DYNAPAC

Mobile Feeder

MF 250

Operating instructions GB

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Introduction

Proper knowledge is necessary for safe working of the device. This is provided by the operating instructions. The information is available in short as an overview. The chapters are named as alphabets. Every chapter begins with page 1. The page identification includes the alphabet of the chapter and the page number.
Example: Page B 2 is the second page in chapter B.

Several options have been documented in these operating instructions. See to it that the suitable description is used for the existing option during operation and while executing the maintenance work.

The following pictograms describe the safety instructions and important explanations:

Found in front of safety instructions that have to be observed so as to avoid any risk to human beings.

Found in front of instructions that have to be observed for avoiding any damage to property.

Found in front of instructions and descriptions.

● Indicates series equipment.

○ Indicates additional equipment.

In the interest of further technical development, the manufacturer reserves the right to make changes under the observation of important features of the described device type, without amending the existing operating instructions at the same time.

Dynapac GmbH
Wardenburg

Ammerländer Strasse 93
D-26203 Wardenburg / Germany
Telefon: +49 / (0)4407 / 972-0
Fax: +49 / (0)4407 / 972-228

www.dynapac.com

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F Maintenance 1

A Application in accordance with regulations

☞ The scope of supply for this equipment also includes the “Dynapac guideline for appropriate use of asphalt pavers in compliance with the regulations”. This guideline is a part of these operating instructions and must be strictly complied with. The national regulations apply without any reservations.

The machine described in the following document is a mobile feeder used as a transporting and conveying system for the paving material for asphalt pavers; it conveys mix material from transport vehicles to these machines.
Mix material, rolled or compressed concrete, railway track rubble and free mineral mixtures are suitable as paving material for the pavement substratum.
Application, operation and maintenance of the mobile feeder must take place in accordance with the instructions given in this manual. Application in any manner will not be in accordance with the regulations and could cause damage to life and property or the mobile feeder.

Every application outside the above mentioned purpose will be considered as a violation against the rules and is hereby explicitly prohibited! Consult the manufacturer particularly during operations on slopes or in case of special applications (construction of garbage dumping ground, dam).

Contractor’s duties: According to these operating instructions, a contractor is every official person, who uses the mobile feeder himself or for his order. Under special circumstances (e.g. leasing, renting), the contractor is that person, who has to assume the specified operating duties between the owner and user in accordance with the existing contractual agreements.
He should ensure that the mobile feeder is used in accordance with the regulations and that there is no damage to the life and health of the user or any third party. In addition to this, the accident prevention regulations, other safety rules and also the operating and maintenance instructions should be observed. The contractor must ensure that all users have read and understood the operating instructions.

Assembly of accessories: The mobile feeder can be operated only with the asphalt pavers and paving material approved by the manufacturer. Additional equipment required for the functioning of the mobile feeder may be assembled or integrated only with the written approval of the manufacturer. The approval of the local authorities should be obtained if necessary.
However, the approval of these authorities shall not replace the manufacturer’s approval.

B Vehicle description

1 Description of application

The DYNAPAC mobile feeder MF250 is a transport and conveying system with rubber tyres which is used as a connecting element between road finishing machines and transport vehicles for carrying mixed goods.
A mixed goods container is used for lifting the material. The side parts of this container can be folded for better removal and uniform transport of mixed goods.
The mixed goods are transported on a heat-resistant rubber conveyor belt, which can be adjusted in height and is collapsible for transport.
The material is transferred in a mixed goods container suitable for the road finishing machine. It has two supporting wheels and is installed in the machine body.

2 Sub-assemblies and functions

Item	Designation
1	Operating stand
2	Control panel (laterally movable and slewable)
3	Conveyor belt (in 3 parts, infinitely adjustable)
4	Spring arm stripping device
5	Planetary steering axle
6	Rear wheels
7	Tandem front axle (with front axle drive)
8	Sliding rollers for docking of lorries
9	Protective roof (optional)
10	Mixed good containers (trough)
11	Measuring device

2.1 Vehicle

Structure

The mobile feeder has a welded steel frame, on which the individual sub-assemblies are mounted.

The large driving wheels and the tandem front axle compensate for the uneven ground.
The infinitely variable hydrostatic travel drive facilitates speed adjustment of the mobile feeder to the corresponding operating conditions.

Easily accessible operating and controlling elements make the operation of the mobile feeder very easy.

Short description of the sub-assemblies

Motor: The mobile feeder is driven by a water-cooled Cummins diesel motor with 6 cylinders. For further details, please refer to the operating instructions for the motor.

Travelling mechanism: The front axle is designed as a tandem floating axle. Since the wheels are supported on lever arms uneven in length, the second front wheel on the shorter lever arm has more load.
This enables better steering and increases the load capacity, particularly on soft ground. The front wheels have solid rubber elastic tyres, whereas the rear wheels have tubeless pneumatic tyres.
Both the front axles can be connected as drive axles for the front wheel drive.
A differential lock can also be used.

Hydraulic system: The diesel motor drives the hydraulic pumps for all main drives of the mobile feeder with the help of the flange-mounted power gear and its auxiliary drives.

Travel drive: The infinitely adjustable travel drive pump is connected to the travel drive motors with high-pressure hydraulic hoses.
The oil motor drives the planetary steering axle with a two speed controlling gear mechanism.

Conveyor belt: The mobile feeder has a rubber conveyor belt for conveying the mixed goods. This belt is operated in a hydraulic manner. The hydrostatic drive is infinitely adjustable.
The conveyor belt is also infinitely adjustable. In the unloading area, the part that sets the optimum angle for unloading can be tilted.

Steering mechanism/Operating stand: The completely hydraulic Danfoss-Orbitrol steering mechanism enables easy manoeuvrability.
With the help of a locking device, which can be reached from above, the displaceable and slewable control panel can be secured in four different positions. Each of the two operator seats can be erected in two different positions.

Mixed good container (trough):
The capacity is approximately 12.5 t.
The lateral parts of the trough can be individually folded (optional), thus facilitating easy removal and uniform transport of mixed goods.

Metering equipment:
Metering equipment consisting of a slide valve is located between the hopper and frame. The slide valve can be opened and closed across an infinitely variable range and is used to set the volumetric flow rate of material.

Sliding roller crossbar: The sliding rollers for the mixed goods lorries are fixed on a crossbar with has pivoting bearings in the centre.
The varying distances from the rear wheels of the mixed goods lorry can be compensated with the crossbar. The mobile feeder rarely loses its track, thus simplifying the mounting operations in curved areas.

3 Safety devices

Safe working is possible only with the smooth functioning of operating and safety equipment and its proper arrangement.

☞ The functioning of this equipment must be checked regularly.

- Emergency cut-off switch (1)

⚠ Motor, drives and the steering mechanism is switched off by pressing the emergency cut-off switch. Any required countermeasures (overhauling, moving the conveyor belt etc.) are no longer possible! Accident danger!

- Blinker and warning blinker (2)

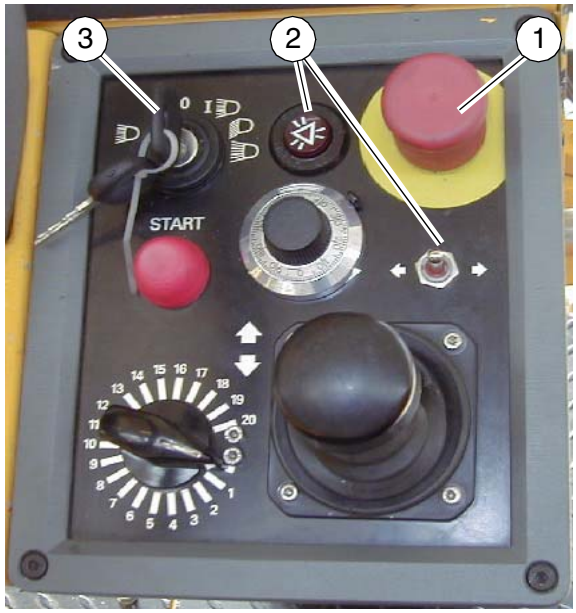
The blinker or the warning blinker must blink when the switches are pressed.

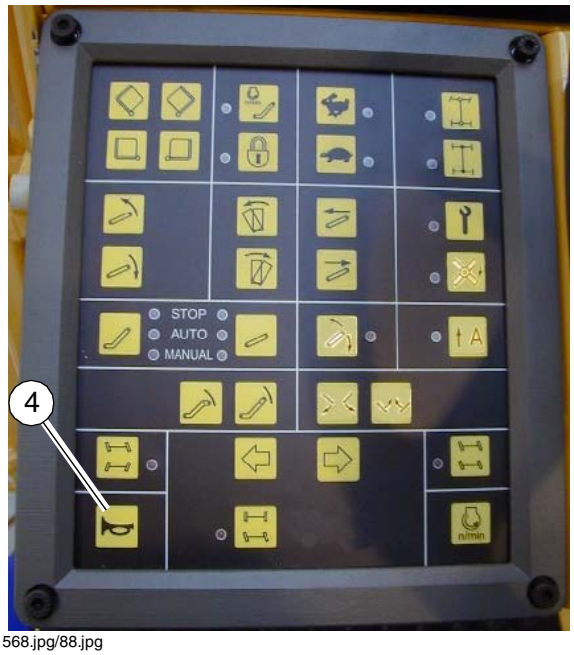
- Ignition key/Illumination (3)

For safety against inappropriate use and for switching on the lamps

- Horn (4)

Must sound when pressed





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- Parking brake/Emergency brake

For assured parking and as emergency brake in case of any problem with the driving lever.
The parking brake is located on the underside of the control panel.

- Trough transport safety devices

For securing the upward folding troughs during transport or while parking.

- Main switch

For securing against improper use and for isolating all sub-assemblies from the circuit.

Other safety devices

MF250.jpg

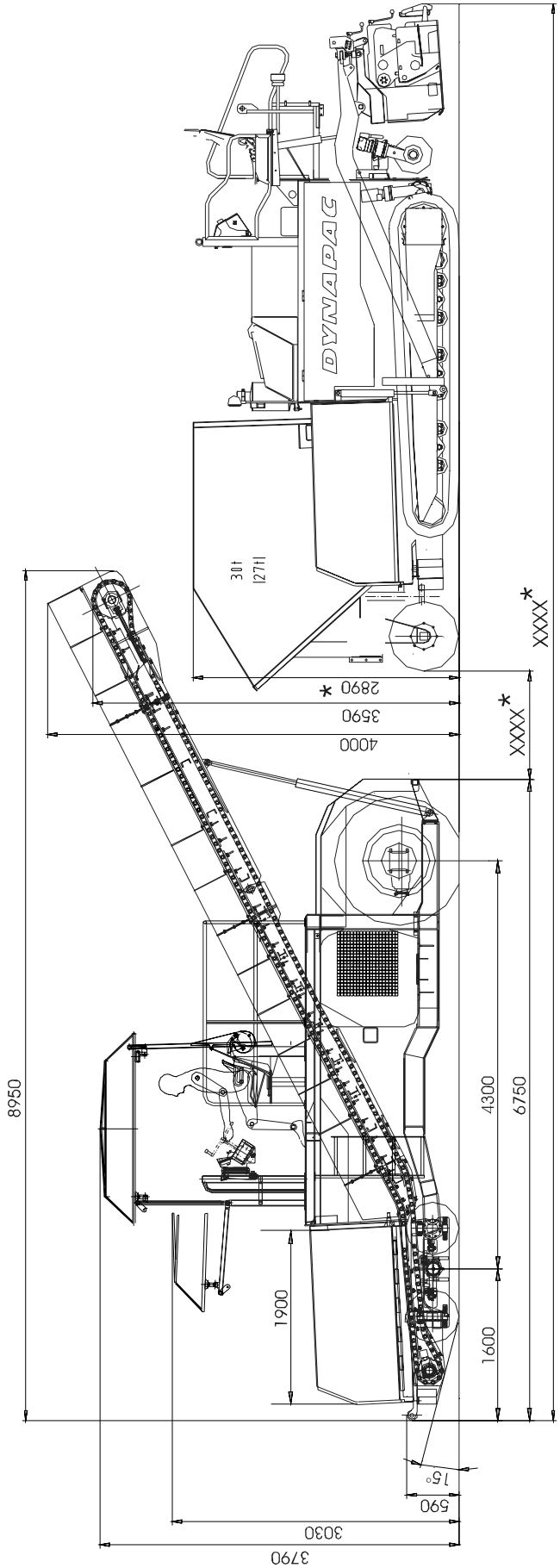
Item	Designation
1	Anti-slipping climbing ladder
2	Railing
3	Safety against falling
4	Illumination (headlight, blinker, brake light)

Other equipment

- Support wedges
- Warning triangle
- First-aid kit

4 Technical data standard design

4.1 Measurements (all dimensions in mm)



*Abhängig vom eingesetzten Straßenfertiger

4.2 Weights (all values in t)

Mobile feeder	Approximately 14.70
- With filled trough Max. limit	Approximately 12.5

4.1 Output data

Transporting speed	10	km/h
Operating speed	0,8 - 20	m/min
Conveying capacity theoretical	1440	m^2/h

4.2 Travel drive/travelling mechanism

Drive	Hydrostatic drive with pump and motor, infinitely variable
Transmission	Via two-speed controlling mechanism with differential compensation and differential locking device as well as planetary gears
Speeds	(See above)
Driving wheels	2 x 14.00 R-25 (pneumatic tyres)
Steering wheel	4 x 560 / 390 - 400 (Solid rubber elastic tyres)
Front wheel drive	(Can be connected, drive speed variable)
Brakes	Parking/emergency brake in the hydraulic circuit

4.3 Motor

Brand/type	Cummins QSB5.9-C173
Design	6 cylinder diesel motor (water-cooled)
Output (in accordance with DIN 6270)	129 kW / 175 PS (at 2100 1/min)

4.4 Hydraulic system

Generation of pressure	Hydraulic pumps via distributor gear (directly flange-mounted on motor)
Distribution of pressure	Hydraulic circuits for: - Travel drive - Transport of mixed goods - Cylinder activating switches for trough, conveyor belt

4.5 Mixed good containers (trough)

Capacity	Approximately 14.6 t
Minimum inflow height, centre	483 mm
Minimum inflow height, external	652 mm

4.6 Transport of mixed goods

Rubber conveyor belt	
- Drive	Hydrostatic, infinitely variable
- Controlling the conveyed quantity	With adjustable sensors, speed of conveyor belt and measuring device

4.7 Electricals

Main voltage	24 V
- Batteries	2 x 12 V, 88 Ah
- Fuses	See chapter F, section 5

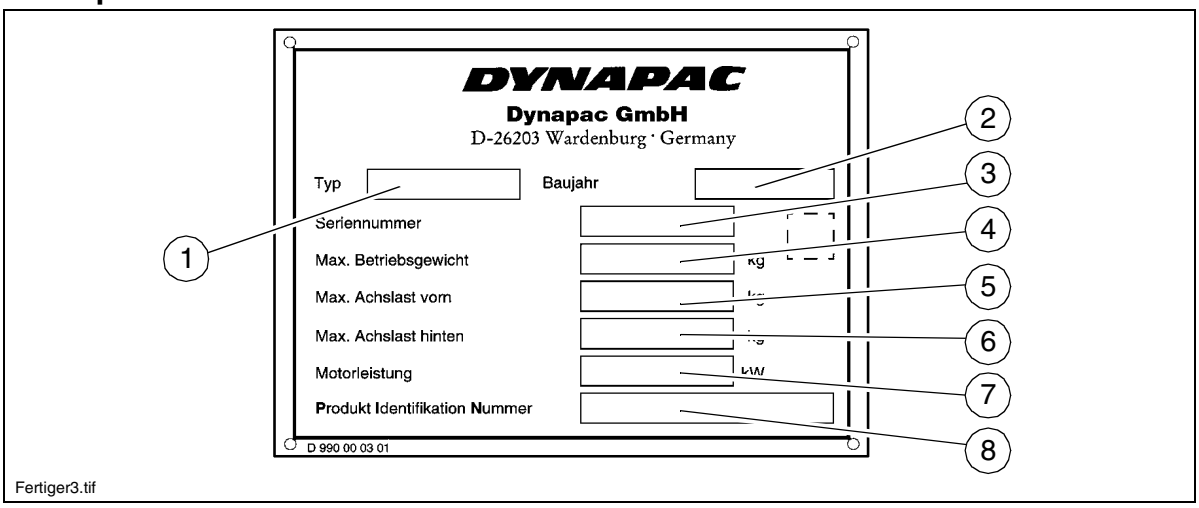
5 Marking areas for nameplates

6 Marking areas and nameplates

Item	Designation
1	Nameplate
2	Sign “Danger of excess voltage”
3	Warning sign “Follow operating instructions!” *
4	Sign “Filling nozzle motor oil”
5	Sign “Filling nozzle diesel”
6	Warning sign “Danger of crushing!”
7	Sign “Safety points or stop points for crane loading”

* Signs are located behind the side flaps

6.1 Nameplate



Item	Designation
1	Type of machine
2	Year of construction
3	Series number of the mobile feeder series
4	Maximum permissible operating weight incl. all add-ons in kg
5	Maximum permissible axle load on the front axle in kg
6	Maximum permissible axle load on the rear axle in kg
7	Rated output in kW
8	Product Identification Number (PIN)

☞ The stamped vehicle identification no. on the mobile feeder must match with the product identification number.

7 EN standards

7.1 Continuous acoustic pressure level

⚠ The use of ear muffs is prescribed for such a mobile feeder. The emission value on the operator's ears can vibrate and go very high because of the different operating conditions on the road finishing machine. If ear muffs are not used, it could lead to hearing defects.
The sound emission from the mobile feeder has been measured according to the ENV 500-6 version a.o. March 1997 and ISO 4872 under free field conditions.

Acoustic pressure level at the operator's seat (head level): L_{AF} = 85 dB(A)

Sound output level: L_{WA}=108.7 dB(A)

Acoustic pressure level on the machine

Check point	2	4	6	8	10	12
Acoustic pressure level L_{AFeq} (dB(A))	77,1	74,7	73,7	78,8	74,0	78,5

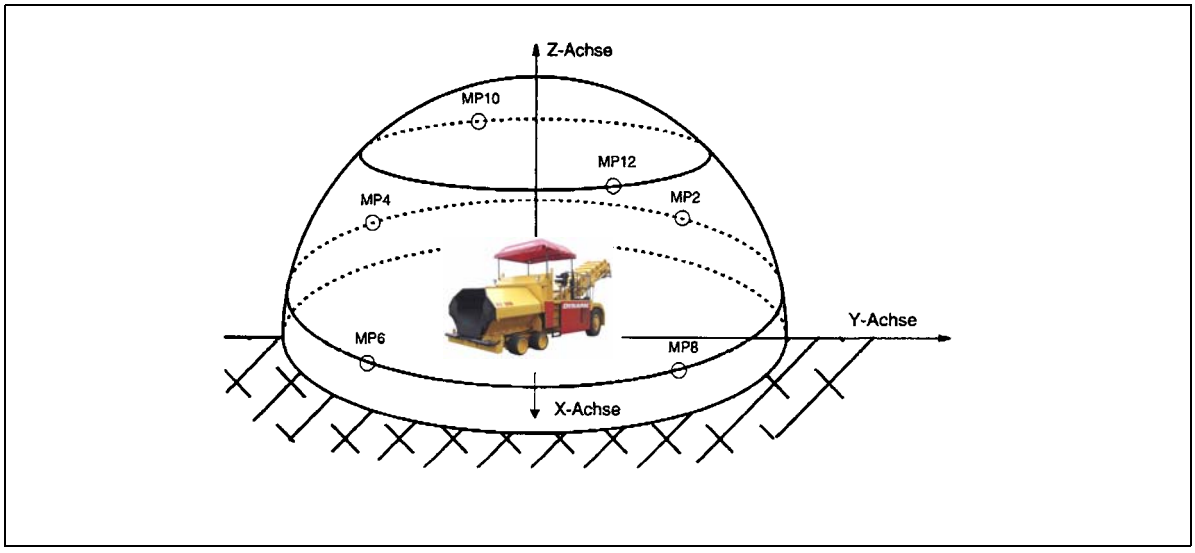
7.2 Operating conditions while measuring

The diesel motor operated with the maximum speed (rpm). The conveyor belt operated with at least 50% of the maximum speed.

7.3 Arrangement of the check point

Semi-circular measuring area with a radius of 16 m. The machine was in the centre. The check points had the following coordinates

	Check points 2, 4, 6, 8			Check points 10, 12		
Coordinates	X	Y	Z	X	Y	Z
	±11,2	±11.2	1.5	- 4.32 +4.32	+10.4 -10.4	11.36 11.36



7.4 Total body vibrations

According to the prEN 1032-1995, the calculated effective values of acceleration $a_w = 0.5\ m/s^2$ at the operator's seat are not exceeded during appropriate application.

7.5 Vibration of hands and arms

According to the prEN 1033-1995, the calculated effective values of acceleration $a_{hw} = 2.5\ m/s^2$ at the operator's seat are not exceeded during appropriate application.

7.6 Electro-magnetic resistance (EMV)

Observation of the following limit values in accordance with the safety requirements of the EMV guideline 89/336/EWG/08.95:

- Transmission of interference in accordance with DIN EN 50081-1/03.93:
  < 40 dB µV/m for frequencies from 30 MHz to 230 MHz at a measuring distance of 3 m
  < 47 dB µV/m for frequencies from 20 MHz to 1 GHz at a measuring distance of 3 m

- Resistance to interference against electro-static discharge in accordance with DIN EN 61000-4-2/03.96:
  The ± 4-KV contact discharge and the ± 8-KV air discharge did not show any significant influence on the mobile feeder.
  Changes according to the evaluation criteria "A" were abided by, i.e. the mobile feeder operates properly.

☞ Any changes in the electric or electronic components and their arrangement may be made only with the written consent of the manufacturer.

C Transport

1 Safety regulations for transport

⚠ Inappropriate setting up of the mobile feeder and improper transport could lead to accidents!

Close trough halves and secure safety devices for transporting the trough.
Put up the weather protection roof and insert locking bolts.

While transporting, fold in the conveyor belt at the hinges and secure with appropriate securing devices.
Secure material chute when in transport position.

Stow away all loose parts (not fixed to the mobile feeder) in the available cases and the trough.
Close all panels and check for their fixed position.

While loading on ramps, it is possible that the device might slip, tilt or overturn.

Drive carefully! Keep persons away from danger areas!

In addition to this, the following instructions should be observed while driving on public roads:

⚠ In Germany, mobile feeders are basically not allowed to travel as individual vehicles on public roads.
In other countries, traffic rules deviating from the standard have to be observed if necessary.

The machine operator must possess a valid driving licence for a vehicle of this kind.

The control panel must be located on the side facing the oncoming traffic and must be secured.
The headlights must be set as per the instructions.

Only the accessories and add-ons must be carried in the trough!

While travelling on public roads, another person must accompany the machine operator and instruct him, particularly on crossings and road junctions.

2 Transport with a low loader

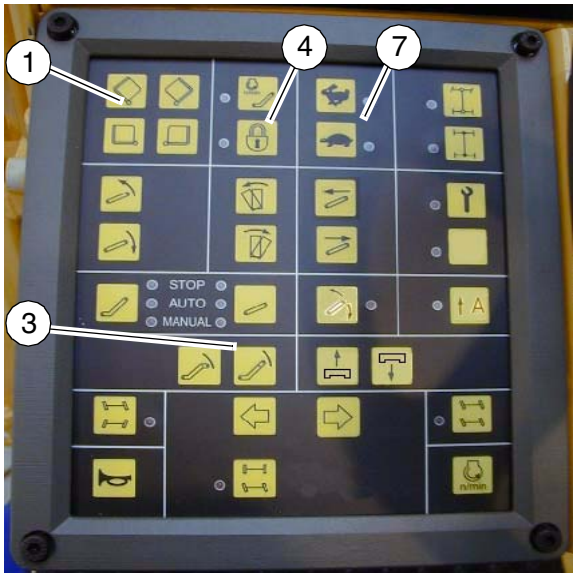
2.1 Preparations/setting up

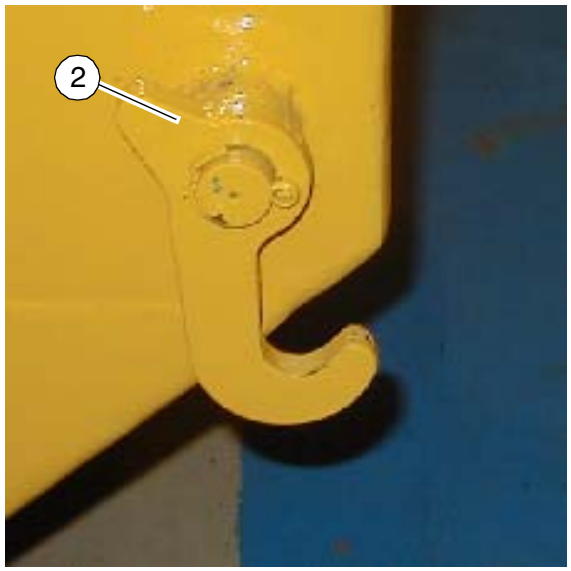
- Close trough halves with the keys (1). Insert both the trough securing devices during transport (2).
- Bring the conveyor belt in the required position with the keys (3).
- Press key (4).
- Turn pre-selection control unit (5) to zero. Bring the driving lever (6) in the centre position.
- Dismantle all projecting and loose parts on the mobile feeder. Stow away the parts safely.

2.2 Transport on the low loader

STOP Ensure that there are no individuals in the danger zone while loading.

- If required, set fast/slow keys (7) to “turtle”.
- Set pre-selection control unit (5) to maximum.
- Measure speed with the driving lever (6).





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- Transport on the low loader at a low motor speed.
- Shut off the motor.
- Apply parking brake (8).
- Cover control panel with safety cover and secure properly.
- Fold down the weather safety cover if required.
  - Remove locking bolts and pull the cover to the front with the help of the cover frame strap. Secure the in lower position again with bolts.

Feststell.jpg

Secure the mobile feeder to the low loader:

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- Use only appropriate and permitted securing devices.

2.3 After transport

- Remove the securing devices.
- If required, fold up the weather safety cover:
  - Pull out the locking bolts, arrange the weather safety cover behind by pressing and lock again.

- Start motor and travel at a low motor speed.
- Turn off the mobile feeder at a safe place, switch off the engine.
- Remove key and/or cover control panel with the safety cover and secure.

3 Transport on public roads

3.1 Preparations/setting up

- Preparing the mobile feeder for travelling.
- Dismantle all projecting and loose parts on the mobile feeder and stow away carefully.
- Close trough halves with the keys (1). Insert both the trough securing devices during transport (2).
- Bring the conveyor belt in the required position with the keys (3).
- Press key (4).
- Turn pre-selection control unit (5) to zero. Bring the driving lever (6) in the centre position.

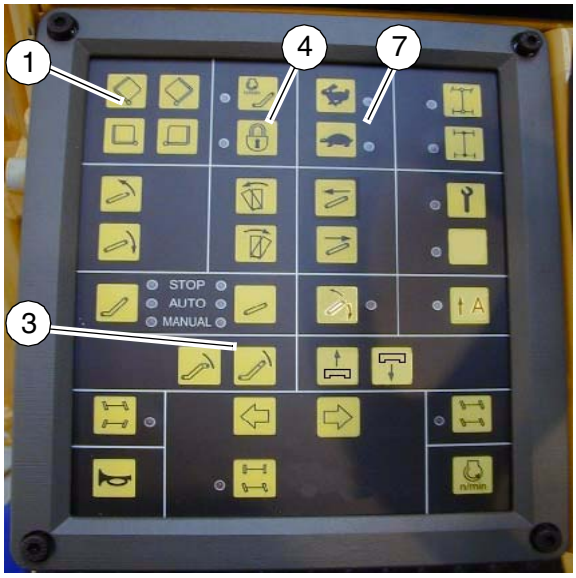
3.2 Driving in the traffic

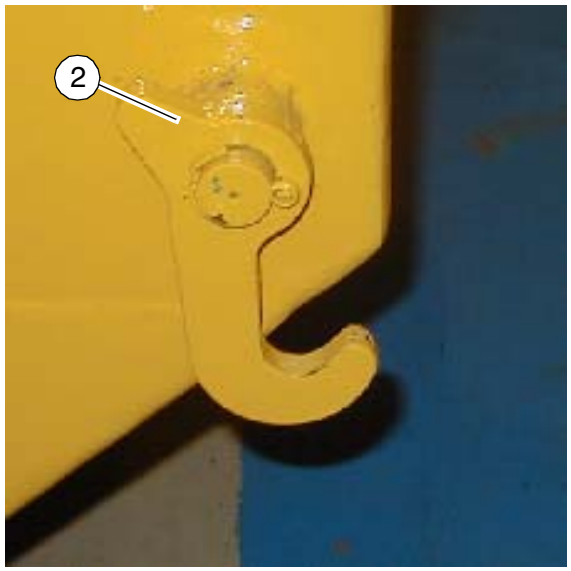
- If required, set fast/slow keys (7) to “rabbit”.
- Set pre-selection control unit (5) to maximum.
- Measure speed with the driving lever (6).

STOP Danger of accident!

- Do not drive with the differential lock on.
- Pay attention to the huge steering lock on narrow curves. The steering requires nearly 2.5 - 3 complete rotations for locking the steering completely with the steering wheels.
- Press the emergency cut-off key in case of emergency!

STOP By pressing this key, the mobile feeder brakes abruptly, the engine is switched off and the steering becomes heavy. This can lead to accidents!





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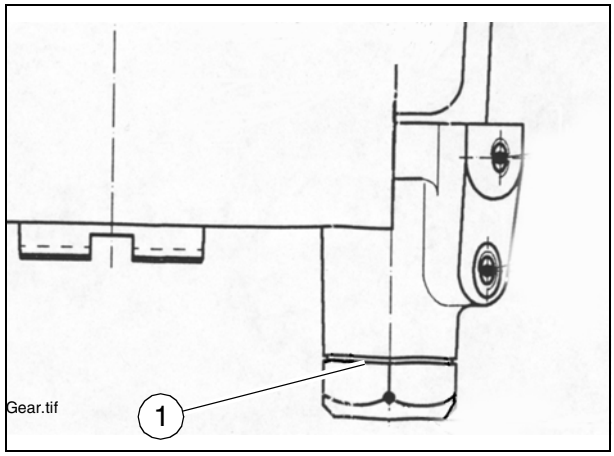
4 Towing

Follow all instructions and take all the necessary preventive measures that are applicable for the towing of heavy construction machinery.

The towing vehicle must be such that it can secure the mobile feeder even on slopes. Use only permitted towing rods!

The gear must be released before the vehicle is towed.

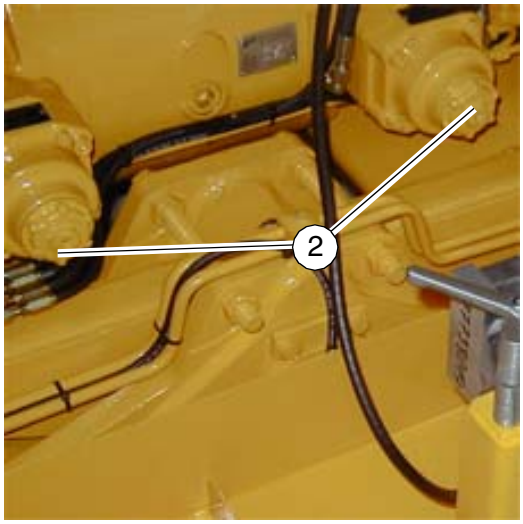
- Loosen cap (1) SW50 on the gear,
- Bring the selector shaft in the idle position by pressing or pulling with the M10 screw.



Gear.tif

At the same time, the spring loaded brakes of the steering axle must be released:

- Dismantle safety caps (2).
- Screw in the loose screw behind the cap in the piston till the brake is released.



Federsp.jpg

- Secure the towing rod in the towing device (3) bumper.
- Tow away the mobile feeder slowly and carefully by the shortest route away from the site or the danger zone.

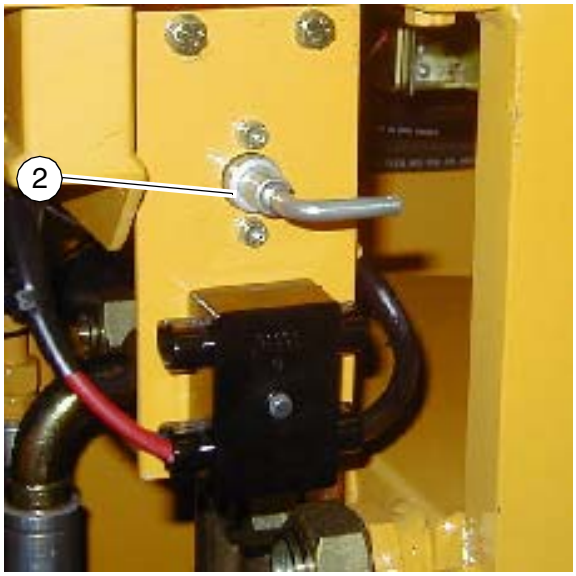
MF250_2.jpg

☞ When the machine has to be driven again, the selector shaft must be pressed again and the spring-loaded brake must be brought to its normal condition.
Mount all dismantled parts in an appropriate manner.

5 Park safely

⚠ While parking on an inclined area in a public place, the mobile feeder must be secured in such a manner that unauthorised persons or playing children do not cause any damage.

- Remove ignition key (1) and main switch (2) and carry along with you; do not leave it “inserted” in the mobile feeder.
- Put the cover on the control panel and lock.
- Stow away loose parts and accessories safely.
- Apply parking brake (3).



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D Operation

1 Safety regulations

Individuals can be injured or killed by actuating the engine, drive system, conveyor belt or lifting devices.
Before starting, ensure that nobody is working on, in or below the mobile feeder and that there is no one in the danger zone near the machine.

- Do not start the engine or use any operating elements if these have explicit instructions prohibiting their activation!
  Activate the operating elements only when the engine is operating if not mentioned otherwise!

Never tamper with the hopper and the conveyor belt when the engine is on. Danger to life!

- While assigning the duties, convince the personnel that no one is endangered!
- Ensure that all safety devices and covers are available and secured properly!
- Take immediate measures for any damages detected! Operation is not allowed in case of any shortcomings!
- No person should be allowed to travel on the mobile feeder!
- Clear the travel path and the work area of any obstacles!
- Always try to choose the driver position in such a manner that it is on the other side of the traffic! Lock the operator console and driver's seat.
- Maintain sufficient distance from projections, other devices and other danger points.
- Travel carefully on uneven areas, in order to avoid slipping, tilting or turning over.

Always keep the mobile feeder in control; never try to burden it beyond its capacity!

2 Operating elements

2.1 Operator console

⚠ General instructions for observing CE specifications

All the locking switch functions, which can prove to be dangerous during diesel start (conveying function), are set in the STOP function during EMERGENCY STOP or while restarting the controls. If the settings are changed when the engine is at standstill (“AUTO or “MANUAL”), these are reset to “STOP” during the diesel start.

Item	Designation	Short description
1	Control element	For controlling or operating all the main functions of the engine and machine.
2	Steering wheel	The steering movement is transferred to the front wheels in a hydraulic manner. STOP Pay attention to the steering ratio while travelling on narrow bends. Danger of accident!
3	Light system	Lights up the control element and the operating field when the parking lamp is switched on.
4	Operating field	Foil keys for operating and adjusting various machines and engine functions, partly along with the LC display.
5	Display	LC display and operating keys for menu operation.
6	Locking bolts	As a lock and pivot for the swivelling operator console STOP If the locking bolts are not fixed properly, the operator console will rotate unnecessarily. Danger of accident!
7	Operator console lock device	Securing the operator console A lock device is available for the possible positions of the operator console. STOP If the console is not locked, it can shift. Danger of accident!
8	Control elements and fuse carriers	For monitoring and regulating different engine functions and operating conditions. ☞ See chapter “Maintenance” for loading fuses

Control element (1)

Item	Designation	Short description
1	Ignition lock and light switch	Key positions: 0 Ignition and light off 1 Ignition on  Parking/tail-light, armature light system, If required, working headlights  Driving light  Driving light (upper beam)  Remove lock between 1 and 2 by pressing.
2	Warning blinker system	Switch on for safety on streets.
3	Emergency stop key	Press in case of emergency (danger to individuals, possibility of collision etc.)! - Engine, drives and the steering mechanism are switched off by pressing the emergency stop key. After this, it is no longer possible to change the course of the conveyor belt or to lift it etc. Danger of accident! - In case of any electrical disturbances, the engine should be manually switched off with the rod of the fuel injection pump. In order to restart the engine, the switch must be pulled up again.
4	Speed regulating device for convey-or belt	Helps in adjusting the speed of the conveyor belt. - Anti-clockwise rotation: To reduce speed - Clockwise rotation To increase speed  Speed adjustment is possible only when “AUTO” or “MANUAL” type of operation is selected for the convey-or belt.  Always adjust the speed in such a manner that nobody is hurt if the mix material falls down.
5	Travel direction in-dicator (“Blinker”)	- Activate while changing the travel direction on streets.


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START
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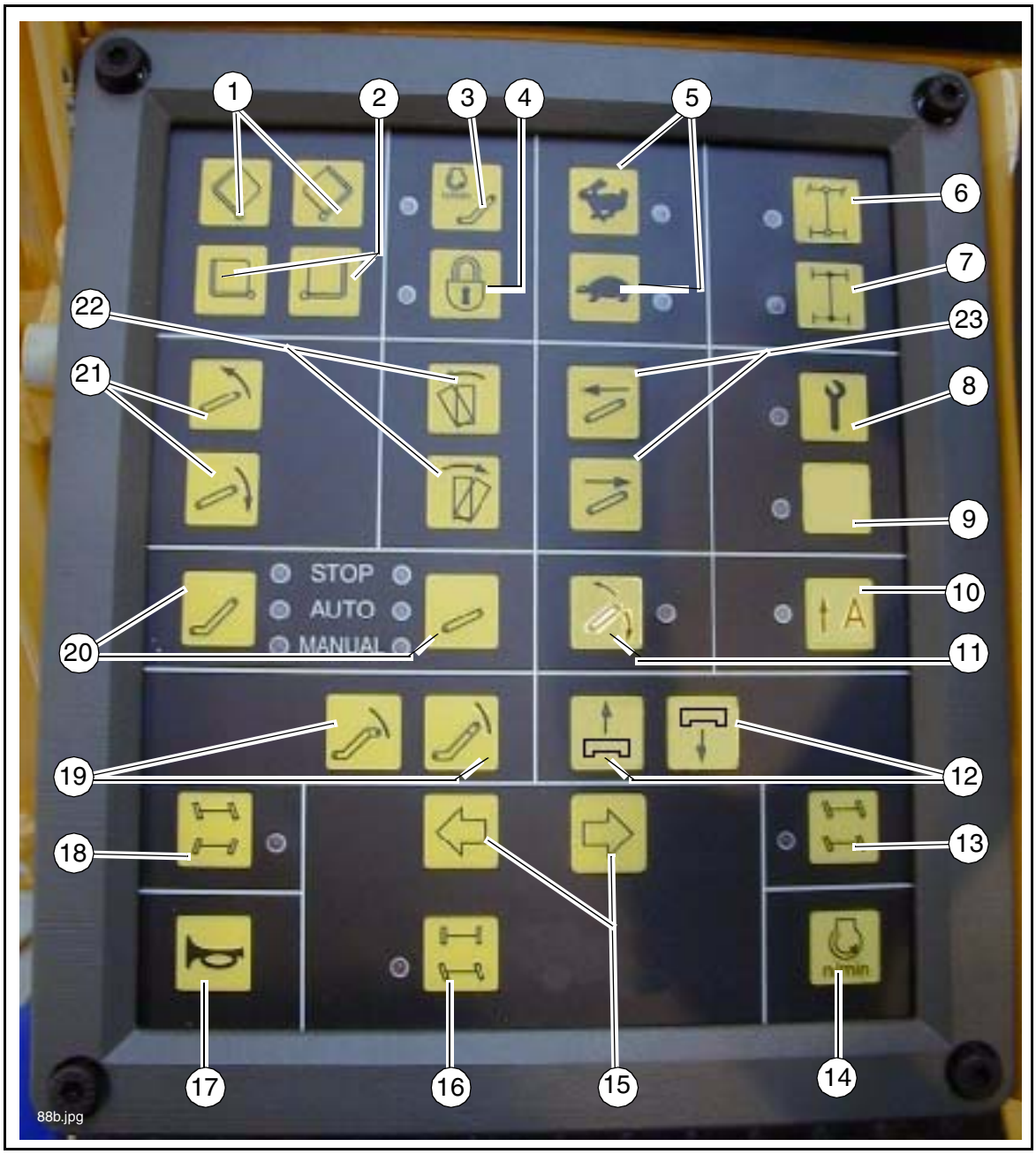
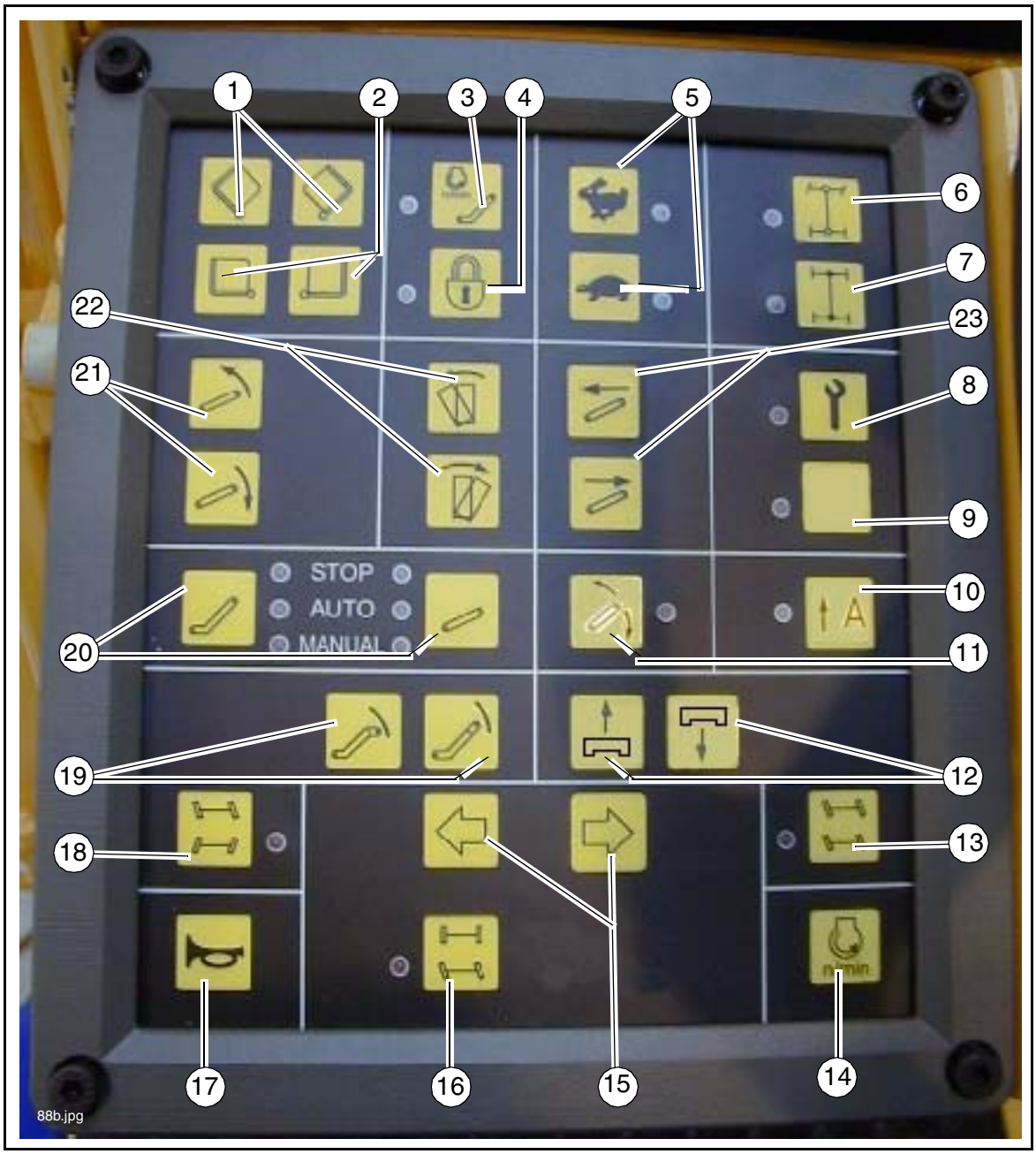
Item	Designation	Short description
6	Drive lever (Advance)	Switching on the “AUTO” conveying functions and infinite adjustment of the travelling speed – forward or backward. Neutral position: Starting operation possible; engine in idle running speed; no drive system. The travelling speed of the mobile feeder depends upon the drifting of the drive lever and the setting of the pre-selection regulating device. If this device is set to “0”, the mobile feeder does not move inspite of the drifting of the lever. ☞ The maximum speed is set with the pre-selection regulating device and can be attained by complete drifting/ excursion of the lever.
7	Pre-selection regulating device, drive system	This helps in setting the speed, which should be achieved when the drive lever is completely rotated. ☞ The scale approximately matches the speed in m/min (while paving).
8	Starter	The machine can be started only when the drive lever is in the neutral position. All emergency stop switches must be pulled up.

Operating field (4)



Item	Designation	Short description
1	Close the hoppers	Pushbutton function: - Left: Closes left hopper side - Right: Closes right hopper side
2	Open hoppers	Pushbutton function: Left: Opens left hopper side Right: Opens right hopper side If the hoppers are activated at the same time in a hydraulic manner (1 valve), the left as well as the right switch can be used for the operation.
3	Filling function	The filling function is activated with this key. Filling the hopper of the asphalt paver before starting the paving work. By pressing the key, the speed of the engine is increased and coating mix is conveyed till the desired level of material in the hopper of the asphalt is attained and until the cut-off signal is given out by the ultrasound sensor.
4	Main functional key	Locking switch function with LED notification Locks all conveying functions. Although the individual functions are set to “Auto”, they are not initiated if the drive lever drifts. The preset machine can be moved and unlocked at the new paving site. The blocked functions are re-activated by swivelling the lever. ☞ During restart, the key is set to “ON”.
5	Drive system fast/slow	Keys with locking switch function and LED notification **Hare:** Transporting speed **Turtle:** Operating speed for paving operations - Switch on only in a standstill position! ☞ During restart, the keys are set to the operating speed (turtle).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MANUAL
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12
18
13
n/min
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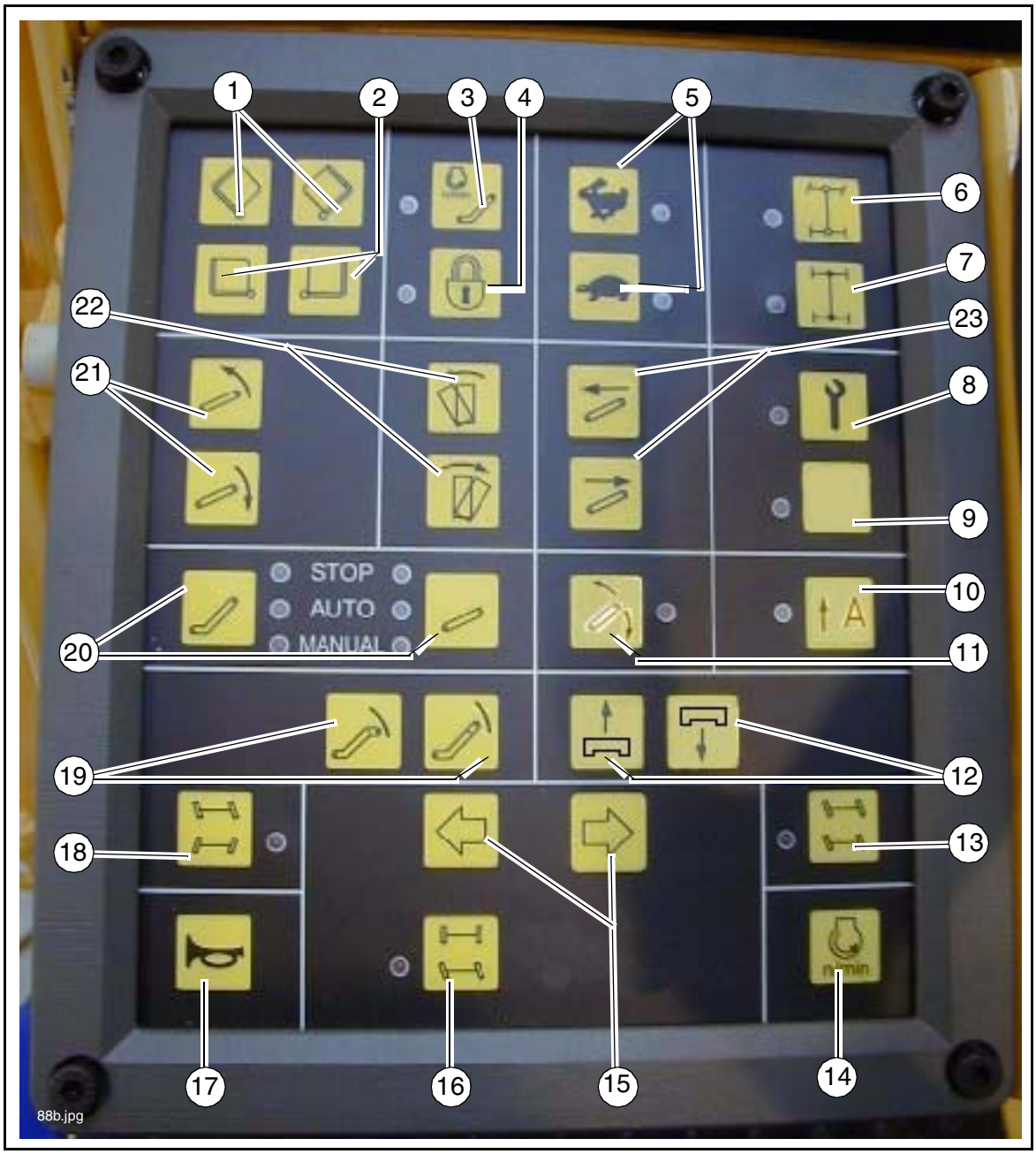
16
15
14
88b.jpg

Item	Designation	Short description
6	Front wheel assist on/off	Keys with locking switch function and LED notification The additional front wheel assist is switched on/off with these keys. The front wheel assist is switched on by pressing the keys. (LED and pilot lamp are switched on) ⚠ Use the front wheel assist only while paving, never while transporting. Increased wear!
7	Electric differential lock	Keys with locking switch function and LED notification Used for switching on and switching off the differential lock. The differential lock is switched on by pressing the key. (LED and pilot lamp are switched on) Press the key again for switching off; drive till the pilot lamp switches off.
8	Paving operation	This key enables the commissioning of all operating functions - which are activated only when the drive lever is moved (i.e. when the machine in operation) - even when the machine is at standstill. - Pressing the key “Paving operation” = “ON” Pressing the key “Main functional key” = “OFF” This diesel speed is increased to the pre-selected set value.
9	Not busy	
10	Regulating the distance	Keys with locking switch function and LED notification. By pressing the key, the set distance between the mobile feeder and asphalt paver is automatically maintained.
11	Switching on Angle adjustment (optional)	Key with touch function and LED notification. The function “Angle adjustment” can be realized by pressing the key continuously (LED ON). With these keys (19), the angle of the conveyor belt can be adjusted in the desired manner.
12	Metering slide valve OPEN/CLOSED	Buttons for infinitely variable adjustment of the metering slide valve. Left-hand button: Pressing this button, opens the metering slide valve until the desired position is reached. Right-hand button: When this button is pressed, the metering slide valve is closed until the desired position is reached.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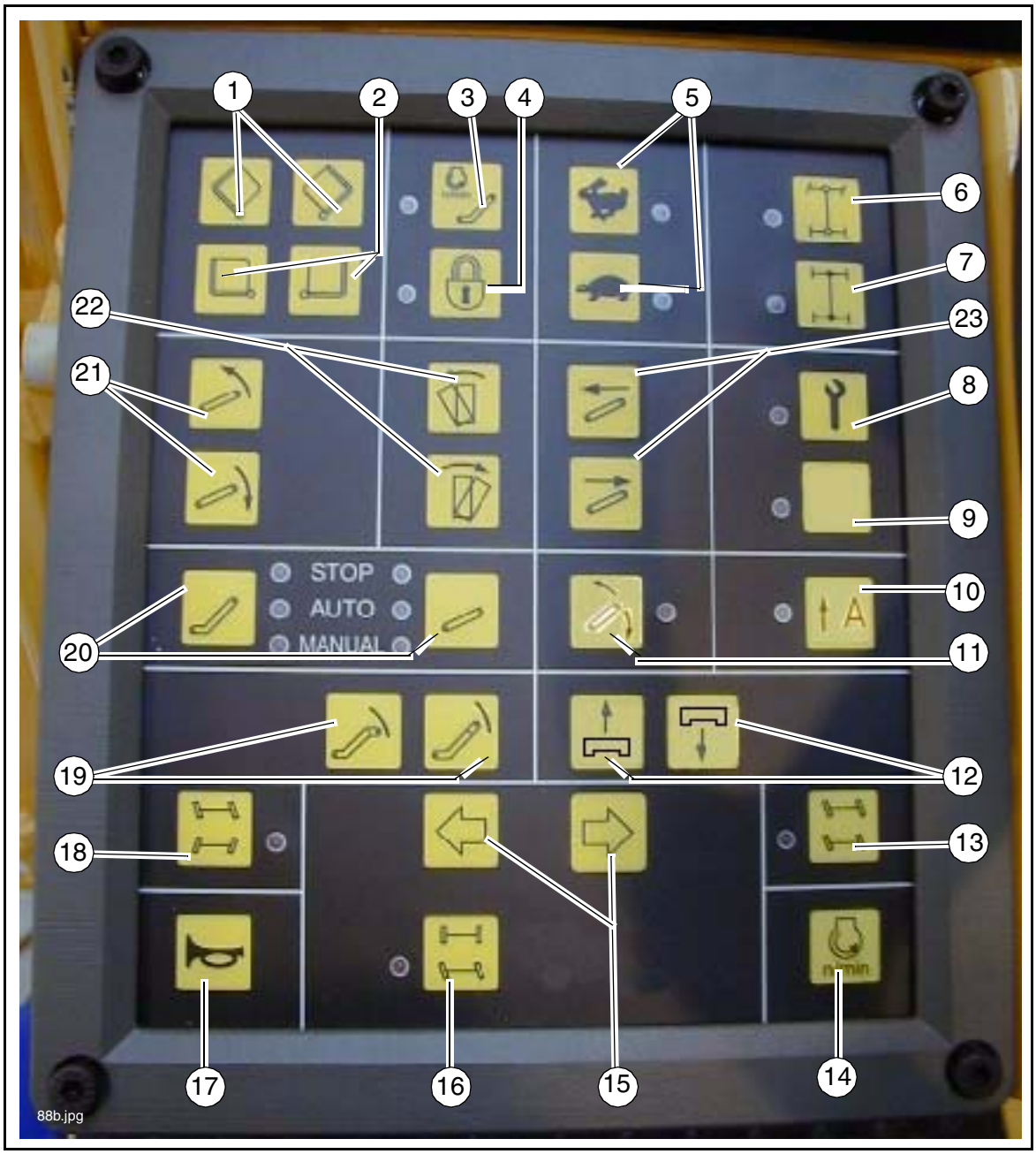
88b.jpg

Item	Designation	Short description
13	Parallel steering (“Dog pace”)	Keys with locking switch function and LED notification By pressing the key, the parallel steering mechanism of both the axles is activated. A parallel movement of the machine is possible. ☞ By pressing this key, the other keys for the steering functions are reset.
14	Engine speed setting device	Infinite speed adjustment (when the drive lever is rotated completely). Pressing the key opens a display in the menu, wherein one can display or change the set values for the diesel speed with the help of the display keyboard. Min. setting: Non-load speed Max. setting: Rated speed ☞ Generally, set the rated speed while conveying and reduce the speed while transporting. ☞ The automatic speed regulating device keeps the set speed constant even under load.
15	Stand-by – Steer rear axle manually	Keys with locking switch function and LED notification The rear axle can be steered by pressing the key. Moreover, the steering radius of the machine can be changed by changing the rear wheel position with the two arrow keys in the same key block when the stand-by is switched on. ☞ By pressing this key, the other keys for the steering functions are reset.
16	Steering direction rear axle	By pressing the left or right key, the rear axle can be steered in the required direction. Pre-requisite for this function is that the stand-by must be switched on.
17	Horn	Press in case of danger and as acoustic signal before leaving!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MANUAL
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n/min
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88b.jpg

Item	Designation	Short description
18	Slaving/trailing rear axle	Keys with locking switch function and LED notification. When the function is initiated, the rear wheels are also steered and they allow a smaller radius for travelling (the machine can be easily manoeuvred). ☞ By pressing this key, the other keys for the steering functions are reset. ☞ This function is only available while the vehicle is operating in its working gear.
19	Moving the conveyor belt	With these keys, the stacking area of the conveyor belt can be moved above or below. - Left key: Moving the conveyor belt above - Right key: Moving the conveyor belt below STOP Before pressing the switch, always ensure that there are no individuals in the danger zone and that there is no possibility of damage to the property.
20	Type of operation of the conveyor belt	Key with locking switch function and LED notification. Switching OFF by pressing the key again. - Switch position “STOP”: No conveying function. - Switch position “AUTO”: The conveying function is initiated by drifting the drive lever. - Switch position “MANUAL”: Conveying function is initiated. The speed can be changed with the help of the corresponding potentiometer in the control element.
21	Not busy	
22	Not busy	
23	Not busy	

Regulating and monitoring elements (8)

Item	Designation	Short description
1	Temperature display hydraulic oil	Normal display up to120 ° C = 248 ° F. ⚠ Stop machine at higher temperature (driving lever in neutral position), allow the motor to cool in idle run. Explore the cause and eliminate, if necessary.
2	Not busy	
3	Fuel gauge	Always pay attention to fuel gauge. ⚠ Never let the diesel tank run dry! If it runs dry, the entire fuel system will have to be evacuated.

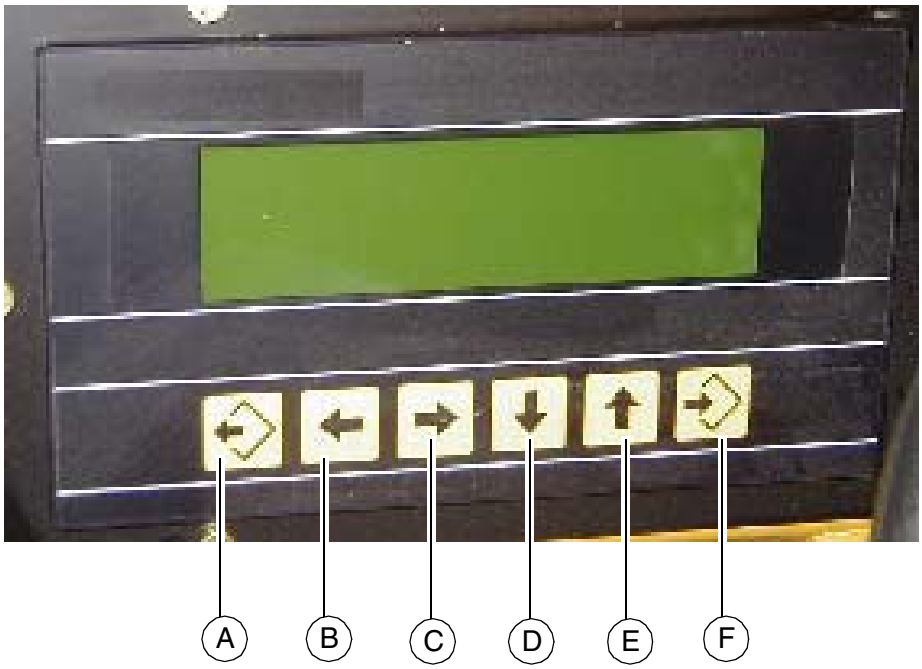
90.jpg/159_Com2.jpg

Item	Designation	Short description
4	Error message with engine stopped (red)	Lights up when a serious error has occurred on the engine. For reasons associated with safety, the engine is automatically switched off. ☞ Lights up for a few seconds once the ignition has been switched on for checking purposes.
5	Error message (yellow)	Indicates that there is an error on the engine. The machine can continue to be operated for the time being. In order to prevent further damage, the error should however be rectified as soon as possible. ☞ Lights up for a few seconds once the ignition has been switched on for checking purposes.
6	High beam indicator (blue)	Lights up when the high beam is switched on (at the ignition key (18)). STOP Avoid blinding the oncoming traffic!
7	Front wheel assist	Blinks, when the front wheel assist is switched on.
8	Regulating device for travel direction indicator	Blinks, when the travel direction indicator is switched on.
9	Maintenance (yellow)	Signals that the engine coolant (water) level is too low. ⚠ To prevent damaging the engine, top up the coolant (water) level immediately as specified. ☞ Lights up for a few seconds once the ignition has been switched on for checking purposes.
10	Preheat indicator lamp (yellow)	Lights up once ignition has been started and remains lit up until the combustion air of the engine has been preheated to the correct temperature. ⚠ Only start engine once the indicator lamp has gone out to reduce wear and ensure better starting characteristics.
11	Oil pressure indicator for the hydraulic traction drive (red)	Must go out shortly after the engine has been started. Observe warm running. The hydraulic oil is possibly too cold and stiff. ⚠ Do not switch on the traction drive when the lamp does not go out (see the section „Malfunctions”). ☞ The lamp goes out when the pressure drops below 2.8 bar = 40 psi.

90.jpg/159_Com2.jpg

Item	Designation	Short description
12	Indicator lamp differential lock	Lights up when the differential lock is switched on. ☞ Use the differential lock in the case of traction problems (loose ground). It can be switched on and off during driving. STOP Do not use the differential lock during transportation. Danger due to restricted maneuverability!
13	Battery charge indicator (red)	Must go out after starting when the engine revs up. - Switch off the engine.
14	„Parking brake“ warning lamp (red)	Lights up when parking brake is engaged. If the drive lever is swivelled out, the mobile feeder cannot be started when the parking brake is engaged. ⚠ Before releasing the parking brake, first move the drive lever back into its centre position.
15	Level display for the grease of the central greasing device	Blinks periodically if the grease reservoir of the central greasing device is empty. ⚠ Fill the grease reservoir with the required grease quantity.
16	Level display of oil in the central greasing device	Blinks continuously if the oil reservoir of the central greasing device is nearly empty. ⚠ Fill the reservoir with the required oil quantity.

2.2 Controlling the LC display



157.jpg

Arrangement of display keys

(A) “Escape” key leaves the menu

(B)/(C) Keys left/right

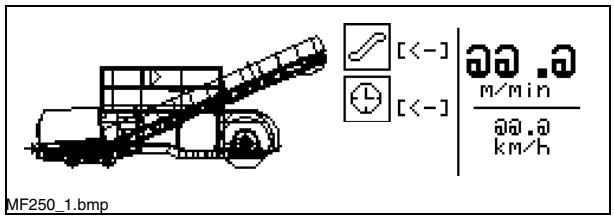
(D)/(F) Keys for scrolling up/down

(F) “Enter” key starts the menu operation

Menu operation

The basic menu appears in the display after setting the ignition.

The main menu displays the instantaneous speed and allows the selection of three sub-items:



MF250_1.bmp

- Level of the mix material in the asphalt paver hopper (1) or (1a)
- Operating hours counter (2)
- Speed of the mix material rotors

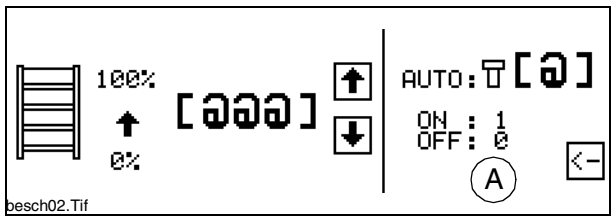
Press (F) key for selection, select menu item with (D/E) key (arrow is highlighted in black) and initiate by pressing (F) key.

Level of the mix material in the asphalt paver hopper (1)

The maximum level of the mix material in the asphalt paver hopper can be set below the conveyor belt of the mobile feeder. This level is scanned with the help of an ultrasound sensing device. The mobile feeder conveyor belt is automatically switched off when the set level of the mix material is attained. It is again switched on when the level of the mix material crosses the minimum limit.

Press (F) key to set the desired level (the number is highlighted in black and it blinks). The height can be set in steps of 10 with the (D/E) keys. Press (F) key for entering the change.

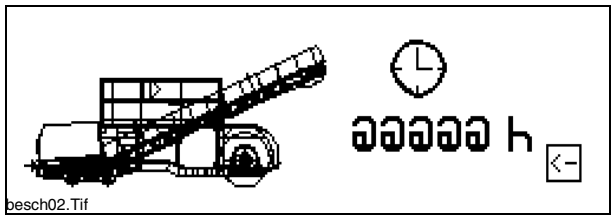
Height adjustment (1a) ON/OFF



- Same function as (1), additional with extra function (A).
  It is possible to switch the height adjustment ON/OFF.
  - 0= Function OFF
  - 1= Function ON

⚠ The function may only be activated when special containers are used in the asphalt paver hopper. During normal operations, all the conveyor functions can only work in the ”0” setting.

Operating hours counter (2)



- Displays the operating hours of the mobile feeder.

⚠ Invoke daily for maintaining the maintenance intervals (chapter “Maintenance”).

Other operating possibilities/displays via the LC display

Engine speed adjustment

Appears after pressing the corresponding key of the operating element in the display.

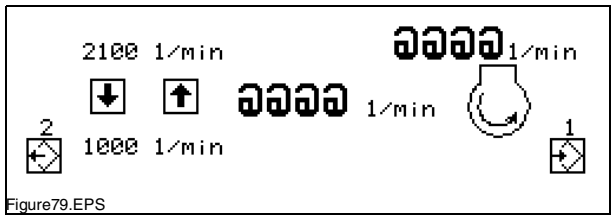


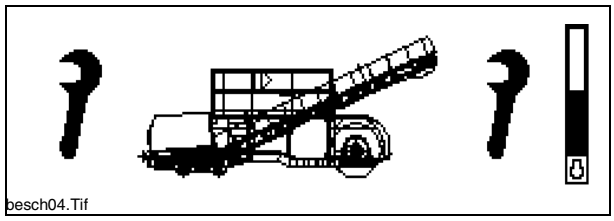
Figure79.EPS

- Displays the set value and actual value of the engine speed.

Press key (A) for setting the set value for the engine speed (the value is highlighted in black and blinks), set the required value with the keys (D/E). Press key (F) for entering the change and confirm with (A) key. Exit from the sub-menu by pressing the relevant key of the operating element again.

Paving operation

Appears after pressing the key (32) of the operating element in the display. The engine speed is displayed as a bar diagram to the right.


besch04.Tif

Stop

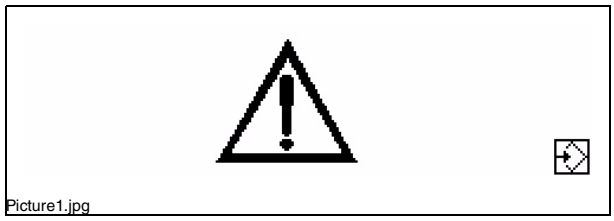
Appears in the display when the emergency stop switch in the operating element is pressed.

Figure74.EPS

Error message

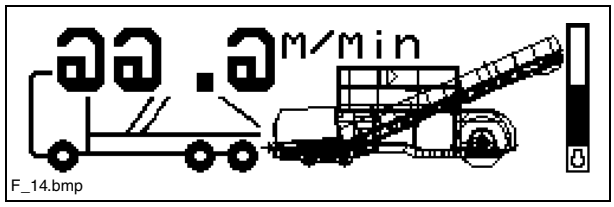
Appears in the display when an error occurs.

- Press (F) key to close the display.


Picture1.jpg

Paving information

Comes up during paving and shows the actual speed of paving. RPM speed of the engine is displayed graphically.



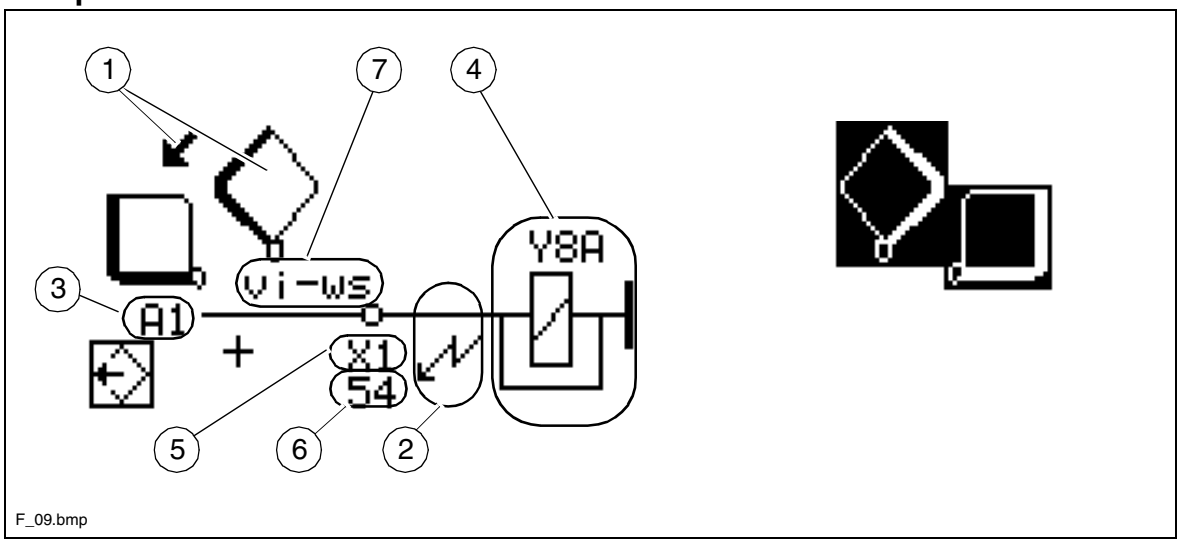
F_14.bmp

Diagnosing and detecting malfunction

In the case of the display indicating malfunction select this menue by pressing push button (F).

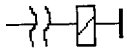
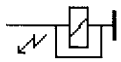
The following information is given.

Example:



Pos.	Description
1	the part affected and its function
2	electrical malfunction
3	matching PLC-modul
4	controlled element
5	matching terminal strip
6	matching cable clamp
7	colour of the cable

Variations of malfunctions (Pos. 2)

Meaning	Graphic
Parting of cable	
Short circuit	

Variations (Pos. 4)

Meaning	Graphic
Ultrasound sensor/mechanical limit switch	
Potentiometer	
Valve	
Electronics unit for automatic drive	

Variations of malfunction (Pos. 1)

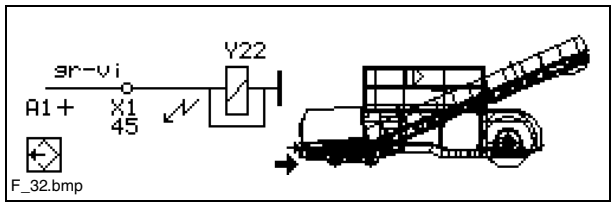
Meaning	Graphic
Hopper L.H. open	
Hopper L.H. close	
Hopper R.H. open	
Hopper R.H. close	
Lift conveyor	
Lower conveyor	
Starting	
Horn	
Backup alarm	
Front wheel drive	
Electrical break	
Valve for drive speed	
Differential lock	

Variety of colours (Pos 7)

Abbr.	Meaning
bl	blue
br	brown
ge	yellow
gn	green
rs	pink
rt	red
sw	black
vi	lilac
ws	white

Example:

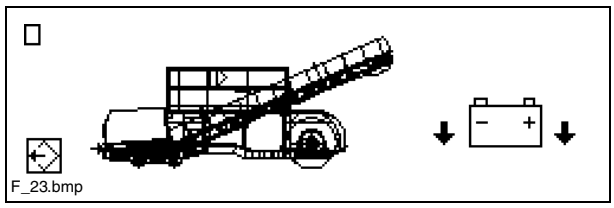
- Malfunction in the front wheel drive.
- Short circuit of the valve Y22 at the PLC-modul A1
- Terminal strip X1, cable clamp 45, colour of the cable: green-lilac.



Further malfunctions:

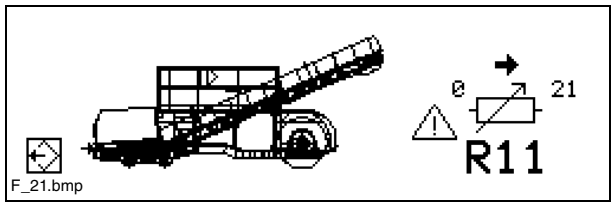
Battery

- Potential to low



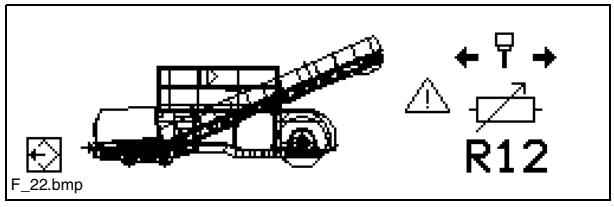
Travelling speed

- Potentiometer defective



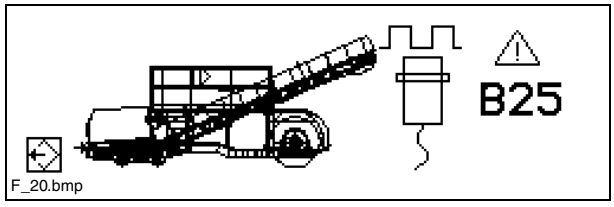
Drive lever

- Potentiometer defective



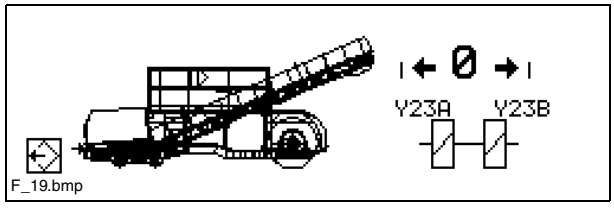
Sensor RPM engine

- Sensor defective



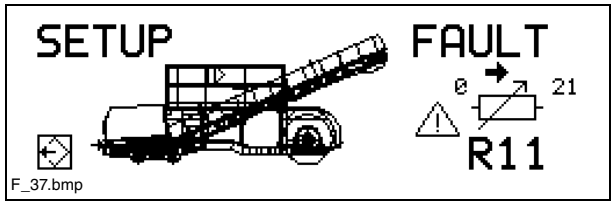
Dead range adjusting

- Faulty adjusted



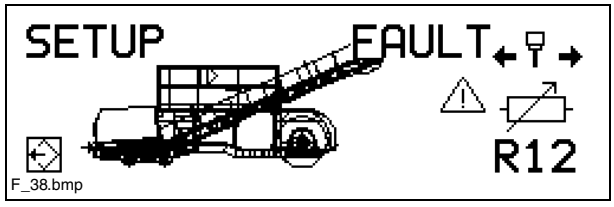
Setup

- Setup fault
  Velocity potentiometer



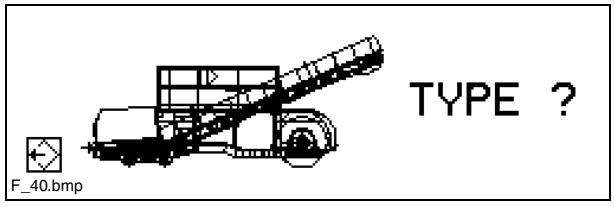
Setup

- Setup fault
  Drive lever potentiometer



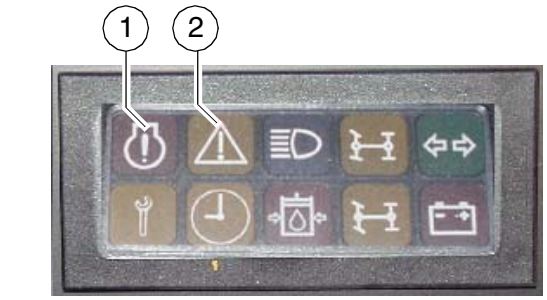
Setup

- Setup fault
  Setup incomplete



2.3 Cummins engine error messages

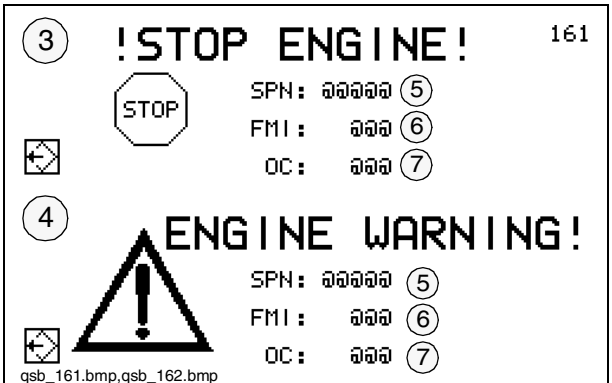
If an error has been established on the engine, this is signalled by the corresponding warning lamp and at the same time shown on the display in code.



159a_com2.jpg

- Warning lamp (1) (red) indicates a serious engine error. The engine is stopped or must be stopped immediately to prevent further damage.
- Warning lamp (2) (yellow) indicates that there is an engine error. The machine can continue to be operated temporarily. The error should however be rectified soon to prevent further damage.

The error message shown at the same time on the display contains several numerical codes which clearly define the error using code.



qsb_161.bmp,qsb_162.bmp

- „! STOP ENGINE!“ display (3) is shown together with warning lamp (1).
- „ENGINE WARNING!“ display (4) is shown together with warning lamp (2).

The SPN (5) and FMI (6) displays shown determine the component affected by the error and the type of error occurring. The OC display (7) indicates the frequency with which the error displayed has already occurred.

☞ To determine the error using error code, refer to the „Malfunctions“ section!

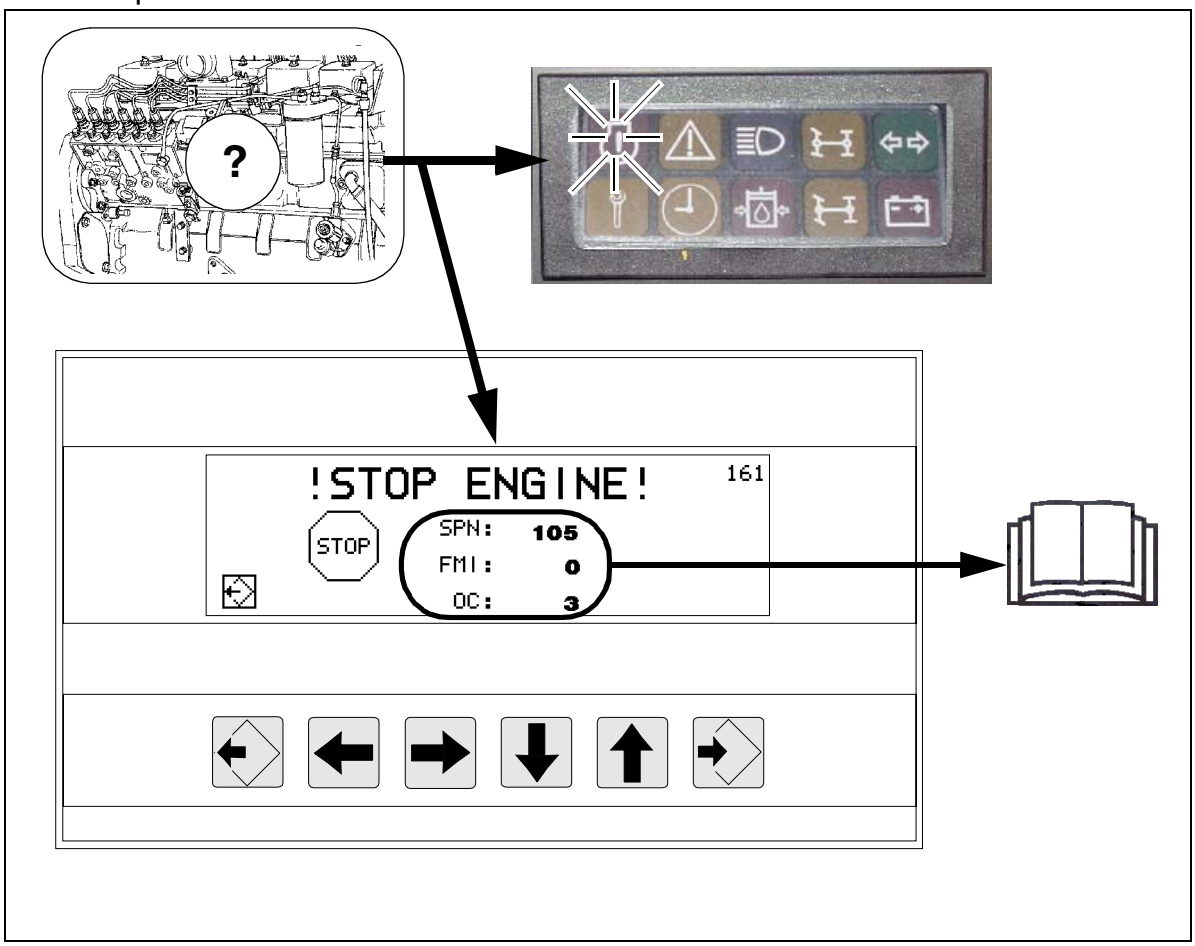
Water in fuel“ error message

Is displayed if too high a volume of water has been found in the fuel system's water separator.

qsb_163.bmp

⚠ To avoid damaging the engine, drain off the separated water immediately as described in the Maintenance Instructions.

Example:



Explanation:
A warning lamp signals a serious engine error with an automatic or necessary engine stop.
Display indicator:
SPN: 105
FMI: 0
OC: 3

Cause: The intake manifold temperature signal signals that the intake manifold temperature exceeds the maximum engine protection limit.
Consequence: Speed restriction and possible engine shutdown, if the engine protection shutdown function is activated.
Frequency: This error has now occurred three times.

⚠ Inform the After-Sales Service for your mobile feeder of the error numbers displayed and they will discuss the next course of action with you.

2.4 Installing the operating station.

The operating station can be laterally displaced and rotated and can be locked in four different positions:

- Straight to the left
- Sideways to the left facing right
- Sideways to the right facing left
- Straight to the right

A locking screw (1) is fixed at every position (total 4).
Thus, the movable operator console can be brought in the desired position and secured against displacement.

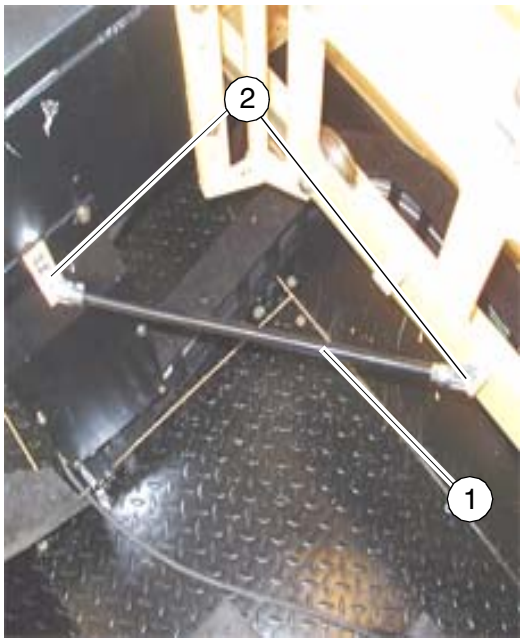
- Turn the knurled screw in the provided slot and secure with the knurled nut.

If the operator console has to be moved by 90° the locking bolt (2) or (3) should be completely removed by turning according to the direction of rotation.

- Grip steering wheel with both hands and swivel away to one side.

If the control panel is swivelled outwards by 90°, the support rod (1) fitted on the reverse of the control panel must be set to stabilise the unit.
There is an attachment point with retaining clip at both ends of the rod (2). This has to be fitted to the relevant position on the frame bracket and the control panel.

Insert the locking bolts (previously removed) in the free brackets for safekeeping.



Stützstange.jpg

Driver's seat (position)

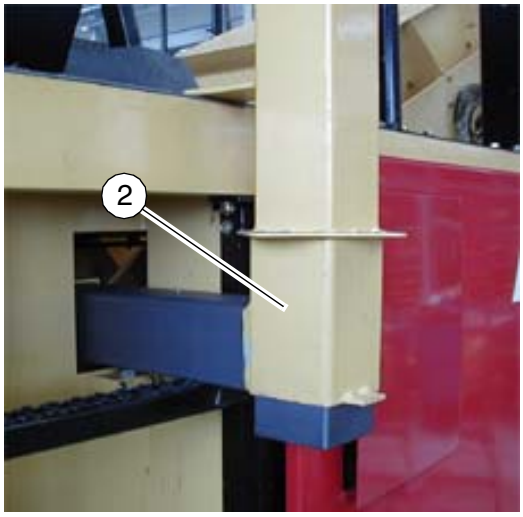
The driver's seat should be adjusted according to the selected position of the operator console.
One inlet aperture per driver's seat can be found in the bottom plate for the leg of the driver's seat. One bracket per seat can also be found on the outside of the machine:

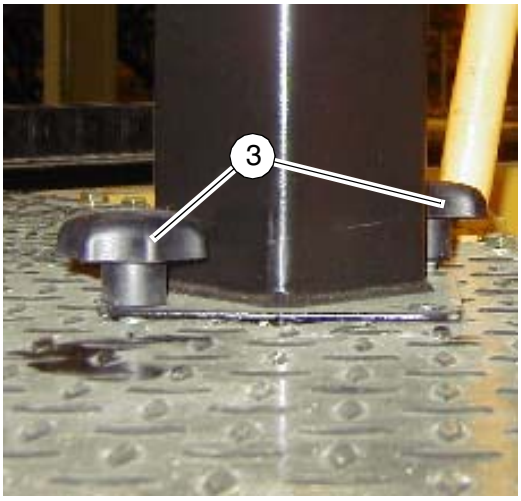
- Position (1) for when looking straight ahead
- Position (2) for looking to the side out of the outer angle of the machine

To move the driver's seat from the straight ahead position into the side position:

- Unscrew fastening bolts (3) from locating surface of leg

Put seat out of bottom plate.

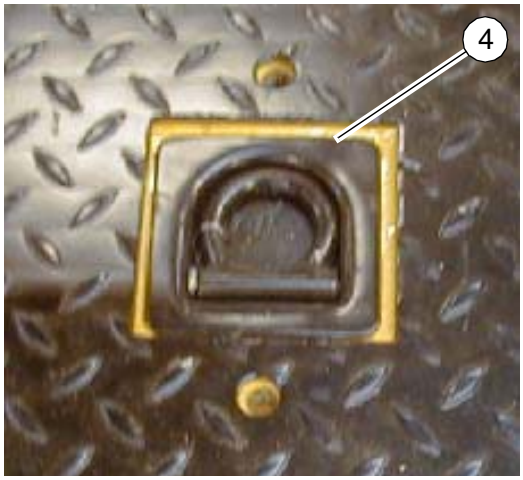


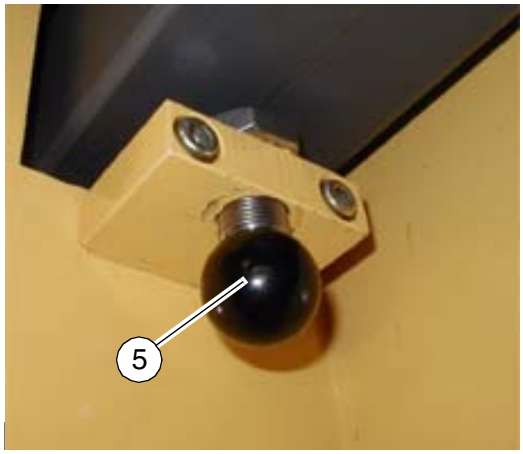


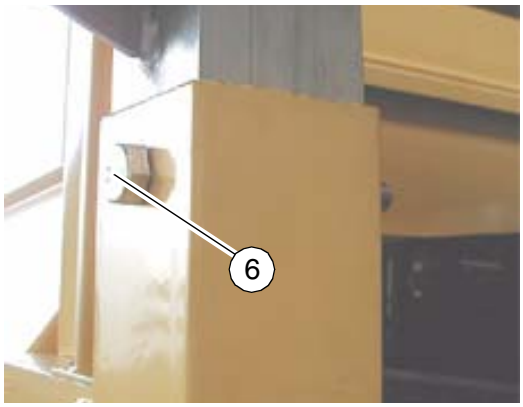
96.jpg/Sitzseite.jpg/115.jpg

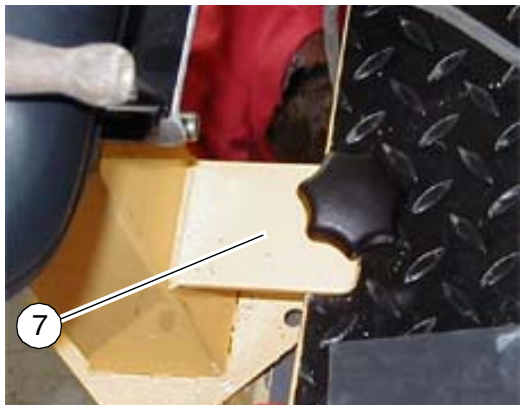
- Place supplied protective cap (4) on free inlet aperture and stow fastening bolts in safe place.
- Unfasten retaining bracket (5) of site seat bracket.
- Pull out seat bracket and use retaining bracket (5) to secure in rear position.
- Use bolt (6) to secure seat at the required height.
- Also use fastening bolt to screw bracket on leg down onto bottom plate.

⚠ Only adjust settings on the operator stand and on machine seat when the vehicle is stationary.







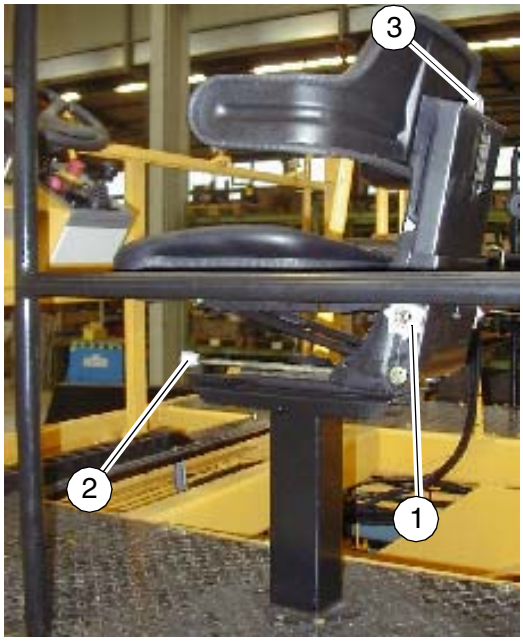


96.jpg/116.jpg/115.jpg/Sitzlasche.jpg

Driver's seat (settings)

The following adjustments are possible on the driver's seat:

- Height of the backrest (1)
- Position of the sitting surface leg length (2)
- Seat resilience (weight of the driver) (3)



115.jpg

2.5 Other operating elements

Battery main switch

The main switch is located behind the right side flap;
it separates the circuit from the battery to the main fuse.

⚠ Secure the open maintenance flaps with the support rods.

☞ See chapter “Maintenance” for the specifications about all fuses.

- For switching of the key pinrotate to the left and pull out.

☞ Do not lose this pin, otherwise the mobile feeder cannot be started!

105.jpg

Parking brake and emergency brake

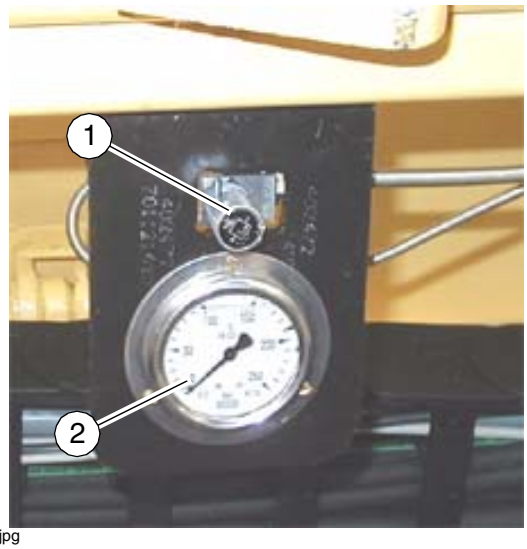
The parking brake and emergency brake can be found on the underside of the operator stand. The brake helps in securing the machine while parking and also functions as an emergency brake.
The brake acts upon the rear wheels and is activated by pulling the lever.
In order to release the brake, the safety ring (1) must be pulled above and the lever must be brought in the vertical position.

Feststell.jpg

Pressure regulating valve for the front wheel assist

This valve (1) helps in setting the drive pressure for the front wheel assist.

- Switch on the front wheel assist with the corresponding switch of the operating element.
- For pressure display, see manometer (2).



94.jpg

☞ The pressure setting for the moving machine must be such that the front drive wheels do not slip.

Manometer for front wheel assist

The manometer (2) displays the drive pressure for the front wheel assist.

Pressure adjustment with valve (1)
Experimental value: Approximately 110 - 140 bar
Maximum value: Approximately 200 bar

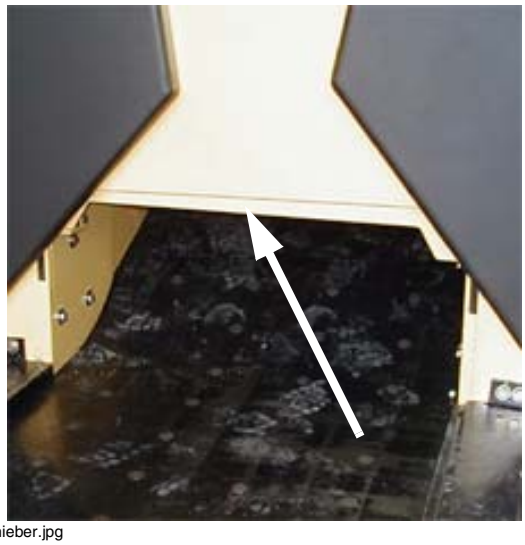
The anti-slipping regulating device is switched on automatically when the front wheel assist is switched on.

☞ When an anti-slipping regulating device is used (AST - o), the optimum value is automatically adjusted according to the changing traction ratios.
For this, the maximum value should be set to approximately 200 bar.

Metering slide valve

There is a slide valve between the hopper and tunnel. The diameter of this valve alters to regulate the volumetric flow rate of the mixed materials.
The metering slide valve can be set in an infinitely variable manner.

⚠ When first filled by the mixed material truck, drain the metering slide valve when the hopper is still unfilled to prevent the material tunnel from being filled solidly. Once the slide valve is filled, return to the level required.



Schieber.jpg

Hopper transport locks

A hopper having high folded sides must be secured with its transport locks before transport or while switching off the mobile feeder.

Do not tamper with the hopper when the engine is in operation! Danger due to operating conveyor belt!
If the hoppers are not secured with the transport locks, they might open slowly thus leading to accidents.

103.jpg

Emulsion spraying system

For spraying parts that come in contact with asphalt with separating emulsion.
The emulsion spraying system is located under the cover on the operator stand.

- Connect the hose of the spraying system to the quick coupling.
- Switch on the spraying system by pulling the toggle switch to the upper side of the tank.

Emulsion.jpg

From the operator stand, spray the conveyor belt with emulsion after approx. every fifteenth load of mixed materials deposited by truck. (Depending on the material properties)

Switch on the spraying system only when the diesel engine is in operation, else the battery will be discharged.
Switch off again after use.

Fill the can only when the machine is at standstill!!

Do spray on naked flames or hot surfaces. Danger of explosion!

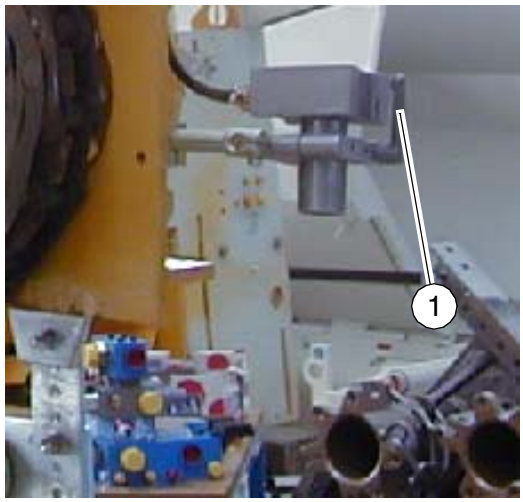
The conveyor belt must always be sprayed with the manual spraying device and the prescribed emulsion!

See to it that the mixture ratio of the emulsion with water is 1:5.

Ultrasound sensor for level detection

The ultrasound sensor senses the level of the mix material in the asphalt paver hopper.
The lever (1) helps in holding the sensor in the holding device.
A rough setting is possible by slightly moving the device.

The cut-off point is determined with the help of the terminal in the operator console.



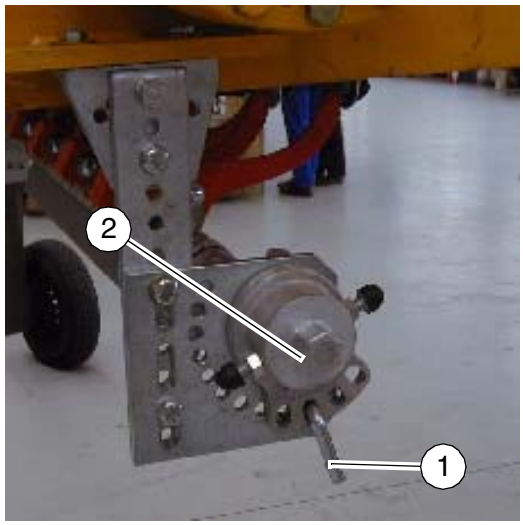
110.jpg

Spring arm scraper

A scraper reduces the dirt on the conveyor belt and minimizes wear.

This device has several scrapers, which scrape off the stuck material remains during the operation of the conveyor belt.

Tighten the locking pin (1) of the fastening device in order to adjust the tension of the scraper on the conveyor belt.
Turn the hexagonal socket (2) till the required tension is reached.
Insert the safety pin through two self-covering holes in the setting device.

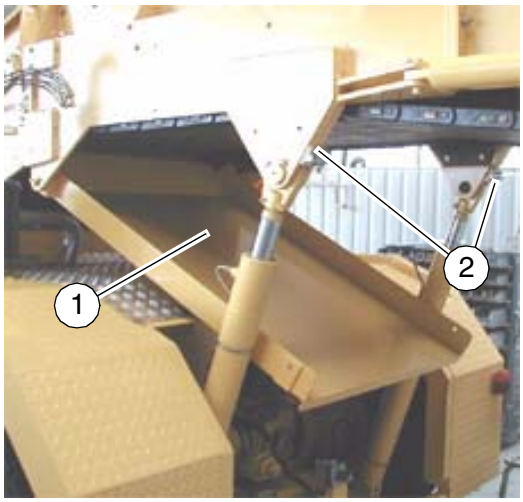


651.jpg

Material chute

On the rear of the machine under the machine's conveyor belt, there is a material chute which deflects any mixed material residue falling off the conveyor belt away from the machine and feeds this into the track of the paver finisher following close behind.

☞ Before starting installation, the material chute should be swivelled downwards and placed on its rubber buffer.



Rutsche.jpg

When in the transport position, the chute (1) is in its upper position and is held securely in place by two retaining brackets (2) which locate in bores in the chute.

3 Operation

3.1 Make preparations for operation

Required devices and auxiliary equipment

In order to avoid any delays on site, check beforehand if the following devices and auxiliary equipment are available:

- Diesel
- Engine oil and hydraulic oil, lubricants
- Separating agent (emulsion) and hand spraying device
- Shovel and broom
- Equipment required for cleaning various machine parts
- Safety clothing, signal vest, hand gloves, earmuffs

Before starting the operation
(in the morning or before starting the paving operations)

- Observe safety instructions.
- Check personal safety equipment.
- Go around the mobile feeder and check for any leakage or damage.
- Mount parts that have been dismantled for transport or during the night time.
- Conduct the check according to the following “Checklist for the driver”.

Checklist for the driver

Check!	How?
Emergency stop key - on the operator console - on both the remote control devices	Press key. The diesel engine and all drives that are switched on must stop immediately.
Steering mechanism	The mobile feeder must follow every steering movement immediately and precisely. Check for straight running.
Horn - on the operator console	Press horn lightly. Horn must sound.
Light system	Switch on with the ignition key, go around the mobile feeder and check and switch off again.
Canopy	Both the locking bolts must be in the holes provided for them.
Other equipment: - Engine cover - Side flaps	Check whether the cover and flaps are secured in their positions.
Other equipment - Wheel blocks - Warning triangle - First-aid kit	The equipment must be in their respective brackets.

3.2 Start the mobile feeder.

Before starting the mobile feeder

Carry out the following steps before starting the diesel engine and the operation of the mobile feeder:

- Daily maintenance of the mobile feeder.

⚠ Check if other maintenance work has to be executed according to the operating hours counter.

- Checking the locking and safety equipment.

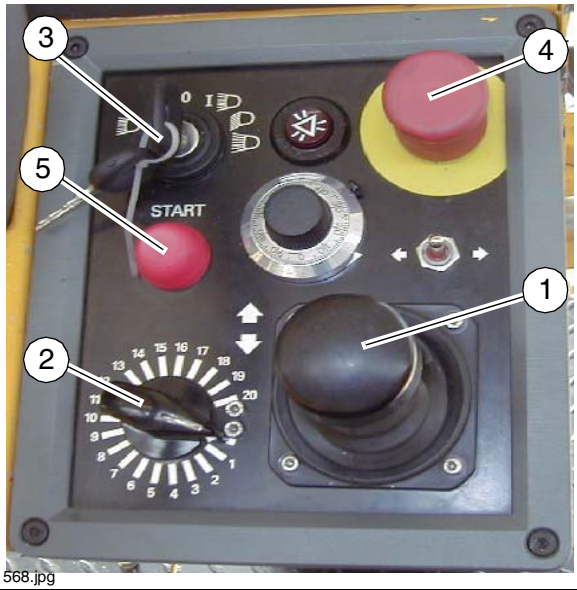
“Normal” starting

Bring the drive lever (1) in the neutral position, set the speed setting device (2) to minimum.

- Insert ignition key (3) in “0” position. No light should be on while starting, so that there is not load on the battery.

☞ The machine does not start if the lever is not in the neutral position or if the emergency stop key (4) is pressed.
(The LC display shows “STOP”)

- Press starter (5) in order to start the engine. Start maximum for 20 seconds without interruption, then wait for 1 second.



Jump start (starting help)

☞ If the batteries are empty and the starter does not work, the engine can be started with an external source of current.

The following are suitable as a source of current:

- Foreign vehicle with 24 V system;
- 24 V booster battery;
- Starting device, which is suitable as starting help with 24 V/90 A.

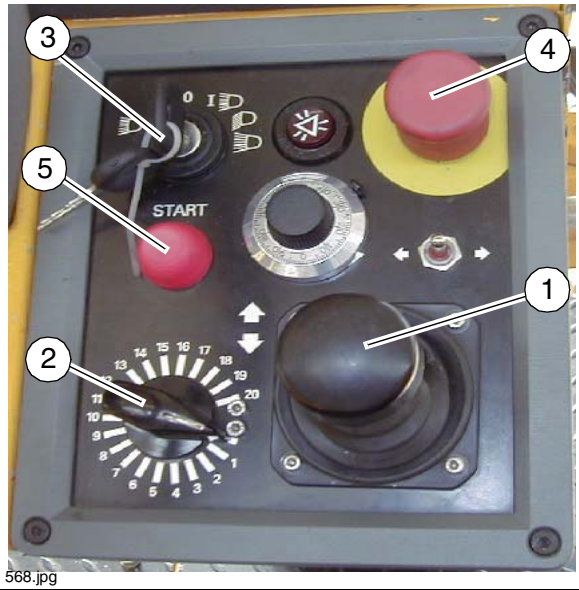
⚠ Normal charging devices or quick charging devices are not suitable as starting help.

Jump starting the engine:

- Switch on the ignition (3), drive lever (1) in the neutral position.
- Secure the source of current with appropriate cables.

⚠ Pay attention to correct polarity! Always secure minus cable in the end and remove first.

☞ The machine does not start if the drive lever is not in the neutral position or if the emergency stop switch (4) is pressed.
(The LC display shows “STOP”)



568.jpg

- Press starter (5) to start the engine. Start maximum for 20 seconds without interruption, then wait for 1 second.

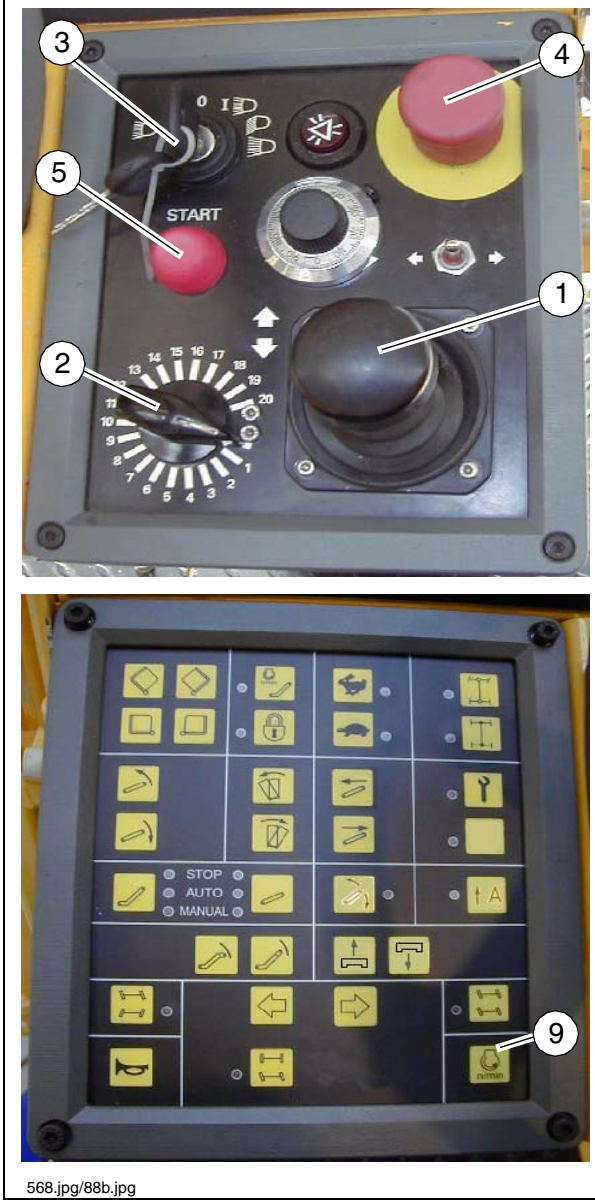
When the engine is running:

- Disconnect the source of current.

After starting

For increasing the speed of the engine:

- Steer the drive lever (1) slightly out of the neutral position.
- Increase the speed of the engine by pressing the key (9) on the operator console. The speed is increased to the preset value.



568.jpg/88b.jpg

⚠ If the engine is cold, let the mobile feeder run for nearly 5 minutes till the engine warms up.

Pay attention to the check lamp

The following check lamps must be observed in any case:

Battery charge check (3)

Must go off after starting at high speed.

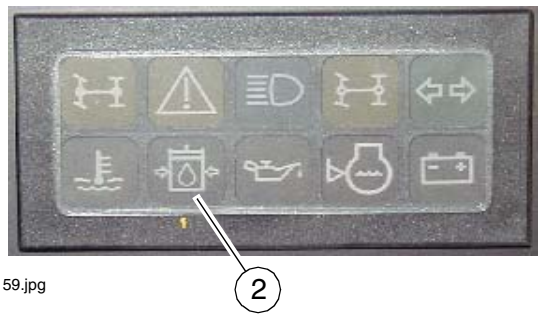
⚠ If the lamp does not go off or lights up during the operation: Increase the speed of the engine for s short while.
If the lamp blinks inspite of this, shut of the engine and search for the defect.

For possible defects, see section “Defects”.

Oil pressure check drive system (2)

- Must extinguish after starting.

⚠ If the lamp does not go off:
Switch off the drive system! Otherwise, the entire hydraulic system will be damaged.



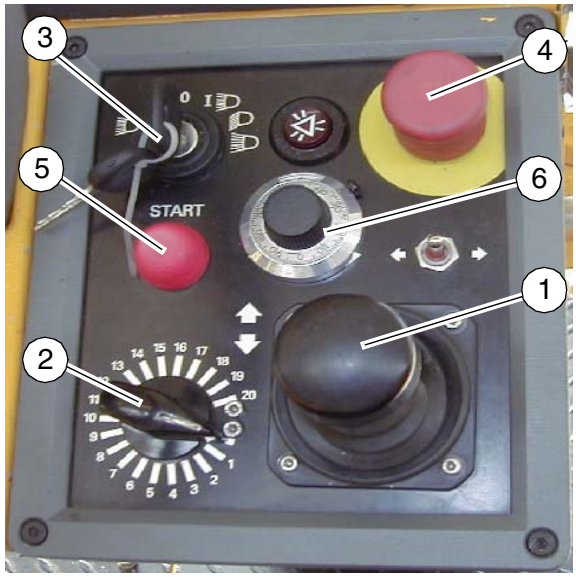
159.jpg

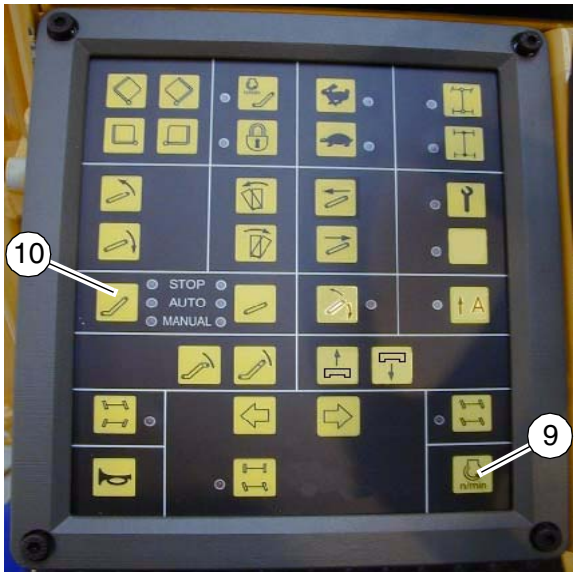
If the hydraulic oil is cold:

- Set the type of operation of the conveyor belt to “auto” with the key (10).
- The remote control must be connected and these functions set to “auto”.
- Steer the drive lever (1) slightly out of the neutral position.
- Press switch (9) in order to increase the speed of the engine.
- Set the speed of the conveyor belt to medium speed with the potentiometer (6).
- Let the hydraulic system warm up till the lamp extinguishes.

☞ Lamp goes off at a pressure below 2.8 bar = 40 psi.

For further possible defects, see section “Defects”.





568.jpg/88b.jpg

3.3 Operation during transport

Drive the mobile feeder and stop

- Set drive system to “Hare” with the key (11).
- Set pre-selection control unit (2) to 10.
- Depending upon the direction, adjust the lever (1) carefully in the front or rear direction for driving.
  The speed depends upon the drifting of the drive lever.

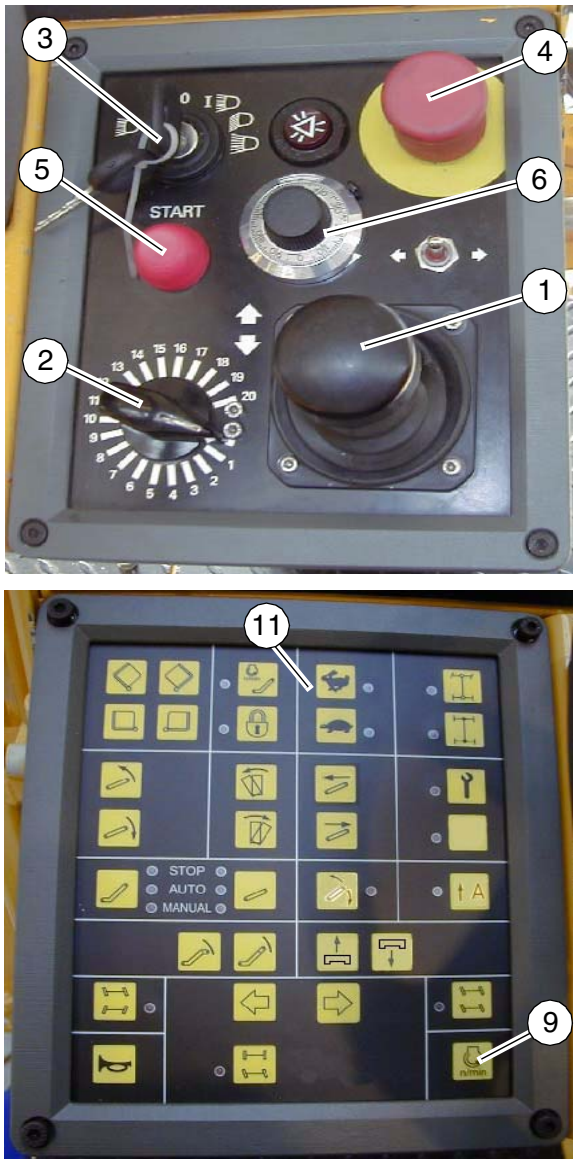
STOP Press the emergency stop key (4) in case of emergency!

- Bring the drive lever (1) in the neutral position for stopping.

Switch of the mobile feeder and lock.

- Turn the ignition key (3) to “0” and remove to switch off the engine.

⚠ The battery might get discharged if the ignition is kept on for a long time.



568.jpg/88b.jpg

3.4 Preparations for paving

Separating agent

Spray all surfaces that come in contact with the asphalt mix with a separating agent (Hopper, truck push rollers, conveyor belt, scraper blades and material chute etc.).

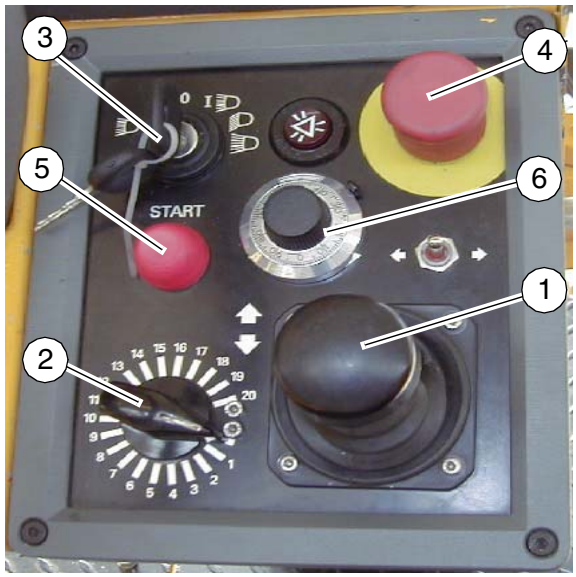
⚠ Do not use diesel oil, since it disintegrates the bitumen (prohibited in Germany!).

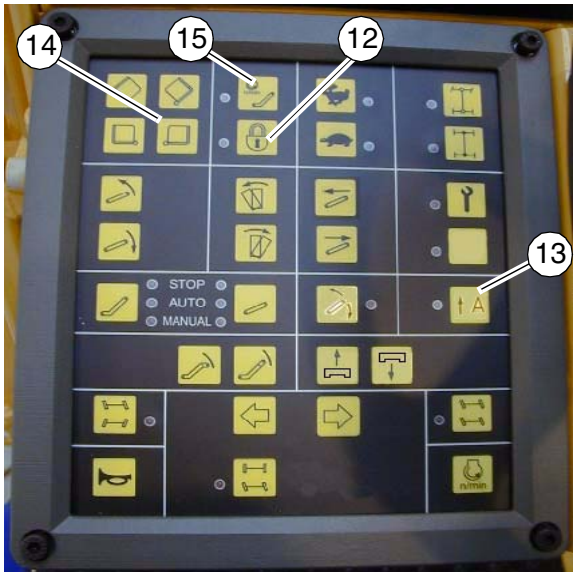
⚠ Apply the separating agent for the conveyor belt with the hand spraying device.

Emulsion.jpg

Mix material transport/conveyance

- Key (12) must be switched off.
- Bring the mobile feeder in the correct position in front of the asphalt paver.
- Activate the distance regulating device with the key (13).
- Switch on the mix material rotors (9) if necessary.
- Open hopper with the keys (14). Instruct the truck driver to tilt over the mix material.
- Activate the filling function with the key (15). Fill the asphalt paver hopper up to the set level.



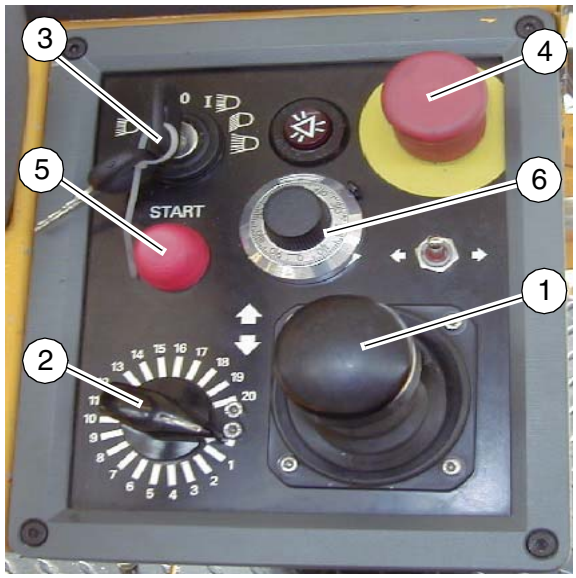


568.jpg/88b.jpg

3.5 Interrupting the operation, stopping the operation

When the paving operation is paused
(e.g. due to delay caused by the trucks that carry the mix material)

- Determine the possible time span.
- If the mix material has to be cooled at the minimum temperature, let the mobile feeder and asphalt paver go back empty.
- Stop all conveying and mixing functions.
- Bring the drive lever (1) in the neutral position or set the pre-selection regulating device to “zero”.



568.jpg

During longer breaks
(e.g. lunch break)

- Bring the drive lever (1) in the neutral position, set the speed adjusting device (2) to minimum, switch off the ignition (3) and remove the ignition key.

At the end of the operation

- Drive back the empty mobile feeder and asphalt paver and stop.
- Let the conveyor belt run for a short while so as to transport the material remains out of the hopper completely and to remove the remains of the mix material from the belt with the scraper.
- Remove any mixed material residue from the material chute.
- Bring the drive lever (1) in the neutral position, set the speed adjusting device (2) to minimum.
- Read and check the operating hour meter to determine whether maintenance work must be performed (see chapter F).
- Switch off the ignition (3) and remove the ignition key.
- Cover and lock the operating panel.


besch03.tif

4 Malfunctions

4.1 Engine error codes

Fault Code Lamp	PID(P) SID(S) FMI	SPN (S) FMI	Reason	Effect
111* YELLOW	S254 12	629 12	ECM internal hardware error.	Possible no effect or engine may run rough or not start.
115* YELLOW	P190 2	190 2	No engine speed or position signal detected at pin 17 of the engine harness.	Engine power derate. Possible white smoke.
122 YELLOW	P102 3	102 3	High voltage detected at the boost pressure sensor signal pin 45 of the engine harness.	Engine will derate to no-boost fueling.
123 YELLOW	P102 4	102 4	Low voltage detected at boost pressure sensor signal pin 45 of the engine harness.	Engine will derate to no-boost fueling.
131 YELLOW	P091 3	091 3	High voltage detected at throttle position signal pin 30 of the OEM harness.	Engine idles when idle validation switch indicates idle and ramps up to a default set speed when the idle validation switch indicates off-idle.
132 YELLOW	P091 4	091 4	Low voltage detected at throttle position signal pin 30 of the OEM harness.	Engine idles when idle validation switch indicates idle and ramps up to a default set speed when the idle validation switch indicates off-idle.
133 YELLOW	P029 3	029 3	High voltage detected at remote throttle position signal pin 9 of the OEM harness.	Engine will not respond to remote throttle input.
134 YELLOW	P029 4	029 4	Low voltage detected at remote throttle position signal pin 9 of the OEM harness.	Engine will not respond to remote throttle input.
135 YELLOW	P100 3	100 3	High voltage detected at oil pressure signal pin 33 of the engine harness.	Default value used for oil pressure. No engine protection for oil pressure.
141 YELLOW	P100 4	100 4	Low voltage detected at oil pressure signal pin 33 of the engine harness.	Default value used for oil pressure. No engine protection for oil pressure.
143 YELLOW	P100 1	100 1	Oil pressure signal indicates oil pressure below the low minimum engine protection limit.	Power derate and possible engine shutdown if engine protection shutdown feature enabled.
144 YELLOW	P110 3	110 3	High voltage detected at coolant temperature signal pin 23 of the engine harness.	Default value used for coolant temperature. No engine protection for coolant temperature.
145 YELLOW	P110 4	110 4	Low voltage detected at coolant temperature signal pin 23 of the engine harness.	Default value used for coolant temperature. No engine protection for coolant temperature.

Fault Code Lamp	PID(P) SID(S) FMI	SPN (S) FMI	Reason	Effect
146 YELLOW	P110 0	110 0	Coolant temperature signal indicates coolant temperature has exceeded the minimum engine protection limit.	Power derate and possible engine shutdown if engine protection shutdown feature is enabled.
151 RED	P110 0	110 0	Coolant temperature signal indicates coolant temperature has exceeded the maximum engine protection limit.	Speed derate and possible engine shutdown if engine protection shutdown feature is enabled.
153 YELLOW	P105 3	105 3	High voltage detected at intake manifold temperature signal pin 34 of the engine harness.	Default value used for intake manifold temperature. No engine protection for intake manifold temperature.
154 YELLOW	P105 4	105 4	Low voltage detected at intake manifold temperature signal pin 34 of the engine harness.	Default value used for intake manifold temperature. No engine protection for intake manifold temperature.
155 RED	P105 0	105 0	Intake manifold temperature signal indicates intake manifold temperature is above the maximum engine protection limit.	Speed derate and possible engine shutdown if engine protection shutdown feature is enabled.
191	P050 11	876 11	A/C Clutch drive signal indicates a short to ground when commanded on.	Can not turn on A/C.
234 RED	P190 0	190 0	Engine speed signal indicates engine speed has exceeded the overspeed limit.	Fuel to injectors disabled until engine speed falls below the overspeed limit.
235 MAINT.	P111 1	111 1	Coolant level signal at pin 37 of the engine harness indicates coolant level is low.	Power derate and possible engine shutdown if engine shutdown feature is enabled.
241 YELLOW	P084 2	084 2	Vehicle speed signal on pins 8 and 18 of the OEM harness has been lost.	Engine speed limited to ”Max. Engine Speed without VSS”. Cruise control, gear-down protection and the road speed governor will not work. Trip information data that is based on mileage will be incorrect.
242 YELLOW	P084 10	084 10	Invalid or inappropriate vehicle speed signal indicated on pins 8 and 18 of the OEM harness indicating connection or possible tampering.	Engine speed limited to ”Max. Engine Speed without VSS”. Cruise control, gear-down protection and the road speed governor will not work. Trip information data that is based on mileage will be incorrect.
243 NONE	P121 4	513 4	Error detected in the exhaust brake relay enable control circuit at pin 42 of the engine harness.	Exhaust brake will not work.
245 NONE	S033 4	647 4	Error detected in the fan clutch relay enable circuit at pin 31 of the engine harness.	Electronic control module (ECM) can not control the engine cooling fan. Fan will remain on or off.

Fault Code Lamp	PID(P) SID(S) FMI	SPN (S) FMI	Reason	Effect
261* YELLOW	P174 0	174 0	VP44 Fuel Pump Control Module indicates the fuel temperature has exceeded the pump protection limit.	Power derate.
264 YELLOW	P174 2	174 2	High or low voltage detected at the fuel temperature sensor signal circuit inside VP44 pump controller.	Default value used for fuel temperature. Possible low power.
278* YELLOW	P073 11	1075 11	Error detected in lift pump circuit at pin 11 of the engine harness.	Possible low power, engine may die, run rough or be difficult to start.
283 YELLOW	P021 3	636 3	High voltage detected at main engine speed/position sensor voltage supply pin 8 of the engine harness.	ECM will use the VP44 pump speed as a backup. Possible white smoke and power loss.
284 YELLOW	P021 4	636 4	Low voltage detected at main engine speed/position sensor voltage supply pin 8 of the engine harness.	ECM will use the VP44 pump speed as a backup. Possible white smoke and power loss.
297 YELLOW	P223 3	1084 3	High voltage detected at OEM pressure signal pin 48 of the OEM harness.	Default value used for OEM pressure. Lose ability to control OEM pressure.
298 YELLOW	P223 4	1084 4	Low voltage detected at OEM pressure signal pin 48 of the OEM harness.	Default value used for OEM pressure. Lose ability to control OEM pressure.
319 MAINT.	P251 2	251 2	Power to the real time clock has been interrupted and is setting is no longer valid.	Time stamp in ECM powerdown data will be incorrect.
349 YELLOW	P191 0	191 0	Auxiliary device speed signal on pins 8 and 18 of the OEM harness is out of range of the ECM thresholds.	Lose ability to control speed of the Auxiliary device.
352 YELLOW	S232 4	620 4	Low voltage detected at engine position sensor +5 VDC supply pin 10 of the engine harness.	Default value used for sensors connected to this +5 VDC supply. Engine will power derate to no-boost fueling and loss of engine protection for oil pressure, intake manifold pressure, and ambient air pressure.
361 RED	S251 3	251 3	High current detected at the VP44 fuel pump control valve.	Fueling to the injectors disabled and engine is shut down.
362 YELLOW	S251 4	251 4	Low or no voltage detected at the VP44 fuel pump control valve.	Engine will lose power and may shut down.
363 YELLOW	S251 7	251 7	No fuel control valve movement detected by the VP44 fuel pump controller.	Engine power loss.

Fault Code Lamp	PID(P) SID(S) FMI	SPN (S) FMI	Reason	Effect
364* YELLOW	S233 9	1077 9	No communications or invalid data transfer rate detected on data link between ECM and VP44 fuel pump controller at pin 4 and 13 of the engine harness.	Engine will run at a backup mode set speed when throttle is off-idle.
365 YELLOW	S233 4	1077 4	Low voltage detected at VP44 fuel pump controller supply voltage circuit.	Engine may lose power and may shut down.
366 YELLOW	S233 2	1077 2	VP44 fuel pump controller battery voltage measurement is outside the range between 6 and 24 VDC.	Engine will lose power and may shut down.
367 RED	P190 11	1078 11	VP44 fuel pump speed/position sensor signal lost.	Fueling to injectors disabled and engine will shut down.
368 YELLOW	S254 8	1078 8	The VP44 fuel pump controller can not achieve the timing value being commanded by the engine ECM.	Significant engine power loss.
369 YELLOW	P190 2	1078 2	VP44 fuel pump controller does not detect engine position pulse at pin 7 of the engine harness.	Significant engine power loss. Possible white smoke.
372* YELLOW	S233 11	1077 11	VP44 fuel pump controller detects continuous voltage at idle select pin 16 of the engine harness ... OR ... fuel pump controller detects an open circuit or short circuit to ground at idle select pin 16 of the engine harness.	If communication is lost between the ECM and VP44 fuel pump controller, engine will only operate at a speed slightly higher than idle, regardless of throttle position.
373 RED	S233 3	1077 3	High voltage detected at VP44 fuel shut off signal pin 6 of the engine harness.	Fueling to injectors is disabled and engine will shut down.
374* YELLOW	S233 12	1077 12	VP44 fuel pump controller has detected an internal error.	Response will vary from some power loss to the engine shutting down.
375 YELLOW	S254 2	629 2	Engine ECM is commanding a fueling or timing value that the VP44 pump can not achieve.	Possible no effect or engine may exhibit some power loss.
376* RED	S233 13	1077 13	No calibration in the VP44 fuel pump controller.	Fueling to injectors disabled and engine will shut down.
377 YELLOW	S233 7	1077 7	VP44 fuel pump controller is not powering down when key switch power is removed from the ECM.	Equipment batteries may be drained low during long shutdown periods.

Fault Code Lamp	PID(P) SID(S) FMI	SPN (S) FMI	Reason	Effect
381* YELLOW	S237 11	626 11	Error detected in cold start aid relay 1 enable circuit at pin 41 of the OEM harness.	Intake air heater can not be fully energised by the ECM. Possible white smoke and/or hard starting.
382* YELLOW	S237 11	626 11	Error detected in cold start aid relay 2 enable circuit at pin 31 of the OEM harness.	Intake air heater can not be fully energised by the ECM. Possible white smoke and/or hard starting.
385 YELLOW	S232 3	620 3	High voltage detected at OEM harness sensor +5 VDC supply pin 10 of the engine harness.	Sensors connected to this +5 VDC supply (i.e., remote throttle position sensor) will not function.
386 YELLOW	S232 3	620 3	High voltage detected at the engine position sensor +5 VDC supply pin 10 of the engine harness.	Default value used for sensors connected to this +5 VDC supply. Engine will derate to no-boost fueling and loss of engine protection for oil pressure, intake manifold temperature, and coolant temperature.
387 YELLOW	P091 3	91 3	High voltage detected at the throttle position sensor +5 VDC supply pin 29 of the OEM harness.	Engine idles when idle validation switch indicates idle and ramps up to a default set speed when idle validation switch indicates off-idle.
391 YELLOW	S017 11	632 11	Error detected in VP44 power supply relay enable circuit at pin 43 of the engine harness.	Possible no effect on performance or engine may not run.
415 RED	P100 1	100 1	Oil pressure signal indicates oil pressure below the very low engine protection limit.	Speed derate and possible engine shutdown if engine protection shutdown feature enabled.
418 WIF	P097 0	097 0	Water-in-fuel signal indicates the water in the fuel filter needs to be drained.	Excessive water in the fuel can lead to severe fuel system damage.
422 YELLOW	P111 2	111 2	Voltage detected simultaneously on both the coolant level high and low signal pins 27 and 37 of the engine harness ... OR ... no voltage detected on either pin. (Fault is active for Switch type coolant level sensors only).	No engine protection for coolant level.
429 YELLOW	P097 4	097 4	Low voltage detected at water-in-fuel signal pin 40 of the OEM harness.	No water-in-fuel protection.
431 YELLOW	P091 2	091 2	Idle validation signals on pins 25 and 26 of the OEM harness indicate voltage detected simultaneously on both pins (Open Circuit).	No effect on performance, but loss of idle validation.

Fault Code Lamp	PID(P) SID(S) FMI	SPN (S) FMI	Reason	Effect
432 YELLOW	P091 13	091 13	Idle validation signal at pin 26 of the OEM harness indicates the throttle is at the idle position when the throttle position signal at pin 30 of the OEM harness indicates the throttle is not at the idle position ... OR ... idle validation signal at pin 26 of the OEM harness indicates the throttle is not at the idle position when the throttle position signal at pin 30 of the OEM harness indicates the throttle is at the idle position.	Engine will only idle.
433 YELLOW	P102 2	102 2	Boost pressure signal indicates boost pressure is high when other engine parameters (i.e., speed and load) indicate boost pressure should be low.	Possible overfueling during acceleration. Increase in black smoke.
434* YELLOW	S251 2	627 2	Supply voltage to the ECM fell below 6.0 VDC for a fraction of a second ... OR ... the ECM was not allowed to power down correctly (retain battery voltage for 30 seconds after key OFF).	Possible no noticeable performance effects OR engine dying OR hard starting. Fault information, trip information, and maintenance monitor data may be inaccurate.
441 YELLOW	P168 1	168 1	Voltage detected at ECM power supply pins 38, 39, and 40 of the engine harness indicates ECM supply voltage fell below 6 VDC.	Engine will die or run rough.
442 YELLOW	P168 0	168 0	Voltage detected at ECM power supply pins 38, 39, and 40 of the engine harness indicates the ECM supply voltage is above the maximum system voltage level.	None on performance.
443 YELLOW	S232 1	620 1	Low voltage detected at throttle position sensor +5 VDC supply pin 29 of the OEM harness.	Engine idles when idle validation switch indicates idle and ramps up to a default set speed when idle validation switch indicates off-idle.
444 YELLOW	S232 1	620 1	Low voltage detected at OEM harness sensor +5 VDC supply pin 10 of the OEM harness.	Sensors connected to this +5 VDC supply (i.e., remote throttle position sensor) will not function.
488 YELLOW	P105 0	105 0	Intake manifold air temperature signal indicates intake manifold air temperature is above the minimum engine protection threshold.	Power derate and possible engine shutdown if engine protection shutdown feature is enabled.
489 YELLOW	P191 1	191 1	Auxiliary device speed signal on pins 8 and 18 of the OEM harness is out of range of the ECM threshold.	Lose ability to control the speed of the auxiliary device.

Fault Code Lamp	PID(P) SID(S) FMI	SPN (S) FMI	Reason	Effect
515 YELLOW	P091 3	091 3	High voltage detected at the coolant level +5 VDC sensor supply voltage pin 49 of the engine harness.	No engine protection for coolant level.
516 YELLOW	P091 4	091 4	Low voltage detected at the coolant level +5 VDC sensor supply voltage pin 49 of the engine harness.	No engine protection for coolant level.
517 YELLOW	S251 12	1076 12	A mechanically stuck fuel control valve has been detected by the VP44 fuel pump controller.	Engine may shut down.
524 YELLOW	P113 2	113 2	Error detected on the High Speed Governor Droop selection switch input pin 24 of the engine harness.	Operator can not select alternate HSG Droop. Normal droop is used.
527* YELLOW	P154 3	702 3	Error detected in the Dual Output Driver ”A” circuit pin 5 of the OEM harness.	The device controlled by the Dual Output Driver ”A” signal will not function properly.
528 YELLOW	P093 2	093 2	Error detected on the Torque Curve Selection switch input pin 39 of the OEM harness.	Operator can not select alternate torque curves. Normal torque curve is used.
529* YELLOW	S051 3	703 3	Error detected in the Dual Output Driver ”B” circuit pin 21 of the engine harness.	The device controlled by the Dual Output Driver ”B” signal will not function properly.
551 YELLOW	P091 4	091 4	Idle validation signals on pins 25 and 26 of the OEM harness indicate no voltage on either pin.	Engine will only idle.

Fault Code Lamp	PID(P) SID(S) FMI	SPN (S) FMI	Reason	Effect
599 RED	S025 14	640 14	The dual output feature in the customer specialised calibration has initiated an engine shut-down based on operating conditions, engine sensor values, or OEM inputs to the ECM.	Engine will shut down.
611*	S151 0	1020 0	ECM detected the engine has initiated a protection shutdown or has been keyed-off while above a specified load limit.	No effect.
768 YELLOW	S009 11	923 11	Error detected in the Output Device Driver (Transmission Shift Modulation Signal) signal pin 21 on the OEM harness.	Can not control the Transmission.

F Maintenance

1 Safety instructions for maintenance

Maintenance work: Maintenance work should be carried out only when the engine is not on.

Secure the machine against accidental restarting before beginning the maintenance work:
- Bring the drive lever in the neutral position and turn the pre-selection regulating device to zero.
- Remove the ignition key and main switch of the battery.

Lift and jack up: Secure machine parts at higher level (e.g. hopper) mechanically against lowering.

Spare parts: Use only permitted parts and mount in a technically correct manner! Consult the manufacturer in case of doubts!

Restarting operation: Arrange all the safety equipment in the appropriate manner before resuming the work.

Cleaning: Never execute cleaning operations when the engine is running.
Do not use easily combustible material (petrol etc.).
Cover electric parts and insulating material while cleaning with the steam jet device. Do not subject them directly to the jet.

Working in closed areas: Exhaust gases must be directed in the outward direction.

In addition to these Maintenance Instructions, the Maintenance Instructions of the engine manufacturer must always also be observed. All other maintenance work and intervals noted in these instructions are also binding.

2 Maintenance intervals

Maintenance point	Activity	Operating hours							
		10	50	100	250	500	1000 / per year	2000 / 2 years	if required
(2.1) Drive unit engine									
Fuel tank	Check the level	■							
	Refill fuel								■
	Clean tank and system							■	
Engine	Check oil level	■							
	Refill oil								■
	Change oil		▼			■			
	Change oil filter		▼			■			
	Fuel filter (drain water separator)	■							
	Change fuel filter		▼			■			
	Check air filter		■						
	Air filter unit Clean/change						■		
	Check cooling ribs	■							
	Clean cooling ribs								■
	Check coolant level	■							
	Refill coolant								■
	Change coolant							■	■
	Change coolant - antifreeze agent					■			
	Check driving belt						■		
	Tighten driving belt		▼				■		■
	Check valve play							■	
	Check heater plug							■	

Maintenance	■
Maintenance during running-in time/entry time	▼

Maintenance point	Activity	Operating hours							
		10	50	100	250	500	1000 / per year	2000 / 2 years	if required
(2.2) Hydraulic system									
Hydraulic oil tank	Check oil level	■							
	Refill oil								■
	Change oil							■	
High pressure hydraulic filter	Check maintenance indicator	■							■
	Replace filter element								■
Suction/return line hydraulic filter	Check maintenance indicator	■							
	Change filter							■	■
Pumpdrivegearbox	Check oil level	■							
	Refill oil								■
	Change oil		▼				■		
(2.3) Gear									
2-speed gear	Check oil level					■			
	Refill oil								■
	Change oil				▼			■	
Visible nuts and screws	Check and tighten if necessary				▼				

Maintenance	■
Maintenance during running-in time/entry time	▼

Maintenance point	Activity	Operating hours							
		10	50	100	250	500	1000 / per year	2000 / 2 years	if required
(2.4) Planetary steering axle									
Planetary gear	Check oil level					■			
	Refill oil								■
	Change oil				▼		■		
Differential	Check oil level					■			
	Refill oil								■
	Change oil				▼		■		
Multiple disk brake	Inspect						■		
Visible nuts and screws	Check and tighten if necessary				▼				
(2.5) Conveyor belt									
Conveyor belt	Check tension/slack	■							
	Set tension/slack								■
	Check for damages	■							
Spring arm scraper	Set tension								■
(2.6) Wheels, tyres									
Driving wheels	Check air pressure		■						
	Refill/let out air								■
	Tighten wheel nuts	▼		▼	■				
	Visual check of the profile		■						

Maintenance	■
Maintenance during running-in time/entry time	▼

Maintenance point	Activity	Operating hours							
		10	50	100	250	500	1000 / per year	2000 / 2 years	if required
(2.7) Voltage supply									
Batteries	Check the level of accumulator acid			■					
	Fill distilled water								■
	Lubricate battery poles				■				

Maintenance	■
Maintenance during running-in time/entry time	▼

Maintenance point	Activity,	Operating hours							
		10	50	100	250	500	1000 / per year	2000 / 2 years	if required
(2.8) Greasing points									
Lubricatingdistributor I - Steering arm bearing - Steering rod joints - Drive axle bearing	Grease (lubricating nipple)				■				
Lubricatingdistributor II - King pin - Steering - Floating axle	Grease (lubricating nipple)		■						
Push rollers	Grease (lubricating nipple)		■						
Cylindricalbearings	Grease (lubricating nipple)						■		
Conveyor belt point of articulation	Grease (lubricating nipple)		■						
Point of rotation Angle adjustment	Grease (lubricating nipple)		■						
Central lubricating device	Check function and level	■							
	Top up grease / oil								■
Bronze brush for chain lubrication	Check for wear		■						
	Replace								■

Maintenance	■
Maintenance during running-in time/entry time	▼

Maintenance point	Activity	Operating hours							
		10	50	100	250	500	1000 / per year	2000 / 2 years	if required
(2.9) Checks									
Wear plates		■							
General visual check		■							
Check by a specialist							■		

Maintenance	■
Maintenance during running-in time/entry time	▼

2.1 Drive unit engine

Fuel tank


97.jpg

The fuel tank should be filled before beginning the work in order to avoid “dry run” and thereby the time-consuming process of evacuation.

☞ Check the fuel level with the help of the gauge in the operating station several times daily.

☞ Always secure side flap set at a high level with the supporting rod.

STOP See to it that the fuel does not run out of the tanks on the ground. Switch off the engine and do not smoke. Do not fill fuel in closed areas. Danger to health! Keep fire extinguisher ready.

Diesel engine


102.jpg

Check the oil level in the engine before every operation with the dipstick.
Check oil when the machine is not running!

⚠ Excess oil in the engine damages the seals; insufficient oil leads to excess heating and damages the engine.

⚠ First oil change after 50 operating hours. Then, after every 500 hours.

☞ The oil discharge screw is located on the oil pan on the lower side of the engine. Before changing the oil, let the engine run so that it becomes warm.

STOP Danger of combustion!

Collect used oil in an appropriate container and dispose.

☞ Observe Motor-Betriebsanleitung!

Oil filter

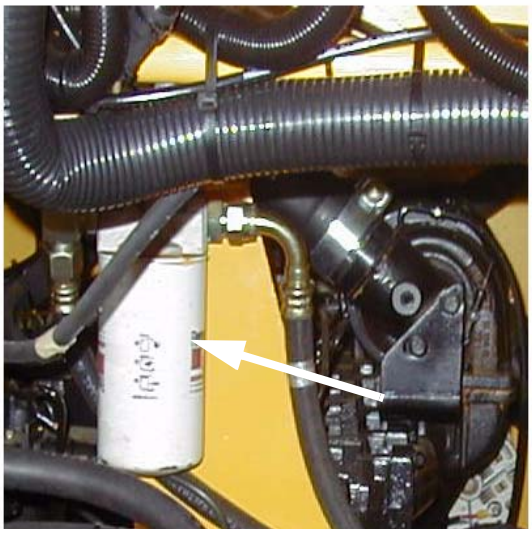
First filter change after 50 operating hours. Then, after every 500 hours.

Loosen the filter and clean the supporting surface. Oil the seal of the new filter and fill filter with oil before it is used. Fix with hand.

Send the used filter to the appropriate disposing device

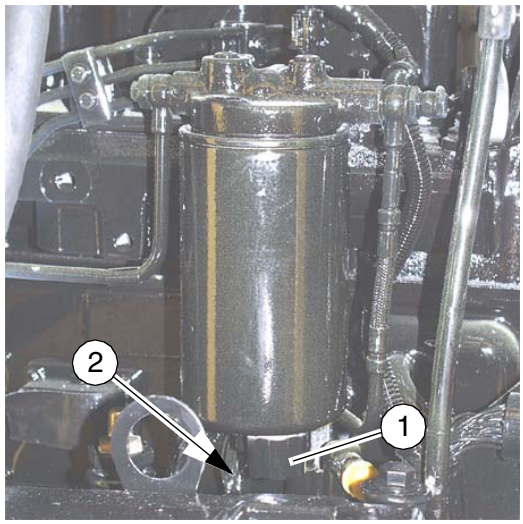
Check the sealing and oil pressure display after replacing the filter.

Observe Motor-Betriebsanleitung!



101.jpg

Fuel filter



623_com2.jpg

First filter change after 50 operating hours. Then, after every 500 hours.

Dismantle the connection on the underside of the filter, loosen the filter and clean the contact surfaces.
Add fuel to the new filter with the new seal and tighten by hand.
Install the connection on the underside of the filter with new seals.

Send the used filters for appropriate disposal.

Check the sealing after changing the filter.

Observe Motor-Betriebsanleitung!

Fuel filter water separator

Drain the water separator everyday or when engine electronics error messages appear.

Collect fuel-water mixture in a suitable container and dispose of properly.

There is a drain valve (1) on the underside of the filter cartridge.

Disconnect engine electrics plug (2) and screw on drain valve (1) until the neck can be pulled out.
Drain off fluid until only clear fuel runs out.
Then slide the neck back again and close drain valve until hand tight.

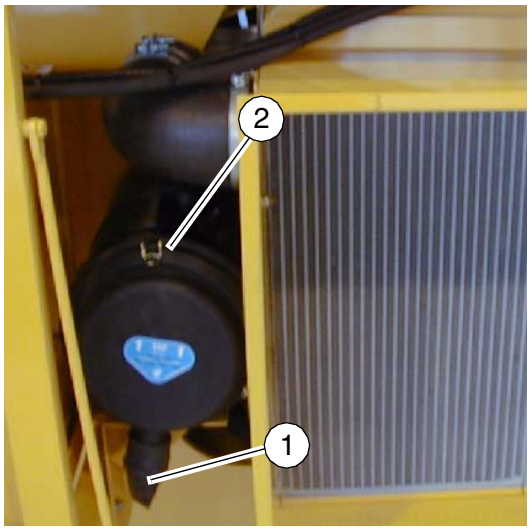
Follow instructions in engine operating manual!

Air filter

Empty the dust collecting container (1) every 50 hours or when required (observe low pressure gauge).

The brackets on the housing (2) must be removed in order to reach the filter element. After removal, replace the filter element with a new one or clean with air pressure.

Observe Motor-Betriebsanleitung!



98.jpg

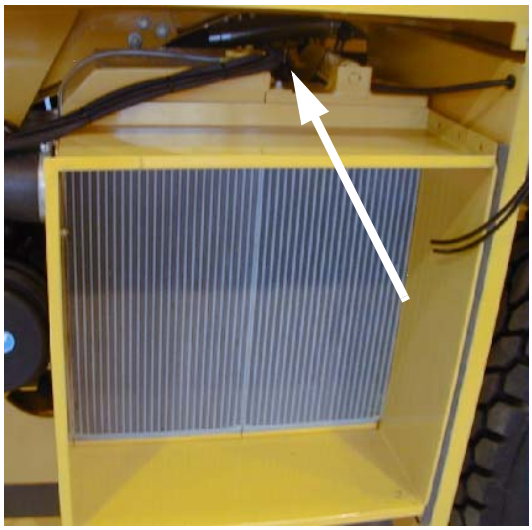
Cooler

Check the coolant level daily before starting operations.
Change the coolant at least every 2 years.
In addition to this, check the cooling ribs daily for dirt and clean with suitable agents if required.

Collect used coolant in an appropriate container and dispose.

The system is hot under pressure. If opened, one might get scalded!

Observe Motor-Betriebsanleitung!


98a.jpg

2.2 Hydraulic system

Hydraulic oil tank

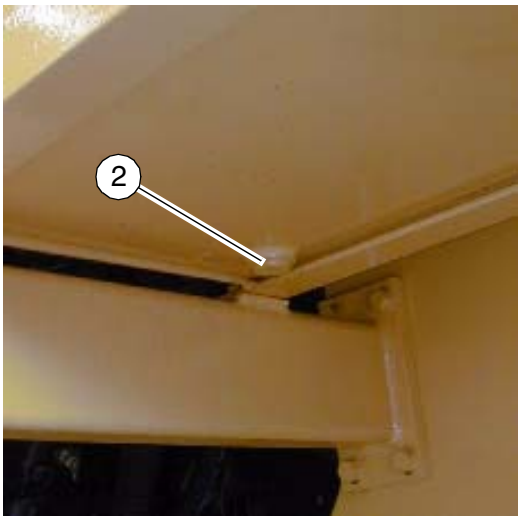
⚠ Check the oil level daily with the dipstick (1). When the cylinders are reeled in, the oil level must be on the upper slot.
The oil tank aerating system should be regularly cleared of dust and dirt.
Change the hydraulic oil at least every 2 years.
Use only recommended hydraulic oils.

99.jpg

For draining out the hydraulic oil, the discharge screw (2) should be removed and the oil should be collected in a suitable container with the help of a funnel.
Fix the screw again with a new seal after draining the oil.

STOP Take the used oil in a suitable container for disposal.

STOP Safety clothing while draining hot oil. Danger due to skin contact.



560.jpg

For filling new hydraulic oil, remove the cover of the feed opening (3) and fill the new oil with a funnel.

99.jpg

High pressure hydraulic filter

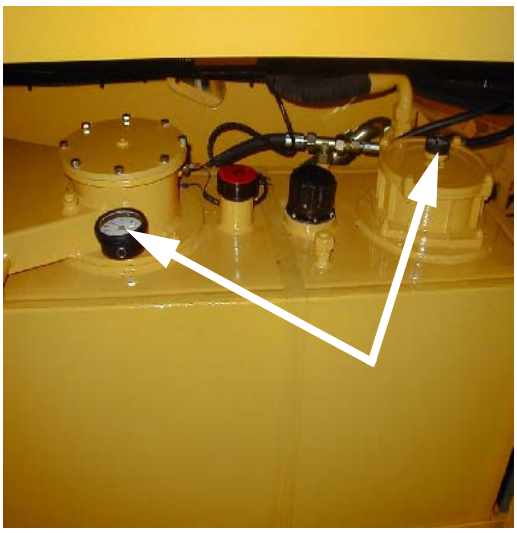
100.jpg

After 20 operating hours after repairs, the hydraulic system of all filters should be checked and renewed if necessary.

The filter elements should be replaced if the maintenance indicator shows red.

After removing the filter screws, empty the segregated dirt in a container with old oil. Remove the filter element and place in a container for utilization (danger of environmental pollution). Wash the housing, fit new O-rings and smear with oil. Screw on the filter housing with the filter element once again and fix properly.
The red mark is automatically reset.

Suction/return line hydraulic filter



99.jpg

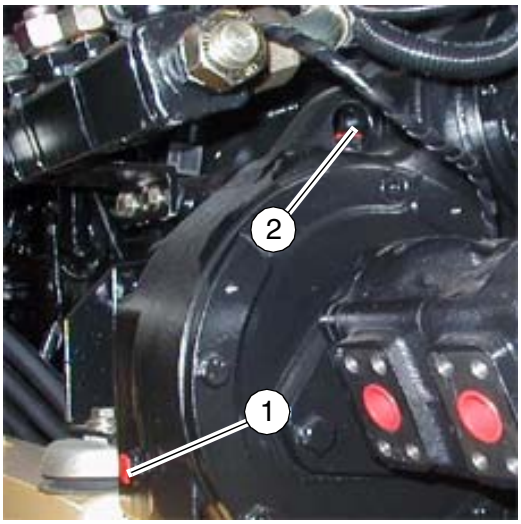
Change the filter when the maintenance indicator shows the red mark.
The filters are also changed when the hydraulic oil is changed.

Screw on the cover of the filter housing on the hydraulic oil tank and install a new filter.

Never clean and use the same filter again! Always use a new filter.

Pump drive gear box

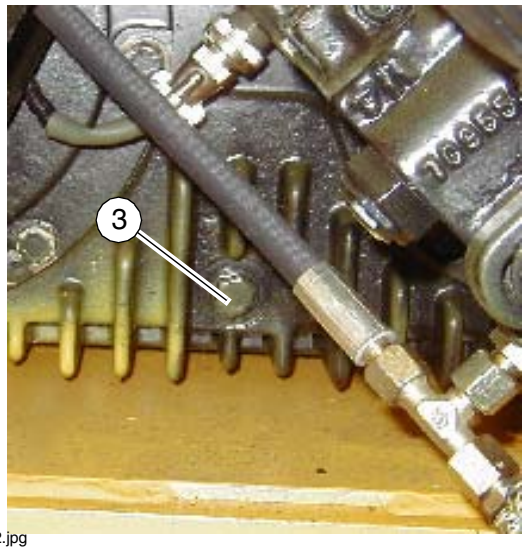
The check screw (1) serves for checking the oil level.
Once the screw has been unscrewed, a little oil should run out. If this is not the case, top up oil via filler aperture (2).



PVG.jpg

Cleanliness is important!

The oil discharge screw (3) is found in the lower part of the housing of the pump drive gear box.



562.jpg

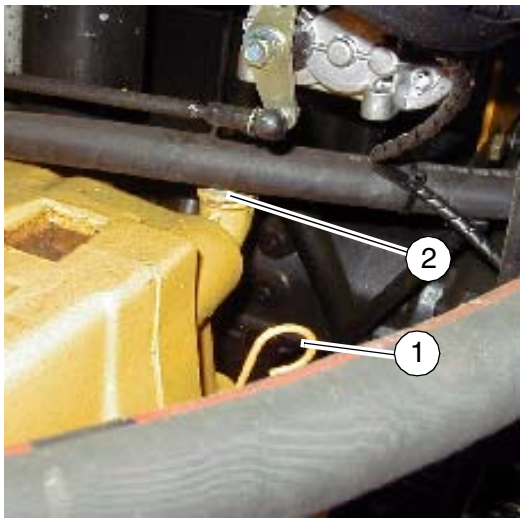
Collect used oil in an appropriate container and dispose.

2.3 Gear

The oil filling plug and oil dipstick can be accessed through the open rear maintenance valve.

The gear oil level can be read by pulling out the dipstick (1). If required, oil should be filled in by removing the filling plug (2).

⚠ Cleanliness should be observed while filling oil.

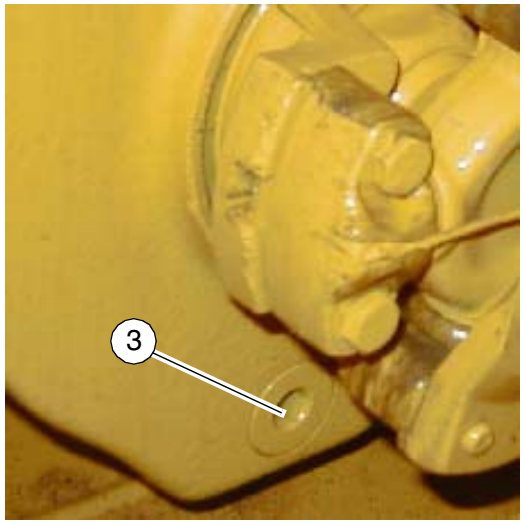


562.jpg

The oil discharge screw (3) is found in the lower part of the gear to the front.

STOP Collect used oil in an appropriate container and dispose.

After the running-in time, all visible nuts and screws should be tightened again.



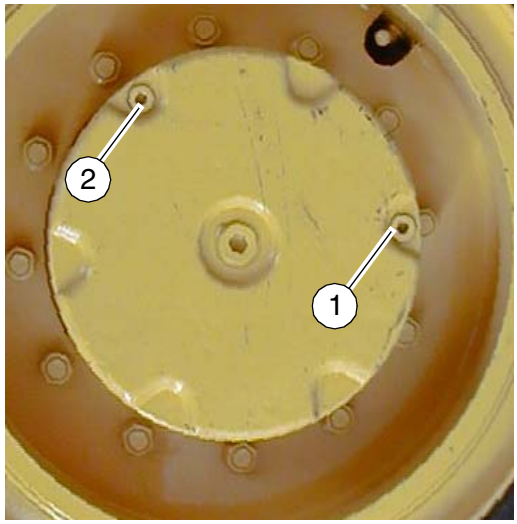
624.jpg

2.4 Planetary steering axle

Planetary gear

While checking the oil level and while filling oil, the locking plug for checking the oil level should be in the 3 o'clock position (1).

The oil level should reach up to the lower edge of the locking plug hole.
The oil should be filled through the open filling plug (2) till some of it comes out of the locking plug hole.



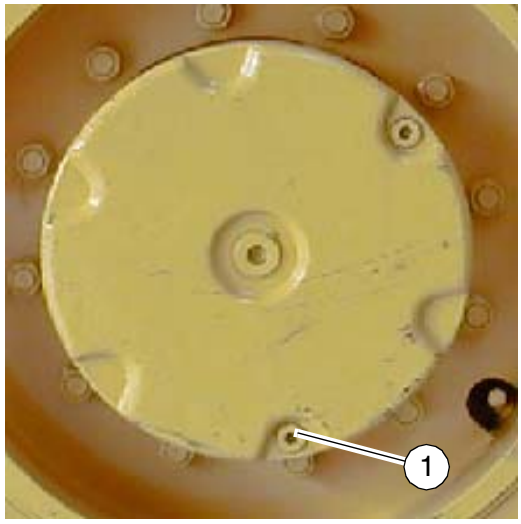
565.jpg

While draining out the oil, the locking plug for oil level check (1) should be in the 6 o'clock position.

STOP Collect used oil in an appropriate container and dispose.

Then, turn the wheel till the locking plug for oil level check is again in the 3 o'clock position. Fill new oil.

⚠ Cleanliness should be observed while filling oil.



56a5.jpg

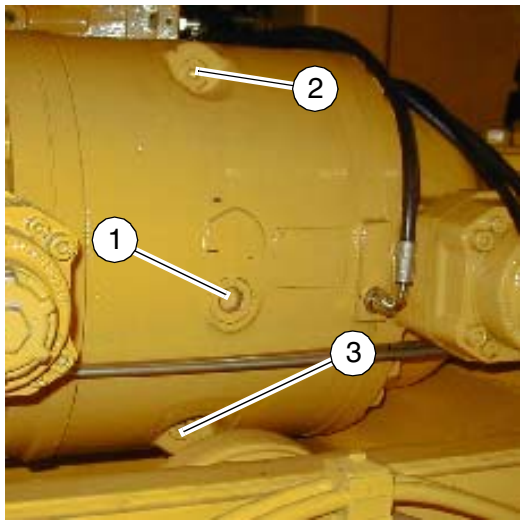
Differential

The locking screw (1) must be removed for checking the oil level.
The oil level should reach up to the lower edge of the hole.
If required, fill oil through the filling hole (2) till some of it comes out of the hole.

The oil discharge screw (3) is found in the lower part of the differential.

Collect used oil in an appropriate container and dispose

Cleanliness should be observed while filling oil.

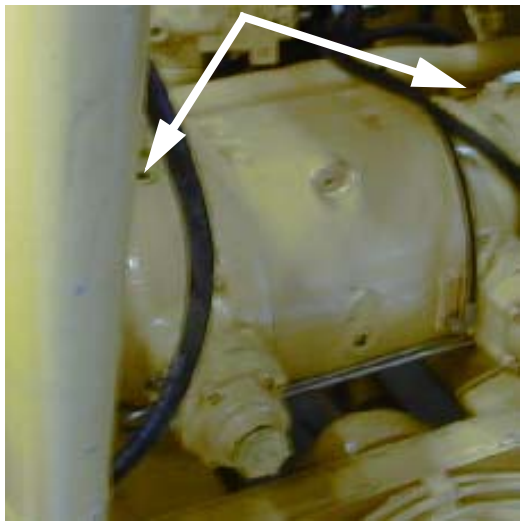


622.jpg

After the running-in time, all visible nuts and screws should be tightened again.

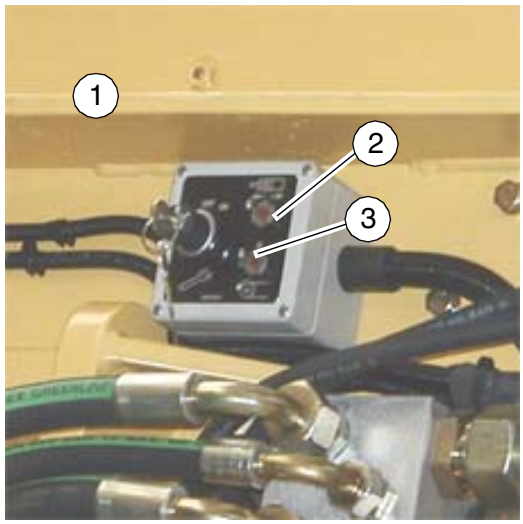
Multiple disk brake

For checking the service brake, the two check screws on the upper side of the differential must be removed by turning.


106.jpg

2.5 Conveyor belt

Tension



114.jpg

Check the tension of the conveyor belt daily. If required, regulate the tension of the belt.

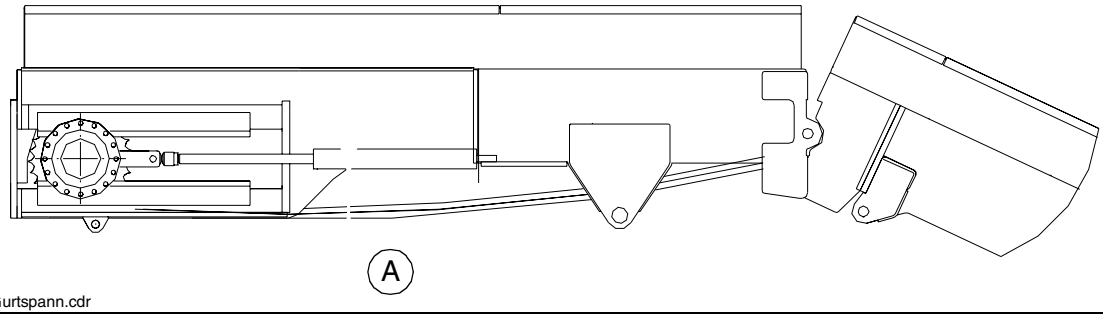
To set the tension, the key-operated switch (1) must first be switched into position I.

- To increase the tension, turn switch (2) to the left until the required level of tension is reached.
- To reduce the tension, turn switch (2) to the right until the required level of tension is reached.

If the conveyor belt has been loosened, for example, for cleaning purposes, it can be operated while still loosened by pressing switch (3).

When working on the conveyor belt, ensure that there is no one in the danger area! Risk of crushing-type injuries.

In addition to this, a visual check should be conducted for any damages such as tears.



Gurtspann.cdr

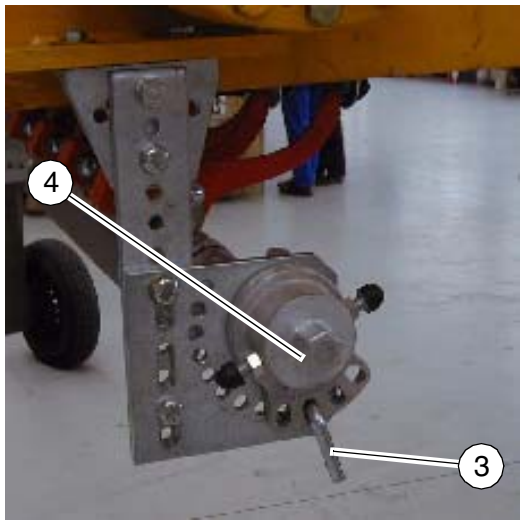
The amount of slack of the chain (A) when the conveyor belt end piece is set horizontally must be 150 +/- 5mm between the marked position and the middle of the chain! Let the conveyor run for a moment after adjusting and control the slack again.If necessary adjust again.

Spring arm scraper

A scraper reduces the dirt on the conveyor belt and minimizes wear.

This device has several scrapers, which scrape off the stuck material remains during the operation of the conveyor belt.

Tighten the locking pin (3) of the fastening device in order to adjust the tension of the scraper on the conveyor belt.
Rotate the hexagonal socket (4) till the required tension is reached.
Insert the safety pin through two self-covering holes in the setting device.



651.jpg

2.6 Wheels, tyres

The air pressure of the two wheels is 5 bar. This should be checked with the help of the valve and adjusted if necessary.

The wheel nuts should be tightened with a cross during the running-in time.

Check for any damages on the tyre side and the profile.

⚠ All damages tyres must be replaced.

Check for damages on the front solid rubber tyres.

565b.jpg

2.7 Voltage supply

Batteries

The batteries are located behind the right lateral flap and are filled by the factory with the correct quantity of acid. The level of the fluid must reach the upper mark. If required, fill only distilled water!
The pole terminals must be oxide-free and protected with special battery grease.

101a.jpg

2.8 Greasing points

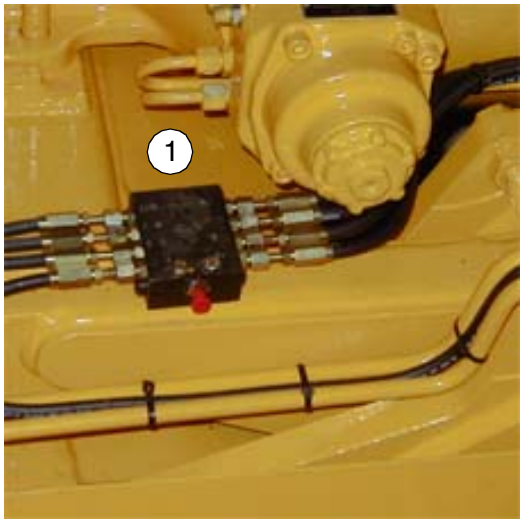
Lubricating distributor I

The machine is fitted with a lubricating distributor as standard.

- The lubricating distributor (1) lubricates:
  - The steering arm bearing
  - Steering rod joints
  - Drive axle bearing

Fill 10 strokes of grease with a greasing gun after every 250 operating hours.

Each lubricating distributor has one lubricating nipple with which the grease is filled.



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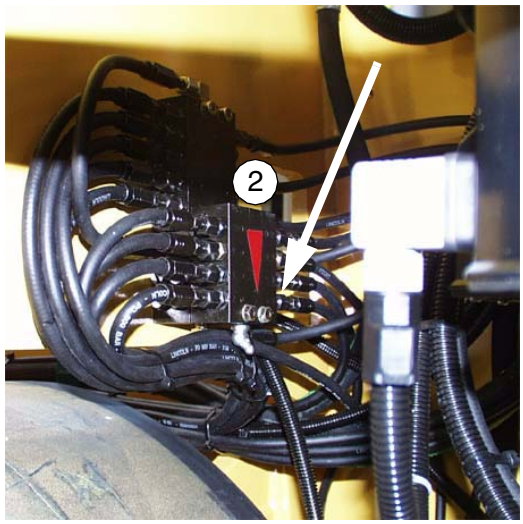
Lubricating distributor II

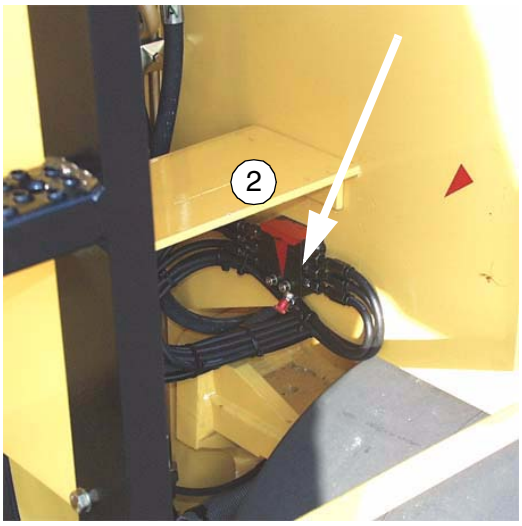
One lubricating nipples are located to the left and to the right of the middle wall.

- The lubricating distributor (2) lubricates:
  - The steering arm bearing
  - Steering rod joints
  - Floating axle

Fill 10 strokes of grease with a greasing gun after every 50 operating hours.

Each lubricating distributor has one lubricating nipple with which the grease is filled.





Schmier2.jpg/Schmier3.jpg

Push rollers

Each of the push rollers has two lubricating nipples.

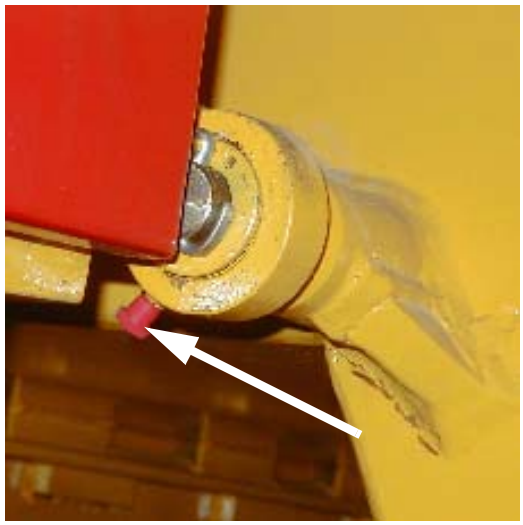
Fill in 5 strokes of grease with a greasing gun.

642.jpg

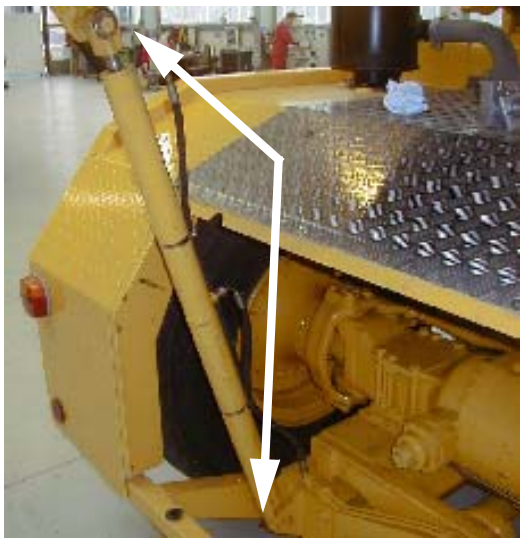
Cylindrical bearings

The two hopper cylinders have one lubricating nipple each near the bearing.

Fill in 2-3 strokes of grease with a greasing gun.



643.jpg



646.jpg

Conveyor belt point of articulation

Each of the two conveyor belt joints has a lubricating nipple.

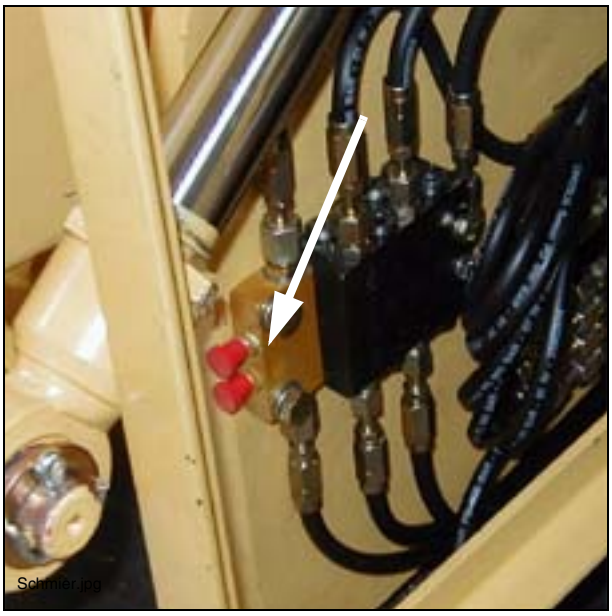
Fill in 5 strokes of grease with a greasing gun.

580.jpg

Conveyor belt point of articulation

Two lubricating nipples, which lubricate the conveyor belt joints, are located to the left of the machine near the central greasing device.

Fill in 2-3 strokes of grease with a greasing gun.



Schmier.jpg

Central lubricating device

☞ Arrangement differs!

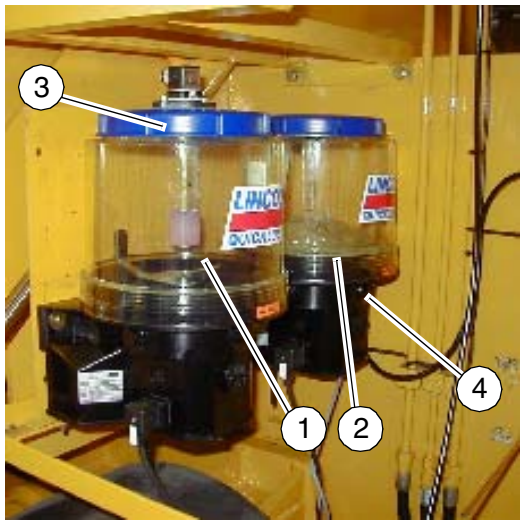
The central lubricating device is located behind the left side flap.

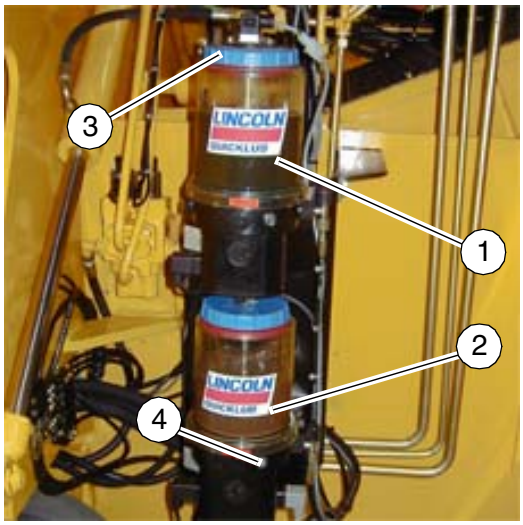
The reservoir (1) is filled with chain oil. It lubricates the chain links of the conveyor belt at set time intervals.

The reservoir (2) is filled with chain oil. It lubricates the conveyor belt crossbars at set time intervals.

☞ Factory settings of operating intervals for central lubricating units:
Oil: 1 hour pause (switch setting 1), 6 minutes lubricating time (switch setting 3)
Grease: 30 minutes pause (switch setting 8), 16 minutes lubricating time (switch setting 8)
The blue rotary switch is used to set the pause period, the red rotary switch is used to set the lubricating time.
Follow instructions in manufacturer's manual when altering the lubrication intervals!

The level of the reservoirs should be checked daily and filled if necessary. In addition to this, check the level on the operator console!





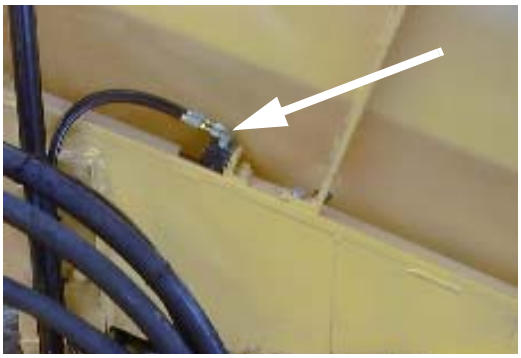
112.jpg/Zentralsch.jpg

For refilling oil, the cover (3) must be unbolted and the chain oil should be filled in the reservoir.

A greasing gun is installed on the lubricating nipple (4) for filling grease and the required quantity is filled in.

Bronze brush for chain lubrication

The chains are greased with the help of several bronze brushes on both sides of the conveyor belt.
Replace the brushes immediately if a visual check reveals that they are worn out.



2.9 Checks

Wear plates

There are two wear plates on the left and right of the inlet to the material tunnel. These plates act as seals and are screwed down onto the machine frame.
To ensure these plates are easy to remove, the screw heads should be subjected to a daily visual inspection.
Worn screws should be replaced immediately.
These two plates tend to wear and must be monitored carefully.

Verschleiss.jpg

General visual check

As a daily routine, the following checks must be conducted on the machine:

- Damaged parts or operating elements?
- Leakage in engine, hydraulic system, gear box etc?
- Are all fixing points in order?

⚠ Eliminate the detected defects immediately so as to avoid damages, accidents and environmental damage.

Check by a specialist person

- as required (according to the application and operating conditions),
- however check should be conducted at least once a year for the safe operating condition of the parts.

3 Lubricants and fuel

Use only the specified lubricants or suitable qualities of well-known brands.

For filling oil or fuel, use containers that are clean from inside and outside.

Observe the level!

Bad quality oils and lubricants wear out the parts quickly because of which the machine breaks down.

Grease	BP Multi-pur-pose grease L2	ESSO Multi-pur-pose grease	FINA Marson L2	Mobilux 2 Mobiplex 47	Multi-purpose grease	SHELL Alvania Grease R 3	Retinax A
Chain oil	Fuchs Racing chain fluid						
Engine oil	See Motor-Betriebsanleitung Shell Rimula 10 W 40 is filled in the factory.						
Hydraulic oil	See section 4.1 Shell Tellus Oil 46 is filled by the factory.						
Gear oil (2 speed gear)	BP Multi EP SAE 80	DEA Geartex EP-A SAE 80-A	ELF Tranself EP SAE 80W	MOBIL Mobilube GX 80-A	Shell HASG 80W-90		
	Shell LS 90 is filled by the factory						
Gear oil 90 (Pump drive gear box)	BP Multi EP SAE 90	ESSO GP 90	FINA Ponionic N SAE 90	MOBIL GX 90	ELF Tranself EP 90	SHELL Spirax EP 90 Hypoit GL 4	
	Shell Spirax EP90 is filled by the factory.						
Gear oil 90 (Hypoid Differentia, Planetary gearl	ARAL Degol 3216	BP Energear LS90	DEA Deagear LS SAE 85W-90	ESSO Gear Oil 90 LSA85W-90	ELF Tranself BM-LS 90	Mobil Mobilube SHC LS	SHELL Gear oil 90 LS
	Shell LS90 is filled by the factory.						
Gear oil 80 (Planetary gear)	BP Gear Oil EP SAE 80W	ELF Tranself EP SAE 80W	Mobil Mobilube GX80-A	Shell HSG 80-90	Texaco Geartex EP SAE80W		
Dest. Water							
Diesel fuel							
Cooling-liquid	Cooling liquid (anti-frost and anti-rust protection)						

3.1 Hydraulic oil

Preferred hydraulic oils:

a) Synthetic hydraulic fluid based on ester, HEES

Manufacturer	ISO viscosity class VG 46
Shell	Natural HF-E46
Panolin	HLP SYNTH 46
Esso	HE 46

b) Mineral oil pressure fluids

Manufacturer	ISO viscosity class VG 46
Shell	Tellus Oil 46

⚠ Please consult our factory consultation department while changing over from mineral oil pressure fluids to biodegradable pressure fluids.

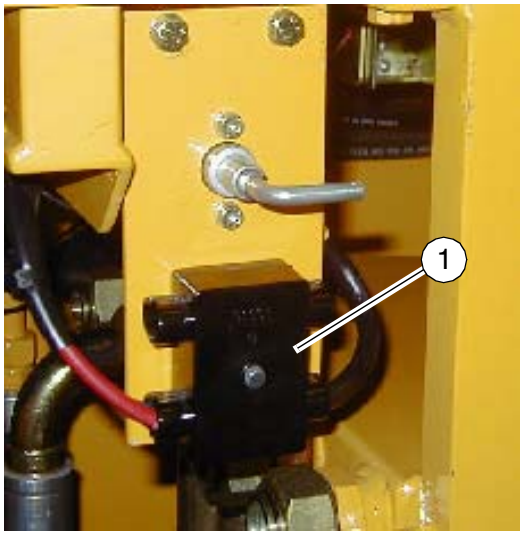
☞ For filling oil or fuel, use containers that are clean from inside and outside.

3.2 Filling quantities

	Quantity
Fuel tank	210 Litre 55.4 US gal. 46.1 Engl. gal.
Hydraulic oil tank	185 Litre 48.8 US gal. 40.6 Engl. gal.
Diesel engine (with oil filter replacement)	See Motor-Betriebsanleitung
Cooling system	18.0 Litre 4.8 US gal. 4.0 Engl. gal.
Pump drive gear box	4.5 Litre 1.2 US gal. 0.98 Engl. gal.
2-speed gear	4.0 Litre 1.1 US gal. 0.9 Engl. gal.
Drive axle (Differential)	14.0 Litre 3.7 US gal. 3.2 Engl. gal.
Planetary gears (2x)	5.0 Litre 1.3 US gal. 1.1 Engl. gal.
Central greasing device	
Batteries	

4 Electrical fuses

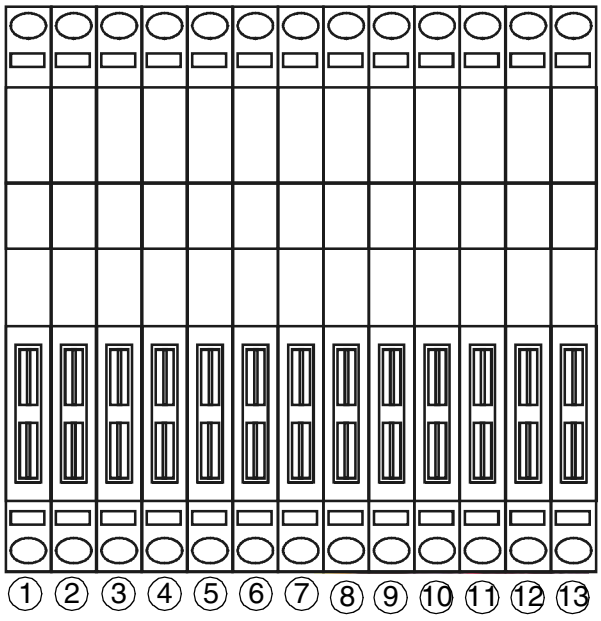
4.1 Main fuses (1) (Behind the right side flap)

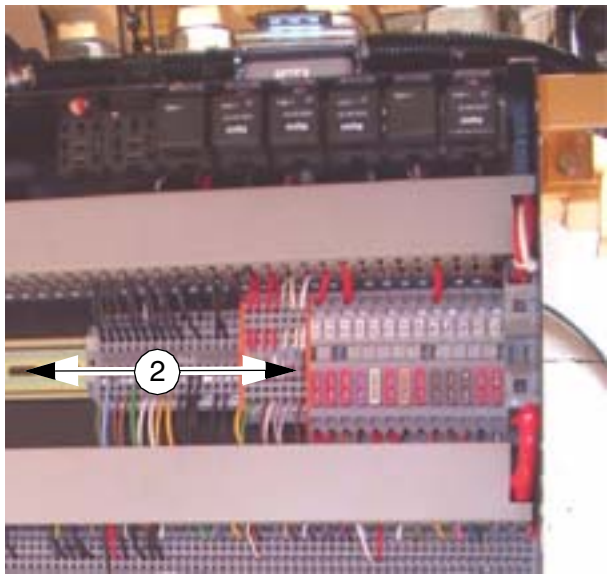


105.jpg

1.	- F3.1 Terminal box, start relay - F3.2 Engine preheating	50 A 100 A

4.2 **Fuses in the main terminal box** (below the right bottom plate)

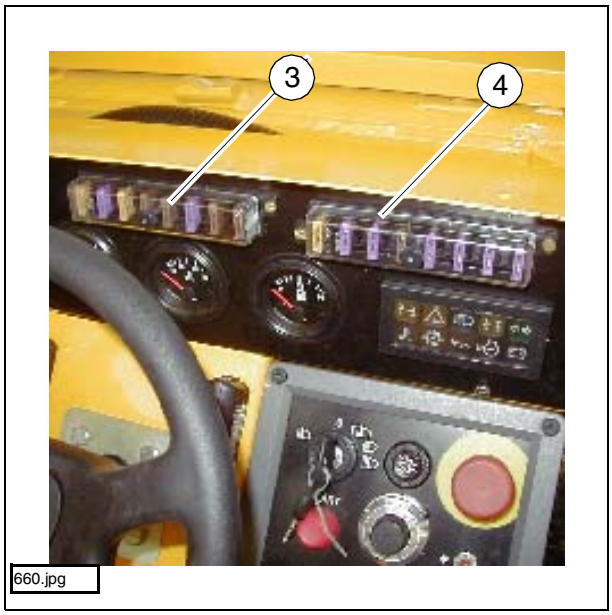




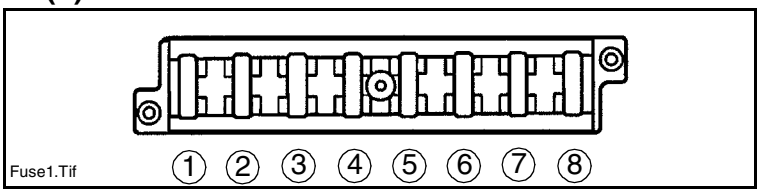
Fuse carriers (2)

No.	F5.1 - F5.8	A
1.	Drive system	10
2.	Steering controls, ASC	10
3.	Reverse alarm	10
4.	Lubrication unit	3
5.	Search light	10
6.	Patrol light	10
7.	Operator´s platform, maintenance for conveyor belt	10
8.	not used	10
Nr.	F5.1 - F5.8	A
9.	Electronic engine control	7,5
10.	Electronic engine control	7,5
11.	Electronic engine control	7,5
12.	Electronic engine control	10
13.	Electronic engine control	10

4.3 Fuses on the operator console

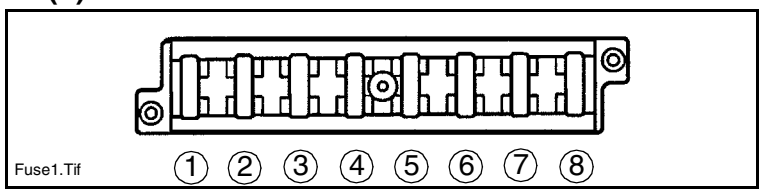


Fuse carriers (3)



No.	F1.1 - F1.8	A
1.	Engine start, emergency stop	5
2.	Telltales, checking instruments	3
3.	Display, Power supply master module A1, Sensor conveyor, voltage converter.	10
4.	Not occupied	
5.	Not occupied	
6.	Not occupied	
7.	Sockets, emulsion spray system	5
8.	Electronic engine control	5

Fuse carriers (4)



No.	F2.1 - F2.8	A
1.	Blinker, warning blinker system	5
2.	Blinker, warning blinker system, horn	3
3.	Limit switch, Parking brake switch	3
4.	Driving light, driving light telltales	7,5
5.	Lower beam right	3
6.	Lower beam left	3
7.	Parking lamp right	3
8.	Parking lamp left, instrument board light system	3