift shaft lubrication. Fill the hydraulic system with additional oil for external consumers as per customer order.

☐ Check fluid level, and top up if necessary.
Cooling system, compressed air system, air-conditioning if installed.

☐ Grease vehicle as per Lubrication Chart, lubricate all joints.

☐ Check steering and toe-in. Check tyre pressures. Check that wheel nuts are firmly attached.

☐ Test electrical system. Check fault memory. Check battery charge status. Check the function and settings of the lighting and signalling system.

☐ Fill up with diesel, use pre-filter if necessary.

☐ Check that brakes are working effectively.

Information to be given on vehicle delivery

☐ Draw attention to safety instructions within the Operating Manual and on the vehicle itself.

☐ Information on keeping to country-specific regulations regarding vehicle speed and trailer braking systems.

☐ Explain the following features in detail - see index - and show how they are operated. Also see separate vehicle delivery test log.
Operating controls, transmission, multiple display, initial start-up, starting, and switching off, fault display, code table, clearing the warning and fault messages.

☐ Explain "Important Information on Service and Maintenance". See inside back cover.

☐ Hand over tool box accessories.

☐ Fill out warranty and delivery card and promptly send it to the factory via AGCO-NET.

☐ Draw attention to the mandatory regular vehicle inspections (according to German vehicle regulations). For driving on roads, draw attention to the prescribed tyre pressures, balanced ballasting, permissible tyres and implements.

☐ Draw attention to permissible towing and vertical bearing loads.

Vehicle delivery carried out on . . . . . . . . . . . . . . . . . . . .

Agents signature . . . . . . . . . . . . . . . . . . . .
Vehicle delivery test procedure

Maintenance
Please see Operating Manual for better explanation.

☐ Open bonnet, show.
☐ Explain how to remove, install and clean the main cartridge of the dry air filter.
☐ Explain how to change backup cartridge of dry-air cleaner.
☐ Show dust discharge valve.
☐ Explain and demonstrate how to clean cooling and heating system.
☐ Show v-belt and explain maintenance.
☐ Show feed reservoirs of brake and clutch system and explain maintenance.
☐ Show how to monitor oil level in front PTO.
☐ Show hydraulic-oil filter and venting filter and explain maintenance.
☐ Show cab blower filter.
☐ Show air-conditioning condenser.
☐ Show battery.
☐ Show fuses.

Start-up
Please see Operating Manual for better explanation.

☐ For immobiliser (if fitted)
  Point out the vehicle-specific assignment of the vehicle keys.
  ___ vehicle keyes handed over.

☐ Show filling points for fuels and lubricants which require daily checking.
  Fuel, engine oil, transmission oil

☐ Show how to drain compressed-air vessel.

☐ Draw attention to changed fuels and lubricants for winter operation.

☐ Draw attention to possible use of biodiesel and biohydraulic oil.

☐ Demonstrate how to start engine and shut it off.

☐ Explain jump starting, towing and how to turn off the tractor safely.

☐ Explain and demonstrate pulling away in forward and reverse gears.

☐ Explain and demonstrate function of footbrake, handbrake and exhaust brake.

☐ Explain function of trailer brake.

☐ Explain and demonstrate steering wheel adjustment.

☐ Explain and demonstrate safety switch of EPC.

☐ Explain and demonstrate driver’s seat settings.
Driving functions and joystick
Please see Operating Manual for better explanation.

☐ Explain and demonstrate neutral position.
☐ Explain and demonstrate acceleration properties.
☐ Explain and demonstrate range controls.
☐ Explain and demonstrate how to change direction of travel (rapid reversing and programming).
☐ Explain and demonstrate Tempomat (cruise control) function.
☐ Explain and demonstrate automatic maximum output control system.
☐ Explain and demonstrate how to store engine speed.

Operating modes
Please see Operating Manual for better explanation.

☐ Explain and demonstrate how to switch rear and front PTOs on and off.
☐ Explain and demonstrate 4WD.
☐ Explain and demonstrate differential lock.
☐ Explain and demonstrate front-axle suspension.
☐ Operate hydraulic valves and explain and demonstrate settings.
☐ Explain and demonstrate EPC control elements.
☐ Explain and demonstrate functions on EPC control panel.
☐ Explain and demonstrate implement control system (if fitted).
☐ Explain and demonstrate how to store and retrieve settings.
☐ Explain and demonstrate automatic functions of power lift and PTO.
☐ Explain how to work with EPC.
☐ Explain slip control of EPC (if fitted).
☐ Explain remote control of EPC (if fitted).
☐ Explain and show EPC/DA function (if fitted)
☐ Explain and show operation of front power lift (if fitted).
☐ Explain and show operation of trailer hitch.
☐ Explain and show reversing system (if fitted).
☐ Explain safety instructions.

We hereby confirm that the vehicle was delivered in accordance with the above-listed items.

(File vehicle delivery test procedure in vehicle file)

Vehicle delivery carried out on . . . . . . . . . . . . . . . .

Agent's signature . . . . . . . . . . . . . . . .

Customer's signature . . . . . . . . . . . . . . . .
OPERATING MANUAL

Fendt 207 V/F Vario
Vehicle ID no. 260 .. 0101

Fendt 208 V/F Vario
Vehicle ID no. 261 .. 0101

Fendt 209 V/F Vario
Vehicle ID no. 262 .. 0101

Fendt 210 V/F Vario
Vehicle ID no. 263 .. 0101

Fendt 211 V/F Vario
Vehicle ID no. 264 .. 0101

Fendt 209 P Vario
Vehicle ID no. 272 .. 0101

Fendt 210 P Vario
Vehicle ID no. 273 .. 0101

Fendt 211 P Vario
Vehicle ID no. 274 .. 0101

AGCO GmbH
Maschinen und Schlepperfabrik D-87616 Marktoberdorf / Bavaria / Germany
Telephone +49 8342 77-0 Fax +49 8342 77-222

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3372 G - en
Dear Customer,

Please note the following:

● Before using the tractor, carefully read through this Manual to familiarise yourself with all operating controls and their functions before you begin work. This also applies to the operating instructions of the implement manufacturer.

● Follow all the operating and maintenance instructions. If you do so, your tractor will give you many years of economic and trouble-free operation. You will find an overview of all maintenance operations in the Service Schedule in this Manual.

● Maintenance and repair work should only be carried out at your service workshop. Also refer to "Important Information on FENDT Service and Maintenance".

Disregarding the symbol and the associated safety instructions, which are divided into three hazard levels, can lead to considerable damage to the tractor, the mounted implements or other property. Adhering to the safety instructions is also required, to prevent such damage from occurring.

Authorised use

This tractor is designed only for normal agricultural operations or similar purposes, for example in municipal applications.

Any other type of use is considered unauthorised. The manufacturer will not be liable for any damage resulting from such uses, which will be entirely at the owners risk.

Authorised use also includes fulfilling the operating, service and maintenance conditions set out by the manufacturer in order to protect your claims under warranty if necessary.

Special attention must be paid to safety instructions marked with this symbol, as well as the words DANGER, WARNING, CAUTION.

Operation, maintenance and repair of the tractor is restricted to persons who are familiar with this kind of work and aware of the inherent dangers.

All relevant accident prevention regulations and all generally accepted health & safety standards and road traffic regulations must be observed. The manufacturer does not accept liability for damage resulting from unauthorised modifications.

Since it is working equipment, the tractor is not suited for taking along children and juveniles. If children or juveniles are nonetheless present in the tractor, the driver must be aware that they require strict supervision. It must be ruled out that children and juveniles, which have been taken along, can use the technical controls on the tractor or any equipment mounted on it. Under no circumstances should children or juveniles remain alone in the cab, when the driver leaves the tractor.

Note for the North American market

This tractor is not intended for sale or operation in North America. Lighting and marking and other equipment do not conform to North American requirements.
Marking of places that affect your safety
Make sure that any other users have read all the safety instructions as well.
The various levels of safety instructions can be distinguished as follows:

**DANGER:**
This symbol together with the word DANGER means there is an immediate risk of danger, that must be prevented, if one does not want to risk DEATH OR SEVERE INJURY.

**WARNING:**
This symbol together with the word WARNING means a potential risk of danger, that must be prevented, if one does not want to risk DEATH OR SERIOUS INJURY.

**CAUTION:**
This symbol together with the word CAUTION means a potential risk of danger, that must be prevented, if one does not want to risk MINOR INJURY.

The Operating Manual is an integral part of the vehicle package and must be passed on to any subsequent owner in the event of resale. The attention of the new owner should be drawn to this information.

If this Manual is lost or damaged and you need a new one, please contact your Fendt dealer. There you will be able to purchase a replacement.

Vehicle Identification Number

The Vehicle Identification Number is stamped in the right frame of the tractor and on the factory plate.

All specifications in the Manual are subject to the usual tolerances. We reserve the right to make design changes as part of technical further development, without making alterations to this Manual. The drawings and illustrations in the manual are used for function description, some of the items shown are not necessarily included in the vehicle delivery contents.
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SAFETY INSTRUCTIONS

Safety and accident prevention regulations

![WARNING:]
Before every operation, check the tractor for road worthiness and operational safety. Carefully read the manual and follow the safety instructions.

Damaged or lost safety signs must be replaced.

**General safety and accident prevention regulations**

1. Follow the general safety and accident prevention regulations, as well as the safety information in this manual.
2. When driving on public roads, follow the usual traffic regulations!
3. Before starting work, familiarise yourself with all operating controls and their functions.
4. Start the engine from the driver seat only. Do not attempt to start by shorting across the starter terminals, as this can cause the tractor to move immediately!
5. Before starting up, check the area is clear (e.g. children). Ensure that nothing obstructs vision.
6. Never leave the engine running in a confined space!
7. The driver should wear close-fitting clothing. Avoid wearing loose-fitting garments!
8. Take extra care when handling fuel - serious fire hazard. Never refuel in the presence of sparks or naked flames. Do not smoke when refuelling.
9. Before refuelling, turn off the engine and remove the ignition key. Do not refuel in confined spaces. Clean up spillages immediately!
10. Before starting the tractor, check for and remove any dirt that could impair proper functioning of the tractor.
11. To prevent fires, keep the machine clean, especially in the areas near hot parts, e.g. the back engine area, exhaust, turbocharger.
12. Beware of leaking brake fluid and battery acid (these are toxic and corrosive).
13. Never climb in or out of the tractor while it is moving.

**Carrying passengers**

1. Passenger should be carried only if the tractor is fitted with an appropriate passenger seat.
2. Do not carry passengers in any other circumstances.
3. Do not open the door on the drivers side while driving.
4. If the door on the drivers side in only locked in the first position, do not try to close the door all the way. The driver door may open unintentionally.

**Driving the tractor**

1. Driving speed must always be adapted to the current situation. Avoid sudden cornering when driving uphill or downhill, or across gradients. Disengage the differential lock when cornering. Never disengage clutch on downward slopes.
2. Make sure all trailers and implements are properly hitched. Driving characteristics, steering and braking are affected by mounted implements, trailers and ballast weight. Therefore, always ensure that there is adequate steering and braking capacity.
3. Observe the maximum permissible gross vehicle weight, axle loads and tyre load capacity, especially if heavy implements are attached.
4. When negotiating bends with implements connected or hitched up, always allow for the overhang and oscillating weight of the implement.
5. The maximum driving speed may only be driven under suitable road conditions, with balanced ballasting (e.g. 40% on the front axle and 60% on the rear axle) and prescribed tyre pressure.
6. For tractor with roll bar. Outside of cultivated areas, put the roll bar back in the safety position.
SAFETY INSTRUCTIONS

Front loader operation

1. Never allow anyone to stand in the hazard area, or within the working range of the front loader. Keep the area clear of bystanders at all times. Do not operate the front loader unless there is a clear view of the entire working area - illuminate the area if necessary.
2. It is not permitted to use the standard loader (as supplied) as a working platform. If using the loader with a special working platform, additional safety measures are required.
3. Do not handle round bales, pallets etc. unless the loader is suitably equipped for this purpose. If loading objects that cannot be secured and may fall off, do not use the front loader unless the driving seat is protected by a robust canopy.
4. When the front loader is raised, the risk of the tractor tipping over is greater, and the braking effect at the rear axle may also be reduced. Adapt your driving style accordingly and add enough ballast weight to the rear of the tractor. If necessary, add wheel weights and fill the wheels. Rear ballast weights of at least 870 kg are required.
5. Keep a safe distance from high-voltage cables.
6. For travelling on the road, bring front loader into transport position and secure. Keep a maximum distance of 3.5 m between the implement and the centre of the steering wheel. If the forward projection exceeds 3.5 m, appropriate measures must be taken to guarantee safe traffic conditions (e.g. use people on foot acting as guides or mirrors at road junctions). Transporting equipment or materials with a front loader working implement, e.g. a scoop, is not permitted when travelling on public roads.
7. Danger from unintended lowering of the front loader. For this reason, always lock the valves after finishing with front loader work. Before leaving the tractor, completely lower the front loader to the ground.
8. For safety reasons, the front loader may only be mounted and removed by one person, the driver himself.
9. Never put your hands in areas where there is a risk of crushing or severing - parts may still be moving.
10. Detach the front loader with the attached implement (bucket, fork) only on firm and level ground. Always use the supports provided.
11. The front loader must be parked and secured in such a way as to prevent unauthorised persons or children from causing it to tip over.
12. When mounting the front loader, connect all hydraulic connections including the auxiliary return, if equipped in this way. Always connect hydraulic hose for cylinder load pressure to +. Take great care not to confuse connections since this may cause accidents through reversed functions, e.g. lifting instead of lowering. Before fitting the multiple coupler, remove the load from hydraulic hoses and unplug rear hydraulic connections, lower the power lift and operate only via EPC. Hydraulic fluid interflow can create danger from unintentional equipment motion.
13. Perform maintenance work (e.g. lubricating) on the front loader only when it is mounted on the tractor and the arm has been lowered.
14. Risk of accidents when driving through underpasses, bridges, entrances, etc., due to lifting height.
15. Driving speed must always be adapted to the current situation.
16. It is strictly forbidden to transport people.
17. Activating front loader mode. The yellow and blue hydraulic valves must not be locked in lifting or floating position.

Leaving the tractor

1. Make sure the tractor is properly secured against running off (parking brake, wheel chocks). Switch off the engine and apply the hand brake!
2. Remove the ignition key and lock the cab if necessary.
3. Never leave the tractor unattended while the engine is running.
4. Never leave the cab while the tractor is in motion.
5. Completely lower the mounted implement before leaving the tractor.
6. When the driver leaves the tractor, no other persons may remain in the cab.
7. Operation of controls for the tractor and mounted implements by persons in the cab, especially children, may result in severe or fatal injury.
Mounted and trailing equipment

1. Only attach implements and trailers using the prescribed devices.
2. Use only trailers which comply with the country-specific regulations. Do not exceed maximum vertical bearing load. Ensure that the tractor-trailer brake system is functioning correctly.
3. Take special care when hitching trailers or implements!
4. Secure trailers and implements to prevent them rolling. Make sure that detached implements and components are safely parked.
5. Be sure all protection devices are correctly attached and in the safety position before operating the tractor.
6. When using the power lift, always remain well outside the travel range of the three-point link attachment!
7. Trailers with hydraulic brakes should not be towed at over 25 km/h. Above 40 km/h, trailers must be retarded by air brakes.

PTO operation

1. Always switch off the engine, before fitting or removing the drive shaft. PTO in '0'-position!
2. During PTO operations, allow no-one in the vicinity of the rotating PTO or drive shaft.
3. Make sure drive shaft and PTO are equipped with protective guards and sleeves.
4. After switching off the PTO, the attached implement may continue running due to the flywheel mass. In this case, do not go near the implement. Approach it only when it has come to a complete standstill.
5. When the drive shaft is removed, cover the PTO shaft with its protective cap.
6. When installing and removing the drive shaft, no other persons should be present in the cab.
7. Operation of controls for the tractor and mounted implements by persons in the cab, especially children, may result in severe or fatal injury.

Cab protection

Protection against falling objects on top of the driver station

1. The vehicle version with a cab offers protection against falling objects from above, providing the roof hatch is closed. The level of protection complies with OECD Test Code 10 (Energy Level 1365 J). Operations that require a higher level of protection, require additional safety measures.
2. The vehicle version with fold-down safety bar (optional) offers no protection against falling objects from above. Operations that require a certain level of protection, require additional safety measures.
3. The vehicle version 'low roof' (optional) offers no protection against falling objects from above. Operations that require a certain level of protection, require additional safety measures.

Protection against objects entering the operating area from the side

1. There is no defined protection against objects entering the cab from the side. Operations that require a certain level of protection, require additional safety measures.
2. The vehicle version with fold-down safety bar (optional) offers no protection against objects entering the driver seat area from the side. Operations that require a certain level of protection, require additional safety measures.
SAFETY INSTRUCTIONS

**Protection against hazardous substances entering the interior of the cab**

1. The vehicle version with cab complies with the requirements against hazardous substances entering the interior of the cab to EN 15695-1, Category 2. The level of protection is dependent on the cab air filter used and the settings made in the ventilation system.
2. The cab version 'low roof' (optional) only complies with the requirements against hazardous substances entering the interior of the cab to EN 15695-1, Category 1.
3. The vehicle version with fold-down safety bar (optional) offers no protection against hazardous substances entering. Operations that require a certain level of protection, require additional safety measures.

**Maintenance**

1. Before maintenance and repair work, switch off the engine and remove the ignition key. Relieve pressure from implement lines, e.g. to the front loader.
2. Any person should keep clear of a lifted, unsecured load (e.g. tilted cab and similar).
3. Never open or remove any protection devices while the engine is running.
4. Never grasp leaking pressure lines. Pressurised fluids (diesel or hydr. oil) escaping under high pressure can penetrate the skin and cause severe injuries. If this has occurred, seek medical advice at once to avoid the risk of serious infection.
5. Keep at a safe distance from hot areas.
6. Hydraulic accumulator and connected pipes are highly pressurised. Only remove and repair in accordance with instructions provided in Technical Manual.
7. Dispose of oil, fuels and filters properly!
8. For fitting tires, specialist knowledge and special mounting tools are required.
9. Run the tractor for a short time, then retighten all wheel nuts and bolts; check them regularly. For correct torque values refer to TECHNICAL DATA.
10. Before working on the electrical system, always remove the ground strap from the battery. Observe the following, when carrying out electric welding. When carrying out electric welding on tractor or mounted implements, make sure that both battery terminals are disconnected. Attach the ground terminal as close as possible to the welding point.
11. Only use original FENDT spare parts.

**Advice for front loader maintenance.**

1. Before undertaking maintenance work, lower the front loader to the ground, switch off the engine and remove the ignition key.
2. In the event of a collapsed pipe rupture valve, support the load before starting repair work, and slowly retract the cylinder.
3. Hydraulic hoses deteriorate with age. Check condition of hydraulic hoses at regular intervals, if necessary replace with original parts.
4. Following installation and repairs, operate the tractor for a short time, then retighten all nuts and bolts and check them regularly.
5. Retighten eccentric bolt for front loader attachment, if necessary.
Location of safety signs

**Fig.1**

**Explanation:** Before initial start-up read and observe the Operating Manual and the safety instructions.

**Position:** Inside the cab on right.

**Fig.2**

**Explanation:** Observe regulations for speed limits and trailer brake systems.

**Position:** Inside the cab on right.

**Fig.3**

**Explanation:** Observe maximum vertical hitch load.

**Position:** On the rear right mudguard.

**Fig.4**

**Explanation:** Keep a distance when operating the power lift and do not go between the tractor and the implement.

**Position:** On the rear left and right mudguards next to the linkage controls.

**Fig.5**

**Explanation:** Caution against escaping high-pressure fluids. Observe instructions in Technical manual.

**Position:** Front left near the front axle suspension hydraulic cylinder.
**SAFETY INSTRUCTIONS**

**Fig.6**

**Explanation:** Pressure accumulator under gas and oil pressure. Removal and repair only according to the instructions in the Technical Manual.

**Position:** On the pressure accumulator for the front axle suspension.

**Fig.7**

**Explanation:** Taking along persons without a proper seat is not permitted.

**Position:** Inside the cab, rear left side window pane.

**Fig.8**

**Explanation:** Bring protective devices into position outside of the crop rows.

**Position:** Left on the roll-over bar (only on tractors with roll-over bars).

**Fig.9**

**Example:** Attention when electric welding.

**Position:** Inside the cab on left.

**Fig.10**

**Explanation:** Always wear your safety belt.

**Position:** Inside the cab on left, at transverse beam of front windscreen.

**Fig.11**

**Explanation:** Observe towing regulations.

**Position:** Inside the cab.
1. Driver seat

**DANGER:**
Never adjust the seat while the tractor is moving (risk of accident).

**WARNING:**
Before every initial start-up of the tractor and every time drivers are changed, the individual weight setting function must be carried out to adapt to the weight of the driver. If a seat belt is available, always attach it.

1.1 Driver seat

**A** = **Weight adjustment**
Adjust the driver seat, while under load, by turning the handle. The setting is correct, when the same display appears in the window as on the height setting (e.g. Indicator I).

**B** = **Height adjustment**
Adjust the driver seat while under load by turning the handle (B). Display (arrowed)
- I - Lowest position
- II - Middle position
- III - Highest position
Weight must be set each time height has been adjusted.

**C** = **Fore/aft adjustment**
Fore/aft adjustment is released by pulling the locking lever up.
After adjusting the seat, the locking lever must lock in place with a click. The driver seat should not be able to be moved.

**D** = **Lateral suspension**
- 1 = Lateral suspension OFF
- 2 = Lateral suspension ON

**E** = **Lumbar support**
Turning the adjustment wheel changes the supporting curve in the lower and upper part of the cushioned backrest.
- Up - maximum curve on top
- Middle - no curve
- Down - maximum curve on bottom

**F** = **Backrest adjustment**
Pull lock up.
Move the backrest in to the desired position, the lock must click in the desired position.
1.2 Driver seat with pneumatic suspension

A = **Weight and height adjustment**
- Adjust the driver seat while under load by pulling or pressing the adjusting control.
- The setting is correct when the green marker is completely visible in the window (arrowed).
- To prevent damage to the compressor, actuate the control at most 1 minute.

B = **Fore/aft adjustment**
- Fore/aft adjustment is released by pulling the locking lever up.
- After adjusting the seat, the locking lever must lock in place with a click. The driver seat should not be able to be moved.

C = **Lateral suspension**
- 1 = Lateral suspension OFF
- 2 = Lateral suspension ON

D = **Lumbar support**
- Turning the adjustment wheel changes the supporting curve in the lower and upper part of the cushioned backrest.
- Up - maximum curve on top
- Middle - no curve
- Down - maximum curve on bottom

E = **Backrest adjustment**
- Pull lock up.
- Move backrest into the desired position, the lock must click in the desired position.
2. Display instruments and operating controls

2.1 Front controls

Fig. 3

A = Hand brake
B = Clutch pedal
C = Adjusting steering wheel position
D = Reversing gearbox (only for TMS)
E = Combination switch
F = Preheat starter switch
G = Joystick
H = Accelerator pedal
J = Brake pedals
K = Hand throttle
2.2 Heater plug starter switch

0 = Consumers off, key can be removed.
I = General consumers, key cannot be re-
moved + preheating (automatic).
II = Starting + consumers.

2.3 Combination switch

A = Right turn signal indicator
B = Left turn signal indicator
C = 1. With lights switched on: toggle dipped
beam, main beam.
   2. With lights switched off headlamp flas-
her.
D = Horn
E = Windshield washer system (wipers work
afterwards).
F = Windscreen wipers with intermittent and
continuous operation.

2.4 Steering wheel adjustment

WARNING: Never adjust the steering wheel
when moving.

- Release lock (A), move the steering wheel
  into the desired position, (see also OPERA-
TION Section 19).

2.5 Reversing gearbox

(only for TMS)

- Press switch (A) briefly in the desired direc-
tion.

The tractor slows to a standstill, then accelerates
in the opposite direction up to previous transmis-
sion ratio (see also OPERATION Section 10.6).
2.6 Instrument cluster

A = Operating status display, displays engine and PTO speeds.
B = Multiple display, displays time, operating hours, warning and fault messages.
C = Operating status display, displays travel speed information.

Fig. 8

1st trailer light indicator
2nd trailer light indicator
Alternator not charging
Preheat indicator
Hydraulic trailer brake
Compressed air supply
Engine temperature
Fuel
Cruise control engaged
Differential lock engaged

4WD engaged
Main beam
Right turning signal indicator
Reverse travel direction
Hazard light indicator
Forward travel direction
Left turning signal indicator
Warning lamp

STOP
2.7 Dashboard control panel

**TRANSMISSION FUNCTIONS**

- Tractor Management System (TMS) ON/OFF (also see OPERATION Section 12).
- Transmission Neutral ON/OFF (also see OPERATION Section 12).
- Pedal speed range in Tractor Management System (TMS) operation (also see OPERATION Section 12.1).

**HYDRAULIC FUNCTIONS**

- Hydraulic trailer brake load transfer (French version) ON/OFF
- Hydraulic multi-circuit system (oil flow collection) ON/OFF
- Hydraulic valve lock ON/OFF
  
  **Note:** LED is not lit, valves ready for operation.

**NOTE:**
If the LED next to the pressed key is lit, the function is active.

---

**4WD (see also OPERATION Section 14).**

- 4WD 100%; ON/OFF
- 4WD automatic mode ON/OFF

**DIFFERENTIAL LOCK (see also OPERATION Section 15).**

- Differential lock 100 % ON/OFF
- Differential lock automatic mode ON/OFF

**FRONT AXLE SUSPENSION (see also OPERATION Section 16).**

- Suspension locked
- Suspension ON
2.8 Operating status indicator

A = Compressed air supply
   Indicator flashes in the red zone, operating pressure has not yet been attained.
   Indicator in the green zone, operating pressure has been attained.

B = Engine speed

C = Front PTO speed

D = Rear PTO speed

E = Clock

F = No. of operating hours

The default display is the time and the number of operating hours. This is interrupted for warnings, fault messages and on-board computer functions.

G = Fuel supply
   Indicator in red zone, fuel supply is low. Fill up with diesel.
   Indicator flashes in red zone, fuel supply is very low. Fill up with diesel.

H = Engine temperature
   When the bar indicators reach the red zone, relieve the engine of load immediately and allow
to cool down for about 2 minutes at 1000 rpm, then turn the engine off.

J = Stored cruise control speed.

K = Travel speed indicator

NOTE:
For a precise reading, adjust the speed indicator under operating conditions (see also OPERATION Section 31.1).
2.9 Dashboard

Button for lighting and hazard warning light

![Image of dashboard buttons]

**Fig.11**

A = Front headlamps. Position lamps.
B = Additional headlamps, top front.
C = Work lights (optional), top front. Only function if headlamps are on.
D = Hazard warning light

2.10 Cab top section, front

![Image of cab top section]

**Fig.12**

- Roller shade (A).
- Vents (arrowed), adjustable for heating and ventilation.

2.11 Operating controls, right

![Image of operating controls]

**Fig.13**

A = Temperature control switch
B = Fan switch (see also OPERATION Section 6).
C = Illumination for right-hand console
D = Space for radio installation, blanking panel. Connectors behind the panel are fitted as standard.

**NOTE:**
Reserve fasteners to screw on additional devices are located behind the panels (arrowed).

- Work light back, only functions when driving lights are on.
- Rear window wiper and washing system.
- Rotating beacon
- Work light front (Twin Power), (optional).
2.12 Multiple display

Control keys for multiple display

A = Return to previous menu level.
B = Keys for browsing through the menu levels and setting functions (e.g. time).
C = Key for calling up menu levels and entering settings.

Default display
Time, operating hours

A = Default display
B = Maximum display

Default display with function display

- Joystick TMS active (optional).
- Driving pedal TMS active (optional).
- Valves that are assigned with the joystick (Profi).
  Note: Button controls for RAISE, LOWER, FLOATING POSITION, REAR POWER LIFT ACTUATION.
- Priority function
  Note: Valves 1-4 or the rear power lift can be prioritised.
- Turboclutch deactivated
- Power lift automatic mode active.
- Speed automatic mode active
  Note: Not available in ground speed PTO version.
- Ground speed PTO active (optional).
First main menu

Press key, the first main menu appears on the multiple display.

![Diagram](image)

Use the keys to select the desired menus (see OPERATION Fig. 14).

- **Indicator (A) appears for:** engine speed memory (see OPERATION Section 10.8).
- **Indicator (B) appears for:** cruise control speed (see OPERATION Section 10.7).
- **Indicator (C) appears for:** load limit control (see OPERATION Section 10.9).
- **Indicator (D) appears for:** fuel consumption indicator (see OPERATION Section 11).
- **Indicator (E) appears for:** hydraulic functions
- **Indicator (F) appears for:** turboclutch function (see OPERATION Section 10.5).
- **Indicator (G) appears for:** rear PTO-engine speed/rear power lift automatic functions (see OPERATION Section 17).
- **Indicator (H) appears for:** TMS (see OPERATION Section 12).
- **Indicator (J) appears for:** change to second menu level.
Use the keys to select the desired menus (see OPERATION Fig. 14).

**Indicator (A) appears for:** transmission calibration (see OPERATION Fig. 18), tyre size (see OPERATION Section 31.2), speed display (see OPERATION Section 31.1), setting acceleration rate. Emergency operating mode (see FAULTS AND REMEDIAL ACTIONS Section 4).

**Indicator (B) appears for:** front PTO calibration (see OPERATION Section 13.6). 
*Note:* only appears if front PTO is fitted.

**Indicator (C) appears for:** front axle suspension calibration (settings, see Workshop Documents). 
*Note:* only appears if front axle suspension is fitted.

**Indicator (D) appears for:** EPC calibration (settings, see Workshop Documents), changing vibration damping cut-in speed.

**Indicator (E) appears for:** rear PTO calibration (settings, see Workshop Documents).

**Indicator (F) appears for:** hydraulics calibration (settings, see Workshop Documents).

**Indicator (G) appears for:** diagnostics menu, (see OPERATION Fig. 19).

Setting time (see OPERATION Section 5).

Calling up the fault memory (see FAULTS AND REMEDIAL ACTIONS Section 1.2).
Use the keys to select the desired menus (see OPERATION Fig. 14).

Transmission calibration, indicator (A) appears (settings, see Workshop Documents).

Tyre circumference, indicator (B) appears.

Note: Tyre circumference is factory set. Tyre circumference can be changed manually. Tyre circumference is automatically saved when calibrating the speed displays.

Tyre circumference calibration, indicator (C) appears.

Note: setting range is from 30 - 100 Meter.

Change acceleration rate for level I, indicator (D) appears.

Note: setting range is from 0.02 - 0.5 km/h.

Indicator (F) for emergency operating mode appears, (see FAULTS AND REMEDIAL ACTIONS Section 4).

Indicator (A) appears for: display of transmission ratios.

Indicator (B) appears for: display of transmission pressures, transmission temperature and clutch position.

Indicator (C) appears for: position of the rear PTO preselection switch.

Indicator (D) appears for: battery voltage.

Indicator (E) appears for: current height of the front axle suspension.

Note: only appears if front axle suspension is fitted.

Indicator (F) appears for: engine settings (EDC).

Indicator (G) appears for: rear power lift diagnostics.
2.13 Dimming instruments

The background lighting can be set separately for day and night operation.

- Press key (A) longer than 2 seconds, the background lighting gets lighter.
- Press key (B) longer than 2 seconds, the background lighting gets darker.

**NOTE:**
Can only be set in default display (time and operating hours).

2.14 Multifunction armrest

**Vario joystick version (without crossgate lever)**

Fig.20

**Fig.21**

A = Linear modules, for operating hydraulic valves.
B = EPC control panel
C = PTO controls
D = Joystick
E = Under the armrest, hydraulic setting functions.

**Vario joystick version**

Fig.22

A = Linear modules, for operating hydraulic valves.
B = EPC control panel
C = PTO controls
D = Joystick
E = Crossgate lever
F = Under the armrest, hydraulic setting functions.
3. Electric main switch
(optional)

Switch-off conditions
● Engine OFF
● Ignition OFF

**NOTE:**
After switching ignition OFF, wait approx. 45 seconds. Only then switch off the main power circuit, otherwise system settings will not be saved.

Switching off main power circuit
● Press button (A).

**NOTE:**
If the main power circuit is switched off, no circuits function, except for the radio, clock and interior lighting.

Switching on main power circuit
● Press button (A).

**NOTE:**
Only switch the ignition and engine on again after the main power circuit has been switched on.
4. Power outlets

4.1 Socket

A = 25 A continuous current outlet
B = 10 A socket
C = Implement socket

A = Trailer socket.

A = Socket (A) at front (with front power lift only).

A = Sockets (A) for 3rd/4th hydraulic circuit.
5. Set time and date

- Ignition ON.

![Image](Fig.29)

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

![Image](Fig.30)

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

- Image (A) is shown on the multiple display.

The first digit flashes.

![Image](Fig.31)

Press the key till the desired number appears.

Press the key, the next digit for the time flashes.
Repeat this procedure until the desired time and date is shown.
Press the key, the new time and date are accepted.
6. Heating and ventilation

6.1 Heating and blower infinitely adjustable

NOTE:
The heating depends on the water temperature.

- Switch on blower with knob (A).
  - The desired blower speed can be adjusted steplessly by turning the knob.
  - 0 = Blower off.
- Set temperature range with the knob (B).
  - The temperature is adjusted steplessly by turning the knob.

6.2 Ventilation

CAUTION:
When using the tractor for spraying operations (e.g. weed or pest control), fit filter cartridge (aerosols), deactivate recirculated air mode. The auxiliary blower creates a vacuum in the cab. After each spraying operation, replace the filter cartridge with a normal cartridge. Follow the instructions given with the filter. Cab and filter do not guarantee 100% protection against harmful chemicals. Follow the manufacturers instructions!

Recirculated air supply / fresh air supply

Circulating air supply
- Open air vent (A), mix between recirculating air supply / fresh air supply.

Fresh air supply
- Close the vent (A).

Use the air vents to adjust the amount of air and guide air flow.

Protective measures to prevent hazardous substances from entering the interior of the cab

The cab complies with the requirements for protection against hazardous substances according to EN 15695-1 Category 2 under the following conditions:
- Cab, doors, windows and roof hatch are closed.
- The cab air filter must be functional and clean.
- Knob set to overpressure mode (see C/ OPERATION Fig. 32).
- Recirculating air supply (see A/ OPERATION Fig. 33) is closed.

NOTE:
The cab in the 'low roof' version complies with the requirements of EN 15695-1 Category 1.
7. Side view mirror

CAUTION: Before driving the tractor and starting work, adjust the mirror to guarantee a clear view of the road and of the working area to the rear.

Pull-out sideview mirror

- Adjust to tractor and/or trailer width using screw (arrowed).

8. Start-up

DANGER: Only fill up when the engine is stopped.

8.1 Daily check

- Check fuel level; if necessary, open tank cap (A) and top up fuel through filler hole.

NOTE: Only use approved diesel fuel that complies with EN 590 (biodiesel max. 5%) and DIN 51628 (biodiesel max. 7%).

Top up with fuel after the days operation to avoid build-up of condensation.

NOTE: Ensure cleanliness! Do not spill fuel.

- Check engine oil level (see also CARE AND MAINTENANCE Section 3.4).
- Check transmission oil level (see also CARE AND MAINTENANCE Section 9.2).
- Drain the water from the compressed air reservoir (see also IMPLEMENTS Section 1.2).
8.2 Winter operation

Keep battery well charged.
Use winter-grade fuel, capable of flow to approx. -23 °C.
At -20 °C, use engine oil 10W-40.
Below -20 °C, use engine oil 5W-40.
35-50% vol. antifreeze in the coolant.

Winter maintenance operations
For winter maintenance operations or other similar operations, wax the tractor with washable protective wax Custos 80-16-5 A.
Use Dinitrol 3650 if wax should not be washed off.

NOTE:
Both products can be ordered via the Fendt Parts Service.

Engine coolant heater (optional)
- Connect heater unit to the mains supply (230 V) using the cable provided.

Preheating time for the engine coolant heater is at least 3 hrs., depending on outside temperature. Observe oil temperature.

NOTE:
The engine coolant heater unit must only be connected to the mains supply if this is protected by a residual current device.

NOTE:
If temperatures below 0 °C are expected, already connect the heater unit at temperatures above 0 °C.

NOTE:
Adding normal petrol is not permissible due to safety and technical reasons (cavitation in injection system). Diesel fuels for temperatures down to - 44 °C are available for Artic climates. It is also possible to add cold flow improver to the diesel. The selection of suitable additives as well as the amount required and the mixing procedure should always be chosen in consultation with the fuel supplier.

9. Starting and stopping the engine

9.1 Starting the engine

IMPORTANT:
Do not start or operate the tractor without a battery. This could destroy the alternator. Pay attention to warnings and fault messages. If necessary, switch off the engine immediately.

- Apply the hand brake.
- Depress clutch pedal (starter lockout is deactivated).
- Electrical operating Switch off all consumers if possible.

DANGER:
Before starting, make sure that nobody is within the danger zone of the engine/tractor.
Start the engine from the driver seat only. Never short-circuit the battery. Never leave the engine running in a confined space!
Do not use priming fuel (e.g. Startpilot)!

Fig.36

- Turn ignition key to position I, following symbols are illuminated:
  - LED neutral - control console right.
- Charge indicator lamp.
- Travel direction indicators flash.
- Wait until the preheat indicator goes out.

Steady light indicates preheating time.
**OPERATION**

- Turn ignition key to II and once the engine has started, move it back to I.
- Battery charge indicator lamp must go out.

**NOTE:**
If at very low temperatures the engine does not start within about 20 seconds, abort the starting procedure, allow the starter to cool down and wait for about 1 minute before trying again.
Switch off ignition before attempting to start again.
Allow starter to cool down. Do not operate the starter while the engine is still turning. In the event of repeatedly unsuccessful starting attempts, refer to FAULTS AND REMEDIAL ACTION.

### 9.2 Jump starting

- **WARNING:** Do not allow contact between the non-insulated parts of the battery clamps. The jump lead connected to the positive terminal should not come into contact with any electrically conductive parts of the vehicle - danger of shorting!
- To avoid sparks, always attach the jump lead clamps in the correct order.

If the battery is partially discharged, the engine can be started with the battery on another tractor, or with an additional battery.
- With a jump lead, connect the positive terminal to the positive terminal of the external battery.
- Firstly connect jump lead onto the negative terminal of the discharging battery, then onto the negative terminal.
- Start the engine of the second tractor.
- When the engine is running, disconnect both leads in the reverse order.

**NOTE:**
The external battery must be a 12 Volt battery and have about the same capacity (Ah) as the discharged battery.
When jump starting, the engine must be started immediately after connecting, otherwise the assisting battery will become discharged as well.
Do not reverse the terminal polarity.
Use only jump leads with sufficient cross-section, and with insulated clamps.
Do not disconnect a discharged battery from the on-board electrical system.
If the tractor is left unused for an extended period, the battery can be recharged with a battery charger (12V).

### 9.3 Tow-starting

**WARNING:** Tow starting is not permitted.

### 9.4 Switching off the engine

- Turn ignition key to position 0.

**NOTE:**
After operating at full load, do not stop the engine immediately but allow it to cool down for about 2 minutes at about 1000 rpm.

### 9.5 Stopping and immobilising the tractor

**WARNING:**
Before leaving the tractor, apply the hand brake, stop the engine, lower hydraulic implements to the ground and remove the ignition key. Make sure the tractor is secured to prevent it rolling. On slopes, chock the wheels. If the tractor is left on a public road, switch on the hazard warning lights and place the hazard warning triangle.

**Hazard warning triangle**
Warning triangle is not included in the scope of delivery.
We would recommend ordering the warning triangle from:
GEKA GmbH Germany 73054 Eislingen / Fils Schloßstraße 97
Tel. 0049 7161/99903-0
Fax 0049 7161/99903-99
10. Vario transmission

10.1 Joystick

Vario joystick version

![Joystick Diagram](image1)

A = Change of forward transmission ratio  
B = Change of reverse transmission ratio  
C = Changing direction of travel  
D = Cruise control ON  
E = Activation button

Profi joystick version

![Joystick Diagram](image2)

A = Change of forward transmission ratio  
B = Change of reverse transmission ratio  
C = Changing direction of travel  
D = Cruise control ON  
E = Activation button

NOTE:
If the vehicle is at a standstill, a change in transmission ratio or travel direction is only carried out if the activation key is pressed.

10.2 Neutral position

![Neutral Position Diagram](image3)

**WARNING:**
Before leaving the tractor, make sure the transmission is set in neutral and engage hand brake.

If the engine is started or hand brake is applied, the transmission shifts to Neutral.

Indicators in neutral position:
- LED next to the key lights up.
- Travel direction indicators flash.

NOTE:
When the hand brake is applied, the neutral button can be used to disengage neutral position (starting assistance). If the hand brake is not released within 30 seconds, the transmission shifts into neutral again.

Indicators when neutral position is disengaged:
- Travel direction indicators are lit.
- Stop light flashes.

STOP

- ACTIVE symbol indicator on the multiple display.
10.3 Selecting acceleration rates

Vario joystick version

Using the switch (arrowed), four different acceleration rates can be selected.

With steady actuating of the joystick in one direction and at steady engine speed, driving speed increases slowest in Rate I and fastest in Rate IV.

In Rate I, the rate of change of speed can be set at between 0.02 km/h and 0.5 km/h using the keypad on the dashboard (at rated engine speed).

The following table shows the change of speed if the joystick is pressed once, and the time to reach maximum speed if the joystick is pressed steadily, for the 4 acceleration rates.

<table>
<thead>
<tr>
<th>Rate</th>
<th>One push</th>
<th>0 to 40 km/h</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0.02 - 0.5 km/h</td>
<td>250-45.5 secs</td>
</tr>
<tr>
<td>II</td>
<td>0.5 km/h</td>
<td>45.5 secs</td>
</tr>
<tr>
<td>III</td>
<td>1 km/h</td>
<td>23.8 secs</td>
</tr>
<tr>
<td>IV</td>
<td>1 km/h</td>
<td>10 secs</td>
</tr>
</tbody>
</table>

Values at rated engine speed.

NOTE:
When cruise control is on, the time to reach the stored speed depends on the acceleration rate selected. Position I is programmable.

Profi joystick version

Setting acceleration rate I

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.
The second main menu level appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The transmission calibration menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

Recommended use

Rate I = Use for specialist operations, e.g. road-milling machine.

Rate II = Use in field work, heavy traction work.

Rate III = Use for transport operations.

Rate IV = Use if maximum acceleration is desired.
10.4 Driving the tractor

WARNING: Always engage the gears when travelling downhill. Do not select neutral. At engine speeds over 2600 rpm, the transmission ratio is no longer reduced; to reduce speed, apply the brake.

Starting off forward from a standstill:

● Press the activating key on the back of the joystick.
● If the joystick is moved forward, the tractor moves off and accelerates forward.
● If the joystick is released, it automatically returns to centre position and the transmission ratio remains constant.
● If the joystick is moved back, the tractor slows down and is positively braked until it comes to a stop.

Reversing from a standstill:

● Press the activating key on the back of the joystick.
● If the joystick is pulled back, the tractor will move off in reverse and accelerate.
● If the joystick is released, it automatically returns to centre position and the transmission ratio remains constant.
● If the joystick is moved forward while reversing, the tractor slows down and is positively braked until it comes to a standstill.

NOTE: It is also possible to operate the joystick first, then press the activating key afterwards.

NOTE: Acoustic warning signal when reversing (optional).

Stopping and starting on slopes

● Move joystick against the actual travel direction.

The tractor slows down until it comes to a standstill. Active symbol is displayed.

NOTE: Below an engine speed of 1300 rpm, and depending on loads, some slipping due to the turboclutch function must be expected.

Clutch pedal

In sudden emergencies, the tractor can be stopped by pressing the clutch and brake pedals.

End speed control

End speed control is a cruise control function which compensates for variations in engine speed.

The speed control is terminated by operating any of the following:

2. Brake pedal.
3. Clutch pedal.
10.5 Turboclutch

The transmission control includes a turboclutch function. This allows the tractor to be stopped with the accelerator pedal.

This means:
1. No engine stalling under difficult conditions.
2. No wheel spinning.
3. Full power transmission available from about 1300 rpm.

Deactivating turboclutch function

Conditions for deactivating
● The engine must be running.
● No current fault messages.
● Transmission in neutral.
● Emergency mode is not active.

![Image](A)

Press key, the first main menu appears on the multiple display.

Fig. 47

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

![Image](A, B)

Fig. 48

● Image (A) is shown on the multiple display.

Press any of the keys until symbol (B) appears in the multiple display.

Driving off using the turboclutch function

● Set idling speed.
● Apply the brake.
● Press activating key and use the joystick to select the desired direction of travel.
● Release the brake and start off by accelerating slightly.
● Use the joystick to obtain the desired ground speed.

NOTE:
Avoid prolonged standstills (approx. 1 minute) with the turboclutch active. When driving with constant loads, do not allow the engine speed to fall below 1300 rpm. Do not operate the clutch pedal for long periods.
10.6 Changing direction of travel

The tractor slows down to a standstill and then accelerates in the opposite direction until it reaches the previously set transmission ratio. The change in direction is triggered by moving the joystick to the left.

In tractors with TMS the change in direction can also be triggered with the lever on the steering wheel.

Direction changing is cancelled when the following are operated:
2. Neutral key.

The following factors will block the function, but not terminate it:
1. Load limit control.
2. Engine speed above 2,600 rpm.
3. Turboclutch function.

**NOTE:**
An uncompleted rapid reverse operation is indicated by a flashing direction of travel indicator. The selected change of direction is activated as soon as the problem is solved.

**NOTE:**
According to the selected acceleration rate, the reverse will be executed more or less rapidly.

Changing direction with the switch on the steering column (only with TMS)

Press the lever (A) briefly.
- The tractor slows down to a standstill and accelerates in the opposite direction until it reaches the previous transmission ratio.

Press lever (A) long/hold.
- The tractor slows to a standstill. When switch (A) is released, the tractor drives in the desired travel direction with the last used transmission ratio.

**NOTE:**
While slowing down, the preselected direction is indicated by a flashing light. The active direction is indicated by a continuous light.
An acoustic warning signal (optional) sounds when reverse driving is selected.
10.7 Cruise control

NOTE:
Cruise control only possible at an engine speed above 1300 rpm.
With cruise control, current speed is maintained without storing.
In addition, two speeds can be stored to allow the tractor system to be configured for two different situations, such as field work and road travel.
The stored speed is reached within a time that depends on the acceleration rate selected (see also OPERATION Section 10.3).

Maintaining current speed

NOTE:
No speed may be preselected.

- Accelerate to the desired speed.
- Move the joystick briefly to the right (away from driver seat).

Current speed now remains constant, irrespective of engine speed.

Storing the current speed

NOTE:
The speed remains in memory, even after the ignition has been switched off.

- No speed may be preselected, indicator lamp in button (A) is not lit.
  - Accelerate to the desired speed.
  - Press button (A) longer than 2 seconds, indicator lamp in button is lit.

- Indicator lamp (A) lights up if the cruise control function is active.
- Speed is displayed on the multiple display (B) for 3 seconds.
- The speed is stored and can be activated with the key (A /see OPERATION Fig. 57).
**OPERATION**

**Preselecting speed**  
(also see OPERATION Section 12.1.)

**NOTE:**  
The speed remains in memory, even after the ignition has been switched off.

![Fig.55](image)

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.  
The following image appears on the multiple display.

![Fig.56](image)

A = Cruise control I  
B = Cruise control II  
Press button to select.

Press any of the keys repeatedly until the desired value is displayed.  
The displayed value is accepted immediately.  
Return to the previous menu level with the ESC key.

**Actuating the preselected speed**

![Fig.57](image)

- A speed must be preselected, indicator lamp in button is lit.
- Press button (A) once, cruise control I is preselected.
- Press button (A) twice, cruise control II is preselected.
- Move joystick briefly to the right.

**NOTE:**  
It is possible to toggle between both of the preselected speeds by pressing the button twice quickly.

![Fig.58](image)

- Indicator lamp (A) lights up if the cruise control function is active.
- Speed is displayed on the multiple display (B) for 3 seconds.
- The targeted speed (C) is displayed in the instrument cluster.

The speed stored in the selected memory is actuated and remains constant irrespective of engine speed.
Cruise control speed can be adapted to the operating conditions by adjusting the stored speed.

**NOTE:**
Memorised speeds can only be activated while the tractor is moving.
The stored value can be activated in either direction of travel.
If the selected speed is not reached, check the setting for the load limit control.

Cruise control function remains active until one of the following occurs:
1. Clutch pedal is depressed.
2. Brake pedal is depressed.
3. Joystick is activated.
4. Neutral key is activated.
5. Engine speed falls below 1,300 rpm.

**10.8 Engine speed memory**

Maintaining/storing the current engine speed

![Fig.59](image)

**NOTE:**
No engine speed may be preselected, indicator lamp in button (A) must not be lit.

- Driving to desired engine speed.
- If key (A) is pressed less than 2 seconds, the tractor drives to the stored engine speed.
- If key (A) is pressed longer than 2 seconds, the current engine speed is stored. This setting remains in memory, even after the ignition has been switched off.
- Indicator lamp in button (A) is lit.

![Fig.60](image)

- Engine speed is displayed on the multiple display (A) for 3 seconds.

The engine speed now remains constant.
**OPERATION**

**Preselecting engine speed**
Engine speed can be adapted to the operating conditions by adjusting the stored engine speed.

**NOTE:**
The engine speed remains in memory, even after the ignition has been switched off.

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

![Image (A) is shown on the multiple display.](image)

Press any of the keys repeatedly until the desired value is displayed.

The displayed value is accepted immediately.

Return to the previous menu level with the ESC key.

**NOTE:**
Idle speed cannot be stored.

**Attaining the preselected engine speed**

![Fig.63](image)

- Press key (A) less than 2 seconds.
- Indicator lamp in button (A) is lit.
- Engine speed is displayed on the multiple display (A) for 3 seconds.

The preselected engine speed is targeted and once attained, remains constant.

Engine speed can be adapted to the operating conditions by adjusting the stored engine speed.

**NOTE:**
Stored engine speeds can only be activated while the engine is running.

If the selected engine speed is not attained, check the setting for the load limit control.

**Storing engine speed to memory is terminated if:**
- overridden with hand throttle.
- brake is actuated at speeds over 18 km/h.
10.9 Load limit control

The load limit control is activated automatically if engine speed drops under load. To do this, the tractor automatically uses the transmission control to reduce the vehicle speed so that engine speed does not drop any further.

Setting load limit control

![Image](Fig.64)

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

![Image](Fig.65)

- Image (A) is shown on the multiple display.
  - Press any of the keys repeatedly until the desired value for the engine load (0 - 30%) appears.
  - The displayed value is accepted immediately. In this way, the tractor can be adapted to the current situation during operation.
  - Return to the previous menu level with the ESC key.

**NOTE:**
The load limit control only changes the transmission ratio to slower. Reaccelerating, when the engine speed increases again, can either be done manually using the joystick or automatically with the cruise control function.

10.10 Towing instructions

Shift transmission into neutral position with lever (A).
- Engine off.
- Unlock lever (A) and pull back.
- Indicator for mechanical neutral position appears in the multiple display.

**NOTE:**
- Maximum speed 10 km/h.
- Maximum distance 8 km.
- After finishing the towing operation, move lever (A) back to original position.
11. Fuel consumption measurement

11.1 Call up fuel consumption display

Procedure:

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

Fig.67

● The fuel consumption menu appears on the multiple display.

A = Current fuel consumption.
B = Average fuel consumption.
    Measured starting from last reset.
C = Sum counter 1 (e.g. for comparing the same operation when different driving styles are used).
    Measured starting from last reset.
D = Sum counter 2 (e.g. for comparing the same operation when different driving styles are used).
    Measured starting from last reset.

Set value to zero

Press either of the keys repeatedly until symbol (B) appears next to the desired value.

Press key.

NOTE:
Maximum value for the sum counter is 30,000 litres, then measuring starts at 0 again.
12. Tractor Management System (TMS) (optional)

DANGER:
Trailer pilot control and brake (compressed air) only take effect when the tractor brake pedal is depressed. When driving with a trailer, do not use the joystick / driving pedal to brake!

Driving in pedal mode with trailer
1. Set driving pedal range to max.
2. Bring trailer drawbar into a horizontal position relative to hitch coupling.
3. Check that trailer brake is functioning properly (trailer brake must not lag, tractor and trailer must remain stretched when braking).

MODE 1
Joystick - engine management system off
The transmission ratio is set with the joystick, the engine speed is set with the accelerator. The engine speed can be set manually with the hand throttle or the memory keys.

MODE 2
Pedal mode - engine management system on
Driving speed is set with the pedal; the engine speed and transmission ratio are set automatically.

MODE 3
Joystick - engine management system on
Driving speed is set with the joystick; the engine speed and transmission ratio are set automatically.

12.1 Pedal range

NOTE:
In pedal range I, the desired range is activated, in pedal range II, the maximum range is always selected.

[Diagram]

---

Driving in pedal mode with trailer
1. Set driving pedal range to max.
2. Bring trailer drawbar into a horizontal position relative to hitch coupling.
3. Check that trailer brake is functioning properly (trailer brake must not lag, tractor and trailer must remain stretched when braking).

MODE 1
Joystick - engine management system off
The transmission ratio is set with the joystick, the engine speed is set with the accelerator. The engine speed can be set manually with the hand throttle or the memory keys.

MODE 2
Pedal mode - engine management system on
Driving speed is set with the pedal; the engine speed and transmission ratio are set automatically.

MODE 3
Joystick - engine management system on
Driving speed is set with the joystick; the engine speed and transmission ratio are set automatically.

12.1 Pedal range

NOTE:
In pedal range I, the desired range is activated, in pedal range II, the maximum range is always selected.

---

**DANGER:**
Trailer pilot control and brake (compressed air) only take effect when the tractor brake pedal is depressed. When driving with a trailer, do not use the joystick / driving pedal to brake!

Driving in pedal mode with trailer
1. Set driving pedal range to max.
2. Bring trailer drawbar into a horizontal position relative to hitch coupling.
3. Check that trailer brake is functioning properly (trailer brake must not lag, tractor and trailer must remain stretched when braking).

**MODE 1**
Joystick - engine management system off
The transmission ratio is set with the joystick, the engine speed is set with the accelerator. The engine speed can be set manually with the hand throttle or the memory keys.

**MODE 2**
Pedal mode - engine management system on
Driving speed is set with the pedal; the engine speed and transmission ratio are set automatically.

**MODE 3**
Joystick - engine management system on
Driving speed is set with the joystick; the engine speed and transmission ratio are set automatically.

**12.1 Pedal range**

**NOTE:**
In pedal range I, the desired range is activated, in pedal range II, the maximum range is always selected.
12.2 TMS default setting

- Select between joystick-TMS or accelerator pedal-TMS.

Calling up engine management menu

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

Press one of the keys several times, until the desired symbol (A) flashes.

Press key.
**12.3 Engine management system**

**CAUTION:**
If engine management is active, the engine speed can increase to maximum engine speed.

**NOTE:**
Engine speeds settings made with the hand throttle potentiometer can be exceeded, but speed will not go below the set speed.

**NOTE:**
If the TMS is active, the cruise control function has no engine speed limit (e.g. the cruise control can even be activated at idling speed).

**NOTE:**
If the stored engine speed is activated using memory key (A), the indicator lamp is lit, the speed will not exceed or fall below the set speed, even when the engine management system is engaged (e.g. when working with the PTO).

**Switching on the engine management system**

- Press button (A).
Function indicators
On the multiple display.

Appears for the joystick-TMS function.

Appears for the accelerator pedal-TMS function
The pedal range is also displayed (arrowed).

NOTE:
When the desired ground speed is reached, engine speed is reduced as far as possible.

12.4 Pedal mode
Activating the accelerator pedal function

Fig. 78

- Press switch (A).
- Indicator (B) is now shown on the multiple display.

NOTE:
When the accelerator pedal function is on, the Tractor Management System (TMS) is switched on.

Switching off the accelerator function
- Press switch (A).
**Function indicators**

On the multiple display.

- **ON**
  - Appears for about 2 seconds when accelerator pedal mode is active or as long as no direction of travel is selected.

- **OFF**
  - Appears for about 2 seconds when accelerator pedal mode is switched off.

- **Joystick**
  - Appears when the joystick is moved in the current direction of travel in pedal mode. At the same time a warning beep sounds.

Accelerating with the joystick is not possible.

**Decelerating with the joystick**

In pedal mode, the tractor can also be slowed down with the joystick.

Move the joystick in the direction opposite to the current direction of travel.

Deceleration (I slower - IV faster) can be influenced with the acceleration switch (A).

**Selecting pedal range**

In accelerator pedal mode, various speed ranges can be set when the accelerator is pushed all the way down.

**Operating status I**
- Press (A), LED (B) is lit.
- When the accelerator pedal is pressed all the way down, the selected speed, (see OPERATION Fig. 72) is driven.

**Operating status II**
- Press (A), LED (B) is not lit
- When the accelerator pedal is pressed all the way down, the maximum speed is driven.

**NOTE:**
The acceleration rate that has been set is also taken into consideration (see OPERATION Section 10.3).
13. PTO

DANGER:
Switch off the engine before attaching or removing drive shaft, and before cleaning, servicing or repairing PTO-driven implements. Always wait for the implement to come to a complete standstill!
Do not operate the PTO before all safety devices are in place.
Observe the specified pipe overlap requirements for the drive shaft. During PTO operation make sure no-one remains in the hazard zone!
When connecting or removing the drive shaft, no one should be in the cab, especially children.
When operating with overrunning implements, use a drive shaft with overrunning clutch.
Carelessness in areas near turning drive shafts can result in serious or fatal injuries.

13.1 Rear PTO

DANGER:
After finishing PTO work, set speed selector to '0' and cover the end of the PTO shaft with the protective sleeve!

IMPORTANT:
If the permissible torque is exceeded due to the nature of the operation, use drive shaft with overload coupling.

Drive shaft attachment

To prevent irregular running, take note of installation position of the drive shaft.
A = incorrect, B = correct

NOTE:
See also drive shaft manufacturers Technical Manual.

PTO shaft protection sleeve

Fig. 82
Direction of PTO rotation: see arrow.

PTO shaft guard

Fig. 83
Before operating the rear PTO, fit PTO shaft guard (A) as shown.

NOTE:
If the trailer hitch is disconnected at the PTO protection plate point, the PTO protection is not required.
Selecting PTO speed

Using rotary switch (A), select PTO speed as indicated on the scale.

**NOTE:**
If the rear PTO is engaged, it is then disengaged.

---

13.2 Engaging and disengaging rear PTO

**DANGER:**
Before engaging PTO, make sure no-one remains in the implement’s hazard zone.
The selected PTO speed must be in accordance with the permitted implement speed.

![Fig.84](image1)

**Engage or disengage the rear PTO with the key (A).**

**NOTE:**
When the tractor is stationary and after starting the tractor, key (A) must be pressed TWICE to engage the PTO.
When the tractor is driving or the transmission is active, key (A) must be pressed ONCE to engage the PTO.

The coupling process depends on the length of time the button is pressed:

- **Less than 5 sec.**
  Smooth start, PTO clutch adapts automatically to the requirements of the implement.

- **More than 5 sec.**
  Speed and electronic monitoring are bypassed.

**NOTE:**
If no speed has been preselected when engaging the PTO, the PTO does not engage. Disengage the rear PTO before switching off implements that require high initial power to start.
External operation

Press button (A) on the rear lamp to ENGAGE and DISENGAGE.

NOTE:
Button (A) is not fitted in tractors with ground speed PTO.

Safety lock
The PTO rotates only as long as button (A) is pressed.
If the button (A) is kept pressed until red light in the button comes on, the PTO shaft remains engaged.

13.3 Ground speed PTO (optional)

DANGER:
Before engaging the ground speed PTO, make sure no-one remains in the implement’s hazard zone.

CAUTION:
If only turns when the tractor is moving. Its speed increases with the speed of travel. Right-hand rotation when travelling forwards, left-hand rotation when travelling in reverse.

Engaging ground speed PTO
Stop tractor, engine must be running.

Turn rotary switch (A) to 1000.
The following image appears on the multiple display.
13.4 Front PTO
(optional)

**DANGER:**
After operating the PTO, switch off the seasonal disconnect and put the protective sleeve back on the PTO stub shaft.

PTO shaft protection sleeve

Fig.89

- If the seasonal disconnect can not be enabled (tooth on tooth), turn gearwheels using a screwdriver through opening (A).

Direction of rotation of the front PTO shaft = right as viewed in the direction of travel.

Seasonal disconnect

Fig.90

- Turn off the engine.
- Switch seasonal disconnect on and off with lever (A).
13.5 Engaging and disengaging front PTO

**DANGER:**
Before engaging PTO, make sure no-one remains in the implement's hazard zone.

Fig.92

The front PTO shaft rotates clockwise in the direction of travel.

- Engage or disengage the front PTO with the key (A).
- When the PTO is switched on, the LED (B) next to the key is lit.

**NOTE:**
When the tractor is stationary and after starting the tractor, key (A) must be pressed TWICE to engage the PTO.
When the tractor is driving or the transmission is active, key (A) must be pressed ONCE to engage the PTO.

The coupling process depends on the length of time the button is pressed:

- **Less than 5 sec.**
  Smooth start, PTO clutch adapts automatically to the requirements of the implement.

- **More than 5 sec.**
  Speed and electronic monitoring are bypassed.

13.6 Calibrating rear and front PTO clutch

**DANGER:**
During calibration, PTO may rotate slightly.

The PTO clutch is calibrated to adapt the engage process to the implement concerned, e.g. implements that require high initial power to start.

The values determined during adjustment are used for the engaging process in the future.

The calibration is only to be performed with the implement connected.

**Calibrating rear PTO clutch**
- Start engine.
- If there are any fault messages, clear them individually.
  - Press key until all fault messages are cleared.

**If no fault is indicated:**

- Press key, the first main menu appears on the multiple display.
- Press either of the keys repeatedly until symbol (A) flashes.
- Press key.
The second main menu level appears on the multiple display.
Press either of the keys repeatedly until symbol (A) flashes.
Press key.

The rear PTO menu appears on the multiple display.
Press either of the keys repeatedly until symbol (A) flashes.
Press key.

Image appears on the multiple display.
Input code 6034 for rear PTO
Press one of the keys until desired digit appears.
Storing with the key.
Once the last number has been saved, the following image appears.

Select any PTO speed and engage rear PTO.

If calibration is completed successfully, an OK is displayed, and the new settings are stored.
If incorrect values are detected or the conditions are not met, an ERROR message is displayed.
Press key.

Ignition OFF, wait approx. 5 seconds. Ignition ON, new data is applied.

Adjusting the front PTO clutch
Start engine.
If there are any fault messages, clear them individually.
Press key until all fault messages are cleared.

If no fault is indicated:

Press key, image (A) is shown on the multiple display.
Press either of the keys repeatedly until symbol (A) flashes.
Press key.
**Operation**

**Image (A) is shown on the multiple display.**
- Press either of the keys repeatedly until symbol (A) flashes.
- Press key.

**The front PTO menu appears on the multiple display.**
- Press either of the keys repeatedly until symbol (A) flashes.
- Press key.

**Input code 7034 for front PTO.**
- Press one of the keys until desired digit appears.
- Storing with the key.
- Once the last number has been saved, the following image appears.

Engage front PTO.

If calibration is completed successfully, an **OK** is displayed, and the new settings are stored. If incorrect values are detected or the conditions are not met, an **ERROR** message is displayed.

Press key.

- Ignition OFF, wait approx. 5 seconds. Ignition ON, new data is applied.
14. Four wheel drive (4WD)

Front wheel drive can be engaged or disengaged under load. To avoid unnecessary noise level and excessive tyre wear, do not use front wheel drive for ordinary road travel. It may however become useful to engage it on difficult road surfaces or in conditions of ice and snow.

4WD 100%

- Engage or disengage 4WD with key (A), indicator lamp (B) is lit.
- When 4WD is engaged, indicator (C) appears.

Press key (A) to engage 4WD permanently. Irrespective of steering angle and ground speed.

**NOTE:**
When braking, 4WD is automatically engaged, not for single wheel braking.

4WD automatic mode

- Engage or disengage 4WD automatic mode with key (A), indicator lamp (B) is lit.
- When 4WD is engaged, indicator (C) appears.

4WD is automatically disengaged at speeds greater than 20 km/h and re-engages at speeds below 20 km/h.

It is also automatically disengaged if the steering angle is greater than 22°, and re-engaged when the angle is less than 22°.

**NOTE:**
When braking, 4WD is automatically engaged, not for single wheel braking.
15. Differential lock

NOTE:
The Farmer 200 V/F has a multi-disc lock on the front axle.
The Farmer 200 P has a self-locking differential on the front axle.
The functions used last are stored when the engine is switched off, and are reactivated when the tractor is started.
The differential lock remains engaged when the foot brake is actuated.

15.1 Differential lock 100%

![Fig.101]

- Engage or disengage differential lock with key (A), indicator lamp (B) is lit.
- When the differential lock is engaged, indicator (C) appears.

Press key (A) to engage the differential lock permanently. Irrespective of steering angle and ground speed.

15.2 Differential lock automatic mode

NOTE:
Cannot be activated at speeds above 20 km/h.

![Fig.102]

- Engage or disengage differential lock automatic mode with key (A), indicator lamp (B) is lit.
- When the differential lock is engaged, indicator (C) appears.

At speeds greater than 20 km/h differential lock disengages automatically and must be re-selected below 20 km/h.

The differential lock automatically disengages at a steering angle greater than 12° and must be re-engaged at a steering angle less than 12°.
16. Front axle suspension

(optional)

**DANGER:**
When the tractor is stationary, raising or lowering the tractor body represents a danger for people in the vicinity of the front axle.

**NOTE:**
Function can only be selected while the engine is running.

Suspension locked mode tractor is stationary
- Press key (A) longer than 3 seconds. The tractor body is lowered as long as the key is pressed, until the front axle comes to a stop.
- After exceeding 2 km/h, the tractor body is set to a low level on the total suspension range (hard suspension).

Suspension ON (level control), tractor is stationary
- Press key (C) longer than 3 seconds. The tractor body is raised within the total suspension range as long as the key is pressed.
- When speed exceeds 2 km/h, the tractor body automatically adjusts to the middle position of the total suspension range.

**Note:**
- If LED (B) is lit, hard suspension is being used.
- If LED (B) is not lit, middle position is targeted.

Driving with the suspension lowered all the way is not possible because the front axle cannot swing.

**Suspension ON (level control), at speeds over 2 km/h.**
- Press key (C), the tractor body is raised and maintained in the middle position of the total suspension range.
- Press key (A), the tractor body is lowered, hard suspension is used.

**Level control may be temporarily deactivated for one of the following factors:**
1. Brakes are applied.
2. Ground speed is below 2 km/h.
3. Front axle load too high.

**NOTE:**
When the tractor is started, the function selected last is activated.
Starting at 15 km/h, the suspension is automatically maintained in middle position.
17. Automatic mode rear PTO-engine speed/rear power lift

17.1 Selecting automatic function

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key, the following image is displayed on the multiple display.

Press key to select either:

A = Rear PTO automatic mode with rear power lift.
B = Rear PTO automatic mode with engine speed.

If image (B) appears, change speed with the keys.

The following image appears on the multiple display.

Function display for rear PTO automatic mode with rear power lift.

Function display for rear PTO automatic mode with engine speed.

Return to the previous menu level with the ESC key.
17.2 Power lift automatic mode

Automatic mode allows the control of the rear and front power lift to be transferred to the buttons on the joystick.

Activating automatic mode
- Engine must be running
- EPC unlocked
- Set the desired value with the depth control

Engage or disengage the rear power lift automatic mode with the key (A).

**NOTE:**
If the LED next to the pressed key is lit, the function is activated.

**NOTE:**
Automatic mode can be overridden by the quick lift switch.
The automatic mode is only reactivated when the quick lift switch is in the middle position.

Using automatic mode

- Press key (A) 'GO', rear power lift goes into 'control' function.
The linkage is lowered to the value set with the depth control.
- Press key (B) 'END', rear power lift goes into 'raise' function.
Linkage is raised to the set upper limit.
- Press key (C), the linkage remains in the current position.

Then the linkage can be moved again using the keys.

**NOTE:**
The external buttons at the rear of the tractor remain active in automatic mode and have priority.
If the linkage is moved with the external control buttons, the EPC is locked and automatic mode must be switched on again.
17.3 Rear PTO automatic mode with rear power lift

The PTO is engaged/disengaged at the preset position of the power lift.

NOTE:
The engaging position of the rear PTO is slightly below the lift height set with the lift height limiter.
The rear PTO disengages, when the linkage has passed its position by 5% when lifting. When the travel speed is greater than 25 km/h, the automatic mode is switched off.

NOTE:
If the lowering throttle is set to less than 32%, the custom cut-in point is used (factory setting 64%). If the lift height limit is set to less than 73%, the PTO is engaged immediately.

Activating automatic mode
● The engine must be running.
● EPC unlocked.
● PTO speed preselected.

NOTE:
The rear PTO engages at driving speeds over 0.6 km/h.

Operating automatic functions with joystick button.
(only possible in the Profi joystick version).
1. Unlock EPC (switch through).
2. Lifting lever (A) on STOP.
3. Switch on rear power lift automatic function with key (B), lamp next to the key is lit.
4. Press key (D) 'GO', rear power lift goes into 'control' function. The rear PTO engages when the rear linkage passes a preset position.
5. Press key (E) 'END', rear power lift goes into 'raise' function. The rear PTO disengages when the rear linkage passes a preset position.
6. Press STOP key (F), the linkage remains in the current position. If the rear PTO is engaged, it is then disengaged.

Changing standard settings for the rear PTO automatic mode with rear power lift

1. Engage PTO with key (C), lamp next to the key is lit.
2. If the lifting lever (A) is set to lower/control, the rear PTO engages, when the linkage passes a preset position.
3. If the lifting lever (A) is set to raise, the rear PTO disengages, when the linkage passes a preset position.
Activate EPC.

Move the linkage to the desired switch-on position.
Preselect PTO speed.
Engage PTO.

The following image is displayed.

Move linkage to the desired switch-off position.
Disengage PTO with the pushbutton.

If performed successfully image (A) appears. If image (B) appears, the setting procedure must be repeated.

NOTE:
The standard settings can only be changed when the automatic function with rear power lift is preselected.

Restoring factory settings

Press either of the keys repeatedly until symbol (A) flashes.
Press key, the following image is displayed on the multiple display.

Image (A) appears, factory settings are now active again.

Return to the previous menu level with the ESC key.
17.4 Rear PTO automatic mode with engine speed

**NOTE:**
Rear PTO automatic mode with engine speed is not possible on tractors with ground speed PTO.

When engaging the rear PTO with the external rear controls, the engine speed is driven up to a fixed preset speed.

**Preselecting automatic mode**
- The engine must be running.
- PTO speed preselected.

When the automatic mode is switched on, the LED (B) next to the pushbutton is lit.

**Activating automatic mode**
- Transmission in neutral.
- Engage rear PTO with key (A).

**NOTE:**
When the rear PTO is switched on, the LED in the key is lit.
18. Brakes

18.1 Foot brake

**DANGER:**
Before each trip, always check the brakes.

**DANGER:**
When driving on the road and for all trips with trailers with air brakes, the single wheel brakes must be inactive (lock pedals, see OPERATION Fig. 124).

**Lock brake pedals**

- Push lever (A) to left.

For single wheel braking (steering clutch brake), unlock the brake pedals

- Push lever (A) to the right until it catches.
- Unlocking indicator (B) appears.
- Press the pedal for the inner wheel.

**NOTE:**
Use steering clutch brake only at low speeds; never jerk it, and do not use it with differential lock engaged.

18.2 Hand brake

**DANGER:**
When parking the tractor, always immobilise with the hand brake; on slopes, also place chocks at the wheels.

**Hand brake**

- When the hand brake (A) is applied, the transmission is automatically shifted to neutral position, if speed goes under 2 km/h within 2 secs..

18.3 Trailer brake

**NOTE:**
For transport operations, please refer to the country-specific regulations for trailer brake systems.
Trailers with hydraulic brakes should not be towed at over 25 km/h.
Starting at 25 km/h, trailers with air brakes are recommended. Trailers with air brakes are required at speeds over 40 km/h.
19. Steering

**DANGER:**
In the event of complete failure of the hydraulic power-steering system, the tractor can still be steered. However, greater force is required to steer. Do not exceed 10 km/h! Stop the tractor immediately if there is a fault with the hydrostatic steering. Have the fault repaired by a FENDT service as soon as possible. Never adjust the steering wheel when moving.

19.1 Steering wheel adjustment
The steering wheel can be infinitely adjusted: height by approx. 45 mm and tilt from +12° to -10°.

**Height and tilt adjustment**
- Release lock (A), move steering wheel to desired position.
- Lock lock (A).

Fig. 127
20. Hydraulics

20.1 General notes on hydraulic operations

**DANGER:**
When working with hydraulic equipment, make sure no one is standing within the working area.
When connecting or removing hydraulic equipment, no one is to be in the cab, especially children.
Do not stand beneath a raised load. Always follow the accident prevention regulations!
After hydraulic operations, lock the hydraulic valves.

When using external controls for the three-point linkage, stand well back.
When driving on roads, raise the implement to the necessary height and lock the hydraulic valves. When transporting a plough with castor support wheel, lock lateral stabilisers and unhook top link. When cornering, allow for overhang and the oscillating weight of the implement.
Before leaving the tractor, fully lower mounted implements. Switch off the engine and remove the ignition key. Make sure detached implements are securely parked.
The three-point link must have the standard companion dimensions; if necessary, fit a gudgeon with the appropriate backstop profile for quick-release couplings.
Do not operate the hydraulics with cold oil. If necessary, allow the engine to run at medium speed for a few minutes.
If the tractor hydraulics overheat, stop the tractor immediately, all valves in neutral position. Allow engine to run to ensure cooling.

20.2 Valve locking

**NOTE:**
To prevent accidental activation of hydraulic valves, they are all locked when the tractor is started.

**Valve locking**
Press key (A) to engage and disengage valve lock.
When the valve lock is switched on, the LED (B) next to the key is lit.

**NOTE:**
The valves can only be unlocked when the crossgate lever and all the linear modules are in neutral position.
20.3 Valve configurations

The six possible hydraulic valves are identified by the colours yellow, blue, red, green, brown and white, on the operating controls and on the caps on the front and rear connections.

Operating options with the linear modules and crossgate lever

Vario joystick version without crossgate lever

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 valves (2+0)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3 valves (3+0)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Red (valve 3)</td>
<td>-</td>
</tr>
</tbody>
</table>

Vario joystick version with crossgate lever

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 valves (2+0)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Yellow (valve 1)</td>
</tr>
<tr>
<td>3 valves (3+0)</td>
<td>Red (valve 3)</td>
<td>-</td>
<td>-</td>
<td>Yellow (valve 1)</td>
</tr>
<tr>
<td>4 valves (4+0)</td>
<td>Red (valve 3)</td>
<td>Green (valve 4)</td>
<td>-</td>
<td>Yellow (valve 1)</td>
</tr>
<tr>
<td>4 valves (3+1)</td>
<td>Red (valve 3)</td>
<td>-</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
</tr>
<tr>
<td>5 valves (4+1)</td>
<td>Red (valve 3)</td>
<td>Green (valve 4)</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
</tr>
</tbody>
</table>

Profi joystick version

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 valves (4+0)</td>
<td>Red (valve 3)</td>
<td>Green (valve 4)</td>
<td>-</td>
<td>Yellow (valve 1)</td>
</tr>
<tr>
<td>4 valves (3+1)</td>
<td>Red (valve 3)</td>
<td>-</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
</tr>
<tr>
<td>5 valves (4+1)</td>
<td>Red (valve 3)</td>
<td>Green (valve 4)</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
</tr>
<tr>
<td>5 valves (3+2)</td>
<td>Red (valve 3)</td>
<td>-</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
</tr>
<tr>
<td>6 valves (4+2)</td>
<td>Red (valve 3)</td>
<td>Green (valve 4)</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
</tr>
</tbody>
</table>
Operating options with the joystick

NOTE:
The controls on the joystick can be switched with the rotary control (arrow).

Version 4 valves (4+0)

<table>
<thead>
<tr>
<th>Position</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Green (valve 4)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Rear power lift</td>
</tr>
<tr>
<td>2</td>
<td>Red (valve 3)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Rear power lift</td>
</tr>
<tr>
<td>3</td>
<td>Blue (valve 2)</td>
<td>Red (valve 3)</td>
<td>Green (valve 4)</td>
<td>Rear power lift</td>
</tr>
<tr>
<td>4</td>
<td>Green (valve 4)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Rear power lift</td>
</tr>
</tbody>
</table>

Version 4 valves (3+1), 5 valves (4+1)

<table>
<thead>
<tr>
<th>Position</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Rear power lift</td>
</tr>
<tr>
<td>2</td>
<td>Red (valve 3)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Rear power lift</td>
</tr>
<tr>
<td>3</td>
<td>Brown (valve 5)</td>
<td>Red (valve 3)</td>
<td>Green (valve 4)</td>
<td>Rear power lift</td>
</tr>
<tr>
<td>4</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Rear power lift</td>
</tr>
</tbody>
</table>

Version 5 valves (3+2), 6 valves (4+2)

<table>
<thead>
<tr>
<th>Position</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>White (valve 6)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Rear power lift</td>
</tr>
<tr>
<td>2</td>
<td>Red (valve 3)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Rear power lift</td>
</tr>
<tr>
<td>3</td>
<td>Brown (valve 5)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Red (valve 3)</td>
</tr>
<tr>
<td>4</td>
<td>White (valve 6)</td>
<td>Yellow (valve 1)</td>
<td>Blue (valve 2)</td>
<td>Red (valve 3)</td>
</tr>
</tbody>
</table>
20.4 Valve actuation

**NOTE:**
After starting the tractor, the spool valves must be unlocked (see OPERATION Section 20.2).

**Version Vario joystick without cross-gate lever**

![Fig.131](image1)

A = Continuous actuation  
B = Raise  
C = Lowering/pressure  
D = Floating position

**Vario joystick version with crossgate lever**

![Fig.132](image2)

A = Raise  
B = Lowering/pressure  
C = Floating position  
D = Continuous actuation

**Profi joystick version**

![Fig.133](image3)

A = Raise  
B = Lowering/pressure  
C = Floating position

**Flow regulator**
The oil flow for the valves is infinitely adjustable. Adjustment range 0 - 40 l/min. Adjustment range valve 3 from 0 - 65 l/min.

**Note:** The maximum oil flow can only be set to 65 litres in conjunction with the oil flow collection function. Without this feature, the maximum oil flow that can be set is 40 l.

![Fig.134](image4)

A = Valve 1 (yellow)  
B = Valve 2 (blue)  
C = Valve 3 (red)  
D = Valve 4 (green)  
E = Valve 5 (brown)  
F = Valve 6 (white)

**NOTE:**
Pay attention to the colour-coding.

**NOTE:**
Oil quantity can also be adjusted under pressure.

**NOTE:**
The oil quantity at the pumps must be greater than the quantities set at the flow regulator. To confirm this, set a sufficiently high engine speed and note the maximum total output of the pumps.
20.5 Oil flow distribution

Oil flow distribution distributes the available hydraulic oil volume to hydraulic valves 1-4 and the EPC valve.

If more than one control unit or the linkage is actuated at the same time and the oil required exceeds the maximum oil available, the oil is proportionately reduced to all the control units concerned.

**Priority valve function.**
The proportional distribution can be deactivated for one control unit. This valve then always receives the delivered oil quantity. If more oil is available, the remaining oil is distributed proportionally to all other consumers.

**Activating the priority function for a hydraulic valve**

![Fig.135](image)

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

![Fig.136](image)

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

---

**NOTE:**
When the valves are unlocked, the prioritised valve appears in the multiple display.

**Example application:**
When operating a hydraulically driven sowing machine, the engine should be operated at a constant speed.

---

![Fig.137](image)

Use the keys to select the valve that is to be prioritised.

**Note:** If no valve is to be prioritised, press the key until no valve is highlighted.

**Note:** Valve 5 (brown) and valve 6 (white) are not included in oil flow distribution and cannot be prioritised.

Return to the previous menu level with the ESC key.
20.6 Hydraulic valve response sensitivity

Selecting the response sensitivity for the hydraulic valve

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

NOTE: The response sensitivity hard or normal is not shown on the multiple display.
20.7 Response sensitivity of valve actuation

Selecting response sensitivity of valve actuation

The response sensitivity of the linear module and crossgate lever can be changed. Either NORMAL or SOFT can be selected.

![Fig.140](image)

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

![Fig.141](image)

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

![Fig.142](image)

A = without crossgate lever
B = with crossgate lever

Valve actuation response sensitivity, normal start-up.

Valve actuation response sensitivity, soft start-up.

The response sensitivity can be changed with the keys.

Return to the previous menu level with the ESC key.

NOTE:
If a hydraulic cylinder is to be controlled precisely, select soft start-up.
20.8 Hydraulic connections

When external hydraulic implements are connected, the best results are achieved by controlling them directly from the tractor, rather than an extra control unit on the implement. The working speed of consumers can be set individually with the flow regulator for the valves on the tractor.

NOTE:
It is easier to disconnect a pressurised connector from the implement if the corresponding control unit is switched to floating position.

NOTE:
When attaching equipment, ensure that the hydraulic connections are clean.

Hydraulic connections - centre right

DANGER:
When connecting hydraulic cylinders and motors, make sure that all hydraulic hoses are correctly connected (load pressure side of cylinder to ‘+’)! Switching connections causes functions to be reversed (e.g. lifting instead of lowering), and may lead to accidents. After working with the hydraulic system, lock all the hydraulic valves!

When external hydraulic implements are connected, the best results are achieved by controlling them directly from the tractor, rather than an extra control unit on the implement. The working speed of consumers can be set individually with the flow regulator for the valves on the tractor.

NOTE:
It is easier to disconnect a pressurised connector from the implement if the corresponding control unit is switched to floating position.

NOTE:
When attaching equipment, ensure that the hydraulic connections are clean.

Hydraulic connections, centre left

5 = Brown valve
6 = White valve
R = Black markings, front return flow
Q = Cross connection violet

Hydraulic connections, rear

1 = Yellow valve
2 = Blue valve
3 = Red valve
4 = Green valve
5 = Brown valve
E = Hydraulic trailer brake (optional).
R = Black colour-coding, rear return flow.

NOTE:
Hydraulic motors should be used in continuous operation only through an open return line.
20.9 Oil flow collector

(see in the text module)

**NOTE:**
Switch on oil flow collector only if necessary, to avoid heating the hydraulic fluid.

The tractors are equipped with two hydraulic pumps.

- **Pump 1** = Delivery capacity 33.3 l/min at 2100 rpm, supplies the steering, hydraulic trailer brake and the hydraulic valves on the left side.
- **Pump 2** = Delivery capacity (tandem pump) 42.3 l/min at 2100 rpm - Delivery capacity (control pump) 70.6 l/min at 2100 rpm -supplies the linkage, mini-hydraulics and the hydraulic valves on the right side.

**Switching the oil flow collector on and off**

- LED (B) is not lit.
  The hydraulic valves on the right are supplied from pump 2. The overflow from pump 1 flows into the hydraulic tank.

- LED (B) is lit.
  **Only the hydraulic valves on the right are available.**
  The overflow from pump 1 is added to the hydraulic valves on the right side.

- LED (B) is lit.
  **Hydraulic valves on right and left are available.**
  The overflow from the hydraulic valves on the left side are added to the hydraulic valves on the right side.

**NOTE:**
Engage the hydraulic feed only if a large amount of oil is really required, then shut off the feed again.

20.10 Hydraulic circuit 3 and 4

Additional electric functions of mounted implements can be operated (z.B. vineyard cultivation, front loader, etc.) with hydraulic circuits 3 and 4. Hydraulic circuits 3 and 4 can be controlled with the buttons on the crossgate lever or the two buttons on the joystick. The switching characteristics for the buttons can be configured.

**Vario joystick version without crossgate lever**

![Fig.147](image1)

**Vario joystick version**

![Fig.148](image2)
Profi joystick version

Switch hydraulic circuit 3 on and off with key (A).
Switch hydraulic circuit 4 on and off with key (B).

**NOTE:**
If the LED in the key is lit, the corresponding connection is energised.

**Configuring switching characteristics**

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.
The following image appears on the multiple display.

Fig. 149

Press keys to select.

Button = Function remains active as long as the button is pressed.
Switch = Press switch briefly, the function remains active until it is switched off by briefly pressing the switch again.

A = Circuit 3 button and circuit 4 button
B = Circuit 3 button and circuit 4 switch
C = Circuit 3 switch and circuit 4 switch
D = Circuit 3 button and circuit 4 switch, which can be switched alternately.

If circuit 3 is on, pressing circuit 4 switches off circuit 3 and circuit 4 is activated.

Return to the previous menu level with the ESC key.

Fig. 150

Fig. 151

Press either of the keys repeatedly until symbol (A) flashes.

Press key.
The following image appears on the multiple display.

Fig. 152
20.11 Front loader mode

The "raise" or "floating position" locking function can be deactivated on the yellow and blue hydraulic valves, compulsory for front loader operation.

When front loader mode is active:
- continuous operation is disabled on the yellow valve
- continuous operation and floating position are disabled on the blue valve.

**NOTE:**
When front loader mode is activated, the yellow and blue hydraulic valves can only be operated with the crossgate lever.

**Activate/deactivate front loader mode**

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.

The following image appears on the multiple display.

Select between

A  = Deactivate front loader mode.
B  = Activate front loader mode.

Press keys to select.

Return to the previous menu level with the ESC key.
20.12 Valve emergency operation

**NOTE:** Emergency operation only possible with engine running.

**Manual operation**
In the event of electronic failure, the individual valves can also be operated manually.
Actuate valves with spanner (size 9).

**Hydraulic valves on the right side**

![Fig.156]

**Hydraulic valves on left**

![Fig.157]

Valve 1 yellow  
Valve 2 blue  
Valve 3 red  
Valve 4 green  
Valve 5 brown  
Valve 6 white

**Directions of actuation:**
A = Raise  
B = Lowering  
C = Floating position

**NOTE:** Floating position is not possible for the EPC valve.

20.13 Hydraulic trailer brake
(optional)

**Italian version**

**DANGER:** If the hydraulic trailer brake is switched off, move lever to OFF - no brake operation on trailer.

![Fig.158]

To release the hydraulic trailer brake pressure (when hitching and unhitching). Apply the hand brake.

**Indicator lamp**

![Fig.159]

If the hydraulic trailer brake is depressurised, indicator (A) appears in the instrument cluster.

**NOTE:** in the Italian version, there is always a hydraulic pressure of 10-15 bar.
French version

**NOTE:**
The hand brake has no function in the French version.

To prevent excessive braking when the trailer is empty, press key (A), LED is lit.
During transport trips with a full trailer, do not press key (A), LED is not lit.

### 20.14 Single-acting cylinder operation

Singe-acting cylinders should be connected to hydraulic connections marked '+'.

### 20.15 Recommendations for the use of permanent loads

**NOTE:**
Permanent loads should always be connected to hydraulic connections marked '+'.
Switch on oil flow collector only if necessary, in order to avoid heating the hydraulic fluid.

"One" permanent load

Connect to:
- Valve 3 red (+) or
- Valve 4 green (+)

"Two" permanent loads

Connect first permanent load to:
- Valve 3 red (+) or
- Valve 4 green (+)

Connect second permanent load to:
- Valve 5 brown (+) or
- Valve 6 white (+)
"Three" permanent loads

Connect first permanent load to:
● Valve 3 (+) red

Connect second permanent load to:
● Valve 5 brown (+) or
● Valve 6 white (+)

Connect third permanent load to:
● Valve 4 green (+)

20.16 Hydraulic operation with cold starting

The hydraulic valves have only limited operation at temperatures below -12°C.

**NOTE:**
Floating position cannot be set

If the warning (A) appears in the multiple display, the hydraulic oil temperature is too low and floating position cannot be set.

**The heating-up process can be accelerated**
● Set the engine to medium rpm speed (about 1400 rpm).
● Switch the valve to which no load is connected to the RAISE position.
● Select a yellow, red, blue or green valve, if available brown or white.

20.17 Holder for hydraulic hoses

After 10 operating hours, tighten screws (A) on the holder for hydraulic hoses.
21. Linkage electronic control system

21.1 Control panel

A = Automatic function - rear power lift  
   Note: LED (H) indicates the function is active.
B = Position/traction mix control
C = Lowering throttle
D = Automatic lift height limiter
E = Lifting lever
F = Setpoint/depth control
G = Locking
J = LED red = lift, yellow = lower
K = EPC lock indicator  
   Note: LED is lit, if EPC is locked.

21.2 Safety lock

DANGER:  
Select 'Stop' to prevent undesired movements of the power lift.

When the safety lock is engaged, the power lift is not able to function.

The safety lock becomes active in any of the following situations:
1. When ignition is switched OFF/ON.
2. When starting the tractor.
3. When there is a fault in the electrical circuit.
4. When rear controls have been operated.
5. When the rigid drawbar lift limiter is on.

Releasing the safety lock

● Turn quick lift switch (E) to raise.

When the power lift is unlocked, it will move to the position selected with the depth control (F).

NOTE:  
After unlocking, the lift and lower speeds are reduced until the preset position is reached. Normal speed can be restored immediately by briefly selecting the stop position.
21.3 Control panel functions

Lifting lever (E) with transport safety device (G)

M = Stop electronic system off (no adjustments possible).
L = Raise transport position with vibration damping for the implement.
N = Control implement is controlled using the value selected with knob (F).
O = Fast feed-in the implement is inserted rapidly. When released, the implement moves to the selected depth.

In 'Stop' position, all lifting and lowering movements are stopped at their current position, except when operating with the rear controls.

Depth control

Rotary knob (F) for setting the working depth.

Direction of rotation for depth control

P = Raise
R = Lowering
S = Floating position

Lift height limiter

Rotary switch (D) for setting the lift height.

Positions of the rotary switch

right = Maximum lift
left = min. lift

Any lift height position between the two can be selected.

Lowering speed

Rotary switch (C) for setting the lowering speed.
The lowering speed is electronically controlled for any setting.

Rotary switch settings

- 'Tortoise' position: no lowering.
- 'Hare' position: maximum lowering speed.

Lowering speed can be adjusted steplessly between the two positions.
Position / traction mix setting

Rotary control (B) for setting position and tractive power control or any combination of the two.

**Positions of the rotary control (B)**

right = Position control (fertiliser spreader)

left = Draft control (plough)

Mixed control is between position and draft.

**Rapid lowering**

- Turn lifting lever (E) to the fast feed-in position (O) and hold it there.

The implement is in the floating position. The implement (e.g. plough) is plunged immediately into the soil. After releasing the lifting lever (E), the implement is returned to the selected depth.

Rear external controls

Push button (A) to the left of the rear lamp for raising or lowering the linkage.

If the safety lock is actuated, External operation is possible in every position of the lifting lever.
21.4 Working with the EPC

Hitching three-point implements

- Rotary knob (B) to the right in the 'Position' setting.
- Quick lift switch (E) on 'Control'.
- Lower the lifting arms by turning the depth control (F) to the left. To raise the lifting arms, turn the control to the right.

Once the upper and lower links are securely attached to the implement,
- turn knob (D) to left.
- Turn depth control (F) fully to the left or set the quick lift switch (E) to Lift. The implement is raised to the lift height limit (approx. 1/4 of the total lift height).
- By turning the lifting height limiter (D) to the right, the implement can now be raised to the desired excavation height.

Hitching three-point implements

- Fig.177

Hydraulic system in transport position.
- Turn knob (F) to the right.
- Knob (B) to the right, to Position.
- Quick lift switch (E) on 'Control'.
- With knob (F), now slowly lower the implement until no load remains on the top link, release the catch hooks and lower the hydraulics completely.

Setting the desired transport height

- Lower the implement completely.
- turn knob (D) to left.
- Set Quick Lift switch (E) to 'Raise'. The implement is raised by about 1/4 the lift height.
- Turn knob (D) to the right until the required transport height is reached.

For road haulage
- Secure the Quick Lift switch (E) with the transport lock (G).

Transport with speed-dependent vibration damping automatic mode

After the implement is raised with the quick lift switch, load spikes due to uneven road surfaces are reduced by small adjusting movements of the linkage to prevent the tractor from bouncing. This reduces the mechanical load on tractor and implement, while improving steerability.

NOTE:
Vibration damping is only operative if the safety lock is released with the quick lift switch in the transport position (raise).
21.5 Changing switch-on speed of vibration damping

Fig.180
Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key, the second main menu level appears on the multiple display.

Fig.181
Press either of the keys repeatedly until symbol (A) flashes.

Press key, the following image is displayed on the multiple display.

Fig.182
Press either of the keys repeatedly until symbol (A) flashes.

Press key, the following image is displayed on the multiple display.

Fig.183
Press any key until the desired switch-on speed appears.

Return to the previous menu level with the ESC key.
21.6 Lift height limiter

Using the lift height limiter, the lifting arms can be locked hydraulically in any position. If the lift height limiter is activated, the EPC control valve does not function.

A = Lifting height limiter OFF (EPC operation)
B = Lifting height limiter ON

21.7 EPC emergency mode circuit

NOTE: Emergency operation is only possible when the engine is running.

Manual operation

In the event of electronic failure, the EPC valve can also be operated manually. Actuate valve with spanner (size 9).

Directions of actuation:

A = Raise
B = Lowering
C = Floating position

NOTE: Floating position is not possible for the EPC valve.

21.8 Implement socket

From the implement socket (C) speed signals are passed to the controlling devices, e.g. sprayers, fertiliser spreaders.

Top view of implement socket

The designations are embossed

1 = -
2 = Transmission signal
3 = PTO shaft speed
4 = Quick lift switch
5 = Lift height of rear linkage
6 = +Battery voltage (+Vbatt)
7 = Ground
22. Three-point linkage, Vario 200 V/F

**DANGER:**
Stay clear of the three-point linkage when in operation - risk of crushing or severing.
Do not walk between the tractor and implement during the coupling procedure.
Ensure there is enough clearance when using cardan shaft or drawbars.
After coupling implements, the locking device must be locked completely and the hook securely locked. When uncoupling the implement, ensure tractor is stable.
When using the actuating cable, make sure that the cable runs freely, a taut cable opens the locking device.
Use only the correct hook jaw / ball bush combinations. Use only the ball bushes provided.

### 22.1 Lower links

**Distance between lower links:**
- Category I = 718 mm
- Category II = 870 mm

**Adjusting the distance between lower control links**
- Loosen screw (A).

Adjustment range of the short lower link 295.5 mm - 382.5 mm.
Adjustment range of the long lower link 349 mm - 436 mm.

**NOTE:**
Check balls/hooks and implement pin for wear, then clean and grease. Replace if damaged/worn.

### 22.2 Hydraulic adjustment

**Figure A**
Lateral adjustment allows the drawbar to be fixed at an angle of up to 6° on either side.

**Figure B**
Floating position allows the angle and lateral setting to swing to both sides.

**Figure C**
Angle adjustment allows the three-point linkage to be set at an angle of up to 6° on either side.

**Control functions**

![Control functions diagram](Fig.190)

A = Cross adjustment - move to the right
B = Cross adjustment - move to left
C = Cross adjustment - lock
D = Cross adjustment - floating position
  Function active, indicator lamp is lit.
E = Angle adjustment - tilt to right
F = Angle adjustment - tilt to left
G = Angle adjustment - lock
H = Angle adjustment - floating position
  Function active, indicator lamp is lit.
J = Diagnosis LED (see FAULTS AND REMEDIAL ACTIONS Section 3).
K = Indicator lamp
22.3 Incline angle - indicator

The incline angle - indicator (A) shows the incline set for the three-point linkage. This allows the horizontal position of the three-point linkage to be monitored from the driver seat.

NOTE:
The thick line in the middle of the scale indicates that the three-point linkage is horizontal.

Setting the incline angle indicator

- Remove securing clamp, release ball-end (arrowed).
- Loosen locknut.
- Set three-point in horizontal position.
- Turn the ball-end (arrowed) until the incline angle indicator is in the middle.
- Tighten locknut.
- Press the ball-end in to the ball socket.
- Secure ball-end with the securing clamp.

23. Three-point linkage, Vario 200 P

DANGER:
Stay clear of the three-point link when in operation - risk of crushing or severing.
Do not walk between the tractor and implement during the coupling procedure.
Ensure there is enough clearance when using cardan shaft or drawbars.
After coupling implements, the locking device must be locked completely and the hook securely locked.
When uncoupling the implement, ensure tractor is stable.
When using the actuating cable, make sure that the cable runs freely, a taut cable opens the locking device.
Use only the correct hook jaw / ball bush combinations. Use only the ball bushes provided.

23.1 Lower links

Category I = 718 mm, II = 870 mm distance between the pickup points (A).

NOTE:
Check balls/hooks and implement pin for wear, then clean and grease. Replace if damaged/worn.
Adjusting the lower control link distance

Remove cotter pin.
Adjust the knee bolt (A) by the same amount on both left and right lateral supports.
Reconnect the knee bolt with the lower link and secure with the cotter pin.

Checking:
● Before raising the mounted implement, both side locks must be able to lock free of play (pull lever forward).

**IMPORTANT:**
Lower links automatically become rigid laterally, when the lifting arms are raised. Damage to the vehicle and/or three-point linkage may occur if set too tight.

Lower links

● Fit bolt in hole (A) - floating position.

Required for implements with outrigger wheels and without swing compensation, e.g. for planting machines.

23.2 Lower link hook locking

**DANGER:**
Never use or transport an implement without first checking that both hooks are securely locked.

Under particularly heavy operating conditions, secure the lower link hooks against unintentional release (e.g. for logging work).

● Insert bolts (e.g. M 8x50) in the holes (arrowed) and secure with nuts.
23.3 Extendable lifting struts

The lifting struts are extendable.
● Fold up the securing clamp (A).
● Adjust the lifting struts by turning handle (B).

**NOTE:**
It must still be possible for the securing clamp (A) to be folded over button (B).

23.4 Mechanical side lock

The lower links are locked using the levers (A).

**For rigid implement:**
● Move lever up.

**Mounted implement with lateral movement**
● Move lever down.
23.5 Top link

- Adjust length by turning handle (B).

Threads must be screwed to the same length on both sides. Make sure securing clamp can still be folded down over the pegs (A).

Attaching to tractor

- Fit top link into the upper hole.

Can be fastened to three bores (for better implement adaptation and for increasing lifting force).

With large lift capacities and low implement pulling angle.
- Fit top link into the upper hole.

With small lift capacities and large implement pulling angle.
- Fit top link in low position.

24. Front power lift Vario 200 V/F

(Optional)

DANGER:
Stay clear of the three-point linkage when in operation - risk of crushing or severing.

Observe vehicle licensing regulations, for example for permitted axle loads, and the use of counterweights.

For road haulage, observe the maximum distance of 3.5 metres of the implement from the centre of the steering wheel.

Only pushing operations are permitted with extreme loads e.g. cultivator.

Secure lower link against falling down before removing pins.

If the 3.5 m distances is exceeded, appropriate measures must be taken to ensure road safety (e.g. at road junctions, use mirrors or an assistant to give hand signals).

Distance between lower links:
Category I = 683 mm.

Recommendations for use
The front power lift can only be operated in single-acting mode (not pushing).

Additional lighting
Switch on the auxiliary lighting if the front headlamps are obstructed by the implement. The front headlamps will then go out.
24.1 Lower links

Swing compensation

Swing compensation for self-guiding implements.

● Pull bolts (A) and attach.

Removing the lower links

● Remove pin (A) and remove lower link completely.

Lower links, parking position

Always fold up the lower links when not in use.

● Remove pin (A), fold up lower link and secure with pin (A).

Lower links, working positions

● Insert pin in bore as shown and secure.
24.2 Top link

Pull bolt (A) to fold out the upper link.

24.3 Hydraulic operation

**DANGER:**
Disconnect rear hydraulic connections. Risk of unintentional implement movement.
Close the stopcock after front power lift operations.

Stopcock (A)

**DANGER:**
Stay clear of the three-point linkage when in operation - risk of crushing or severing.
Observe vehicle licensing regulations, for example for permitted axle loads, and the use of counterweights.
For road haulage, observe the maximum distance of 3.5 metres of the implement from the centre of the steering wheel.
When carrying extreme loads e.g. cultivator, only thrust operation is permitted.

If the 3.5 m distances is exceeded, appropriate measures must be taken to ensure road safety (e.g. at road junctions, use mirrors or an assistant to give hand signals).
Distance between lower links:
Category II = 825 mm.

**Recommendations for use**
The front power lift can only be operated in single-acting mode (not pushing).

**Additional lighting**
Switch on the auxiliary lighting if the front headlamps are obstructed by the implement. The front headlamps will then go out.

25. Front power lift Vario 200 P

(optional)
25.1 Lower links

Swing compensation

- Insert bolt as shown, and secure.

Swing compensation for self-guiding implements.

Removing the lower links
- Remove pins.

Lower links, parking position

- Insert pin in bore as shown and secure.

Always fold up the lower links when not in use.
- Insert pin in bore as shown and secure.

Lower links, working positions

- Insert pin in bore as shown and secure.

Lower link hook locking

- Insert bolts (e.g. M 8x50) in the holes (arrowed) and secure with nuts.

Under particularly heavy operating conditions, secure the lower link hooks against unintentional release (e.g. for logging work).
25.2 Top link

Pull bolt (A) to fold out the upper link.

Fig.212

25.3 Hydraulic operation

DANGER:
Disconnect rear hydraulic connections. Risk of unintentional implement movement. Close the stopcock after front power lift operations.

Stopcock (A)

Fig.213

● See label for function.
26. Hitch couplings

**DANGER:**
Attach implements and trailers only to the points specified for this purpose. Do not exceed the maximum vertical bearing load on the coupling. Observe appropriate axle loads and weights, and follow the traffic regulations. Make sure trailer is correctly attached. Check that the trailer braking system is functioning. Follow the trailer manufacturers instructions!

Carry out regular checks to ensure the trailer hitch is in perfect condition, especially when subjected to heavy loads.

The coupler is a design-approved component and may be used only for its designated purpose.

Use only correct towing eye - bolt combination. Use only the towing eyes provided. When converting to a mechanical or automatic coupling, ensure that the coupling cannot slip out of the guide rails unintentionally, by fitting a locking screw into the bottom hole.

We reserve the right to make technical modifications. The details on the rating plate are binding.

The maximum traction vehicle/trailer total weight of 40 tonnes must not be exceeded. If there are different values on the trailer bracket and trailer hitch rating plates, the lower value is the definitive value.

When coupling and uncoupling, make sure trailer is secured to prevent rolling.

26.1 Calculation of towing capacity

**Diagram of permissible towing capacity**

![Diagram of permissible towing capacity](image)

---

**Calculating the permissible towing capacity**

\[ C = \frac{T \times D}{T - D} \]

Example: \(12 \times 7.13 : (12 - 7.13) = 17.6\)

\[ D = 9.81 \]

Example: \(70 : 9.81 = 7.13\)

\[ C = \text{Permissible towing capacity (tonnes)} \]

\[ T = \text{Weight of tractor vehicle (tonnes)} \]

\[ D = \text{D-value (kN)} \]
26.2 Trailer bracket

Vario 200 V/F/P

Observe maximum permissible vertical bearing load and towing capacity (see rating plate).

26.3 Hitching a trailer manually

Adjusting trailer coupling height
- Press locking mechanism (A).
- Lift the handle (B) and move trailer coupling to desired position.

DANGER:
Control stud (D) must not protrude after coupling.

Operating the trailer hitch
- Lift the handle (C) to disconnect.

Observe maximum permissible supporting load and towing capacity. (See rating plate.)

26.4 Automatic trailer coupling

Adjusting trailer coupling height
- Press locking mechanism (A).
- Lift the handle (B) and move trailer coupling to desired position.
- Lock handle (B) again.

Fig. 218

Observe maximum permissible supporting load and towing capacity. (See rating plate.)
**27. Additional ballasting**

**27.1 Front ballast**

**DANGER:** Always make sure there is sufficient weight on the front axle when using rear-mounted implements. To maintain brake effectiveness and steerability, the front axle must be loaded with at least 20% of the unladen weight of the tractor. Always fit weights in the fixing positions provided as per the instructions. Do not exceed the permissible total weight or axle load (see rating plate or vehicle documents). The maximum driving speed may only be driven under suitable road conditions, with balanced ballasting (e.g. 40% on the front axle - 60% on the rear axle) and prescribed tyre pressure.

Secure weights with securing clamp to prevent them from falling out. If necessary, also secure lower link hook lock with screws (e.g. M8x50).

---

**Fig.220**

A = Front axle weight 23 kg, Vario 200 P
B = Front axle weight 60 kg, Vario 200 V/F
C = Front axle weight 117 kg, Vario 200 P

---

**Fig.221**

C = Suitcase weights 32 kg, Vario 200 V/F/P (max. 3 pieces).

When using suitcase weights, press both brackets tight between the weights.

---

Always attach securing bracket (A) with suitcase weights.
27.2 Wheel weights

**DANGER:**
After mounting wheel weights, retighten wheel bolts after 20 operating hours.
Then retighten wheel weights every 100 operating hours.

**WARNING:**
Observe the maximum permissible width indicated in the vehicle documents.

**Vario 200 V/F/P**

61 kg (per side) wheel weight.
Only for 24 inch rim.

**NOTE:**
Wheel weights must not project over the tyres, otherwise they cannot be used on public roads.

---

27.3 Water ballasting of tyres

**DANGER:**
After mounting wheel weights, retighten wheel bolts after 20 operating hours.
Then retighten wheel weights every 100 operating hours.

**WARNING:**
Observe the maximum permissible width indicated in the vehicle documents.

**Fig.222**

Follow tyre manufacturers specifications with regard to volumes (water + antifreeze solution).
Check tyre pressures regularly.

**Fig.223**

A = Top up with water
B = Drain water
L = Air
W = Water

Follow tyre manufacturers specifications with regard to volumes (water + antifreeze solution).
Check tyre pressures regularly.
28. Folding safety bar
(optional)

DANGER:
When outside of cultivated areas, fold up the safety bar again.

To fold down the safety bar
● Remove locking pin (A).
● Remove pin (B).
● Flip safety bar forward.
● Fit pin (B).
● Insert locking pin (A).

Fig.224
29. Track adjustment

**DANGER:**
When working on tyres, make sure the tractor is properly parked and secured against rolling away (wheel chocks)!

If the engine needs to be started for turning the rear wheels, all four wheels must be jacked up and turn freely.

When the tractor is jacked up and some one is working underneath, no one else should be on the tractor.

If the tractor is lifted with the lower links, additional supports are required!

Tyre repairs should be performed only by qualified personnel using suitable tools. Tyres may explode if the air pressure is too high! Check tyre pressures regularly!

Do not use row crop tyres for heavy-duty towing work or front loader work.

Check wheel screw connections regularly and tighten if necessary, observe Service Schedule. If a wheel is mounted or the track is changed, all affected bolts must be re-tightened after 10 operating hours!

After wheel mounting or track width adjustment, tighten the bolts and nuts on front and rear wheels and on track adjusting elements. Check these regularly!

(For tightening torque, refer to ‘TECHNICAL DATA’)

**NOTE:**
Tyres that are not recorded in the vehicle documents, must be added.

29.1 Front track adjustment with fixed rims (rear wheel)

Tracks that can be obtained by adjusting the full floating axle

<table>
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<tr>
<th>Tyres</th>
<th>ET</th>
<th>Tracks</th>
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<th>206 F</th>
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**Adjusting the swing axle**

- Jack up the front axle.
- Remove screws (B), remove locking screw (C) from the track rod.
- Pull out or push in the adjustable part equally on both sides to obtain the required track width.
- Loosely attach screws and washers (A) from front to back. Lower jack and tighten screws (A) to 290 Nm torque.
- Insert clamp screw (B) in the appropriate notch and tighten to 120 Nm torque.

**Checking the steering cylinder setting:**

Steering stop on the steering knuckle must be reached in both sides. Check the toe-in (see SERVICE AND MAINTENANCE).

Fig.225
## 29.2 Front track adjustment with fixed rims (4WD)

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Track widths that can be obtained with fixed rims by swapping over wheels (exchange left-hand and right-hand sides).

* Only Category 1 three-point allowed

## 29.3 Front track adjustment with adjustable rims

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* do not use with front loader/front power lift
## 29.4 Rear track adjustment with fixed rims

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## 29.5 Rear track adjustment with adjustable rims

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</tbody>
</table>

* Only Category 1 three-point allowed
** Smallest track cannot be set with long lower links
30. Twin tyres

**WARNING:**
When working on tyres, make sure the tractor is properly parked and secured against rolling away (wheel chocks)! When the tractor is jacked up and someone is working underneath, no one else should be on the tractor.
See also the safety instructions in 'Track Adjustment'.

Twin tyres may be used to reduce ground pressure but not to increase load capacity or pulling power.

**NOTE:**
Twin tyres must be recorded in the vehicle documents for use on public roads. The twin tyre selection table in this manual may be used when presenting the tractor at a vehicle testing station.

### 30.1 Conditions for use

- If the standard lights are more than 400 mm from the vehicle outer edge, tail lights, side lights and reflectors must be duplicated.
- In excess of 2,750 mm width, fit warning plates front and rear.
- Max. ground speed 25 km/h (as per vehicle licensing regulations if wheels have insufficient covering).

**Maintenance**
Retighten wheel screw connections after 10 operating hours. Retighten regularly, every 50 operating hours.

### 30.2 Selection table for twin tyres

<table>
<thead>
<tr>
<th>Model</th>
<th>Inner tyres</th>
<th>Inner track (mm)</th>
<th>Track width</th>
<th>Outer tyres</th>
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<td>280/85R24</td>
<td>777</td>
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<td>narrow</td>
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<td>897</td>
<td>narrow</td>
<td>280/85R28</td>
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<td>208P-209P</td>
<td>14.9R28</td>
<td>1188</td>
<td>narrow</td>
<td>12.4R32</td>
</tr>
</tbody>
</table>

**Recommended intermediate parts for twin tyres**
Ordering and delivery information by:
Firma Kock & Sohn, Räderfabrik
Höfener Straße 1+3, 48496 Hopsten - Schale
Tel.: 0049 (0) 5457/566, Fax: 0049 (0) 5457/1551
31. On-board computer

31.1 Adjusting speed indicator

Calibration allows the speed display to be accurately adjusted to field conditions, e.g. when operating with mounted implements or in the event of tyre wear.

NOTE:

Use only the clutch pedal to drive the tractor during the calibration process. When driving use of the joystick makes the ACTIVE symbol appear, interrupting the menu control of the calibration process when the tractor stops at marker points.

● Measure and mark an exact distance between 30 meters (minimum) and 100 meters (maximum).

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key, the second main menu level appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key, the following image is displayed on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key, the following image is displayed on the multiple display.
OPERATION

Fig.230

- Image (A) is displayed. 1st digit of the distance flashes.
- The measured distance must now be entered, e.g. 50 m.

Press either of the keys repeatedly until the desired digit is displayed, e.g. 0.

Press key. Set the other 2 digits one after another as with 1st digit, e.g. 050.

After confirming the last digit, START will flash.

- Move the tractor to position the front wheel exactly at the start mark.

Fig.231

Press key, the display changes from 'START' to 'STOP'.

- Start the tractor off, and stop with the front wheels at the end mark of the measured distance.

Press key. If the process was completed correctly, an 'OK' message appears.

Fig.232

If an 'ERROR' message is displayed, repeat the adjustment process as follows:

Press key, data entered for the measured distance is displayed.

- Check whether the measured distance and the input distance are the same.

If necessary, enter measured distance as described previously and repeat calibration procedure.
Press key to return to previous menu level.

NOTE:
The tyre size is automatically adjusted.
31.2 Selecting tyre size

If the tyre size is changed, the speed indicator can be quickly adapted to the new tyre size.

**Input value:**
The rolling circumference of the rear tyres must be entered in mm.

**NOTE:**
The rolling circumference may deviate depending on tyre, observe load, air pressure and tyre profile specifications. Comply with tyre manufacturer's recommendations.

![Fig.233](Image)
Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key, the second main menu level appears on the multiple display.

![Fig.234](Image)
Press either of the keys repeatedly until symbol (A) flashes.

![Fig.235](Image)
Press either of the keys repeatedly until symbol (A) flashes.

Press key, the following image is displayed on the multiple display.

![Fig.236](Image)
- Image (A) is displayed, 1st digit (B) flashes.
  Press repeatedly one of the keys until the desired digit shows.

  Press key. Set consecutively remaining 3 digits the same way as the 1st digit.

  Press key.

1. Ignition OFF
2. Wait 5 seconds.
3. Switch ignition ON.
New value is stored.
1. General

WARNING:
Before any repair and maintenance work and before opening the engine bonnet, switch off the engine and remove the ignition key. Apply the hand brake and chock the wheels if necessary. When working on the engine, disconnect the battery at the negative terminal. When the maintenance work is completed, replace all protective and safety devices. Ensure that the tractor is securely parked. Ensure that the correct grades of fuel and lubricants are used, and store these in approved containers only. See also TECHNICAL DATA Fluids and Lubricants. Do not perform any welding, drilling, cutting or grinding on the cab or safety frame. All damaged parts must be replaced!

IMPORTANT:
Thoroughly clean the tractor, particularly connections and components that need to be opened, as well as the surrounding areas, before performing any maintenance work. Used oils, cooling- and brake fluids must be disposed as per national laws. Dispose properly according to local environmental regulation and to manufacturers instructions any used lubricant.

Oil level checks must be conducted with the tractor stopped on a horizontal surface; if fitted, lock front axle suspension!

For maintenance intervals, checks to be performed, quantity and quality of lubricants to be used, refer to Fluids and lubricants or Service schedule.

2. Opening the bonnet

Fig.1

- Release lock (A), swing bonnet up.
3. Engine oil change

IMPORTANT:
Engine oil should also be changed prior to long periods of immobilisation.

3.1 Draining engine oil

WARNING:
Take care when draining hot oil risk of burns!
Collect used oil - do not let it seep into the ground.
Dispose of used oil properly.

- Warm up the engine.
  Oil temperature about 80 °C.
- Tractor must be on level ground.
- Turn off the engine.
- Place a collecting pan underneath the engine.
- Unscrew and remove drain plug (A).
- Drain the used oil completely.
- Clean the drain plug and reinsert with a new sealing ring.

DANGER:
The oil filter may be filled with hot oil - risk of scalding and burn injuries!

Replace the oil filter (A) with every oil change.
- Turn off the engine.
- Clean the surrounding area before removing the oil filter.
- After draining the oil, remove the oil filter.
- If necessary, catch escaping oil.

NOTE:
Used oil filters are hazardous waste.
3.3 Filling with engine oil

- Unscrew cover (A) and remove.
- Pour in the required engine oil through the filler hole. Ensure cleanliness!

3.4 Checking engine oil level

- Tractor must be on level ground.
- Start the engine and allow the engine on idle till the warning message on the multiple display goes out.
- Check the oil drain plug and filter for leaks.
- Turn off the engine.
- After approx. 5 minutes, withdraw oil dipstick.

- Wipe dipstick (A) with a clean lint-free rag.
- Reinsert fully and turn.
- Remove dipstick (A) again.

- Top up if necessary, do not fill above MAX mark.

Oil level must remain between the MIN and MAX marks on the dipstick. Do not fill over the MAX mark.

**Difference in oil quantities**

The difference between the MIN and MAX marks on the dipstick is approx. 2.0 litres.
4. Fuel system

4.1 Replacing the fuel filter

Replacement and maintenance as indicated in the maintenance schedule, or sooner if engine performance begins to fall.

- Turn off the engine.
- Clean the surrounding area before removing the filter.
- Loosen and unscrew the filter cartridge (A).
- Collect any escaping fuel.
- Clean away any dirt from the sealing surface of the filter support.
- The sealing ring of the new filter cartridge should be lightly oiled, or moistened with diesel fuel.
- Screw on the filter cartridge by hand until oil seal is home, then manually tighten by another half turn.
- Check the filter for leaks.

NOTE:
Used fuel filters should be treated as special waste.

4.2 Fuel prefilter

If notice (A) appears in the multiple display, drain water and dirt

To drain water and dirt

- Turn off the engine.
- Open the ventilation screw (A).
- Disconnect connector.
- Open drain plug (B) ‘Attention left-handed thread’.
- Drain water and contamination. Collect in a suitable receptacle and dispose of in an environmentally acceptable manner.
- Close the ventilation screw (A).
- Connect connector.
- Close drain plug (B).
- Start engine. Check fuel prefilter for leaks.
Changing the filter

Replacement and maintenance as indicated in the maintenance schedule, or sooner if engine performance begins to fall.

- Turn off the engine.
- Clean the surrounding area before removing the filter.
- Disconnect connector, release tensioning ring (A).
- Screw out filter cartridge (B).
- Lightly oil seals or spray with diesel.
- Tighten the filter cartridge (B) by hand until the seal makes contact.
- Tighten the filter cartridge (B) by another half turn (18 Nm).
- Connect connector, tighten tensioning ring (A).
- Start engine. Check fuel prefilter for leaks.

**NOTE:**
Used fuel filters should be treated as special waste.

### 4.3 Bleeding the fuel system

**DANGER:**
High pressure lines must not be opened when the engine is running. The resulting high-pressure stream of fuel can cause serious injuries. After switching off the engine, wait at least 30 seconds.

1. Switch on the ignition and allow the fuel delivery pump to run approx. 30 seconds.
2. Start engine, actuate starter for max. 10 seconds.

**NOTE:**
No fuel or injection lines may be open, otherwise the injection lines must be replaced.

5. Dry air filter

### 5.1 Vacuum check

**Function check:**
- Remove cable connector (A) from vacuum switch and connect to ground.
- Turn ignition key to position I.

The vacuum check symbol should now appear on the multiple display, accompanied by an intermittent audible signal and a flashing warning light. The fault code is displayed.

- Check air filter intake hoses and intake system for leaks, and tighten the connections if necessary.
5.2 Removing/installing the main cartridge

- Release snap fasteners and remove cover.
- Clean filter housing, ensuring sealing faces are free of defects.
- Take out the main cartridge.
- Insert main cartridge and attach the cover.
- Ensure that the snap-on fasteners are correctly positioned.

**NOTE:**
The main cartridge must be replaced after 5 cleanings, or after 2 years at the latest.

5.3 Cleaning the main cartridge

**Provisional cleaning by tapping:**
- Tap the cartridge with the heel of the palm only.

**Cleaning by blowing out:**
- Blow out the filter from the inside out, with dry compressed air (maximum 5 bar, at a minimum distance of about 5 cm).
- Carefully blow the air through the inside of the cartridge.

**NOTE:**
Check the filter cartridge is in perfect condition after every cleaning: external damage, leaks, damaged paper bellows (light shine from the inside).

5.4 Replacing the safety cartridge

Only replace after the main cartridge has been changed 3 times, or if the main cartridge is damaged.

5.5 Dust discharge valve

The dust discharge valve is generally maintenance free. In case of compacted dust:
- Squeeze the dust discharge valve and remove the caking.

**NOTE:**
The valve must be free, it should not come into contact with any other parts. Replace damaged valves immediately.
6. Cooling system

6.1 Cleaning the cooling system

Cleaning the radiator
Clean the fins on the radiator, hydraulic oil cooler and transmission oil cooler, and air conditioning system if present. Do the same with the protective grille and front and side grilles.

- Open front bonnet.
- Remove cover panel (A).
- Carry out the cleaning from the engine side using a long-handled brush or compressed air.
- For stubborn dirt, pre-clean with a soft brush using a suitable cleaning solution (e.g. 'P3'). Leave to soak for about 5 minutes then rinse with a gentle water spray.

Cleaning the viscous fan

- Keep the fins of the viscous fan clean.
- Do not cover radiator, otherwise the fan would not cut in.

6.2 Checking the coolant level

! CAUTION:
When the engine is hot, take extreme care when removing the radiator cap and let hot steam escape. The coolant is under pressure - risk of scalding.

The coolant level should be above the arrowed mark on the expansion reservoir.

- Only top up with clean, lime-free water with antifreeze (glycol) through filler neck (arrowed).

Check concentration of coolant. Check for eventual leaks on hose connections (heating system too!).

NOTE:
The antifreeze solution also contains inhibitors to protect against cavitation and corrosion. A minimum concentration of 35 - 50 vol. % antifreeze and anticorrosive is therefore necessary throughout the year, even in frost-free areas.
6.3 Replacing coolant

**DANGER:**
Turn off the engine!

Replace coolant at least every 2 years.

**Draining coolant from the radiator**

- Open the cap on filler neck.
- Switch on the heater.
- Position drain pan under engine.
- Unscrew screw (A) and remove and allow coolant to run out.

**Filling with coolant**

- Mix antifreeze solution with clean, demineralised water and fill to the level of in the expansion tank.
- With the heater switched on, run the engine for about 10 minutes (at about 1,500 rpm).
- When the engine has cooled down, check the coolant level and top up if necessary.

6.4 Cleaning the cooling/heating system

If the coolant is badly contaminated, i.e. with rust or grease, use only hot cleaning solution (e.g. ‘P3’) to flush the cooling system.

- Run the engine for about one hour, filled with the cleaning solution.
- Flush out with clean water and top up with coolant solution.

7. V-belt

**DANGER:**
Check the V-belt tensioner only with the engine stopped! Mount the protective grille again.

**DANGER:**
Ensure that the engine cannot be started while the belt is being replaced. Disconnect the battery before replacing the belt.

**Poly-V-belt**

The poly-v-belt (A) has an automatic belt tensioner.

- Check for cracks, oil fouling, signs of overheating and wear.
- Replace damaged belts.

The tensioning pulley must be replaced every time the v ribbed belt needs to be replaced.

Air-conditioning compressor V-belts (see IMPLEMENTS Section 2.3).

Air compressor V-belts (see IMPLEMENTS Section 2.3).
8. Front PTO

Front PTO oil level

- Pour in oil through filler hole (B).
- Oil drain plug (A).

Oil level: up to overflow at filler hole (B).

9. Transmission and axle drives

9.1 Changing transmission oil, axle drive oil

Change the oil only when the transmission oil is warm.

Changing transmission oil, axle drive oil draining

- Place oil drip pan underneath the transmission.
- Unscrew drain plug (arrowed/select one), remove and allow oil to drain completely.
- Clean the drain plug, refit and tighten.

Replacing pressure filter

A soiled pressure filter (A) is indicated by a warning message, (see also FAULTS AND REMEDIAL ACTIONS Section 1.1). Replace the filter element as soon as possible, but not later than every 2000 operating hours.

- Unscrew the filter housing (A).
- Withdraw the filter element from housing.
- Replace the filter element, do not wash out.
- Lightly oil the sealing rings.
- Put filter housing back in place and tighten screw (to 40 Nm).
Replacing intake filter

- Remove cover (A) and extract the intake filter.
- Replace the filter element, do not wash out.

Filling gear oil

**NOTE:**
After filling, allow engine to run at least 5 minutes to fill the axle drives.

9.2 Checking the transmission oil level

- Tractor must be on level ground.
- Allow tractor to run approx. 2 minutes at idle speed.
- Turn off engine, wait approx. 2 minutes.
- Twist the dipstick and pull out.
- Wipe the dipstick using a clean, fibre-free rag.
- Reinsert dipstick fully and twist into place.
- Twist the dipstick and remove again.

**NOTE:**
The oil level must reach the upper notch on the dipstick. Difference in oil quantity between Min and Max marks on dipstick is about 2.5 litres. When filling the transmission after a repair, at least 10 litres must be filled with pressure via the PU connection on the valve block.

---

10. Four-wheel drive axle

10.1 Changing the oil in the front axle differential gear

Draining the oil

- Place an oil drip pan underneath the housing.
- Unscrew drain plug (A), remove and allow oil to drain completely.
- Clean the drain plug, refit and tighten.

Filling with oil

- Pour in the required oil through filler hole (A).

Oil level must reach the overflow at filler hole (A).
10.2 Replacing the oil in front axle hub drives

To change the oil, jack up front axle until wheels rotate freely; disengage the 4WD.

Draining the oil:
- Turn wheel until the hole is at the bottom.
- Place collecting pan underneath.
- Remove drain plug and allow the oil to drain completely.

Filling with oil:
- With hole on the left and marker in horizontal position, fill with oil up to the overflow.
- Clean the drain plug, refit and tighten.

Fig. 32

10.3 Front axle suspension

WARNING:
Even with the engine switched off and the load removed from the front axle, hydraulic lines of the front axle suspension are under pressure. Always relieve pressure before undoing connections! When inspecting for leakage, use suitable tools to prevent injury.

Relieving pressure from hydraulic lines

- Remove cover plates from right of doorway.
- Open plugs (A).

Fig. 33
11. Hydraulic system

**DANGER:**
When working on the hydraulics, always switch off the engine and ensure that the tractor is safely parked (parking brake applied, wheels chocked).
The system is under high pressure. Ensure that all pressure is released, and that mounted implements are lowered before any work is carried out on the hydraulics.
When checking for leaks, to avoid injury, use suitable material (e.g. a piece of wood).
Regularly check hydraulic hoses, and replace if they show signs of damage or ageing!
Always ensure the utmost cleanliness when working on hydraulic components.

11.1 Check hydraulic oil level, fill

**NOTE:**
To ensure optimum filling, first fill 25 litres, allow engine to run approx. 1 minute. Then fill up the remaining 5 litres.
Oil level is checked with the rear power lift lowered and the hydraulic cylinders retracted. Oil temperature about 20 °C.

- Unscrew oil dipstick (A) and remove.
The oil level must be between the MIN and MAX markings on the dipstick.

**Filling with oil.**
- Preferably fill oil using a return flow coupling with pump, this filters the oil.

**If that is not possible.**
- Fill hydraulic oil through the dipstick hole (A).

**NOTE:**
If hydraulic oil is being poured in from a large container, use a pre-filter.
11.2 Changing the hydraulic oil

**IMPORTANT:**
Always use only clean oil, containers and funnels.

Oil must meet the cleanliness standard of filter class 10 in accordance with NAS 1638.

Change the oil when the oil in the system is warm, the power lift is lowered, and all cylinders are retracted.

**Draining the oil**
- Place oil drip pan underneath the hydraulic reservoir.
- Unscrew and remove drain plug (A) and allow the oil to drain.
- Screw cleaned oil drain plug (A) back in and tighten.

**11.3 Changing hydraulic oil filter**

**Return line filter**

**Draining the oil**
- Place oil drip pan underneath the hydraulic reservoir.
- Remove drain plug and allow the oil to drain.
- Unscrew the filter cover (A).
- Replace return line filter.
- Use a new O-ring.
- Screw on filter cover.
- Clean the oil drain plugs, reinsert and tighten.

**Air vent filter**

- Unscrew and remove air vent filter (A) and screw in a new filter.

**NOTE:**
The vent filter cannot be cleaned.
12. Steering

Regularly check the steering for leaks and signs of damage, check that the sealing bellows are in good condition, and check the hoses for chafing marks.

13. Front wheels

13.1 Checking toe-in

After initial 50 operating hours, then every 500 operating hours.

Toe-in should be 0 - +2 mm.

- Steering straight ahead; average front axle load.
- Measure distance between tyres on the wheel hub at the front rim flange (A).
- Push tractor forward by 1/2 turn of the front wheels.
- Measure distance between tyres on the wheel hub at the rear rim flange (A +2).

13.2 Greasing the front wheel hubs (not with 4WD)

Every 2000 operating hours have the greasing renewed in the Service Workshop (see Lubrication Chart).
14. Heating and ventilation

**DANGER:**
Risk of burns when changing the roof blower and recirculating air filter caused by hot blower controller!

Clean the paper filter (by blowing or tapping out) about every six months or if fan output begins to fall. Dry out if necessary. Replace the paper filter if damaged. Do not switch on the heater blower during spraying operations.

14.1 Replacing the roof fan filter

**WARNING:**
A used pollutants filter may contain traces of spraying agents. Replace with a normal filter cartridge as soon as possible after every spraying operation. Read the instructions leaflet supplied with the filter. Cab and filter do not guarantee 100% protection against harmful chemicals. Follow the manufacturers instructions!

- Release lock (A), lift grid.

14.2 Replacing the recirculating air filter

**DANGER:**
Risk of burns when changing the roof blower and recirculating air filter caused by hot blower controller (B)!

- Undo clips.
- Remove recirculating air filter (A).
15. Windscreen washer system

Cleaning agents and antifreeze can be added according to the manufacturers instructions.

Fluid reservoir

- Top up fluid in reservoir (A).

16. Cleaning the tractor

- The driver seat upholstery sections can be removed by unbuttoning, without tools.
- Never leave the engine running when hosing down the tractor.
- Never point water jets directly at electrical equipment.
- When using a high-pressure washer, maintain a distance of at least 10 cm. from seals and paint work. Maximum water temperature 50°C. Do not use a spray booster (dirt cutter). Always follow the manufacturers instructions.
- After cleaning the tractor, lubricate all lubrication points, joints and bearings. We recommend waxing painted surfaces after cleaning.
- Do not aim high-pressure cleaning jets directly at the radar sensor (minimum distance 1 m. - maximum pressure 65 bar).
- Clean plastic parts such as the mudguards, bonnet, roof, with a weak soap solution. That produces the best cleaning results!
- Do not use acetone, concentrated window cleaner, scouring agents or cleaning agents containing a high-percentage of alcohol such as spirit!
17. Electrical and electronic systems

Since even a test lamp can damage electronic components in the electrical system, trouble shooting must always be carried out in the workshop.

Disconnect battery if the tractor is not used for long periods, to prevent it being discharged by small consumers. Check the battery charge level every 2 months. Do not operate the tractor without a battery.

In the following cases, stored settings (for example, the time) are lost and replaced by the default values:
1. Drained or disconnected battery.
2. Yellow connector 1 is disconnected from instrument cluster.

### 17.1 Battery

**WARNING:**
When working on the electrical system, always disconnect the battery (negative terminal). Use the correct connecting sequence - connect first positive terminal and then negative terminal. Avoid sparks and naked flame near the battery. The glass on work lights are very hot while switched on!

- Keep battery clean!
- Keep battery in good charging condition - especially in cold weather.
- Do not operate the tractor without a battery.
17.2 Alternator
Charge control lamp goes out after the start at approx. 800 rpm.

17.3 Electrowelding
Disconnect both battery terminals. Keep ground terminal as close to the point of welding as possible; be aware of components sensitive to temperature.

17.4 Adjusting the headlights

NOTE:
Before adjusting, bring the tractor front axle suspension to the middle position of the total suspension range. Remove front weight.

Fig. 45

- Adjust headlamps using the Phillips screws only (A).

Headlamp (A), at a distance of 10 m, the light-dark boundary is 10 cm under the installation height (measured from the ground to the centre of the headlamp).

Main beam headlamp (B), adjust so that the lightest point is just above the light-dark boundary of the dipped beam.

17.5 Adjusting the auxiliary lighting

At a 10 metre distance the upper limit of the illuminated area is two thirds of the height of the tractor lights.
17.6 Additional installation of electrical and electronic equipment

Safety recommendations for subsequent fitting of electrical and electronic equipment and/or components.

The tractor is equipped with electronic components whose functions can be influenced by electromagnetic signals from other units. This may constitute a danger - follow the safety instructions below, to avoid injuries.

When installing additional electrical and electronic equipment and/or components in the machine, and connecting them to the on-board electrical system, it is the users responsibility to check for possible interference with the tractor electronic system. This is particularly important for:

Connection of consumers.
● Never connect any equipment to sensing components (sensors) since this may interfere with control functions (EPC, comfort control, etc.).

Power used by consumers.
● Voltage dips or spikes may lead to spurious error messages.

Short-wave transmitters.
● Transmissions without a special antenna can cause malfunctions (EPC, comfort control, etc.).

Make sure that all subsequently installed electrical and electronic components comply with the relevant version of EMC guideline 75/322/EEC, and that they carry the e1 symbol.

Subsequent installation of mobile communication systems

For the subsequent installation of mobile communication systems (e.g. radio, telephone) the following requirements have to be met:
● Only equipment complying with national regulations may be installed.
● The equipment must be securely installed.
● Portable or mobile equipment used within the vehicle is permissible only when connected to an externally installed aerial.
● The transmitter must be fitted well clear of the vehicle electronics.
● Make sure the antenna is fitted properly with a good ground connection between antenna and vehicle body.

For cabling, installation and a maximum permissible power consumption, observe instructions of equipment manufacturer.
18. Fuses

DANGER:
Use only original fuses. Excess amperage fuses can destroy the electrical system. Fire hazard.

18.1 Fuse holder

Fuse holder 1

Fuse holder 2

Fig.47

Fig.48
18.2 Assignment fuse holder 1

Fuse holder 1

<table>
<thead>
<tr>
<th>Fuse no.</th>
<th>PIN</th>
<th>Amps (A)</th>
<th>Consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>30</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
<td>25</td>
<td>Preheat starter switch position ON</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
<td>15</td>
<td>Radio, instrument cluster, interior lighting</td>
</tr>
<tr>
<td>4</td>
<td>30</td>
<td>5</td>
<td>Battery disconnect relay</td>
</tr>
<tr>
<td>5</td>
<td>58</td>
<td>25</td>
<td>Work light (Twin Power), on top of roof</td>
</tr>
<tr>
<td>6</td>
<td>58</td>
<td>5</td>
<td>Control console, instrument cluster</td>
</tr>
<tr>
<td>7</td>
<td>58</td>
<td>15</td>
<td>Rear work lights switch</td>
</tr>
<tr>
<td>8</td>
<td>58</td>
<td>15</td>
<td>Front work lights switch</td>
</tr>
<tr>
<td>9</td>
<td>58</td>
<td>5</td>
<td>Radio</td>
</tr>
<tr>
<td>10</td>
<td>58</td>
<td>5</td>
<td>Taillamps, license plate lighting</td>
</tr>
<tr>
<td>11</td>
<td>15 E</td>
<td>5</td>
<td>E-box, joystick</td>
</tr>
<tr>
<td>12</td>
<td>15 E</td>
<td>10</td>
<td>CAN hydraulic valves</td>
</tr>
<tr>
<td>13</td>
<td>15 E</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
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<td>5</td>
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<td>16</td>
<td>15 E</td>
<td>10</td>
<td>Fuel pump</td>
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<td>17</td>
<td>15 E</td>
<td>10</td>
<td>Exhaust gas recirculation</td>
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<tr>
<td>18</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>15 E</td>
<td>25</td>
<td>Ventilation, low roof</td>
</tr>
<tr>
<td>Fuse no.</td>
<td>PIN</td>
<td>Amps (A)</td>
<td>Consumers</td>
</tr>
<tr>
<td>---------</td>
<td>-----</td>
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<tr>
<td>21</td>
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<td>15</td>
<td>Pressure switch hazard warning light, brake relay</td>
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<tr>
<td>22</td>
<td>15</td>
<td>10</td>
<td>Steering column switch (combination switch)</td>
</tr>
<tr>
<td>23</td>
<td>15</td>
<td>15</td>
<td>Power supply driving lights</td>
</tr>
<tr>
<td>24</td>
<td>15</td>
<td>15</td>
<td>Windscreen wiper front intermittent operation, rotating beacon</td>
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<tr>
<td>25</td>
<td>15</td>
<td>10</td>
<td>Driver seat heater</td>
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<td>26</td>
<td>15</td>
<td>40</td>
<td>Blower switch</td>
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<td>27</td>
<td>15</td>
<td>15</td>
<td>Relay hydraulic circuits 3 and 4</td>
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<td>15</td>
<td>40</td>
<td>Blower switch</td>
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<td>15</td>
<td>40</td>
<td>Implement socket, communications box power supply</td>
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<td>30</td>
<td>15</td>
<td>10</td>
<td>10 A socket</td>
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<td>31</td>
<td>30</td>
<td>25</td>
<td>Socket 25 A</td>
</tr>
<tr>
<td>32</td>
<td>30</td>
<td>15</td>
<td>Hazard warning light pushbutton</td>
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<td>33</td>
<td>30</td>
<td>15</td>
<td>Driving lamps pushbutton</td>
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<td>Relay 56a (driving lights)</td>
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<td>35</td>
<td>30</td>
<td>15</td>
<td>Relay, 56 b (dipped headlights)</td>
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<td>36</td>
<td>30</td>
<td>25</td>
<td>Heater, low roof</td>
</tr>
<tr>
<td>37</td>
<td>30</td>
<td>25</td>
<td>Power supply e-box engine control</td>
</tr>
<tr>
<td>38</td>
<td>30</td>
<td>40</td>
<td>Power supply e-box comfort</td>
</tr>
<tr>
<td>39</td>
<td>30</td>
<td>5</td>
<td>Fuseboard, joystick</td>
</tr>
<tr>
<td>40</td>
<td>30</td>
<td>10</td>
<td>Mini-hydraulics</td>
</tr>
<tr>
<td>41</td>
<td>58L</td>
<td>10</td>
<td>Front socket for front power lift, trailer socket</td>
</tr>
<tr>
<td>42</td>
<td>58R</td>
<td>10</td>
<td>Trailer socket</td>
</tr>
<tr>
<td>43</td>
<td>L</td>
<td>10</td>
<td>Front socket for front power lift, trailer socket</td>
</tr>
<tr>
<td>44</td>
<td>R</td>
<td>10</td>
<td>Front socket for front power lift, trailer socket</td>
</tr>
<tr>
<td>45</td>
<td>54</td>
<td>10</td>
<td>Trailer socket</td>
</tr>
<tr>
<td>46</td>
<td>58</td>
<td>5</td>
<td>Position lamp front left, standing lamp left</td>
</tr>
<tr>
<td>47</td>
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</tr>
<tr>
<td>48</td>
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</tr>
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</table>
### CARE AND MAINTENANCE

#### 18.3 Assignment fuse holder 2

**Fig.50**

<table>
<thead>
<tr>
<th>Fuse</th>
<th>Separation point</th>
<th>Components Separation point</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 X200/10</td>
<td>Hydrostat speed sensor</td>
<td>X163</td>
</tr>
<tr>
<td>02 X200/11</td>
<td>Bevel pinion speed sensor</td>
<td>X164</td>
</tr>
<tr>
<td>03 X200/12</td>
<td>clutch pedal rotary position sensor</td>
<td>X166</td>
</tr>
<tr>
<td>04 X200/14</td>
<td>Control unit</td>
<td>X181 Euro</td>
</tr>
<tr>
<td>05 X200/14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>06 X201/11</td>
<td>Position sensor linkage</td>
<td>X178</td>
</tr>
<tr>
<td>07 X201/12</td>
<td>Load sensor pin</td>
<td>X179</td>
</tr>
<tr>
<td>08 X201/13</td>
<td>Position sensor foot throttle</td>
<td>X898</td>
</tr>
<tr>
<td>09 X201/13</td>
<td>Steering angle sensor</td>
<td>X233</td>
</tr>
<tr>
<td>10 X200/7</td>
<td>High pressure sensor 1</td>
<td>X157</td>
</tr>
<tr>
<td>11 X201/16</td>
<td>Engine speed sensor</td>
<td>X159</td>
</tr>
<tr>
<td>12 X200/17</td>
<td>Suspension rotary position sensor</td>
<td>X152</td>
</tr>
<tr>
<td>13 X200/18</td>
<td>Rear PTO speed sensor</td>
<td>X169</td>
</tr>
<tr>
<td>14 X200/19</td>
<td>Front PTO speed sensor</td>
<td>X151</td>
</tr>
<tr>
<td>15 X200/20</td>
<td>High pressure sensor 2</td>
<td>X177</td>
</tr>
<tr>
<td>16 X201/1</td>
<td>Solenoid switch turboclutch interrupt</td>
<td>X142</td>
</tr>
</tbody>
</table>

![Fuse assignment diagram](image)
19. Circuit diagrams

19.1 Legend for circuit diagrams

X001 to X9999 are electric couplers, butt-type connectors and other connectors.

A007 = Instrument cluster
A013 = Fuseboards
A025 = EPC control panel
A026 = Heater control panel
A050 = Electronics box EXT
A051 = EDC Engine control
A056 = Radio
A067 = Keypad front
A068 = Multi-function control element
A070 = ID-module (Sisu)
A074 = Actuation unit
A089 = EGR actuator
A119 = Air-conditioning control unit
A120 = Roof blower control
A123 = Mini-hydraulics control panel
B002 = Front PTO speed Hall sensor
B003 = Suspension rotary position sensor
B004 = Vacuum switch
B008 = High pressure sensor
B009 = Discharge temperature sensor
B010 = Engine Hall sensor 1
B014 = Speed sensor, hydrostatic drive collector shaft
B015 = Bevel pinion speed sensor
B017 = Clutch pedal rotary position sensor
B019 = Compressed air supply pressure sensor
B020 = Rear PTO rpm Hall sensor
B031 = Draft sensing pin
B035 = Hand throttle rotary position sensor
B039 = High pressure sensor 2 pressure/thrust detection
B050 = Loudspeaker, left
B051 = Loudspeaker, right
B055 = Position sensor foot throttle
B080 = Hydraulic oil temperature switch
B085 = Speed camshaft
B086 = Pressure diesel / rail
B087 = Sensor fuel low pressure (diesel)
B088 = Speed crankshaft
B089 = Temperature coolant
B090 = Pressure engine oil
B092 = Temperature and pressure charge-air
B099 = Temperature switch water temperature
B107 = Hydraulic oil level switch
B130 = Sensor fuel temperature
B133 = Fuel level sensor
B165 = Evaporator temperature
B166 = Evaporator temperature
B167 = Inside temperature
B168 = Steering angle sensor
E001 = H4 headlamp, right
E002 = H4 headlamp, left
E003 = H4 right auxiliary headlight
E004 = H4 additional headlamp, left
E005 = Front right indicator
E006 = Front left indicator
E009 = Licence plate light ground / safety bar back
E010 = Licence plate lamp, left
E013 = Right front roof lamp
E014 = Left front roof lamp
E015 = Front work light on right turn signal
E016 = Front work light on right turn signal indicator
E019 = Cab lighting
E022 = Rotating beacon left
E042 = Licence plate light ground / safety bar back
E043 = Auxiliary lighting safety frame right ground
E044 = Flashing position lamp safety frame right ground
E045 = Flashing position lamp safety frame left ground
E046 = Auxiliary lighting safety frame left ground
E047 = Work light safety frame right ground
E048 = Work light safety frame left ground
E056 = Flashing position lamp right on top of roof ground
E057 = Flashing position lamp right on top of roof ground
E058 = Work light right on top of roof ground
E059 = Work light right on top of roof ground
E060 = Auxiliary lighting safety frame left 56a
E061 = Auxiliary lighting safety frame left 56a
E062 = Left rear roof work light
E121 = Work light on roof, right rear
E126 = Taillamp back left
E127 = Taillamp back right
E147 = Lighting cab LED
G001 = Battery plus
G002 = Alternator
H005 = Horn
H006 = Buzzer
H009 = Buzzer reverse driving
K001 = Relay +Vbatt 15
K002 = Relay +Vbatt 58
K004 = Relay 56A
K005 = Relay 56B
K007 = Brake relay
K009 = Screen wipers pulse generator
K010 = Turn flasher relay
K013 = 3rd hydraulic circuit relay
K060 = Relay turboclutch valve
K063 = Relay heating flange
K068 = Battery disconnect relay solenoid
K069 = Lockout relay
K071 = Relay circuit 4
K074 = Relay starter
K075 = Relay fan pump (Sisu)
K086 = Relay air-conditioning
M001 = Starter 30 (jump start terminal)
M002 = Front wiper motor
M003 = Front windshield washer system pump
M004 = Rear window wiper motor
M005 = Screen washers pump, rear
M007 = Line coupling seat adjustment motor
M009 = Blower speeds 1 - 3
M012 = Heating unit
M013 = Heater pump
M019 = Fuel pump
M028 = Condenser blower 1
M029 = Condenser blower 2
M030 = Condenser blower 3
M031 = Roof blower (infinitely adjustable)
M032 = Heating valve with position sensor
N001 = Amplifier (foil antenna)
R002 = Heating flange ground connection
S002 = Ignition-starter switch
S003 = Driving lamps pushbutton
S004 = Hazard warning light pushbutton
S005 = Right brake solenoid switch
S006 = Left brake solenoid switch
S007 = Additional lighting pushbutton
S008 = Front work lights switch
S009 = Rear work lights switch
S010 = Rear wiper motor switch
S011 = Rotating beacon switch
S015 = Hand brake switch
S017 = Filter contamination switch
S019 = PTO ON key, rear left
S029 = External Raise button, left
S030 = External Lower button left
S037 = Blower switch
S048 = Rear screen heater switch
S053 = Seat switch
S059 = Pressure switch Italian brake
S070 = Rate detection
S074 = Solenoid switch starter lockout switch and turboclutch interrupt
S092 = Disconnect switch battery disconnect relay
S102 = Switch Twin Power work light
S117 = Steering column switch

S127 = High/low-pressure switch
S128 = Roof blower switch
S129 = Air-conditioning switch
U003 = Foil antenna
Y004 = Transmission solenoid neutral/turbo-clutch valve
Y008 = Rear PTO solenoid valve
Y009 = 4WD solenoid valve
Y010 = Differential lock solenoid valve
Y011 = Front PTO solenoid valve
Y013 = Lower suspension solenoid
Y014 = Raise suspension solenoid
Y023 = Compressed air pilot control solenoid valve
Y024 = air-conditioning magnetic clutch
Y026 = Rear PTO stage 1 solenoid
Y027 = Rear PTO stage 2 solenoid
Y028 = Rear PTO stage 3 solenoid
Y042 = Valve 2, mini-hydraulics
Y043 = Valve 1, mini-hydraulics
Y044 = Valve 3, mini-hydraulics
Y045 = Valve 6, mini-hydraulics
Y046 = Valve 5, mini-hydraulics
Y047 = Valve 4, mini-hydraulics
Y050 = Hydraulics collector valve
Y089 = Solenoid trailer brake load transfer
Y091 = Metering unit
Y095 = Injector1
Y096 = Injector2
Y097 = Injector3
Y102 = EPC valve
Y103 = Yellow valve
Y104 = Blue valve
Y105 = Red valve
Y106 = Green valve
Y107 = Brown valve
Y108 = White valve
Y122 = Solenoid valve cooler bypass
### 19.2 Colour identification of electric wires

<table>
<thead>
<tr>
<th>Colour of wire</th>
<th>Abbreviation</th>
<th>Mark</th>
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<tr>
<td>white (with black printing)</td>
<td>ws</td>
<td>General colour of wires</td>
</tr>
<tr>
<td>red</td>
<td>rt</td>
<td>+ Vbatt 30</td>
</tr>
<tr>
<td>green</td>
<td>gn</td>
<td>+ Vbatt 15</td>
</tr>
<tr>
<td>yellow</td>
<td>ge</td>
<td>+ Vbatt 15E</td>
</tr>
<tr>
<td>grey (basic colour for lighting)</td>
<td>gr</td>
<td>+ Vbatt 58</td>
</tr>
<tr>
<td>grey - black</td>
<td>gr-sw</td>
<td>+ Vbatt 58 lighting left</td>
</tr>
<tr>
<td>grey - red</td>
<td>gr-rt</td>
<td>+ Vbatt 58 lighting right</td>
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<tr>
<td>yellow</td>
<td>ge</td>
<td>+ Vbatt power supply</td>
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<tr>
<td>brown</td>
<td>br</td>
<td>vehicle body ground</td>
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<tr>
<td>brown - white</td>
<td>br-ws</td>
<td>Electronics ground</td>
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<td>brown - yellow</td>
<td>br-ge</td>
<td>Sensors ground</td>
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<tr>
<td>black - green</td>
<td>sw-gn</td>
<td>Right side turn signal indicator</td>
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<tr>
<td>black - white</td>
<td>sw-ws</td>
<td>Left side turn signal indicator</td>
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<tr>
<td>orange</td>
<td>or</td>
<td>Additional wiring</td>
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<tr>
<td>blue</td>
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<tr>
<td>pink</td>
<td>rs</td>
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<tr>
<td>turquoise</td>
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<td>violet</td>
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### 19.3 Circuit diagrams

#### List of circuit diagrams

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<td>Overview engine control unit EDC</td>
</tr>
<tr>
<td>Sheet 4</td>
<td>Overview instr. cluster, transmission control unit, EPC control panel, mini-hydraulics control panel, keypad, multi-function control element MFB</td>
</tr>
<tr>
<td>Sheet 5</td>
<td>Overview microfuse</td>
</tr>
<tr>
<td>Sheet 6</td>
<td>Supply</td>
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<td>Sheet 7</td>
<td>Power supply electronic system</td>
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<td>Grounding layout</td>
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<td>Sheet 10</td>
<td>Safety frame variant</td>
</tr>
<tr>
<td>Sheet 11</td>
<td>Flasher and position lamp top of roof</td>
</tr>
<tr>
<td>Sheet 12</td>
<td>Turn signal indicator</td>
</tr>
<tr>
<td>Sheet 13</td>
<td>Brake lamp, trailer brake</td>
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<td>Sheet 14</td>
<td>Wipers, rotating beacon</td>
</tr>
<tr>
<td>Sheet 15</td>
<td>Work lamps</td>
</tr>
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<td>Sheet 16</td>
<td>Cab lighting, radio</td>
</tr>
<tr>
<td>Sheet 17</td>
<td>Heater, ventilation, air-conditioning</td>
</tr>
<tr>
<td>Sheet 18</td>
<td>Variant low roof heating</td>
</tr>
<tr>
<td>Sheet 19</td>
<td>Load sockets, seat compressor</td>
</tr>
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<td>Sheet 20</td>
<td>Implement socket, event counter</td>
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<td>Sheet 21</td>
<td>Instr. cluster</td>
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<td>Sheet 22</td>
<td>EPC power lift control</td>
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<td>Sheet 23</td>
<td>Enhanced control BUS</td>
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<td>Sheet 24</td>
<td>Transmission bus</td>
</tr>
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<td>Sheet 25</td>
<td>Valve bus</td>
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<tr>
<td>Sheet 26</td>
<td>Hydraulics, hydraulic circuit 3, hydraulic circuit 4</td>
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<tr>
<td>Sheet 27</td>
<td>4WD and differential lock</td>
</tr>
<tr>
<td>Sheet 28</td>
<td>Suspension</td>
</tr>
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<td>Sheet 29</td>
<td>PTO</td>
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<td>Engine control EDC</td>
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<td>Engine control SISU</td>
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<tr>
<td>Sheet 33</td>
<td>Relay block</td>
</tr>
<tr>
<td>Sheet 34</td>
<td>Air-conditioning HV</td>
</tr>
<tr>
<td>Sheet 35</td>
<td>Air-conditioning simple HVAC</td>
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</table>
19.6 Overview microfuse
19.13 Turn signal indicator

260.900.000.003 Sheet 12
19.19 Variant low roof heater
19.20 Load sockets, seat compressor

260.900.000.003 Sheet 19
19.21 Implement socket, event counter
19.23 EPC power lift control

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CARE AND MAINTENANCE

19.26 Valve bus
19.27 Hydraulics, hydraulic circuit 4
260.900.000.003 Sheet 26
CARE AND MAINTENANCE

19.28 4WD and differential lock
260.900.000.003 Sheet 27
1. Compressed air system

**DANGER:**
Make sure trailer is correctly attached. If the trailer has air brakes, only start off if indicator in the instrument cluster is in the green zone and there are no warning messages.
Ensure that brake lines are long enough!
Observe trailer manufacturers instructions.
Whenever towing trailers equipped with air brakes, do not use independent wheel brakes (lock the brake pedals)!

Operating pressure has been attained when indicator (A) is in the green zone.
If pressure in the air tank is too low, indicator (A) flashes in the red zone.

1.1 Operating

![Fig.1](image1)

A = 'Yellow' coupling head
B = 'red' coupling head

Dual-line brake system
Dual-line system, reserve

- After uncoupling, seal the openings with the dust caps.

**Antifreeze pump/tank**

![Fig.2](image2)

- Set antifreeze pump lever (A) to I = open.
- Fill antifreeze tank (B) with ethyl alcohol (X 902.015.003).

After winter operation is ended
- Set lever to 0 = closed.

**Filling tyres**

- Connect the supplied tyre inflating hose to red coupling head.

**IMPORTANT:**
Regularly check pressure which can rise to about 8.1 bar.
1.2 Maintenance

Testing the compressed air system for leakage
To be carried out weekly with stopped engine and a full air tank: display on dashboard must maintain unchanged indication for at least 3 minutes.

Draining condensation water from the air bottle

- Every day, press in the pin under the bottle to drain the condensation.

Compressor V-belt

V-belt tension (strand pull) is measured at the centre point between the pulleys with Optibelt tension gauge I.

To adjust:
- Loosen screw (A).
- Set with tensioning screw (B).

Profile = Strand pull in N (kp)
13 mm = 400 ±50 (40 ±5)
- Tighten screw (A).
2. Air-conditioning

2.1 General

**CAUTION:**
If you suspect that the air-conditioning is damaged, switch off the AC compressor. Contact a FENDT workshop.

**NOTE:**
If it is very humid outside with high outside temperatures, condensation may drip off of the evaporator forming puddle of water under the tractor. This is normal and is not a sign of leakage.

**WARNING:**
All repair and maintenance work must be carried out by qualified personnel only. Avoid all contact with liquid refrigerant. If accidentally splashed in the eyes, seek medical advice immediately. No welding should be carried out on or near any parts of the air-conditioning systems! Risk of poisoning! Maximum ambient temperature for coolant 80 °C. Check the V-belt only while the engine is stopped. Attach the protective grille again.

2.2 Operating

- Start engine tractor (air-conditioning only works with the engine running).
- Switch on blower with selector (B).
- Switch on air-conditioning with toggle switch (A), indicator lamp is lit when in operation.
- Set desired temperature with rotary switch (C).

Use the air vents to adjust the amount of air and guide air flow.
For recirculated air and fresh air supply (see OPERATION Section 6.2).

**NOTE:**
For health reasons it is advisable not to allow the air inside the cab to drop by more than approx. 5 - 8 °C below the outside temperature. Do not expose yourself directly to cold draughts - danger of catching cold! For energy economy and greater efficiency, we recommend using the recirculated air mode.
2.3 Maintenance

Switch on the air-conditioning once every month (even in winter) for about 10 min., and set the ventilation to recirculated air mode (see also OPERATION Section 6.2).

Condenser

Fig.7
- Remove cover plate (A) at the back of the cab.
- Gently clean the fins of the condenser (A), do not use pressure.

Checking coolant level

Fig.8
- Coolant must flow without bubbles through the sight glass (A) of the fluid reservoir when the engine is running and the air-conditioning is working at full power.

Topping up with refrigerant or replacing the tank / dryer can only be undertaken in the workshop.

Compressor V-belt

Fig.9
V-belt tension (strand pull) is to be measured at the centre point between pulleys, using Optibelt tension gauge I.

Adjustment
- Loosen fastener (A).
- Tension the tensioning pulley with screw (B).
- Tighten fastener (A).

Profile = Strand pull in N (kp)
13 mm = 400 +50 (40 +5)
1. Warning and fault messages

Warning and fault messages are indicated on the multiple display. The warning lamp also flashes and an acoustic warning signal sounds.

If a fault message is displayed, the stored fault code and can be read out to determine the fault more accurately. These codes are memorised to be called up in the workshop for rapid fault location.

The default display is the clock and operating hours and system settings.

1.1 Warning messages
No fault code, no storage.

Calling up several concurrently existing warnings

Press the key to show the symbols for existing warning messages one after the other.

<table>
<thead>
<tr>
<th>1. Hand brake on</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator accompanied by intermittent audible signal and warning lamp.</td>
<td></td>
</tr>
</tbody>
</table>

**Cause**
Hand brake applied.

**Remedial Action**
Release hand brake.

<table>
<thead>
<tr>
<th>2. Engine speed too high</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator accompanied by intermittent audible signal and warning lamp.</td>
<td></td>
</tr>
</tbody>
</table>

**Cause**
Engine speed too high.

**Remedial Action**
Reduce engine speed.
### FAULTS AND REMEDIAL ACTIONS

<table>
<thead>
<tr>
<th>Fault-Module</th>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Engine speed below 500 rpm and turboclutch function switched off</td>
<td>Engine speed too low.</td>
<td>Increase engine speed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault-Module</th>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Front/rear PTO overspeed</td>
<td>In PTO stage <strong>1000</strong>, from 1170 rpm.</td>
<td>Reduce PTO speed.</td>
</tr>
<tr>
<td></td>
<td>In PTO stage <strong>540E</strong> as of 630 rpm.</td>
<td>Reduce PTO speed.</td>
</tr>
<tr>
<td></td>
<td>In rear PTO <strong>540</strong> setting, from 630 rpm.</td>
<td>Reduce PTO speed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault-Module</th>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Battery voltage too low</td>
<td>Alternator faulty.</td>
<td>Replace alternator (at workshop).</td>
</tr>
<tr>
<td></td>
<td>Too many consumers.</td>
<td>Reduced number of consumers.</td>
</tr>
<tr>
<td></td>
<td>Consumer was switched on while engine was switched off.</td>
<td>Recharge battery.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault-Module</th>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Battery voltage too high</td>
<td>Disconnect charging cable B+ from the alternator, make sure there is no short to ground, call workshop.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fault-Module</th>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Rear PTO function automatic mode</td>
<td>Linkage and PTO automatic mode preselected. Ground speed below 1 km/h, rear PTO not engaged.</td>
<td>Increase ground speed to over 1 km/h and actuate Quick Lift switch.</td>
</tr>
</tbody>
</table>
8. **Mechanical neutral position!**
Establishing a mechanical frictional connection (see towing instructions).

9. **When starting tractor, activating key depressed or jammed**
Release activating key.

10. **Fuel reserve**
Indicator accompanied by intermittent audible signal and warning lamp.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel is running out.</td>
<td>Fill up tank.</td>
</tr>
</tbody>
</table>

11. **Ground speed PTO**
Indicator accompanied by intermittent audible signal and warning lamp.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor is not stationary when engaging or disengaging the ground speed PTO.</td>
<td>Stop the tractor.</td>
</tr>
</tbody>
</table>

12. **Ground speed PTO**
Indicator accompanied by intermittent audible signal and warning lamp.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed too high with disengaged ground speed PTO and mounted implement.</td>
<td>Reduce speed or remove implement.</td>
</tr>
</tbody>
</table>

13. **Speed monitoring**
Driving at too high a speed in emergency operating mode.
Reduce vehicle speed.
### Faults and Remedial Actions

<table>
<thead>
<tr>
<th>Fault Module</th>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
</table>
| **14. Seat switch** | Driver seat empty for more than 3 seconds. | Sit on the driver seat.  
If the Tractor Management System (TMS) is active, engine speed is reduced.  
In accelerator pedal mode, the direction of travel must be actuated again while the tractor is actively stopped. |
| **15. Foot brake actuated or foot brake switch misadjusted** | The foot brake is applied when actuating pedal mode in TMS mode, or the foot brake switch is misadjusted. | Release foot brake or adjust foot brake switch. |
| **16. Cruise control activated while clutch is pressed** | If the driver tries to activate cruise control while the clutch is pressed, the following indicator appears for 3 seconds. | Release clutch. |
| **17. Cruise control activated while brake is pressed** | If the driver tries to activate cruise control while the brake is pressed, the following indicator appears for 3 seconds. | Release foot brake. |
| **18. Crossgate lever locked** | Releasing lock. | |
19. Linear module locked
Releasing lock.

20. Hydraulic valves (oil temperature)
Hydraulic oil temperature too high.
Cool hydraulic oil.

Release activating key.

22. Floating position cannot be activated
Hydraulic oil temperature too low.
Warm up hydraulic oil and activate again.
1.2 Fault messages
Indicator accompanied by intermittent audible signal and warning lamp.
Fault codes are also displayed with the fault messages.

**In the event of a fault message, proceed as follows:**
- To make system operational, switch ignition OFF, wait approx. 5 seconds, switch ignition ON (reset).
- If it was a temporary fault, the system is operative again.

**If the fault is displayed again:**
Accept fault messages one after the other, take note of measures to be taken in the code table.
Press key until all fault messages are cleared.

Each stored fault messages must be cleared individually. Clearing a fault message does not remove the fault, it is simply no longer displayed.
If the fault is still present, it is indicated again the next time the tractor is started.

**Calling up a fault code**

![Fig.2](image-url)

Press key, the first main menu appears on the multiple display.

Press either of the keys repeatedly until symbol (A) flashes.

Press key.
The second main menu level appears on the multiple display.
Press either of the keys repeatedly until symbol (A) flashes.

Press key, the following image is displayed on the multiple display.

A = Number of faults
B = Current fault
C = Fault code

Press key to display fault codes one after the other.

1. Engine temperature
Unload the engine immediately, then switch off.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clogged radiator fins.</td>
<td>Blow or spray fin from inside to outside.</td>
</tr>
<tr>
<td>Not enough cooling water.</td>
<td>Top up with warm water while the engine is running.</td>
</tr>
<tr>
<td>V-belt is loose or torn.</td>
<td>Re-tension or change the belt.</td>
</tr>
<tr>
<td>Thermostat does not open.</td>
<td>Replace thermostat (workshop task).</td>
</tr>
<tr>
<td>Coolant circuit dirty.</td>
<td>Clean out the inside of the system with hot flushing liquid, e.g. P3 (at workshop).</td>
</tr>
<tr>
<td>Viscous fan faulty.</td>
<td>Replace viscous fan (at workshop).</td>
</tr>
</tbody>
</table>
## FAULTS AND REMEDIAL ACTIONS

### 2. Engine oil pressure

Switch off engine immediately.
Check oil level.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine oil pressure too low as a result of insufficient or excessively thin oil.</td>
<td>Top up engine oil or fill with correct oil.</td>
</tr>
<tr>
<td>Oil control valve in filter head dirty.</td>
<td>Clean oil control valve (workshop task).</td>
</tr>
</tbody>
</table>

### 3. Charge air temperature

Unload the engine immediately, then switch off.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charge air cooler dirty.</td>
<td>Check charge air cooler, and clean if necessary.</td>
</tr>
<tr>
<td>Cracked V-belt.</td>
<td>Replace V-belt.</td>
</tr>
<tr>
<td>Viscous fan faulty.</td>
<td>Replace viscous fan (at workshop).</td>
</tr>
</tbody>
</table>

### 4. Transmission oil filter dirty

**Note:** Change the cartridge as soon as the indicator appears. The indicator may go out again, still change the cartridge.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contaminated hydraulic oil filter element.</td>
<td>Replace filter unit.</td>
</tr>
</tbody>
</table>

### 5. Transmission oil temperature too high

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission oil too hot.</td>
<td>Allow transmission oil to cool down.</td>
</tr>
<tr>
<td>Radiator soiled.</td>
<td>Clean the transmission oil cooler.</td>
</tr>
<tr>
<td>Fault</td>
<td>Cause</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>6. Contaminated air filter</td>
<td>Air filter main cartridge dirty.</td>
</tr>
<tr>
<td>10. Hydraulic fluid temperature too high</td>
<td>Control valve not set to &quot;Neutral&quot; during hydraulic work.</td>
</tr>
</tbody>
</table>

Note: engine is switched off after 5 minutes at the most.
## 10. Hydraulic fluid temperature too high

With saving
Relieve the hydraulic system of load and switch off the engine.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-point implement is non-standard / lateral support set too narrow.</td>
<td>Adapt three-point implement to standard / change side support. If necessary make lifting struts longer, if lifting height is sufficient.</td>
</tr>
<tr>
<td>Three-point implement too heavy / overpressure valve continuously activated in upper limit position of power lift.</td>
<td>Connect upper link to a different point on the implement; measure pressure during the lifting process (at workshop).</td>
</tr>
<tr>
<td>Insufficient oil supply for the operation concerned.</td>
<td>Check and top up oil level.</td>
</tr>
<tr>
<td>Final shutoff incorrectly adjusted.</td>
<td>Readjust final shutoff (at workshop).</td>
</tr>
</tbody>
</table>

## 11. Hydraulic oil level (early warning)

Indicator accompanied by a continuous beep and warning light.
Hydraulic tank could be empty.
Flow rate is limited to 10 l/min for all valves.

## 12. Valve prioritisation

Display accompanied by warning light.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritised valve is requiring more oil than the pump can provide.</td>
<td>Valve priority is deactivated temporarily until the pump is able to provide the required quantity again.</td>
</tr>
</tbody>
</table>

## 13. Compressed air supply

Indicator accompanied by intermittent audible signal and warning lamp.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure in tank is too low.</td>
<td>Wait a short while until the pressure in the tank has increased. Check pressure regulator (at workshop).</td>
</tr>
</tbody>
</table>

## 14. EDC control module

Indicator accompanied by intermittent audible signal and warning lamp.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect engine control unit, incorrect EOL programming.</td>
<td>Replace engine control unit, perform new EOL programming.</td>
</tr>
</tbody>
</table>
### 15. Reactivate hydraulic valve

**Cause**
Temporary malfunction (e.g. overvoltage) on a hydraulic valve.

**Remedial Action**
Press ESC key.

### 16. 4WD key

Switching off may no longer be possible.

### 17. Fault in the PTO linkage automatic mode

Repeat calibration.

### 18. Differential lock key

Switching on may no longer be possible.

### 19. Rear PTO

Engage by pressing key, try pressing longer than 5 seconds.

### 20. Front PTO

Engage by pressing key, try pressing longer than 5 seconds.

### 21. EPC rear linkage

Operate the quick lift switch or switch ignition off and on again.

### 22. Multi-function control element

Rear/front automatic mode on/off switch faulty.
Automatic mode stop button faulty.
23. **Transmission control**

Call up fault code and refer to the code table for what measures to take.

24. **Sensors**

No pressure or volume monitoring. It is essential to find the cause of the fault immediately in the code table (see also FAULTS AND REMEDIAL ACTIONS Section 2).

25. **Electronic system**

Indicator accompanied by a continuous beep and warning light. Electronic connections between components are faulty or cut. Other fault codes may occur.

26. **E-box (not EPC)**

E-box hardware fault. Replace corresponding E-box (at workshop).

27. **Memory E-box (not EPC)**

E-box basic programming invalid. (reprogramming, workshop task).

28. **Front axle suspension**

No longer functioning. Suspension remains in the last position selected.

29. **Hydraulic (oil level)**

Hydraulic tank empty. Valves, front power lift and rear EPC are locked.

Refill hydraulic oil or switch the valve to floating position manually, so that oil can flow back out of the external cylinder (see also OPERATION Section 20.4). Switch ignition OFF and ON (reset).

30. **Hydraulic valves**

Valve remains incorrectly positioned or goes into neutral.
31. **Hydraulic valves (crossgate lever)**
Valves cannot be actuated.

32. **Engine coolant (level)**
Level of coolant too low.
Top up with coolant.

33. **Initialisation error on communication driver**
CAN bus communication restricted.

34. **Draft sensing pin overloaded**
Relieve draft sensing pin.

35. **EDC fault**
Take note of fault code for engine control.

36. **Excessive transmission slip**
Specified/actual transmission slip limit exceeded. This fault may occasionally occur under extreme conditions (e.g. at very low transmission oil temperature) even if transmission is mechanically sound. If the problem persists in normal operating conditions, contact the workshop immediately.

37. **Seat switch defective**
Pedal mode is not possible.

38. **Fault in Tractor Management System (TMS)**
Restricted operation. Call workshop.
### Faults and Remedial Actions

<table>
<thead>
<tr>
<th>Fault Module</th>
<th>Description</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>39. Linear module not calibrated, faulty or implausible</td>
<td>Calibrate/replace linear module.</td>
<td></td>
</tr>
<tr>
<td>40. Joystick</td>
<td>Double actuation or actuation freezes.</td>
<td></td>
</tr>
<tr>
<td>41. Sensor left brake pad wear indicator faulty</td>
<td>Replace sensor.</td>
<td></td>
</tr>
</tbody>
</table>
1.3 Clearing a warning or fault message

Clear fault messages individually.

Press key until all fault messages are cleared.

Each stored fault messages must be cleared individually. Clearing a fault message does not remove the fault, it is simply no longer displayed.
If the fault is still present, it is indicated again the next time the tractor is started.
### 1.4 General faults

#### 1. Engine does not start

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel tank is empty.</td>
<td>Fill up with fuel.</td>
</tr>
<tr>
<td>Air in the fuel system.</td>
<td>Bleed air from the fuel system.</td>
</tr>
<tr>
<td>Fuel system clogged with dirt.</td>
<td>Clean the filter inlet. If necessary, change filter box; bleed system.</td>
</tr>
<tr>
<td>In very cold conditions: failing cold-start system.</td>
<td>Repair cold-start system (at workshop).</td>
</tr>
<tr>
<td>In winter, at temperatures under -5 °C: fuel feed blocked by ice or paraffin</td>
<td>Unblock filter duct and fuel filter. Use to winter-grade fuel. Bleed air from system.</td>
</tr>
<tr>
<td>No starter contact / faulty starter unit.</td>
<td>Press clutch (starter lockout!). Check power connection of battery starter.</td>
</tr>
<tr>
<td>Electronics box (EDC) without current.</td>
<td>Check fuses and connectors</td>
</tr>
<tr>
<td>Injection nozzle faulty.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Fuel supply pump does not work.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Incorrect injection cycle.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Air in the fuel system</td>
<td>Bleed air from the fuel system.</td>
</tr>
<tr>
<td>Compression too low (e.g. valves leak, piston ring stuck, cylinder head gasket damaged, valve seat broken).</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Common rail relief valve faulty.</td>
<td>To be carried out at workshop.</td>
</tr>
</tbody>
</table>

#### 2. Engine does not turn over

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable loose or broken.</td>
<td>Replace cable.</td>
</tr>
<tr>
<td>Battery discharged (e.g. v-belt loose or broken).</td>
<td>Replace v-belt.</td>
</tr>
<tr>
<td>Starter faulty.</td>
<td>Replace starter.</td>
</tr>
</tbody>
</table>

#### 3. Engine starts but stops after a short period of time

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air in the fuel system.</td>
<td>Bleed air from the fuel system.</td>
</tr>
<tr>
<td>Fuel system clogged with dirt.</td>
<td>Clean the filter inlet. If necessary, replace filter element.</td>
</tr>
<tr>
<td>In winter, at temperatures under -5 °C: fuel feed blocked by ice or paraffin</td>
<td>Bleed air from system.</td>
</tr>
<tr>
<td>Water separator clogged.</td>
<td>Unblock filter duct and fuel filter. Use to winter-grade fuel. Bleed air from system.</td>
</tr>
<tr>
<td>Fuel supply pump faulty.</td>
<td>Clean water separator.</td>
</tr>
<tr>
<td>Engine monitoring has determined there is a fault in the system.</td>
<td>To be carried out at workshop.</td>
</tr>
</tbody>
</table>
### 4. Engine does not run smoothly

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air in fuel system</td>
<td>Bleed air from the fuel system.</td>
</tr>
<tr>
<td>Fuel system clogged with dirt.</td>
<td>Clean the filter inlet. If necessary, replace filter element.</td>
</tr>
<tr>
<td>Injection nozzle faulty.</td>
<td>Bleed air from system.</td>
</tr>
<tr>
<td>Compression too low.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Fuel supply pump faulty.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Engine control unit or speed sensor faulty.</td>
<td>To be carried out at workshop.</td>
</tr>
</tbody>
</table>

### 5. Poor engine performance

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air filter contaminated.</td>
<td>Clean air filter.</td>
</tr>
<tr>
<td>Turbocharger faulty.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Air in fuel system</td>
<td>Bleed air from the fuel system.</td>
</tr>
<tr>
<td>Fuel filter, fuel prefilter, water separator or fuel line clogged.</td>
<td>Replace fuel filter unit. Clean fuel prefilter, water separator, fuel line. Bleed air from the fuel system.</td>
</tr>
<tr>
<td>Injection nozzle faulty or incorrect injection cycle.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Fuel supply pump, engine control common rail relief valve faulty.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Operating temperature too low.</td>
<td>Bring up to correct operating temperature.</td>
</tr>
<tr>
<td>Compression too low.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Exhaust brake (optional) is not fully open.</td>
<td>Check exhaust brake (setting and ease of operation).</td>
</tr>
<tr>
<td>Engine power limiting activated.</td>
<td>Engine power limiting deactivated.</td>
</tr>
</tbody>
</table>

### 6. Engine knocks

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect fuel.</td>
<td>Fill with right fuel.</td>
</tr>
<tr>
<td>Injection nozzle faulty.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Compression too low.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Too much bearing play.</td>
<td>To be carried out at workshop.</td>
</tr>
<tr>
<td>Injection volume incorrectly set.</td>
<td>Adjust settings (at workshop).</td>
</tr>
</tbody>
</table>

### 7. Engine produces a lot of smoke

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature too low.</td>
<td>Bring up to correct operating temperature.</td>
</tr>
<tr>
<td>Engine is in idle too long.</td>
<td>Stop idle.</td>
</tr>
</tbody>
</table>
## 7. Engine produces a lot of smoke

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air filter clogged.</td>
<td>Clean air filter.</td>
</tr>
<tr>
<td>Injection nozzles not working properly.</td>
<td>Check the pressure and spray pattern of injection nozzles.</td>
</tr>
<tr>
<td>Injection volume incorrectly set.</td>
<td>(see Maintenance Schedule, to be carried out at workshop).</td>
</tr>
<tr>
<td>Incorrect fuel.</td>
<td>Adjust settings (at workshop).</td>
</tr>
<tr>
<td>Oil level in engine too high.</td>
<td>Fill with right fuel.</td>
</tr>
<tr>
<td>Fuel filter, fuel prefilter or water separator clogged.</td>
<td>Correct oil level.</td>
</tr>
<tr>
<td>Compression too low.</td>
<td>Replace fuel filter unit. Clean fuel prefilter, water separator. Bleed air from</td>
</tr>
<tr>
<td>Engine control faulty.</td>
<td>the fuel system.</td>
</tr>
<tr>
<td>Turbocharger faulty or leak in turbocharger system.</td>
<td>To be carried out at workshop.</td>
</tr>
</tbody>
</table>

## 8. Engine temperature is too high

### Cause
- Loose or broken ventilator belt.
- Cooling system not completely filled.
- Cooling system clogged.
- Thermostat faulty.
- Radiator cap leaks.
- Engine overloaded.

### Remedial Action
- Replace ventilator belt.
- Fill up coolant.
- Cleaning the cooling system.
- Replace thermostat (workshop task).
- Replace radiator cap.
- Reduce engine load.

## 9. Engine tends to rev up or cannot maintain the starting engine speed

### Cause
- Engine control or speed sensor faulty.

### Remedial Action
- To be carried out at workshop.

## 10. Engine oil pressure too low

### Cause
- Not enough engine oil in the system.
- Engine oil pressure control valve dirty.
- Engine oil with incorrect specifications filled.
- Engine oil too hot.
- Too much bearing play.
- Idle speed too low.
- Engine oil pressure sensor faulty.

### Remedial Action
- Fill up engine oil.
- Clean engine oil pressure control valve.
- Change engine oil and fill with oil with right specifications.
- Reduce engine load.
- To be carried out at workshop.
- Increase engine idle speed.
- Replace engine oil pressure sensor (workshop task).
### 10. Engine oil pressure too low

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine oil filter clogged.</td>
<td>Clean engine oil filter.</td>
</tr>
<tr>
<td>Oil thinned by fuel.</td>
<td>To be carried out at workshop.</td>
</tr>
</tbody>
</table>

### 11. Tractor does not start off

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuator not functioning.</td>
<td>Mechanical auxiliary mode.</td>
</tr>
<tr>
<td>Adjustment not functioning.</td>
<td>Measure servo pressure (too low).</td>
</tr>
<tr>
<td>Inlet circuit does not work.</td>
<td>Measure feed and outlet pressure.</td>
</tr>
<tr>
<td>Leak in the main circuit.</td>
<td>Measure feed and outlet pressure.</td>
</tr>
<tr>
<td>Internal leak in the main circuit.</td>
<td>Check transmission characteristic (at workshop).</td>
</tr>
<tr>
<td>High-pressure limiting valve does not shut.</td>
<td>Measure control pressure.</td>
</tr>
<tr>
<td>Flush valve stuck open.</td>
<td>Start off in the other direction of travel</td>
</tr>
<tr>
<td>Transmission characteristic not programmed.</td>
<td>Record the transmission characteristic (at workshop).</td>
</tr>
<tr>
<td>rpm adjustment not set.</td>
<td>Set the rpm adjustment.</td>
</tr>
</tbody>
</table>

### 12. Transmission oil temperature too high

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiator soiled.</td>
<td>Clean the radiator.</td>
</tr>
<tr>
<td>Clutch operated over extended period.</td>
<td>Fully engage the clutch.</td>
</tr>
<tr>
<td>Turboclutch function active for long period.</td>
<td>Increase engine speed.</td>
</tr>
<tr>
<td>Leak in the main circuit.</td>
<td>Measure feed and outlet pressure.</td>
</tr>
<tr>
<td>Leakage in feed circuit.</td>
<td>Measure feed and outlet pressure.</td>
</tr>
<tr>
<td>Leakage in outlet line.</td>
<td>Measure outlet pressure.</td>
</tr>
<tr>
<td>High-pressure limiting valve does not shut.</td>
<td>Measure control pressure.</td>
</tr>
<tr>
<td>Internal leak in the main circuit.</td>
<td>Check transmission characteristic (at workshop).</td>
</tr>
</tbody>
</table>

### 13. Interruption of tractive power while reversing or during acceleration-deceleration changes

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flush valve stuck open.</td>
<td>Replace purge valve.</td>
</tr>
<tr>
<td>High-pressure limiting valve does not shut.</td>
<td>Replace high pressure limiting valve.</td>
</tr>
</tbody>
</table>

### 14. Tractor no longer reaches maximum speed

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect transmission calibration.</td>
<td>Record the transmission characteristic (at workshop).</td>
</tr>
<tr>
<td>Adjustment does not function properly.</td>
<td>Measure servo pressure (too low).</td>
</tr>
<tr>
<td>Leak in the main circuit.</td>
<td>Measure feed and outlet pressure.</td>
</tr>
</tbody>
</table>
### 14. Tractor no longer reaches maximum speed

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel filter soiled.</td>
<td>Replace filter box. Bleed air from the fuel system.</td>
</tr>
<tr>
<td>Charge air pressure too low.</td>
<td>Check the charge air pressure.</td>
</tr>
</tbody>
</table>

### 15. Tractor does not pull

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feed quantity too flow.</td>
<td>Measure feed and outlet pressure.</td>
</tr>
<tr>
<td>Leak in the main circuit.</td>
<td>Measure feed and outlet pressure.</td>
</tr>
<tr>
<td>High-pressure limiting valve does not shut.</td>
<td>Measure control pressure.</td>
</tr>
<tr>
<td>Flush valve stuck open.</td>
<td>Drive in opposite direction of travel.</td>
</tr>
</tbody>
</table>

### 16. System pressure too low

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No feed for servo pump.</td>
<td>Check lubricating pressure (= 0)</td>
</tr>
<tr>
<td>Servo pump does not deliver.</td>
<td>Check servo pump pressure.</td>
</tr>
<tr>
<td>Leakage in pressure or suction line.</td>
<td>Check oil level in clutch housing (too high).</td>
</tr>
<tr>
<td>40 bar pressure limiting valve does not close.</td>
<td>Measure servo pump pressure (= lubrication pressure).</td>
</tr>
<tr>
<td>18 bar pressure relief valve does not close.</td>
<td>Measure inlet pressure (= system pressure).</td>
</tr>
<tr>
<td>Leak in comfort circuit.</td>
<td>Measure feed pressure, visual check.</td>
</tr>
</tbody>
</table>

### 17. Inlet pressure too low

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No feed for servo pump.</td>
<td>Check lubricating pressure (= 0)</td>
</tr>
<tr>
<td>Servo pressure less than 18 bar.</td>
<td>Measure servo pressure.</td>
</tr>
<tr>
<td>Leak in comfort circuit.</td>
<td>Measure servo pressure, visual check.</td>
</tr>
<tr>
<td>Leak in feed line.</td>
<td>Measure output pressure (too low).</td>
</tr>
<tr>
<td>Leak in outlet line.</td>
<td>Measure output pressure (too low).</td>
</tr>
<tr>
<td>Hydrostatic drive leaks or lifts off.</td>
<td>Measure output pressure (too low).</td>
</tr>
<tr>
<td>High-pressure valve is loose.</td>
<td>Measure output pressure (too low).</td>
</tr>
<tr>
<td>Output pressure control valve does not shut.</td>
<td>Measure output pressure (too low).</td>
</tr>
<tr>
<td>Input pressure relief valve does not shut.</td>
<td>Measure output pressure (= input pressure).</td>
</tr>
</tbody>
</table>

### 18. Output pressure too low

<table>
<thead>
<tr>
<th>Cause</th>
<th>Remedial Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input pressure too low.</td>
<td>Measure input pressure (too low).</td>
</tr>
<tr>
<td>Leak in outlet line.</td>
<td>Measure input pressure (under load too low, without load OK).</td>
</tr>
<tr>
<td>Hydrostatic unit leaks.</td>
<td>Measure input pressure (too low).</td>
</tr>
</tbody>
</table>
## Faults and Remedial Actions

<table>
<thead>
<tr>
<th></th>
<th>18. Output pressure too low</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>High-pressure valve is loose. Outlet pressure relief valve does not close.</td>
</tr>
<tr>
<td><strong>Remedial Action</strong></td>
<td>Measure feed pressure (too low), tighten. Output pressure = pre-cooler flow pressure.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>19. Battery charge indicator lamp lit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>Fault in alternator.</td>
</tr>
<tr>
<td><strong>Remedial Action</strong></td>
<td>Check the alternator. Repair, or replace if necessary (at workshop).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>20. No reading on the digital display</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>Interrupted power supply.</td>
</tr>
<tr>
<td><strong>Remedial Action</strong></td>
<td>Replace fuse and check connectors. Check fuses and connectors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>21. General faults in the electrical system</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>No contact between terminals and battery cables.</td>
</tr>
<tr>
<td><strong>Remedial Action</strong></td>
<td>Remove any oxidation from terminals and clamps, tighten the clamp screws; coat terminals with anticorrosion grease.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>22. Turn signal / hazard warning system not functioning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>Power supply interrupted; hazard warning flasher inoperative.</td>
</tr>
<tr>
<td><strong>Remedial Action</strong></td>
<td>Check fuse / power supply and replace signal pulse generator if necessary.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>23. Turn signal indicator lamps do not come on</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>Bulbs faulty in corresponding turn signal lamps on tractor or trailer.</td>
</tr>
<tr>
<td><strong>Remedial Action</strong></td>
<td>Replace bulbs; establish current / ground contact; check trailer cable connectors.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>24. Electronic control hydraulics (EPC) not functioning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>Safety lock active. Lift height limit knob turned fully to the left. Fuses blown. Drawbar rigid.</td>
</tr>
<tr>
<td><strong>Remedial Action</strong></td>
<td>Press quick lift switch beyond Stop position until indicator lamps light up. Turn knob to the right if necessary. Change fuses. Switch over stopcock.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>25. Fault in the linkage control</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td>Electrical connection loose, electronic component failed etc.</td>
</tr>
<tr>
<td><strong>Remedial Action</strong></td>
<td>Call up fault code on the multiple display, if necessary contact the after-sales service workshop.</td>
</tr>
</tbody>
</table>
### 26. Hydraulic traction control unsatisfactory (insufficient number of governor pulses)

**Cause**
- Position / draft setting is set too far towards Position.
- Plough blade is blunt (no cutting action).
- Working implement unsuitable for control hydraulics.

**Remedial Action**
- If necessary, set more towards "Draft".
- Sharpen plough blade.
- Use an implement suitable for the control hydraulics.

### 27. Linkage does not lower

**Cause**
- Lowering speed setting too far towards "No lowering".

**Remedial Action**
- Turn knob to the left if necessary.

### 28. Excessive noise in hydraulic system

**Cause**
- Hydraulic oil still cold.
- Insufficient oil in the hydraulic oil reservoir.
- Air drawn in through suction line connections or pump shaft seal.
- Suction filter soiled.

**Remedial Action**
- Let engine run for a few minutes at average speed before any hydraulic work.
- Top up oil level in accordance with specifications.
- Seal the connections and/or replace the hydraulic pump (at workshop).
- Replace suction filter.

### 29. Hydraulic system does not lift

**Cause**
- Hydraulic oil still cold.
- Insufficient oil in the hydraulic oil reservoir.
- Air drawn in through suction line connections.
- Suction filter soiled.

**Remedial Action**
- Let engine run for a few minutes at average speed before any hydraulic work.
- Top up oil level in accordance with specifications.
- Seal the connections (at workshop).
- Replace suction filter.

### 30. Heater ineffective

**Cause**
- Heating water valve is partially closed / air filter dirty.

**Remedial Action**
- Open the heating water valve / replace air filter.

### 31. Heater fan not working

**Cause**
- Power supply to blower interrupted or blower failed / blocked.

**Remedial Action**
- Check fuse / power supply, remove foreign bodies (in workshop).
### 32. Air-sprung seat fails to adjust

<table>
<thead>
<tr>
<th><strong>Cause</strong></th>
<th><strong>Remedial Action</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressed air compressor not functioning.</td>
<td>Check fuse / power supply.</td>
</tr>
</tbody>
</table>

### 33. Air-conditioning does not work

<table>
<thead>
<tr>
<th><strong>Cause</strong></th>
<th><strong>Remedial Action</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh air blower not switched on / not functioning / temperature selector set at '0'.</td>
<td>Switch on blower / set temperature selector to desired outlet air temperature / check fuse and power supply.</td>
</tr>
<tr>
<td>AC compressor not functioning - magnetic clutch not engaging / V-belt is too slack or cracked.</td>
<td>Check fuse / power supply for magnetic clutch or V-belt.</td>
</tr>
<tr>
<td>Insufficient refrigerant in the system (system on, engine speed 2000 rpm; ball must be floating in sight glass on fluid reservoir).</td>
<td>Top up refrigerant (at workshop).</td>
</tr>
</tbody>
</table>

### 34. Cooling effect of air-conditioning inadequate

<table>
<thead>
<tr>
<th><strong>Cause</strong></th>
<th><strong>Remedial Action</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Condenser dirty (upstream of engine radiator).</td>
<td>Blow out or spray condenser from inside out.</td>
</tr>
<tr>
<td>Fresh air/ recirculating air filter dirty.</td>
<td>Blow out recirculated air filter, tap out the fresh air filter; replace if necessary.</td>
</tr>
<tr>
<td>Evaporator iced up.</td>
<td>Reset temperature selector; have the cause rectified (at workshop).</td>
</tr>
<tr>
<td>Insufficient refrigerant in the system (system on, engine speed 2000 rpm; ball must be floating in sight glass on fluid reservoir).</td>
<td>Top up refrigerant (at workshop).</td>
</tr>
</tbody>
</table>

### 35. Ball (indicator ball) in tank is transparent

<table>
<thead>
<tr>
<th><strong>Cause</strong></th>
<th><strong>Remedial Action</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dryer in fluid reservoir is saturated.</td>
<td>Replace fluid reservoir (workshop job - refer to workshop manual, air-conditioning section).</td>
</tr>
</tbody>
</table>

### 36. Water drips from fan casing (air-conditioning)

<table>
<thead>
<tr>
<th><strong>Cause</strong></th>
<th><strong>Remedial Action</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Condensation outlet blocked (line ends at left and right cab access ladders).</td>
<td>Clear the water outlet (blow through if necessary).</td>
</tr>
</tbody>
</table>
## 2. Fault code tables

### Instrument cluster

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>00.0.01</td>
<td>Bus fault EDC.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.03</td>
<td>Bus fault multi-function armrest.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.04</td>
<td>Bus fault transmission.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.05</td>
<td>Bus fault 4WD/differential lock.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.06</td>
<td>Bus fault rear PTO.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.07</td>
<td>Bus fault front PTO.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.08</td>
<td>EPC rear.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.0A</td>
<td>Bus fault electrical valves.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.15</td>
<td>Bus fault front axle suspension</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.16</td>
<td>Bus fault EPC automatic mode</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.1E</td>
<td>Bus fault instrument cluster.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.0.1F</td>
<td>Bus error fault management.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.1.4D</td>
<td>Checksum menu screens.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.1.4E</td>
<td>Checksum warning screens.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.1.4F</td>
<td>Checksum GD table.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.1.50</td>
<td>Instrument cluster not programmed.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>00.1.54</td>
<td>Compressed air sensor.</td>
<td>Compressed air indicator does not function.</td>
</tr>
<tr>
<td>00.1.59</td>
<td>Fuel level sensor</td>
<td>Fuel level indicator does not function.</td>
</tr>
<tr>
<td>00.1.71</td>
<td>Key Enter.</td>
<td>Key does not function.</td>
</tr>
<tr>
<td>00.1.72</td>
<td>Key ESC.</td>
<td>Key does not function.</td>
</tr>
<tr>
<td>00.1.73</td>
<td>Key Up.</td>
<td>Key does not function.</td>
</tr>
<tr>
<td>00.1.74</td>
<td>Key Down.</td>
<td>Key does not function.</td>
</tr>
<tr>
<td>00.1.75</td>
<td>Key Enter has been pressed more than 30 seconds.</td>
<td>Key does not function or release key.</td>
</tr>
<tr>
<td>00.1.76</td>
<td>Key ESC has been pressed more than 30 seconds.</td>
<td>Key does not function or release key.</td>
</tr>
<tr>
<td>00.1.77</td>
<td>Key Up has been pressed more than 30 seconds.</td>
<td>Key does not function or release key.</td>
</tr>
<tr>
<td>00.1.78</td>
<td>Key Down has been pressed more than 30 seconds.</td>
<td>Key does not function or release key.</td>
</tr>
<tr>
<td>0.1.A8</td>
<td>Compressed air supply under-pressure.</td>
<td>Call workshop.</td>
</tr>
</tbody>
</table>

### Electronic engine control

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.1.01</td>
<td>EDC potentiometer: message for potentiometer position of EDC/EMR not present for more than 2000ms or direct diagnostics error of EDC/EMR.</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>01.1.03</td>
<td>Plausibility error EMR potentiometer idle switch.</td>
<td>Accelerator pedal mode is no longer possible. TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>01.1.04</td>
<td>Checksum error TMS.</td>
<td>TMS does not function.</td>
</tr>
<tr>
<td>01.1.06</td>
<td>Memory could not be reserved in EST.</td>
<td>TMS does not function.</td>
</tr>
<tr>
<td>01.1.07</td>
<td>Checksum engine parameter incorrect.</td>
<td>EOL reprogramming necessary.</td>
</tr>
</tbody>
</table>
### FAULTS AND REMEDIAL ACTIONS

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.1.7A</td>
<td>Electrical fault fixed speed button MIN (on joystick)</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>01.1.7E</td>
<td>Hand throttle potentiometer faulty.</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>01.1.9A</td>
<td>Communication error to fixed speed button MIN (on joystick).</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>01.1.A0</td>
<td>Incorrect EOL programming, engine model does not match the tractor model.</td>
<td>Torque is reduced, new EOL programming necessary.</td>
</tr>
<tr>
<td>01.1.A1</td>
<td>FENDT control module to EDC control module connection faulty.</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>01.1.B0</td>
<td>Communication driver initialisation error; limited CAN bus communication.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>01.1.E0</td>
<td>Calibrated values from manual throttle rotary control incorrect.</td>
<td>Manual throttle rotary control calibration.</td>
</tr>
</tbody>
</table>

### Electronic engine control

<table>
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<th>Cause</th>
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<tbody>
<tr>
<td>1E.1.01</td>
<td>Battery voltage outside target range.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.02</td>
<td>Charge air pressure outside target range.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.03</td>
<td>Charge air temperature</td>
<td>Reduce load on engine, call workshop.</td>
</tr>
<tr>
<td>1E.1.04</td>
<td>Engine temperature</td>
<td>Reduce load on engine, call workshop.</td>
</tr>
<tr>
<td>1E.1.06</td>
<td>Engine temperature outside target range.</td>
<td>Reduce load on engine, call workshop.</td>
</tr>
<tr>
<td>1E.1.07</td>
<td>Fuel prefilter sensor, cable break or short circuit. Water level below target level.</td>
<td>Fuel prefilter, drain water.</td>
</tr>
<tr>
<td>1E.1.08</td>
<td>Fuel low pressure sensor, cable break or short circuit, plausibility error.</td>
<td>No monitoring of fuel low pressure, call workshop.</td>
</tr>
<tr>
<td>1E.1.09</td>
<td>Fuel temperature sensor, cable break or short circuit.</td>
<td>No monitoring of fuel temperature, call workshop.</td>
</tr>
<tr>
<td>1E.1.0A</td>
<td>Hand throttle, cable break or short circuit, implausible in relation to the signal from idle sensor.</td>
<td>Hand throttle does not function.</td>
</tr>
<tr>
<td>1E.1.0E</td>
<td>Engine oil pressure outside target range.</td>
<td>Reduce load on engine, call workshop.</td>
</tr>
<tr>
<td>1E.1.14</td>
<td>Accelerator pedal, cable break or short circuit, implausible compared to signal of idle sensor.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.15</td>
<td>Fuel pump, cable break or short circuit.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.16</td>
<td>Engine maximum speed with system message.</td>
<td>Reduce engine speed.</td>
</tr>
<tr>
<td>1E.1.21</td>
<td>Air heater relay, cable break or short circuit.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.27</td>
<td>Short circuit to battery or short to ground.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.2E</td>
<td>Start relay: cable break, short circuit or overheating.</td>
<td>Call workshop.</td>
</tr>
</tbody>
</table>
## Faults and Remedial Actions

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<tbody>
<tr>
<td>1E.1.50</td>
<td>Metering unit valve, flow rate outside target range. Metering unit valve not connected, short circuit to battery or short to ground.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.51</td>
<td>Rail pressure control valve outside target range.</td>
<td>Tractor can only be started after engine has been stationary for 30 seconds. Call workshop.</td>
</tr>
<tr>
<td>1E.1.52</td>
<td>Rail pressure sensor, cable break or short circuit.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.7C</td>
<td>Injector 1 short circuit or cable break.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.90</td>
<td>Servomotor EGR valve, short circuit to battery, short to ground, cable break or short circuit.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.BD</td>
<td>CAN message missing.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.D0</td>
<td>Ambient pressure sensor faulty.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>1E.1.E0</td>
<td>Engine control unit faulty.</td>
<td>Call workshop.</td>
</tr>
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</table>

### Control console

<table>
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<tr>
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<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>03.1.01</td>
<td>Faulty hardware (e.g. RAM or FLASH).</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.02</td>
<td>Incorrect checksum for the first 128 Byte in EEPROM.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.03</td>
<td>Invalid GD routing table.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.08</td>
<td>Invalid parameter for flashing in EEPROM.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.09</td>
<td>Invalid parameter for brightness setting in EEPROM.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.18</td>
<td>Invalid parameter for 4-position switch.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.20</td>
<td>Invalid parameter for analogue joystick.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.30</td>
<td>Invalid parameter for linear modules.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.40</td>
<td>Invalid parameter for potentiometers (hand throttle, FPA, litre setting).</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.4E</td>
<td>Invalid parameter for switching function switch.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>03.1.6E</td>
<td>Invalid parameter for speed selector.</td>
<td>Call workshop.</td>
</tr>
</tbody>
</table>

### Transmission

<table>
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<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>04.1.04</td>
<td>Clutch pedal potentiometer faulty.</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>04.1.05</td>
<td>Pressure sensor pull/thrust faulty.</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>04.1.06</td>
<td>Accelerator rotary control faulty.</td>
<td>Emergency operating mode if pedal mode is active. TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>04.1.07</td>
<td>High pressure sensor faulty.</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
</tbody>
</table>
## FAULTS AND REMEDIAL ACTIONS

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<th>Cause</th>
<th>Effect and remedy</th>
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</thead>
<tbody>
<tr>
<td>04.1.19</td>
<td>Error when loading driving pedal parameter.</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>04.1.23</td>
<td>Joystick signal cruise control on faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.24</td>
<td>Hand brake switch faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.25</td>
<td>Joystick F-R rapid reverse signal faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.26</td>
<td>TMS key faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.29</td>
<td>Joystick park position signal faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.2A</td>
<td>Bevel pinion rpm sensor direction signal faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.2C</td>
<td>'Neutral selection' key faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.2D</td>
<td>Steering column switch forward faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.2E</td>
<td>Steering column switch reverse faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.2F</td>
<td>Joystick signal &quot;v -&quot; faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.31</td>
<td>Direction signal speed sensor for hydrostatic unit faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.32</td>
<td>Joystick activating key faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.33</td>
<td>Joystick signal &quot;v +&quot; faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.3A</td>
<td>Transmission Neutral sleeve. Switch faulty.</td>
<td>Transmission calibration no longer possible.</td>
</tr>
<tr>
<td>04.1.3B</td>
<td>Pedal speed range key faulty.</td>
<td>Pedal speed switches over to set range.</td>
</tr>
<tr>
<td>04.1.42</td>
<td>Speed sensor hydrostatic unit faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.44</td>
<td>Speed sensor engine 1 faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.45</td>
<td>Bevel pinion speed sensor faulty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.50</td>
<td>Transmission oil filter dirty.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.53</td>
<td>Transmission oil temperature over 110°.</td>
<td>Damage to traction drive.</td>
</tr>
<tr>
<td>04.1.56</td>
<td>Transmission oil filter switch faulty.</td>
<td>No monitoring of transmission oil filter.</td>
</tr>
<tr>
<td>04.1.58</td>
<td>Slip values of transmission ratios beyond acceptable limits.</td>
<td>Occasional occurrences in extreme conditions have no effect. If the problem persists in normal conditions, contact the workshop immediately.</td>
</tr>
<tr>
<td>04.1.64</td>
<td>Faulty actuation of turboclutch valve.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.70</td>
<td>Cruise control key faulty.</td>
<td>No cruise control.</td>
</tr>
<tr>
<td>04.1.77</td>
<td>Joystick acceleration rate I-IV faulty.</td>
<td>Operation only possible in acceleration rate III.</td>
</tr>
<tr>
<td>04.1.78</td>
<td>Starting cut-out seat switch for accelerator mode faulty.</td>
<td>Selection of direction of travel is always deactivated in accelerator mode when vehicle stationary for 3 seconds.</td>
</tr>
<tr>
<td>04.1.79</td>
<td>Output for reverse travel warner not in order (current higher than 2500 mA or short circuit).</td>
<td>Reverse travel warner does not function.</td>
</tr>
<tr>
<td>04.1.82</td>
<td>Plausibility error (engine speed) between hydrostatic unit speed sensor and bevel pinion speed sensor.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.83</td>
<td>Plausibility error (direction) between hydrostatic unit speed sensor and bevel pinion speed sensor.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>Fault code</td>
<td>Cause</td>
<td>Effect and remedy</td>
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<tr>
<td>------------</td>
<td>-------</td>
<td>-------------------</td>
</tr>
<tr>
<td>04.1.84</td>
<td>Plausibility error between the joystick controls (F/R, cruise control).</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.85</td>
<td>Engine speed sensor I plausibility error.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.86</td>
<td>Plausibility error on both pressure sensors.</td>
<td>TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>04.1.87</td>
<td>Plausibility error rapid reversing switch on steering column.</td>
<td>Reversing no longer possible with both keys, TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>04.1.89</td>
<td>Plausibility error transmission temperature.</td>
<td>Temperature sensor or wiring faulty.</td>
</tr>
<tr>
<td>04.1.8A</td>
<td>Plausibility error electric clutch pedal.</td>
<td>No action, only error output</td>
</tr>
<tr>
<td>04.1.8D</td>
<td>Checksum error cooler bypass valve.</td>
<td>Reprogram EOL.</td>
</tr>
<tr>
<td>04.1.8E</td>
<td>Electrical fault cooler bypass valve.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>04.1.8F</td>
<td>Current tyre circumference entered is too small.</td>
<td>Enter larger tyre circumference.</td>
</tr>
<tr>
<td>04.1.94</td>
<td>CAN communication e-box and joystick faulty.</td>
<td>Joystick functions restricted. Call workshop.</td>
</tr>
</tbody>
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### Transmission

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<th>Cause</th>
<th>Effect and remedy</th>
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</thead>
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<tr>
<td>04.1.A1</td>
<td>Control unit mechanical stop faulty.</td>
<td>Auxiliary operation.</td>
</tr>
<tr>
<td>04.1.A2</td>
<td>Faulty CAN bus connection to control unit.</td>
<td>Auxiliary operation.</td>
</tr>
<tr>
<td>04.1.A3</td>
<td>Control unit incremental sensor faulty / not plausible.</td>
<td>Auxiliary operation.</td>
</tr>
<tr>
<td>04.1.A5</td>
<td>Adjuster reference not found.</td>
<td>Auxiliary operation.</td>
</tr>
<tr>
<td>04.1.A6</td>
<td>Incorrect control unit reference point during operation.</td>
<td>Auxiliary operation.</td>
</tr>
<tr>
<td>04.1.B0</td>
<td>Initialisation error on communication driver. CAN bus communication restricted.</td>
<td>Restricted operation.</td>
</tr>
<tr>
<td>04.1.B5</td>
<td>Checksum error ramp parameter.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>04.1.B7</td>
<td>Temperature sensor transmission temperature checksum incorrect.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>04.1.E1</td>
<td>Traction control parameter faulty/loaded incorrectly.</td>
<td>Auxiliary operation.</td>
</tr>
<tr>
<td>04.1.E2</td>
<td>Pressure regulator parameters in traction control are not plausible or read in incorrectly.</td>
<td>Auxiliary operation.</td>
</tr>
<tr>
<td>04.1.E3</td>
<td>Checksum error pedal mode parameter.</td>
<td>Emergency operating mode, TMS is switched off until the next cold-start.</td>
</tr>
<tr>
<td>04.1.E6</td>
<td>Checksum parameter load limit control incorrect.</td>
<td>Transmission emergency operating mode.</td>
</tr>
<tr>
<td>04.1.E7</td>
<td>Checksum parameter joystick incorrect.</td>
<td>EOL reprogramming necessary.</td>
</tr>
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### Faults and Remedial Actions

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</thead>
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<tr>
<td>04.1.EA</td>
<td>Checksum parameter number of teeth for transmission faulty.</td>
<td>TMS is switched off until the next cold-start, transmission emergency operating mode, EOL programming.</td>
</tr>
<tr>
<td>04.1.EC</td>
<td>Accelerator rotary control values not within tolerances or no calibration of accelerator rotary control.</td>
<td>Load limit control deactivated, TMS is switched off until the next cold-start, recalibrate.</td>
</tr>
<tr>
<td>04.1.ED</td>
<td>Clutch pedal potentiometer values out of tolerance or clutch not calibrated.</td>
<td>Recalibrate.</td>
</tr>
<tr>
<td>04.1.EE</td>
<td>Transmission characteristic values out of tolerance or no calibration of transmission.</td>
<td>Recalibrate.</td>
</tr>
<tr>
<td>04.1.EF</td>
<td>Turboclutch values out of tolerance or no calibration.</td>
<td>Recalibrate.</td>
</tr>
<tr>
<td>04.1.F0</td>
<td>Checksum parameter of transmission calibration incorrect.</td>
<td>Transmission cannot be calibrated, new EOL programming necessary.</td>
</tr>
<tr>
<td>04.1.F1</td>
<td>Checksum parameter standstill control incorrect.</td>
<td>EOL reprogramming necessary.</td>
</tr>
<tr>
<td>04.1.F2</td>
<td>Deviation characteristics offset outside of permissible range.</td>
<td>Recalibrate transmission.</td>
</tr>
</tbody>
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### Four-wheel drive and differential lock

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<th>Effect and remedy</th>
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</thead>
<tbody>
<tr>
<td>05.1.31</td>
<td>100% 4WD key faulty.</td>
<td>'4WD automatic mode' available only.</td>
</tr>
<tr>
<td>05.1.32</td>
<td>Key for automatic 4WD faulty.</td>
<td>'100% 4WD' available only.</td>
</tr>
<tr>
<td>05.1.33</td>
<td>4WD clutch solenoid valve faulty.</td>
<td>Function terminated, 4WD engages.</td>
</tr>
<tr>
<td>05.1.34</td>
<td>Steering angle sensor faulty.</td>
<td>4WD / differential lock automatic mode Stop not functioning.</td>
</tr>
<tr>
<td>05.1.51</td>
<td>100% differential lock key faulty.</td>
<td>Only 'Differential lock automatic mode' function available.</td>
</tr>
<tr>
<td>05.1.52</td>
<td>Key for automatic differential lock faulty.</td>
<td>'100% differential lock' is only function still available.</td>
</tr>
<tr>
<td>05.1.53</td>
<td>Differential lock solenoid actuation faulty.</td>
<td>End of function, differential lock not disengaging.</td>
</tr>
<tr>
<td>05.1.54</td>
<td>Left brake pedal switch faulty.</td>
<td>'100% differential lock' is only function still available.</td>
</tr>
<tr>
<td>05.1.55</td>
<td>Right brake pedal switch faulty.</td>
<td>'100% differential lock' is only function still available.</td>
</tr>
<tr>
<td>05.1.56</td>
<td>Checksum error parameter 4WD/differential lock.</td>
<td>Execution of the automatic functions is prevented.</td>
</tr>
</tbody>
</table>

### Suspension

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<tr>
<th>Fault code</th>
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<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.1.62</td>
<td>&quot;Raise&quot; solenoid actuation faulty.</td>
<td>Front axle suspension does not function. Possible to continue without suspension.</td>
</tr>
<tr>
<td>15.1.63</td>
<td>&quot;Lower&quot; solenoid actuation faulty.</td>
<td>Front axle suspension does not function. Possible to continue without suspension.</td>
</tr>
<tr>
<td>15.1.64</td>
<td>ON/OFF key faulty.</td>
<td>Front axle suspension does not function. Possible to continue without suspension.</td>
</tr>
<tr>
<td>15.1.65</td>
<td>Suspension lock key faulty.</td>
<td>Front axle suspension does not function. Possible to continue without suspension.</td>
</tr>
<tr>
<td>15.1.67</td>
<td>Position sensor left faulty.</td>
<td>Front axle suspension does not function. Possible to continue without suspension.</td>
</tr>
</tbody>
</table>
### FAULTS AND REMEDIAL ACTIONS

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<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.1.6C</td>
<td>No calibration of position sensor.</td>
<td>Front axle suspension does not function. Readjust position sensor.</td>
</tr>
<tr>
<td>15.1.6D</td>
<td>Checksum error suspension.</td>
<td>Front axle suspension does not function. Readjust position sensor.</td>
</tr>
</tbody>
</table>

**Other fault codes**

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<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>05.1.00</td>
<td>Control unit fault.</td>
<td>E-box faulty.</td>
</tr>
<tr>
<td>05.1.B0</td>
<td>Initialisation error communication driver, checksum error GD routing data EEPROM.</td>
<td>CAN bus communication restricted.</td>
</tr>
<tr>
<td>05.1.FD</td>
<td>Checksum error over setting parameters for the night design.</td>
<td>Substitute parameters are used.</td>
</tr>
<tr>
<td>05.1.FE</td>
<td>Checksum EEPROM EOS parameter incorrect</td>
<td>Applications do not start, all EXT bus errors, new EOL programming.</td>
</tr>
<tr>
<td>05.1.FF</td>
<td>Comfort E-box no longer receiving CAN data for engine speed and PTO speed.</td>
<td>Various indicators no longer available or comfort E-box fails completely.</td>
</tr>
</tbody>
</table>

### Rear PTO

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>06.1.01</td>
<td>Button in cab faulty.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.03</td>
<td>Button on left mudguard faulty.</td>
<td>PTO can only be switched on/off with the key in the cab. Key must be pressed for at least 5 secs.</td>
</tr>
<tr>
<td>06.1.04</td>
<td>PTO shaft clutch solenoid valve faulty.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.10</td>
<td>Speed sensor stub shaft faulty.</td>
<td></td>
</tr>
<tr>
<td>06.1.11</td>
<td>Automatic mode key on control console faulty.</td>
<td>Automatic mode is ended and PTO disengages.</td>
</tr>
<tr>
<td>06.1.15</td>
<td>Speed selection key Neutral faulty.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.1A</td>
<td>Setting 540 valve faulty.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.1B</td>
<td>Control valve 540E faulty.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.1C</td>
<td>Control valve 1000 faulty.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.41</td>
<td>Plausibility error, cab button pressed longer than 30 seconds.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.43</td>
<td>Right mudguard button plausibility error, left mudguard button pressed longer than 30 seconds.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.50</td>
<td>Speed sensor PTO shaft plausibility error.</td>
<td>When engaging, the button must be pressed for at least 5 secs.</td>
</tr>
<tr>
<td>06.1.60</td>
<td>Plausibility error incorrect speed ratio between sensor to rear PTO clutch and rear stub sensor.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>06.1.A1</td>
<td>Communication error cab button.</td>
<td>Button in the cab does not function.</td>
</tr>
<tr>
<td>06.1.E0</td>
<td>Error in current regulation checksum parameter for setting selection.</td>
<td>EOL programming.</td>
</tr>
</tbody>
</table>
### Faults and Remedial Actions

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>06.1.E1</td>
<td>Checksum error in PTO parameter.</td>
<td>EOL programming.</td>
</tr>
<tr>
<td>06.1.E2</td>
<td>Checksum for rear PTO pulse width increase faulty.</td>
<td>EOL programming.</td>
</tr>
<tr>
<td>06.1.E3</td>
<td>Checksum for rear PTO pulse widths faulty.</td>
<td>EOL programming.</td>
</tr>
<tr>
<td>06.1.E4</td>
<td>Checksum for rear PTO over/under counter faulty.</td>
<td>EOL programming.</td>
</tr>
<tr>
<td>06.1.E5</td>
<td>Checksum for speed limit sensor after rear PTO clutch faulty.</td>
<td>EOL programming.</td>
</tr>
<tr>
<td>06.1.E7</td>
<td>Checksum for temperature limits and rear PTO shift times faulty.</td>
<td>EOL programming.</td>
</tr>
<tr>
<td>06.1.E8</td>
<td>Checksum for masks for showing/hiding diagnostics on the PTO shafts faulty.</td>
<td>EOL programming.</td>
</tr>
</tbody>
</table>

### Front PTO

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>07.1.01</td>
<td>Button in cab faulty.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>07.1.04</td>
<td>Clutch operation solenoid faulty.</td>
<td></td>
</tr>
<tr>
<td>07.1.05</td>
<td>Speed sensor faulty.</td>
<td>To engage, the button must be pressed for at least 5 sec.</td>
</tr>
<tr>
<td>07.1.41</td>
<td>Cab button plausibility error, pressed longer than 30s.</td>
<td>Does not function, PTO disengages.</td>
</tr>
<tr>
<td>07.1.A1</td>
<td>Cab key communication error.</td>
<td>Key in the cab does not function.</td>
</tr>
<tr>
<td>07.1.E1</td>
<td>Checksum front PTO parameterisation faulty.</td>
<td>Reprogram EOL.</td>
</tr>
<tr>
<td>07.1.E2</td>
<td>Checksum for front PTO pulse width increase faulty.</td>
<td>Reprogram EOL.</td>
</tr>
<tr>
<td>07.1.E3</td>
<td>Checksum for front PTO pulse widths faulty.</td>
<td>Reprogram EOL.</td>
</tr>
<tr>
<td>07.1.E4</td>
<td>Checksum for front PTO over/under counter faulty.</td>
<td>Reprogram EOL.</td>
</tr>
</tbody>
</table>
## FAULTS AND REMEDIAL ACTIONS

### EPC rear linkage

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.1.18</td>
<td>Lifting lever on control panel.</td>
<td>Function only possible with external actuation. Automatic function not possible.</td>
</tr>
<tr>
<td>08.1.22</td>
<td>Position sensor defective.</td>
<td>Control not possible.</td>
</tr>
<tr>
<td>08.1.23</td>
<td>Setpoint potentiometer on control panel.</td>
<td>Function only possible with external actuation. Automatic function not possible.</td>
</tr>
<tr>
<td>08.1.25</td>
<td>Rapid lowering on control panel.</td>
<td>No rapid lowering.</td>
</tr>
<tr>
<td>08.1.26</td>
<td>&quot;Rigid&quot; drawbar.</td>
<td>No &quot;rigid&quot; drawbar</td>
</tr>
<tr>
<td>08.1.27</td>
<td>Upper limit on control panel.</td>
<td>Function only possible with external actuation. Automatic function not possible.</td>
</tr>
<tr>
<td>08.1.28</td>
<td>Draft/position control on control panel.</td>
<td>Function only possible in position control.</td>
</tr>
<tr>
<td>08.1.29</td>
<td>Lowering speed on control panel.</td>
<td>Function only possible in position control.</td>
</tr>
<tr>
<td>08.1.32</td>
<td>Left draft sensing pin.</td>
<td>Function only possible in position control.</td>
</tr>
<tr>
<td>08.1.34</td>
<td>Left draft sensing pin, overload warning.</td>
<td>Reduce load on draft sensing pin.</td>
</tr>
<tr>
<td>08.1.40</td>
<td>External actuation left raise.</td>
<td>No external function possible.</td>
</tr>
<tr>
<td>08.1.41</td>
<td>External actuation left lower.</td>
<td>No external function possible.</td>
</tr>
<tr>
<td>08.1.4B</td>
<td>Automatic mode key on control panel.</td>
<td>No automatic mode.</td>
</tr>
<tr>
<td>08.1.A0</td>
<td>Valve does not respond although it is programmed.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>08.1.B0</td>
<td>Position sensor not calibrated.</td>
<td>Function only possible with external actuation. Automatic function not possible.</td>
</tr>
<tr>
<td>08.1.B2</td>
<td>Setpoint potentiometer on control panel not calibrated.</td>
<td>Function only possible with external actuation. Automatic function not possible.</td>
</tr>
<tr>
<td>08.1.B7</td>
<td>Upper limit on control panel not calibrated.</td>
<td>Function with default value is possible.</td>
</tr>
<tr>
<td>08.1.B8</td>
<td>Draft/position control on control panel not calibrated.</td>
<td>Function with default value is possible.</td>
</tr>
<tr>
<td>08.1.B9</td>
<td>Lowering speed on control panel not calibrated.</td>
<td>Function with default value is possible.</td>
</tr>
<tr>
<td>08.1.BC</td>
<td>Invalid parameter in EEPROM.</td>
<td>Function with default value is possible.</td>
</tr>
<tr>
<td>08.1.FF</td>
<td>Rear power lift programmed incorrectly.</td>
<td>Function with default value is possible.</td>
</tr>
</tbody>
</table>

### Electrical valves (crossgate lever, linear module)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.B0</td>
<td>Crossgate lever not adjusted.</td>
<td>Valves cannot be actuated. Carry out adjustment.</td>
</tr>
<tr>
<td>0A.1.B1</td>
<td>Crossgate lever X-axle potentiometer faulty.</td>
<td>Valve position cannot be controlled properly.</td>
</tr>
<tr>
<td>0A.1.B3</td>
<td>Crossgate lever missing.</td>
<td>Valve position cannot be controlled properly.</td>
</tr>
<tr>
<td>0A.1.B6</td>
<td>Linear module 1 not calibrated.</td>
<td>Calibrate linear module 1.</td>
</tr>
<tr>
<td>0A.1.B7</td>
<td>Linear module 1 faulty.</td>
<td>Linear module 1 does not function.</td>
</tr>
<tr>
<td>0A.1.B8</td>
<td>Linear module 2 not calibrated.</td>
<td>Calibrate linear module 2.</td>
</tr>
<tr>
<td>0A.1.B9</td>
<td>Linear module 2 faulty.</td>
<td>Linear module 2 does not function.</td>
</tr>
<tr>
<td>0A.1.BA</td>
<td>Linear module 3 not calibrated.</td>
<td>Calibrate linear module 3.</td>
</tr>
<tr>
<td>0A.1.BB</td>
<td>Linear module 3 faulty.</td>
<td>Linear module 3 does not function.</td>
</tr>
<tr>
<td>0A.2.90</td>
<td>Linear module (1...3) locked in position.</td>
<td>Release catch mechanism, unlock again.</td>
</tr>
</tbody>
</table>
# Faults and Remedial Actions

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.2.91</td>
<td>Crossgate lever (vertical /horizontal) locked in position.</td>
<td>Release catch mechanism, unlock again.</td>
</tr>
<tr>
<td>0A.2.92</td>
<td>Plausibility error linear module 1.</td>
<td>Linear module 1 does not function, until plausibility is taken back.</td>
</tr>
<tr>
<td>0A.2.93</td>
<td>Plausibility error linear module 2.</td>
<td>Linear module 2 does not function, until plausibility is taken back.</td>
</tr>
<tr>
<td>0A.2.94</td>
<td>Plausibility error linear module 3.</td>
<td>Linear module 3 does not function, until plausibility is taken back.</td>
</tr>
<tr>
<td>0A.2.95</td>
<td>Crossgate lever vertical actuation frozen.</td>
<td>Crossgate lever does not function.</td>
</tr>
<tr>
<td>0A.2.96</td>
<td>Plausibility error crossgate lever X-axis.</td>
<td>Valve position cannot be controlled properly.</td>
</tr>
<tr>
<td>0A.2.97</td>
<td>Plausibility error crossgate lever Y-axis.</td>
<td>Valve position cannot be controlled properly.</td>
</tr>
<tr>
<td>0A.2.98</td>
<td>Joystick vertical actuation frozen/double actuation.</td>
<td>Joystick vertical actuation does not function.</td>
</tr>
<tr>
<td>0A.2.99</td>
<td>Joystick horizontal actuation frozen/double actuation.</td>
<td>Joystick horizontal actuation does not function.</td>
</tr>
<tr>
<td>0A.2.9A</td>
<td>Joystick actuation to right, one of three buttons frozen.</td>
<td>Joystick actuation to right does not function.</td>
</tr>
<tr>
<td>0A.2.9B</td>
<td>Joystick actuation to left, one of three buttons frozen.</td>
<td>Joystick actuation to left does not function.</td>
</tr>
</tbody>
</table>

## Electric valves (buttons / switches)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.C0</td>
<td>Multi-function armrest not available.</td>
<td>Actuation not possible.</td>
</tr>
<tr>
<td>0A.1.C1</td>
<td>Multi-function armrest GD error.</td>
<td>Button is being used by the hydraulics.</td>
</tr>
<tr>
<td>0A.1.C2</td>
<td>Overall lock key on the keypad on steering column faulty.</td>
<td>No overall locking of valves.</td>
</tr>
<tr>
<td>0A.1.C3</td>
<td>Oil flow collection key on the keypad on steering column faulty.</td>
<td>Oil flow collection key does not function.</td>
</tr>
<tr>
<td>0A.1.C4</td>
<td>French brake load transfer key on the keypad on steering column faulty.</td>
<td>French brake load transfer key does not function.</td>
</tr>
<tr>
<td>0A.1.C6</td>
<td>Hydraulic circuit 3 button on joystick faulty.</td>
<td>Hydraulic circuit 3 button on joystick faulty does not function.</td>
</tr>
<tr>
<td>0A.1.C7</td>
<td>Hydraulic circuit 4 button on joystick faulty.</td>
<td>Hydraulic circuit 4 button on joystick faulty does not function.</td>
</tr>
<tr>
<td>0A.1.D0</td>
<td>Hydraulic circuit 3 button faulty.</td>
<td>Hydraulic circuit 3 button does no function.</td>
</tr>
<tr>
<td>0A.1.D1</td>
<td>Hydraulic circuit 4 button faulty.</td>
<td>Hydraulic circuit 4 button does no function.</td>
</tr>
<tr>
<td>0A.1.D7</td>
<td>Hydraulic oil level sensor faulty.</td>
<td>Hydraulic oil level no longer monitored.</td>
</tr>
<tr>
<td>0A.1.D8</td>
<td>Hydraulic tank warning.</td>
<td>Fill up hydraulic oil.</td>
</tr>
<tr>
<td>0A.1.D9</td>
<td>Hydraulic tank empty.</td>
<td>Possible damage to pump or undesired valve response. Fill up hydraulic oil.</td>
</tr>
<tr>
<td>0A.1.DA</td>
<td>Warning hydraulic temperature sensor too high.</td>
<td>Lower hydraulic oil temperature, reduce load on hydraulic system.</td>
</tr>
<tr>
<td>0A.1.DB</td>
<td>Hydraulic temperature sensor too high.</td>
<td>Lower hydraulic oil temperature, reduce load on hydraulic system.</td>
</tr>
<tr>
<td>0A.1.DC</td>
<td>Warning hydraulic temperature sensor implausible.</td>
<td>Lower hydraulic oil temperature, reduce load on hydraulic system.</td>
</tr>
<tr>
<td>0A.1.DE</td>
<td>Solenoid oil flow collection faulty.</td>
<td>No collection possible.</td>
</tr>
<tr>
<td>0A.1.DF</td>
<td>Priority volume is greater than pump volume.</td>
<td>Reduce priority hydraulic oil quantity.</td>
</tr>
</tbody>
</table>
### Faults and Remedial Actions

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.E1</td>
<td>Potentiometer valve 1 flow volume faulty.</td>
<td>Potentiometer valve 1 does not function.</td>
</tr>
<tr>
<td>0A.1.E2</td>
<td>Potentiometer valve 2 flow volume faulty.</td>
<td>Potentiometer valve 2 does not function.</td>
</tr>
<tr>
<td>0A.1.E3</td>
<td>Potentiometer valve 3 flow volume faulty.</td>
<td>Potentiometer valve 3 does not function.</td>
</tr>
<tr>
<td>0A.1.E4</td>
<td>Potentiometer valve 4 flow volume faulty.</td>
<td>Potentiometer valve 4 does not function.</td>
</tr>
<tr>
<td>0A.1.E5</td>
<td>Potentiometer valve 5 flow volume faulty.</td>
<td>Potentiometer valve 5 does not function.</td>
</tr>
<tr>
<td>0A.1.E6</td>
<td>Potentiometer valve 6 flow volume faulty.</td>
<td>Potentiometer valve 6 does not function.</td>
</tr>
<tr>
<td>0A.1.E7</td>
<td>Potentiometer parallel operation faulty.</td>
<td>Potentiometer parallel operation does not function.</td>
</tr>
<tr>
<td>0A.1.E8</td>
<td>Rocker raise/lower faulty.</td>
<td>Rocker raise/lower does not function.</td>
</tr>
<tr>
<td>0A.1.E9</td>
<td>Button raise/lower horizontal faulty.</td>
<td>Button raise/lower horizontal does not function.</td>
</tr>
<tr>
<td>0A.1.EA</td>
<td>Joystick actuation rocker/floating position right faulty.</td>
<td>Joystick actuation rocker/floating position right does not function.</td>
</tr>
<tr>
<td>0A.1.EB</td>
<td>Joystick actuation rocker/floating position left faulty.</td>
<td>Joystick actuation rocker/floating position left does not function.</td>
</tr>
<tr>
<td>0A.1.EC</td>
<td>Output hydraulic trailer brake faulty.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>0A.1.ED</td>
<td>Automatic mode stop button.</td>
<td>Automatic mode stop button does not function, call workshop.</td>
</tr>
<tr>
<td>0A.1.EE</td>
<td>Output pneumatic trailer brake faulty.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>0A.1.EF</td>
<td>Actuation of relay for circuit 3 faulty.</td>
<td>Circuit 3 does not function.</td>
</tr>
<tr>
<td>0A.1.F1</td>
<td>Actuation of relay for circuit 4 faulty.</td>
<td>Circuit 4 does not function.</td>
</tr>
<tr>
<td>0A.2.9C</td>
<td>Cannot switch to floating position.</td>
<td>Hydraulic oil temperature too low, below -12 °C.</td>
</tr>
</tbody>
</table>

### Electric valves (E-box)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.A2</td>
<td>More valves connected than are registered through end-of-line programming.</td>
<td>Not all valves can be operated.</td>
</tr>
<tr>
<td>0A.1.A3</td>
<td>Programming of the trailer brake equipment implausible.</td>
<td>Trailer brake valve does not function, EOL programming.</td>
</tr>
<tr>
<td>0A.2.01</td>
<td>Temporary malfunction (e.g. overvoltage) on hydraulic valve 1.</td>
<td>Electrical valve available again after pressing the ESC key.</td>
</tr>
<tr>
<td>0A.2.02</td>
<td>Temporary malfunction (e.g. overvoltage) on hydraulic valve 2.</td>
<td>Electrical valve available again after pressing the ESC key.</td>
</tr>
<tr>
<td>0A.2.03</td>
<td>Temporary malfunction (e.g. overvoltage) on hydraulic valve 3.</td>
<td>Electrical valve available again after pressing the ESC key.</td>
</tr>
<tr>
<td>0A.2.04</td>
<td>Temporary malfunction (e.g. overvoltage) on hydraulic valve 4.</td>
<td>Electrical valve available again after pressing the ESC key.</td>
</tr>
<tr>
<td>0A.2.05</td>
<td>Temporary malfunction (e.g. overvoltage) on hydraulic valve 5.</td>
<td>Electrical valve available again after pressing the ESC key.</td>
</tr>
</tbody>
</table>
## Faults and Remedial Actions

### Electrical valves (valve 1)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.10</td>
<td>Valve does not respond although it is programmed.</td>
<td>Valve actuation not possible.</td>
</tr>
<tr>
<td>0A.1.11</td>
<td>Program sequence/Flash/ RAM/EEProm very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.12</td>
<td>Voltage in the valve less than 9 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.13</td>
<td>Voltage in the valve greater than 32 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.15</td>
<td>Faulty reading or writing in a cell.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.16</td>
<td>Internal circuit board temperature greater than 85°C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.17</td>
<td>Internal circuit board temperature greater than 100°C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.18</td>
<td>Valve actuator cannot be brought back to neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.19</td>
<td>Valve actuator not in neutral when switched on.</td>
<td>Frequent cause, mechanical jamming of valve actuator (pilot or main) caused by dirt in the hydraulics.</td>
</tr>
<tr>
<td>0A.1.1A</td>
<td>Valve actuator goes too far.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.1B</td>
<td>Valve actuator cannot go into neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.1C</td>
<td>Valve safety controller very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.1D</td>
<td>Valve safety controller serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.1E</td>
<td>Valve safety controller warning.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.1F</td>
<td>Valve warning error.</td>
<td>Valve goes into neutral position.</td>
</tr>
</tbody>
</table>

### Spool valves (valve 2)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.20</td>
<td>Valve does not respond although it is programmed.</td>
<td>Valve actuation not possible.</td>
</tr>
<tr>
<td>0A.1.21</td>
<td>Program sequence/Flash/ RAM/EEProm very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.22</td>
<td>Voltage in the valve less than 9 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.23</td>
<td>Voltage in the valve greater than 32 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.25</td>
<td>Faulty reading or writing in a cell.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.26</td>
<td>Internal circuit board temperature greater than 85°C.</td>
<td>Valve goes into neutral position.</td>
</tr>
</tbody>
</table>
## Faults and Remedial Actions

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.27</td>
<td>Internal circuit board temperature greater than 100 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.28</td>
<td>Valve actuator cannot be brought back to neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.29</td>
<td>Valve actuator not in neutral when switched on.</td>
<td>Frequent cause, mechanical jamming of valve actuator (pilot or main) caused by dirt in the hydraulics.</td>
</tr>
<tr>
<td>0A.1.2A</td>
<td>Valve actuator goes too far.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.2B</td>
<td>Valve actuator cannot go into neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.2C</td>
<td>Valve safety controller very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.2D</td>
<td>Valve safety controller serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.2E</td>
<td>Valve safety controller warning.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.2F</td>
<td>Valve warning error.</td>
<td>Valve goes into neutral position.</td>
</tr>
</tbody>
</table>

### Spool valves (valve 3)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.30</td>
<td>Valve does not respond although it is programmed.</td>
<td>Valve actuation not possible.</td>
</tr>
<tr>
<td>0A.1.31</td>
<td>Program sequence/Flash/RAM/EEProm very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.32</td>
<td>Voltage in the valve less than 9 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.33</td>
<td>Voltage in the valve greater than 32 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.35</td>
<td>Faulty reading or writing in a cell.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.36</td>
<td>Internal circuit board temperature greater than 85 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.37</td>
<td>Internal circuit board temperature greater than 100 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.38</td>
<td>Valve actuator cannot be brought back to neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.39</td>
<td>Valve actuator not in neutral when switched on.</td>
<td>Frequent cause, mechanical jamming of valve actuator (pilot or main) caused by dirt in the hydraulics.</td>
</tr>
<tr>
<td>0A.1.3A</td>
<td>Valve actuator goes too far.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.3B</td>
<td>Valve actuator cannot go into neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.3C</td>
<td>Valve safety controller very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.3D</td>
<td>Valve safety controller serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.3E</td>
<td>Valve safety controller warning.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.3F</td>
<td>Valve warning error.</td>
<td>Valve goes into neutral position.</td>
</tr>
</tbody>
</table>
### Spool valves (valve 4)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.40</td>
<td>Valve does not respond although it is programmed.</td>
<td>Valve actuation not possible.</td>
</tr>
<tr>
<td>0A.1.41</td>
<td>Program sequence/Flash/RAM/EEProm very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.42</td>
<td>Voltage in the valve less than 9 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.43</td>
<td>Voltage in the valve greater than 32 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.45</td>
<td>Faulty reading or writing in a cell.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.46</td>
<td>Internal circuit board temperature greater than 85 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.47</td>
<td>Internal circuit board temperature greater than 100 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.48</td>
<td>Valve actuator cannot be brought back to neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.49</td>
<td>Valve actuator not in neutral when switched on.</td>
<td>Frequent cause, mechanical jamming of valve actuator (pilot or main) caused by dirt in the hydraulics.</td>
</tr>
<tr>
<td>0A.1.4A</td>
<td>Valve actuator goes too far.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.4B</td>
<td>Valve actuator cannot go into neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.4C</td>
<td>Valve safety controller very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.4D</td>
<td>Valve safety controller serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.4E</td>
<td>Valve safety controller warning.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.4F</td>
<td>Valve warning error.</td>
<td>Valve goes into neutral position.</td>
</tr>
</tbody>
</table>

### Electrical valves (valve 5)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.50</td>
<td>Valve does not respond although it is programmed.</td>
<td>Valve actuation not possible.</td>
</tr>
<tr>
<td>0A.1.51</td>
<td>Program sequence/Flash/RAM/EEProm very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.52</td>
<td>Voltage in the valve less than 9 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.53</td>
<td>Voltage in the valve greater than 32 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.55</td>
<td>Faulty reading or writing in a cell.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.56</td>
<td>Internal circuit board temperature greater than 85 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.57</td>
<td>Internal circuit board temperature greater than 100 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.58</td>
<td>Valve actuator cannot be brought back to neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.59</td>
<td>Valve actuator not in neutral when switched on.</td>
<td>Frequent cause, mechanical jamming of valve actuator (pilot or main) caused by dirt in the hydraulics.</td>
</tr>
<tr>
<td>0A.1.5A</td>
<td>Valve actuator goes too far.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.5B</td>
<td>Valve actuator cannot go into neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
</tbody>
</table>
## FAULTS AND REMEDIAL ACTIONS

### Electrical valves (valve 6)

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effect and remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A.1.60</td>
<td>Valve does not respond although it is programmed.</td>
<td>Valve actuation not possible.</td>
</tr>
<tr>
<td>0A.1.61</td>
<td>Program sequence/Flash/RAM/EEProm very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.62</td>
<td>Voltage in the valve less than 9 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.63</td>
<td>Voltage in the valve greater than 32 Volt.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.65</td>
<td>Faulty reading or writing in a cell.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.66</td>
<td>Internal circuit board temperature greater than 85 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.67</td>
<td>Internal circuit board temperature greater than 100 °C.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.68</td>
<td>Valve actuator cannot be brought back to neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.69</td>
<td>Valve actuator not in neutral when switched on.</td>
<td>Frequent cause, mechanical jamming of valve actuator (pilot or main) caused by dirt in the hydraulics.</td>
</tr>
<tr>
<td>0A.1.6A</td>
<td>Valve actuator goes too far.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.6B</td>
<td>Valve actuator cannot go into neutral.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.6C</td>
<td>Valve safety controller very serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.6D</td>
<td>Valve safety controller serious error.</td>
<td>Valve does not function.</td>
</tr>
<tr>
<td>0A.1.6E</td>
<td>Valve safety controller warning.</td>
<td>Valve goes into neutral position.</td>
</tr>
<tr>
<td>0A.1.6F</td>
<td>Valve warning error.</td>
<td>Valve goes into neutral position.</td>
</tr>
</tbody>
</table>
3. Mini-hydraulics fault messages

3.1 Mini-hydraulic system fault indication

In the event of faults, the code is indicated as a two-figure number by repeated flashing of the diagnosis LED (A).

**In the event of a fault display, proceed as follows.**
- Count the number of flashes and remember the number or write it down.
- Make the system operational by turning the ignition **OFF - ON** (reset).
- Select the function again; if the fault was only transient, the system will be operational again.

To correct the fault, please note the fault code and give this to the service workshop.

**1-digit fault code**

*E.g. fault code ‘3’ is shown as follows:*

*Pause - three flashes - etc. = 3*

<table>
<thead>
<tr>
<th>Fault code</th>
<th>Cause</th>
<th>Effects</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hydraulic valve 1 fault, or wiring fault.</td>
<td>Restricted operation of the mini-hydraulics.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>2</td>
<td>Hydraulic valve 2 fault, or wiring fault.</td>
<td>Restricted operation of the mini-hydraulics.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>3</td>
<td>Hydraulic valve 3 fault, or wiring fault.</td>
<td>Restricted operation of the mini-hydraulics.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>4</td>
<td>Hydraulic valve 4 fault, or wiring fault.</td>
<td>Restricted operation of the mini-hydraulics.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>5</td>
<td>Hydraulic valve 5 fault, or wiring fault.</td>
<td>Restricted operation of the mini-hydraulics.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>6</td>
<td>Hydraulic valve 6 fault, or wiring fault.</td>
<td>Restricted operation of the mini-hydraulics.</td>
<td>Call workshop.</td>
</tr>
<tr>
<td>8</td>
<td>Control module defective.</td>
<td>Control module not functional.</td>
<td>Call workshop.</td>
</tr>
</tbody>
</table>
4. Emergency operation

**DANGER:**
Since either a transmission ratio or a direction of travel is selected, the clutch pedal must be operated carefully.

**NOTE:**
Maximum driving speed approx. 10 km/h.
Maximum distance 8 km.
Do not disengage clutch when travelling downhill!

### 4.1 Transmission positively engaged

(tractor drives)

**Conditions for engagement**
- Engine is running.
- Emergency operating mode present, image FAULTS AND REMEDIAL ACTIONS Fig. 8 appears.
- Clutch fully depressed.
- No fault in turboclutch valve.
- No fault in clutch pedal sensor.
- No fault in engine speed sensor.
- No fault in transmission control unit.

Image (A) appears in emergency operating mode.

Press key 2x (confirm fault code), the following image appears on the multiple display.

Engaging transmission, see FAULTS AND REMEDIAL ACTIONS Fig. 10.

Press key, tractor drives in the desired direction.

### 4.2 Transmission in neutral

(e.g. when starting tractor)

**Conditions for engagement**
- Engine is running.
- Emergency operating mode present, image FAULTS AND REMEDIAL ACTIONS Fig. 8 appears.
- Clutch fully depressed.
- No fault in turboclutch valve.
- No fault in clutch pedal sensor.
- No fault in engine speed sensor.
- No fault in transmission control unit.

Image (A) appears in emergency operating mode.

Press key 2x (confirm fault code), the following image appears on the multiple display.

Press key, the following image is displayed on the multiple display. Engaging transmission, see FAULTS AND REMEDIAL ACTIONS Fig. 10.

**NOTE:**
The number (here 0 as an example) shows the transmission ratio. If the driver changes the ratio with the arrow keys on the keypad, the value in the display also changes.

Press key, tractor drives in the desired direction.
4.3 Transmission control unit faulty

NOTE:
Only one positive connection can be activated at once. No change in direction and no change in ratio can be activated.

Conditions for engagement
- Engine is running.
- Emergency mode engaged, no forward or reverse arrows in instrument cluster.
- Clutch fully depressed.
- No fault in turboclutch valve.
- No fault in clutch pedal sensor.
- No fault in engine speed sensor.

Press key, the first main menu appears on the multiple display.
Press either of the keys repeatedly until symbol (A) flashes.
Press key, the second main menu level appears on the multiple display.

Symbol (A) appears.
- Frictional connection established.

Symbol (B) appears.
- No frictional connection.
### 1. Technical specifications

#### 1.1 RWD

<table>
<thead>
<tr>
<th>Model</th>
<th>207 V</th>
<th>208 V</th>
<th>207F</th>
<th>208F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine type</td>
<td>Sisu 33CTA</td>
<td>Sisu 33CTA</td>
<td>Sisu 33CTA</td>
<td>Sisu 33CTA</td>
</tr>
<tr>
<td>Rated power ECE R 24 at 2100 rpm</td>
<td>KW/HP</td>
<td>44/60</td>
<td>52/70</td>
<td>44/60</td>
</tr>
<tr>
<td>Maximum power ECE R 24 at 1900 rpm</td>
<td>KW/HP</td>
<td>51/70</td>
<td>59/80</td>
<td>51/70</td>
</tr>
<tr>
<td>Rated power EU 97 / 68 at 2100 rpm</td>
<td>KW/HP</td>
<td>52/71</td>
<td>60/82</td>
<td>52/71</td>
</tr>
<tr>
<td>Maximum power EU 97 / 68 at 1900 rpm</td>
<td>KW/HP</td>
<td>55/75</td>
<td>62.5/85</td>
<td>55/75</td>
</tr>
<tr>
<td>Maximum torque ECE R 24</td>
<td>Nm</td>
<td>295</td>
<td>337</td>
<td>295</td>
</tr>
<tr>
<td>Turbocharger / fan control</td>
<td>yes/yes</td>
<td>yes/yes</td>
<td>yes/yes</td>
<td>yes/yes</td>
</tr>
<tr>
<td>Common rail / exhaust gas recirculation</td>
<td>yes/yes</td>
<td>yes/yes</td>
<td>yes/yes</td>
<td>yes/yes</td>
</tr>
<tr>
<td>No. of cylinders / cooling</td>
<td>3 / water</td>
<td>3 / water</td>
<td>3 / water</td>
<td>3 / water</td>
</tr>
<tr>
<td>Bore / stroke</td>
<td>mm</td>
<td>108 / 120</td>
<td>108 / 120</td>
<td>108 / 120</td>
</tr>
<tr>
<td>Cubic capacity</td>
<td>cm³</td>
<td>3300</td>
<td>3300</td>
<td>3300</td>
</tr>
<tr>
<td>Idling speed</td>
<td>rpm</td>
<td>800 +50</td>
<td>800 +50</td>
<td>800 +50</td>
</tr>
<tr>
<td>Rated speed</td>
<td>rpm</td>
<td>2100</td>
<td>2100</td>
<td>2100</td>
</tr>
<tr>
<td>Engine speed without load</td>
<td>rpm</td>
<td>2205 ±30</td>
<td>2205 ±30</td>
<td>2205 ±30</td>
</tr>
<tr>
<td>Fill volume diesel fuel</td>
<td>l</td>
<td>76</td>
<td>76</td>
<td>76</td>
</tr>
<tr>
<td>Engine tilt, ensure that vehicle is standing stably</td>
<td>degree</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Lengthwise in travel direction high / low</td>
<td>degree</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Across travel direction left / right</td>
<td>degree</td>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Dimensions and weights with the following tyres and track width</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tyres front</td>
<td>7.50R16</td>
<td>7.50R16</td>
<td>7.50R16</td>
<td>7.50R16</td>
</tr>
<tr>
<td>Tyres rear</td>
<td>280/85R24</td>
<td>320/85R24</td>
<td>12.4R28</td>
<td>13.6R28</td>
</tr>
<tr>
<td>Standard track front/narrow</td>
<td>mm</td>
<td>794</td>
<td>844</td>
<td>-</td>
</tr>
<tr>
<td>Standard track front/wide</td>
<td>mm</td>
<td>894</td>
<td>944</td>
<td>1064</td>
</tr>
<tr>
<td>Standard track rear/narrow</td>
<td>mm</td>
<td>777</td>
<td>831</td>
<td>-</td>
</tr>
<tr>
<td>Standard track rear/wide</td>
<td>mm</td>
<td>869</td>
<td>945</td>
<td>1000</td>
</tr>
<tr>
<td>Hole circle diameter front</td>
<td>mm</td>
<td>205</td>
<td>205</td>
<td>205</td>
</tr>
<tr>
<td>Hole circle diameter rear</td>
<td>mm</td>
<td>205</td>
<td>205</td>
<td>205</td>
</tr>
<tr>
<td>Overall length short lower link</td>
<td>mm</td>
<td>3578</td>
<td>3578</td>
<td>-</td>
</tr>
<tr>
<td>Overall length short lower link with front power lift horizontal</td>
<td>mm</td>
<td>3972</td>
<td>3972</td>
<td>-</td>
</tr>
<tr>
<td>Overall length long lower link</td>
<td>mm</td>
<td>3683</td>
<td>3683</td>
<td>3683</td>
</tr>
<tr>
<td>Overall length long lower link with front power lift horizontal</td>
<td>mm</td>
<td>4077</td>
<td>4077</td>
<td>4077</td>
</tr>
<tr>
<td>Overall width narrow</td>
<td>mm</td>
<td>1069</td>
<td>1051</td>
<td>-</td>
</tr>
<tr>
<td>Overall width wide</td>
<td>mm</td>
<td>1161</td>
<td>1269</td>
<td>1340</td>
</tr>
<tr>
<td>Overall height with cab</td>
<td>mm</td>
<td>2390</td>
<td>2390</td>
<td>2443</td>
</tr>
<tr>
<td>Unladen weight with cab</td>
<td>kg</td>
<td>2780</td>
<td>2780</td>
<td>2860</td>
</tr>
<tr>
<td>Unladen weight with safety bar</td>
<td>kg</td>
<td>2580</td>
<td>2580</td>
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<td>Flange size front axle</td>
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<td>Flange size rear axle</td>
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<td>Permissible gross vehicle weight</td>
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<td>Max. permissible front axle load</td>
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<tr>
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<td>Max. vertical bearing load on trailer hitch</td>
<td>kg</td>
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# TECHNICAL DATA

## Rear PTO 540/540E/1000

<table>
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<th>Model</th>
<th>207 V</th>
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<th>207F</th>
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<tbody>
<tr>
<td>PTO shaft profile</td>
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<td>Maximum permissible torque in 540 setting Nm</td>
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<tr>
<td>Max. permissible torque for 540E setting Nm</td>
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<td>Maximum permissible torque in 1000 setting Nm</td>
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<td>Ground speed PTO (optional)</td>
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<td>Revolutions on stub per meter driven with theoretical zero slip with tyre size 440/65 R24</td>
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<td>-</td>
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<td>revs/m</td>
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<td>PTO revolutions for one wheel revolution (rear)</td>
<td>revs/m</td>
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<td>Front PTO 1000, (540 optional)</td>
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<tr>
<td>PTO shaft profile</td>
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<td>1 3/8 6-part</td>
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<td>PTO speed at rated speed and 1000 setting rpm</td>
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<td>Engine speed in 540 setting rpm</td>
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<td>Infinitely adjustable rates l/min</td>
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<td>Hydr. oil extraction flow at max. capacity l</td>
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<td>Rear power lift</td>
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<tr>
<td>Three-point linkage ISO 730 short/long lower link cat.</td>
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<tr>
<td>Spread to standard Cat. 1/2 mm</td>
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</table>
**NOTE:**

Any modifications to the power output limiter and max. speed setting shall render the Warranty invalid. This also applies to any exceeding of the maximum permissible loads and weights.

For PTO mode:
If the maximum permissible torque can be exceeded (depending on the application), use a drive shaft with safety coupling and overrunning clutch if necessary.

Because of different regulations in different countries, weights, axle loads and/or speeds may be limited to lower values.

<table>
<thead>
<tr>
<th>Model</th>
<th>207 V</th>
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<tbody>
<tr>
<td>Maximum lift capacity on coupling point short lower link</td>
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<td>Maximum lifting power at coupling point</td>
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<td>km/h</td>
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<td>V/A</td>
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<tr>
<td>Starter</td>
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<td>Tightening torques for wheels (threads and contact surfaces lightly oiled)</td>
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<tr>
<td>Front wheels</td>
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<tr>
<td>Rear wheels</td>
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* No restrictions
## 1.2 4WD

<table>
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<td>Rated power ECE R 24 at 2100 rpm</td>
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<td>52 / 70</td>
<td>59 / 80</td>
<td>66 / 90</td>
<td>74 / 100</td>
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<tr>
<td>Maximum power ECE R 24 at 1900 rpm</td>
<td>51 / 70</td>
<td>59 / 80</td>
<td>67 / 90</td>
<td>73 / 100</td>
<td>81 / 110</td>
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<tr>
<td>Rated power EU 97 / 68 at 2100 rpm</td>
<td>52 / 71</td>
<td>60 / 82</td>
<td>67 / 91</td>
<td>73 / 99</td>
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<tr>
<td>Maximum power EC 97 / 68 at 1900 rpm</td>
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<td>62.5 / 85</td>
<td>69.5 / 95</td>
<td>77 / 105</td>
<td>84.5 / 115</td>
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<td>Nm</td>
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<td>337</td>
<td>373</td>
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<td>Turbocharger / fan control</td>
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<td>yes/yes</td>
<td>yes/yes</td>
<td>yes/yes</td>
<td>yes/yes</td>
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<td>Common rail / exhaust gas recirculation</td>
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<td>yes/yes</td>
<td>yes/yes</td>
<td>yes/yes</td>
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<td>Bore / stroke</td>
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<td>Lengthwise in travel direction</td>
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<td>Across travel direction left / right</td>
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<td>Standard track front/wide</td>
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<td>Standard track rear/narrow</td>
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<td>Standard track rear/wide</td>
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<td>Hole circle diameter rear</td>
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## TECHNICAL DATA

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<td>Max. vertical bearing load on trailer hitch</td>
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<td>1 3/4 6-part</td>
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<td>Maximum permissible torque in 540 setting</td>
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## TECHNICAL DATA

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<td><strong>Rated power ECE R 24 at 2100 rpm</strong></td>
<td>KW/HP 44 / 60</td>
<td>52 / 70</td>
<td>59 / 80</td>
<td>66 / 90</td>
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<td><strong>Maximum power ECE R 24 at 1900 rpm</strong></td>
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<td>59 / 80</td>
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<td><strong>Rated power EU 97 / 68 at 2100 rpm</strong></td>
<td>KW/HP 52 / 71</td>
<td>60 / 82</td>
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<td>Maximum power ECE R 24 at 1900 rpm</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three-point</td>
<td>cat.</td>
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<tr>
<td>Inside clearance to standard Cat. 1</td>
<td>mm</td>
<td>825</td>
<td>825</td>
</tr>
<tr>
<td>Continuous lifting power at coupling point</td>
<td>daN</td>
<td>1680</td>
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<tr>
<td>Maximum lifting power at coupling point</td>
<td>daN</td>
<td>2540</td>
<td>2540</td>
</tr>
<tr>
<td>Implement weight (centre of mass: 800 mm, 5°-implement angle)</td>
<td>kg</td>
<td>1600</td>
<td>1600</td>
</tr>
<tr>
<td>Transmission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuously variable Vario transmission</td>
<td>km/h</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Range I forwards</td>
<td>km/h</td>
<td>0.02 - 40</td>
<td>0.02 - 40</td>
</tr>
<tr>
<td>Operating range I reverse</td>
<td>km/h</td>
<td>0.02 - 25</td>
<td>0.02 - 25</td>
</tr>
<tr>
<td>Electrical system</td>
<td></td>
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</tr>
<tr>
<td>Operating voltage</td>
<td>V</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Battery</td>
<td>Ah/V</td>
<td>50/12</td>
<td>50/12</td>
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<tr>
<td>Alternator</td>
<td>V/A</td>
<td>14/120</td>
<td>14/120</td>
</tr>
<tr>
<td>Starter</td>
<td>kW</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Tightening torques for wheels (threads and contact surfaces lightly oiled)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front wheels</td>
<td>Nm</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>Rear wheels</td>
<td>Nm</td>
<td>240</td>
<td>240</td>
</tr>
</tbody>
</table>

* No restrictions

**NOTE:**

Any modifications to the power output limiter and max. speed setting shall render the Warranty invalid. This also applies to any exceeding of the maximum permissible loads and weights.

For PTO mode:

If the maximum permissible torque can be exceeded (depending on the application), use a drive shaft with safety coupling and overrunning clutch if necessary.

Because of different regulations in different countries, weights, axle loads and/or speeds may be limited to lower values.
2. Tyre pressures

CAUTION: Check tyre pressures regularly!

Air pressure

Observe tyre manufacturers specifications, which, for example, can be found in the internet.

- Pressures may differ according to tractor model, make of tyre and type of operation e.g. front loader operation.
- For max. traction and min. ground pressure in the field, adapt tyre pressures to axle load.
- Do not operate row crop wheels above a maximum speed of 40 km/h.
- Adapt air pressure to road driving.
### 3. Tyre combinations

#### Farmer 200V

<table>
<thead>
<tr>
<th>Tyre Combination</th>
<th>Front</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
<th>Rear</th>
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</tr>
</thead>
<tbody>
<tr>
<td>R004</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>R007</td>
<td>CO</td>
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<td></td>
</tr>
<tr>
<td>R021/R022</td>
<td>11L16</td>
<td>MI</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>R023/R024</td>
<td>320/65R16</td>
<td>MI</td>
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</tr>
<tr>
<td>R607/R608</td>
<td>265/70R16</td>
<td>CO</td>
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</tr>
<tr>
<td>R099</td>
<td>265/70R16</td>
<td>FU</td>
<td>+</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>R009</td>
<td>280/60-15.5TR</td>
<td>+ + +</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>R600/R601</td>
<td>280/70R16</td>
<td>KL</td>
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<tr>
<td>R004/R605</td>
<td>PI</td>
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</tr>
<tr>
<td>R003/R016</td>
<td>GI</td>
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<tr>
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**Fig. 1**

#### Farmer 200 F

<table>
<thead>
<tr>
<th>Tyre Combination</th>
<th>Front</th>
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<th>Rear</th>
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<tbody>
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<tr>
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<td></td>
</tr>
<tr>
<td>R037</td>
<td>340/65R18</td>
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**Fig. 2**
# TECHNICAL DATA

## Farmer 200P

<table>
<thead>
<tr>
<th></th>
<th>Hinten/arrière/posteriori/rear:</th>
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<tbody>
<tr>
<td>209 POA - 211 POA</td>
<td></td>
</tr>
<tr>
<td>Vorne: avant: anteriori: front:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>MI</th>
<th>CO</th>
<th>GY</th>
<th>PI</th>
<th>MI</th>
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<th>MI</th>
<th>PI</th>
<th>MI</th>
<th>CO</th>
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</tr>
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<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
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<td>+</td>
<td></td>
</tr>
<tr>
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<td>+</td>
<td></td>
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<td>+</td>
<td></td>
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</tr>
<tr>
<td>R020 325/70R18 CO</td>
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</tr>
<tr>
<td>R037 340/65R18 MI</td>
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<td></td>
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<td>+</td>
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</tbody>
</table>

Fig.3
## 4. Fluids and lubricants Vario 200 V/F/P

<table>
<thead>
<tr>
<th>Filling points</th>
<th>Quantity</th>
<th>Type 4)</th>
<th>Frequency of change 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine, maximum filling, with filter change</td>
<td>9,0</td>
<td>Fendt Extra Grade 15W-40 SHPD, Fendt Ultra Grade 10W-40 UHPD or SHPD engine oil 3) to ACEA E7</td>
<td>after 50, 500, 1000 operating hours then every 500 operating hours at least every year with fuel containing up to 0.5 % sulphur 6)</td>
</tr>
<tr>
<td>Filling</td>
<td>24,0</td>
<td>Fendt Extra Trans 10W-40 or STOU SAE 10W-40, 15W-40</td>
<td>after 2000 operating hours or every 2 years.</td>
</tr>
<tr>
<td>Refills</td>
<td>19,0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front PTO</td>
<td>1,0</td>
<td>Fendt Super Trans 85W-90 or transmission oil in acc. with SAE 85W-90, SAE 80W-90, in acc. with API GL-5. Do not use STOU or other universal oils.</td>
<td>after 500 operating hours, then every 2 years or 2000 operating hours</td>
</tr>
<tr>
<td>Front axle differential gears Vario 200 V/F</td>
<td>2,5</td>
<td>Fendt Super Trans LS 85W-90 or hypoid transmission oil with LS additives</td>
<td>after 50 and 1000 operating hours</td>
</tr>
<tr>
<td>Front axle differential gears Vario 200 P</td>
<td>3,9</td>
<td>SAE 85W-90, SAE 80W-90, SAE 90 acc. to API GL-5. Do not use STOU or other universal oils.</td>
<td>then every 2 years or every 1000 operating hours</td>
</tr>
<tr>
<td>Axle hub per side</td>
<td>0,35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic system</td>
<td>30,0</td>
<td>Fendt Super Hyd, Fendt Extra Hyd 68 or STOU SAE 5W-30, 5W-40, 10W-30, 10W-40, 15W-30,15W-40 or engine oil HD-SAE 5W-30, 5W-40, 10W-30, 10W-40, 15W-30,15W-40 in accordance with API-CD. HD-SAE 20W-20 to API-CD also allowed for temperatures above 10 °C.</td>
<td>after 1000 op. hours, then every 2 years every 1000 op. hrs.</td>
</tr>
<tr>
<td>Fuel tank</td>
<td>76,0</td>
<td>Diesel 6)</td>
<td>Fill up after operational use</td>
</tr>
<tr>
<td>Cooling system</td>
<td>12,5</td>
<td>water with 35 - 50 % vol. antifreeze and anticorrosion agent 5)</td>
<td>Change antifreeze every 2 years</td>
</tr>
<tr>
<td>Compressed air system</td>
<td>0,5</td>
<td>Ethyl alcohol antifreeze (X 902.015.003)</td>
<td>Fill up only below + 5 °C</td>
</tr>
<tr>
<td>Lubrication points</td>
<td></td>
<td>Fendt Ultra lithium grease, Fendt Extra Fett EP or Lithium-saponified grease, NLGI class 2 (worked penetration coefficient 265-295) see Lubrication Chart</td>
<td>regularly oil all other joints and bearing points</td>
</tr>
</tbody>
</table>

1) Filling levels are determined with the dipstick, or by overflow at filling screws etc.
2) Interval according to whichever comes first.
4) If sulphur content in the fuel is above 0.5%, intervals should be halved. Only use diesel fuel approved according to EN 590 and DIN 51628, see Service memo 40/04.
5) Use only approved coolants indicated in Service memo 11/02.
6) After filling, allow engine to run at least 5 minutes, so that the axle drives are filled.

### 3) Viscosity of the oils in the engine

![Viscosity of the oils in the engine chart](image-url)
4.1 Biodiesel

Fuel grade
RME R ape seed- M ethyl- E ster,
PME V egetable oil- M ethyl- E ster fuel
Use according to DIN EN 14214.
Cold-pressed rape seed oil cannot be used.

Maintenance intervals
Oil and oil filter change intervals should be halved.
After filling a few times with biodiesel, after having used conventional diesel fuel, the fuel filter must be replaced. Since biodiesel acts as a solvent, diesel residues may block the fuel filter.

Instructions for use
Biodiesel is suitable for winter temperatures down to about -10 °C.
At temperatures below -10 °C, diesel fuel needs to be added to prevent coagulation of the biodiesel. 50 % Diesel must be added per tank filling.
With temperatures below -16 °C, use only diesel.
Biodiesel can be mixed in any proportion with diesel fuel.
Due to its lower energy density and higher viscosity compared to diesel, decreased power can be expected.
Fuel consumption can be slightly increased.
If the tractor is not going to be used for some time (3 months or more), fill with diesel to prevent the fuel injection pump from seizing.

Special features of biodiesel
Biodiesel is obtained from plant oil (mainly rape seed oil) by means of a chemical process, where the vegetable oil is mixed with methanol and converted to biodiesel using a catalyst. Biodiesel is virtually sulphur-free, and the engine therefore produces almost no SO2 (sulphur dioxide).
The exhaust gases contain
- carbon monoxide
- hydrocarbons
- particulates (e.g. soot)
than when using conventional diesel.
It is biodegradable, ground and ground water will not be affected in case of accidental spills.

4.2 Bio-hydraulic oil

Bio-hydraulic oil qualities
Bio-hydraulic oil based on rape seed and synthetic oils.
Use fluids of viscosity to ISO VG 32 - ISO VG 46 standard.

NOTE:
Do not use polyglycol-based synthetic oils.

Maintenance intervals
Oil and oil filter need to be changed every 1,000 operating hours or every year, whichever comes first.
After changing over to bio-hydraulic oil, change hydraulic oil filter after approx. 50 - 100 operating hours. Bio-hydraulic oil has solvent properties and may cause clogging of the filter in reaction with normal oil.

Instructions for use
Bio-hydraulic oil is suitable for winter operations down to approx. -15 °C.
Bio-hydraulic oil may lose viscosity in outside temperatures below -15 °C and prolonged periods of non-operation of the tractor. After a cold start, allow a short warm-up time at medium engine speed to ensure safe operation of the hydraulic steering and linkage. In conditions of severe cold, it may be necessary to warm up the whole tractor.
Avoid mixing bio-hydraulic fluid with other oils, e.g. with other, normal oil remaining in the system, or by operating an external implement. This may affect the positive environmental properties of the fluid, and will make it more difficult to dispose of (it will then have to be considered as special waste).
When disposing of oil, current legislation and the instructions of the oil manufacturer are to be observed.
A mixing of more than 2% may result in alterations in viscosity and may lead to problems with the valves.

Special features of bio-hydraulic oil
It is biodegradable and ground and ground water will not be affected in case of accidental spills.

IMPORTANT:
In spite of the high environmental compatibility of bio-hydraulic fluid, accidental spills must always be reported.
5. Lubrication chart

5.1 Filling points

**Engine:**
Twist dipstick (A) and remove, top up with engine oil.

**Transmission and axle drives:**
Turn dipstick (A) and remove, fill with transmission oil.

**Front axle differential gear:**
Fill up to overflow at filler hole (A).

**Front axle hub drives:**
Fill until the oil spills over, with hole on the left and marker in horizontal position.

**Front PTO:**
Fill up to overflow at filler hole (B).

**Hydraulic system:**
Fill oil at filler hole (A).

**Cooling system:**
Pour clean, low-lime water containing antifreeze into container (arrowed).

**Windshield washer system:**
Pour fluid into container (A).

**Compressed air system:**
Fill antifreeze container (B) with ethyl alcohol.

**Fuel tank:**
Fill with fuel through filler neck (A).
5.2 Lubrication points

Maintenance intervals after:

125 operating hours
- Lift shaft and linkage lubrication
  Raise linkage.
- Extendable struts.
- Automatic trailer hitch with cylinder-type bolt.

250 operating hours
- Automatic trailer hitch with ball-type bolt.
- Mechanical trailer hitch.
- Front axle suspension lifting cylinder.
- Front axle swing arm.
- Steering knuckle bearing left and right, only on RWD.
- Double cardan U-joints on front wheel drive.

2000 operating hours
- Left and right hubs, only on RWD.
  Unscrew and remove the cover, fill with grease.

Note:
- Cardan shaft (A) of front wheel drive Do NOT lubricate.
## Maintenance Schedule

**Vario 200 V/F/P**

Vehicle Nos. 260 .. 0101, 261 .. 0101, 262 .. 0101, 263 .. 0101, 264 .. 0101, 272 .. 0101, 273 ..0101, 274 .. 0101

Maintenance jobs during and after the running-in period and for the workshop after the 5th Service

<table>
<thead>
<tr>
<th>No.</th>
<th>Services</th>
<th>regularly 1)</th>
<th>Job Schedule</th>
<th>General notes and technical data, types of fluid and oil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Correct levels are determined by dipstick check or from the overflow at the inspection hole. Observe all accident prevention regulations and comply with directives for handling and disposing of fluid and lubricants.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>daily</td>
<td>The difference between MIN and MAX marks on the dipstick is about <strong>2.0 litres</strong>. After 100 operating hours add oil to the MAX mark of the dipstick. Wait until level is just above the MIN marking. Do not fill above MAX marking.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Oil quantity:</strong> 9.0 litres</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td><strong>Oil grade:</strong> Fendt Extra Grade 15W-40 SHPD, Fendt Ultra Grade 10W-40 UHPD or SHPD engine oils 1) acc. to ACEA E7.</td>
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<td><strong>Valve clearance:</strong> Intake valve 0.35 mm, exhaust valve 0.35 mm, with cold engine (max 50 °C). Repeat more often if engine output begins to fall. Repeat more often if engine output begins to fall.</td>
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<td></td>
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<td></td>
<td><strong>Air-conditioning, air compressor:</strong> 400+50 N (40+5 kp)</td>
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<td><strong>Coolant level:</strong> With a cold engine, if necessary top up with clean, calcium-free water containing antifreeze to between the MIN and MAX mark on the expansion tank.</td>
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<td></td>
<td></td>
<td></td>
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<td><strong>Coolant quantity:</strong> 12.5 litres</td>
</tr>
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<td></td>
<td></td>
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<td></td>
<td>A concentration of 35 - 50% vol. of antifreeze and anticorrosion agent is necessary throughout the year, even in frost-free areas. Add antifreeze as indicated in Fendt Customer Service memo 11/02. Blow out with compressed air or with a dust extractor.</td>
</tr>
</tbody>
</table>

### Operating Manual

Care and Maintenance

General notes and technical data, types of fluid and oil

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<thead>
<tr>
<th>No.</th>
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<th>Job Schedule</th>
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<td><strong>Oil quantity:</strong> 9.0 litres</td>
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### Engine

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### General notes and technical data, types of fluid and oil

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### Operating Manual

**Care and Maintenance**

**General notes and technical data, types of fluid and oil**

Correct levels are determined by dipstick check or from the overflow at the inspection hole. Observe all accident prevention regulations and comply with directives for handling and disposing of fluid and lubricants.
## TECHNICAL DATA

### Services

<table>
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<tr>
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<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
<td>250</td>
<td>500</td>
<td>750</td>
<td>1000</td>
</tr>
<tr>
<td></td>
<td>yearly</td>
<td>1)</td>
<td>daily</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Job Schedule

See also Operating Manual

### General notes and technical data, types of fluid and oil

Correct levels are determined by dipstick check or from the overflow at the inspection hole.

Observe all accident prevention regulations and comply with directives for handling and disposing of fluid and lubricants.

<table>
<thead>
<tr>
<th>Operating hours</th>
<th>as required</th>
</tr>
</thead>
<tbody>
<tr>
<td>4000</td>
<td></td>
</tr>
</tbody>
</table>

### Transmission and axle drives

**Check oil level in transmission.**

Max. oil quantity: **24.0 litres** (initial fill)

Oil quantity: **19.0 l** for subsequent fills

Oil grade: Fendt Extra Trans 10W-40 or STOU SAE 10W-40 or 15W-40.

If the 'pressure filter soiled' symbol appears on the multiple display, replace filter as quickly as possible.

Oil quantity: **1.0 litres**

Oil grade: Fendt Super Trans 80W, 85W-90 or hypoid transmission oil acc. to API-GL5. SAE 85W-90, SAE 80W-90. Do not use STOU or other universal oils.

Oil level of front PTO: up to overflow at filler hole.

### Front axle (4WD)

**Check oil level in differential gears and hub drives.**

Oil change for differential and hub drives.

Oil quantity: Differential gears, Vario 200 V/F **2.5 litres**.

Oil quantity: Differential gears, Vario 200 P **3.9 litres**.

Oil quantity: Axle hub each side **0.35 Ltr**.

Oil grade: Fendt Super Trans LS 85W-90 or Hypoid transmission oil with LS additives acc. to API-GL5. SAE 85W-90, SAE 80W-90. Do not use STOU or other universal oils.

Toe-in: 0 to +2 mm
## TECHNICAL DATA

### 4. Hydraulic system

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<thead>
<tr>
<th>No.</th>
<th>Services</th>
<th>Job Schedule</th>
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<tbody>
<tr>
<td></td>
<td>1. 50</td>
<td>2. 250</td>
<td>3. 500</td>
</tr>
<tr>
<td></td>
<td>operating hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>X</td>
<td>1000</td>
<td>Hyd</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>Also permissible:</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

#### Change oil, including return line filter and air vent filter.

- **Oil quantity:** about 30.0 l (extraction flow: 23.0 l)
- **Oil grade:** Fendt Super Hyd, Fendt Extra Hyd 68 or STOU SAE 5W-30, 5W-40, 10W-30, 10W-40, 15W-30, 15W-40 or engine oil HD-SAE 5W-30, 5W-40, 10W-30, 10W-40, 15W-30, 15W-40 acc. to API-CD.
- **Also permissible:** For temperatures over 10°C, HD-SAE 20 W-20 to API-CD.

### 5. Electrical system

- **Level about 15 mm above top of plates.**
- **Open-circuit voltage with battery fully charged 12.75 V.**
- **Remove sensor.**
- **A fault message (symbol) must appear on the multiple display accompanied by an intermittent acoustic signal.**
- **Check software version and interconnection of the electronic components and update if necessary.**
- **Complete tractor programming with end-of-line program - test interconnection.**
- If necessary, explain new operating functions.

### 6. Compressed air system

- **Pull cable to operate drain valve.**
- **Top up with antifreeze at temperatures below 5°C.**
- **Antifreeze: ethyl alcohol (X 902.015.003).**

### 7. Assemblies / general

- **Replace heater and roof fan filters.**
- **Replace roof blower recirculating air filter.**
- **Check that bolted connections are firmly seated, especially on the wheels, engine, transmission, front axle, body and hydraulics; tighten if necessary.**
- **Tighten hydraulic screw connections only in the event of a leak.**
- **In particular, check steering and front hydraulic hoses for chafing points.**
- **Switch off engine before tightening the pressure lines.**

### Services

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<thead>
<tr>
<th>No.</th>
<th>1. 50</th>
<th>2. 250</th>
<th>3. 500</th>
<th>4. 750</th>
<th>5. 1000</th>
</tr>
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<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>operating hours</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TECHNICAL DATA

#### With front axle suspension, unload the pressure lines as well.

**Check trailer hitches.**

**Swivel joint on trailer hitch: maximum play 3 mm.**

**Check and correct tyre pressure, if necessary.**

**For lubrication of greasing points refer to Lubrication chart, lubricate all joints.**

- **Fendt Ultra lithium grease, Fendt Extra EP or multi-purpose grease, lithium-saponified, NLGI class 2 (worked penetration 265 - 295).**

**Test drive tractor, check that brakes are working effectively.**

**For summary of services, see Operating Manual (inside back cover) and also the workshop data card.**

---

#### Job Schedule

- See also Operating Manual Care and Maintenance

---

#### General notes and technical data, types of fluid and oil

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#### Services

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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>annually</th>
<th>daily</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
<td>250</td>
<td>500</td>
<td>750</td>
<td>1000</td>
<td>every 2 years or 500</td>
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#### VISCOSITY OF ENGINE OILS

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Viscosity</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10°C</td>
<td>-</td>
</tr>
<tr>
<td>-20°C</td>
<td>5</td>
</tr>
<tr>
<td>-25°C</td>
<td>20</td>
</tr>
<tr>
<td>-30°C</td>
<td>25</td>
</tr>
<tr>
<td>5°C</td>
<td>30</td>
</tr>
<tr>
<td>10°C</td>
<td>35</td>
</tr>
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<td>40</td>
</tr>
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<td>45</td>
</tr>
<tr>
<td>25°C</td>
<td>50</td>
</tr>
<tr>
<td>30°C</td>
<td>55</td>
</tr>
</tbody>
</table>

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1) **Max. values Whichever comes first. In difficult operating conditions, more frequent maintenance is recommended. Always have the main service carried out before long periods of non-use.**

2) **If the diesel contains more than 0.5 % sulphur, the oil change intervals should be halved. Only use approved diesel fuel acc. to DIN 51628 and EN 590, see Service Information 40/04.**

3) **For registered trade names, refer to the current list of Fluids and Lubricants, which is available (as customer information) from every Fendt-approved workshop.**

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**For summary of services, see Operating Manual (inside back cover) and also the workshop data card.**

---

**TECHNICAL DATA**

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**ALPHABETICAL INDEX**

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<th>C</th>
<th>D</th>
<th>E</th>
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<tbody>
<tr>
<td>Acceleration rates</td>
<td>Battery</td>
<td>Calculation of towing capacity</td>
<td>Dashboard</td>
<td>Electric main switch</td>
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<td>Activating the accelerator pedal function</td>
<td>Bleeding the fuel system</td>
<td>Calibrating rear and front PTO clutch</td>
<td>Diagnostics menu</td>
<td>Electrowelding</td>
</tr>
<tr>
<td>ACTIVE symbol</td>
<td>CARE AND MAINTENANCE</td>
<td>Calling up engine management menu</td>
<td>Changing the transmission oil, axle drive oil</td>
<td>Emergency operation</td>
</tr>
<tr>
<td>Adjusting speed indicator</td>
<td>Changing direction of travel</td>
<td>Checking the transmission oil level, fill</td>
<td>Check hydraulic oil level, fill</td>
<td>End speed control</td>
</tr>
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<td>Air compressor V-belts</td>
<td>Checking coolant level</td>
<td>Checking engine oil level</td>
<td>Checking the coolant level</td>
<td>Engine coolant heater</td>
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<td>Checking the transmission level</td>
<td>Checking toe-in</td>
<td>Checking the transmission oil level</td>
<td>Engine management system</td>
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<td>Changing the hydraulic oil</td>
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<td>Circuits</td>
<td>Changing direction of travel</td>
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<td>Filling gear oil</td>
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<td>Antifreeze pump/tank</td>
<td>Combination symbols, rear PTO</td>
<td>Changing the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Filling tyres</td>
</tr>
<tr>
<td>Automatic mode rear PTO-engine speed/rear power lift</td>
<td>Combination symbols, PTO</td>
<td>Changing the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Filling with engine oil</td>
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<tr>
<td>Automatic trailer coupling</td>
<td>Combination symbols, PTO, F</td>
<td>Changing the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>First main menu</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 2</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Flow regulator</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 3</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Four wheel drive (4WD)</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 4</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Foot brake</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 5</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Front axle suspension</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 6</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Front ballast</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 7</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Front controls</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
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<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Front power lift Vario 200 P</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 9</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Front power lift Vario 200 V/F</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 10</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Front PTO</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
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<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Front PTO oil level</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
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<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Fuel consumption measurement</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 13</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Fuel prefilter</td>
</tr>
<tr>
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<td>Checking the transmission oil level</td>
<td>Fuse holder 1</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 15</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Fuse holder 2</td>
</tr>
<tr>
<td>&amp; #x2022;</td>
<td>Combination symbols, PTO, F 16</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>Fuses</td>
</tr>
<tr>
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<td>Combination symbols, PTO, F 17</td>
<td>Change the direction of travel</td>
<td>Checking the transmission oil level</td>
<td>General faults</td>
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<td>Checking the transmission oil level</td>
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| & #x2022; | Combination symbols, PTO, F 19 | Change the direction of travel | Checking the transmission oil level | & #x2022; |}

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<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
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<td>Hydraulics</td>
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240
Dear Sales Partner,

We are happy that you have decided for this product.

In order to be able to offer this vehicle the best possible service, it is necessary that you register it in AGCO-NET in the short term.

Login in at: https://net1.agcocorp.com/agconet/login.asp
Registration can be found under: Kundendienst/Fendt/Fahrzeugdatenbank… (Service/Fendt/Vehicle database…)
If necessary, you can also print out a copy of the vehicle delivery card there.

Please remember that we can only process warranty and goodwill claims if the vehicle has been registered as:

- a stock machine
- a demo machine
- a rental machine
- or sold, with information on the name and address of the new owner.

Kind regards,

FENDT Service
Important information on service and maintenance

Your tractor will only perform to your complete satisfaction if you take good care of it from the very start. Your Customer Service Centre will therefore prepare your tractor, free of charge, and instruct you on how to operate and maintain it.

Protect your claims under Warranty by having all servicing carried out at the correct time by an authorised FENDT service workshop!

After 50 operating hours (1st service)
After 500 operating hours (2nd service)
After 1000 operating hours (3rd service)

All subsequent maintenance will be carried out at our customer workshops by skilled technicians at reasonable cost and as indicated in the Maintenance Schedule of this Operating Manual.

To extend the life of the tractor, we recommend our annual Major Service, which includes an engine oil change, immediately after the main working season (e.g. the autumn).

During the initial 100 operating hours, it is not advisable to subject the tractor to extreme loads.

Every 100 operating hours, top up engine oil to the upper notch on the dipstick.

Make sure that only FENDT original parts are used for all services and repairs.

Unauthorised changes and modifications, and any damage resulting from rigidly mounted implements (e.g. front loader) not purchased from FENDT, are not covered by the Warranty and are entirely at the owners risk. This applies in particular to modifications to the power output limiter and maximum speed settings, and any damage as a result of exceeding the maximum permissible loads and weights.

Services carried out according to the Maintenance Schedule:

Vehicle Identification Number .......... /........ /.........................

<table>
<thead>
<tr>
<th>50 operating hours</th>
<th>2000 operating hours</th>
<th>4000 operating hours</th>
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<tbody>
<tr>
<td>First service</td>
<td></td>
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<tr>
<td>Date and signature of mechanic</td>
<td>Date and signature of mechanic</td>
<td>Date and signature of mechanic</td>
</tr>
<tr>
<td>500 operating hours</td>
<td>2500 operating hours</td>
<td>4500 operating hours</td>
</tr>
<tr>
<td>Second service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date and signature of mechanic</td>
<td>Date and signature of mechanic</td>
<td>Date and signature of mechanic</td>
</tr>
<tr>
<td>1000 operating hours</td>
<td>3000 operating hours</td>
<td>5000 operating hours</td>
</tr>
<tr>
<td>Third service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date and signature of mechanic</td>
<td>Date and signature of mechanic</td>
<td>Date and signature of mechanic</td>
</tr>
<tr>
<td>1500 operating hours</td>
<td>3500 operating hours</td>
<td>5500 operating hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date and signature of mechanic</td>
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