DYNAPAC
Part of the Atlas Copco Group

# OPERATION & MAINTENANCE

# Paver F1000T

## Type 717


Keep this manual for future reference

Order number for this manual: D717.41.00.38

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USA

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# Table of contents


**V Preface ..... 1**

1 General safety instructions ..... 3
1.1 Acts, directives, accident prevention regulations ..... 3
1.2 Warning instructions ..... 3
1.3 Prohibitive signs ..... 6
1.4 Protective gear ..... 7
1.5 Environmental protection ..... 8
1.6 Fire prevention ..... 8
1.7 Further instructions ..... 9

**A Correct use and application ..... 1**

**B Vehicle description ..... 1**

1 Application ..... 1
2 Description of assemblies and functions ..... 2
2.1 Vehicle ..... 3
Construction ..... 3
3 Danger Zones ..... 6
4 Technical data, standard configuration ..... 7
4.1 Dimensions (all dimensions in inches) ..... 7
4.2 Allowed angle of rise and slope ..... 8
4.3 Permissible approach angle ..... 8
4.4 Turning circle ..... 8
4.5 Weights, F1000W ..... 9
4.6 Performance data ..... 9
4.7 Traction drive/chassis ..... 10
4.8 Engine ..... 10
4.9 Hydraulic systemOperator stations ..... 10
4.10 Electrical system ..... 10
4.11 Operator stations ..... 11
4.12 Material compartment (hopper) ..... 11
4.13 Conveyor ..... 11
4.14 Augerr ..... 11
4.15 Permissible temperature ranges ..... 11
5 Location of instruction labels and identification plates ..... 12
6 EN standards ..... 17
6.1 Continuous sound pressure level on the F1000W Wheeled Paver, Cummins QSB-6.70 Tier III Engine. ..... 17
6.2 Operating conditions during measurement ..... 17
6.3 Measuring point configuration ..... 18

**C1.1 Transport ..... 1**

1 Safety regulations for transportation ..... 1
2 Transportation on low-bed trailers ..... 3
2.1 Preparations ..... 3
2.2 Driving onto the low-bed trailer ..... 6
2.3 Secure the paver finisher to the low-bed trailer: ..... 6
2.4 After transportation ..... 7

3 Transportation ..... 8
3.1 Preparations ..... 8
3.2 Driving mode ..... 11
4 Loading by crane ..... 13
5 Towing ..... 15
6 Safely parking the vehicle ..... 16

**D1.1 Operation ..... 1**

1 Safety regulations ..... 1
2 Controls ..... 2
2.1 Operating panel ..... 2
3 Auxiliary functions ..... 25
4 Left / right remote controls and handsets ..... 27
Left / right remote control ..... 28
Left / right handset ..... 37

**D2.0 Operation ..... 1**

1 Operation of the graphical terminal ..... 1
1.1 Navigation using Soft Keys ..... 2
Brightness/Contrast
Adjustment ..... 3
Main Menu - Start Menu ..... 3
Main Menu - Basic Setup ..... 4
Main Menu - Basic Setup
-Time / Date ..... 5
Main Menu - Basic Setup
-Language ..... 5
Main Menu - Basic Setup
-Units ..... 6
Main Menu - Diagnostics ..... 7
Main Menu - Diagnostics
-System Info ..... 8
Main Menu - Diagnostics
-Fault Log ..... 8
Main Menu - Diagnostics
-Fault Log
Active and Previous Faults ..... 9
Main Menu - Diagnostics
-Fault Pop-Up Alarms ..... 10
Main Menu - Diagnostics
-Device List ..... 11
Main Menu - Diagnostics
-Quick Data ..... 12
Start Display ..... 13
Display 01 ..... 14
Display menu ..... 14
Display 02 ..... 14
Display menu ..... 14
Active Faults Display ..... 15
Fault Sources and Codes ..... 15
Warnings Display ..... 17

1.2 Engine Error messages ..... 18
1.3 FMI-codes ..... 23

## D3.0 Operation ..... 1

1 Operating elements on the paver ..... 1
Operator's platform ..... 1
Seat console ..... 1
Operating panel ..... 1
Driver's seat ..... 2
Batteries ..... 2
Battery main switch ..... 3
Transport safeguards for the hopper ..... 4
Mechanical screed transport safeguard (to the left and the right beneath the driver's seat) ..... 4
Paving thickness indicator ..... 5
Release Agent System ..... 6
On/Off switch of working lights (1) ..... 7
On/Off switch hazard flasher (2): ..... 7
Warning Beacon ..... 7
Conveyor limit sensors ..... 8
Ultrasonic auger limit sensors (left and right) ..... 8
Sockets 24V ..... 8

## D4.0 Operation ..... 1

1 Preparation of operation ..... 1
Required equipment and tools ..... 1
Before starting work (in the morning or when starting paving) ..... 2
Checklist for the machine operator ..... 2
1.1 Starting the paver ..... 5
Before starting the paver ..... 5
"Normal" starting ..... 5
Jump starting ..... 7
After starting ..... 9
1.2 Transport Operation ..... 11
Lifting and securing the screed ..... 11
Driving and stopping the paver ..... 11
Switching off and securing the paver ..... 11
1.3 Preparations for paving ..... 12
Releasing agent ..... 12
Screed heater ..... 12
Direction marks ..... 12
Loading/distributing material ..... 14
1.4 Starting for paving ..... 16
1.5 Check during paving ..... 17
Paver function ..... 17
Quality of the layer ..... 17
1.6 Interrupting/terminating operation ..... 19
During breaks (i.e. the material supply truck is late) ..... 19
During extended interruptions (i.e. lunch break) ..... 19

When work is finished ..... 21
2 Malfunctions ..... 22
2.1 Problems during paving ..... 22
2.2 Malfunctions on the paver or screed ..... 24

**E1.0 Set-up and modification ..... 1**

1 Special notes on safety ..... 1
2 Auger ..... 2
2.1 Height adjustment ..... 2
2.2 Auger crossbeam - hydraulic height adjustment ..... 2
2.3 Auger extension ..... 3
2.4 Mounting extension parts ..... 4
2.5 Mounting support tube extensions ..... 5
2.6 Installing tunnel plates ..... 6
2.7 Installing additional braces ..... 7
3 Screed ..... 8
4 Electrical connections ..... 8
4.1 Remotes from screed to paver ..... 8
4.2 Right hand conveyor sensor control ..... 8
4.3 Right hand auger sensor control ..... 8
4.4 Left hand conveyor sensor control ..... 9
4.5 Left hand auger sensor control ..... 9
4.6 Auger Chart ..... 10

**F1.0 Maintenance ..... 1**

1 Notes regarding safety ..... 1

**F2.1 Maintenance Overview ..... 1**

1 Maintenance overview ..... 1

**F3.0 Maintenance - Conveyor ..... 1**

1 Maintenance - Conveyor ..... 1
1.1 Maintenance intervals ..... 2
1.2 Points of maintenance ..... 3
Chain tension of the conveyor (1) ..... 3
Conveyor tensioning sprocket bearings (2) ..... 5
Conveyor bearing (3) ..... 5
Conveyor drive - (5) drive chains ..... 6
Conveyor drive - (6) planetary drive (left/right) ..... 7
Conveyor chain guards / conveyor plates (7) ..... 8

**F4.0 Maintenance - Auger ..... 1**

1 Maintenance - Auger sub-unit I ..... 1
1.1 Maintenance intervals ..... 2
1.2 Points of maintenance ..... 3
Auger - outer bearing (1) ..... 3
Auger middle bearing (2) ..... 3
Auger - drive gear neck bearing (3) ..... 4

Auger bevel gear (on the RH and LH sides) (4) ..... 5
Auger blade (5) ..... 6

**F5.0 Maintenance - Engine ..... 1**

1 Maintenance - engine sub-unit ..... 1
1.1 Maintenance intervals ..... 2
1.2 Points of maintenance ..... 4
Engine fuel tank (1) ..... 4
Engine lube-oil system (2) ..... 5
Engine fuel system (3) ..... 7
Engine air cleaner (4) ..... 9
Engine Coolant system (5) ..... 11
Engine drive belt (6) ..... 13

**F6.0 Maintenance - Hydraulic System ..... 1**

1 Maintenance - hydraulic system ..... 1
1.1 Maintenance intervals ..... 2
1.2 Hydraulic System ..... 3
1.3 Points of maintenance ..... 4
Hydraulic oil tank (1) ..... 4
Suction/return flow hydraulic filter (2) ..... 6
Venting the filter: ..... 7
High pressure filter (3) ..... 8
Pump distribution gear (4) ..... 9
Hydraulic hoses (5) ..... 11

**F7.1 Maintenance - Travel Drive, Steering ..... 1**

1 Maintenance - travel drive, steering ..... 1
1.1 Maintenance intervals ..... 2
1.2 Points of maintenance ..... 3
Wheel mounting nuts (1) ..... 3
Rear wheels ..... 3
Front wheels (with front wheel drive) ..... 3
Planetary gear (2) ..... 4
Air pressure (driving wheels) (3) ..... 6
Places of lubrication (4) ..... 7

**F8.1 Maintenance - Electronic System ..... 1**

1 Maintenance - Electronic system ..... 1
1.1 Maintenance intervals ..... 2
1.2 Points of maintenance ..... 3
Batteries (1) ..... 3
Electric fuses / relays (3) ..... 4
Fuses in terminal box (B) ..... 5
Relays in terminal box (C) ..... 7

**F9.0 Maintenance - Lubricating Points ..... 1**

1 Maintenance - Lubricating points ..... 1

1.1 Maintenance intervals ..... 2
1.2 Points of maintenance ..... 3
Bearing points (1) ..... 3

**F10.0 Checks, Decommissioning ..... 1**

1 Tests, check-up, cleaning, stopping ..... 1
1.1 Maintenance intervals ..... 2
2 General observation ..... 3
3 Check performed by a specialist ..... 3
4 Cleaning ..... 4
5 Preservation for storage of paver ..... 5
5.1 Downtime up to 6 months ..... 5
5.2 Downtime between 6 months and 1 year. ..... 5
5.3 Re-commissioning: ..... 5

**F11.0 Lubricants and Operating Substances ..... 1**

1 Lubricants and operating substances ..... 1
1.1 Capacities ..... 2

# V Preface

Safe operation of the machine requires specific knowledge that is in these operating instructions. The information is provided in a concise, clearly structured form. The individual chapters are arranged in alphabetical order and every chapter starts with page 1. The individual pages are identified by the chapter letter and the page number.
Example: Page B 2 is the second page of chapter B.

These operating instructions cover various machine options. Make sure that during operation and maintenance work the description appropriate to the machine option is used.

Safety instructions and important notes are identified by the following:

**⚠ DANGER**

Danger is used ot indicate the presence of a hazard which ***will*** cause ***severe*** personal injury, death, or substantial property damage if the warning is ignored.

**⚠ WARNING**

Warning is used to indicate the presence of a hazard which can cause severe personal injury, death, or extensive property damage if the warning is ignored.

**⚠ CAUTION**

Caution is used to indicate the presence of a hazard which will or can cause minor personel injury or property damage if the warning is ignored.

**NOTICE**

Notifies people of installation, operation or maintenance information which is important but not hazard-related. Hazard warnings should never be included under the Notice indicator.

NOTE:

Note is used for supplementary information not directly effecting safety or damage to the equipment. Note can also refer to special information on the efficient use of the equipment.

In the interest of continued development, the manufacturer reserves the right to make changes to the machine (which will not, however, change the essential features of the type of machine described) without updating the present operating instructions at the same time.

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# 1 General safety instructions

## 1.1 Acts, directives, accident prevention regulations

**NOTICE**

The locally applicable acts, directives and accident prevention regulations shall be observed, even if the attention is not specifically directed to these.
The operator himself shall be responsible for the observation and performance of the related regulations and actions!

**NOTICE**

The following alerts, prohibitions and instructions refer to the risks to which people, machinery and environment are exposed.

**NOTICE**

Ignoring these instructions, bans and commands may lead to fatal injuries!

**NOTICE**

Furthermore, the Dynapac publication "Directives for the correct and specified application of pavers" shall also be observed.

## 1.2 Warning instructions

A paving machine has many components and implements that are controlled by a hydraulic system, either directly or indirectly. Before working on or inspecting any part of a paving machine, it is important that the individual knows how the components move and are controlled by the hydraulic system components including the respective control circuits.

Before working on or inspecting any component, it must be physically constrained from any movement that chould cause injury to the worker. The worker must be alert to not placing any part of his/her body where movement of a component could cause injury, unless that component is physically constrained from movement, if the hydraulic system fails, is disconnected, or is asignaled to cause movement.

It must also be recognized that there are occasions where component and or vehicle movement may react to the release of potential energy. Where applicable it must be confirmed that all measures are employed to ensure that any and all sources of potential energy are released and/ or physically restrained.

It is also the responsibility of those involved to insure that all local, state and federal safety regulations are followed, prior to, and during any work or inspection.

**⚠ WARNING**

Warning: areas of hazard or danger!
Not observing the warning instructions may lead to injuries or death!

**⚠ WARNING**

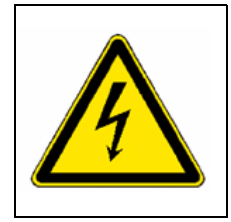
Warning: rotating parts!

Rotating parts or transport parts can cause severe injury or death!
Perform each operation only with equipment switched off!

**⚠ CAUTION**

Attention: electric voltage!

All maintenance and repair work on the screed's electrical system must always be carried out by an electrician!



**⚠ CAUTION**

Attention: suspended load!

Never stand under suspended loads!

**⚠ WARNING**

Warning: risk of crushing!

Operation of certain parts or functions and moving the machine can produce a risk of crushing.
Always make sure that no one is in the areas exposed to risk!

**⚠ CAUTION**

Caution: risk of hand injury!

**⚠ CAUTION**

Caution: hot surfaces or hot liquids!

**⚠ WARNING**

Warning, risk of falling off!

Falling can cause severe injury or death!

**⚠ CAUTION**

Caution: hazardous batteries!

Combustible gas can cause severe burns, blindness or death!

Keep sparks and open flame away from batteries.

**⚠ CAUTION**

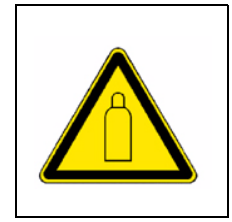
Caution: materials harmful to health and irritating substances!

**⚠ CAUTION**

Caution: flammable materials!

**⚠ CAUTION**

Caution: gas bottles!



## 1.3 Prohibitive signs

It is prohibited to open / step on / reach into / perform / adjust during operation or when the paver engine is running!

Do not start the engine/drive!
Maintenance and repair can be carried out only with the Diesel engine turned off!

Do not spray with water!

Do not extinguish with water!

Unskilled maintenance is prohibited!
Maintenance can be performed by skilled professionals only!

**NOTICE**

Contact the Dynapac service for maintenance assistance!

Danger of fire: do not use open flame and no smoking!

Do not turn on!

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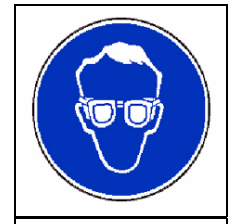
## 1.4 Protective gear

**NOTICE**

The applicable local regulations may define the use of different protective gear!
Observe these specifications!

Protect your eyes with goggles!



Wear appropriate head protection!

Protect your hearing with appropriate ear mufflers!

Protect your feet with safety footwear!

Always wear tight, conforming working coveralls!
Wear visibility vest for good visibility!

In case of polluted air, wear respiratory mask!

## 1.5 Environmental protection

**NOTICE**

The locally applicable acts, directives and waste disposal regulations shall be observed, even if the attention is not specifically directed to these.
During cleaning, maintenance and repair operations, pollutants such as:

- lubricants (oils, grease)
- hydraulic oil
- gas oil
- coolant
- detergents

may not enter the soil or the sewer system!

These materials shall be collected, stored, transported in the correct containers until professional disposal!


Material harmful for the environment!

## 1.6 Fire prevention

**NOTICE**

The applicable local regulations may specify that appropriate fire extinguishers be mounted!
Observe these specifications!

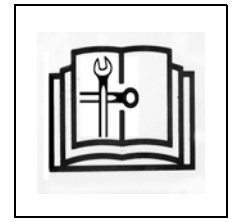
Fire fighting device
(optional equipment)

## 1.7 Further instructions

**NOTICE**

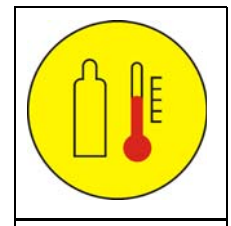
Observe the manufacturer's and other instructions!

(i.e. the maintenance instructions from the engine manufacturer)



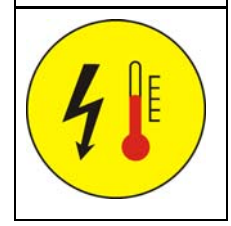
**⚠ WARNING**

Indicates a bottled gas heated design!



**⚠ WARNING**

indicates an electrically heated design!



# A Correct use and application

**NOTICE**

The “Guidelines for the Correct Use and Application of Paver” compiled by Dynapac are included in the scope of delivery for the present machine. The guidelines are part of the present operating instructions and must always be followed. Federal, state and local regulations are fully applicable.

The road construction machine described in these operating instructions is a paver that is suited for laying mixed materials, roll-down concrete or lean-mixed concrete, track-laying ballast and unbound mineral aggregates for paving foundations.
This machine shall be used, operated and maintained for the purpose of the intended work as included in the operation manual. Any other use is regarded as improper use and can cause injury to persons or damage to the paver or other equipment or property.

Any use going beyond the range of applications described above is regarded as improper use and is expressly forbidden! Especially in those cases where the paver is to be operated on inclines or where it is to be used for special purposes (i.e. construction of dumps, dams), it is absolutely necessary to contact the manufacturer.

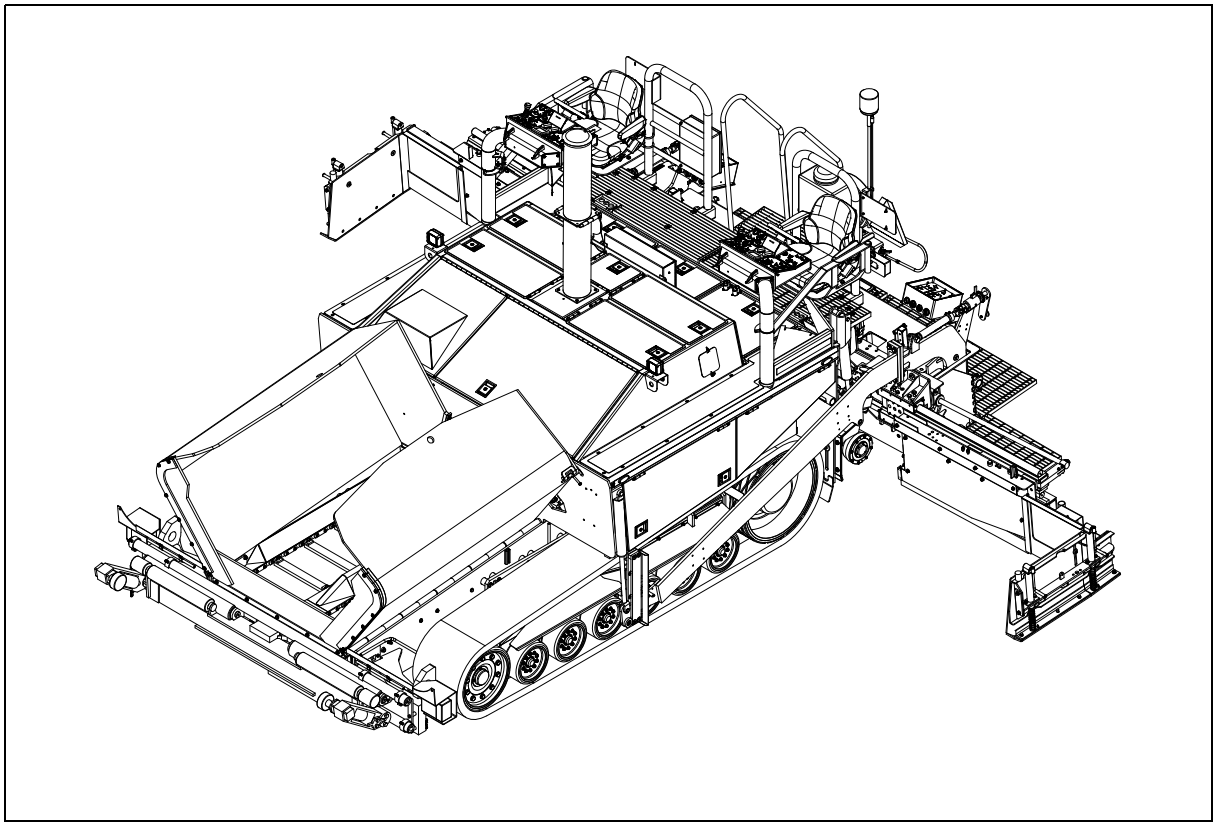
**Duties of the user:** A “user” within the meaning of the present operating instructions is defined as any natural or legal person who either uses the paver himself, or on whose behalf it is used. In special cases (i.e. leasing or renting), the user is considered the person who, in accordance with existing contractual agreements between the owner and the user of the paver , is charged with the observation of the operating duties.
The user must ensure that the paver is only used in the stipulated manner and that all danger to life and limb of the operator, or third parties, is avoided. In addition to this, it must be ensured that the relevant accident prevention regulations and other safety-related provisions as well as the operating, servicing and maintenance guidelines are observed. The user must also ensure that all persons operating the equipment have read and understood the present operating instructions.

**Mounting attachments:** The paver must only be operated in conjunction with screeds that have been approved by the manufacturer. Mounting or installation of any attachments that will interfere with or supplement the functions of the paver is permitted only after written approval by the manufacturer has been obtained. If necessary, the approval of local authorities has to be obtained.
Any approval obtained from local authorities does not, however, make the approval by the manufacturer unnecessary.

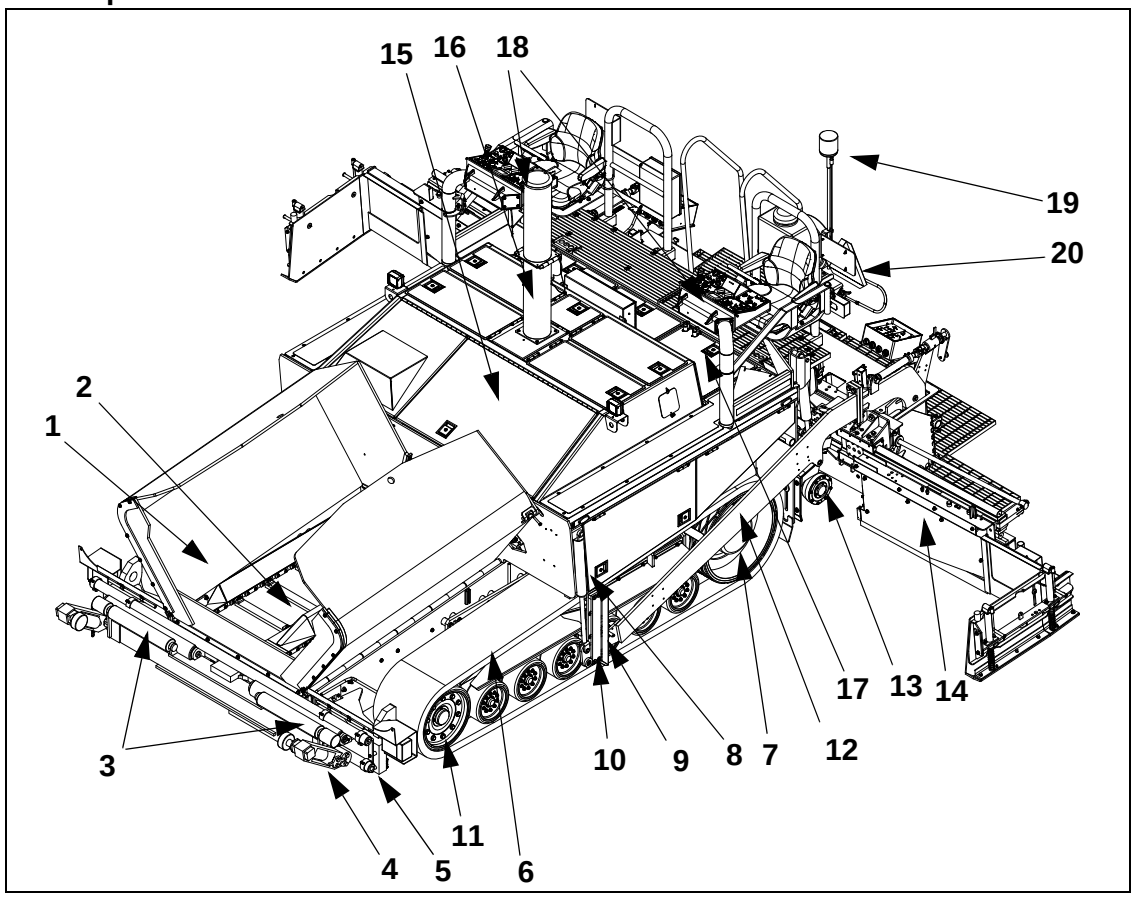
# B Vehicle description

## 1 Application

The DYNAPAC F1000T is a rubber track paver that is used for laying bituminous mixed material, roll-down or lean-mixed concrete, track-laying ballast and unbound mineral aggregates for paving foundations.



## 2 Description of assemblies and functions




| Item | Standard or Optional | Designation |
|---|---|---|
| 1 | **Standard** | Material hopper |
| 2 | **Standard** | Conveyor |
| 3 | **Standard** | Truck push rollers |
| 4 | **Optional** | Truck hitch |
| 5 | **Standard** | Mounting tube for alignment indicator |
| 6 | **Standard** | Rubber track |
| 7 | **Standard** | Track drive wheel |
| 8 | **Standard** | Levelling cylinder (for paving thickness) |
| 9 | **Standard** | Levelling arm guide |
| 10 | **Standard** | Guide roller (Side arm tow point) |
| 11 | **Standard** | Idler |
| 12 | **Standard** | Screed side arm |
| 13 | **Standard** | Auger |
| 14 | **Standard** | Screed |
| 15 | **Standard** | Power pack enclosure |
| 16 | **Standard** | Engine exhaust & fume extraction |
| 17 | **Standard** | Operator’s platform |
| 18 | **Standard** | Operator’s panels |
| 19 | **Optional** | Warning beacon |
| 20 | **Optional** | Washer/sprayer |

## 2.1 Vehicle

### Construction

The Dynapac F1000T is a rubber track propelled paver built with a welded steel frame on which the power pack, augers, conveyors, hopper and operator positons are mounted.

The track suspension compensates for uneven areas on the ground. The suspension of the attached screed helps to attain high paving precision. The machine is designed to move material via hydraulically driven conveyor chains and spread it with augers to allow the screed to spread the materials evenly. The adjustable hydrostatic drive system allows the speed of the paver to keep pace with other equipment in all work conditions.

The operation of the paver is largely facilitated by the easy to use operator controls. The operator can control the functions of the paver from either the left control panel or the right control panel.

Available options include:

- Grade Control
  - -Control System
  - -Averaging Ski
  - -Non-Contacting Averaging Ski
  - -Contacting Grade Control
- Truck Hitch
- Washdown System and Hose Reel
- Auger Extensions
- Frame Extensions
- Steering Guide (Truck Hitch)
- Secondary Drive Controller
- Umbrella
- Auxiliary Power Panel (220/110V)
- Bubble Lights
- Road Lights (Tail Lights)
- Warning Beacon
- Magnetic Base Lights
- Up Time Kit
- Screed
  - -Berm
  - -Screed Corded Controls
  - -Screed Extensions
- Further equipment and upgrade options on request

**Engine:** The paver is powered by a 6-cylinder, water cooled diesel engine with direct injection and a turbo charger. Electric starting and belt driven alternator battery charging is standard. The engine power / rpm is controlled by the engine speed control on either of the consoles. The engine is shut down either by removing the key “ON/OFF” switch or the emergency stop switch. For further details, see the technical data in the engine’s instruction manual.

**Track:** The two rubber tracks are driven indepently of each other. They are each direct drive requiring less maintenance and service than chain driven machines. Each track is adjusted automatically using hydraulic pressure. The rubber track allows the machine to attain a high transportation speed with excellent maneuverability and traction.

**Hydraulic system:** The diesel engine has the Pump Drive gear box attached to it. This drives the hydraulic pumps for all of the main and auxilary paver functions. The hydraulic system also drives the generator needed to heat materials to prevent the material from sticking to the screed plate. All power on the paver comes from hydraulics.

**Track drive:** The closed-loop track drive system includes two speed track drive motors that are connected to the drive pumps by means of high pressure hydraulic hoses. The hydraulic motors are mounted to the track drive wheels and mobilize the tracks. Track movement is controlled by directional control joysticks on the consoles.

**Steering system/operator's platform:** The independent hydrostatic travel drives allow the paver to be turned on the spot. The electronic synchronization, controlled from the operating panel, ensures that the paver runs straight ahead. The operating panels can be secured in variable positions on both left and right console panels, by a locking mechanism.
Steering is accomplished merely by driving one track at a different speed than the other. If turning left, the track on the right hand side will move faster than the track on the left. If turning right, the track on the left hand side will move faster than the track on the right.

**Push roller crossbar:** The push rollers for material trucks are connected to a crossbar that pivots at its center. This crossbar allows for differences in distances to the rear wheels on a variety of material trucks. This permits the paver to deviate less from its course and makes paving curves easier.

**Material compartment (hopper):** The hopper inlet is equipped with a conveyor system that empties the hopper and transfers the material to the auger. The hopper can hold approximately 30,000 lbs. (13608 kg) and are raised hydraulically to empty onto the conveyor chains. To facilitate the emptying and to improve material transfer, each of the lateral covers of the hopper are hydraulically moved.

**Conveyors (Material transfer):** The paver is equipped with two conveyors driven separately with pressure from a single pump. The system consists of a single, pressure compensated, load sense style, variable displacement, open loop pump driving two fixed volume hydraulic motors. This pump supplies hydraulic power for both conveyors of the machine and provides power for the cylinders on the machine.
These conveyors transer the material from the hopper to the augers. By using sensors to monitor the filling height during the paving proceedure, the transfer amount or speed regulation is completely automatic.

**Augers:** The augers are driven and controlled independently from the conveyors. The auger hydraulics consist of two high pressure, variable displacement, closed loop pumps driving two fixed volume motors. The left-hand and the right-hand half of the auger can be controlled separately.
The auger direction can be changed to direct material towards the center of the screed or towards the outside of the screed. There is always a sufficient supply of material even if an excessive amount of material is required at one side. The auger speed is controlled by sensors that monitor the material flow leaving the auger area.

**Height adjustment and extension of augers:** Height adjustment and extension of augers ensure an optimum variety of a wide range of paving thicknesses and widths. Auger height is regulated at the operating panel and moved by means of hydraulic cylinders.
Auger segments of different lengths can be attached to easily adapt to the different paving widths.

**Levelling/slope control system:** The slope control system allows the paving thickness to be regulated at the left-hand or the right-hand side with a defined difference to the opposite side.
To determine the actual value, the two screed leveling arms are linked with a slope beam.

The slope control system always operates in conjunction with the screed height adjustment of the opposite side.

By adjusting the height of the screed leveling cylinders, the paving thickness of the material or the laying height of the screed can be controlled.
Activation occurs electro-hydraulically on both sides and can be controlled manually by means of toggle switches or automatically by means of an electronic grade control system.

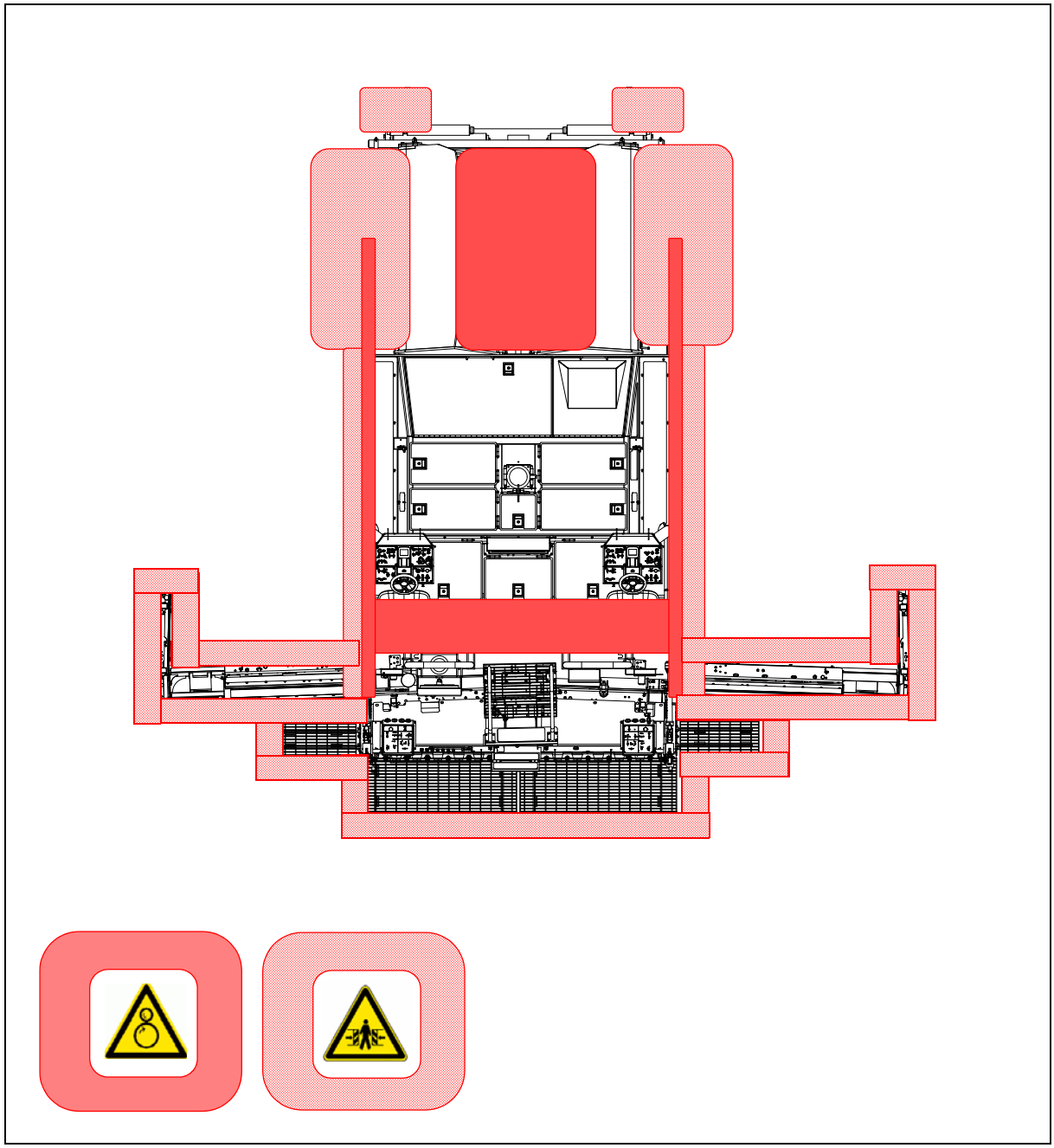
**Screed lifting arms:** The screed lifting arms are used to lift the screed during transport. Lifting occurs electro-hydraulically on both sides by activating the hydraulic cylinders on the screed lifting arms which is controlled by means of toggle switches on the operating panel.

**Truck hitch (option):** The truck hitch holds the transport vehicle, containing the paving material, in contact with the paver. The truck hitch mounts are located on the front of the hopper.

## 3 Danger zones

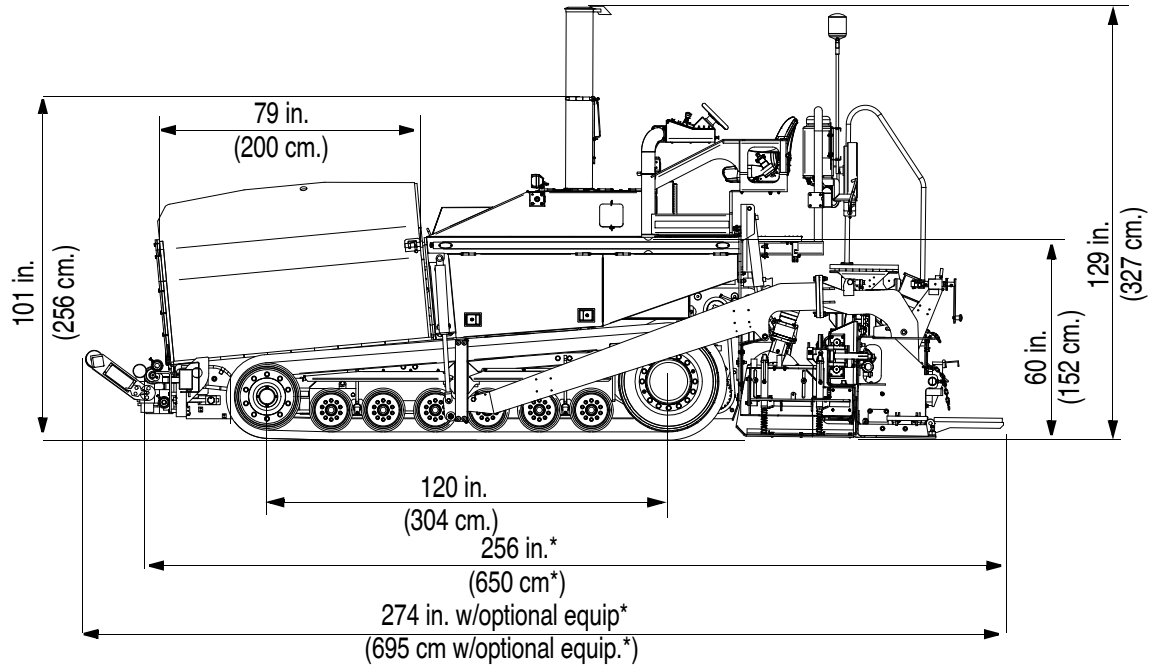
**⚠ WARNING**

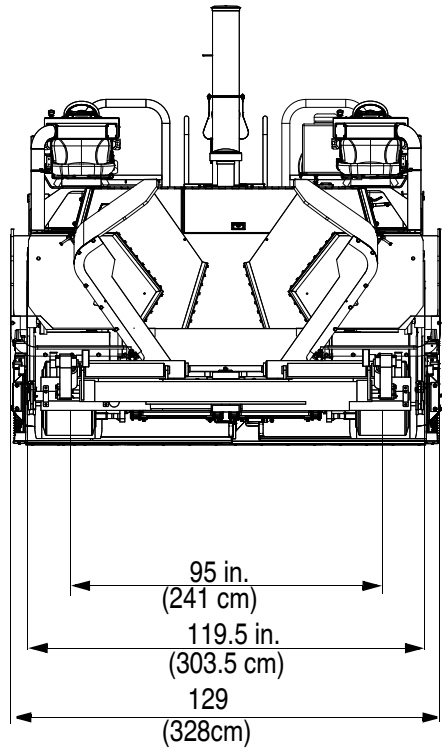
In the working areas around the machine (marked in red), there may be a risk of drawing in or crushing during normal operation caused by rotating and conveying elements, or by components in motion.



# 4 Technical data, standard configuration

## 4.1 Dimensions



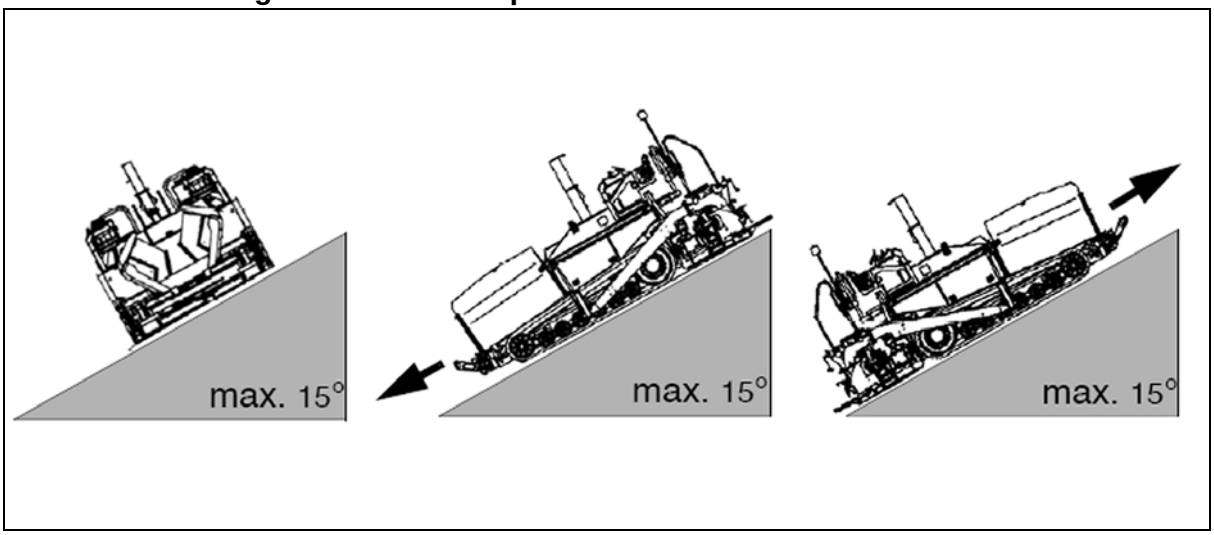




*Carlson EZ IV

**NOTICE**

For screed technical data, refer to the screed operating instructions.

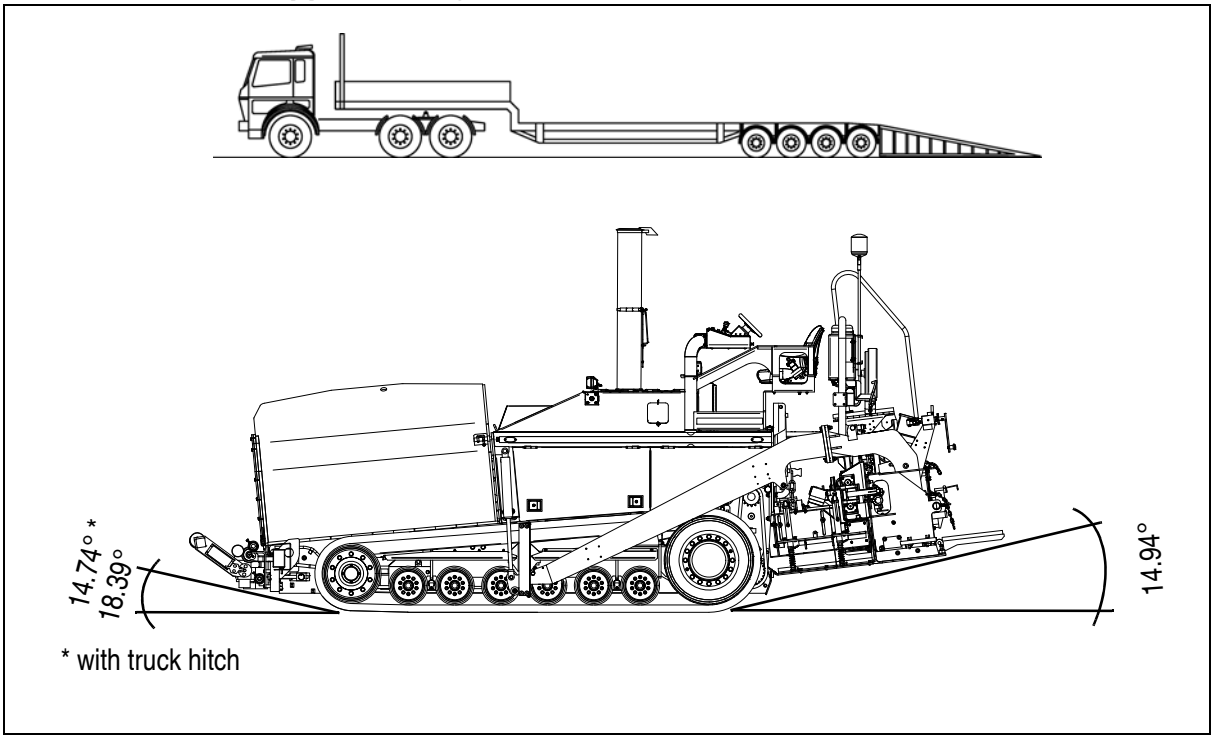
## 4.2 Allowed angle of rise and slope




**NOTICE**

Before operating your machine in an inclined position (gradient, slope, lateral inclination) which is above the specified limit value, please consult the customer service department for your machine!

## 4.3 Permissible approach angle



## 4.4 **Weights,** F1000T

| | |
|---|---|
| Paver without screed | approx. 38,000 lbs. (17237 kg) |
| Paver with screed:<br>- Carlson EZ IV 1019 (7000 lbs.)<br>- Carlson EZ III 10 (6000 lbs.) | <br>approx. 45000 lbs. (20412 kg)<br>approx. 44000 lbs. (19958 kg) |
| With filled hopper, include an Additional maximum of: | approx. 30000 lbs. (13608 kg) |

## 4.5 **Performance data**

| Screed used | Basic width | Minimum paving width | Continuously hydraulically adjustable up to | Maximum working widths (with extension parts) | |
|---|---|---|---|---|---|
| Carlson EZ IV 1019 | 10<br>3.05 | 10<br>3.05 | 19<br>5.79 | 26<br>7.92 | ft<br>m |
| Carlson EZ III 10 | 10<br>3.05 | 10<br>3.05 | 17<br>5.18 | 24<br>7.3 | ft<br>m |

| | | |
|---|---|---|
| Maximum transport speed (travel) | 10<br>16.9 | mph<br>km/hr |
| Operating speed (Paving, 1800 rpm) | 0 - 110<br>0 - 33.5 | fpm<br>m/min |
| Maximum paving speed | 240<br>73.2 | fpm<br>m/min |
| Paving thickness | 12<br>30.5 | in<br>cm |
| Theoretical paving performance | 2500 | t/h |

## 4.6 Engine

| | |
|---|---|
| Make/type | Cummins QSB-6.7 Tier III |
| Version | 6-cylinder diesel engine (water-cooled) |
| Performance | 230 hp @ 1800rpm<br>220 hp @ 2000rpm |
| Fuel tank capacity | 2 tanks, 49 Gal (185 lt) each. |

## 4.7 Hydraulic system

| | |
|---|---|
| Hydraulic pressure supply source | Hydraulic pumps via distribution gear<br>(directly flanged to the engine) |
| Pressure distribution | Hydraulic circuits for:<br>- Propel system<br>- Auger drive system<br>- Works system (conveyor, hydraulic cylinders)<br>- Generator system<br>- Vibration system<br>- Front wheel system (including the FWA, or Front Wheel Assist, and the steering |
| Hydraulic oil tank capacity | 50 Gal (189 lt) |
| Hydraulic oil filling volume | 80 Gal (303 lt) |

## 4.8 Material compartment (hopper)

| | |
|---|---|
| Volume | approx. 207ft$^3$ (5.86m$^3$) |
| Minimum inlet height, center | 38.5 in (978mm) |

## 4.9 Electrical system

| | |
|---|---|
| On-board voltage | 24 VDC |
| Batteries | 2 x 12 V, 32F 1050, RC 195 |
| Alternator | 24V, 70A |
| Generator | 110/220, 36kw, 60Hz |

## 4.10 Operator stations

| | |
|---|---|
| Control consoles | Dual swing out operation stations |

## 4.11 Conveyors

| | |
|---|---|
| Conveyor type | Dual independent slat conveyor |
| Conveyor control | Proportional speed control, both side driven independently |

## 4.12 Auger

| | |
|---|---|
| Auger control | Dual independent proportional augers |

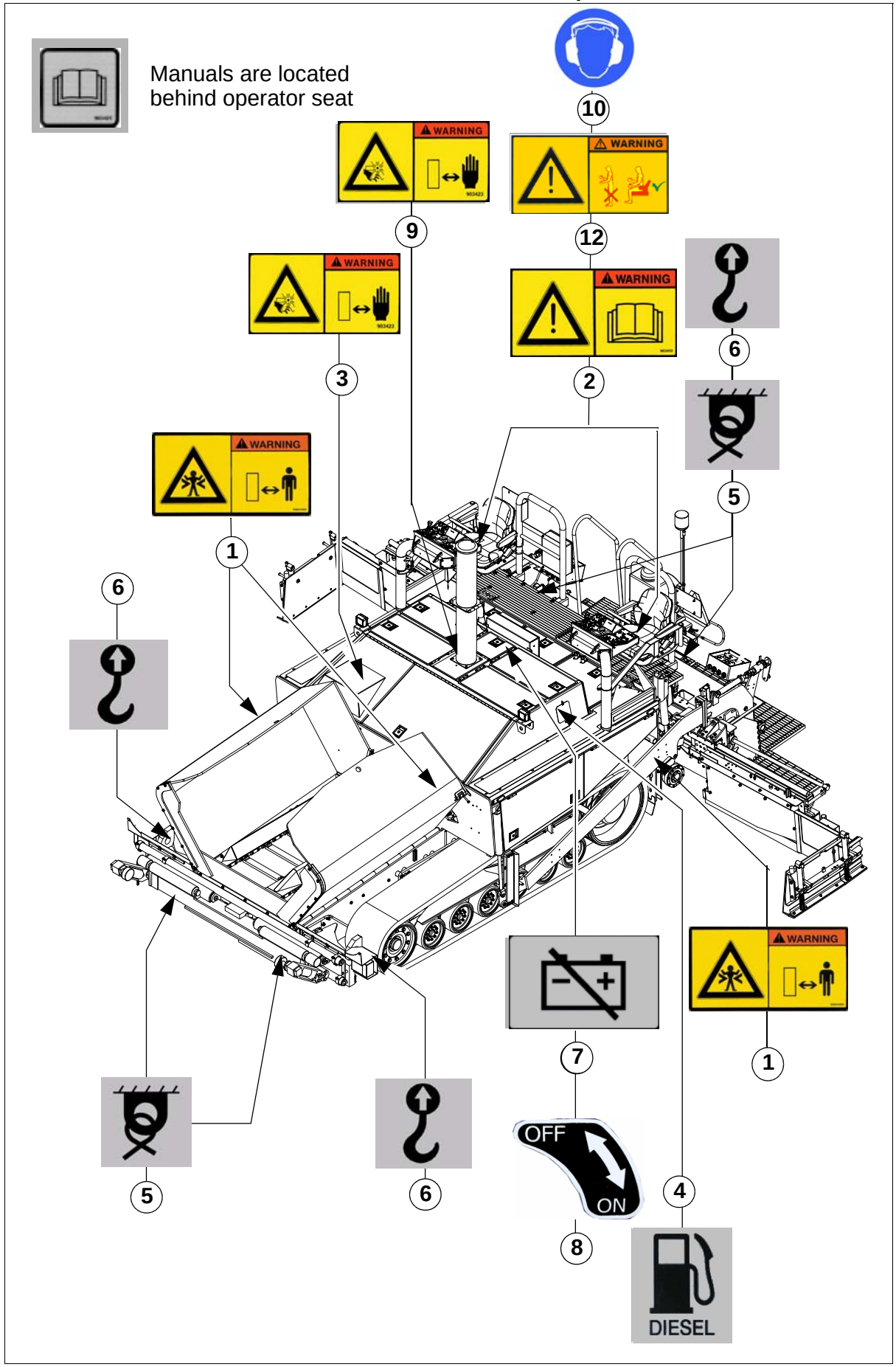
## 4.13 Permissible temperature ranges

| | |
|---|---|
| Maximum Ambient Operating Temperature | +120°F (+48.9°C) |

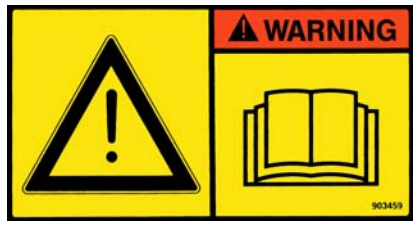
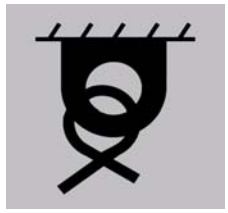
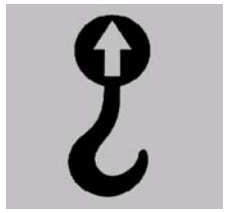
**NOTICE**

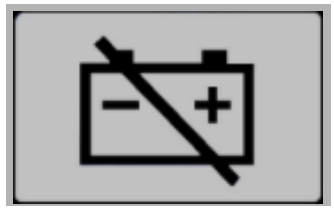
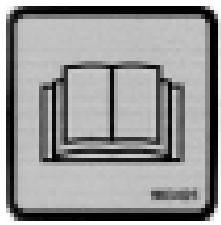
For the capacities for the various lubricants and operating substances, see chapter F.

## 5 Location of instruction labels and identification plates




B_F1000T_US.fm 12-18

| Item | Decal | Description |
|---|---|---|
| 1 |  | Warning! Crush area!<br>Keep a safe distance when machine is running or moving. Do not work in this area when the machine turns or machine parts move!<br>Crushing can cause severe injury or death! |
| 2 |  | Warning! Do not work on this machine unless you have read and fully understand the warnings and instructions in the Operation/Maintenance and Safety Manual! Failure to follow the instructions or heed the warnings could result in injury or death. Contact your Dynapac dealer for replacement of manuals. Proper care is your personal responsibility! |
| 3 |  | Warning! Keep a safe distance from rotating fans!<br>Do not work around or on the fan when fan is in operation!<br>Rotating fan blades can cause severe injury or death! |
| 4 |  | Filler neck for diesel fuel!<br>(Located on both sides of machine) |
| 5 |  | Tie-down points on machine!<br>(Located on both sides and front and back of the machine) |
| 6 |  | Lifting point on machine!<br>(Located on both sides and front and back of the machine) |

| Item | Decal | Description |
|---|---|---|
| 7 |  | Main battery switch location!<br><br>NOTE:<br>Follow instructions for using battery main switch! |
| 8 |  | ON/OFF positions for battery main switch.<br>ON - battery connected<br>OFF - battery disconnected |
| 9 |  | Warning! Hot parts or components can cause burns! Keep a safe distance!<br>Hot surfaces can cause burns or personal injury. Do not come into contact with hot parts or components. Wear protective clothing or protective equipment! |
| 10 |  | Wear ear protection when using the machine!<br>Hearing damage could result from high noise level when ear protection is not used! |
| 12 |  | Warning! Do not drive the machine while standing!<br>Severe injury or death from an unseated position could occur!<br>Always use seat and seatbelt when driving machine in transport gear! |
| 13 |  | Location of technical manuals on the machine! |

## 5.1 Identification label for the paver (6)


| Item | Designation |
|---|---|
| 1 | Paver type |
| 2 | Operating Mass |
| 3 | Rated performance in kW |
| 4 | Year of Manufacture |
| 5 | Product identification number (PIN) |

**NOTICE**

The stamped vehicle identification number on the paver must match the product identification number (8).

# 6 EN standards

## 6.1 Continuous sound pressure level on the F1000T Track Paver, Cummins QSB-6.70 Tier III Engine.

**NOTICE**

The operator always must use ear protection. The noise level at the operator's ear varies depending on the materials used for paving and may even rise above 85 dB(A). If no ear protection devices are used, hearing can be impaired.
The noise emission level of the paver was measured under free-field conditions according to the EN 500-6 draft dated March 1997, and ISO 4872.

**Sound pressure level at the operator's position (at the height of the head):**

| | LH Console | RH Console |
|---|---|---|
| $L_{AF}$ = | 93.5 dB(A) | 92.6 dB(A) |

**Sound capacity level:** $L_{WA}$ = 122.34 dB(A)

**Sound pressure level at the machine**

| Measuring point | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|
| Sound pressure level $L_{AFeq}$ (dB(A)) | 92.4 | 93.1 | 94.6 | 88.6 | 81.0 | 79.9 |

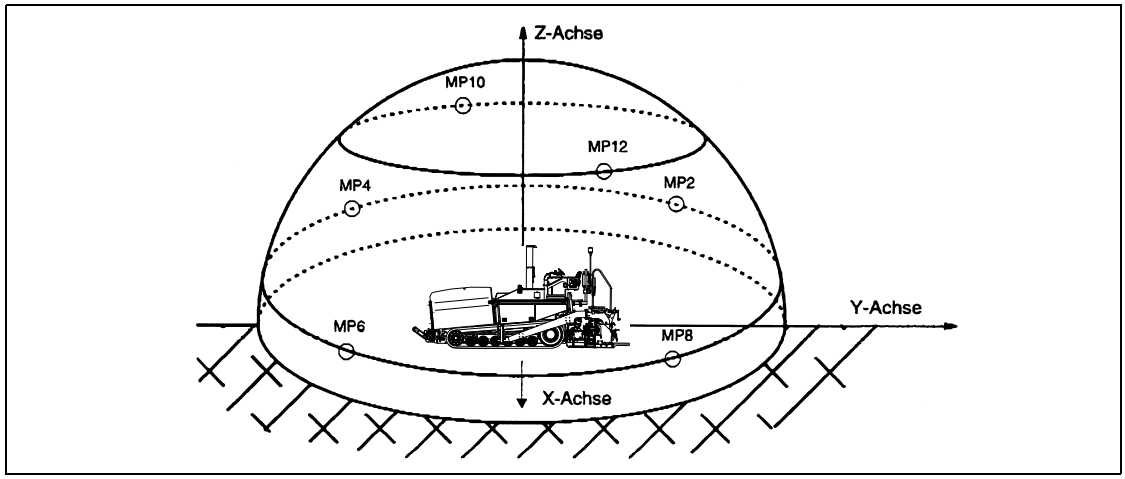
## 6.2 Operating conditions during measurement

The diesel engine was running at maximum speed. The screed was in working position, lowered to a rubber mat. Tamper and vibration unit were operated at min. 50%, while the augers were operated at a minimum of 40% and the conveyors were operated at a minimum of 10% of their maximum speed.

## 6.3 Measuring point configuration

Hemispherical measuring surface with a radius of 52.5 ft. (16 m). The machine was at the center. The measuring points had been assigned the following coordinates:

| | **Measuring points 2, 4, 6, 8** | | | **Measuring points 10, 12** | | |
|---|---|---|---|---|---|---|
| Co-ordinates | X | Y | Z | X | Y | Z |
| | ±11.2 | ±11.2 | 1.5 | - 4.32<br>+4.32 | +10.4<br>-10.4 | 11.36<br>11.36 |



# C 1.0 Transport

## 1 Safety regulations for transportation

**⚠ WARNING**

Accidents can happen when the paver and the screed are not properly prepared for transportation or when transportation is carried out improperly!

**⚠ WARNING**

Reduce both the paver and the screed to their basic widths. Remove all protruding parts (such as the automatic levelling system, auger limit switches, aprons, etc.). When transporting under a special permit, secure these parts!

**⚠ WARNING**

Close the hopper lids and engage the hopper transport safeguards. Lift the screed and engage the screed transport safeguards. Convert the protective roof (if equipped) and engage the latch.

**⚠ WARNING**

Check that the clamping device for the auger crossbeam is fastened and that the telescopic tube cannot slide out (see chapter E, section 2.5).

**⚠ WARNING**

Pack all parts that are not permanently fixed to the paver and the screed into the appropriate boxes and into the hopper.
Close all coverings and check that they are securely seated.

**⚠ DANGER**

When loading using ramps, there is a risk that the machine will slip, tilt or overturn.
Drive carefully! Keep people away from the danger area!

### Additional stipulations for transportation on public roads:

**⚠ WARNING**

Depending on local regulations, tracked propelled paver must not be driven as self-propelling vehicles on public roads.
Note the different state and local regulations.

**⚠ WARNING**

The operator must be in the possession of a valid permit for vehicles of this type.

**⚠ WARNING**

The operating panel must be moved to the side of the oncoming traffic and secured in this position.
The driving lights must be properly adjusted.

**⚠ WARNING**

Only attachments and extension parts may be transported in the hopper, no material!

**⚠ WARNING**

If necessary, the operator must be assisted by a second person when driving on public roads – especially at road crossings and junctions.

## 2 Transportation on low-bed trailers

**⚠ WARNING**

Reduce the paver and the screed to their basic widths; also remove any attached side plates.
The maximum approach angle is indicated in the section entitled “Technical Data“!

**⚠ WARNING**

Check the fill level of the operating fluids so that these do not escape when driving on an incline.

**⚠ WARNING**

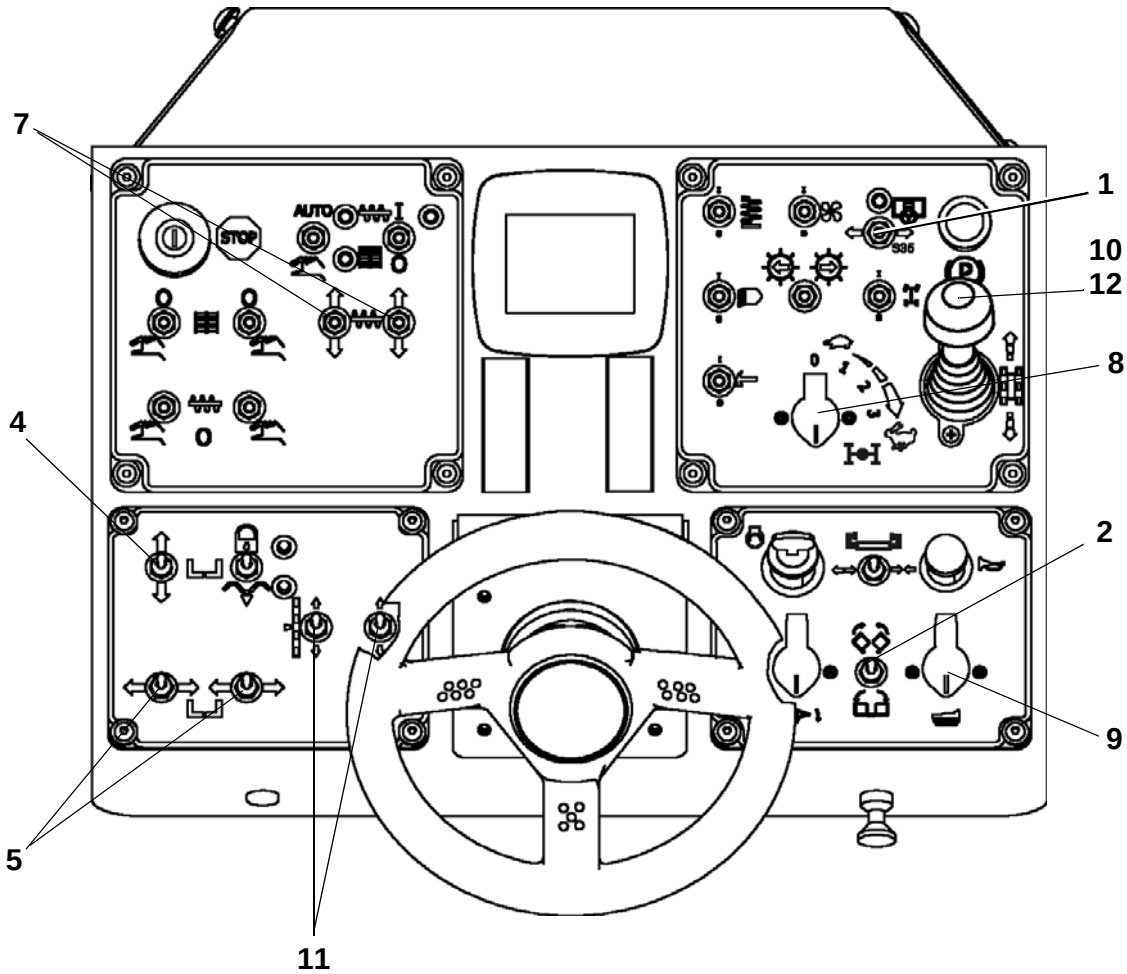
Attachment and loading equipment must meet the federal, state and local safety regulations!

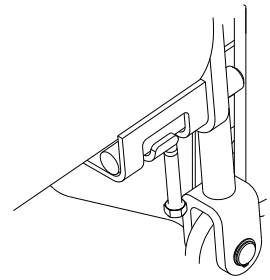
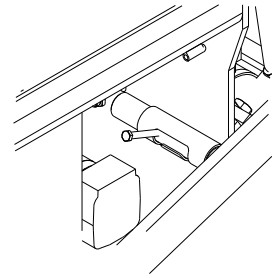
**⚠ WARNING**

The weight of the paver must be taken into consideration when selecting the attachment and loading equipment!

### 2.1 Preparations

- Prepare the paver for transportation (see chapter D).
- Remove all overlaying or loose parts from the paver and screed (see also Operating instructions for the screed). Store these parts in a safe place.
- Move the paver to the uppermost position if necessary.

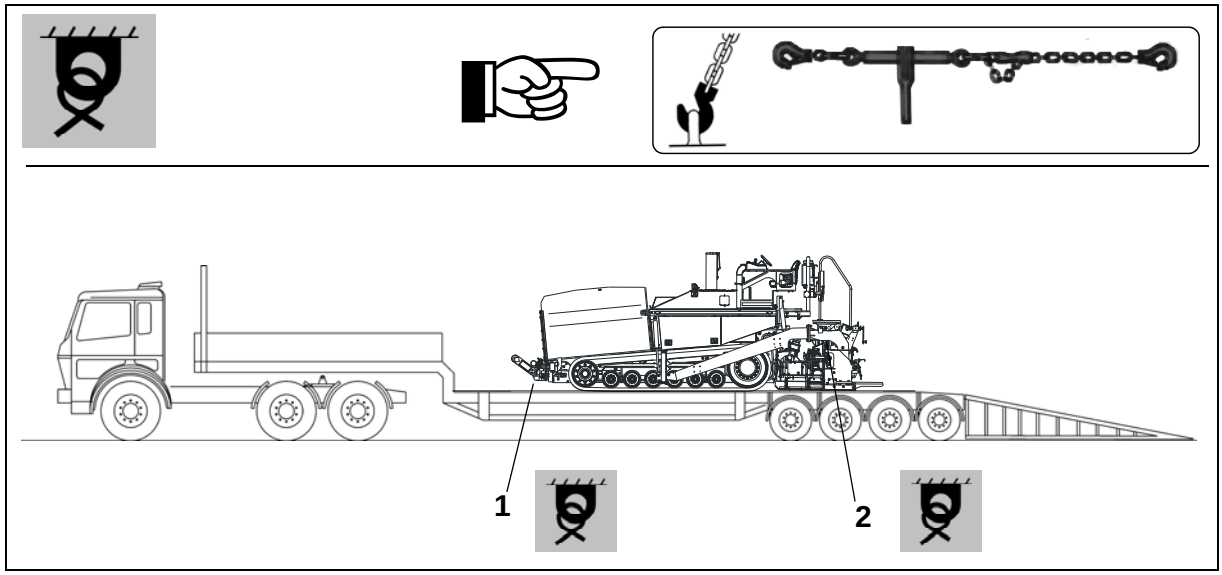

7
1
10
12
8
4
2
9
5
11
STOP
AUTO

| Step | Operation | |
|---|---|---|
| 1 | - Select the master console. | |
| 2 | - Close the hopper lids. | |
| 3 | - Engage both hopper transport safeguards. |  |
| 4 | - Lift the screed. | |
| 5 | - Retract the screed to the basic width of the paver. | |
| 6 | - Engage both screed transport safeguards. |  |
| 7 | - Lift the auger. | |
| 8 | - Turn the range shift selector to zero. | |
| 9 | - Turn the travel speed preselecting regulator to zero. | |
| 10 | - Move the drive lever forward. | |
| 11 | - Extend levelling cylinders completely. | |
| 12 | - Set the drive lever to the center position. | |

## 2.2 Driving onto the low-bed trailer

**⚠ DANGER**

Make sure that there are no persons in the danger area during loading.




- Use the work gear and low engine speeds to drive onto the low-bed trailer.
- Lower the screed onto wooden blocks on the low-bed trailer.
- Turn the switch off.
- Attach and secure the protective hood to protect the operating panel.

## 2.3 Secure the paver to the low-bed trailer:

- Use only proper and permitted load fastening devices.
- Use the four tie-down points provided (1, 2). These points have a tie-down limit of 10,000 lbs. (3545.9 kg) each.
- Wait until the exhaust extension pipe has cooled down; then swing and secure it.

## 2.4 After transportation

- Remove the chains, hooks and all other transport tie-down tools.
- Swing the exhaust extension pipe up and secure it.
- Lift the screed to the transport position.
- Start the engine and drive from the trailer at a low speed.
- Park the paver in a secure spot, lower the screed and switch the engine off.
- Remove the key and cover the operating panel with the protective hood, then secure it.

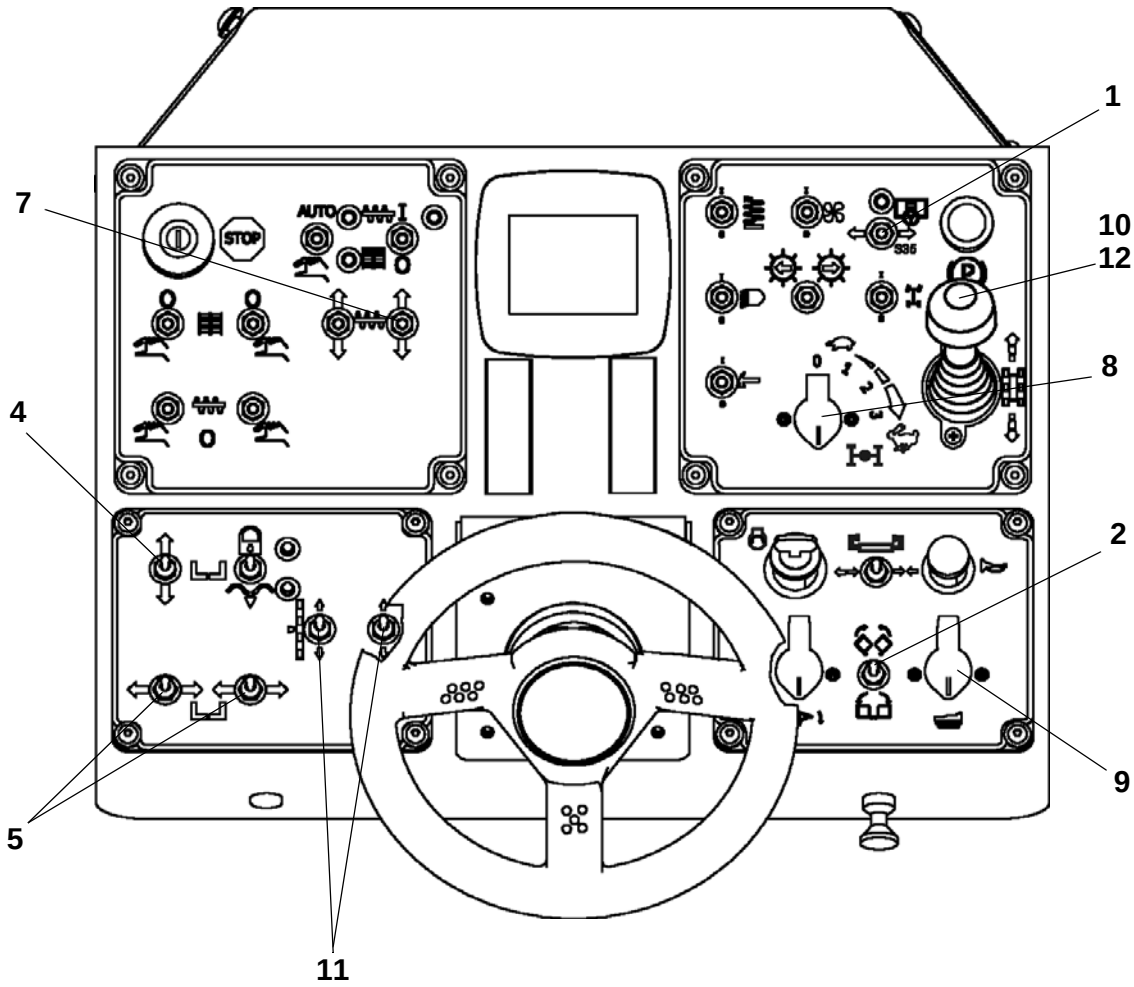
# 3 Transportation

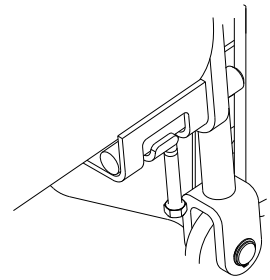
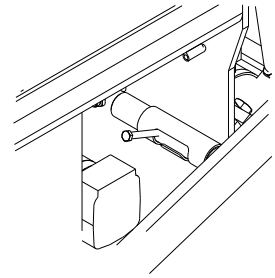
**⚠ WARNING**

Reduce the paver and the screed to their basic widths; also remove any attached side plates.

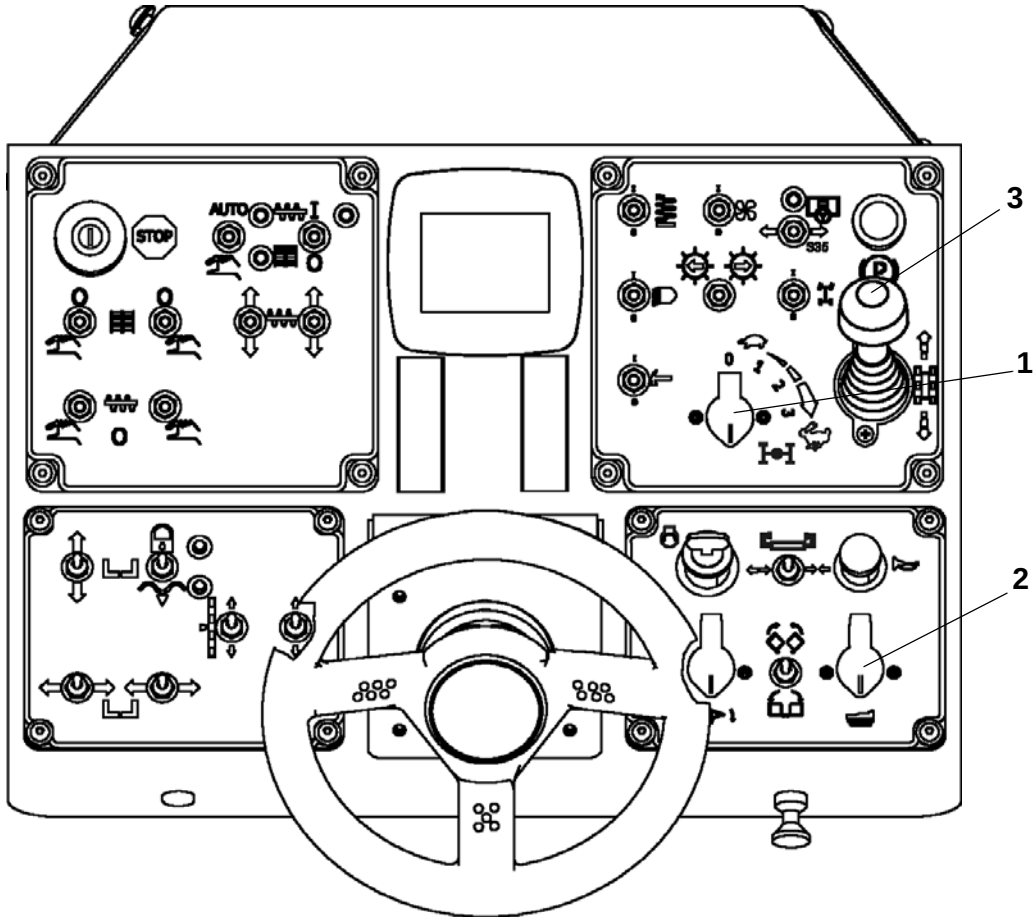
## 3.1 Preparations

- Prepare the paver for transportation (see chapter D).
- Remove all overlaying or loose parts from the paver and screed (see also Operating instructions for the screed). Store these parts in a safe place.


1
7
10
12
8
4
2
9
5
11
STOP
AUTO
S35

| Step | Operation | |
|---|---|---|
| 1 | - Select the master console. | |
| 2 | - Close the hopper lids. | |
| 3 | - Engage both hopper transport safeguards. |  |
| 4 | - Lift the screed. | |
| 5 | - Retract the screed to the basic width of the paver. | |
| 6 | - Engage both screed transport safeguards. |  |
| 7 | - Lift the auger. | |
| 8 | - Turn the range shift selector to zero. | |
| 9 | - Turn the travel speed preselecting regulator to zero. | |
| 10 | - Move the drive lever forward. | |
| 11 | - Extend levelling cylinders completely. | |
| 12 | - Set the drive lever to the center position. | |

## 3.2 Driving mode



| Step | Operation | |
|---|---|---|
| 1 | - Turn the selector to position 3. | |
| 2 | - Turn the pre-selecting regulator to its maximum point. | |
| 3 | - Use the drive lever to regulate the speed. | |

**⚠ DANGER**

Press the emergency stop button when an emergency situation arises!

## 4 Loading by crane

**⚠ WARNING**

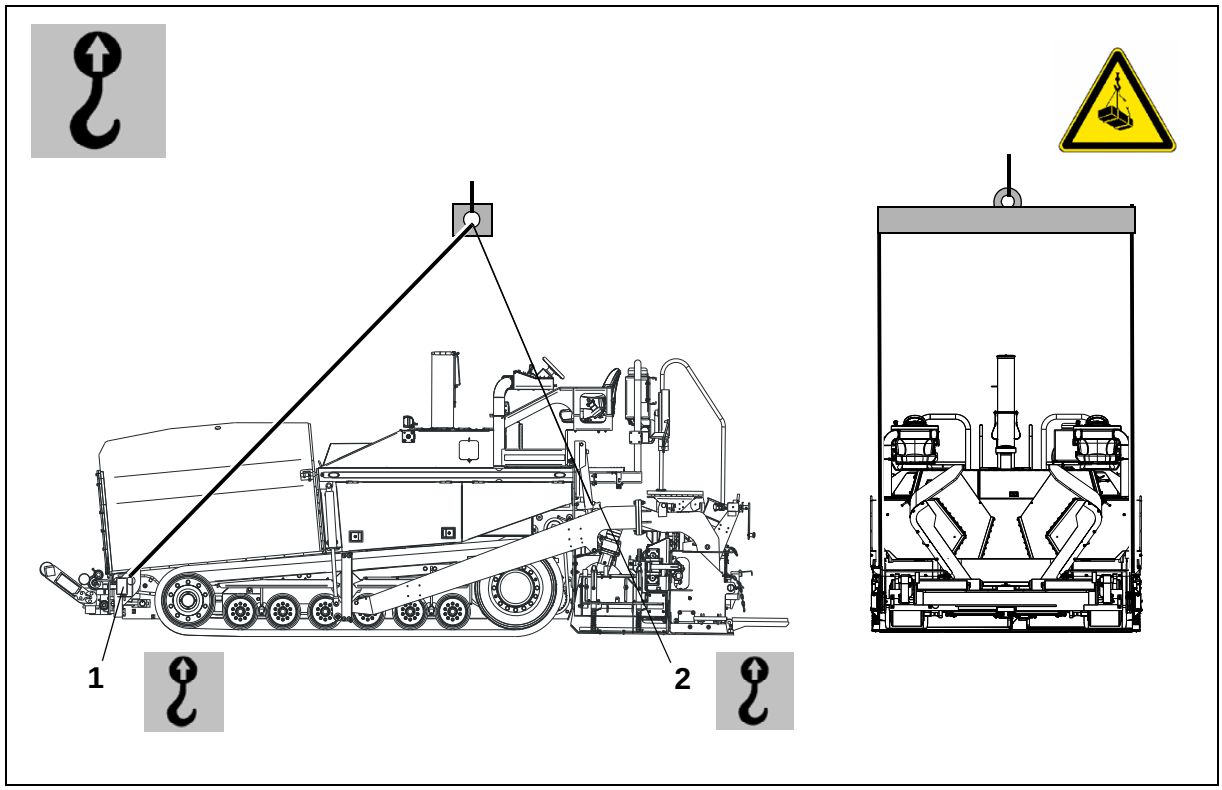
Use only lifting gear that can bear the load.
(See chapter B for weights and dimensions).

**⚠ WARNING**

Attachment and loading equipment must meet the conditions of the applicable accident prevention regulations!

**⚠ WARNING**

The vehicle's center of gravity is dependent on the mounted screed.




**NOTICE**

Four lifting eyes (1, 2) are provided for loading the vehicle with a crane.

**NOTICE**

Depending on the type of screed used, the paver's center of gravity, with the screed mounted, is located in the area of the drive unit's rear reversing roller.

- Secure vehicle wherever it is parked.
- Engage the transport safeguards.

- Remove any attachments and extension parts from the paver and the screed until the basic width has been attained.
- Remove all protruding or loose parts of screed and machine.
- Attach lifting gear to the four attachment points (1, 2).

**⚠ WARNING**

The max. permissible attachment point load is
Attachment point (1): 20,000 lbs. (9071.9 kg) each for a total of 40,000 lbs. (18144 kg)
Attachment point (2): 20,000 lbs. (9071.9 kg) each for a total of 40,000 lbs. (18144 kg)

**⚠ WARNING**

Make sure that the paver is secured in a horizontal position during transport!

## 5 Towing

**⚠ CAUTION**

Follow all regulations and apply all safety measures applicable for towing heavy construction machines.

**⚠ WARNING**

The towing vehicle must be capable of securing the paver, even on slopes.

Use only approved tow bars!

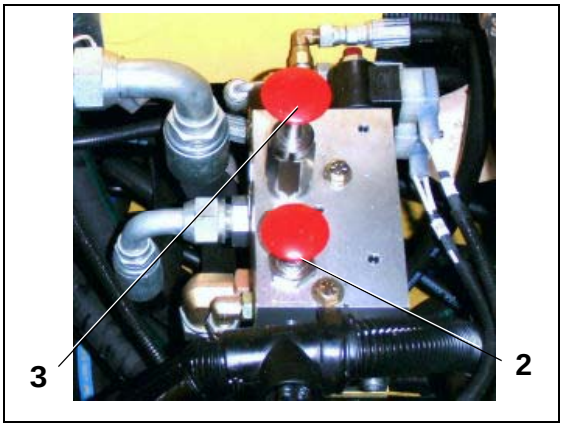
If necessary, remove any attachments and accessories from the paver and the screed until the basic width has been attained.

A hand pump is located in the engine compartment (left) that must be activated to be able to tow the machine.
Pressure for releasing the track drive system brakes is built up with the hand pump.

**⚠ WARNING**

Do not release the track drive system brakes until the machine is sufficiently secured against accidental rolling or is already properly connected to the towing vehicle.

- Attach the towing device to the tie-down points located in the bumper under the hopper.
- Push down and turn the Pump Pressure Lock and Release Handle (2) to the DOWN position.
- Pump the Handle (3) of the hand pump up and down until sufficient pressure has been built up for the track drive system brakes to release.




**NOTICE**

Now carefully and slowly tow the paver out of the construction area. The maximum towing speed is 2 mph (3.2 kph).

**⚠ WARNING**

Always tow the machine the shortest distance to the means of transport or the next parking opportunity.

After towing, return the Pump Pressure Lock and Release Handle (2) to the UP position. This will release pressure in the Hand Pump and will allow the braking system to engage.

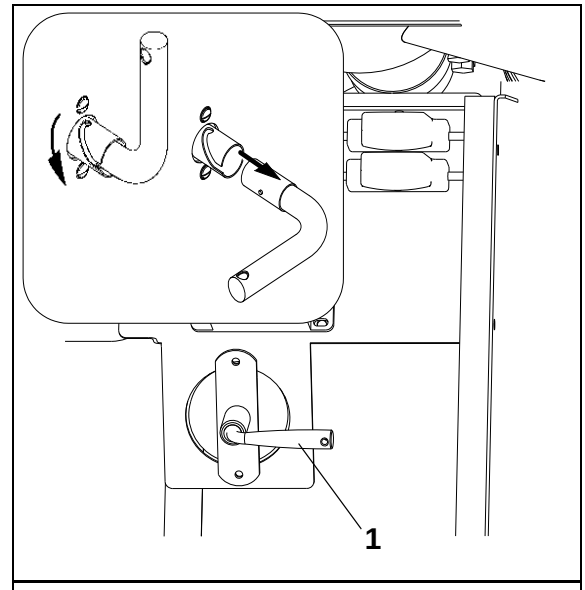
The track drive system brakes are now reactivated and the machine is secured against rolling.

## 6 Safely parking the vehicle

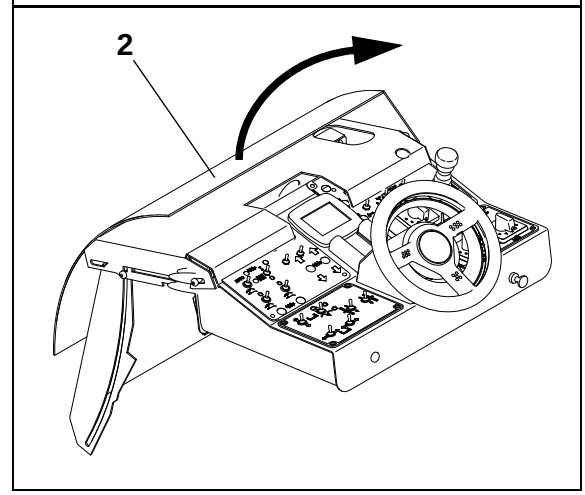
**⚠ WARNING**

When the paver is parked at a location accessible to the public, it must be secured in such a way that unauthorized persons or playing children cannot damage the vehicle.

- Remove the ignition key and the main switch (1) and take it with you – do not hide them somewhere on the machine.




- Protect the operating panel with the dust cover (2) and lock it.
- Store loose parts and accessories in a safe place.



# D 1.0 Operation

## 1 Safety regulations

**⚠ WARNING**

Starting the engine, the traction drive, the conveyor, the auger, the screed or the lifting devices can cause severe injury or death.
Make sure, before starting any of these devices, that no-one is working on, in or beneath the paver or within its danger area!

- Do not start the engine or actuate any controls when this is expressly forbidden!
  Unless otherwise specified, the controls may only be actuated when the engine is running!

**⚠ DANGER**

Never crawl into the auger tunnel or step into the hopper or onto the conveyor. Danger to life and limb!

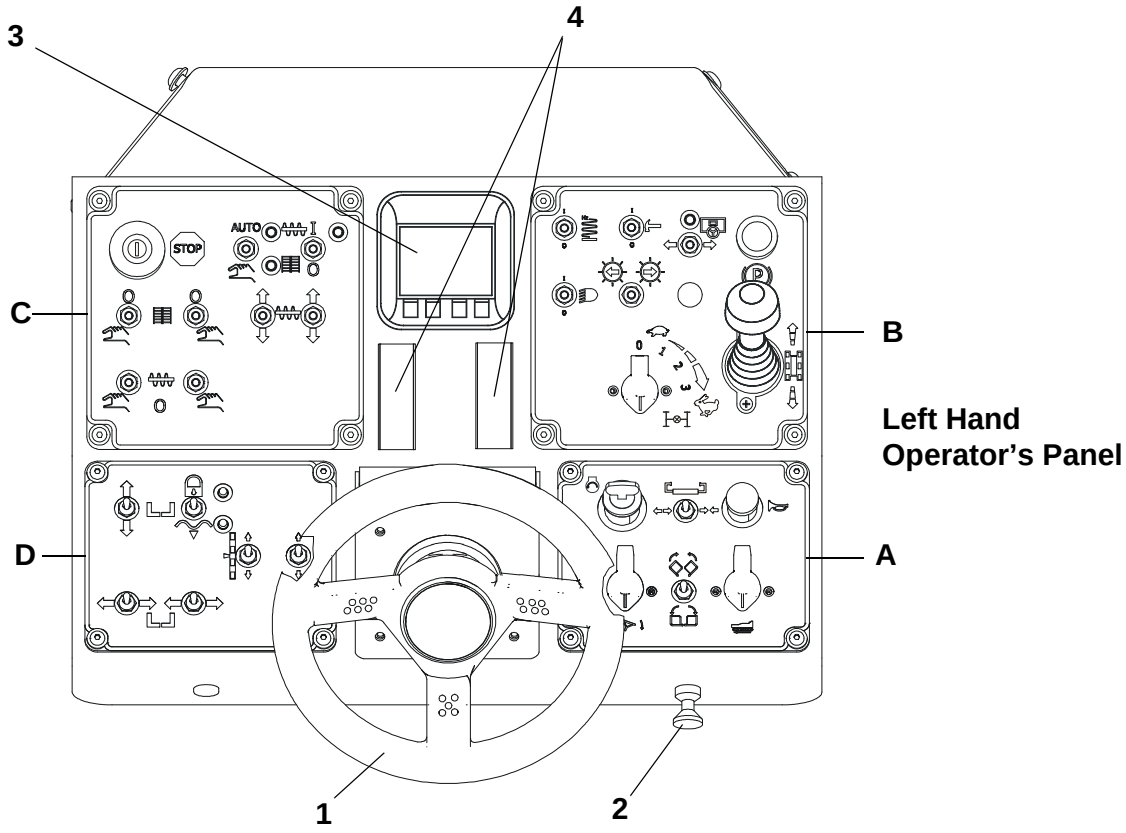
- Always make sure during operation that no-one is endangered by the machine!
- Ensure that all protective covers and hoods are fitted and secured accordingly!
- When damage is detected, eliminate it immediately! Operation must not be continued when the machine is defective!
- Do not let any persons ride on the paver or the screed!
- Remove obstacles from the road and the work area!
- Always try to choose a driver position which is opposite to the flow of traffic! Lock the operating panel and the driver's seat.
- Maintain sufficient safety clearance from overhanging objects, other machines and points of danger!
- Be careful when traveling on rough terrain to keep the paver from slipping, tipping or turning over.

**⚠ CAUTION**

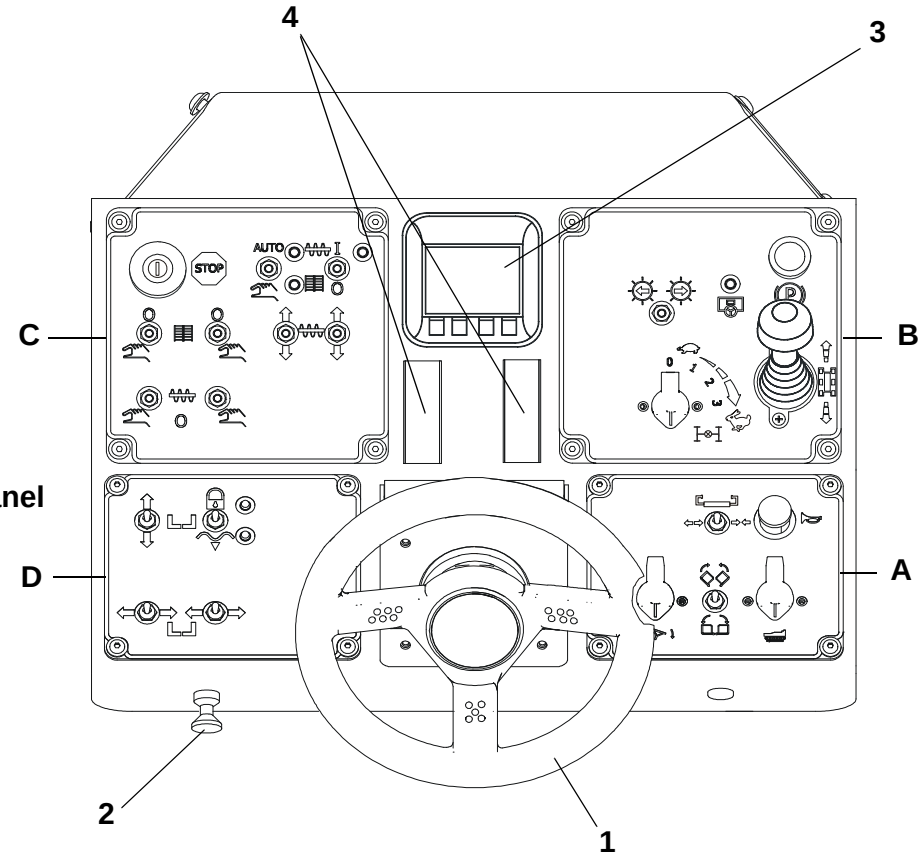
Always maintain control of the machine; never try to use it beyond its capabilities!

## 2 Controls

### 2.1 Operating panel



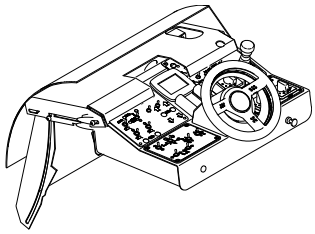

Left Hand
Operator's Panel



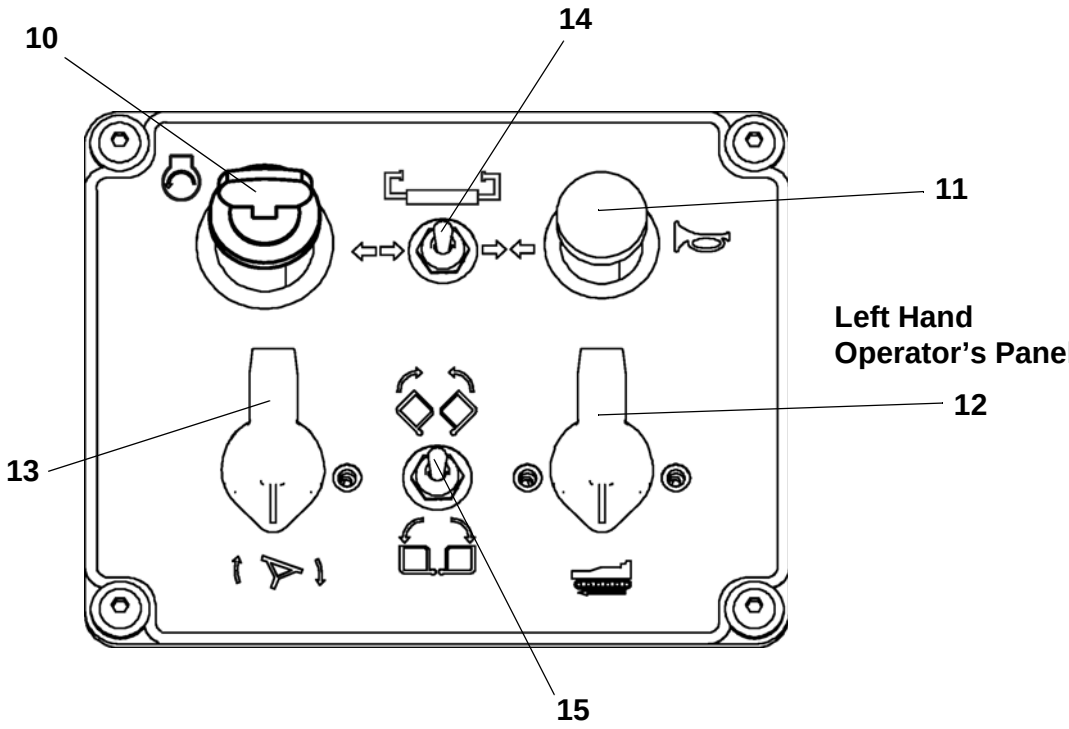

Right Hand
Operator's Panel

D_1.0_01_US.fm 2-42

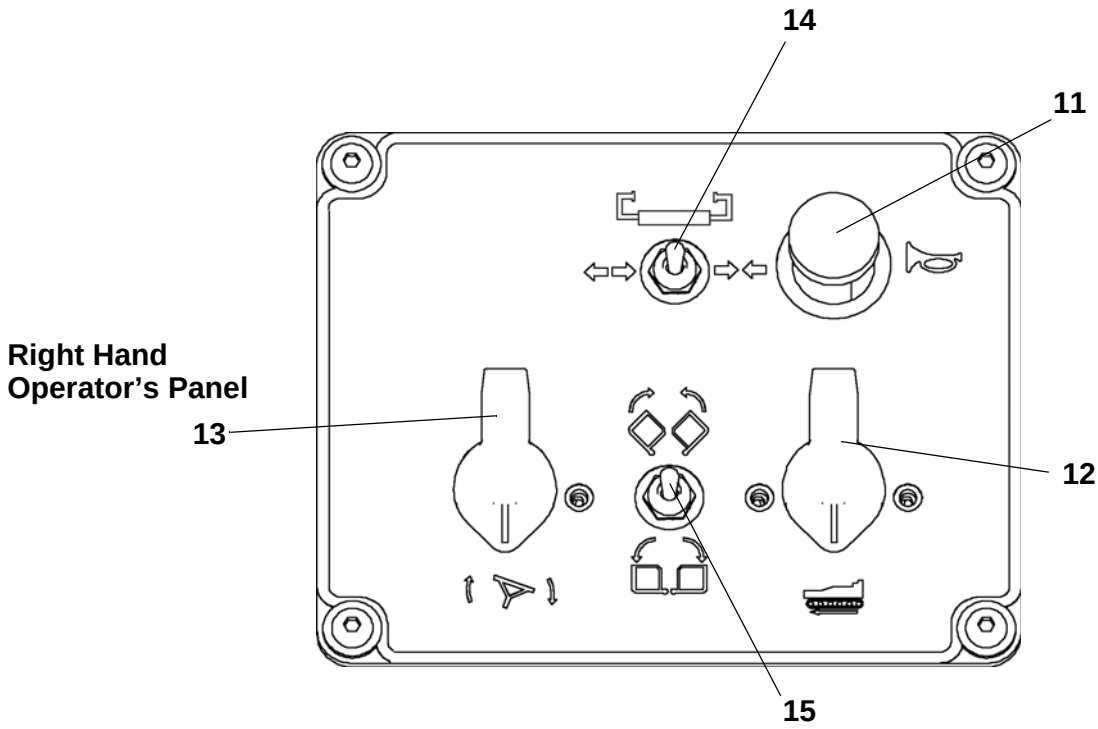
| Item | Designation | Brief description |
|---|---|---|
| 1 | Steering wheel | - Steering is regulated by the speed of the two drive units.<br><br>NOTE:<br>-Use the turn signals when turning!<br>-For precise adjustment, see "Straight-ahead travel trimming". |
| 2 | Operating panel latch | Secures the adjustable operating panel into position.<br>- Pull the locking knob and swivel the operating panel to the desired position.<br>Allow the latch to engage in one of the possible positions again.<br><br>**⚠ CAUTION**<br><br>When not secured, the operating panel can move. Danger of accidents! |
| 3 | EIC<br>Engine Information Center | - Display for engine information, diagnostic information and configuration. |
| 4 | Console lights | Illuminates the instrument panels when the parking light is switched on. |



# PANEL A



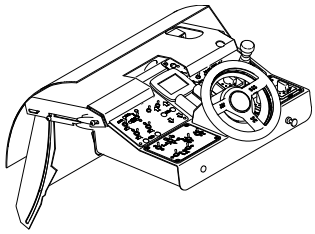

Left Hand
Operator's Panel



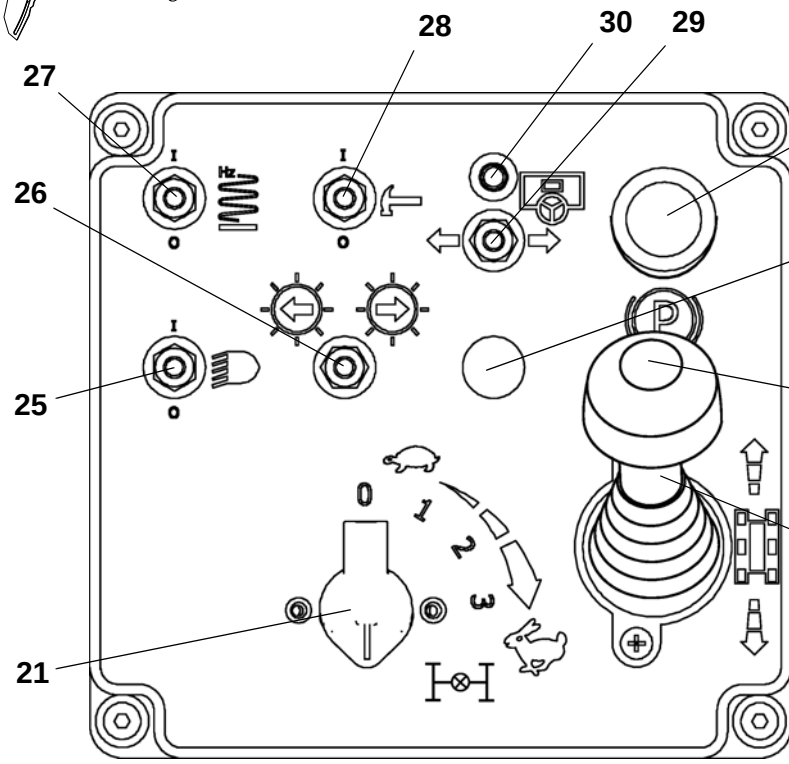

Right Hand
Operator's Panel

D_1.0_01_US.fm 4-42

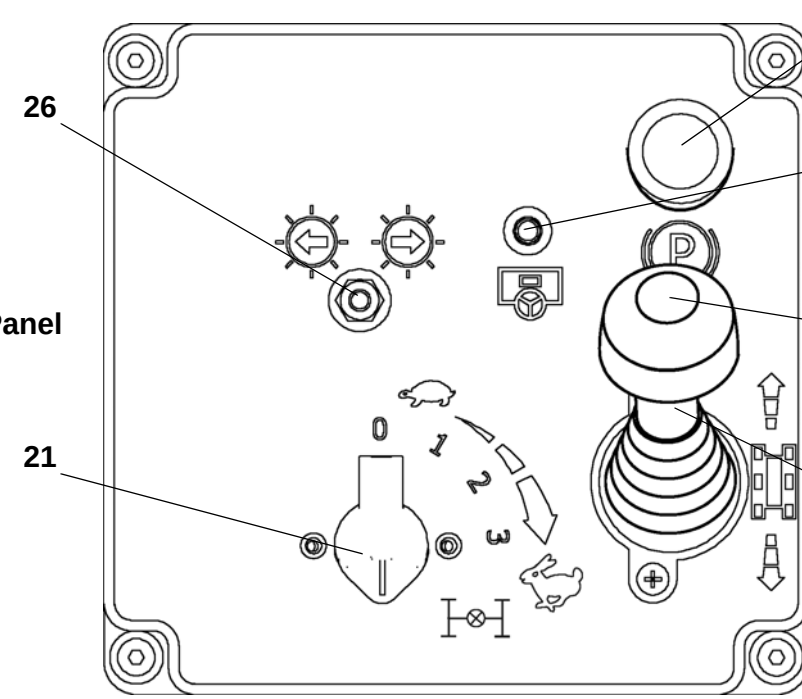
| Item | Designation | Brief description |
|---|---|---|
| 10 | Ignition lock | Key positions:<br>- 1: Ignition OFF<br>- 2: Ignition ON<br>- 3: Starting position<br><br>NOTE:<br>The key can only be removed in position 1. |
| 11 | Horn | Press in the case of emergencies and to indicate when the machine starts to move!<br><br>NOTE:<br>The horn can also be used to communicate acoustically with the truck driver for material loading! |
| 12 | Travel drive pre-selector | Setting the maximum speed that can be performed when the drive lever is at its stop.<br><br>NOTE:<br>The speed level is preset with the "Travel drive/engine pre-selector switch". |
| 13 | Straight-ahead travel trimming | This potentiometer has the following functions:<br>- Steering the paver through a large curved radius:<br>- Turn the potentiometer in the corresponding direction until the required steering angle is achieved.<br>- Straight-ahead travel trimming in speed level 3 :<br>- Set the steering wheel to position "0"; then adjust the potentiometer until the paver is traveling straight ahead.<br><br>NOTE:<br>Automatic straight-ahead travel trimming takes place in preset speed levels 1 and 2. |
| 14 | Truck hitch | Opening and closing the truck hitch device at the front of the paver.<br>Toggle switch function:<br>- Toggle the switch left: Open truck hitch.<br>- Toggle the switch right: Close truck hitch.<br><br>⚠ DANGER<br><br>Do move or tow the paver until all persons and equipment are out of the Danger Zone! |
| 15 | Open/close hopper | To open/close both halves of the hopper.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Close hoppers.<br>- Toggle the switch back (toward the operator): Open hoppers.<br><br>⚠ DANGER<br><br>Do not open or close the hopper until all equipment and persons are out of the Danger Zone! |



# PANEL B

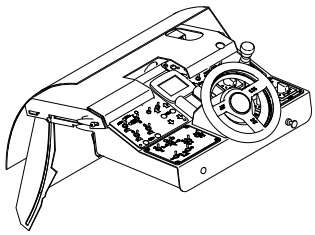



Left Hand
Operator's Panel

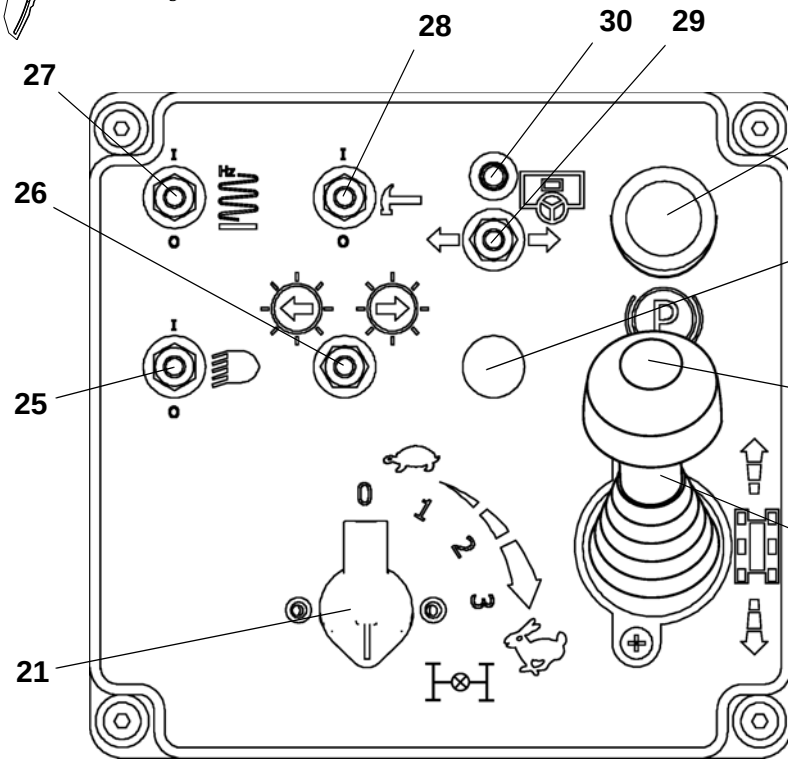



Right Hand
Operator's Panel

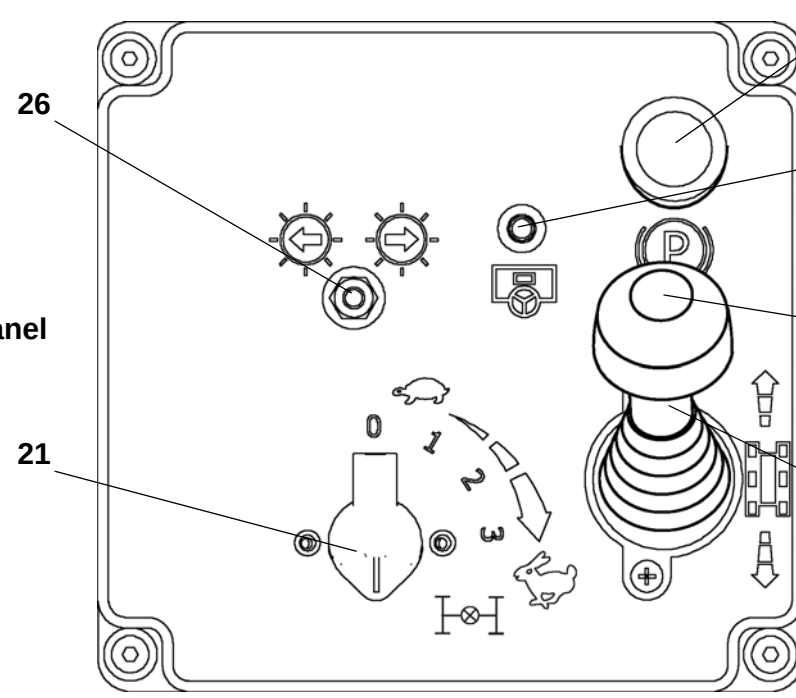
| Item | Designation | Brief description |
|---|---|---|
| 20 | Drive lever (traction) | For switching on the paver functions and for regulating the road speed – forward or reverse.<br>Zero position: starting is possible; engine at idling speed; no track drive; protected against inadvertent start.<br>To move the lever, lift the ring (20a) to release it.<br>Depending on the position of the drive lever, the following functions can be activated:<br>- 1st position: Engine runs at preselected speed (see "Travel drive/engine preselector switch").<br>- 2nd position: Conveyor and auger on.<br>- 3rd position: Travel drive (propel) on; increase speed by turning the speed control until it stops.<br><br>**NOTICE**<br>The maximum speed is set with the travel drive/engine preselector switch and with the travel drive preselector.<br><br>**NOTICE**<br>The floating position function is only active when the drive lever is moved from its central position!<br>If the drive lever is moved to the central position, the paver automatically switches to screed stop(lock). |
| 21 | Preselector switch travel drive/engine fast/slow | To preselect the desired speed level.<br><br>- Switch setting 0: Preselected vehicle speed "0"<br>- Switch setting 1: Vehicle speed – for paving with low operating speed.<br>- Switch setting 2: Vehicle speed – for paving with higher operating speed.<br>- Switch setting 3: Transport speed – for transportation. |



# PANEL B

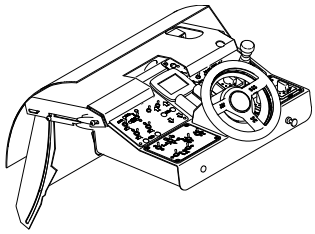



Left Hand
Operator's Panel

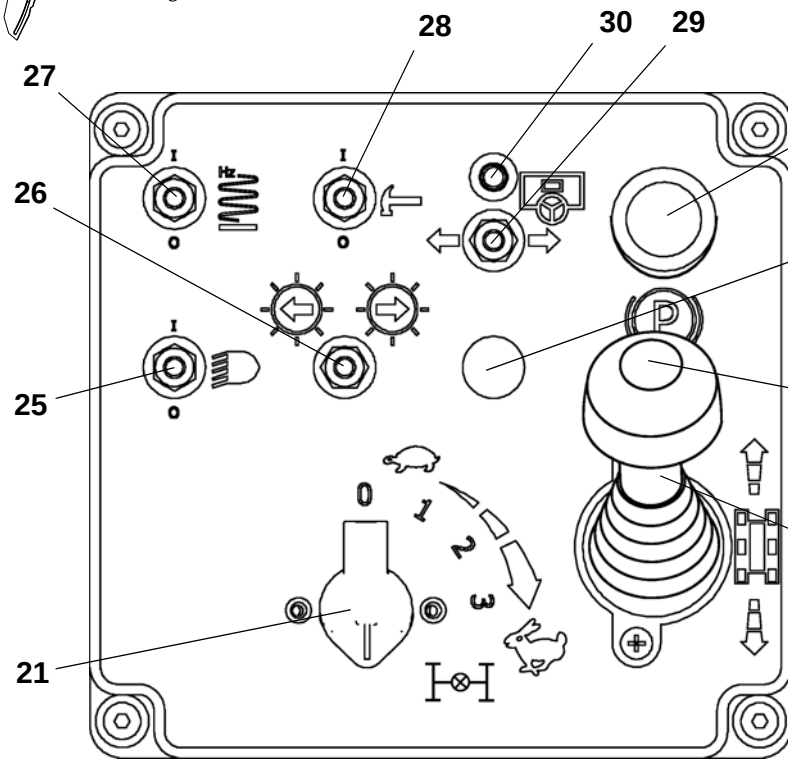



Right Hand
Operator's Panel

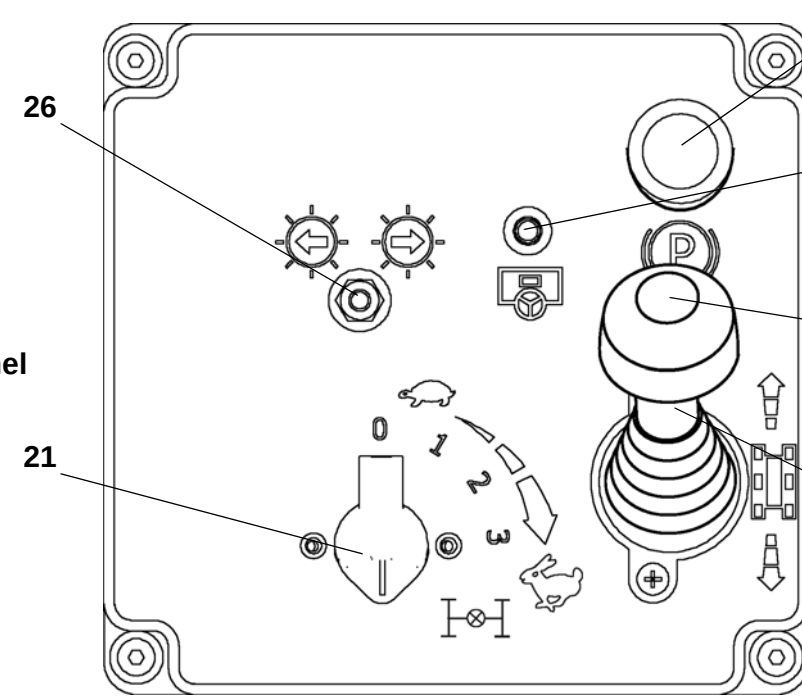
| Item | Designation | Brief description |
|---|---|---|
| 22 | Push button<br>parking brake | Use the push button to activate the parking brake.<br>The parking brake must be activated anytime the vehicle is stationary.<br>- Parking brake activated – push button illuminated<br>- Parking brake de-activated – push button not illuminated |
| 23 | not used | |
| 24 | not used | |
| 25 | Working<br>lights ON / OFF | Switches the working lights on and off.<br>Toggle switch function:<br>- Toggle the switch to setting 0: Working lights OFF.<br>- Toggle the switch to setting 1: Working lights ON.<br><br>**⚠ CAUTION**<br>Avoid using hi-beam lights with on coming traffic. Hi-beam lights can cause temporary blindness to on coming drivers! |
| 26 | Turn signal indicator<br>("flasher") | The turn signal indicates the direction the paver is turning.<br>Detent switch function:<br>- Left switch position: Left-hand flasher.<br>- Right switch position: Right-hand flasher. |



# PANEL B



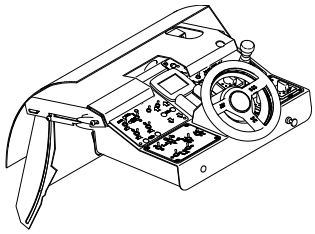

Left Hand
Operator's Panel



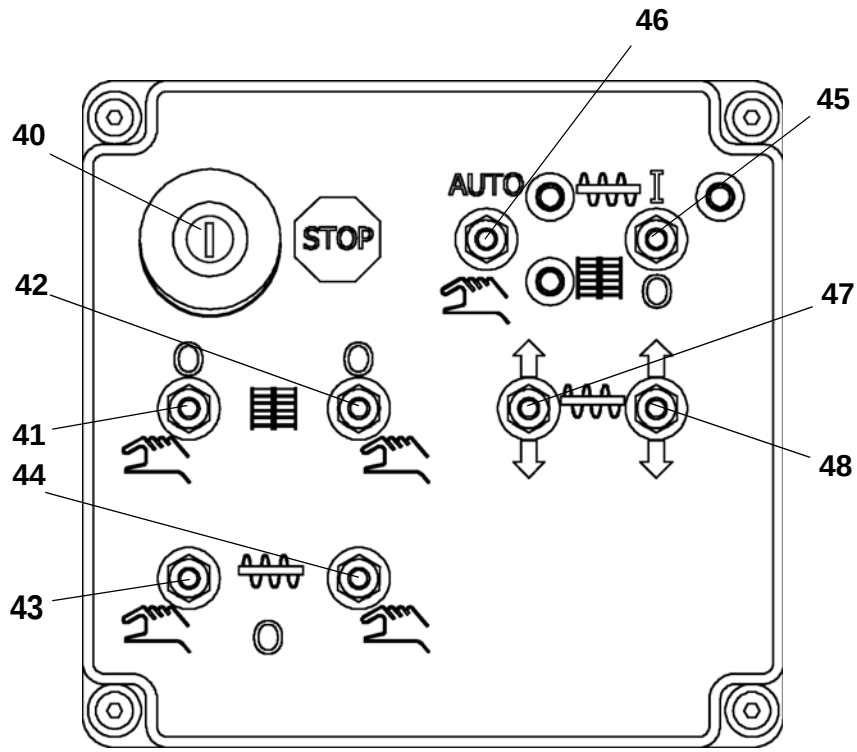

Right Hand
Operator's Panel

D_1.0_01_US.fm 10-42

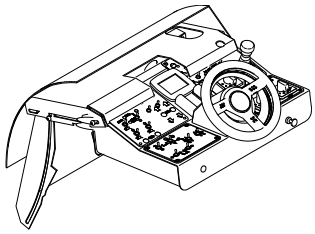
| Item | Designation | Brief description |
|---|---|---|
| 27 | Vibration<br>ON / OFF | Switches screed vibration on and off.<br>Toggle function:<br>- Toggle the switch to setting 0: Vibration OFF.<br>- Toggle the switch to setting 1: Vibration ON.<br><br>NOTE:<br>Speed control (see "Operating instructions for the screed") |
| 28<br>(○) | Tamper<br>ON / OFF | Switches the screed tamper function on and off.<br>Toggle switch function:<br>- Toggle the switch to setting 0: Tamper OFF.<br>- Toggle the switch to setting 1: Tamper ON.<br><br>NOTE:<br>Speed control (see "Operating instructions for the screed") |
| 29<br>30 | Selector switch<br>left / right operating panel (19)<br>+ active panel LED (20) | To select the primary activated operating panel.<br>Toggle switch function:<br><br>**NOTICE**<br>To avoid operator errors, only one operating panel –left or right- can be activated at any one time.<br><br>- Toggle the switch left: Left operating panel active.<br>- Toggle the switch right: Right operating panel active.<br><br>**NOTICE**<br>The active panel LED indicates whether the relevant operating panel is activated or deactivated by switch (19).<br><br>- LED "ON": Operating panel active.<br>- LED "OFF": Operating panel inactive. |



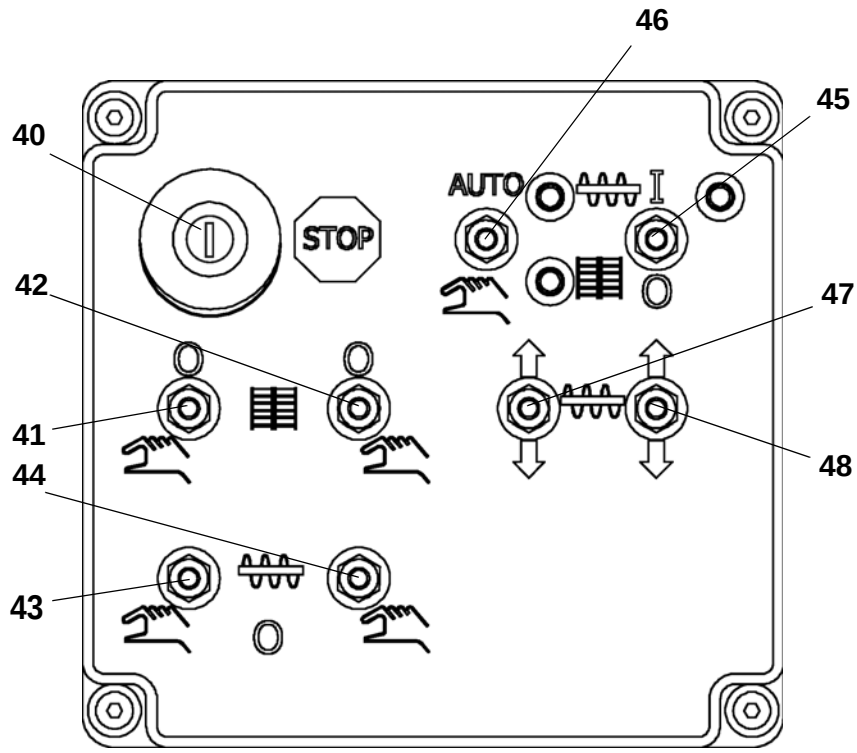
# PANEL C



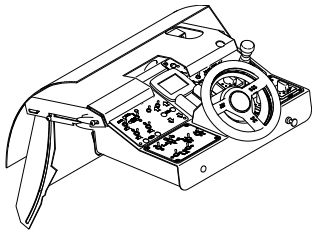
| Item | Designation | Brief description |
|---|---|---|
| 40 | Emergency Stop button | In case of an emergency (danger to persons, possible collision, etc.), press the Emergency Stop button!<br>- Pressing the Emergency Stop button switches the engine, the drives and the steering system off.<br>**⚠ WARNING**<br>Paving, lifting the screed or other functions are no longer possible! Do not reset the Emergency Stop Button until the danger is no longer present!<br>- To restart the engine, the button must be pulled out again. |
| 41 | Left conveyor OFF / max. output | Overrides the conveyor function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Conveyor OFF.<br>- Toggle the switch back (toward the operator): Conveyor is at 100% feed capacity. |
| 42 | Right conveyor OFF / max. output | Overrides the conveyor function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Conveyor OFF.<br>- Toggle the switch back (toward the operator): Conveyor is at 100% feed capacity. |
| 43 | Left auger OFF / max. output | Overrides the auger function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Auger OFF.<br>- Toggle the switch back (toward the operator): Auger is at 100% feed capacity. |
| 44 | Right auger OFF / max. output | Overrides the auger function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Auger OFF.<br>- Toggle the switch back (toward the operator): Auger is at 100% feed capacity. |



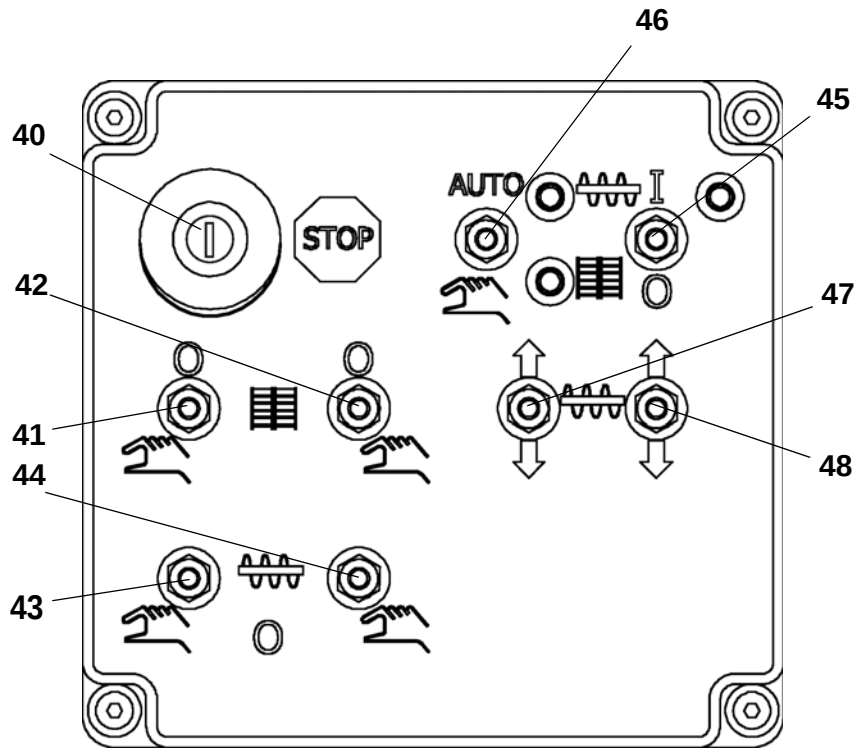
# PANEL C



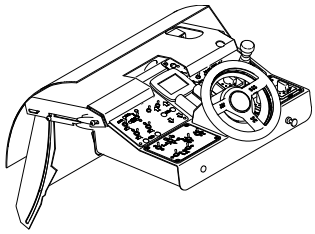
| Item | Designation | Brief description |
|---|---|---|
| 45 | Conveyor + auger ON + activation LED / OFF | Toggles the conveyor and auger (automatic or manual mode) on and off.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Auger + conveyor are ready for operation (LED ON).<br>- Toggle the switch back (toward the operator): Auger + conveyor OFF.<br><br>**NOTICE**<br>If the vehicle must be restarted, this function is automatically switched OFF. |
| 46 | Operating mode conveyor + auger AUTO + activation LED / MANUAL + activation LED | Toggles between AUTOMATIC and MANUAL operating modes for the conveyor + auger.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Operating mode "AUTO" (LED ON).<br><br>**NOTICE**<br>The auger + conveyor are switched on by moving the drive (propel) lever from the center position and are controlled by the relevant material limit switches.<br><br>- Toggle the switch back (toward the operator): Operating mode "MANUAL" (LED ON).<br><br>**NOTICE**<br>The auger + conveyor are permanently switched on (without material control thru the relevant limit switches).<br><br>**NOTICE**<br>If the vehicle must be restarted, this function is automatically switched OFF. |



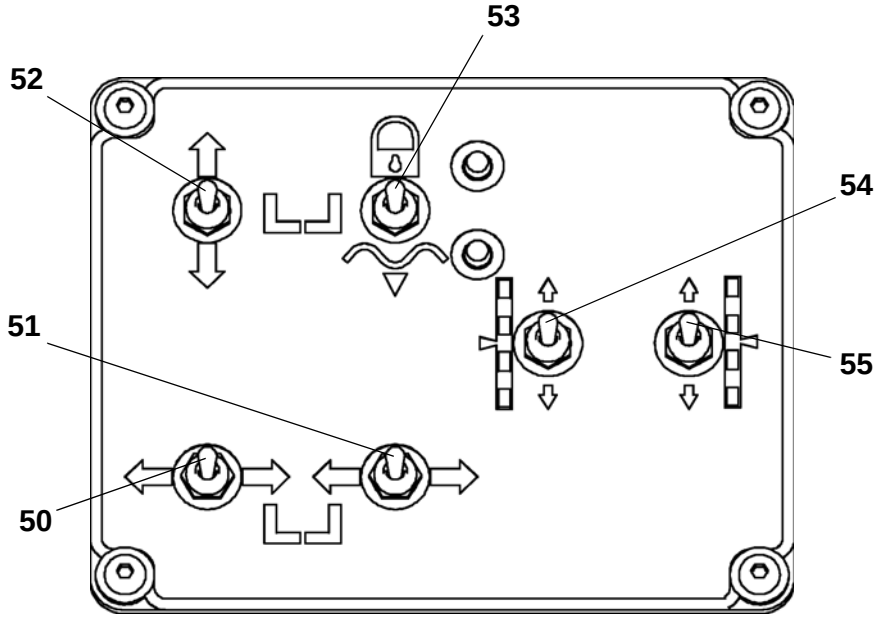
# PANEL C

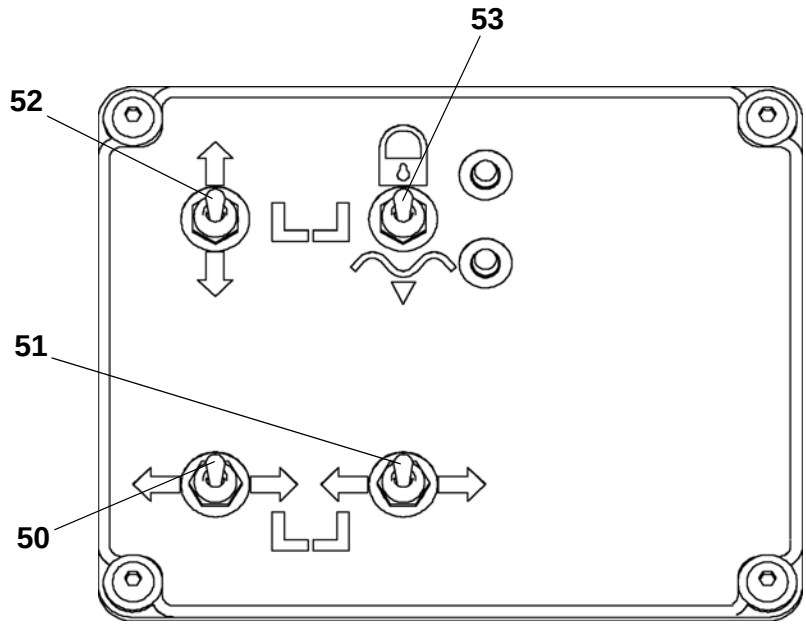


| Item | Designation | Brief description |
|---|---|---|
| 47 | Raise / lower left auger | Hydraulically adjusts the height of the left auger.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Raise auger.<br>- Toggle the switch back (toward the operator): Lower auger.<br><br>**NOTICE**<br>Toggle both switches (raise / lower left + right auger) at the same time to keep the auger crossbeam level!<br><br>**⚠ DANGER**<br>Do not raise or lower the auger until all equipment and persons are clear of the machine |
| 48 | Raise / lower right auger | Hydraulically adjusts the height of the right auger.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Raise auger.<br>- Toggle the switch back (toward the operator): Lower auger.<br><br>**NOTICE**<br>Toggle both switches (raise / lower left + right auger) at the same time to keep the auger crossbeam level!<br><br>**⚠ DANGER**<br>Do not raise or lower the auger until all equipment and persons are clear of the machine |



# PANEL D

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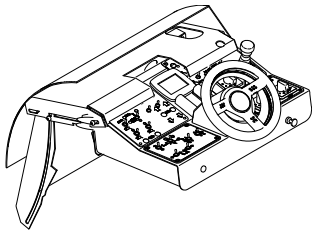
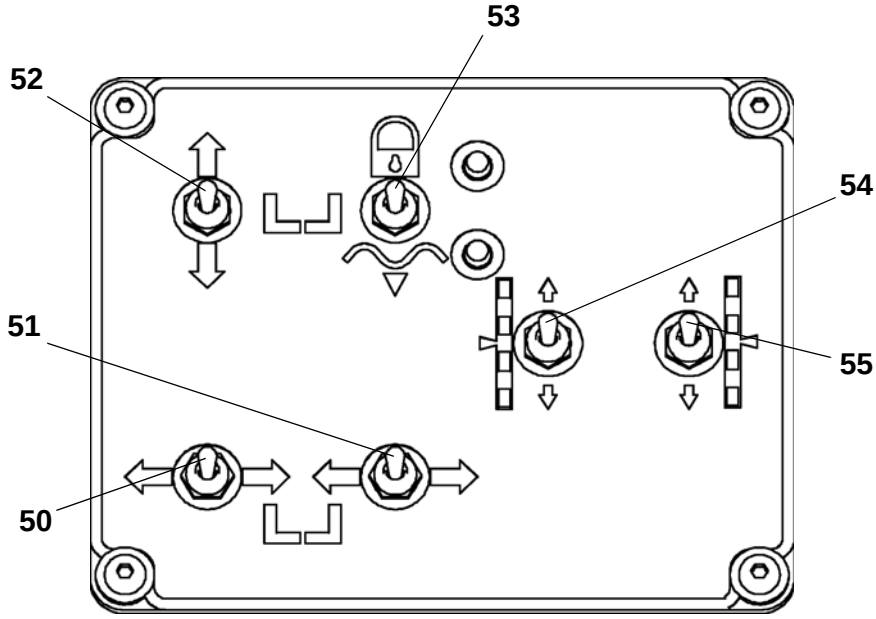
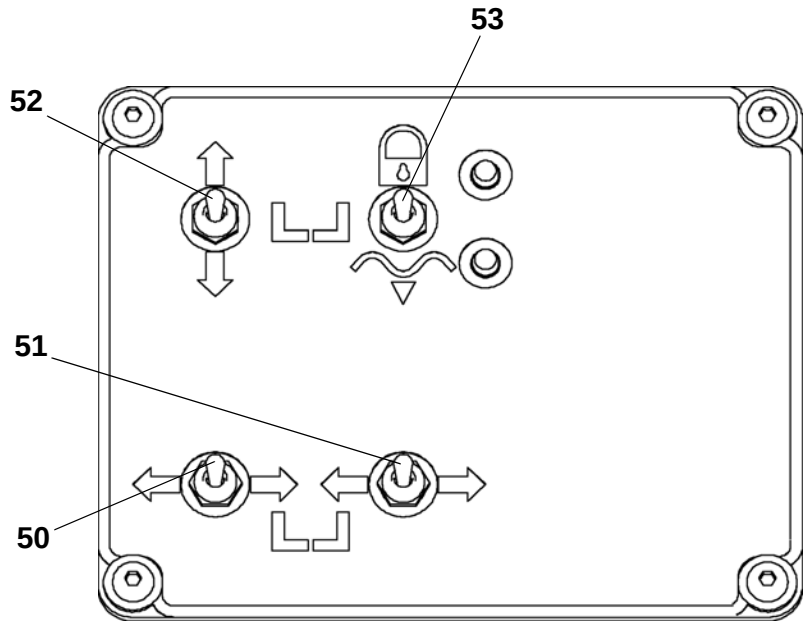
| Item | Designation | Brief description |
|---|---|---|
| 50 | Extend / retract<br>left screed extension | Hydraulically retracts and extends the left extendable part of the screed.<br>Toggle switch function:<br>- Toggle the switch left: Extend screed extension.<br>- Toggle the switch right: Retract screed extension.<br><br>**⚠ DANGER**<br>Do not extend or retract the screed until all equipment and persons are away from the machine |
| 51 | Extend / retract<br>right screed extension | Hydraulically retracted and extended the right<br>extendable part of the screed.<br>Toggle switch function:<br>- Toggle the switch left: Retract screed extension.<br>- Toggle the switch right: Extend screed extension.<br><br>**⚠ DANGER**<br>Do not extend or retract the screed until all equipment and persons are away from the machine |
| 52 | Raise / lower<br>screed | Hydraulically raises and lowers the screed.<br>Push button function:<br>- Toggle the switch up: Raise screed.<br>- Toggle the switch down: Lower screed.<br><br>**⚠ DANGER**<br>Do not raise or lower the screed until all equipment and persons are away from the machine |



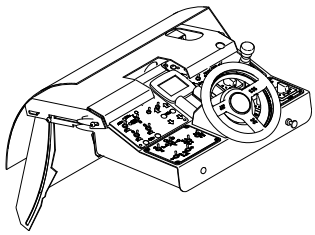
# PANEL D



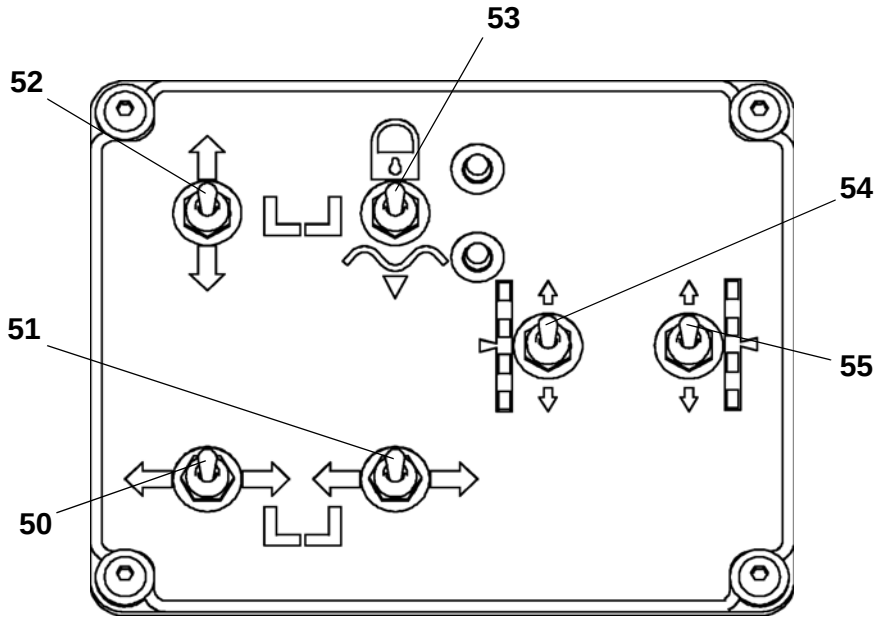



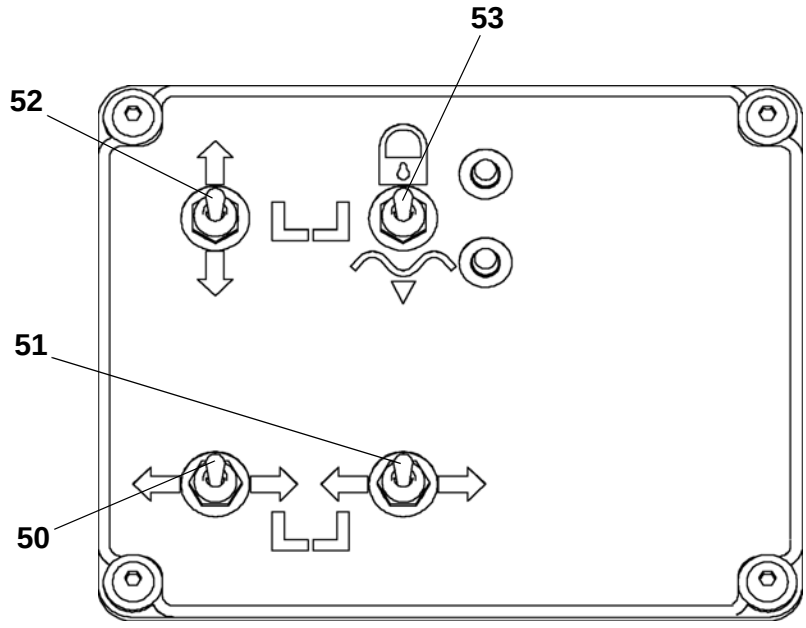

D_1.0_01_US.fm 20-42

| Item | Designation | Brief description |
|---|---|---|
| 53 | Screed floating position<br>+ activation LED<br>/ screed stop<br>+ activation LED | Switches between floating screed functions and screed stop.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Screed stop.<br>- "Screed stop" is used to lock the screed hydraulics to prevent the screed from sinking into the paved material when the paver is stationary (intermediate stop).<br>**⚠ WARNING**<br>"Screed stop" is not sufficient as a safeguard during transport or maintenance work! Insert the mechanical screed transport safeguard!<br>- Toggle the switch back (toward the operator): Lower the screed and switch to "floating position".<br>- During paving, the screed must always be in its floating position.<br>This also applies to intermediate stops and truck changes.<br>**NOTICE**<br>As soon as the floating position function has been activated and the screed is lowered, the screed lifting cylinder pressure is reduced.<br>**NOTICE**<br>The raise / lower screed function can be carried out while the screed is switched to the floating position. Following adjustment, the screed is automatically switched back to the floating position.<br>**NOTICE**<br>The floating position function is only active when the drive lever is moved from its central position!<br>If the drive lever is moved to the central position, the paver automatically switches to screed stop(or locked position).<br>The activation LED for screed stop is then activated. |



# PANEL D

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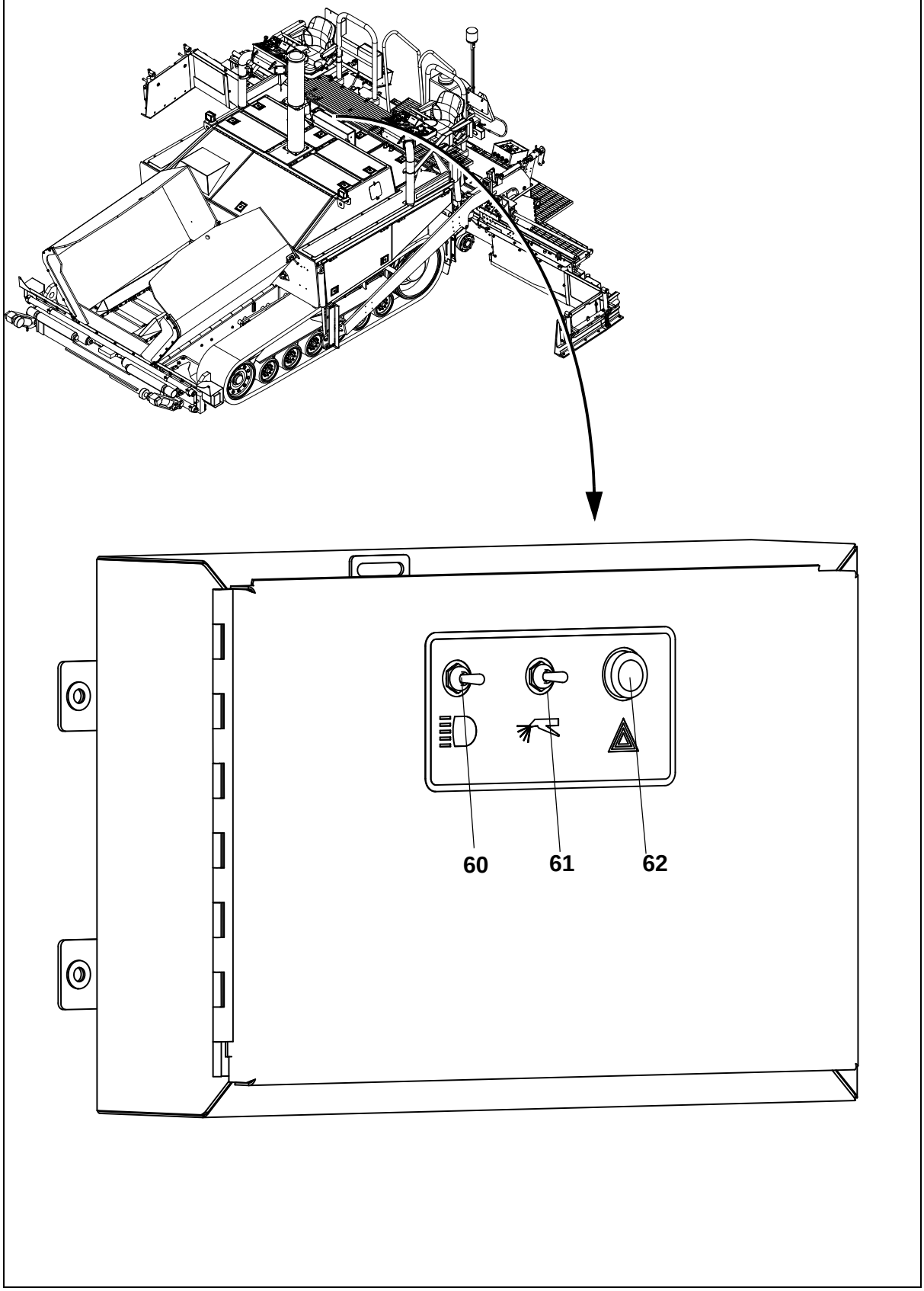
| Item | Designation | Brief description |
|---|---|---|
| 54 | Left leveling cylinder | Manually extends and retracts the leveling cylinder when the vehicle is being operated without the automatic leveling system.<br>Toggle switch function:<br>- Toggle the switch forward (away from the screed): Retract or raise the leveling cylinder to raise the screed.<br>- Toggle the switch back (toward the screed): Extend or lower the leveling cylinder to lower the screed.<br><br>**⚠ DANGER**<br>Do not raise or lower the leveling cylinder until all equipment and persons are clear of the machine! |
| 55 | Right leveling cylinder | Manually extends and retracts the leveling cylinder when the vehicle is being operated without the automatic leveling system.<br>Toggle switch function:<br>- Toggle the switch forward (away from the screed): Retract or raise the leveling cylinder to raise the screed.<br>- Toggle the switch back (toward the screed): Extend or the lower leveling cylinder to lower the screed.<br><br>**⚠ DANGER**<br>Do not raise or lower the leveling cylinder until all equipment and persons are clear of the machine! |

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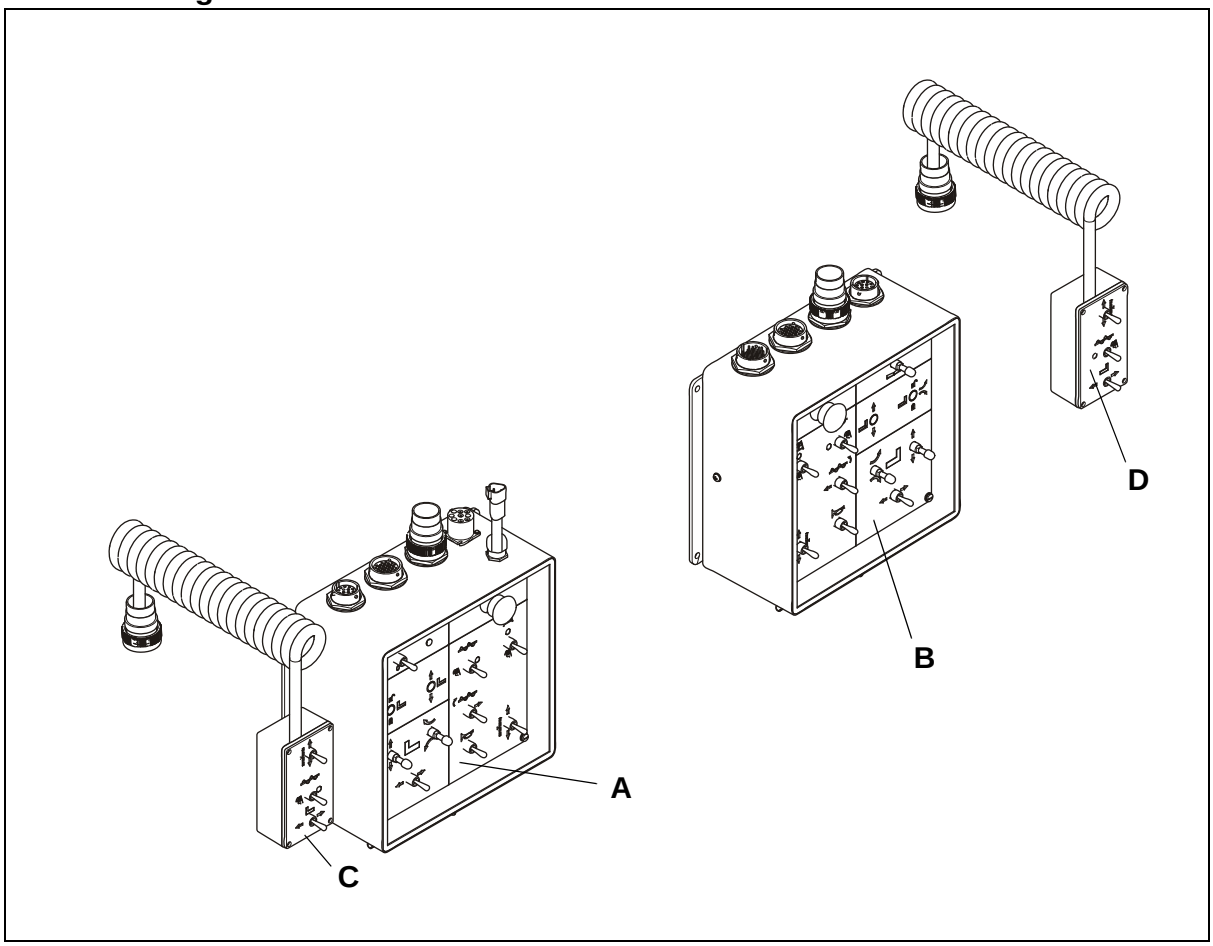
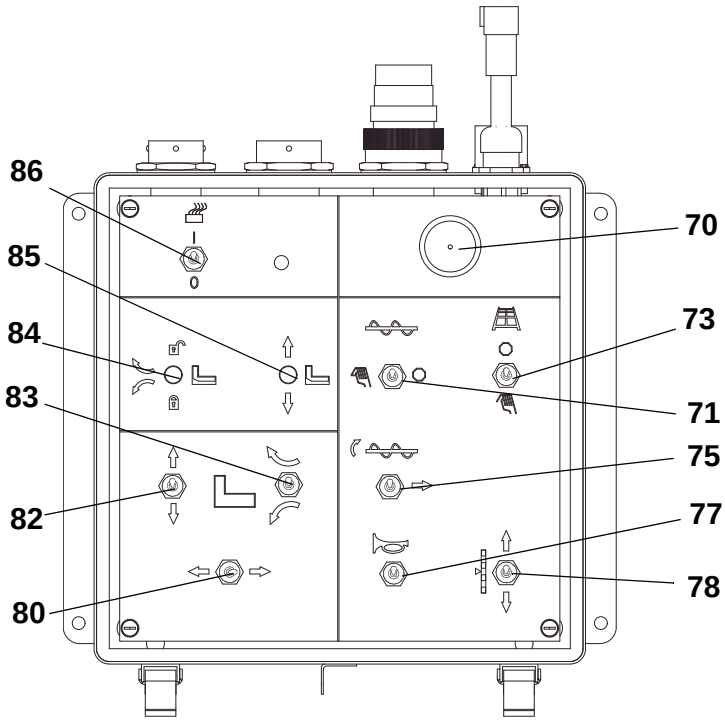
| Item | Designation | Brief description |
|---|---|---|
| 60 | Headlights<br>ON / OFF | Controls the working lights.<br>- Toggle the switch up: Turns on the lights.<br>- Toggle the switch down: Turns off the lights.<br><br>**NOTICE**<br>To prevent the battery from being drained, switch the headlights “ON” only when the diesel engine is running! |
| 61 | Release Agent fluid spray system ON/OFF | Activates the Release Agent fluid spraying system.<br>- Toggle the switch up: Turns on the sprayer.<br>- Toggle the switch down: Turns off the sprayer.<br><br>**NOTICE**<br>To prevent the battery from being drained, switch the sprayer “ON” only when the diesel engine is running! |
| 62 | Hazard warning flasher | Push button to turn the Hazard Warning Flasher “ON”. Hazard Warning Flasher must be turned “ON” on roads and in the construction site area.<br><br>NOTE:<br>The Hazard Warning Flasher button is also for activating the rotary beacon when attached. |

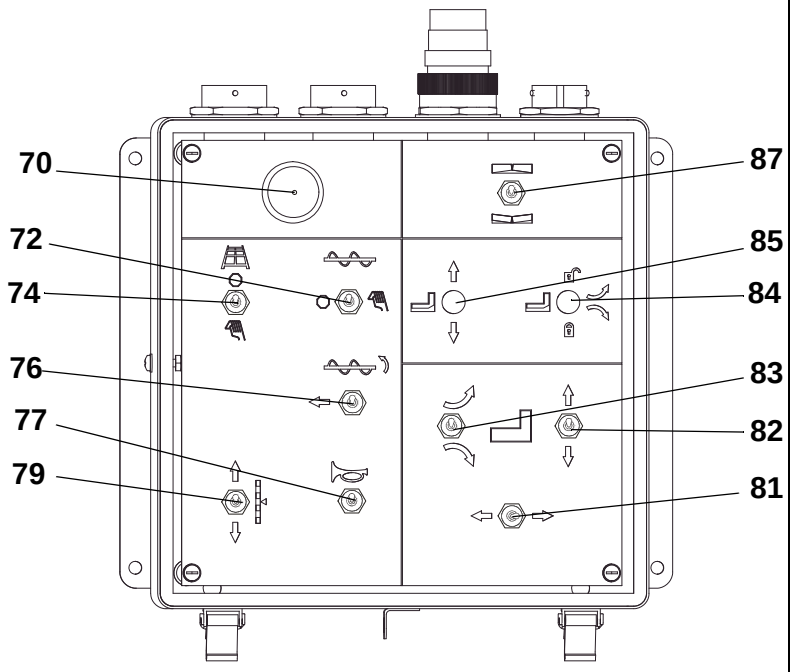
## 4 Left / right remote controls and handsets




| Item | Designation | Brief description |
|---|---|---|
| A | LEFT remote control | - Controls certain functions on the left-hand side of the vehicle and various overall functions. |
| B | RIGHT remote control | - Controls certain functions on the right-hand side of the vehicle and various overall functions. |
| C | LEFT handset | - Removable handset for controlling certain functions on the left-hand side of the vehicle. |
| D | RIGHT handset | - Removable handset for controlling certain functions on the right-hand side of the vehicle. |

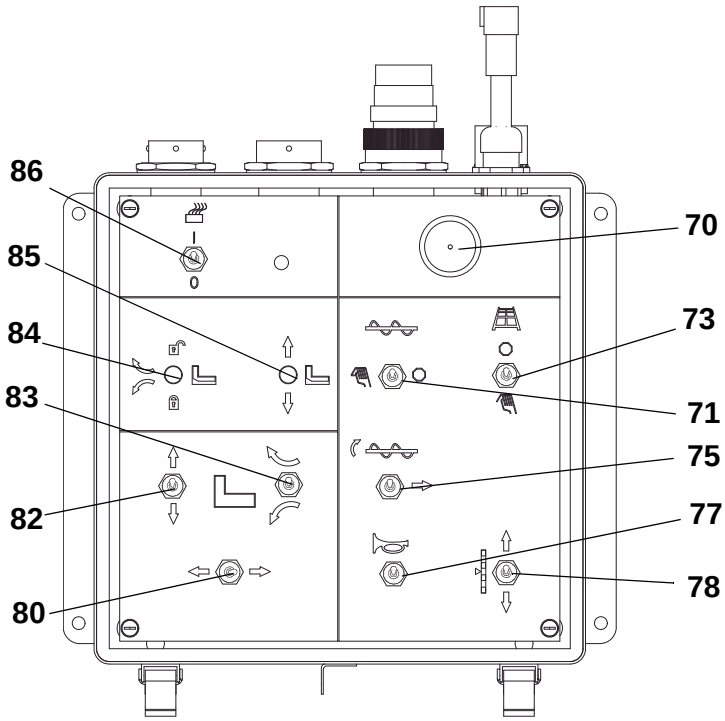
**Left / right remote control**

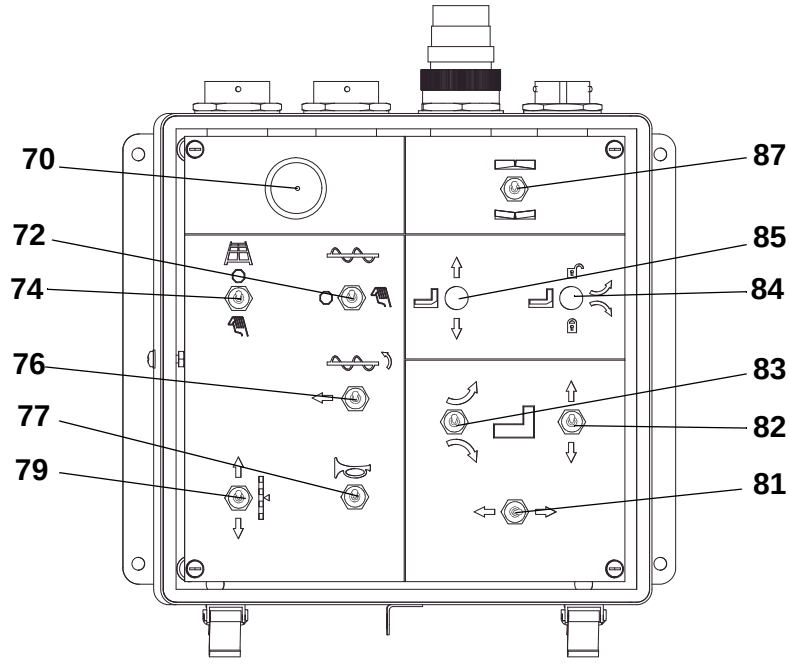


| Item | Designation | Brief description |
|---|---|---|
| 70 | Emergency stop button | In case of an emergency (danger to persons, possible collision, etc.), press the Emergency Stop button!<br>- Pressing the Emergency Stop button switches the engine, the drives and the steering system off.<br>**⚠ WARNING**<br>Paving, lifting the screed or other functions are no longer possible! Do not reset the Emergency Stop Button until the danger is no longer present!<br>- To restart the engine, the button must be pulled out again. |
| 71 | Left auger<br>OFF /<br>max. output | Overrides the conveyor function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch right: Auger OFF.<br>- Toggle the switch left: Auger 100% feed capacity. |
| 72 | Right auger<br>OFF /<br>max. output | Overrides the auger function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch left: Auger OFF.<br>- Toggle the switch right: Auger 100% feed capacity. |
| 73 | Left conveyor<br>OFF /<br>max. output | Overrides the conveyor function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Conveyor OFF.<br>- Toggle the switch back (toward the operator): Conveyor 100% feed capacity. |
| 74 | Right conveyor<br>OFF /<br>max. output | Overrides the conveyor function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Conveyor OFF.<br>- Toggle the switch back (toward the operator): Conveyor 100% feed capacity. |
| 75 | Left auger reversing switch | The conveying direction of the left half of the auger can be reversed in order to slightly reverse a material supply which may be too high.<br>**NOTICE**<br>The switch can be activated as often as needed to allow the conveyor to run further in the reverse direction. |

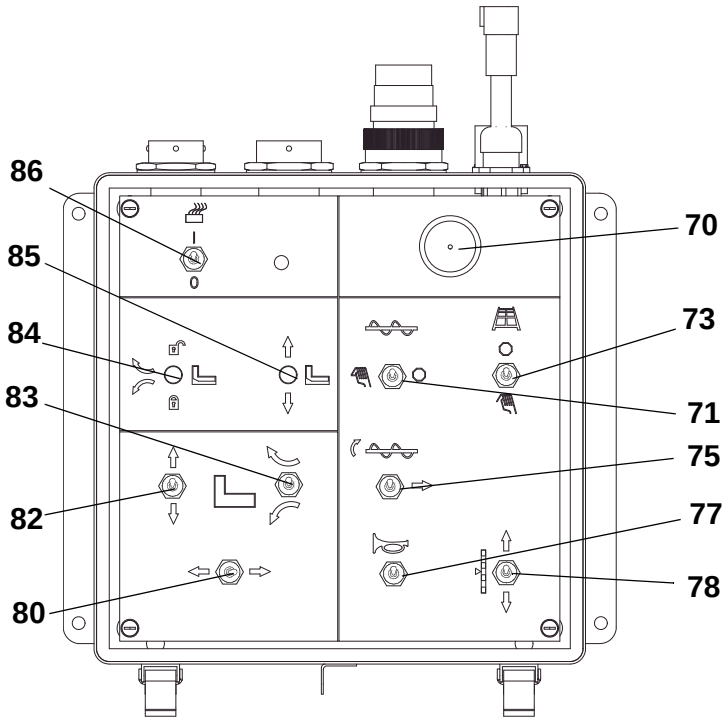
| | | |
|---|---|---|
| 76 | Right auger reversing switch | The conveying direction of the right half of the auger can be reversed in order to slightly reverse a material supply which may be too high.<br><br>**NOTICE**<br><br>The switch can be activated as often as needed to allow the conveyor to run further in the reverse direction. |

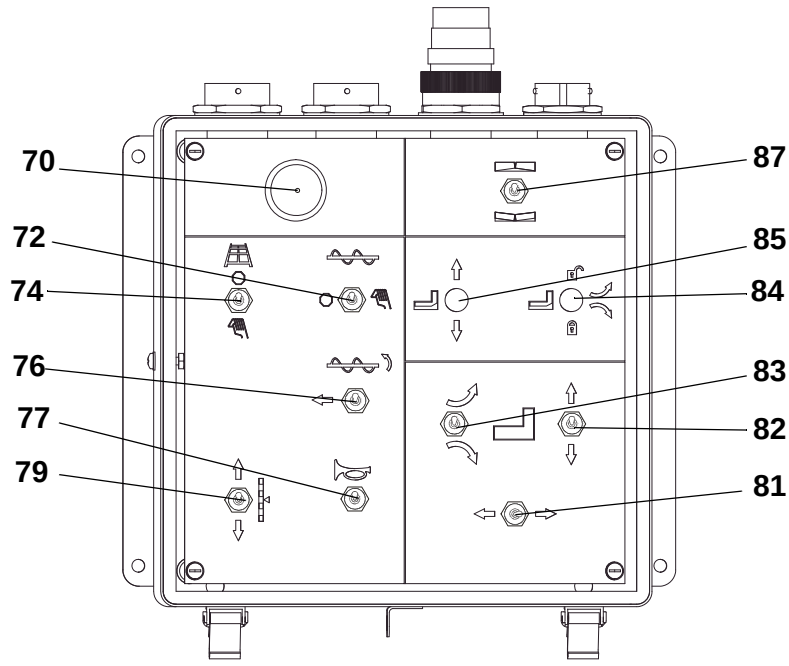



D_1.0_01_US.fm 30-42

| Item | Designation | Brief description |
|---|---|---|
| 77 | Horn | Sound the horn to warn of danger!<br><br>NOTE:<br>The horn can also be used to communicate with the vehicle driver! |
| 78 | Left leveling cylinder | Manually extends and retracts the leveling cylinder when the vehicle is being operated without the automatic leveling system.<br>Toggle switch function:<br>- Toggle the switch forward (away from the screed): Retract or raise the leveling cylinder to raise the screed.<br>- Toggle the switch back (toward the screed): Extend or lower the the leveling cylinder to lower the screed.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |
| 79 | Right leveling cylinder | Manually extends and retracts the leveling cylinder when the vehicle is being operated without the automatic leveling system.<br>Toggle switch function:<br>- Toggle the switch forward (away from the screed): Retract or raise the leveling cylinder to raise the screed.<br>- Toggle the switch back (toward the screed): Extend or lower the leveling cylinder to lower the screed.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |
| 80 | Extend / retract left screed extension | Hydraulically retracts and extends the left extendable part of the screed.<br>Toggle switch function:<br>- Toggle the switch left: Extend screed extension.<br>- Toggle the switch right: Retract screed extension.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |
| 81 | Extend / retract right screed extension | To hydraulically retract and extend the right extendable part of the screed.<br>Toggle switch function:<br>- Toggle the switch left: Retract screed extension.<br>- Toggle the switch right: Extend screed extension.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |

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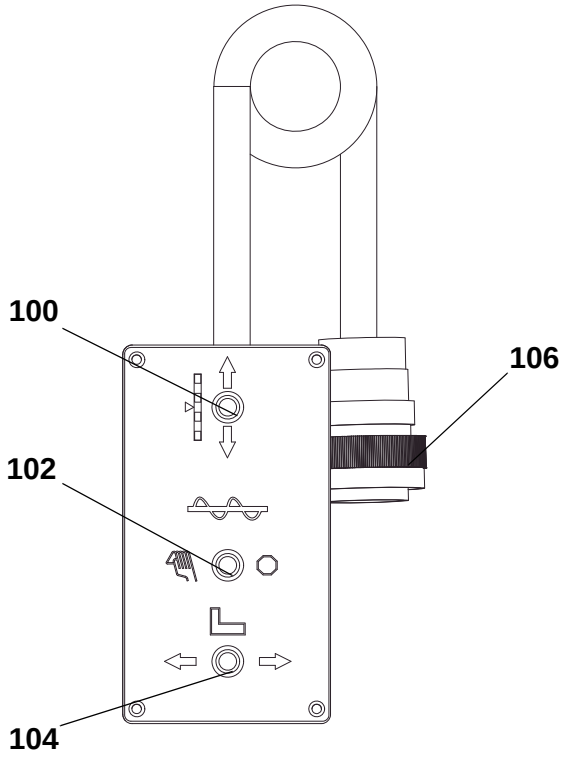
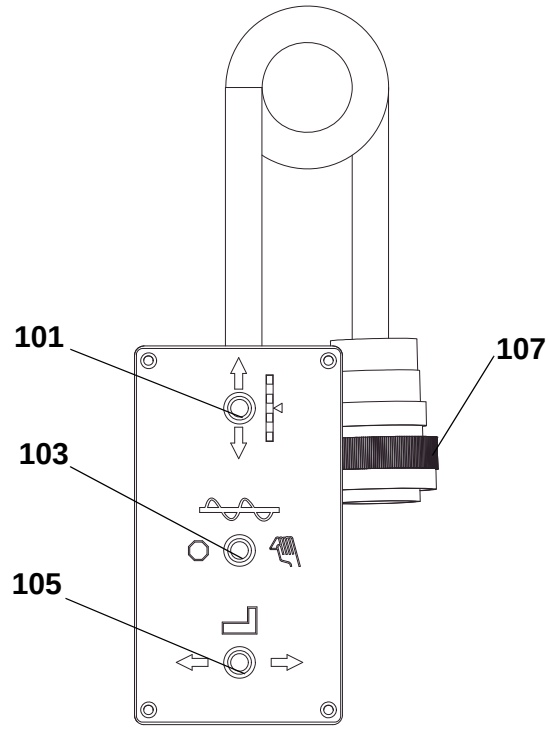
| Item | Designation | Brief description |
|---|---|---|
| 82 | Raise / lower extendable screed part | Hydraulically raises and lowers the extendable screed part.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Raise extendable part.<br>- Toggle the switch back (toward the operator): Lower extendable part.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |
| 83 | Raise / lower extension scope | Hydraulically raises and lowers the extension slope.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Raise extension slope.<br>- Toggle the switch back (toward the operator): Lower extension slope.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |
| 84 | Berm lock / unlock | Locks and unlocks the Berm.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Unlocks the Berm.<br>- Toggle the switch back (toward the operator): Locks the berm.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |
| 85 | Berm raise / lower | Hydraulically raises or lowers the Berm.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Raises Berm.<br>- Toggle the switch back (toward the operator): Lowers Berm.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |

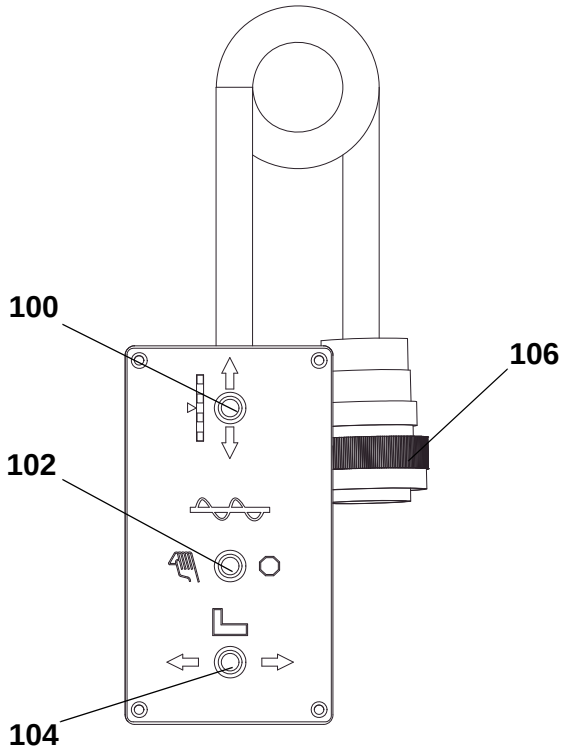
| | | |
|---|---|---|
| 86 | Screed heater system ON / OFF<br>+ activation LED | Jointly switches all of the screed heater system's heating sections on and off.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Screed heater system ON and indicator (LED) light ON.<br>- Toggle the switch back (toward the operator): Screed heater system OFF. |
| 87 | Crowning Adjustment | The screed is equipped with adjustable crowning; adjusting this enables the required crowning to be set.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Increases Crowning.<br>- Toggle the switch back (toward the operator): Decreases Crowning. |


100
106
102
104


101
107
103
105

| Item | Designation | Brief description |
|---|---|---|
| 100 | Left leveling cylinder | Manually extends and retracts the leveling cylinder when the vehicle is being operated without the automatic leveling system.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Raises the left screed side arm.<br>- Toggle the switch back (toward the operator): Lowers the screed side arm.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |
| 101 | Right leveling cylinder | Manually extends and retracts the leveling cylinder when the vehicle is being operated without the automatic leveling system.<br>Toggle switch function:<br>- Toggle the switch forward (away from the operator): Raises the right screed side arm.<br>- Toggle the switch back (toward the operator): Lowers the screed side arm.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |
| 102 | Left auger OFF / max. output | Overrides the auger function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch right: Auger OFF.<br>- Toggle the switch left: Auger 100% feed capacity. |
| 103 | Right auger OFF / max. output | Overrides the auger function in automatic mode.<br>Toggle switch function:<br>- Toggle the switch left: Auger OFF.<br>- Toggle the switch right: Auger 100% feed capacity. |
| 104 | Extend / retract left screed | Hydraulically retracts and extends the left extendable part of the screed.<br>Toggle switch function:<br>- Toggle switch left: Extend screed.<br>- Toggle switch right: Retract screed.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |

| | | |
|---|---|---|
| 105 | Extend / retract right screed | Hydraulically retracts and extends the right extendable part of the screed.<br>Push button function:<br>- Toggle switch left: Retract screed.<br>- Toggle switch right: Extend screed.<br><br>**⚠ WARNING**<br>Before operating the toggle switch, ensure that equipment and persons are clear of the machine! |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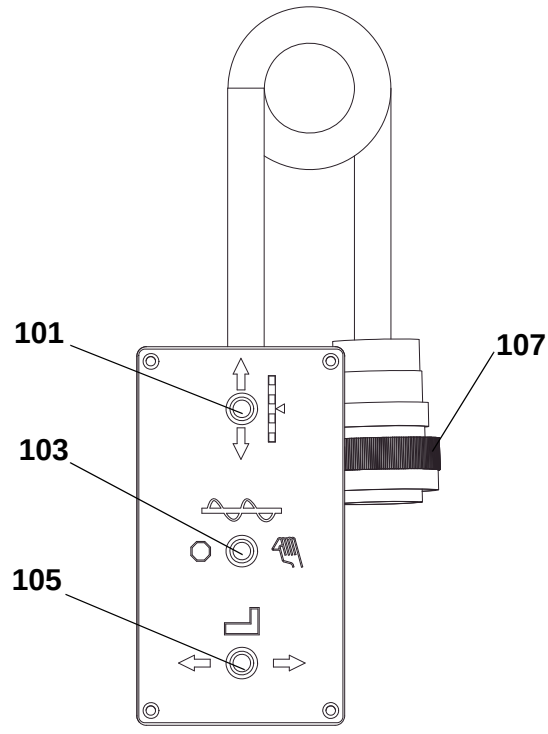
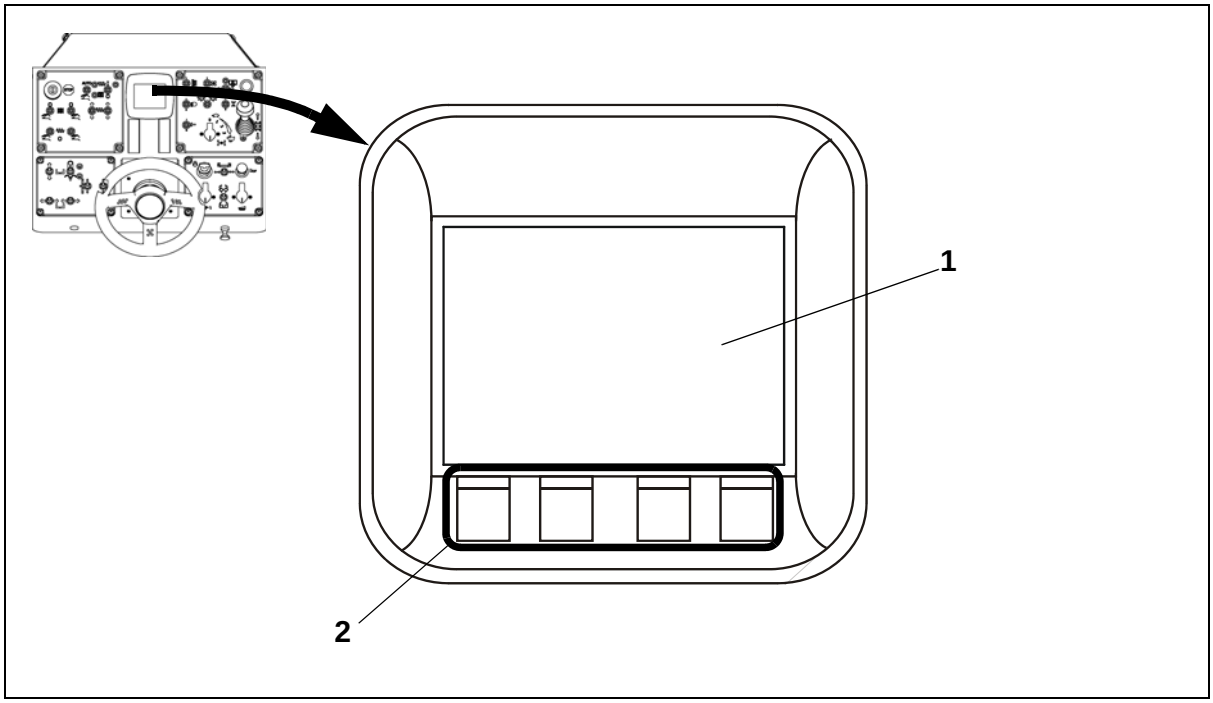

101
107
103
105

| Item | Designation | Brief description |
|---|---|---|
| 106 | Handset connection cable | - Connects to the left remote control. |
| 107 | Handset connection cable | - Connects to the right remote control. |

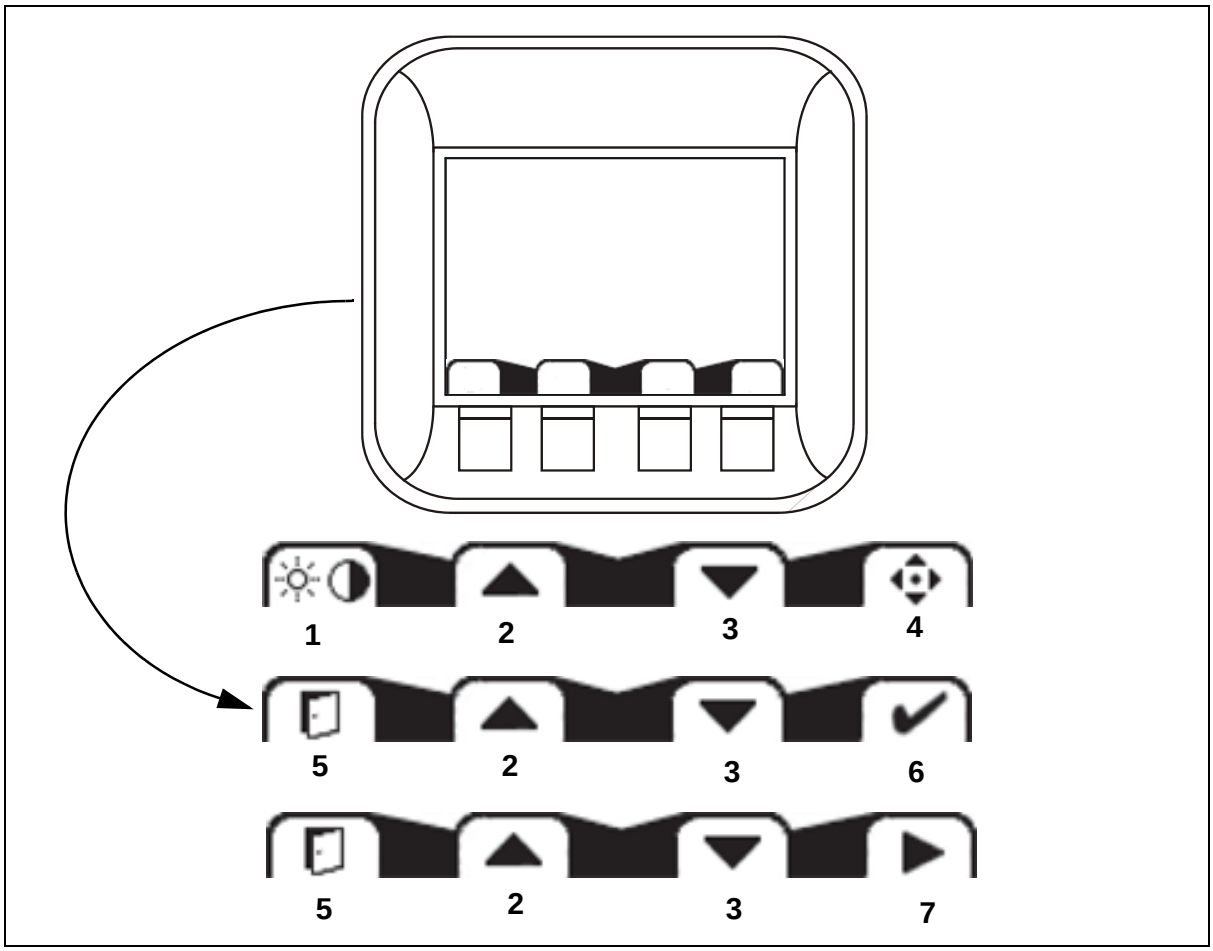
# D 2.0 Operation

## 1 Operation of the graphical terminal




| Item | Designation | Brief description |
|---|---|---|
| 1 | Display | - Display for engine information, diagnostic information and configuration. |
| 2 | Softkeys | - Terminal is controlled by navigation through a set of four soft keys.The keys are context dependent. Soft key selection options are displayed above each key and are dependent on the current navigation location within the engine monitor software program. |

## 1.1 Navigation using Soft Keys



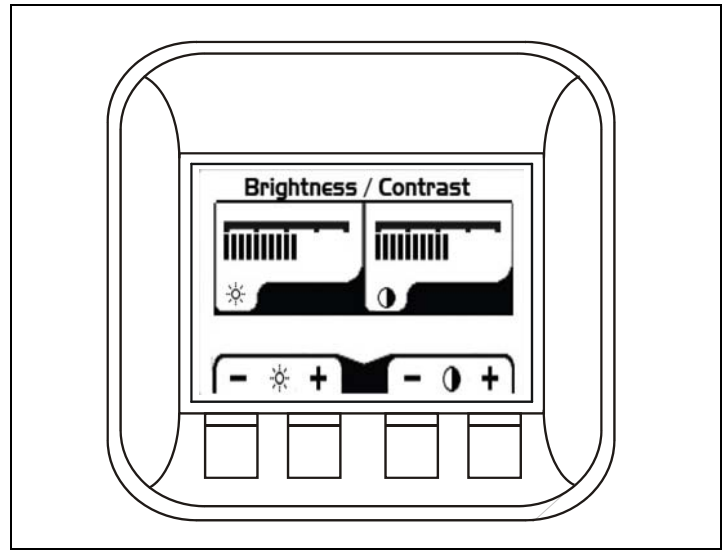

| Item | Designation | Brief description |
|---|---|---|
| 1 | Brightness/Contrast | - Press to access brightness and contrast settings. |
| 2 | Navigate Up | - Press up to move up through menu items. |
| 3 | Navigate Down | - Press up to move down through menu items. |
| 4 | Main Menu | - Press to go to Main Menu screen. |
| 5 | Exit/back one screen | - Press to go back one screen. |
| 6 | Select | - Press to make selection. |
| 7 | Next | - Press to navigate to next digit or screen element. |

**NOTICE**

As a general rule, the far right soft key is the selector button and the far left soft key is the step back one screen key. To engage full screen use, the on-screen selections are not displayed when not in use. Press any soft key to display current selection options. The selection options will be displayed for three seconds.

## Brightness/Contrast Adjustment

- Adjust brightness and contrast levels by pressing the far left soft key. This will display the brightness and contrast soft key bar.

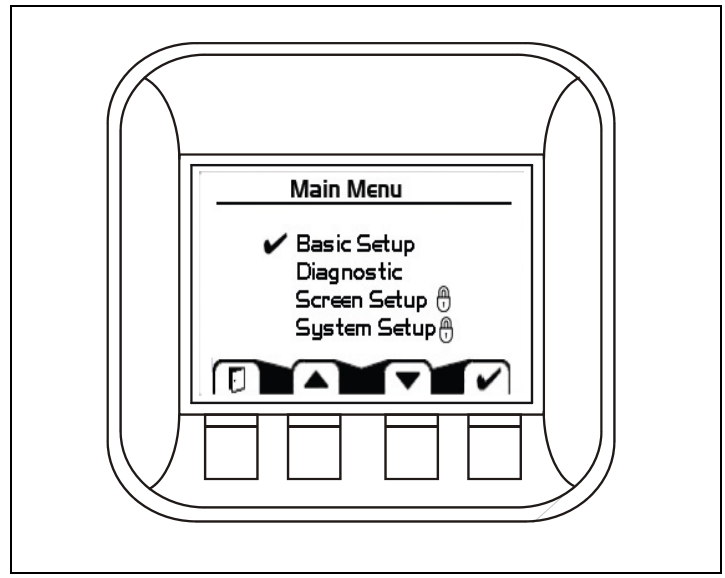



**NOTICE**

The bar will disappear after 3 seconds of inactivity.

## Main Menu - Start Menu

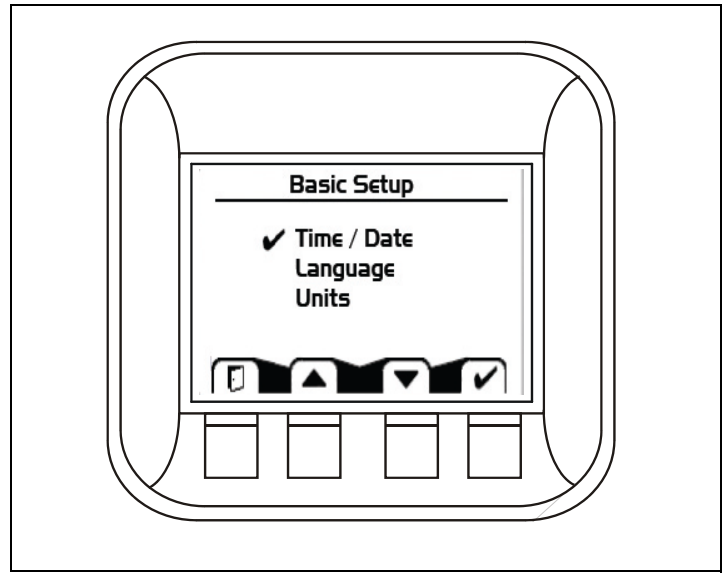
The Main Menu screen is the starting point for configuring the terminal.




| | | |
|---|---|---|
| Basic Setup | - | Use to set time/date, language and units. |
| Diagnostics | - | Use to set system info, info fault log and J1939 lists. |
| Screen Setup | - | (PIN protected) |
| System Setup | - | (PIN protected) |

## Main Menu - Basic Setup

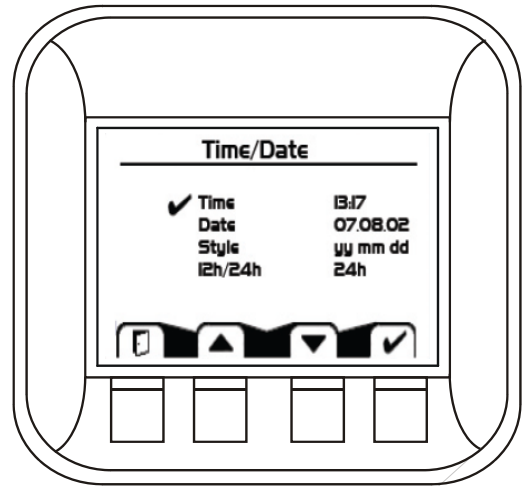
Use the Basic setup screen to set time, language and display units for the terminal.




| | | |
|---|---|---|
| Time/Date | - | Use Time/Date set date and display style for time and date information. |
| Language | - | Use Language to set the system language. |
| Units | - | Use Units to set speed, distance, pressure, volume, temperature and fuel rates and economy settings. |

## Main Menu - Basic Setup -Time / Date

Use Time/Date screen to set Time, Date, calendar style and time style. Use up, down select and next soft keys to navigate.

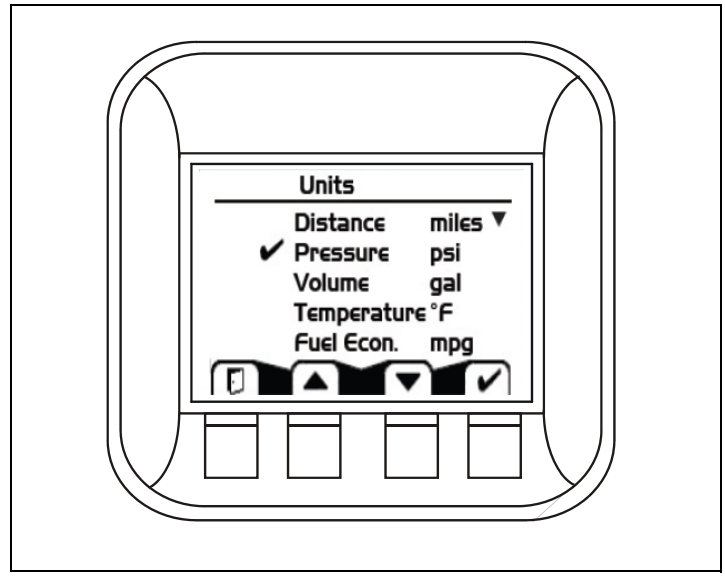



## Main Menu - Basic Setup -Language

Use Language screen to select program language. Languages available, English, French, German, Italian, Swedish and Spanish.
The default language setting is English.

## Main Menu - Basic Setup -Units

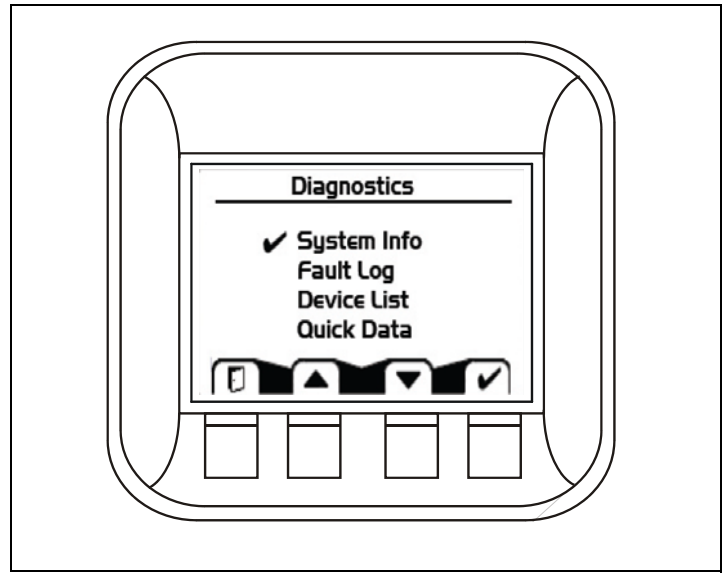
Use the up, down, select and next soft keys to define unit measurements.




| | | |
|---|---|---|
| Speed | - | km/h, mph |
| Distance | - | km, mi |
| Pressure | - | kPa, bar, lbs/ sq in |
| Volume | - | l, gal, imp gal |
| Temperature | - | °C, °F |
| Fuel Economy | - | 1/100km, mpg, mpig |
| Fuel Rate | - | l/h, g/h, ig/h |

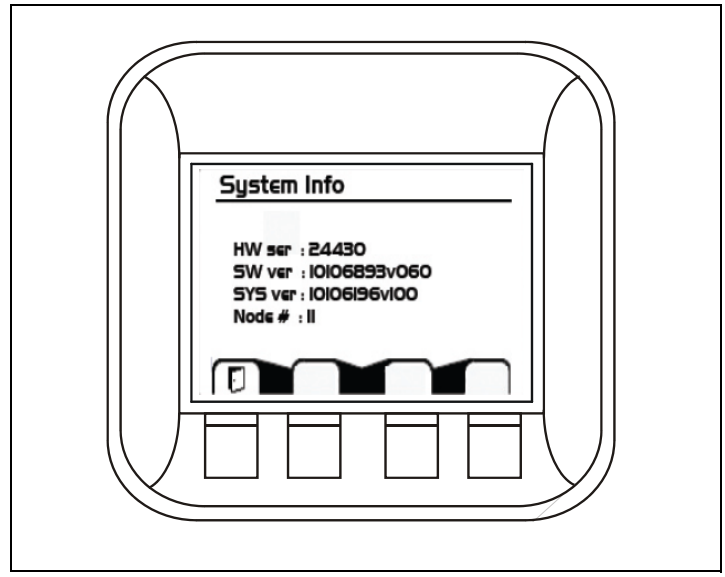
## Main Menu - Diagnostics

Use the Diagnostics screen to display current system information, view and monitor fault logs and display all J1939 devices connected to the graphical terminal.



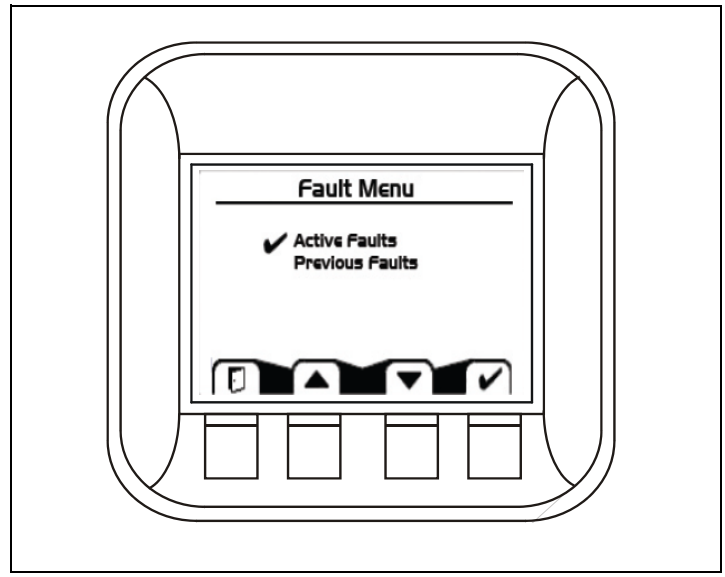
## Main Menu - Diagnostics -System Info

The system info screen displays the hardware system serial number, current software version, current system version and node number. Only information is displayed in the System Info window. No changes can be made.




## Main Menu - Diagnostics -Fault Log

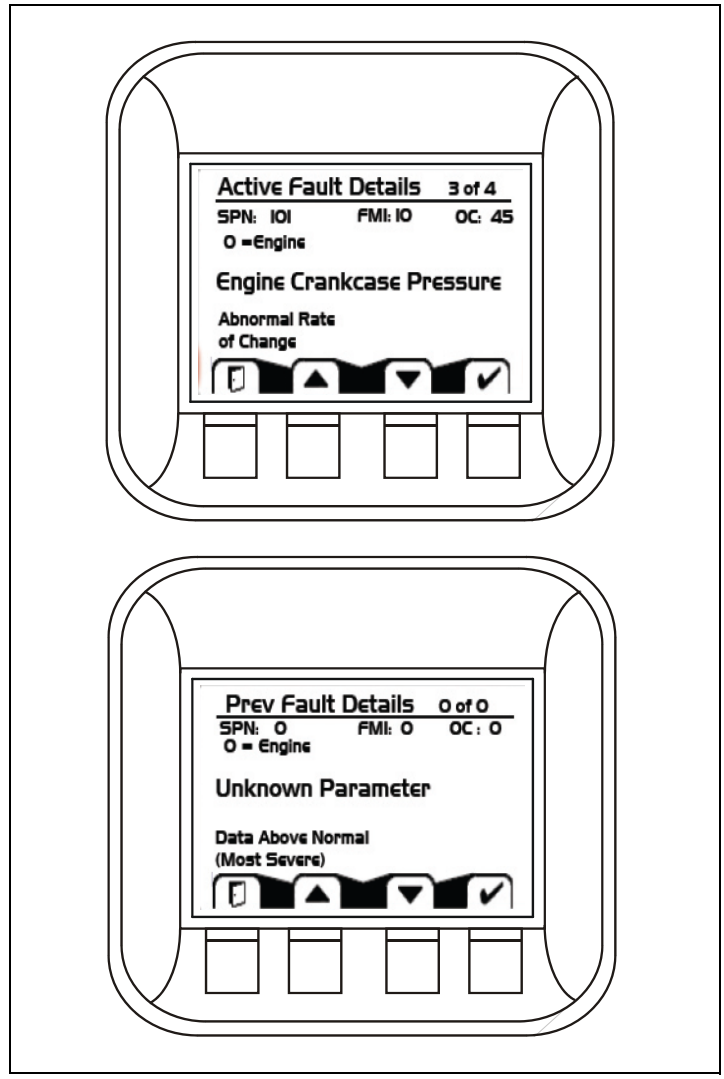
Fault information is saved and stored to the fault log. Select either Active or Previous Faults to monitor fault activity. Select specific faults to list more information.



## Main Menu - Diagnostics -Fault Log Active and Previous Faults

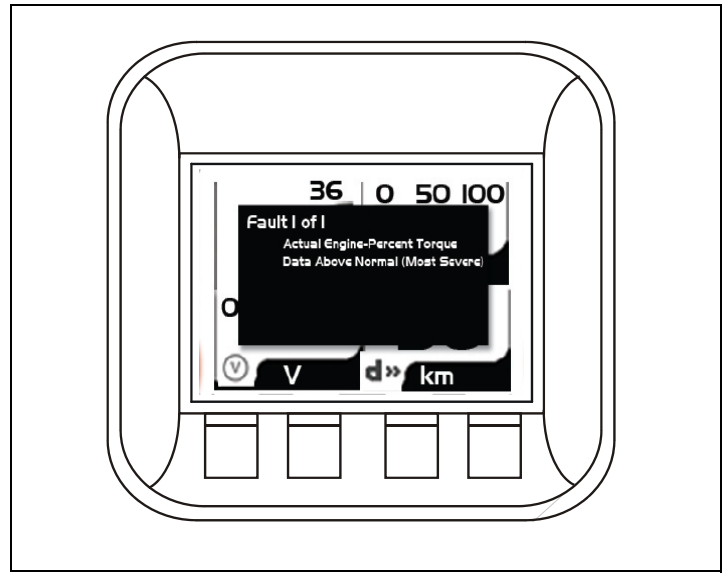
Selecting Active Faults in the Fault Menu will display all active faults on the CAN network.

Selecting Previous Faults in the Fault Menu will display all previously active faults on the CAN network.



## Main Menu - Diagnostics -Fault Pop-Up Alarms

When a fault is detected on the CAN network, a flashing red warning alarm will be activated and a fault information pop-up window will be displayed listing current fault information.
Warning lights will flash when a popup alarm occurs and will stay flashing until acknowledged.
Warning lights will remain lit until the fault is no longer on the CAN network.




Fault pop-up softkey actions:

| | |
|---|---|
|  | - Select to clear pop up and return directly to previous screens |
|  | - Scroll between screens and within screens. |
|  | - Scroll between screens and within screens. |
|  | - Confirm any selections or acknowledge any fault/ warning and to go back to normal screen. |

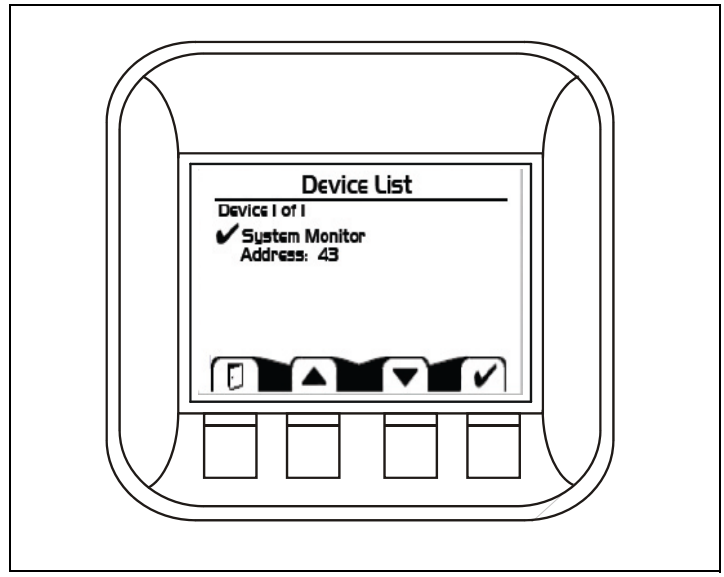
**NOTICE**

Fault Pop-Up Alarms

- Faults no longer active will also be displayed in the Previous Faults log.
- Faults that have been acknowledged and are no longer active will be shown in the Currently Active Faults log in italics.
- Pop-up fault alarms can be disabled by setting the Fault Pop-Up to off in the CAN section of the System.

## Main Menu - Diagnostics -Device List

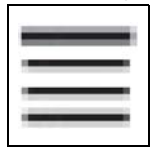
The Device list page will list all J1939 devices and addresses that are currently being monitored on the network.



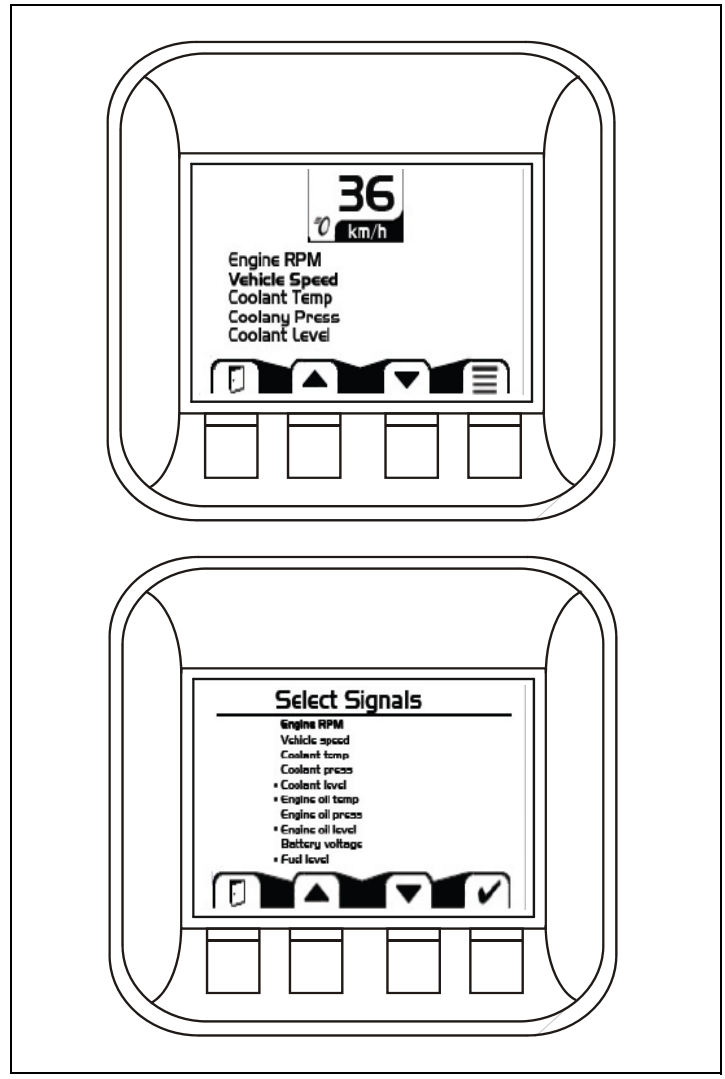
## Main Menu - Diagnostics -Quick Data

The Quick Data function allows selected signals to be monitored in a scrollable single view display.
To select signals for display, press the far right soft key.

Quick Data softkey



Scroll through signal list using the up and down arrow soft keys and select/de-select signals for Quick View monitoring by pressing the far right (check mark) soft key. Signals selected for display will show an asterisks to the left of the signal name.



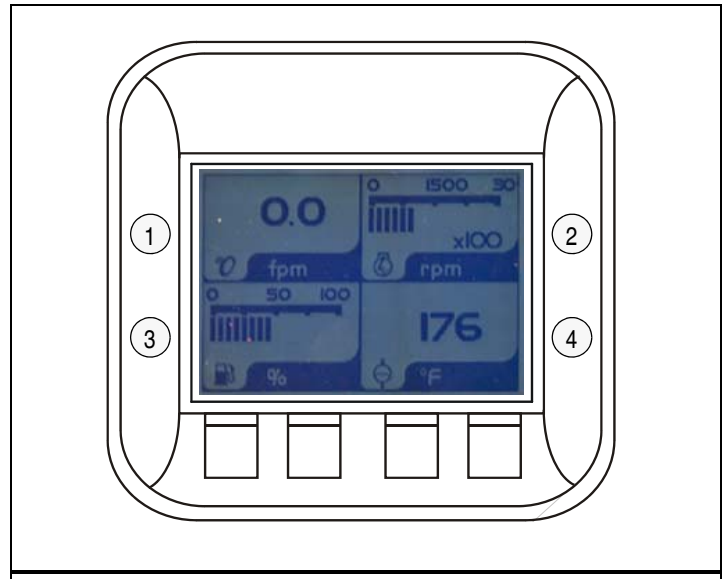
## Start Display

Appears at system start.

## Display 01

Display menu

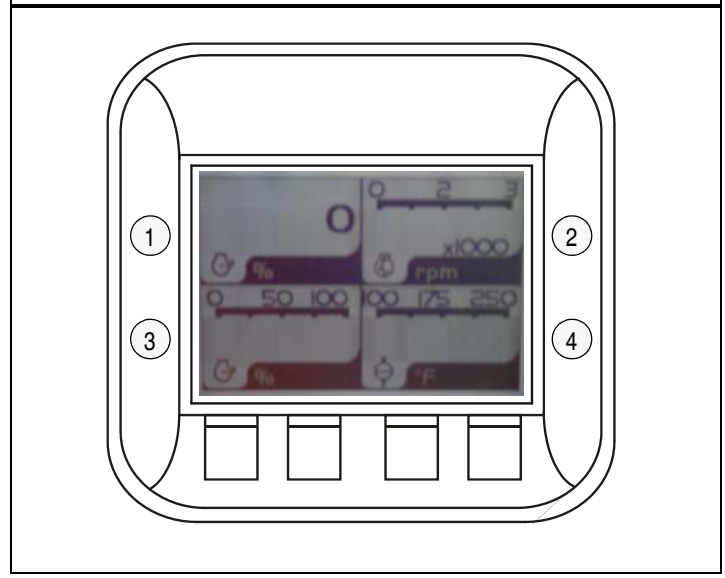
- Vehicle Speed (1) in fpm.
- Engine RPM (2) in rpm - with bar chart.
- Diesel tank filling (3) in % - with bar chart.
- Engine Coolant Temperature(4) in °F.




## Display 02

Display menu

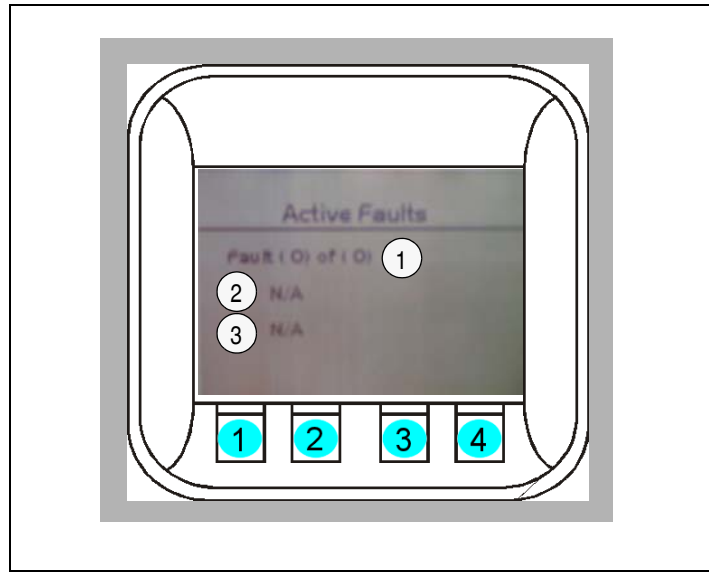
- Actual Engine Torque(1) in %.
- Engine RPM (2) in rpm - with bar chart.
- Actual Engine Torque(1) in% - with bar chart.
- Engine Coolant Temperature(4) in °F - with bar chart.



## Active Faults Display

Appears when a fault occurs.

- To see a list with active faults, first use button 2 or 3 from the current screen and go to Active Fault Screen, then press button 4 to get into the Active Fault Screen.
- After entering the Active Fault Screen, Scroll thru the faults by using buttons 2 or 3.
- To leave the Active Fault Screen, press button 1




## Fault Sources and Codes

| Nr. | Source |
|---|---|
| 1 | Sensor Power |
| 2 | Battery |
| 3 | Left Joystick |
| 4 | Right Joystick |
| 5 | Left Steer Wheel/<br>Position Sensor |
| 6 | Right Steer Wheel/<br>Position Sensor |
| 7 | Left Trim Steer POT |
| 8 | Right Trim Steer POT |
| 9 | Left Max Speed POT |
| 10 | Right Max Speed POT |
| 11 | Left Pump |
| 12 | Right Pump |
| 13 | Generator Pump |
| 14 | Left PPU |
| 15 | Right PPU |
| 16 | Generator PPU |

| Nr. | Cause of Issue |
|---|---|
| 10 | Open circuit |
| 11 | Input at 0V |
| 12 | Short circuit |
| 13 | Input at 5V |
| 20 | Too low |
| 21 | Too high |
| 30 | No response |
| 40 | Invalid calibration |
| 41 | Invalid configuration |

## Warnings Display

Appears due to faulty machine operation.

- Line (1): Actual displayed Warning of (x) active Warnings. Code number is displayed
  - Scroll between the active warnings by using buttons 2 or 3.
- Leave Warning display by using button 1


## Warning Codes

| Situation | Code | Display Message |
|---|---|---|
| Propel Selector in Position 4, while joystick is stroked backward | 1 | Counter Rotate: stroke joystick forward |
| Propel Selector in Position 4, while joystick is in neutral for long (e.g. more than 10 seconds) | 2 | Counter Rotate: stroke joystick forward |
| Change Propel selector switch while machine in moving | 3 | Change propel selector when machine is stopped |
| Change Propel selector switch while joystick is not neutral | 4 | Change propel selector when joystick is in neutral |
| Joystick not in neutral when machine is powered up | 5 | Return Joystick to neutral |
| Brake is applied, try to stroke joystick | 6 | Release the brake before driving |
| Change console selector switch while machine in moving | 7 | Change active console when machine is stopped |
| Change console selector switch while joystick is not in neutral | 8 | Change active console when joystick is in neutral |
| Propel Selector in Position 4, Joystick is moved forward with no steering command for more than 5 seconds | 9 | |
| Slope detection beyond the allowable limit | 11 | Beyond allowable slope. Bring the gear down. |
| If the Generator frequency goes beyond the allowable limits | 12 | Generator is not within allowable limit |

| SPN | Component / Location | Description (Error location) | Defined for DCR | Defined for DMV | Error code SERDIA | ID | Blink code | FMI | Self-curing[1] |
|---|---|---|---|---|---|---|---|---|---|
| 29 | Hand throttle | Cable break or short circuit, signal implausible compared to signal of idle sensor | ● | ● | 138 | HdThrt | 1-2-6 | 2, 3, 4, 11 | |
| 84 | Vehicle speed signal | Speed above target range, signal missing or implausible | ● | ● | 232 | VSSCD1 | 5-2-1 | 0, 8, 12, 14 | ● |
| 91 | Accelerator pedal | Cable break or short circuit, signal implausible compared to signal of idle sensor (analog pedal) | ● | ● | 12 | APP1 | 2-2-6 | 2, 3, 4, 11 | |
| 91 | Accelerator pedal | Cable break or short circuit, bad PWM signal range or frequency (digital pedal) | ● | ● | 14 | APPPwm | 2-2-2 | 2, 8 | ● |
| 91 | Accelerator pedal | Bad PWM pulse-width repetition rate (digital pedal) | ● | ● | 15 | APPPwmPer | 2-2-2 | 8, 11 | ● |
| 94 | Fuel low pressure sensor | Cable break or short circuit | ● | ● | 90 | FlPSCD | 2-1-6 | 3, 4, 11 | ● |
| 94 | Fuel low pressure | Below target range with system reaction | ● | ● | 91 | FlPSCDSysReac | 2-1-6 | 2, 11 | ● |
| 97 | Fuel filter water level sensor | Cable break or short circuit | ● | ● | 87 | FlFCD | 2-2-8 | 3, 4, 11 | ● |
| 97 | Water level in fuel filter | Above target range | ● | ● | 89 | FlFCD_WtLvl | 2-2-8 | 11, 12 | |
| 100 | Oil pressure sensor | Cable break or short circuit | ● | ● | 196 | OPSCD | 2-2-4 | 0, 2, 3, 4 | ● |
| 100 | Oil pressure sensor | Pressure value implausible low | ● | ● | 197 | OPSCD1 | 2-3-1 | 1, 11 | ● |
| 100 | Oil pressure | Above target range | ● | ● | 198 | OPSCDSysReacHi | 2-3-1 | 0, 11 | ● |
| 100 | Oil pressure | Below target range | ● | ● | 199 | OPSCDSysReacLo | 2-3-1 | 1, 11 | ● |
| 102 | Charge air pressure sensor | Cable break or short circuit | ● | ● | 32 | BPSCD | 2-2-3 | 2, 3, 4 | ● |
| 102 | Charge air pressure | Outside target range with system reaction | ● | ● | 33 | BPSCDSysReac | 2-2-3 | 2, 11 | ● |
| 105 | Charge air temperature sensor | Cable break or short circuit | ● | ● | 149 | IATSCD | 1-2-8 | 2, 3, 4, 11 | ● |
| 105 | Charge air temperature | Above target range with system reaction | ● | ● | 150 | IATSCDSysReac | 2-3-3 | 0, 11 | ● |
| 107 | Air filter condition | Pressure loss above target range with system reaction | ● | ● | 11 | AirFltSysReac | 1-3-6 | 0, 11 | ● |
| 108 | ECU internal error | Ambient pressure sensor defective | ● | ● | 16 | APSCD | 2-9-2 | 2, 3, 4, 11 | ● |
| 110 | Coolant temperature sensor | Cable break or short circuit | ● | ● | 55 | CTSCD | 2-2-5 | 2, 3, 4 | ● |
| 110 | Coolant temperature | Outside target range with system reaction | ● | ● | 56 | CTSCDSysReac | 2-3-2 | 0, 11 | ● |
| 111 | Coolant level | Outside target range with system reaction | ● | ● | 37 | CLSCDSysReac | 2-3-5 | 1, 11 | |
| 157 | Rail pressure sensor | Cable break or short circuit | ● | | 209 | RailCD | 1-4-7 | 3, 4, 11 | |
| 157 | Rail pressure sensor | Deviation of signal during start or after-run above target range | ● | | 210 | RailCDOfsTst | 1-4-7 | 0, 1, 11 | ● |
| 158 | Terminal 15 | Ignition ON not detected | ● | ● | 226 | T15CD | 5-1-4 | 11, 12 | |
| 168 | Battery | Voltage below target range | ● | ● | 22 | BattCD | 3-1-8 | 0, 1, 11 | ● |
| 168 | Battery voltage | Above target range with system reaction | ● | ● | 23 | BattCDSysReac | 3-1-8 | 2, 11 | ● |
| 174 | Fuel temperature sensor | Fuel temp. sensor: cable break or short circuit | ● | ● | 133 | FTSCD | 2-2-7 | 3, 4, 11 | ● |
| 174 | Fuel temperature | Above target range with system reaction | ● | ● | 134 | FTSCDSysReac | 2-3-7 | 0, 11 | ● |
| 175 | Oil temperature sensor | Cable break or short circuit | ● | ● | 201 | OTSCD | 1-4-4 | 2, 3, 4 | ● |
| 175 | Oil temperature | Below target range with system reaction | ● | ● | 203 | OTSCDSysReac | 1-4-4 | 0, 11 | ● |
| 190 | Engine speed sensor | Engine running with cam-shaft speed signal only | ● | ● | 75 | EngMBackUp | 2-1-2 | 11, 12 | ● |

| SPN | Component / Location | Description (Error location) | Defined for DCR | Defined for DMV | Error code SERDIA | ID | Blink code | FMI | Self-curing[1] |
|---|---|---|---|---|---|---|---|---|---|
| 190 | Engine speed sensor | Speed signal from cam-shaft bad or missing | ● | ● | 76 | EngMCaS1 | 2-1-2 | 8, 11, 12 | ● |
| 190 | Engine speed sensor | Speed signal from crank-shaft bad or missing | ● | ● | 77 | EngMCrS1 | 2-1-2 | 8, 11, 12 | ● |
| 190 | Engine speed sensor | Speed signals of crank-shaft and cam-shaft are phase-shifted | ● | ● | 78 | EngMOfsCaSCrS | 2-1-3 | 2, 11 | |
| 190 | Overspeed | Engine overspeed with system reaction | ● | ● | 79 | EngPrtSysReacFOC | 2-1-4 | 0, 11 | |
| 190 | Overrun conditions | Overrun conditions with system reaction | ● | ● | 80 | EngPrtSysReacORC | 2-1-4 | 11, 14 | ● |
| 520 | CAN message | Missing (message "TSC1-TR") | ● | ● | 126 | FrmMngTOTSC1TR | 1-1-9 | 11, 12 | |
| 563 | Main relay | Short circuit to ground or emergency shut-off (relay 3) | ● | ● | 187 | MRlyCDMnRly2 | 2-6-1 | 7, 11, 12 | |
| 624 | Diagnostic lamp | Cable break or short circuit, disabled by ECU | ● | ● | 225 | SysLamp | 5-1-3 | 2, 3, 4, 5 | |
| 630 | ECU internal error | EEPROM memory access | ● | ● | 142 | HWEMonEEPROM | 2-8-1 | 11, 12 | |
| 639 | CAN bus off-state | Cable break or short circuit, off-state (CAN bus A) | ● | ● | 192 | NetMngCANAOff | 2-7-1 | 11, 14 | ● |
| 651 | Single injector | Short circuit (injector 1) | ● | ● | 159 | InjVlvCyl1A | 1-5-4 | 3, 4, 11, 13 | ● |
| 651 | Single injector | Cable break (injector 1) | ● | ● | 160 | InjVlvCyl1B | 1-5-4 | 5, 13 | ● |
| 652 | Single injector | Short circuit (injector 2) | ● | ● | 161 | InjVlvCyl2A | 1-5-5 | 3, 4, 11, 13 | ● |
| 652 | Single injector | Cable break (injector 2) | ● | ● | 162 | InjVlvCyl2B | 1-5-5 | 5, 13 | ● |
| 653 | Single injector | Short circuit (injector 3) | ● | ● | 163 | InjVlvCyl3A | 1-5-6 | 3, 4, 11, 13 | ● |
| 653 | Single injector | Cable break (injector 3) | ● | ● | 164 | InjVlvCyl3B | 1-5-6 | 5, 13 | ● |
| 654 | Single injector | Short circuit (injector 4) | ● | ● | 165 | InjVlvCyl4A | 1-6-1 | 3, 4, 11, 13 | ● |
| 654 | Single injector | Cable break (injector 4) | ● | ● | 166 | InjVlvCyl4B | 1-6-1 | 5, 13 | ● |
| 655 | Single injector | Short circuit (injector 5) | ● | ● | 167 | InjVlvCyl5A | 1-6-2 | 3, 4, 11, 13 | ● |
| 655 | Single injector | Cable break (injector 5) | ● | ● | 168 | InjVlvCyl5B | 1-6-2 | 5, 13 | ● |
| 656 | Single injector | Short circuit (injector 6) | ● | ● | 169 | InjVlvCyl6A | 1-6-3 | 3, 4, 11, 13 | ● |
| 656 | Single injector | Cable break (injector 6) | ● | ● | 170 | InjVlvCyl6B | 1-6-3 | 5, 13 | ● |
| 657 | Single injector | Short circuit (injector 7) | | ● | 171 | InjVlvCyl7A | 1-6-4 | 3, 4, 11, 13 | ● |
| 657 | Single injector | Cable break (injector 7) | | ● | 172 | InjVlvCyl7B | 1-6-4 | 5, 13 | ● |
| 658 | Single injector | Short circuit (injector 8) | | ● | 173 | InjVlvCyl8A | 1-6-5 | 3, 4, 11, 13 | ● |
| 658 | Single injector | Cable break (injector 8) | | ● | 174 | InjVlvCyl8B | 1-6-5 | 5, 13 | ● |
| 676 | Air heater relay | Cable break or wrong connection | ● | ● | 19 | ArHtCD_NoLd | 2-6-3 | 4, 11 | |
| 676 | Air heater relay | Inoperable during shut-off | ● | ● | 20 | ArHtCD_RlyErr | 2-6-3 | 2, 5, 11 | |
| 677 | Start relay | Start relay (high side): short circuit | ● | ● | 223 | StrtCDHS | 5-1-2 | 3, 4, 11 | |
| 677 | Start relay | Start relay (low side): cable break or short circuit, disabled by ECU | ● | ● | 224 | StrtCDLS | 5-1-2 | 3, 4, 5, 11 | |
| 701 | Reserve output | Short circuit to Ubatt (output 1) | ● | ● | 57 | Dummy1CD_Max | - | 11 | |
| 701 | Reserve output | Short circuit to ground (output 1) | ● | ● | 58 | Dummy1CD_Min | - | 11 | |
| 701 | Reserve output | Cable break or ECU internal error (output 1) | ● | ● | 59 | Dummy1CD_SigNpl | - | 11 | |
| 702 | Reserve output | Short circuit to Ubatt (output 2) | ● | ● | 60 | Dummy2CD_Max | - | 11 | |

| SPN | Component / Location | Description (Error location) | Defined for DCR | Defined for DMV | Error code SERDIA | ID | Blink code | FMI | Self-curing[1] |
|---|---|---|---|---|---|---|---|---|---|
| 702 | Reserve output | Short circuit to ground (output 2) | ● | ● | 61 | Dummy2CD_Min | - | 11 | |
| 702 | Reserve output | Cable break or ECU internal error (output 2) | ● | ● | 62 | Dummy2CD_SigNpl | - | 11 | |
| 703 | Engine operating signal lamp | Cable break or ECU internal error | ● | ● | 81 | ESLpCD | 1-4-2 | 2, 3, 4, 5 | |
| 704 | Coolant temperature warning lamp | Cable break or short circuit | ● | ● | 54 | CTLpCD | 1-2-3 | 11 | |
| 705 | Oil pressure warning lamp | Cable break or short circuit | ● | ● | 195 | OPLpCD | 1-3-5 | 2, 3, 4, 5 | |
| 729 | Air heater relay | Cable break or short circuit | ● | ● | 17 | ArHt1 | 2-6-3 | 3, 4, 5, 11 | ● |
| 730 | Air heater magnetic valve | Cable break or short circuit | ● | ● | 18 | ArHt2 | 2-6-3 | 3, 4, 5, 11 | ● |
| 898 | CAN message | Missing (message "TSC1-TE") | ● | ● | 125 | FrmMngTOTSC1TE | 1-1-8 | 11, 12 | |
| 923 | Engine power output | Engine Power output: cable break or short circuit | ● | ● | 74 | EngCDTrqCalcOut | 5-5-5 | 2, 3, 4, 5 | |
| 975 | Fan actuator | Fan actuator: cable break or short circuit | ● | ● | 83 | FanCD | 2-3-8 | 2, 3, 4, 5 | |
| 1072 | Engine brake (internal) | Internal engine brake: cable break or short circuit | ● | ● | 52 | CRERCD | 5-2-8 | 3, 4, 5, 11 | |
| 1074 | Engine brake flap actuator | Engine brake flap actuator: cable break or short circuit | ● | ● | 82 | ExFlCD | 2-1-9 | 3, 4, 5, 11 | |
| 1079 | ECU internal error | Wrong voltage of internal 5V reference source 1 | ● | ● | 219 | SSpMon1 | 2-8-2 | 3, 4, 11 | ● |
| 1080 | ECU internal error | Wrong voltage of internal 5V reference source 2 | ● | ● | 221 | SSpMon2 | 2-8-2 | 3, 4, 11 | ● |
| 1081 | Preheating signal lamp | Cable break or short circuit | ● | ● | 53 | CSLpCD | 3-2-8 | 2, 3, 4, 5 | |
| 1109 | Shut-off request | Shut-off request ignored by operator | ● | ● | 48 | CoEngShOffDemIgr | 3-4-1 | 2, 11 | |
| 1231 | CAN bus off-state | Cable break or short circuit, off-state (CAN bus B) | ● | ● | 193 | NetMngCANBOff | 2-7-1 | 11, 14 | ● |
| 1235 | CAN bus off-state | Cable break or short circuit, off-state (CAN bus C) | ● | ● | 194 | NetMngCANCOff | 2-7-1 | 11, 14 | ● |
| 1237 | Override switch | Switch hangs | ● | ● | 200 | OSwCD | 1-4-5 | 2, 11 | ● |
| 1322 | Multiple cylinders | Misfire detected | ● | ● | 46 | CmbChbMisfireMul | 2-4-1 | 11, 12 | |
| 1323 | Single cylinder | Misfire detected (cylinder 1) | ● | ● | 38 | CmbChbMisfire1 | 2-4-1 | 11, 12 | |
| 1324 | Single cylinder | Misfire detected (cylinder 2) | ● | ● | 39 | CmbChbMisfire2 | 2-4-1 | 11, 12 | |
| 1325 | Single cylinder | Misfire detected (cylinder 3) | ● | ● | 40 | CmbChbMisfire3 | 2-4-1 | 11, 12 | |
| 1326 | Single cylinder | Misfire detected (cylinder 4) | ● | ● | 41 | CmbChbMisfire4 | 2-4-1 | 11, 12 | |
| 1327 | Single cylinder | Misfire detected (cylinder 5) | ● | ● | 42 | CmbChbMisfire5 | 2-4-1 | 11, 12 | |
| 1328 | Single cylinder | Misfire detected (cylinder 6) | ● | ● | 43 | CmbChbMisfire6 | 2-4-1 | 11, 12 | |
| 1346 | Misfire | Misfire detected with system reaction | ● | | 47 | CmbChbSysReac | 2-4-1 | 0, 11 | |
| 1450 | Single cylinder | Misfire detected (cylinder 7) | | ● | 44 | CmbChbMisfire7 | 2-4-1 | 11, 12 | |
| 1451 | Single cylinder | Misfire detected (cylinder 8) | | ● | 45 | CmbChbMisfire8 | 2-4-1 | 11, 12 | |
| 1638 | Customer-specific sensor | Cable break or short circuit (sensor 2) | ● | ● | 139 | HOTSCD | 3-1-4 | 3, 4, 11, 12 | ● |
| 1638 | Customer-specific temperature | Outside target range with system reaction (temperature 2) | ● | ● | 140 | HOTSCDSysReac | 3-1-4 | 2, 11 | ● |
| 2634 | Main relay | Short circuit to Ubatt (relay 1) | ● | ● | 182 | MnRly1_SCB | 1-3-7 | 3, 11 | |
| 2634 | Main relay | Short circuit to ground (relay 1) | ● | ● | 183 | MnRly1_SCG | 1-3-8 | 4, 11 | |
| 2634 | Main relay | Short circuit to ground or emergency shut-off (relay 2) | ● | ● | 186 | MRlyCD | 2-6-1 | 7, 11, 12 | |

| SPN | Component / Location | Description (Error location) | Defined for DCR | Defined for DMV | Error code SERDIA | ID | Blink code | FMI | Self-curing[1] |
|---|---|---|---|---|---|---|---|---|---|
| 2634 | Main relay | Short circuit to ground or emergency shut-off (relay 3) | ● | ● | 188 | MRlyCDMnRly3 | 2-6-1 | 7, 11, 12 | |
| 2791 | EGR actuator (external) | Short circuit to Ubatt | ● | ● | 69 | EGRCD_Max | 4-1-4 | 3, 11 | |
| 2791 | EGR actuator (external) | Short circuit to ground | ● | ● | 70 | EGRCD_Min | 4-1-4 | 4, 11 | |
| 2791 | EGR actuator (external) | Cable break or ECU internal error | ● | ● | 71 | EGRCD_SigNpl | 4-1-5 | 2, 5, 11 | |
| 2791 | EGR actuator (external) | Cable break or short circuit | ● | ● | 72 | EGRCDIntEGR | 4-1-6 | 2, 3, 4, 5 | |
| 523212 | CAN message | Missing (message "EngPrt" = engine protection) | ● | ● | 106 | FrmMngTOEngPrt | 3-3-3 | 11, 12 | ● |
| 523216 | CAN message | Missing (message "PrHtEnCmd" = preheat and engine command) | ● | ● | 110 | FrmMngTOPrHtEnCmd | 3-3-7 | 11, 12 | ● |
| 523218 | CAN message | Missing (message "RxCCVS" = cruise control) | ● | ● | 112 | FrmMngTORxCCVS | 1-1-1 | 11, 12 | ● |
| 523222 | CAN message | Missing (message "TCO1" = speedo signal) | ● | ● | 118 | FrmMngTOTCO1 | 1-1-6 | 11, 12 | ● |
| 523238 | CAN message | Missing (message "SwtOut" = switch outputs) | ● | ● | 117 | FrmMngTOSwtOut | 1-1-5 | 11, 12 | ● |
| 523239 | CAN message | Missing or value above target range (message "DecV1" = pseudo pedal) | ● | ● | 94 | FrmMngDecV1 | 5-2-6 | 2, 12 | ● |
| 523240 | CAN message | Missing (message "FunModCtl" = function mode control) | ● | ● | 95 | FrmMngFunModCtl | 5-2-7 | 11, 12 | ● |
| 523350 | Multiple injectors | Short circuit (cylinder bank 1) | ● | ● | 153 | InjVlvBnk1A | 1-5-1 | 3, 4, 11, 13 | ● |
| 523351 | Multiple injectors | Cable break (cylinder bank 1) | ● | ● | 154 | InjVlvBnk1B | 1-5-1 | 5, 13 | ● |
| 523352 | Multiple injectors | Short circuit (cylinder bank 2) | ● | ● | 155 | InjVlvBnk2A | 1-5-2 | 3, 4, 11, 13 | ● |
| 523353 | Multiple injectors | Cable break (cylinder bank 2) | ● | ● | 156 | InjVlvBnk2B | 1-5-2 | 5, 13 | ● |
| 523354 | ECU internal error | Injector power stage A | ● | ● | 157 | InjVlvChipA | 1-5-3 | 2, 3, 12, 14 | |
| 523355 | ECU internal error | Injector power stage B | ● | ● | 158 | InjVlvChipB | 1-5-3 | 12 | |
| 523370 | Rail pressure | Compression test active: rail-pressure monitoring is going to be disabled | ● | ● | 175 | InjVlvErrDet | 5-5-5 | 11, 14 | |
| 523420 | ECU internal error | Watchdog counter exceeds maximum | ● | ● | 184 | Montr | 1-3-9 | 11, 14 | |
| 523450 | Multi state switch | Cable break or short circuit, input voltage outside target range (switch 1) | ● | ● | 189 | MSSCD1 | 1-4-3 | 2, 3, 4, 11 | ● |
| 523451 | Multi state switch | Cable break or short circuit, input voltage outside target range (switch 2) | ● | ● | 190 | MSSCD2 | 1-4-3 | 2, 3, 4, 11 | ● |
| 523452 | Multi state switch | Cable break or short circuit, input voltage outside target range (switch 3) | ● | ● | 191 | MSSCD3 | 1-4-3 | 2, 3, 4, 11 | ● |
| 523470 | Rail pressure limiting valve | Opening failure | ● | | 208 | PRVMon | 1-4-6 | 2, 11, 12, 14 | |
| 523470 | Rail pressure limiting valve | Opening failure with system reaction | ● | | 236 | PRVMonSysReac | 1-4-6 | 11, 12 | |
| 523490 | ECU internal error | Redundant shut-off conditions detected | ● | ● | 218 | SOPTst | 1-4-9 | 3, 4, 11, 12 | |
| 523500 | CAN message | Time-out of at least one sended message | ● | ● | 131 | FrmMngTxTO | 2-7-1 | 11, 12 | ● |
| 523550 | Terminal 50 | Engine start switch hangs | ● | ● | 227 | T50CD | 5-1-5 | 11, 12 | |
| 523550 | ECU internal error | Time processing unit (TPU) defective | ● | ● | 228 | TPUMon | 5-5-5 | 2, 11 | |
| 523561 | Begin of injection period | Outside target range or missing (cylinder 1) | | ● | 24 | BIPCyl1 | 5-3-1 | 2 | ● |
| 523562 | Begin of injection period | Outside target range or missing (cylinder 2) | | ● | 25 | BIPCyl2 | 5-3-2 | 2 | ● |
| 523563 | Begin of injection period | Outside target range or missing (cylinder 3) | | ● | 26 | BIPCyl3 | 5-3-3 | 2 | ● |
| 523564 | Begin of injection period | Outside target range or missing (cylinder 4) | | ● | 27 | BIPCyl4 | 5-3-4 | 2 | ● |
| 523565 | Begin of injection period | Outside target range or missing (cylinder 5) | | ● | 28 | BIPCyl5 | 5-3-5 | 2 | ● |

| SPN | Component / Location | Description (Error location) | Defined for DCR | Defined for DMV | Error code SERDIA | ID | Blink code | FMI | Self-curing[1] |
|---|---|---|---|---|---|---|---|---|---|
| 523566 | Begin of injection period | Outside target range or missing (cylinder 6) | | ● | 29 | BIPCyl6 | 5-3-6 | 2 | ● |
| 523567 | Begin of injection period | Outside target range or missing (cylinder 7) | | ● | 30 | BIPCyl7 | 5-3-7 | 2 | ● |
| 523568 | Begin of injection period | Outside target range or missing (cylinder 8) | | ● | 31 | BIPCyl8 | 5-3-8 | 2 | ● |
| 523600 | ECU internal error | Serial communication interface defective | ● | ● | 235 | WdCom | 5-5-5 | 11, 12 | |
| 523601 | ECU internal error | Wrong voltage of internal 5V reference source 3 | ● | ● | 222 | SSpMon3 | 2-8-2 | 3, 4, 11 | ● |
| 523602 | Fan speed | Above target range with system reaction | ● | ● | 86 | FanCDSysReac | 2-3-8 | 2, 11 | ● |
| 523604 | CAN message | Missing (message "RxEngTemp" = engine temperature) | ● | ● | 113 | FrmMngTORxEngTemp | 1-1-2 | 11, 12 | ● |
| 523605 | CAN message | Missing (message "TSC1-AE") | ● | ● | 120 | FrmMngTOTSC1AE | 1-1-8 | 11, 12 | |
| 523606 | CAN message | Missing (message "TSC1-AR") | ● | ● | 121 | FrmMngTOTSC1AR | 1-1-9 | 11, 12 | |
| 523607 | CAN message | Missing (message "TSC1-DE") | ● | ● | 122 | FrmMngTOTSC1DE | 1-1-8 | 11, 12 | |
| 523608 | CAN message | Missing (message "TSC1-DR") | ● | ● | 123 | FrmMngTOTSC1DR | 1-1-9 | 11, 12 | |
| 523609 | CAN message | Missing (message "TSC1-PE") | ● | ● | 124 | FrmMngTOTSC1PE | 1-1-8 | 11, 12 | |
| 523610 | CAN message | Missing (message "TSC1-VE") | ● | ● | 127 | FrmMngTOTSC1VE | 1-1-8 | 11, 12 | |
| 523611 | CAN message | Missing (message "TSC1-VR") | ● | ● | 128 | FrmMngTOTSC1VR | 1-1-9 | 11, 12 | |
| 523612 | ECU internal hardware monitoring | A recovery occurred which is stored as protected | ● | ● | 143 | HWEMonRcyLocked | 5-5-5 | 11, 14 | |
| 523612 | ECU internal hardware monitoring | A recovery occurred which is not stored | ● | ● | 144 | HWEMonRcySuppres-sed | 5-5-5 | 11, 14 | |
| 523612 | ECU internal hardware monitoring | A recovery occurred which is visible in the error memory | ● | ● | 145 | HWEMonRcyVisible | 5-5-5 | 11, 14 | |
| 523612 | ECU internal hardware monitoring | Overvoltage | ● | ● | 146 | HWEMonUMaxSupply | 5-5-5 | 3, 11 | |
| 523612 | ECU internal hardware monitoring | Undervoltage | ● | ● | 147 | HWEMonUMinSupply | 5-5-5 | 4, 11 | |
| 523613 | Rail pressure | Positive deviation (speed dependent) outside target range | ● | | 211 | RailMeUn0 | 1-3-4 | 0, 11 | ● |
| 523613 | Rail pressure | Positive deviation (flow dependent) outside target range (⇨ leakage!) | ● | | 212 | RailMeUn1 | 1-3-4 | 0, 11 | ● |
| 523613 | Rail pressure | Negative deviation (flow dependent) outside target range | ● | | 213 | RailMeUn2 | 1-3-4 | 0, 11 | ● |
| 523613 | Rail pressure | Negative deviation (speed dependent) outside target range | ● | | 214 | RailMeUn3 | 1-3-4 | 1, 11 | ● |
| 523613 | Rail pressure | Pressure above target range | ● | | 215 | RailMeUn4 | 1-3-4 | 0, 11 | ● |
| 523613 | Rail pressure | Implausible (leakage, injector needle blocked in open position) | ● | | 216 | RailMeUn7 | 1-3-4 | 2, 11 | ● |
| 523615 | Metering unit valve | Flow rate outside target range | ● | | 176 | MeUnCD_ADC | 1-3-5 | 3, 4, 11 | |
| 523615 | Metering unit valve | Not connected or output disabled | ● | | 177 | MeUnCDNoLoad | 1-3-5 | 5, 11, 12 | |
| 523615 | Metering unit valve | Short circuit to Ubatt | ● | | 178 | MeUnCDSCBat | 1-3-5 | 11, 12 | |
| 523615 | Metering unit valve | Short circuit to ground | ● | | 179 | MeUnCDSCGnd | 1-3-5 | 11, 12 | |
| 523617 | ECU internal error | Communication with chip CJ 940 disturbed | ● | ● | 141 | HWEMonCom | 5-5-5 | 11, 12 | |
| - | Customer-specific sensor | Cable break or short circuit (sensor 1) | ● | ● | 136 | GOTSCD | 1-3-3 | 2, 3, 4, 11 | ● |
| - | Customer-specific temperature | Outside target range with system reaction (temperature 1) | ● | ● | 137 | GOTSCDSysReac | 1-3-3 | 2, 11 | ● |

| FMI | Description |
|---|---|
| 0 | Data valid but above normal operational range |
| 1 | Data valid but below normal operational range |
| 2 | Data erratic, intermittent, or incorrect |
| 3 | Voltage above normal or shorted high |
| 4 | Voltage below normal or shorted low |
| 5 | Current below normal or open circuit |
| 6 | Current above normal or grounded circuit |
| 7 | Mechanical system not responding properly |

| FMI | Description |
|---|---|
| 8 | Abnormal frequency, pulse width,or period |
| 9 | Abnormal update rated |
| 10 | Abnormal rate of change |
| 11 | Failure mode not identifiable |
| 12 | Bad intelligent device or component |
| 13 | Out of Calibration |
| 14 | Special Instructions |
| 15 | Reserved |

# D 3.0 Operation

## 1 Operating elements on the paver

### Operator's platform


### Seat console

The seat console can pivot beyond the outer edge of the vehicle, providing the driver with a better view of the paving area in this position.

- Step on the lock release (1).
- Swing the seat console to the desired position.
- Engage the lock into one of the fixed positions (2).

**⚠ CAUTION**

After locking the seat console, check it to ensure it will not move into another position!

### Operating panel

The operating panel can be pivoted so that the seat console is beyond the outer edge of the vehicle.

- Pull the locking knob (3).
- Swing the operating panel to the desired position.
- Engage the lock in one of the fixed positions (4).

**⚠ CAUTION**

After locking the panel, check it to ensure it will not move to another position!

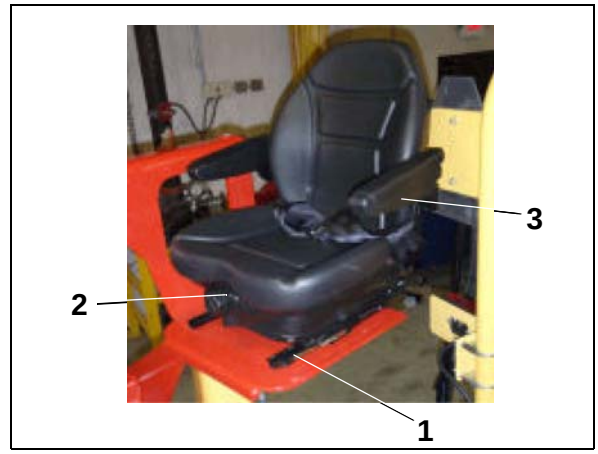
## Driver's seat

**⚠ CAUTION**

To avoid injury, the individual seat settings should be checked and adjusted before starting the vehicle.

**⚠ CAUTION**

After the adjustments are set, check the seat to ensure it does not move out of adjustment.

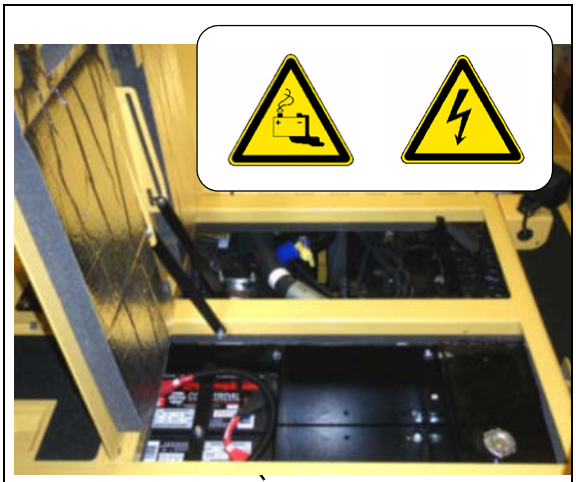



- **Seat forward and back adjustment (1):** The seat can be moved forward or it can be moved back. to adjust the seat, raise the lever on the lower left side of the seat to release the lock. Once the seat is in the desired position, release the lever and the seat will lock into place
- **Seat backrest adjustment (2):** The back rest can be adjusted to lean forward or lean back. To adjust the back rest, turn the knob on the lower front part of the seat. Turn the knob clockwise to lean the back rest forward; turn the knob counter-clockwise to lean the back rest back.
- **Armrest positions (3):** The armrest can be lowered to support the arm or it can be raised to be stowed out of the way.

## Batteries

The batteries are located under the right hand side (from operator platform) maintenance door.

There are two 12 V batteries to produce the 24 V needed for the electrical system.
For servicing, see chapter F.



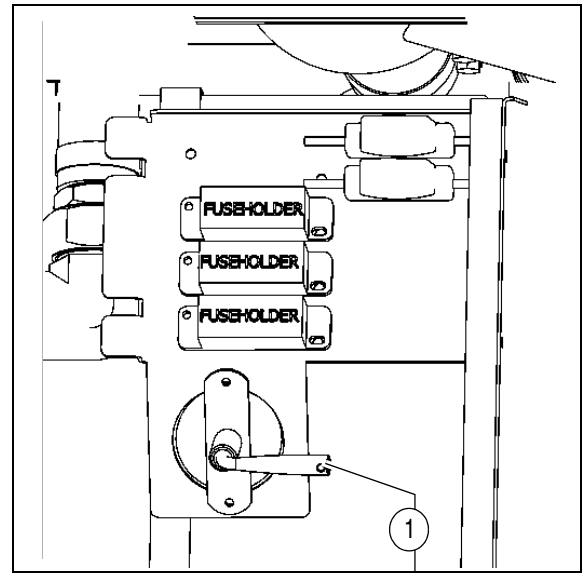
Batteries

**NOTICE**

Follow the instructions when jump starting the paver. (see section D 4).

## Battery main switch

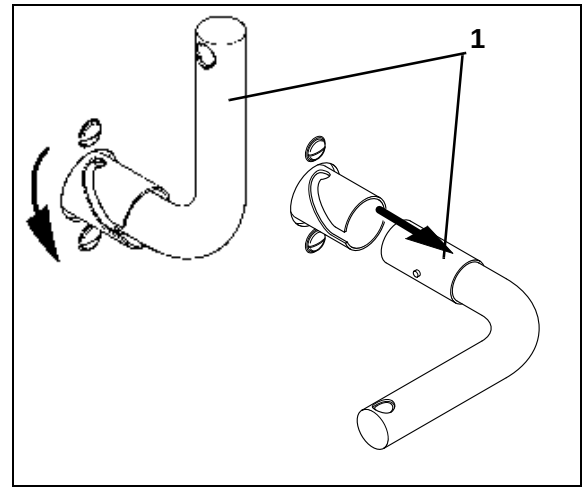
The main switch interrupting the circuit between the battery and the main fuse is located under the center maintenance door.




**NOTICE**

See chapter F for fuse locations and fuse order.

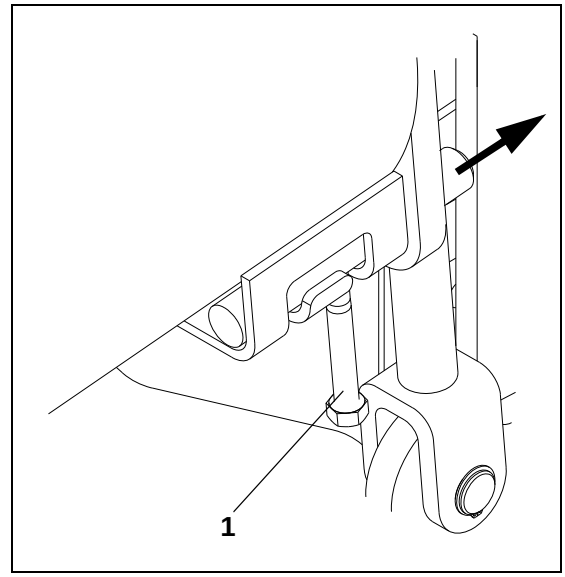
- To switch the ignition off, turn the key (1) to the left and pull it out.




**⚠ WARNING**

Do not lose the key. Without it the paver can no longer be moved!

## Transport safeguards for the hopper



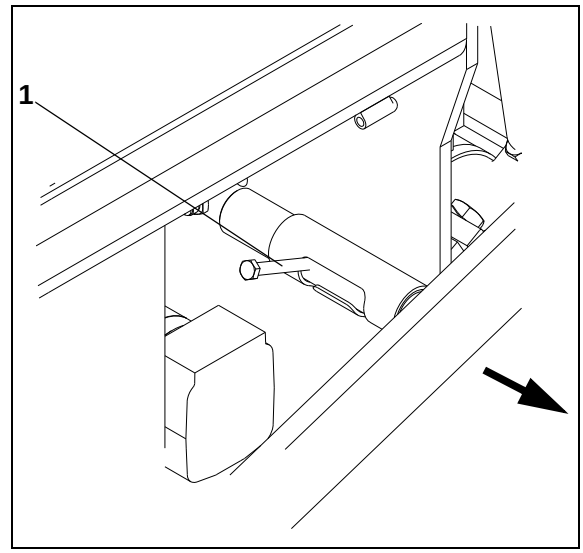

Before parking or transporting the paver, the hopper halves must be pivoted upwards and the transport safeguards for the hopper must be inserted.

- Insert the safeguards on both sides of the machine (1) into the pinning hole.
- Without transport safeguards inserted, the hopper halves will slowly open; danger during transportation!

**⚠ WARNING**

Do not enter the hopper while the engine is running! Danger of being caught by the conveyor!

## Mechanical screed transport safeguard (to the left and the right beneath the driver's seat)




Used to protect the lifted screed from inadvertent lowering. The screed transport safeguard must be inserted before transportation and when work is finished.

- Lift the screed.
- Activate the levers (1).
- Check that the safeguards (to the left and to the right) engage under the crossbeams.

**⚠ WARNING**

Transportation with an unsecured screed bears the danger of accidents!

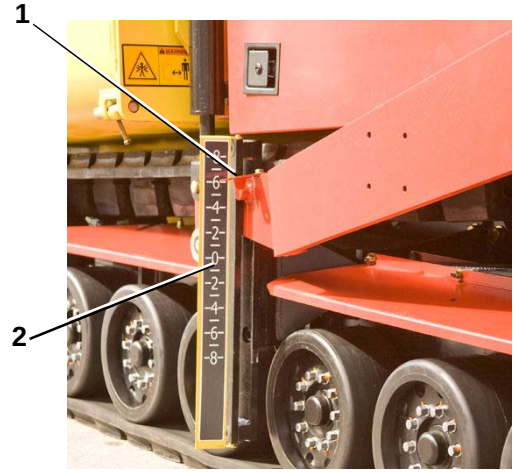
**⚠ DANGER**

Insert screed lock only at crown adjustment "zero"! Lock the screed only for transportation. Use the lock for transportation only! Do not enter or work under screed if it is only secured with the screed locked for transportation!

## Paving thickness indicator

The Paving Thickness Indicator scales are located on the left and right sides of the vehicle.

- The Paving Thickness Indicator (1) shows the setting on the Scale (2).
- In normal paving situations, the same paving thickness should be set on both sides of the vehicle!




:

**⚠ CAUTION**

Before transporting the vehicle, ensure the Paving Thickness Indicator and the Scale swing in against the machine. Do not transport the machine unless the indicator and the scale are in against the machine.

**⚠ CAUTION**

Avoid different settings on the scales as this will produce un-even pavement.

## Release Agent System

Used to spray the parts coming into contact with asphalt with a separator emulsion.

NOTE:

Check local regulations concerning use of cleaners and use of solvents!

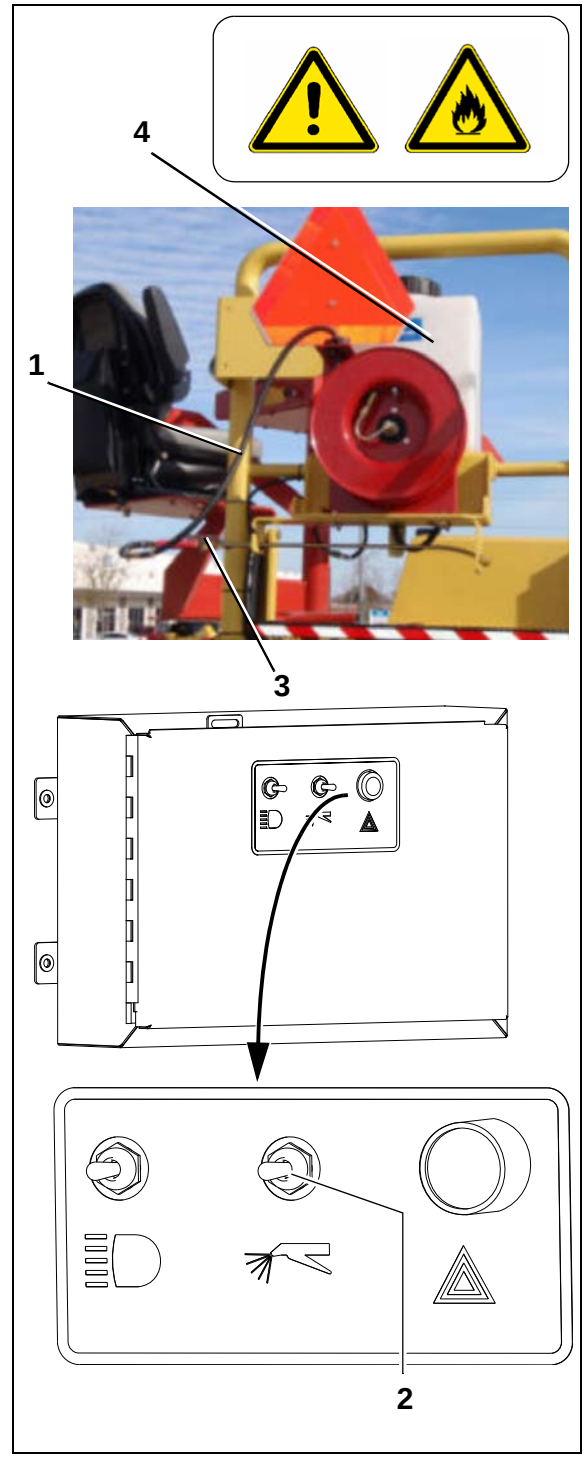
- Pull hose (1) out of the guide until there is an audible click. The hose will lock in this position.

NOTE:

The hose will retract automatically into the guide by pulling out until it clicks again, then it will reel in again.

- On/off switch (2) for the emulsion pump.
- Press hand-valve (3) to spray, release to stop spraying.

- The spraying system is fed by the tank (4). (Only fill the tank when the machine is not moving.)




**⚠ CAUTION**

Switch on the spraying system only when the diesel engine is running; otherwise, the battery will be drained. Switch off after use.

**⚠ DANGER**

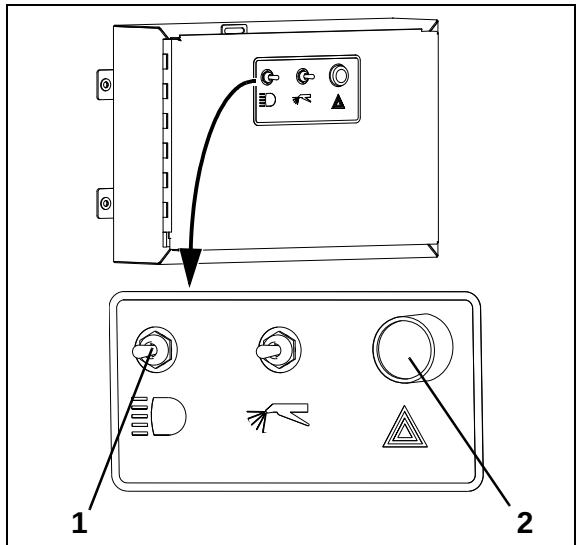
Don't spray into open flame or onto hot surface! Danger of explosion!

### On/Off switch of working lights (1)

Toggle switch (1) to switch on all installed working lights.

### On/Off switch hazard flasher (2):

Activate switch (2) to switch on installed flasher.

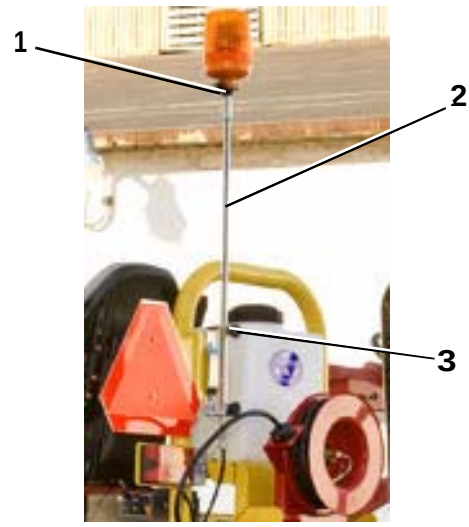



### Warning Beacon

NOTE:

The function of the warning beacon must be checked daily before starting work.

- Place the warning beacon onto the plug-in contact and secure with a wing bolt (1).
- Slide the warning beacon with tube (2) to the desired height and secure with the both clamping screws (3).
- Turn the switch on to activate the warning beacon.




NOTE:

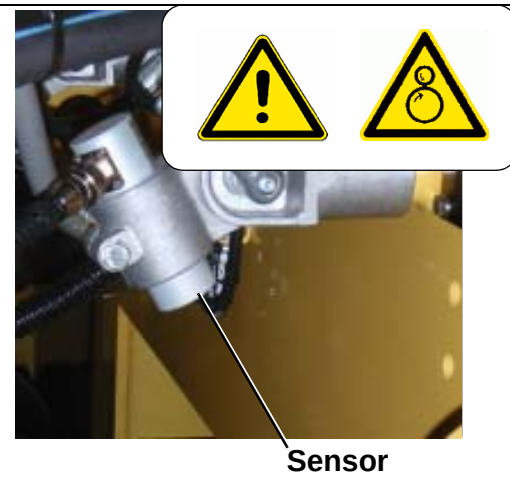
The rotary warning beacon is easy to remove and should be stored securely when the work is done.

## Conveyor limit sensors

The ultrasonic conveyor limit sensors control the material flow at the respective conveyor half. The conveyors should stop when the material has roughly reached the area below the auger tube.

NOTE:

This requires that the auger height has been adjusted correctly (see chapter E).

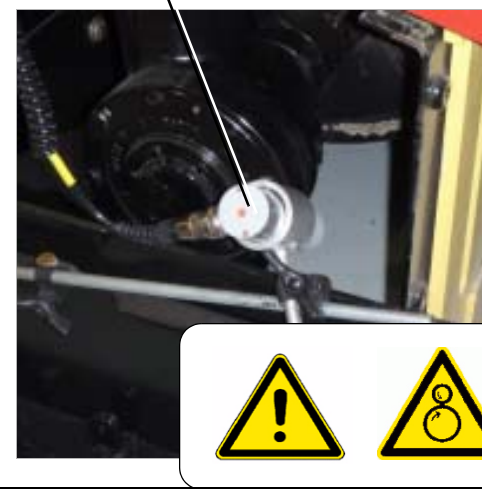



## Ultrasonic auger limit sensors (left and right)

The limit sensors control the material flow at the respective auger half.

The ultrasonic sensor is mounted to the side plate. Loose clamping lever for adjustment and modify angle / height of the sensor.
The cables must be connected to the remote control units located at the sides of the screed.

NOTE:




Adjust the limit sensor positions while the material is distributed.

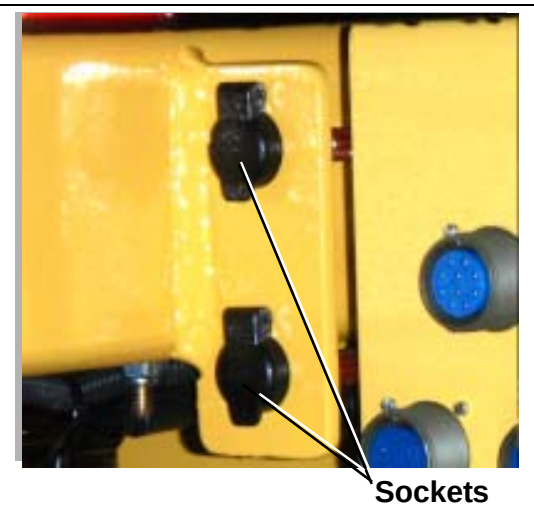
## Sockets 24V

Connect the working lights (24 V) or other devices here.

- Power is present when the main switch is switched on.

NOTE:

As an option, one socket can be used to provide power for accessories.



# D 4.0 +Operation

## 1 Preparation of operation

### Required equipment and tools

To avoid delays on site, check before starting work whether or not the following equipment and tools are present:

- Wheel loader for transporting heavy extendable parts
- Diesel fuel
- Engine oil and hydraulic oil, lubricants
- Separating agents (emulsion) and manual injector
- Shovel and broom
- Scraper (shovel or scoop) for cleaning the auger and the hopper intake area
- Necessary parts for extending the auger
- Necessary parts for extending the screed
- Percentage spirit level and levelling rail, 4 yards (4 m) long
- Levelling wire
- Protective clothing, signal vest, gloves, hearing protection

## Before starting work

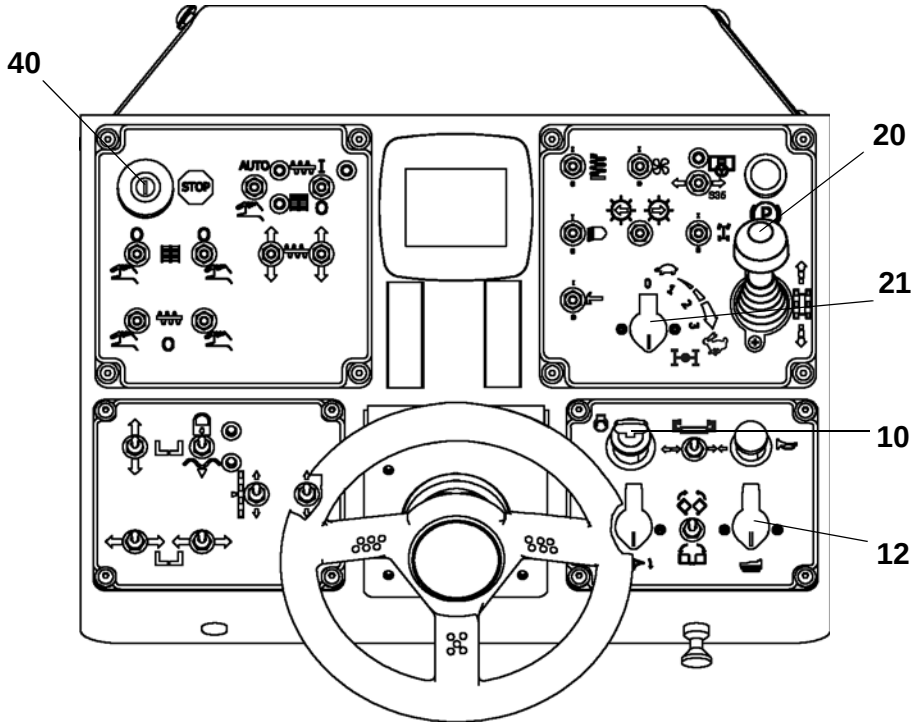
(in the morning or when starting paving)

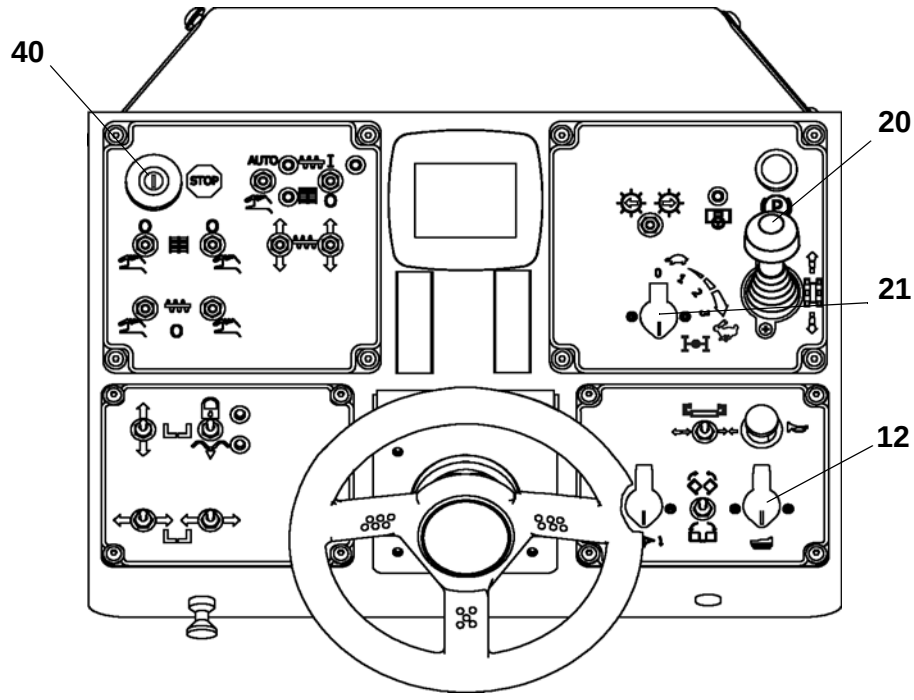
- Follow the safety instructions.
- Check personal protective equipment.
- Take an inspection walk around the paver and check for leaks and damages.
- Install parts removed for transportation or for the night.
- Perform the check according to the "Checklist for the machine operator" given below.

## Checklist for the machine operator

| Check! | How? |
|---|---|
| Emergency stop button<br>- on the operating panel<br>- on both remote control units | Push in the button.<br>The diesel engine and all running drives must stop immediately.<br>Button must be pulled out to start machine again |
| Steering | The paver must follow every movement of the steering wheel. Check straight running. |
| Horn<br>- on the operating panel<br>- on both remote control units | Briefly press the horn button.<br>The horn must sound. |
| Lights | Switch on (with the paver started), walk around the paver and inspect it, then switch off again. |

| Check! | How? |
|---|---|
| Auger covers | For larger working widths, the walkway plates must be extended and the auger tunnels must be covered. |
| Screed covers and walkways | For larger working widths, the walkway plates must be extended.<br>Hinged walkway plates must be swung down.<br>Check that the side shields, the side plates and the covers are securely seated. |
| Screed transport safeguard | When the screed is lifted, the operator must be able to engage both screed transport safeguards. |
| Hopper transport safeguard | When the hopper is closed, the operator must be able to engage both hopper transport safeguards. |
| Miscellaneous:<br>- Engine hood<br>- Lateral flaps | Check that the hoods and flaps are closed and secured. |
| Accessories:<br>- First-aid kit | The accessories must be in the provided holders. |




D_4.0_01_US.fm 4-26

## 1.1 Starting the paver

### Before starting the paver

Before starting the diesel engine and beginning operation, the following steps must be performed:

- Daily maintenance of the paver (see chapter F)

**⚠ CAUTION**

Check the operating hours counter to determine whether or not additional maintenance work (such as monthly or yearly maintenance) must be performed.

- Check the safety devices and protective devices.

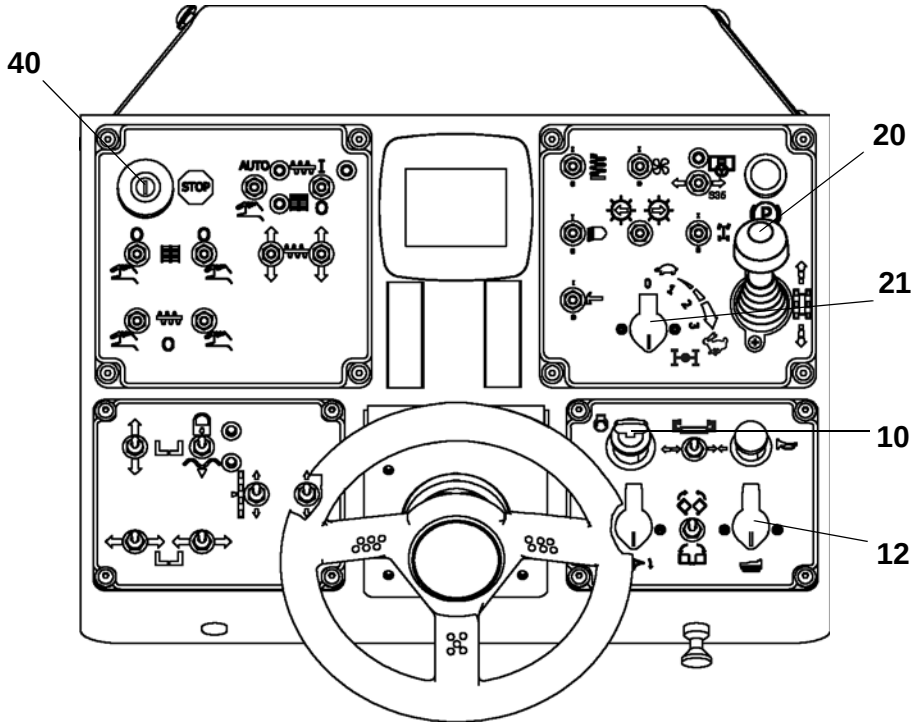
### "Normal" starting

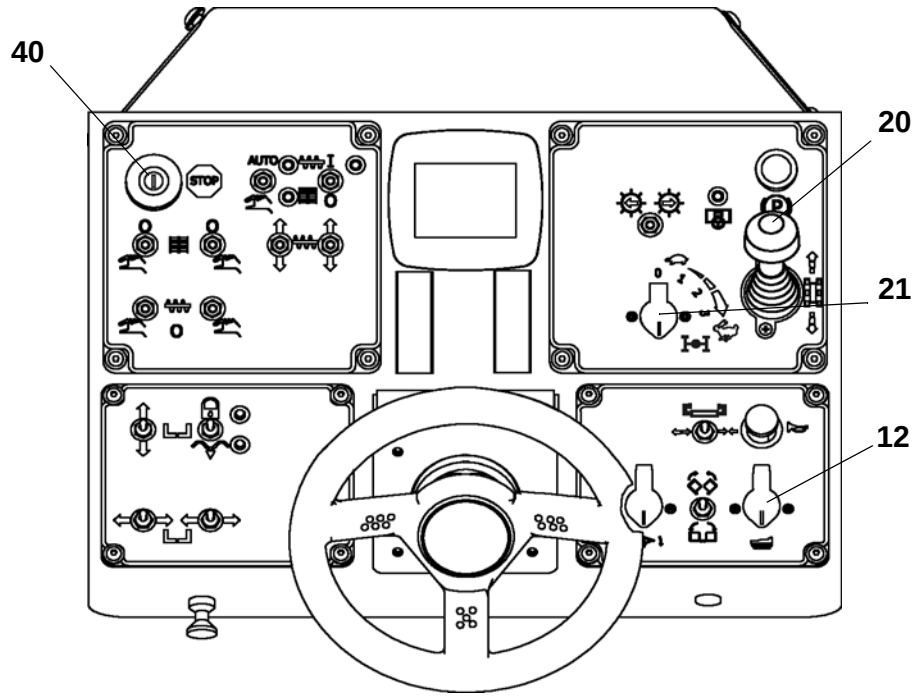
- Set the drive lever (20) to the center position and the speed preselector (12) and the selector (21) for traction drive / engine to minimum.
- Insert the ignition key (10) in position "0". The lights should be switched off during starting to reduce the current drain on the battery.

**NOTICE**

Starting is not possible if the drive lever is not in the central position or if the emergency stop button (40) is depressed,

- Turn the ignition key (10) into position 3 to start the engine. Once engine has started, release the key and it will spring-return to the "On" position. Do not let the starter run continuously for more than 20 seconds; wait 1 minute before turning the starter again.




D_4.0_01_US.fm 6-26

## Jump starting

The engine can be started with the help of an external power source if the batteries are low and the starter no longer turns.

Suitable power sources are:

- Other vehicles with a 24 V system
- Additional 24 V battery
- Start device that is suitable for jump starting (24 V/90 A).

**NOTICE**

Standard 12V chargers or quick chargers cannot be used for jump starting.

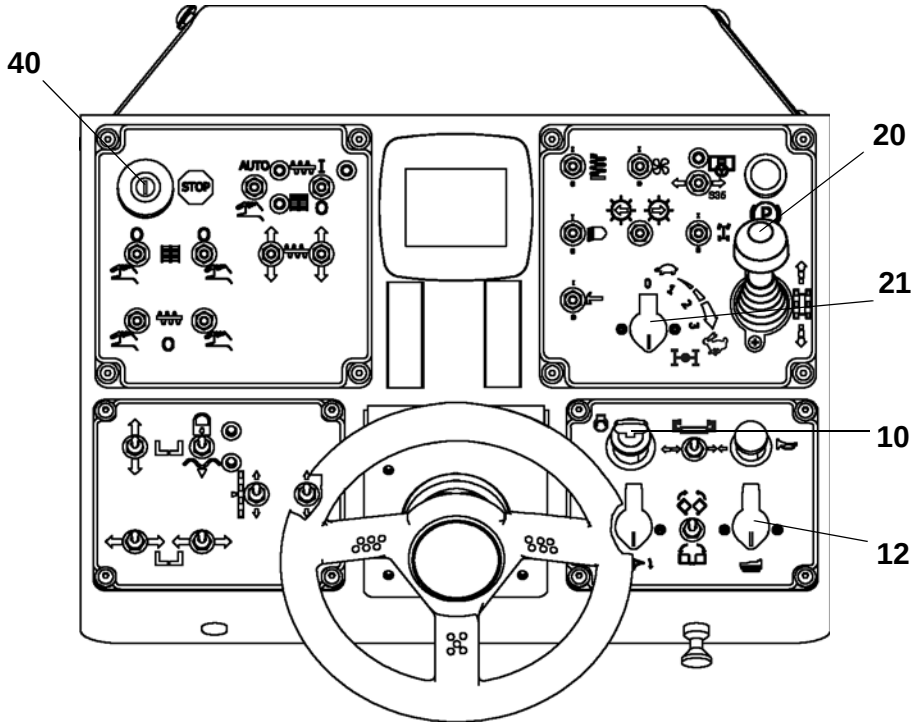
To jump start the engine:

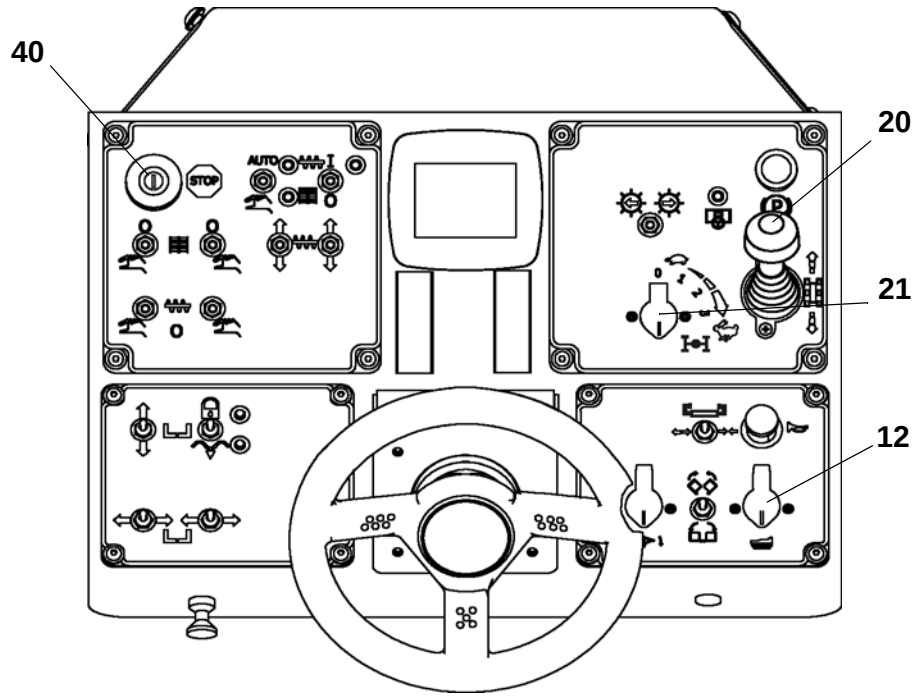
- Set the drive lever (20) to the center position. Set the speed preselector (12) and the selector (21) for traction drive / engine to minimum.
- Insert ignition switch (10) to position “0“ to turn on the ignition.
- Connect the power source with the appropriate cables.

**⚠ CAUTION**

Check for proper polarity! Always connect the negative cable last and remove it first!

- Turn the ignition key (10) completely to the right to start the engine. Once the engine starts, release the key and it will spring-return to the “ON” position. Do not let the starter run for more than 20 seconds; wait 1 minute after every attempt before turning the starter again!




D_4.0_01_US.fm 8-26

### After starting

To increase the engine speed:

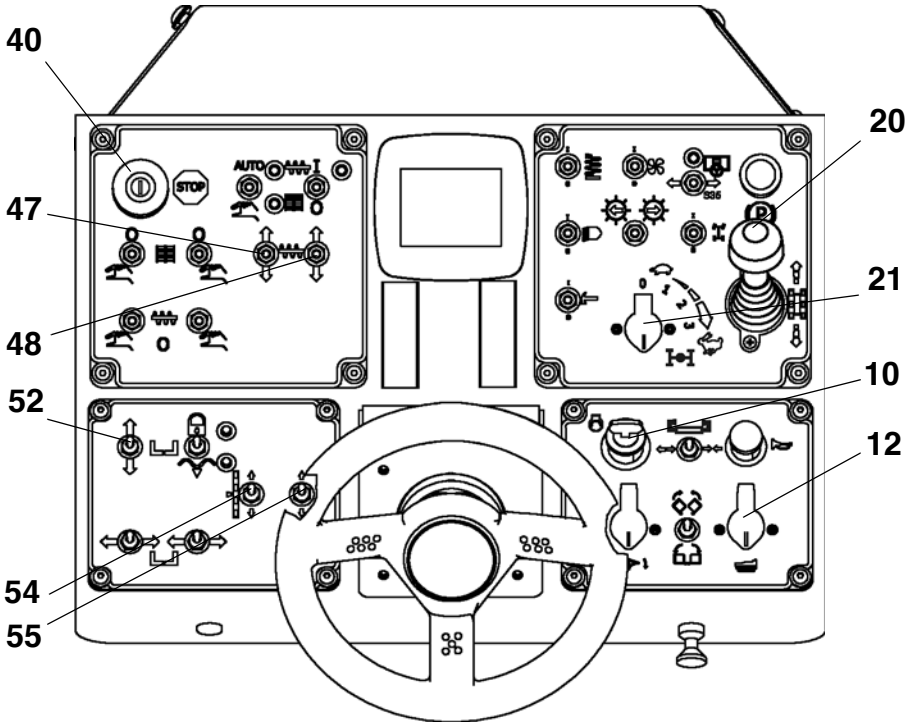
- Set selector (21) for traction drive / engine to position 2.

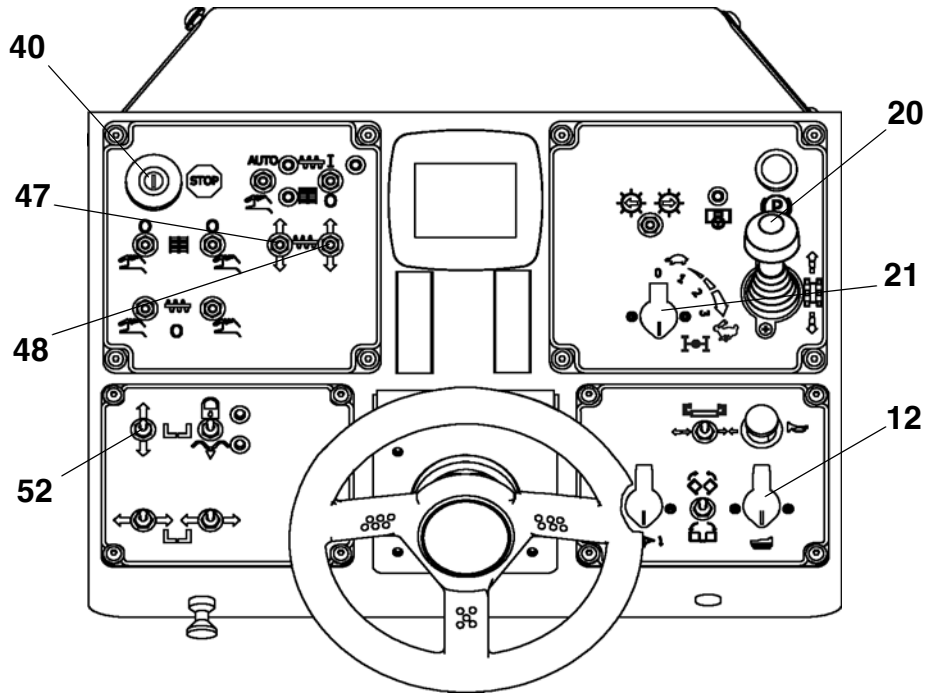
**NOTICE**

Let the paver warm up for about 5 minutes if the engine is cold.

**NOTICE**

Read and follow Chapter D2 of this manual for possible warnings on the graphical terminal!




D_4.0_01_US.fm 10-26

## 1.2 Transport Operation

### Lifting and securing the screed

- Raise the screed using switch (52).
- Center the levelling cylinders using the switches (54)/(55).

**NOTICE**

The remote control must be connected and this function must be set to “Manual“.

- Raise the auger crossbeam using switches (47)/(48).

**NOTICE**

Engage both screed transport safeguards to secure the screed in the raised position.

### Driving and stopping the paver

- Set the selector (21) for traction drive / engine to position 3.
- Set the preselector (12) for traction drive to approx. 50%.
- To start driving, carefully tilt the drive lever (20) forward or backward according to the drive direction desired.

**⚠ WARNING**

In case of an emergency, press the emergency stop button (40)!

- To stop the vehicle, move the drive lever (20) into its center position.

### Switching off and securing the paver

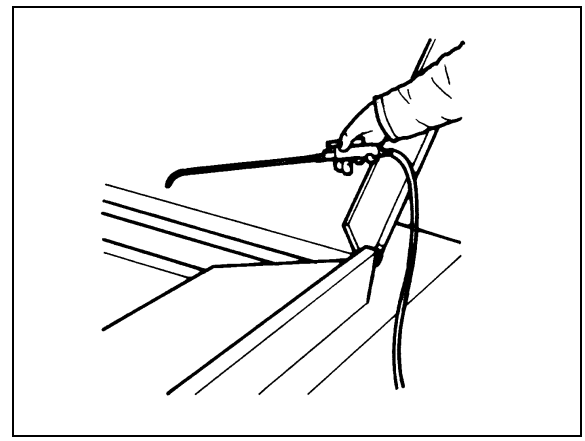
- Lower the screed using switch (52).
- Turn off the engine by turning the ignition key (10) to the “0“ position. Pull the key out of the switch.

**⚠ CAUTION**

The battery may become drained if the paver stands still for long periods of time even though the ignition is not switched on.

## 1.3 Preparations for paving

### Releasing agent



Spray the parts coming into contact with asphalt (hopper, screed, auger, push roller) with a separator emulsion.

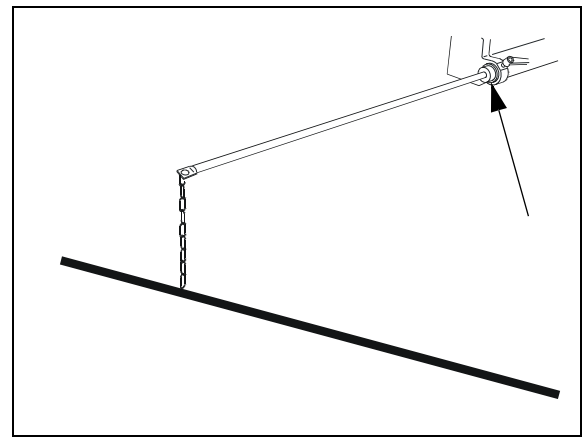
**⚠ WARNING**

Do not use diesel fuel as it dissolves the bitumen.

### Screed heater

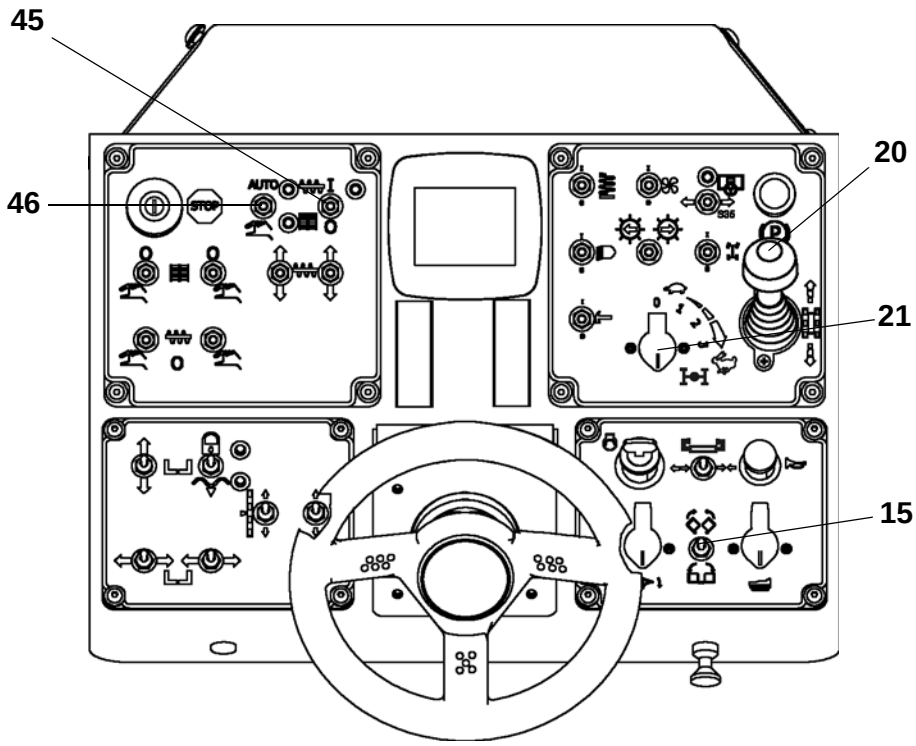
Switch the screed heater “On” for about 15–30 minutes (depending on the ambient temperature) before paving begins. Warming up prevents the material from sticking to the screed plates.

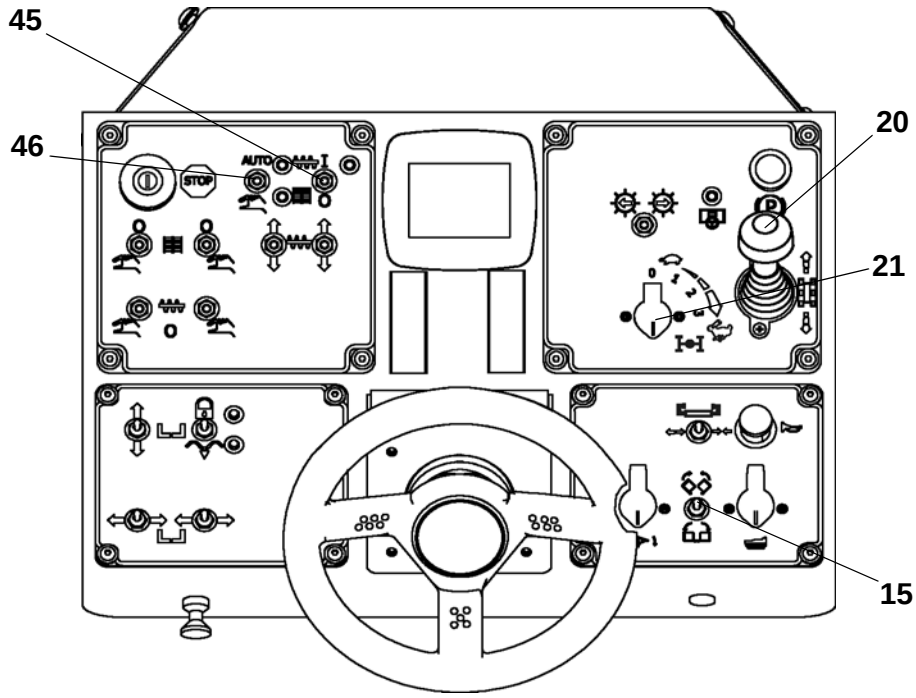
### Direction marks



To ensure straight paving, a direction mark must be present or established (road edge, chalk lines or similar).

- Slide the operating panel to the desired side and secure it.
- Pull the alignment indicator out of the bumper (see arrow) and adjust it accordingly.


45
46
20
21
15
AUTO
STOP


45
46
20
21
15
AUTO
STOP

## Loading/distributing material

- Open the hopper with switch (15).
  Have the truck back short of the paver and pull the paver against the truck tires. Guide the truck driver when dumping the material mix.
- Set the switch (45) of the auger and conveyor to the “ON” position.
- Set the switch (46) of the auger and conveyor to “AUTO“ position.
- Set the appropriate auger switch on the remote control and conveyor switch (if applicable) to “auto“ position.
- Set the selector (21) for traction drive / engine to position 2 and push the drive lever (20) forward (away from operator).

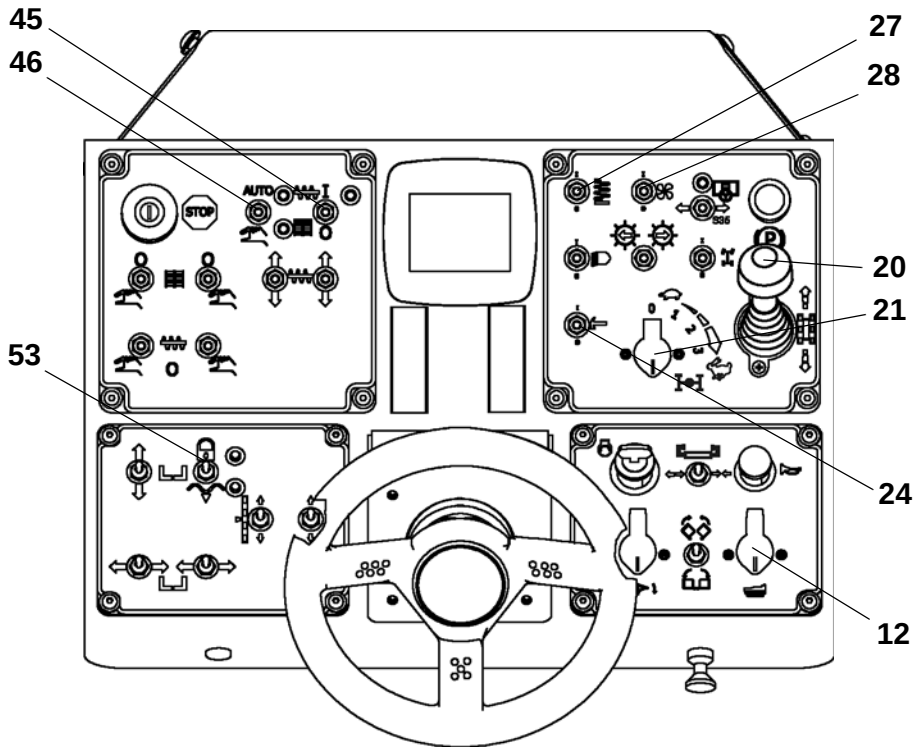
Conveyor and auger will begin to work.

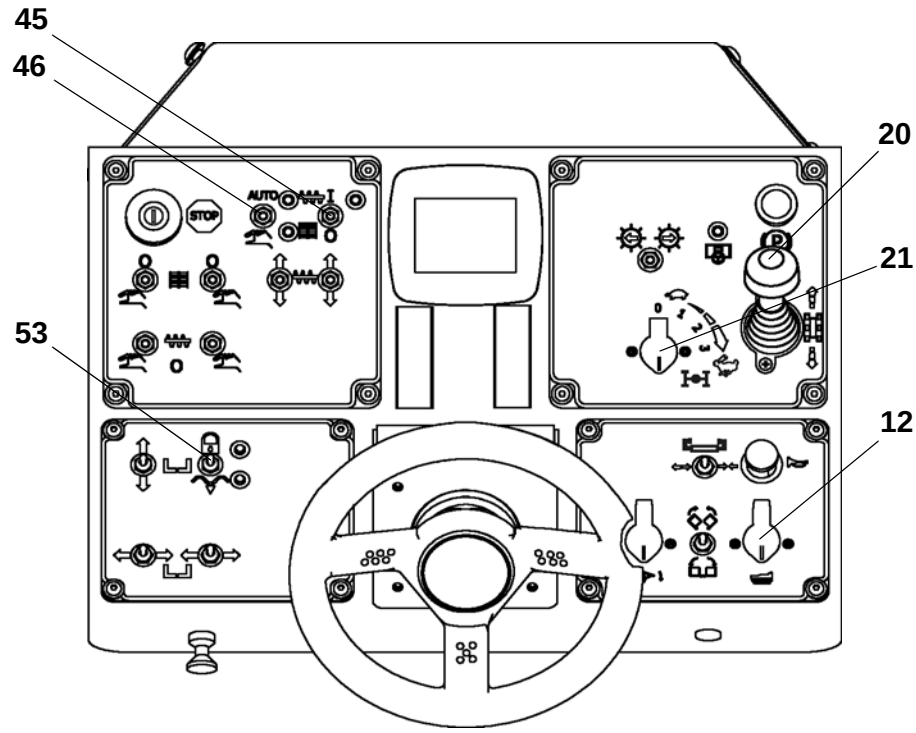
**NOTICE**

The limit sensors for the conveyors and augers must switch off the function when the material has reached the height limit in the area beneath the auger crossbeam (conveyor sensors) or at the auger ends (auger sensors).

Check that the material is being conveyed properly.

- If the material is not being conveyed properly, switch conveyor and auger to “MANUAL“ by using switch (46) until a sufficient amount of material lies in front of the screed.
- Switch conveyor and auger to “AUTO“ using switch (46).


45
46
27
28
20
21
53
24
12
AUTO
STOP


45
46
20
21
53
12
AUTO
STOP

## 1.4 Starting for paving

Set the switches, levers and controls listed below to the specified positions when the screed has reached its operating temperature and a sufficient amount of material lies in front of the screed:

| Item | Switch | Position |
|---|---|---|
| 21 | Selector | position 2 |
| 12 | Preselector | approx. 50% |
| 53 | Screed position | to floating position. |
| 27 | Vibration | ON |
| 24 | Tamper (option) | ON |
| 45 | Auger+conveyor | ON |
| 46 | Auger+conveyor | AUTO |

- Push the drive lever (20) to its most forward position and start driving. Screed floating position is activated now.
- Observe the distribution of the material and adjust the limit sensors if necessary.
- Set the compacting elements (vibration and/or tamper) according to the required compaction ratio.
- Let the paving supervisor check the layer thickness after 15-20 feet (5–6 meters) and correct if necessary.

Carry out the check in the area of the drive chains or wheels as the screed tends to level an uneven ground. The reference points for the layer thickness are the drive chains or wheels.

The basic screed setting must be corrected when the actual layer thickness deviates significantly from the values needed for the job requirement (see the operating instructions for the screed).

## 1.5 Check during paving

The following points must be constantly observed during paving:

### Paver function

- Screed heater
- Tamper and vibration
- Engine oil and hydraulic oil temperature
- The screed parts must be retracted and extended in time when obstacles are in the way.
- Uniform material transport and distribution or supply to the screed; may require corrections to settings of the material switches for conveyor and auger.

NOTE:

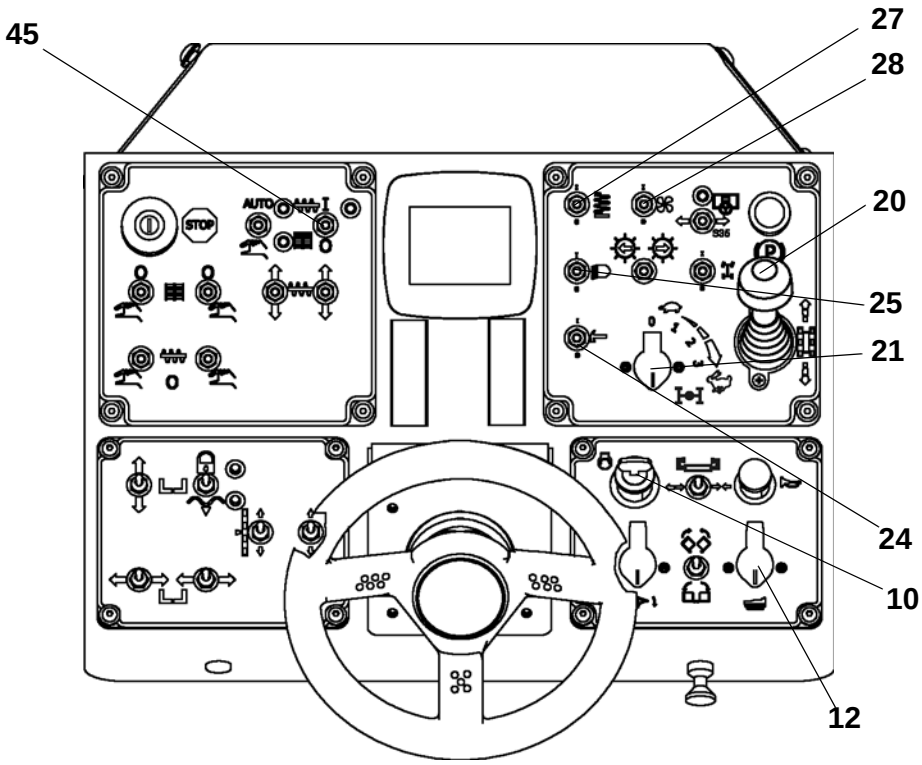
See the section D4 ”Malfunctions” when paver functions fail.

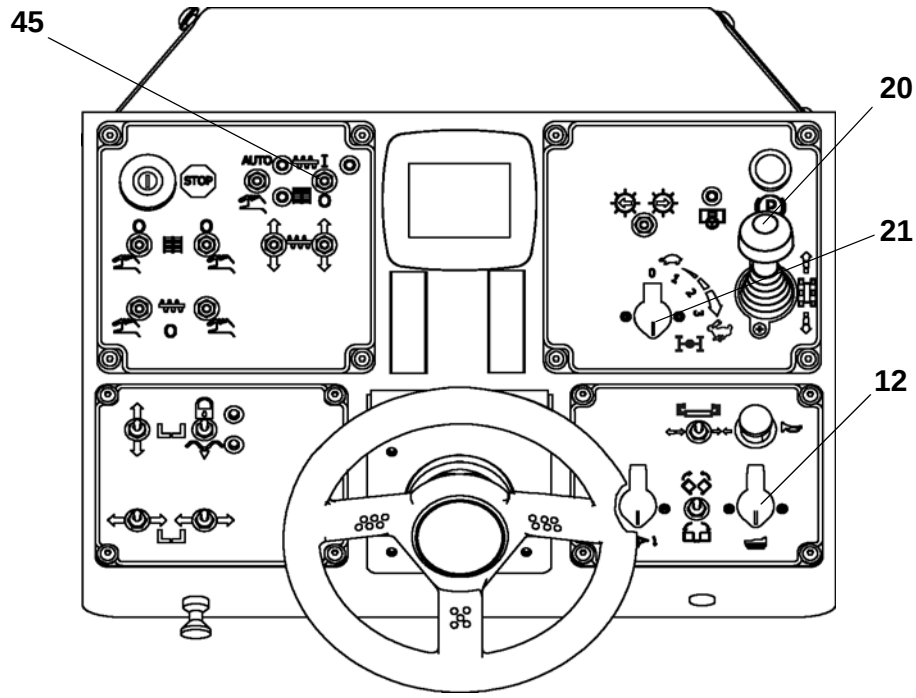
### Quality of the layer

- Mat thickness
- Slope
- Evenness in the driving direction and at right angles to it (check with a level)
- Surface structure/texture behind the screed.

NOTE:

See section D 4 ”Malfunctions, Problems during Paving” if the paving quality is poor.

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## 1.6 Interrupting/terminating operation

**During breaks** (i.e. the material supply truck is late)

- Determine the approximate duration.
- When the material's temperature drops below the minimum paving temperature, run the paver empty and create an edge like the end of a layer.
- Set the drive lever (20) to the center position.

**NOTICE**

Screed will be switched into "STOP" function automatically.

**During extended interruptions (i.e. lunch break)**

- Turn drive lever (20) to center position. Move the preselector (12) and selector (21) to minimum position.

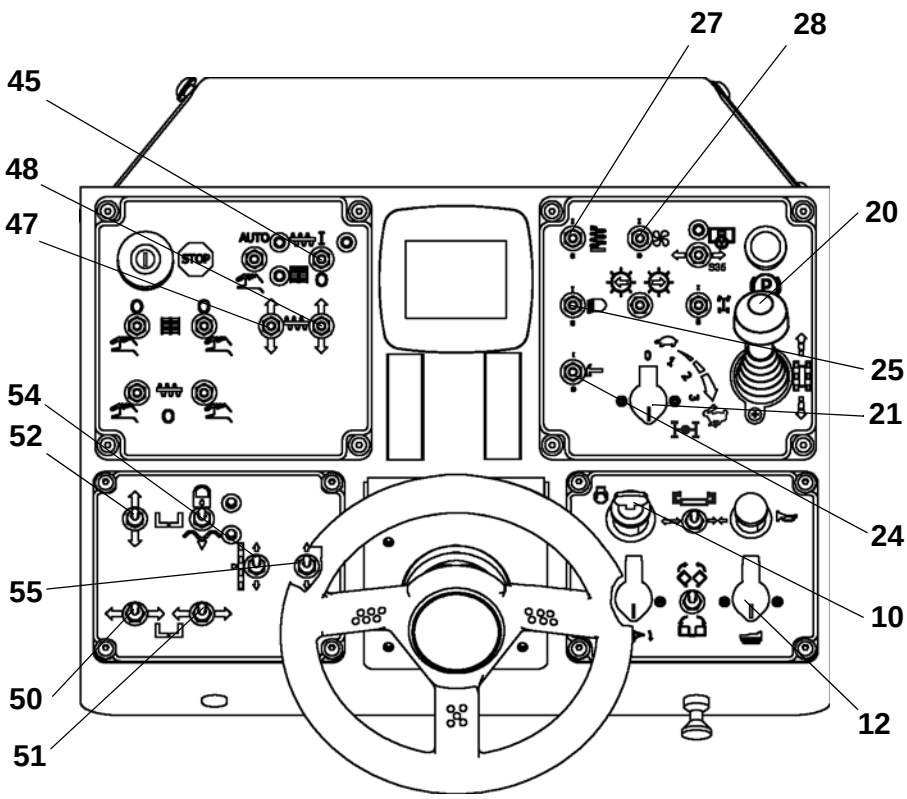
**NOTICE**

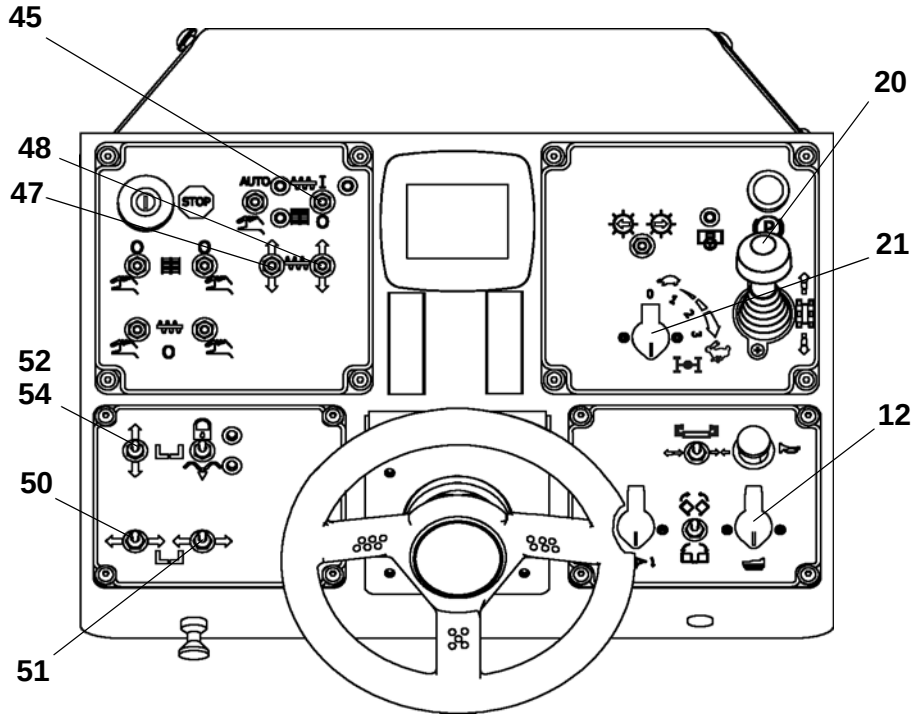
Screed will be switched into "STOP" function automatically.

- Switch off conveyor+auger (45), vibration (27), tamper (if equipped)(24), lights (25) and exhaust system (28).
- Switch ignition (10) off.
  - Switch screed heater (system) off.

**NOTICE**

The screed must be heated up to the correct paving temperature before paving can be resumed.

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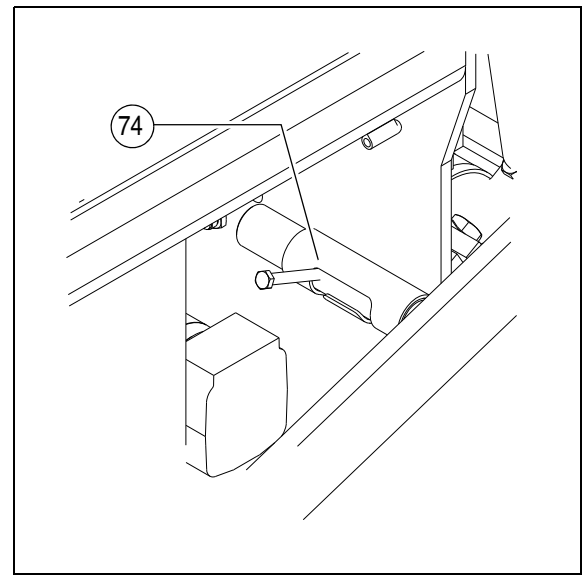
## When work is finished

- Run the paver empty, then bring it to a stop.
- Turn drive lever (20) to the center position. Move the preselector (12) and selector (21) to minimum position.
- Switch off conveyor+auger (45), vibration (27), tamper (if equipped)(24), lights (25) and exhaust system (28).
- Lift the screed by using switch (52).
- Retract the screed parts to the basic screed width with switches (50) and (51).
- Use switch (47) and (48) to lift the auger .
- Where applicable, completely extend the levelling cylinders by using switches (54) and (55).

- Insert the mechanical screed transport safeguard (74) on both screed lifting cylinders.
- While operating the tampers at a low speed, let any material residue drop out.

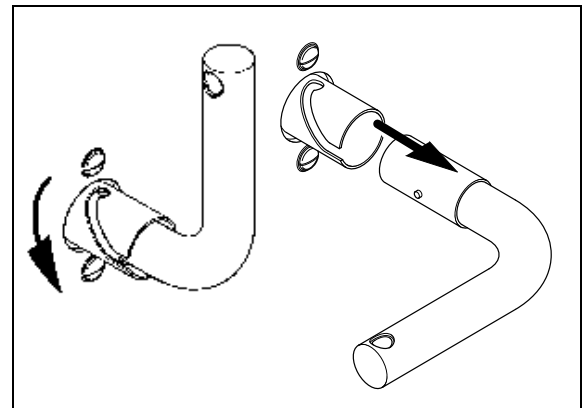


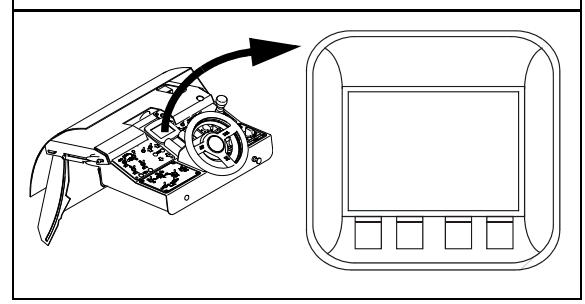

Switch the ignition (10) off.

- Switch screed heater (system) off.
- Remove the levelling units and stow them away in their boxes and close the boxes.
- Remove all parts that extend beyond the paver width. Secure them if the paver is to be transported over public roads on a low-bed trailer.

**⚠ CAUTION**

Do not turn the main switch off until 15 seconds after the ignition has been turned off! The engine electronics requires this length of time to back up data.





- Read and check the operating hour meter to determine whether maintenance work must be performed (see chapter F).
- Cover and lock the operating panel.
- Remove material residue from the screed and the paver and spray all parts with release agent fluid.

# 2 Malfunctions

## 2.1 Problems during paving

| Problem | Cause: |
|---|---|
| Wavy surface ("short waves") | - change in the material temperature, segregation<br>- wrong material composition<br>- incorrect operation of the roller<br>- incorrectly prepared foundation<br>- long idle standing times between loads<br>- grade control reference line is not suitable<br>- grade control jumps to the reference line<br>- grade control toggles between up and down (inertia setting is too high)<br>- bottom plates of the screed are loose<br>- bottom plates of the screed are warped or not uniformly worn<br>- screed does not work in the floating position<br>- too much play in the mechanical screed link/suspension<br>- paver speed is too high<br>- augers are overloaded<br>- changing material pressure against the screed |
| Wavy surface ("long waves") | - change in the material temperature<br>- segregation<br>- roller has stopped on the hot material<br>- roller has turned or roller speed has been changed too quickly<br>- incorrect roller operation<br>- incorrect foundation preparation<br>- truck brake is applied too tight<br>- long idle standing times between loads<br>- grade control reference line is not suitable<br>- incorrect installation of the grade control<br>- limit sensors are not correctly set<br>- screed is empty<br>- screed has not been switched to the floating position<br>- too much play in the mechanical screed link<br>- auger is set too deep<br>- auger is overloaded<br>- changing material pressure against the screed |
| Cracks in the layer (over the entire width) | - material temperature is too low<br>- change in the material temperature<br>- moisture on the foundation<br>- segregation<br>- wrong material composition<br>- wrong layer height for the maximum grain size<br>- cold screed<br>- bottom plates of the screed are worn or warped<br>- paver speed is too high |

| Problem | Cause: |
|---|---|
| Cracks in the layer (center strip) | - temperature of the material<br>- cold screed<br>- bottom plates are worn or warped<br>- wrong crowning |
| Cracks in the layer (outer strip) | - temperature of the material<br>- screed extendable parts are incorrectly installed<br>- limit switch is not correctly set<br>- cold screed<br>- bottom plates are worn or warped<br>- paver speed is too high |
| Layer composition is not uniform | - temperature of the material<br>- change in the material temperature<br>- moisture on the foundation<br>- segregation<br>- wrong material composition<br>- incorrectly prepared foundation<br>- wrong layer height for the maximum stone size<br>- long idle standing times between loads<br>- vibration is too slow<br>- screed extendable parts are incorrectly installed<br>- cold screed<br>- bottom plates are worn or warped<br>- screed does not work in the floating position<br>- paver speed is too high<br>- auger is overloaded<br>- changing material pressure against the screed |
| Marks in the surface | - truck hits against the paver too much while aligning to the paver<br>- too much play in the mechanical screed link/suspension<br>- truck parking brake is applied<br>- vibration is too high while standing in one spot |
| Screed does not react to corrective measures as expected | - temperature of the material<br>- change in the material temperature<br>- wrong layer height for maximum grain size<br>- incorrect installation of the grade control<br>- vibration is too slow<br>- screed does not work in the floating position<br>- too much play in the mechanical screed link<br>- paver speed is too high |

## 2.2 Malfunctions on the paver or screed

| Malfunction | Cause: | Remedy |
|---|---|---|
| At the diesel engine | Diverse | See operating instructions for the engine |
| Diesel engine does not start | Batteries drained | See ”External starting” (start assistance) |
| | Other | see ”Towing” |
| Tamper or vibration does not operate | Tamper is obstructed by cold bitumen | Properly heat the screed |
| | Hydraulic oil level in the tank is too low | Fill with oil |
| | Pressure limiting valve is defective | Replace the valve; if necessary, repair and adjust the valve |
| | Leak in the suction line of the pump | Seal or replace the connections |
| | | Tighten or replace the hose clamps |
| | Oil filter is dirty or plugged (clogged) | Replace the filter |
| Conveyor or augers run too slowly | Hydraulic oil level in the tank is too low. | Fill with oil |
| | Power supply is interrupted | Check fuses and cables; replace if necessary |
| | Sensor is defective | Replace the sensor |
| | One of the pressure limiting valves is defective | Repair or replace the valves |
| | Pump shaft broken | Replace the pump |
| | Limit sensor does not regulate correctly | Check the sensor; replace the sensor if necessary |
| | Pump is defective | Replace the pump. Check the system for contaminants |
| | Oil filter is dirty or plugged | Replace the filter |
| Hopper cannot be swung open | Engine speed is too low | Increase the speed |
| | Hydraulic oil level is too low | Fill with oil |
| | Leak in the suction line | Tighten the connections |
| | Flow rate regulator defective | Replace |
| | Leaking seals in the hydraulic cylinder | Replace |
| | Control valve is defective | Replace |
| | Power supply interrupted | Check fuse and cables; replace if necessary |

| Malfunction | Cause: | Remedy |
|---|---|---|
| Hoppers lowers inadvertently | Control valve is defective | Replace |
| | Leaking seals in the hydraulic cylinder | Replace |
| Screed cannot be lifted | Oil pressure too low | Increase the oil pressure |
| | Leaking seal | Replace |
| | Screed relieving or charging is switched on | Switch must be in the center position |
| | Power supply is interrupted | Check fuse and cables; replace if necessary |
| Lifting Arms cannot be lifted or lowered | Check to see if the switch on the remote control is set to ”auto” | Set the switch to ”manual” |
| | Power supply is interrupted | Check fuse and cables; replace if necessary |
| | Switch on the operating panel defective | Replace |
| | Excess pressure valve defective | Replace |
| | Flow rate regulator defective | Replace |
| | Seals defective | Replace |
| Lifting Arms lower inadvertently | Control valves defective | Replace |
| | Pilot-controlled non-return valves defective | Replace |
| | Seals defective | Replace |

| Malfunction | Cause: | Remedy |
|---|---|---|
| Traction does not work | Traction drive fuse defective | Replace (Fuse holder is on the operating panel) |
| | Power supply is interrupted | Check potentiometer, cables, connectors; replace if necessary |
| | Traction drive monitoring defective | Replace |
| | Electro-hydraulic servo unit of the pump is defective | Replace the servo unit |
| | Insufficient supply pressure | Check and adjust if necessary |
| | | Check the suction filter; replace the supply pump and the filter if necessary |
| | Drive shaft at hydraulic pumps or engine is broken | Replace pump or engine |
| Irregular engine speed, engine stop function does not work | Fuel level too low | Check the fuel level; refill fuel if necessary |
| | Fuse for ”engine speed control” defective | Replace (fuse strip on the operating panel) |
| | Defective power supply cables (cables broken or short-circuits) | Check potentiometer, cables, connectors; replace if necessary |

# E 01 Set-up and modification

## 1 Special notes on safety

**⚠ DANGER**

Inadvertently starting the engine, the traction drive, the conveyor, the auger, the screed or the lifting units can be dangerous. Unless specified otherwise, work may only be performed when the engine is not running!

- To protect the paver against inadvertent starting:
  Set the drive lever to the center position and set the preselector to zero; if applicable, pull out the ignition key and the battery main switch.
- Secure lifted machine parts (e.g. screed or hopper) against lowering by means of mechanical supports.
- Replace parts or have them replaced as required.

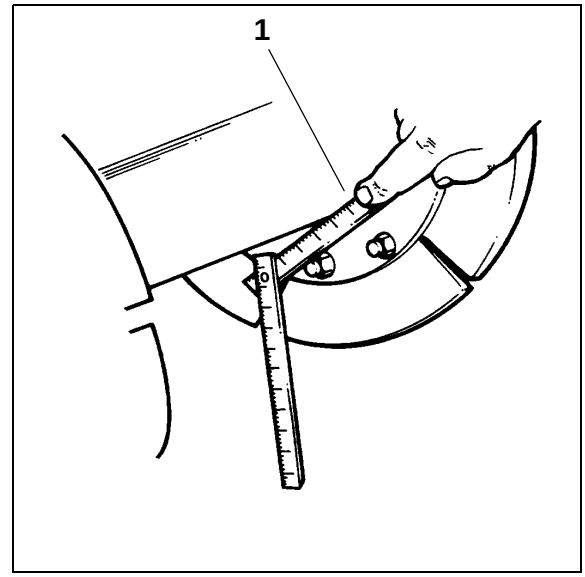
**⚠ WARNING**

When connecting or disconnecting hydraulic hoses and when working on the hydraulic system, hot hydraulic fluid can escape at a high pressure.
Switch the engine off and de-pressurize the hydraulic system! Protect your eyes!

- Mount all protective and safety devices before re-commissioning the paver.
- The walking platform must always reach over the entire width of the screed. The hinged walkway (optional for all variable screeds) may only be swung up under the following circumstances:
- When paving next to a wall or a similar obstacle.
- During transportation on a low-bed trailer.

## 2 Auger

### 2.1 Height adjustment




Depending on the mix of materials, when working with layer thicknesses of up to 10 in. (25.4 cm), the height of the distribution auger (1) – measured from its bottom edge – should be around 5 cm (2 inches) above the material layer thickness (depending on its mix of materials).

Example: Layer height 3 in. (7.6 cm)
Adjustment: 5 in. (12.7 cm) from the ground

An incorrect height adjustment can result in the following problems:

- Auger too high:
  Too much material in front of the screed; material overflow. When operating with larger widths, segregation and traction problems may occur.
- Auger too low:
  Not enough material that can be pre-compacted by the auger. Irregularities resulting from this cannot be completely compensated for by the screed (wavy surface).
  In addition, an increased wear on the auger segments occurs.

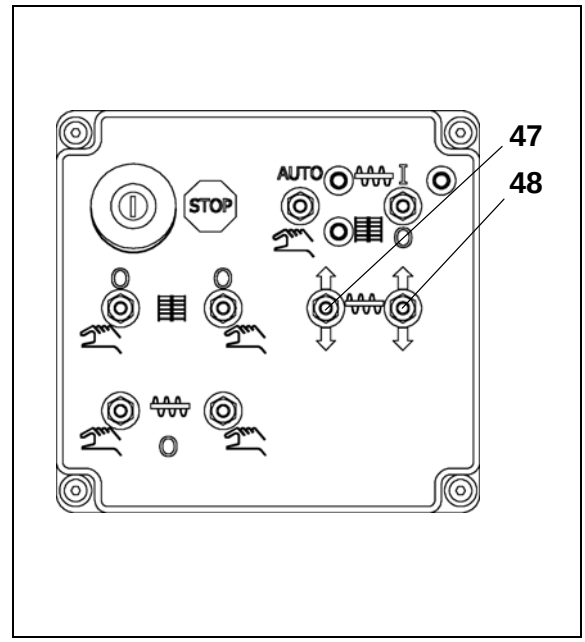
### 2.2 Auger crossbeam - hydraulic height adjustment

- Measure the set height of the auger crossbeam (left and right).

NOTE:

Equally press both switches/buttons (47)/(48) so that the auger beam stays level.

- Check whether the height on the left and on the right are identical.



## 2.3 Auger extension

Depending on the type of screed, the most diversified working widths can be reached.

**NOTICE**

Auger and screed extension must match. See the operating instructions for the appropriate screed, chapter ”Set-up and modification”, especially:
– Screed extension chart,
– Auger extension chart.

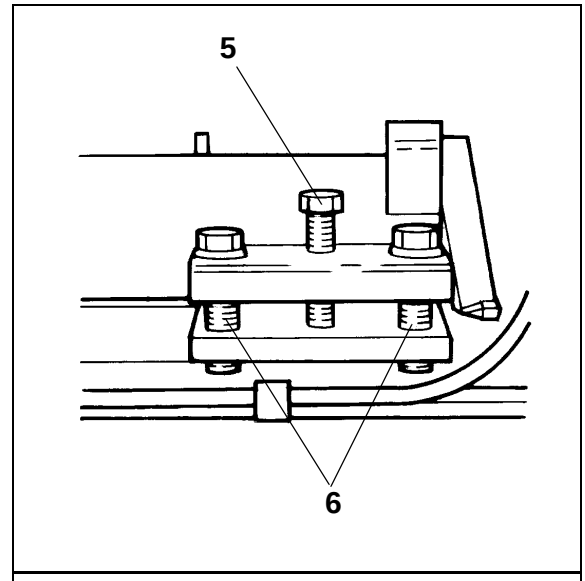
To attain the desired working width, the respective screed extensions, side plates, augers, tunnel plates or cut-off shoes must be mounted.

For widths of more than 11.5 ft. (3.5 m.), the auger should be fitted with extension parts on both sides to improve material distribution and to reduce the wear.

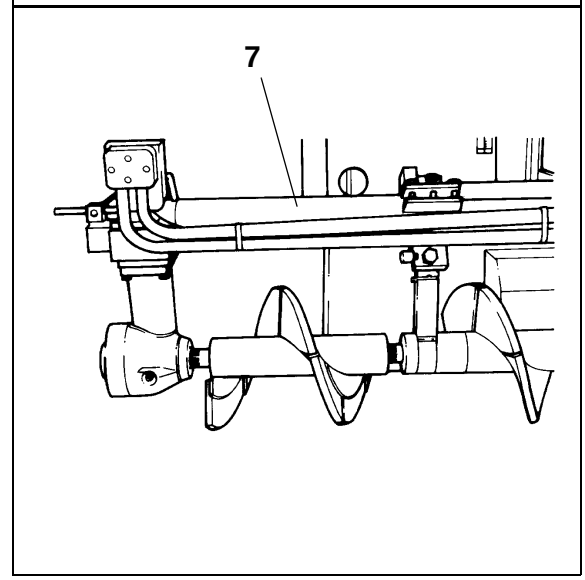
**⚠ DANGER**

The diesel engine must be switched off whenever work is performed on the auger as there is a danger of being pulled into rotating parts. This could cause severe injury or death!

## 2.4 Mounting extension parts




- Loosen the clamping screws (6) on the support tube. Then turn in the center expanding screw (5) to expand the clamping joint.




- Pull the telescopic tube out of the support tube (7).
- Mount the required extension parts.

NOTE:

Observe the guide groove of the spline! Make sure that the shaft end is clean!

- Install auger so pick end of auger is “IN TIME” with the discharge of the main auger. This is called “IN TIME” or “NORMAL” set up and is used to prevent segregation (or separation) of material. The auger pickup can be mounted 180 degrees away from the discharge. This called “OUT OF TIME” and is used with large or rounded stone to prevent segregation. If already mounted and segregation occurs in the mat at extension to main connection, move the auger pickup 180 degrees from the current position.
- Slide in the telescopic tube. When doing so, make sure that the drive of the auger gear is slid all the way over the shaft end of the auger extension part and that the threads of the augers match.
- Remove the expansion screw (5). Then tighten the clamping screws (6). Finally tighten the expansion screw by hand.

**⚠ CAUTION**

Before the clamping screws (6) can be tightened again, the expansion screw (5) must be sufficiently turned back!
Otherwise, the telescopic tube cannot be safely clamped and the splined shaft ends break.

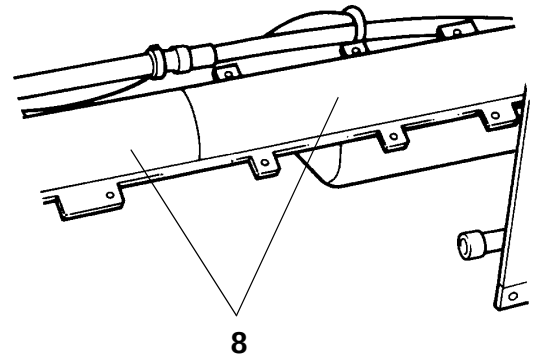
**⚠ DANGER**

When clamped insufficiently, the telescopic tube can slide out of the support tube and can cause severe injury or death as well as damage to the machine!

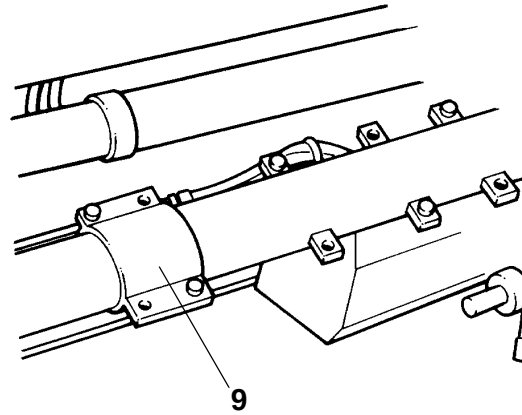
## 2.5 Mounting support tube extensions

If the working width exceeds 23 ft. (7.01 m.), an auger crossbeam extension must be mounted.

The support tube extension of the auger crossbeam consists of two halves (8) and is attached to the existing support tube by using a total of 5 screws. After the two halves have been screwed to the support tube, they also must be linked to each other by means of screwed connections.




Clamping of the telescopic tube occurs by tightening the screwed connections (9) linking the support tube extension.




If the working width exceeds 14 ft. (6.26 m.) the hydraulic hoses (10) for the auger motors must be replaced with longer ones.
These long hoses are included in the scope of delivery for this working width.

**⚠ DANGER**

When connecting or disconnecting hydraulic hoses, hydraulic fluid can spray out at a high pressure and can cut or enter the skin.
Switch the paver off and de-pressurize the hydraulic circuit! Protect your eyes!

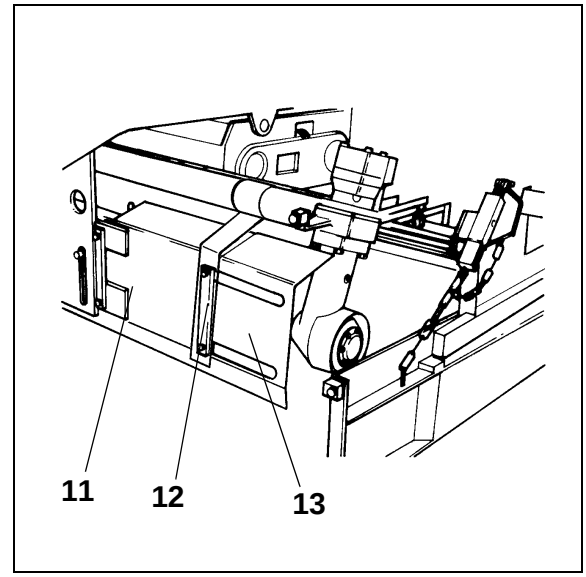
**⚠ CAUTION**

When installing the hoses, make sure that the area around the connections is clean.
Any contaminants that enter the hydraulic system can cause damage to the hydraulic system.

## 2.6 Installing tunnel plates

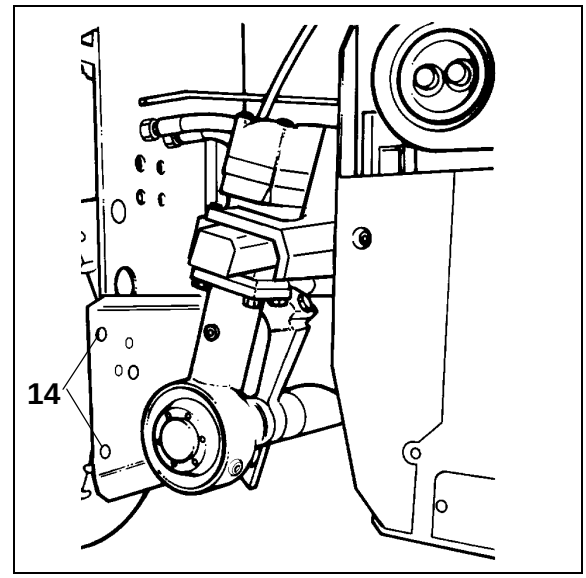
To ensure an optimum material flow – especially in the case of large paving widths – so-called tunnel plates (11) must be installed.
They are located directly in front of the auger distributor and – in conjunction with the auger – are an ideal system for conveying the material.

When operating with widths of more than 14.4 ft (4.4 m), two or more combined tunnel plates (13) must be used.
In this case, additional stabilizing supports (12) must be attached to the telescopic tube.




The tunnel plates must be directly screwed to the receptacles provided for this purpose (14); they are located on the auger frame sides and can be adjusted in height.

Refer to the auger extension chart to determine which parts of the conveyor system are required for the desired paving width.



## 2.7 Installing additional braces

When operating with width of more than 25 ft. (7.62 m.) the augers must be provided with an additional support.

To do so, attach two braces on both the left-hand and the right-hand side, between the tunnel plate support and the bracket provided on the paver.

The braces are included in the scope of delivery for this working width.

## 3 Screed

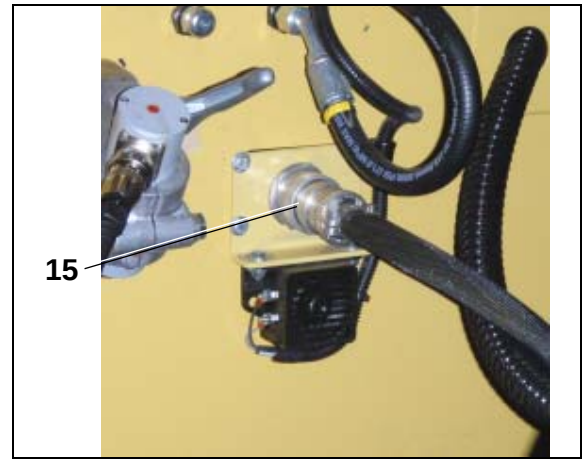
The operating instructions for the screed explains what is required for mounting, setting up and extending the screed.

## 4 Electrical connections

Ensure the following connections have been made once the screed has been mounted and set up:

### 4.1 Remotes from screed to paver

The screed plugs into the back of the paver socket (15). The paver and the screed communicate through this connection.

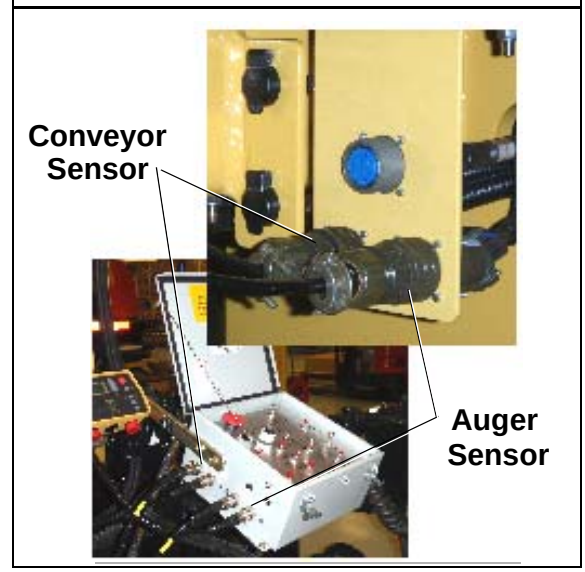



### 4.2 Right hand conveyor sensor control

The Conveyor Sensor plugs into the remote control unit on the right hand side at socket (16a). The remote then sends the signal from the sensor to the paver thru the cable shown.


### 4.3 Right hand auger sensor control

The Auger Sensor plugs into the remote control unit on the right hand side at socket (17a). The remote then sends the signal from the sensor to the paver thru the cable shown.

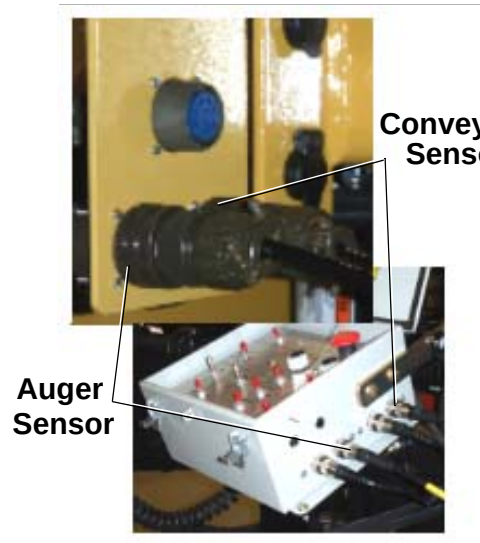


## 4.4 Left hand conveyor sensor control

The Conveyor Sensor plugs into the remote control unit on the left hand side at socket (16a). The remote then sends the signal from the sensor to the paver through the cable shown.

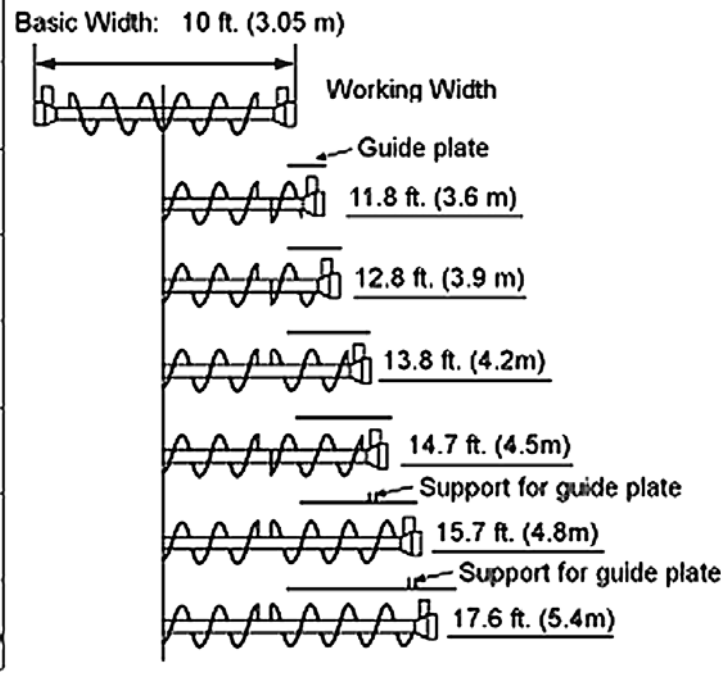

## 4.5 Left hand auger sensor control

The Auger Sensor plugs into the remote control unit on the left hand side at socket (17a). The remote then sends the signal from the sensor to the paver through the cable shown.



## 4.6 Auger Chart

| Auger ext. parts per side | | | | | | | |
|---|---|---|---|---|---|---|---|
| Auger | | | Guide plate | | | | |
| 1 | 2 | 3 | 1 | 2 | | | |
| 11.4 in. (290 mm) | 17.0 in. (434 mm) | 34.1 in. (866 mm) | 11.75 in. (298 mm) | 19.75 in. (502 mm) | Support for tunnel extensions | Hyd. hose - as required | Auger extension width (per side) |
| | | | | | | | |
| 1 | | | 1 | | | 3 | 11.4 in. (289.6 mm) |
| | 1 | | | 1 | | 3 | 17.0 in. (431.8 mm) |
| 2 | | | 1 | 1 | | 3 | 22.8 in. (579.1 mm) |
| 1 | 1 | | 1 | 1 | | 3 | 28.4 in. (721.4 mm) |
| | | 1 | | 2 | 1 | 3 | 34.1 in. (866.1 mm) |
| 1 | | 1 | 1 | 2 | 1 | 3 | 45.5 in. (1155.7 mm) |



# F 1.0 Maintenance

## 1 Notes regarding safety

**⚠ WARNING**

**Maintenance work:** Maintenance work may only be carried out when the engine is not running.

Secure the paver and the attachments against inadvertent starting before beginning any maintenance work:

- Set the drive lever to the center position and the speed preselector to zero.
- Remove the ignition key and the battery main switch.

**⚠ WARNING**

**Lifting and jacking up:** Secure lifted machine parts (i.e. screed or hopper) against lowering by means of mechanical supports.

**⚠ CAUTION**

**Spare parts:** Use only approved parts and install them according to the specifications! If in doubt, contact the manufacturer!

**⚠ CAUTION**

**Re-commissioning:** Mount all protective devices before re-commissioning the paver.

**⚠ WARNING**

**Cleaning:** Cleaning must not be carried out while the engine is running.
Do not use any flammable substances (such as gasoline or diesel fuel).
Avoid directly cleaning electrical parts and insulation material with a steam jet; cover them up beforehand.

**⚠ WARNING**

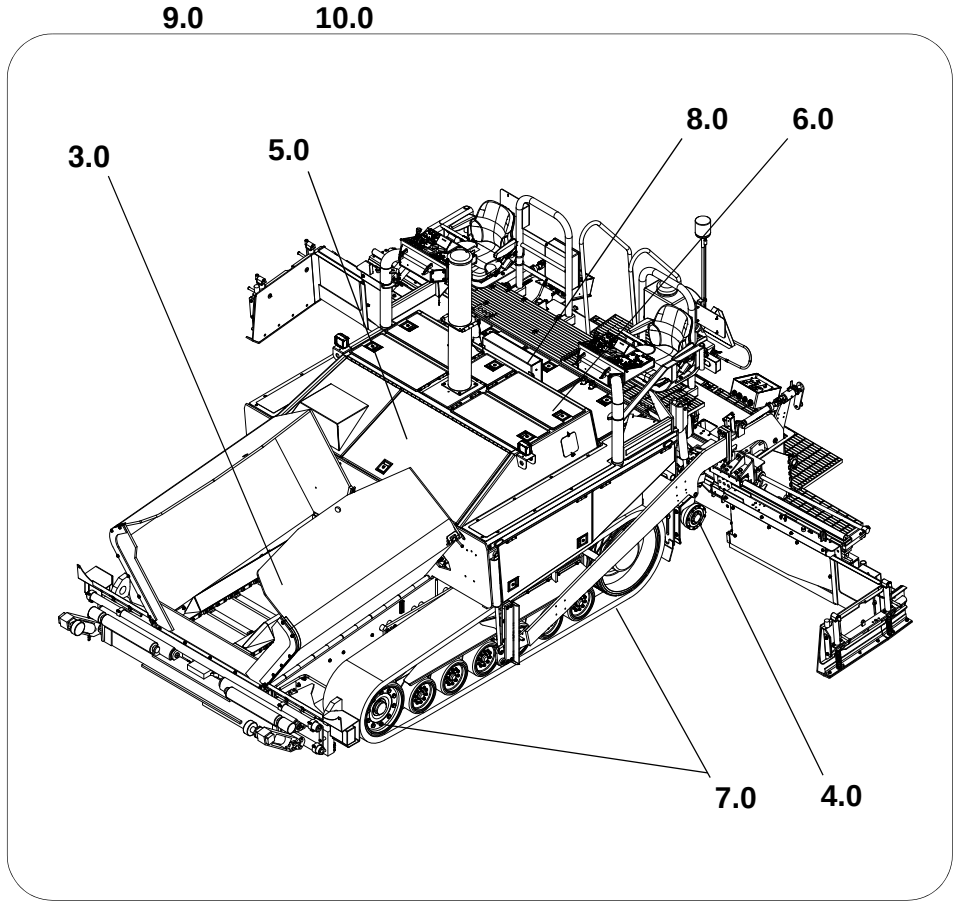
**Working in closed environments:** Always run the engine in a well ventilated area.

**NOTICE**

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

# F 2.0 Maintenance overview

## 1 Maintenance overview

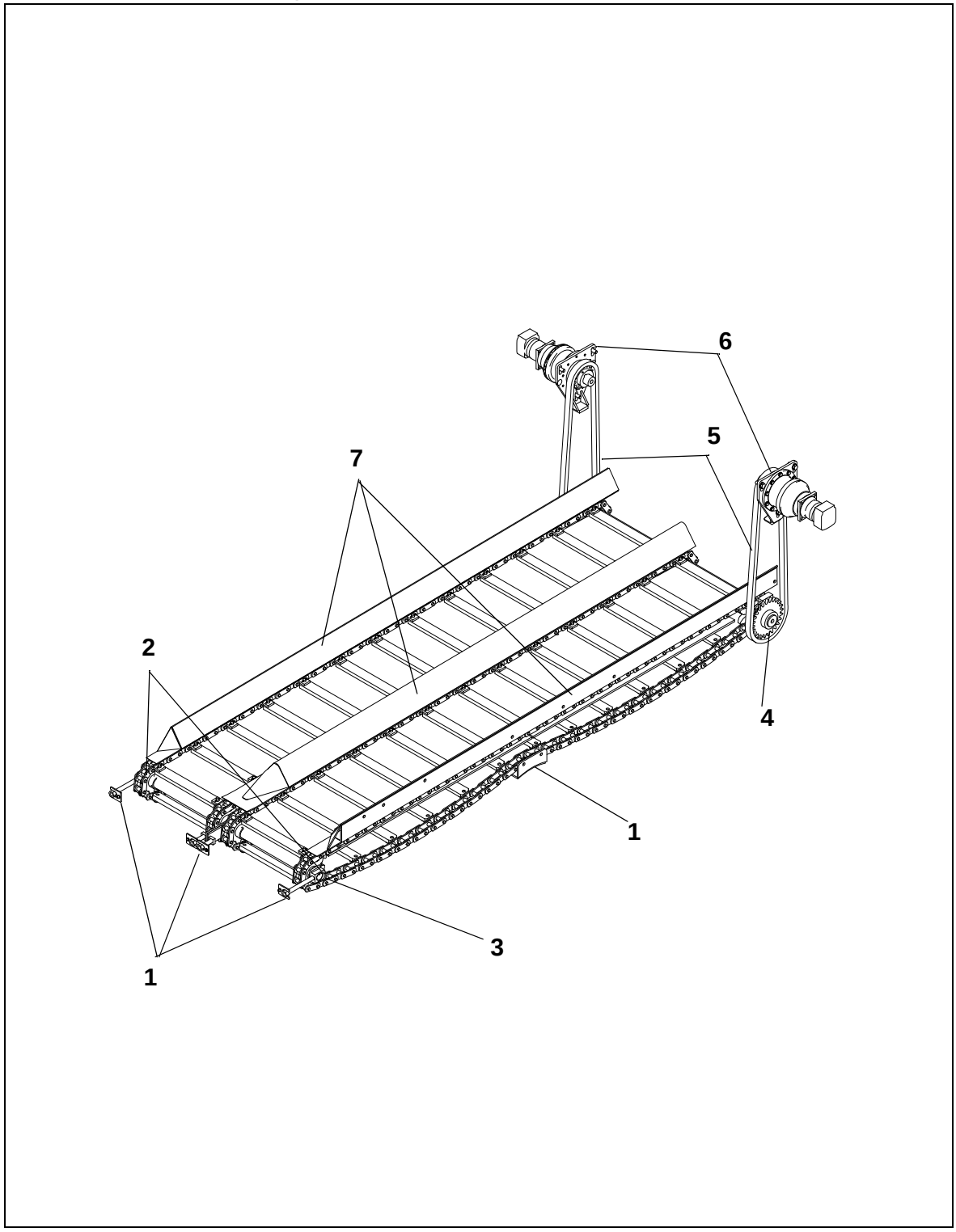


| Assembly | Chapter | Maintenance required after the following service hours | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | 50 | 100 | 250 | 500 | 1000 / annually | 2000 / every 2 years | 5000 | 20000 | If necessary |
| | | | | | | | | | | | |
| Conveyor | F3.0 | | ■ | ■ | ■ | | ■ | ■ | | | ■ |
| Auger | F4.0 | | ■ | ■ | ■ | | ■ | ■ | | | ■ |
| Engine | F5.0 | ■ | | | ■ | ■ | ■ | ■ | | | ■ |
| Hydraulics | F6.0 | ■ | ■ | | | ■ | ■ | ■ | | | ■ |
| Track | F7.0 | ■ | ■ | | ■ | | ■ | | | | ■ |
| Electronics | F8.0 | ■ | | ■ | ■ | | ■ | | ■ | ■ | ■ |
| Lubrication points | F9.0 | | ■ | | | | | ■ | | | ■ |
| Checking/decommis-sioning | F10.0 | ■ | | | | | ■ | | | | ■ |

| | |
|---|---|
| Maintenance required | ■ |

# F 3.0 Maintenance - Conveyor

## 1 Maintenance - Conveyor



## 1.1 Maintenance intervals

| No. | Interval | | | | | | | | Points of maintenance | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 / year | 2000 / 2 years | as required | | |
| 1 | | ■ | | | | | | | - Checking the tension of the conveyor chain | |
| | | | | | | | | ■ | - Adjusting the tension of the conveyor chain | |
| | | | ■ | | | | | | - Conveyor chain - Check chain | |
| | | | | | | | | ■ | - Conveyor chain - Replace chain | |
| | | | | | | ■ | | | - Clean Conveyor chain supports | |
| 2 | | ■ | | | | | | | - Conveyor tensioning sprocket - Lubricate grease zert | |
| 3 | | ■ | | | | | | | - Conveyor bearing - Lubricate grease zert | |
| 4 | | ■ | | | | | | | - Conveyor drive bearings - Lubricate grease zert | |
| 5 | | | ■ | | | | | | - Conveyor drive / drive chains Check chain tension | |
| | | | | | | | | ■ | - Conveyor drive / drive chains Set chain tension | |
| 6 | | | | ■ | | | | | - Conveyor drive - planetary gear oil level check | |
| | | | | | | | | ■ | - Conveyor drive - planetary gear fill with oil | |
| | | | ▼ | | | | ■ | | - Conveyor drive - planetary gear Oil change (▼ indicates initial break-in period) | |
| 7 | | | | | | ■ | | | - Check conveyor chain guards, conveyor plates | |
| | | | | | | | | ■ | - Replace conveyor chain guards, conveyor plates | |

| | |
|---|---|
| Maintenance | ■ |
| Maintenance during break-in period | ▼ |

## 1.2 Points of maintenance

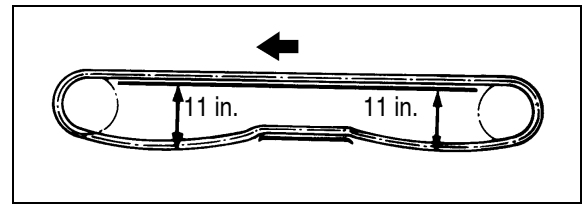
### Chain tension of the conveyor (1)

### Checking the track tension:

For daily inspection look straight through under the bumper. The chain must not hang below the bottom edge of the bumper.
Should readjustment be necessary, measure the slack unloaded from the bottom edge of the floor plate to the bottom edge of the chain (see the figure). Also conveyor chain supports should be inspected daily and can be seen by looking straight through under the bumper. Clean the support every 1000 hours of operation and before adjusting the tension.

**⚠ CAUTION**

The chains should not be too tight or too slack. If the chain is too tight, material between the chain and the sprocket wheel can lead to stoppage or breakage.
If the chain is too slack, it may get stuck in the protruding objects and be damaged.



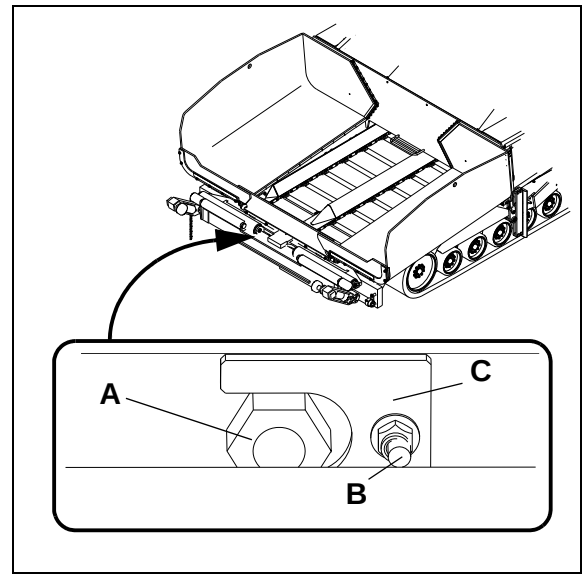

**NOTICE**

With the paver resting on a level surface the sag of both portions should be a minimum of 11 inches!

### Checking the chain tension:

Chain tension can be adjusted with 4 tension-screws (A) The tension-screws are located at the front of the cross-beam.

- Loosen the bolts (B) and remove the locking clamp (C).
- Set the necessary chain tension by turning the tension-screws (A).
- Remount the locking clamp (C) with the bolt (B).



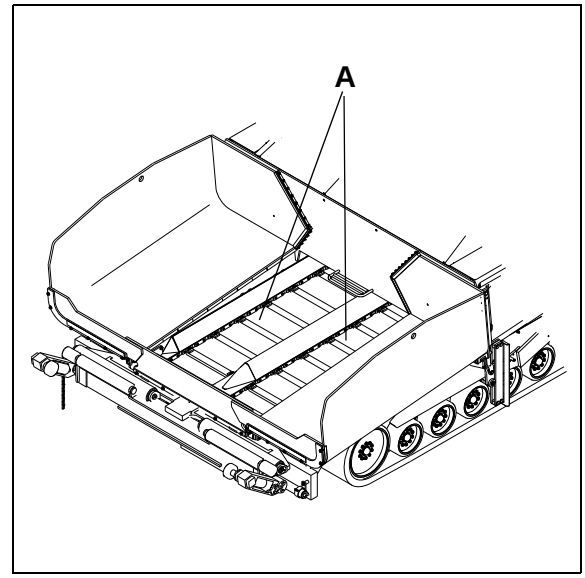
**Check / replace chain:**

**NOTICE**

When the conveyor chains (A) have stretched so far that they can no longer be adjusted, they must be replaced.

**⚠ WARNING**

Chain links must not be removed to shorten the chain!
Shortening the chains would lead to the destruction of the drive sprockets!
Adjust the tensioning instead!




**⚠ CAUTION**

If components have to be replaced as a result of wear, the following components should always be replaced in sets:

- Conveyor chain
- Conveyor chain guards
- Conveyor plates
- Conveyor chain tensioning sprockets
- Conveyor gear drive sprockets

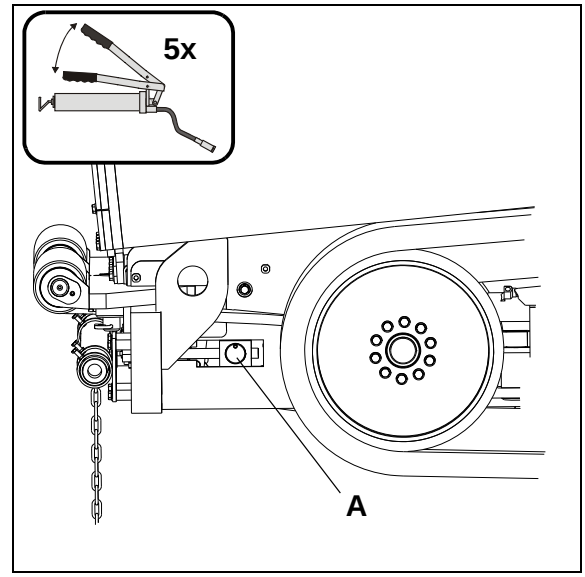
**NOTICE**

Contact your Dynapac customer service representative for support during maintenance, repair and the replacement of worn parts!

## Conveyor tensioning sprocket bearings (2)

The tensioning sprocket bearings for the conveyors are lubricated at the grease zerts (A) located behind the crossbeam.
The center bearings are lubricated at the outer lubricating grease zerts.

Pump 5 strokes of grease with a grease gun.!




## Conveyor bearing (3)

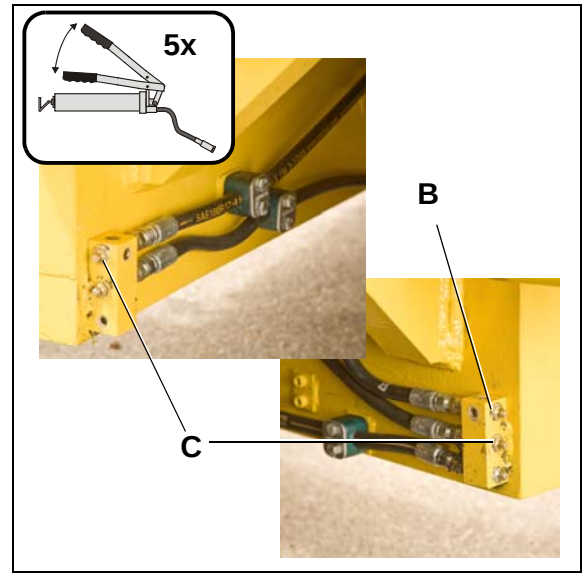
The conveyor bearings are lubricated with grease zerts (B) located behind the crossbeam, r.h. side.

Pump 5 strokes of grease with a grease gun.!

## Conveyor drive bearing (4)

The conveyor drive bearings are lubricated with grease zerts (C) located behind the crossbeam, r.h. and l.h. side.

Pump 5 strokes of grease with a grease gun.



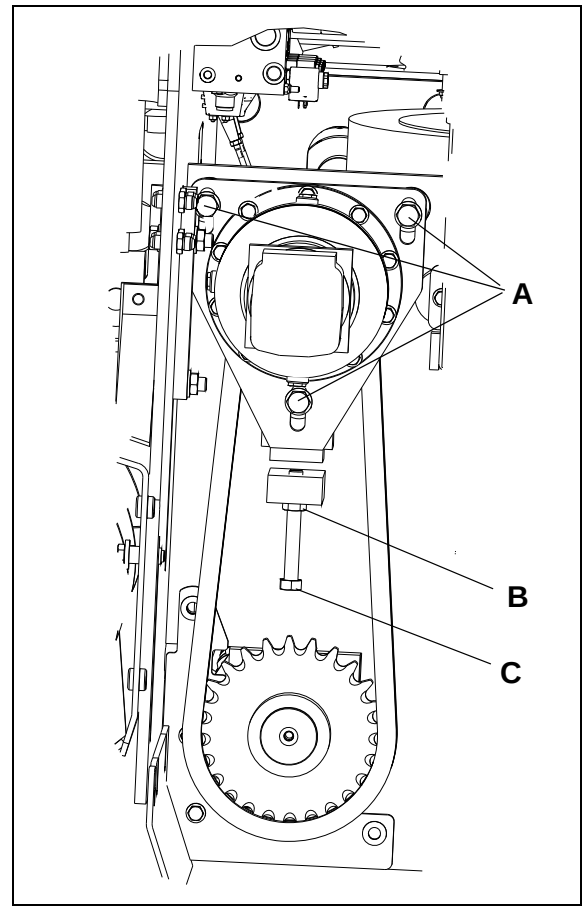
## Conveyor drive - (5) drive chains

Checking for chain **tension**:

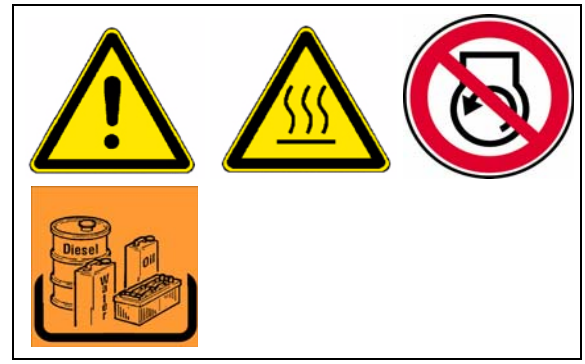
- In normal conditions, the chain has to have approximately .4 to .6 inch (10 - 15 mm) of play.

To set the chain **tension**:

- Loosen the locking bolts (A) and the lock-nut (B).
- Set the necessary chain tension with the tension-screw (C).
- Tighten the locking bolts (A) and lock-nut (B) again.



## Conveyor drive - (6) planetary drive (left/right)



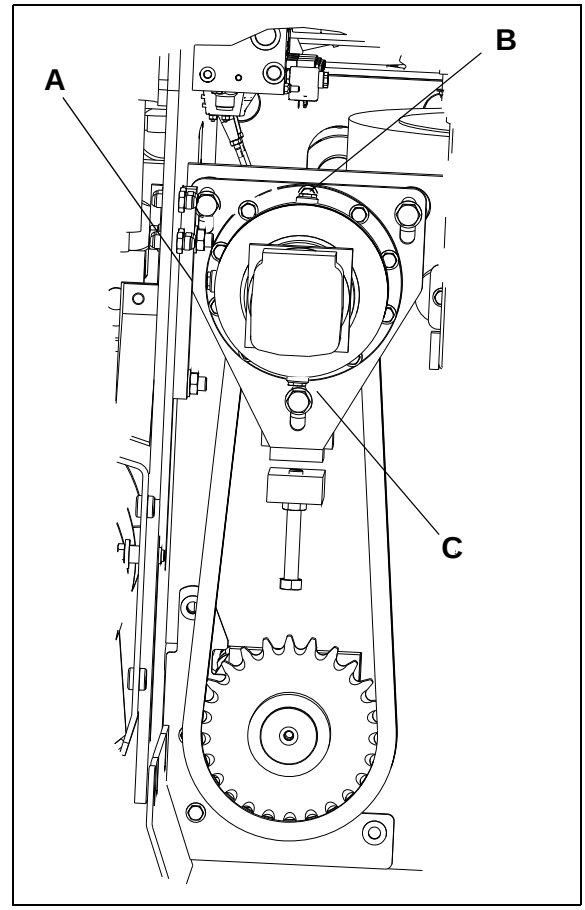

- To **check the oil level,** unscrew the inspection plug (A).

NOTE:

For proper oil level, the oil must be at the lower edge of the inspection port or a little oil flows from the hole.

To **add** oil:

- Check oil at oil level site glass (A).
- Fill with oil of the correct specification through port (B) until the oil level reaches the middle of the oil level site glass (A). Use only recommended oil.




### Oil change:

NOTE:

Change the oil when the engine is at operating temperature.

- Remove the the filling plug (B) and the drain plug (C).
- Drain the oil.
- Return plug (C).
- Fill oil through the filling port until the oil level reaches the middle of the oil level site glass (A).
- Replace the plug at the filling port (B).

**⚠ CAUTION**

Make sure that no pollution or foreign matter gets into the drive.

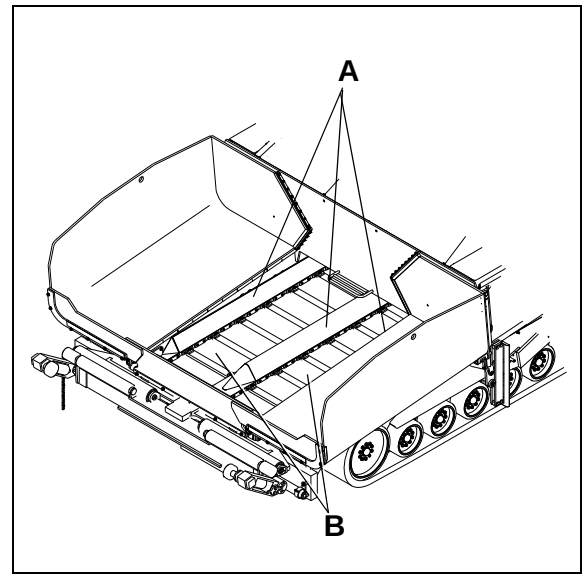
## Conveyor chain guards / conveyor plates (7)

NOTE:

When the lower edges of the conveyor chain guards (A) are worn or reveal holes, they must be replaced.

**⚠ CAUTION**

The conveyor chain is not protected when the conveyor chain guards are worn!




- Remove conveyor chain guard bolts.
- Remove the conveyor chain guards from the material tunnel.
- Install new conveyor chain guards with new bolts.

NOTE:

The conveyor plates (B) must be replaced when the wear limit of .2 inch (5 mm) in the rear area beneath the chain has been reached.

**⚠ CAUTION**

If components have to be replaced as a result of wear, the following components should always be replaced in sets:

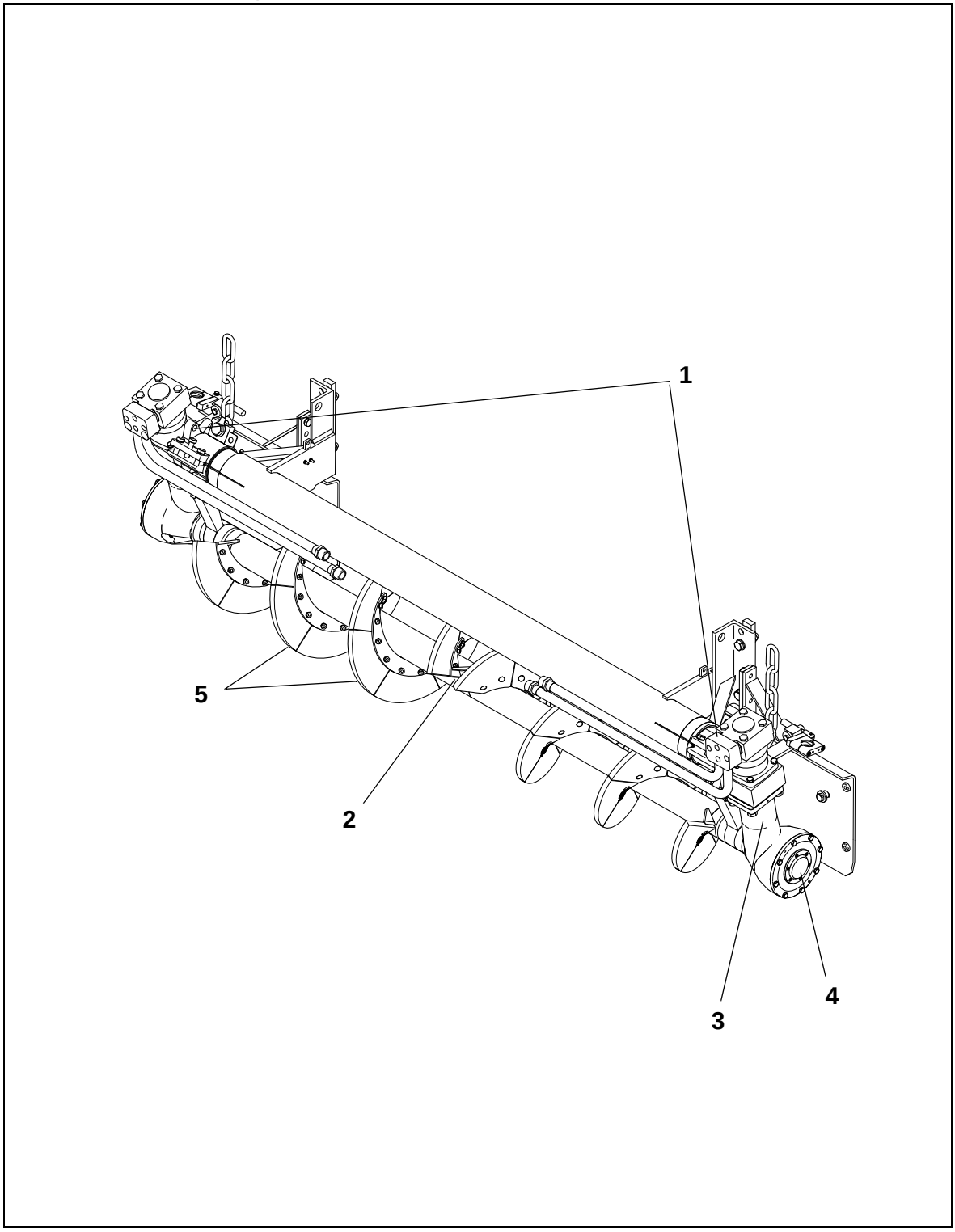
- Conveyor chain
- Conveyor chain guards
- Conveyor plates
- Conveyor chain tensioning sprockets
- Conveyor gear drive sprockets

**NOTICE**

Contact your Dynapac customer service representative for support during maintenance, repair and the replacement of worn parts!

# F 4.0 Maintenance - Auger

## 1 Maintenance - Auger sub-unit I



## 1.1 Maintenance intervals

| No. | Interval | | | | | | | | Points of maintenance | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 / year | 2000 / 2 years | as required | | |
| 1 | | ■ | | | | | | | - Auger - outer bearing<br>Lubrication | |
| 2 | | | | ■ | | | | | - Auger central bearing<br>Lubrication | |
| 3 | | ▼ | | | | ■ | | | - Auger drive neck bearing<br>Lubrication | |
| 4 | | ▼ | | ■ | | | | | - Auger bevel gear<br>oil level check | |
| | | | | | | | | ■ | - Auger bevel gear<br>topping up the oil | |
| | | | | | | | ■ | | - Auger bevel gear<br>oil change | |
| 5 | | | ■ | | | | | | - Auger wear plates (auger segments)-<br>Check wear | |
| | | | | | | | | ■ | - Auger wear plates (auger segments)-<br>Replace auger blade | |

| | |
|---|---|
| Maintenance | ■ |
| Maintenance during run-in period | ▼ |

## 1.2 Points of maintenance

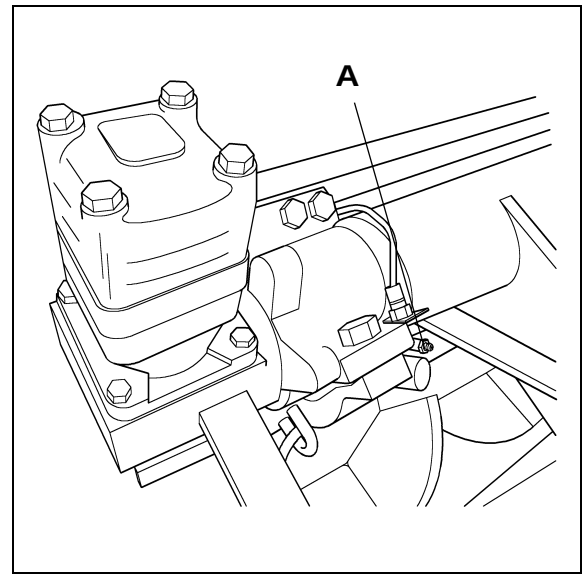
### Auger - outer bearing (1)

The grease zerts (A) are located on each side on the top of outer bearing. These zerts must be lubricated each time work is finished.

**NOTICE**

The outer bearings of the auger must be lubricated when hot, so that the eventual bitumen residue is expelled.

Pump 5 strokes of grease with a grease gun!



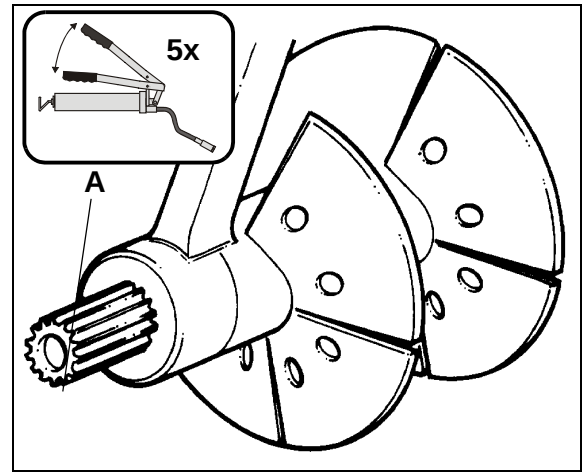

### Auger middle bearing (2)

The central bearing (A) is lubricated on the LH-side of the auger.
To do so, slide the bevel gear out.

**NOTICE**

The central bearing must be lubricated when hot, so that the eventual bitumen residue is expelled.

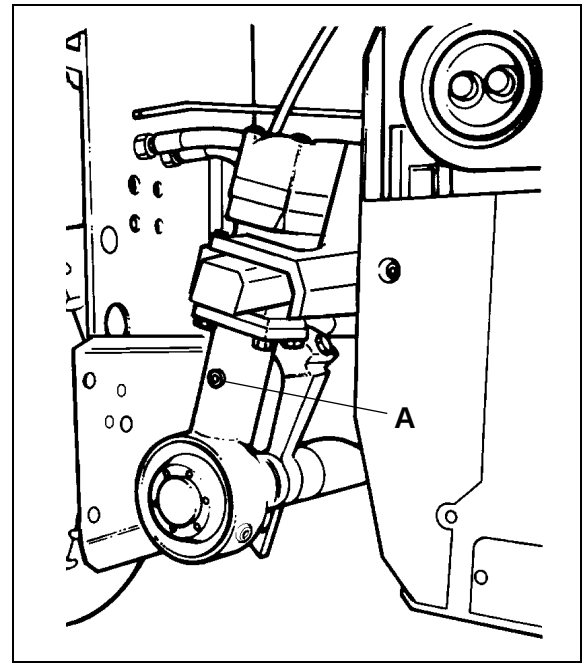
Pump 5 strokes of grease with a grease gun!



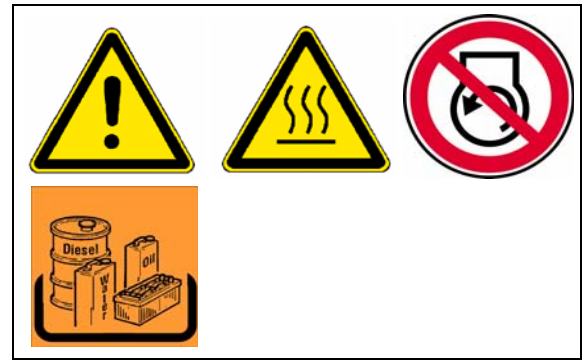
## Auger - drive gear neck bearing (3)

Remove the hexagonal plug (A) in the neck of the drive. Replace the plug under it with an extended grease zert 10x1. Use a grease gun to pump about 10 strokes of grease.

Next, unscrew the grease zert and screw back in both plugs. The neck of the drive is sealed downwards and is lubricated with grease only.



**Auger bevel gear (on the RH and LH sides) (4)**

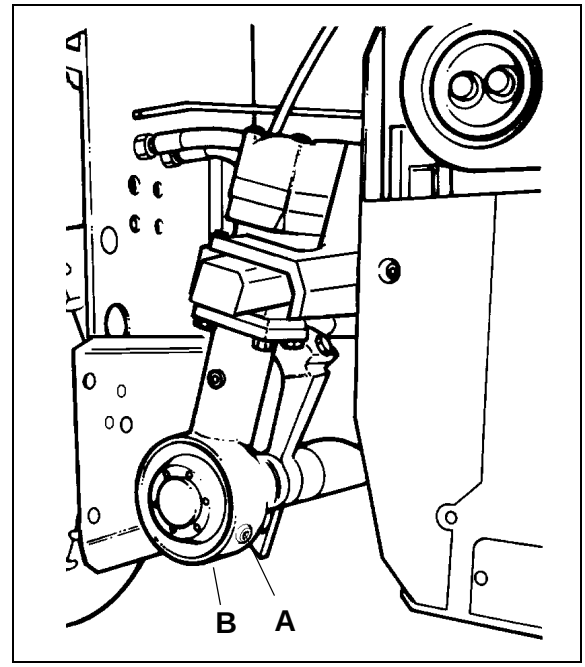



- To **check the oil level** unscrew the inspection / filling plug (A).

NOTE:

The oil level is full when the oil is at the lower edge of the inspection port or a little oil flows from the hole.

To **add** oil:




- Remove the inspection / filling plug (A).
- Add the proper oil through port (A) until the oil level reaches the lower edge of the inspection hole (A). Use only approved oil.
- Replace the inspection / filling plug (A).

To **change** the oil:

NOTE:

Change the oil when the engine is at operating temperature.

- Remove the inspection / filling plug (A) and the drain plug (B).
- Drain the oil.
- Return the oil drain plug (B) and tighten.
- Fill oil, using an approved fluid, through the filling port (A) until the oil level reaches the lower edge of the inspection hole (A).
- Replace the inspection / filling plug (A).

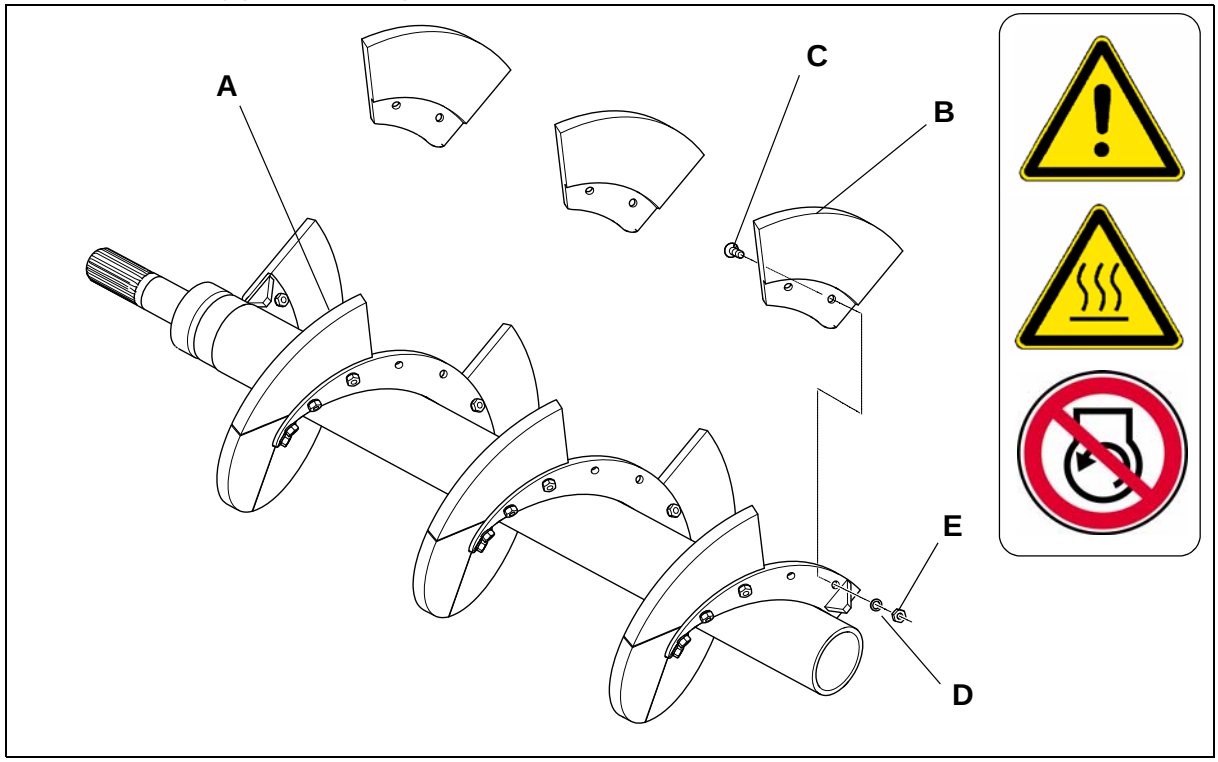
**⚠ CAUTION**

Keep the work area clean. Clean any spills!

## Auger blade (5)

**NOTICE**

If the surface of the auger blade (A) becomes sharp-edged, the diameter of the auger is reduced and the blades (B) have to be replaced.




- Remove the bolts (C), washers (D), nuts (E) and auger blade (B).

**⚠ CAUTION**

Sharp-edged parts can cause personal injury!

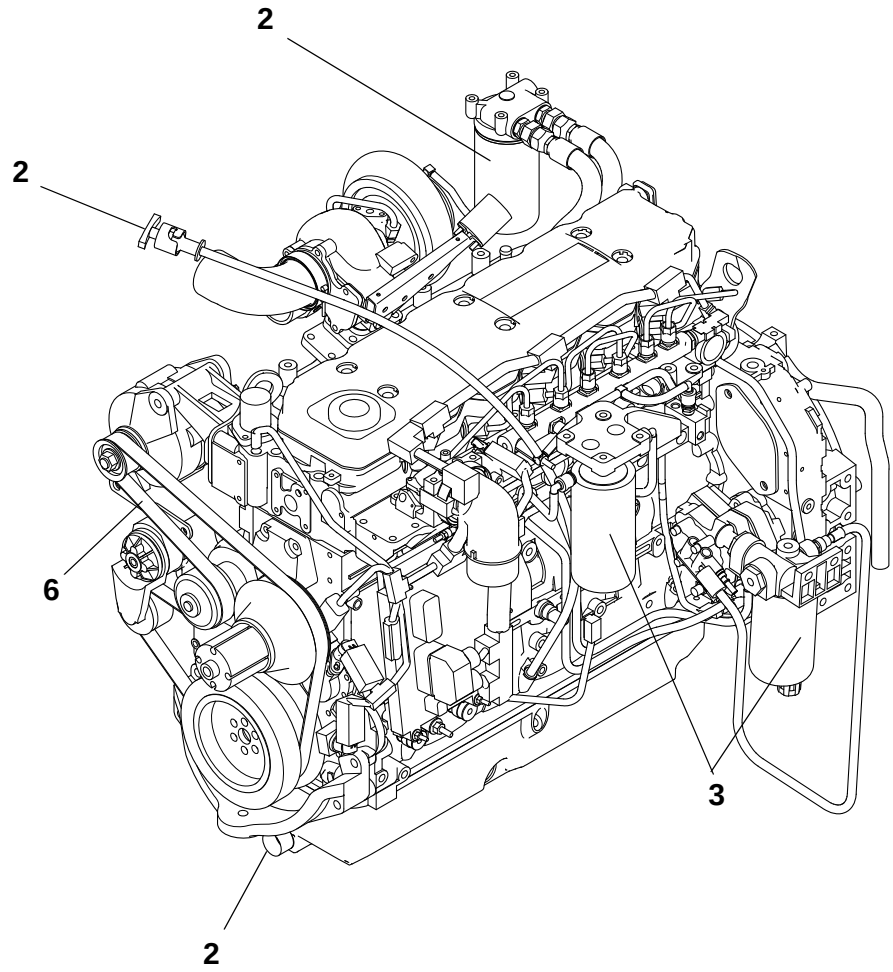
**⚠ WARNING**

Auger blades must be installed with out any play and the contact surfaces must be dirt-free!

- Install the new auger blade (B); replace the bolts (C), washers (D) and nuts (E) if necessary.

# F 5.0 Maintenance - Engine

## 1 Maintenance - engine sub-unit




**1 - Fuel Tank (Not Shown)**
**4 - Air Cleaner (Not Shown)**
**5 - Radiator (Not Shown)**

**NOTICE**

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.

## 1.1 Maintenance intervals

| No. | Interval | | | | | | | | Points of maintenance | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 / year | 2000 / 2 years | as required | | |
| 1 | ■ | | | | | | | | - Fuel tank<br>Check the filling level | |
| | | | | | | | | ■ | - Fuel tank<br>Refill with fuel | |
| | | | | | | | ■ | | - Fuel tank<br>Clean the tank | |
| 2 | ■ | | | | | | | | - Engine oil system<br>Check oil level | |
| | | | | | | | | ■ | - Engine oil system<br>Fill with oil | |
| | | | | ■ | | | | | - Engine lube-oil system<br>Change the oil | |
| | | | | ■ | | | | | - Engine lube-oil system<br>Oil filter change | |
| 3 | ■ | | | | | | | | - Engine fuel system<br>Fuel filter (drain the water separator) | |
| | | | | | ■ | | | | - Engine fuel system<br>Replace the fuel pre-filter | |
| | | | | | ■ | | | | - Engine fuel system<br>Replace the fuel filter | |
| | | | | | | | | ■ | - Engine fuel system<br>Bleeding the fuel system | |

| | |
|---|---|
| **Maintenance** | ■ |
| **Maintenance during run-in period** | ▼ |

| No. | Interval | | | | | | | | Points of maintenance | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 / year | 2000 / 2 years | as required | | |
| 4 | ■ | | | | | | | | - Engine air filter<br>Check the air filter | |
| | ■ | | | | | | | | - Engine air filter<br>Empty the dust collecting bin | |
| | | | | | | ■ | | ■ | - Engine air filter<br>Clean / Replace the filter car-<br>tridge | |
| 5 | ■ | | | | | | | | - Engine cooling system<br>Inspection the radiator fins | |
| | | | | | | | | ■ | - Engine cooling system<br>Clean the radiator fins | |
| | ■ | | | | | | | | - Engine cooling system<br>Check the level of the coolant. | |
| | | | | | | | | ■ | - Engine cooling system<br>Fill with coolant | |
| | | | | | | | ■ | | - Engine cooling system<br>Changing the coolant | |
| | | | | | ■ | | | | - Engine cooling system<br>Check coolant level<br>(additive concentration) | |
| 6 | | | | ■ | | | | | - Engine drive belt<br>Checking of drive belt | |
| | | | | | | | | ■ | - Engine drive belt<br>Tightening the drive belt | |
| | | | | | | ■ | | | - Engine drive belt<br>Replace drive belt | |

| | |
|---|---|
| **Maintenance** | ■ |
| **Maintenance during run-in period** | ▼ |

## 1.2 Points of maintenance

### Engine fuel tank (1)


NOTE:

There is one fuel tank on each side of the machine!

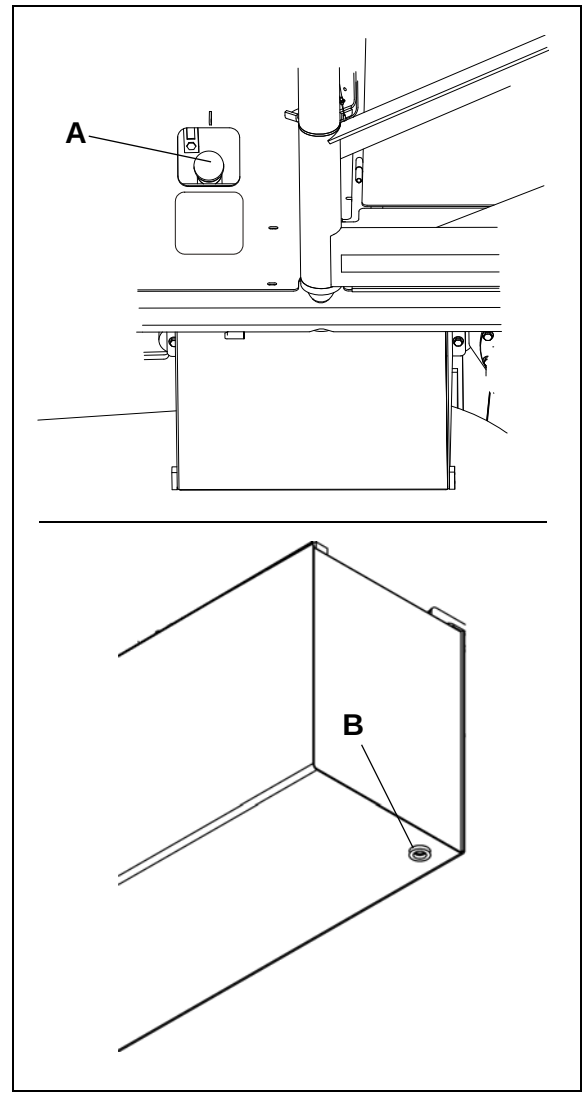
- Check the **fuel level** on the operating panel (check display).

**NOTICE**

Fill the fuel tank before each work shift to prevent the fuel system of running dry. If the tank is ran dry, the system will have to be bled causing work delay.

To **add** fuel:

- Unscrew cap (A) (under the tank covers, r.h. and l.h. paver side).
- Fill with fuel through the filler neck until the tank is full.
- Replace the cap (A).
- Repeat the process for the other tank.

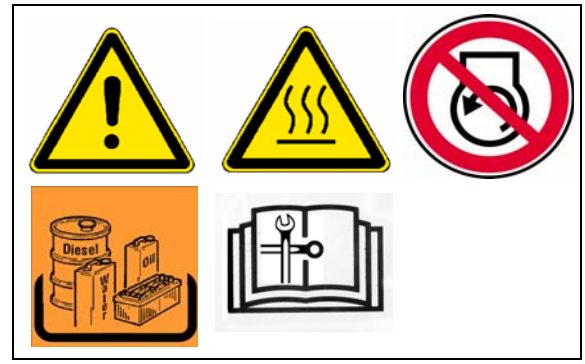



### Cleaning the fuel tanks:

- Unscrew the plug (B) at the bottom of the tank and drain about 1 qt. (1 L) of fuel into an environmentally safe collection pan.
- After draining, add a new seal ring to the plug and screw the plug back in place.

Repeat the process for the second fuel tank.

## Engine lube-oil system (2)




### Check oil level

Check that the oil level is between the maximum and minimum lines on the dip-stick (A).

NOTE:

Check the oil level with the paver parked on a flat surface!

**⚠ WARNING**

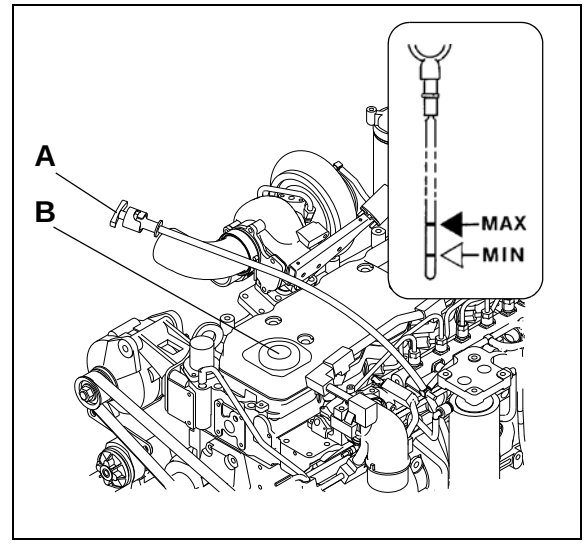
Some state and federal agencies in the United States of America have determined that used engine oil can be carcinogenic and can cause reproductive toxicity. Avoid inhaling vapors, ingestion and common prolonged contact with used engine oil. Do not allow used oil to drain into the ground. Always used proper proceedures to dis-pose of the oil.

**⚠ WARNING**

To avoid personal injury, avoid direct contact of hot oil with your skin.

**⚠ CAUTION**

If there is too much oil in the engine, the gaskets and seals may become dam-aged, while too little oil can lead to the oil overheating and damage to the engine.




To **add** oil:

- Remove the cap (B).
- Add oil until the correct level is achieved.
- Return and tighten the cap (B).
- Check the oil level once again using the dipstick.

## Oil change:

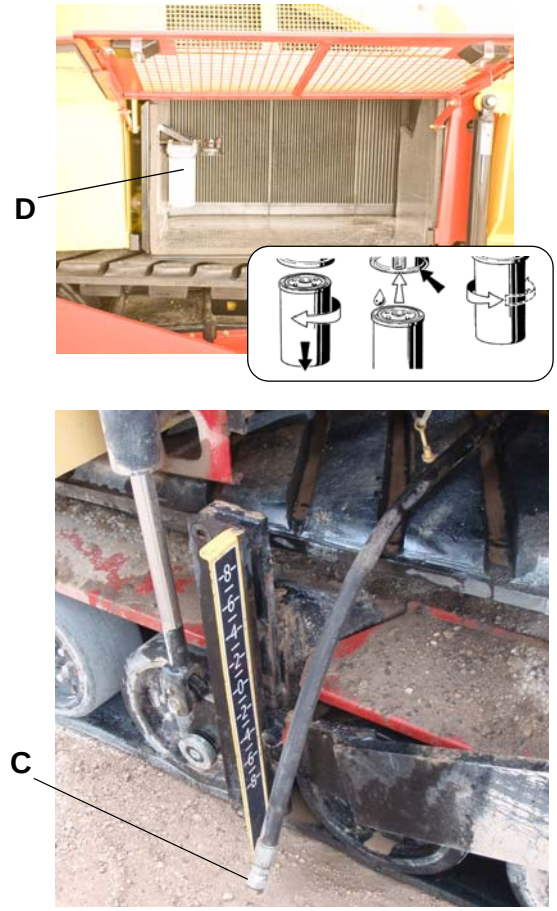
Do not drain the oil when the engine is cold. As the oil cools, suspended waste particals settle on the bottom of the oil pan. The waste particles are not removed with the draining cold oil. Drain the crankcase with the engine stopped. Draining the crankcase with the oil warm will allow the waste particles that are suspended in the oil to be drained properly.

**⚠ WARNING**

Avoid contact with hot oil or components. Do not allow used oil to drain into the ground.

There is a drain hose stored behind the left hand side flap.

- Place the end of the hose into a pan to catch the oil.
- Remove the oil drain port plug (C) and let the oil drain.
- Return the plug.
- Remove the oil cap (B) and add only approved oil until the oil level reaches the full mark on the dipstick (A).




## Changing the oil filter:

When changing the oil, mount the new filter after the used oil has been drained.

- Remove the filter (D) and clean where the new filter will go.
- Apply a thin coat of oil to the seal of the new filter and fill the filter with oil, then mount the filter and tighten by hand.

**⚠ CAUTION**

Fill the oil filter(s) with clean lubricating oil before installation onto the engine. Lack of engine lubrication while the filter(s) are pumped full of oil is harmful to the engine.

## Engine fuel system (3)


The fuel filter system consists of two filters:

- Pre-filter (A) with water separator (located in the engine compartment).
- Main filters (B)

## Pre-filter - drain the water

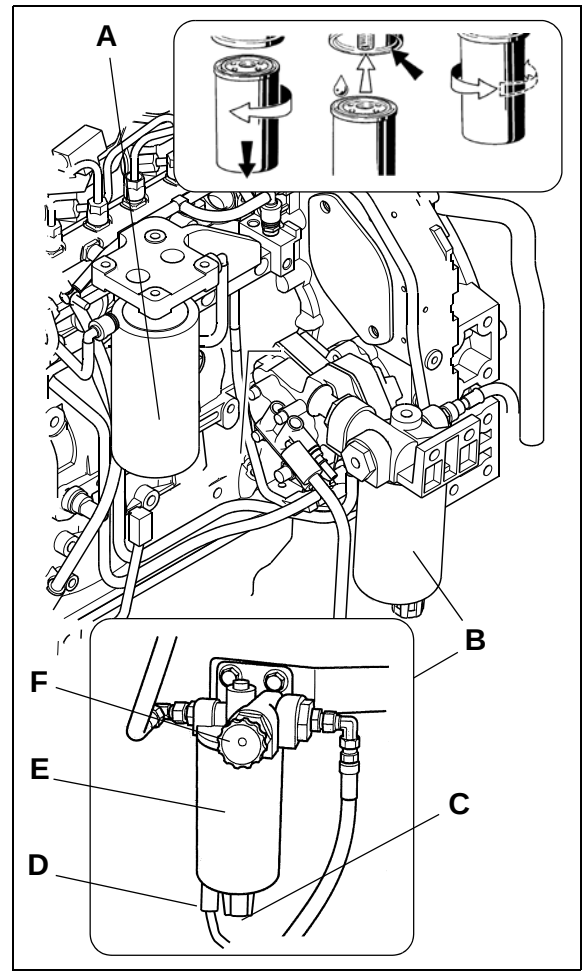
Empty the condensation prior to every engine start or when the engine electronics indicate a fault.

- Drain the water at the drain valve (C), collect it, then close the drain valve again.

**⚠ WARNING**

Fuel leaked or spilled onto hot surfaces or electrical components can cause a fire. To help prevent possible injury, turn the start switch off when chaning fuel filter or water separtor elements. Clean up any spilled fuel immediately.

## Change the pre-filter:




- Drain the separated water at the tap (C), collect it, then close the tap again.
- Remove the water detection indicator connection (D).
- Loosen the filter cartridge (E) using an oil filter wrench or oil filter strap and remove it.
- Clean the sealing surface where the new filter will mount.
- Apply a thin coat of oil to the gasket of the collection sump, mount it under the filter cartridge and tighten by hand.
- Apply a thin coat of oil to the gasket of the filter cartridges, mount them under the holder and tighten by hand.
- Replace the water detector indicator connection (D).
- Unscrew hand wheel of the pump (F). Pump the hand wheel until the filter has filled with fuel.

The system is filled with fuel when resistance at the hand wheel is noticeable during pumping!

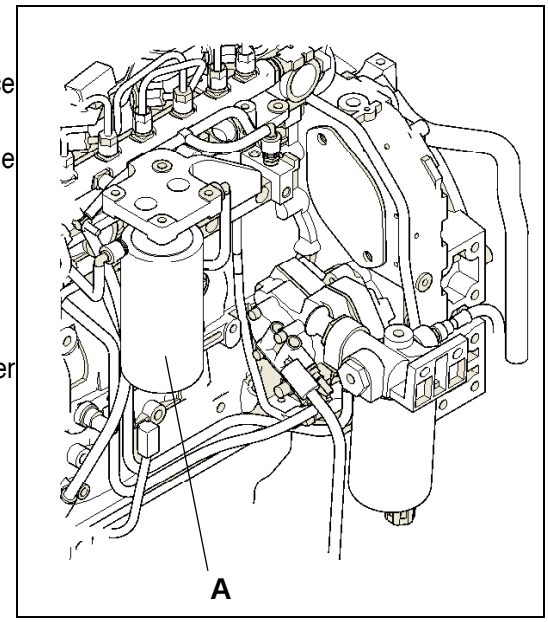
- Screw in pump's hand wheel (F).

**Main filter replacement:**

- Loosen the filter (A) and clean the surface where the new filter will mount.
- Apply a thin coat of oil to the gasket of the new filter.
- Tighten the filter by hand.

NOTE:

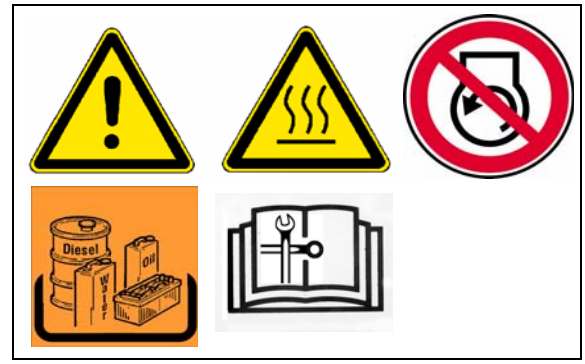
After mounting the filter, check it for proper tightness.




**⚠ CAUTION**

Do not fill the fuel filters with fuel before installing them. Then fuel would not be filtered and could be contaminated. Comtaminated fuel will cause accelerated wear to the fuel system parts.

## Engine air cleaner (4)




The function of the engine air cleaner is to filter the air taken into the engine through the engine's air intake. The engine air cleaner is the dry type with two elements: a primary element that is cleanable and replacable, and a safety element that should only be replaced and not cleaned. The assembly also include a dust vacuator valve and an air cleaner indicator.

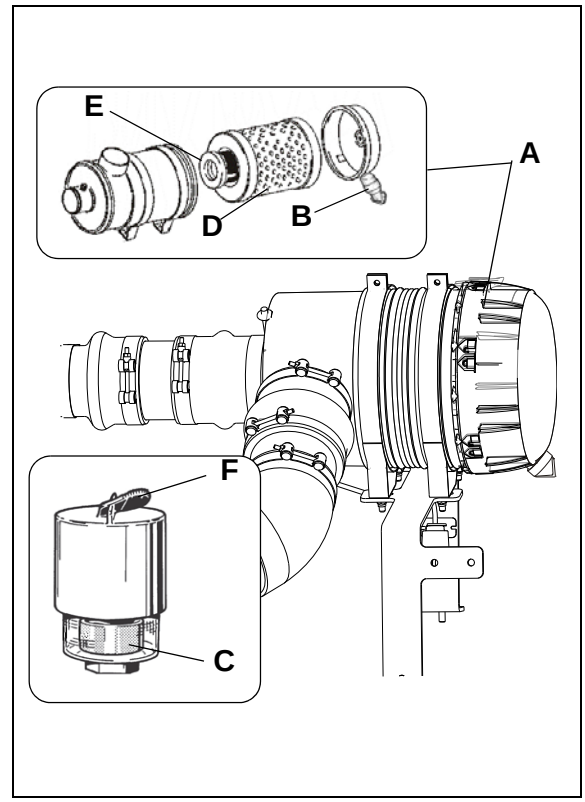
## Emptying the dust vacuator valve

- Discharge the dust by pressing together the upper part of the valve (B).

**NOTICE**

Clean the vacuator valve periodically.

## Cleaning / replacing the air filter cartridge




NOTE:

Air intake filter pollution depends on the dust content in the air and the mesh size of the filter selected.

The maintenance of the filter becomes necessary if:

- The visual restriction indicator (C) is red when the engine is stopped. This indicates that a restriction has occured. This usually means the filters are dirty. A RED indicator requires opening th eair cleaner and cleaning or replacing the elements.
- When the engine electronic unit indicates service required.

**NOTICE**

Never leave the air cleaner open longer than necessary!

### To remove the filter cartridges:

- Open the air filter lid.
- Remove the filter cartridge (D) and the safety cartridge (E)

NOTE:

Clean the filter cartridge (D) and replace at least once per year.

- Blow out with dry pressure air (max. 30 psi / 2.07 bar) from inside blowing out. In case of an urgency, tap the cartridge to remove dust.

- Check the filter's paper of the filter cartridge (by exposing to light) and inspect the seals. Replace them as required.

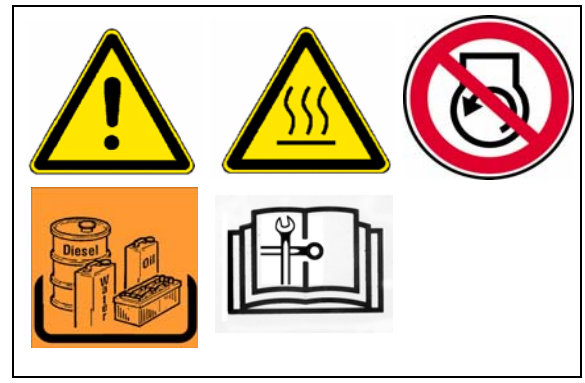
**NOTICE**

Replace the safety cartridge (E) after 3 filter maintenance intervals, but no longer than once per year (never clean it!).

After completing the maintenance:

- Press the reset button (F) for the maintenance indicator (if equipped). The maintenance indicator is ready for operation.

## Engine Coolant system (5)

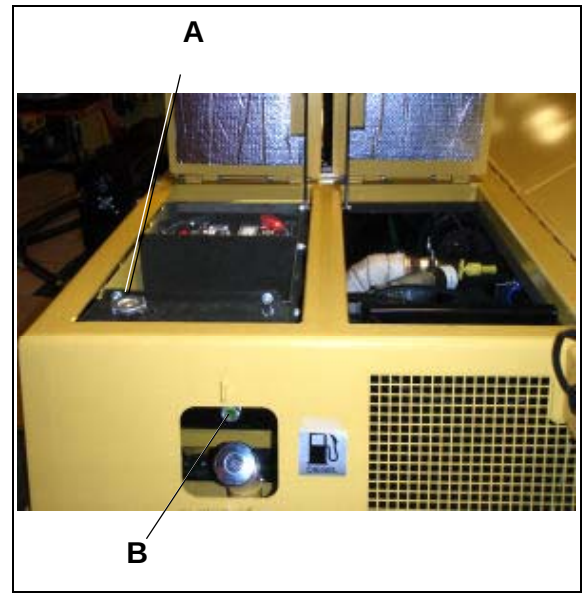



Fully formulated antifreeze must be mixed with quality water at a 50/50 ratio. A 50/50 mixture of water and ethylene glycol or propylene glycol antifreeze to fill the cooling system. The 50/50 mix gives protection to the cooling system at a range of --34_F(--36_C) freezing point and a 228_F (110_C) boiling point, which is adequate for locations in North America. The actual lowest freezing point of ethylene glycol antifreeze is 68 percent. Using higher concentrations of antifreeze will raise the freezing point of the solution and increase the possibility of a silica gel problem.

**⚠ WARNING**

Do not remove the radiator cap from a hot engine. Wait until the temperature is below 120° F (50° C) before removing the pressure cap. Failure to do so can result in personal injury from heated coolant spray or steam. Remove the filler cap slowly to relieve coolant system pressure.

### Checking / filling coolant level




The coolant level is checked when the engine is cold. Check the coolant level daily (10 hours or as needed). Use a Refractometer to ensure the antifreeze and anti-corrosive liquid is sufficient (-25° F / -31.6° C).

- Add sufficient amount of coolant through the fill cap (A) on the coolant tank. Check the coolant level at the site-glass (B) inside the fuel fill door. Do not mix coolants. Only use Dynapac approved coolants.

**⚠ CAUTION**

Do not add cold coolant to a hot engine. Engine castings can be damaged. Allow the engine to cool to 120° F (50° C) before adding coolant.

### Changing the coolant

To change the coolant:

- Remove the radiator cap.

- Open the drain valve at the bottom of the radiator and drain the cooler into an environmentally approved drain pan with a capacity of about 5 gallons (19 liters).
- Inspect the hoses to and from the radiator and replace them if they look worn or cracked.
- Once drained, dispose of the coolant fluid in an appropriate manner.

**⚠ DANGER**

Coolant is toxic. Keep away from children and pets. Dispose of in accordance with federal, state and local environmental regulations

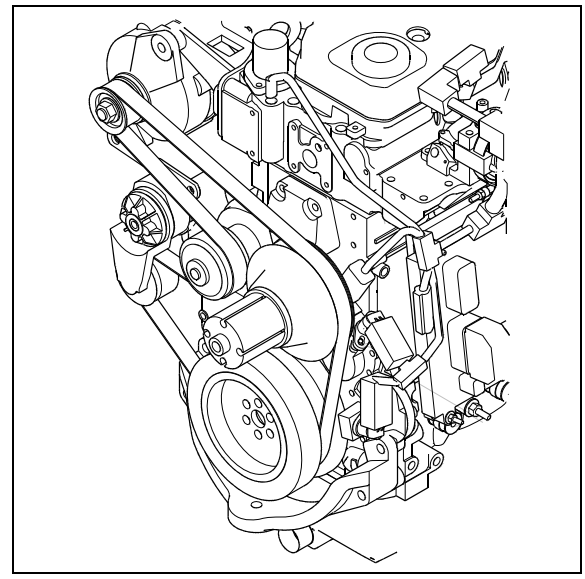
- Close the drain valve.
- Fill the radiator with a 50/50 mix of water and ethylene glycol or propylene glycol antifreeze.
- Install the radiator cap.
- Start the engine and allow it to run a few minutes.
- While the engine is running, check the radiator and hoses for leaks.
- When the engine coolant temperature reaches about 180°F (80°C), turn the engine off and check the coolant level again.

## Checking and cleaning of the radiator fins

- If necessary, remove leaves, asphaltic oils and residue, dust or sand from the radiator.

## Engine drive belt (6)

### Check drive belt/replacement



Under normal operating conditions, the engine drive belt(s) should be inspected daily. Belt damage can be caused by incorrect size or length, pulley misalignment, incorrect installation, severe operating environment and oil or grease on the belt(s).

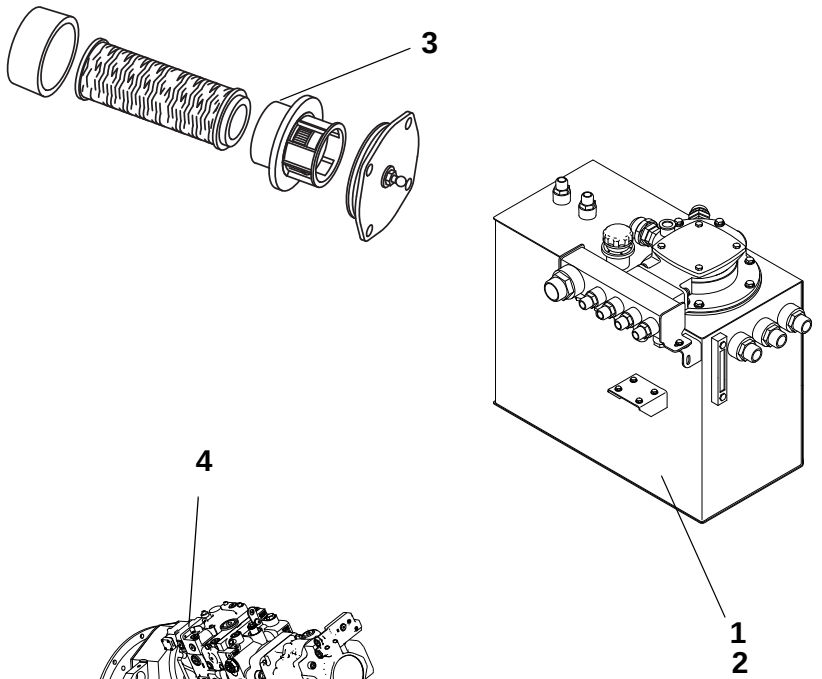
Adjust the belt tension in order to minimize belt slippage. Belt slippage will decrease the life of a belt. If the belt is too loose, the belt will vibrate. This vibration is enough to cause unnecessary wear on the belt(s) and on the pulleys. If the belt(s) are too tight, unnecessary stresses are placed upon the pulley bearings and upon the belts. These stresses will shorten the life of the belt(s) and the pulley bearings.

To maximize the engine performance, visually inspect the belts for tension, wear, breaks, cracks or other damage. Replace the belts that are cracked or frayed. Adjust belts that have a glazed or shiny surface which indicates belt slippage. Correctly installed and tensioned belst will show even pulley and belt wear.

Refer to the Engine Manual for proper proceedure for removing and installing the belts.

# F 6.0 Maintenance - Hydraulic System

## 1 Maintenance - hydraulic system




**5 Hydraulic Hoses - Not Shown**

## 1.1 Maintenance intervals

| No. | Interval | | | | | | | | Points of maintenance | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 | 2000 / 1 years | as required | | |
| 1 | ■ | | | | | | | | - Hydraulic oil tank<br>Check the oil level | |
| | | | | | | | | ■ | - Hydraulic oil tank<br>Fill with oil | |
| | | | | | | | ■ | | - Hydraulic oil tank<br>Oil change and cleaning | |
| 2 | ■ | | | | | | | | - Hydraulic oil tank<br>Check the maintenance indicator | |
| | | | | | | | ■ | ■ | - Hydraulic oil tank<br>Intake / return | |
| | | | ▼ | | | ■ | | ■ | - Change the hydraulic filter | |
| 3 | ■ | | | | | | | | - High pressure filter<br>Check the maintenance indicator | |
| | | | ▼ | | | ■ | | ■ | - High pressure filter<br>Replace the filter cartridge | |
| 4 | | ■ | | | | | | | - Pump distribution gear<br>Check the oil level | |
| | | | | | | | | ■ | - Pump distribution gear<br>Fill with oil | |
| | | | | | | ■ | | | - Pump distribution gear<br>Oil change | |
| 5 | | | | | ■ | | | | - Hydraulic hoses<br>Inspect hoses | |
| | | | | | | | ■ | ■ | - Hydraulic hoses<br>Replace the hoses | |

| | |
|---|---|
| Maintenance | ■ |
| Maintenance during break-in period | ▼ |

F_6.0_01_US.fm 2-12

## 1.2 Hydraulic System

A paving machine has many components and implements that are controlled by a hydraulic system, either directly or indirectly. Before working on or inspecting any part of a paving machine, it is important that the individual knows how the components move and are controlled by the hydraulic system components including the respective control circuits.

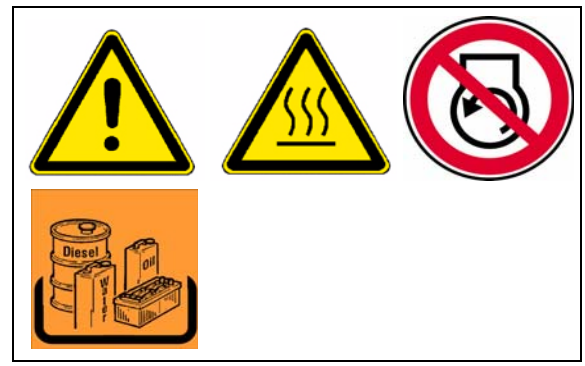
Before working on or inspecting any component, it must be physically constrained from any movement that could cause injury to the worker. The worker must be alert to not placing any part of his/her body where movement of a component could cause injury, unless that component is physically contrained from movement, if the hydraulic system fails, is disconnected, or is asignaled to cause movement.

It must also be recognized that there are occasions where component and or vehicle movement may react to the release of potential energy. Where applicable it must be confirmed that all measures are employed to ensure that any and all sources of potential energy are released and/ or physically restrained.

All tramming, hopper and conveyor functions and augers are hydraulically powered. The hydraulic system consists of a 50 gallon (189.21 liter) hydraulic reservoir with a 10 micron filtration system. The propel pumps, conveyor and auger pump, generator pump and screed functions are driven by the pump drive gear box which is mounted directly to the engine. The hydraulic system includes various motors, cylinders, valves, filters and hose piping. A hydraulic oil cooler assures optimum oil temperatures to maximize system efficiency and component life.

## 1.3 Points of maintenance

### Hydraulic oil tank (1)



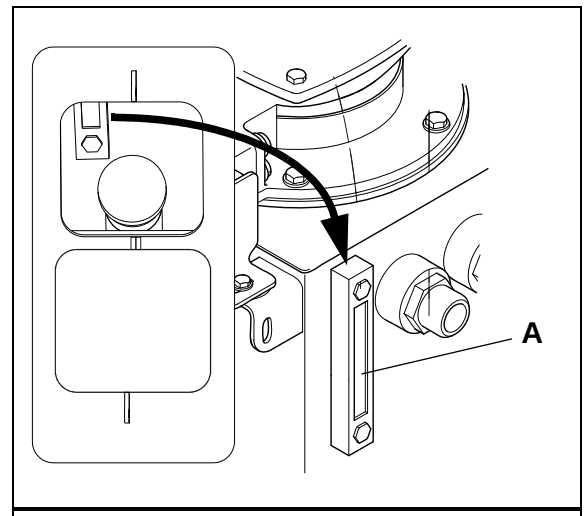

- **Oil level** check at sight level gauge (A) on the side of the tank.

NOTE:

View the sight level gauge by the opening fuel tank flap on the L.H. side of the machine.

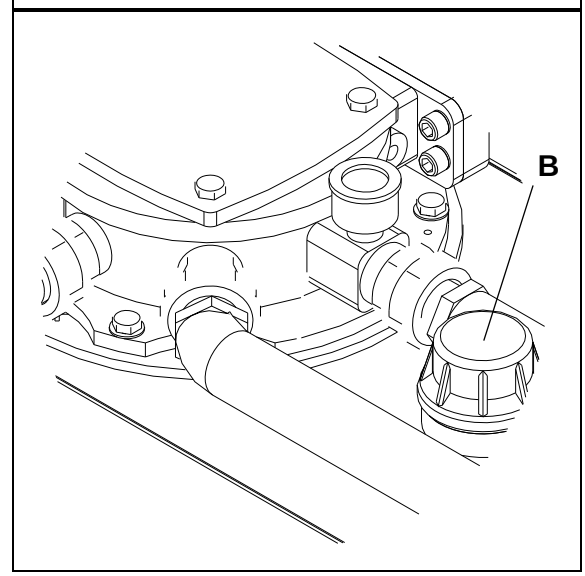
**NOTICE**

With the cylinders fully retracted, the oil level should be at the upper mark.




To **add** oil:

- Remove cap (B).
- Add oil through the fill port until the level shows full at the sight level gauge (A).
- Return cap (B).




NOTE:

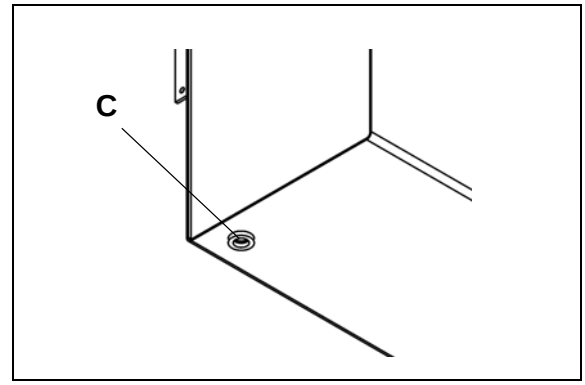
Regularly clean dust and contaminants from the vent port on the oil tank. Clean the surfaces of the oil cooler.

**⚠ CAUTION**

Use only the recommended hydraulic oils - see section “Recommended hydraulic oils“.

To **change** the oil:

- To drain the hydraulic oil unscrew the drain plug (C) at the bottom of the tank.
- Collect the oil in an appropriate container using a funnel.
- After draining, add a new seal ring and then screw the plug back into place.




**⚠ WARNING**

Hot oil or components can burn. Oil must be at normal operation temperature when draining. Avoid contact with hot oil or components.

**⚠ WARNING**

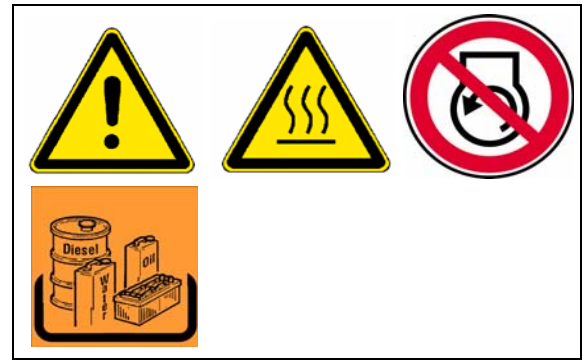
Gearbox must be filled with fresh, clean oil.

**⚠ WARNING**

Always change the hydraulic oil filter(s) when changing the hydraulic oil.

## Suction/return flow hydraulic filter (2)

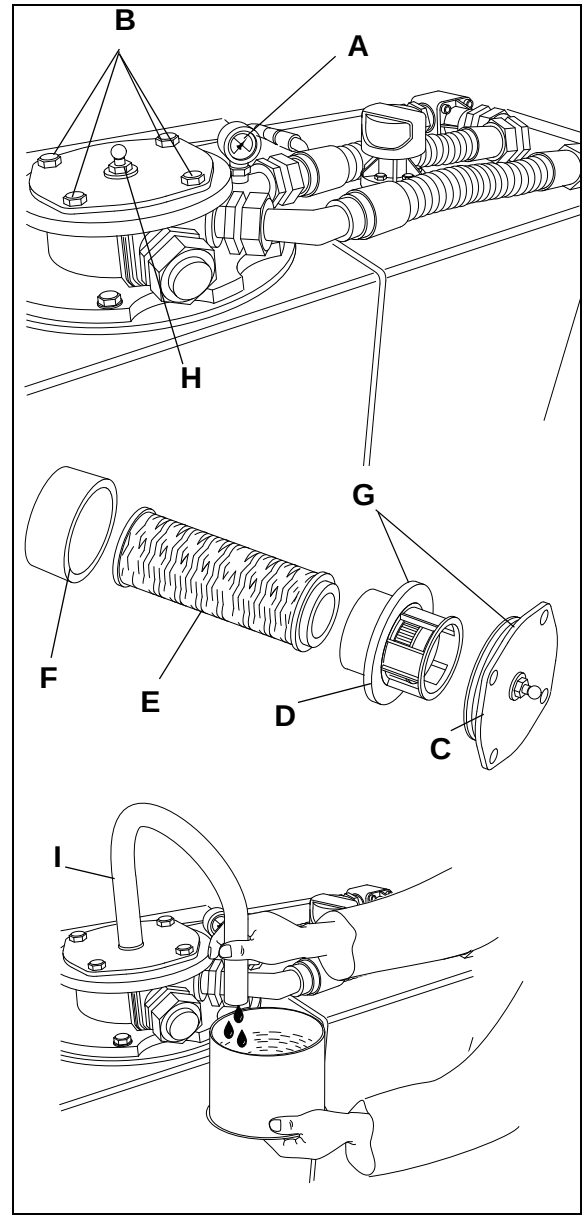
Change the **filter** at the intervals specified or when the **maintenance indicator (A)** is at the red mark or when changing hydraulic oil. The hydraulic oil must be at least 175° F (80° C).




**⚠ WARNING**

When changing the hydraulic oil also change the filter.

- Remove the lid fastening screws (B) and remove the lid.
- Disassemble the withdrawn unit into the following parts:
  - lid (C)
  - separating plate (D)
  - filter (E)
  - dirt collection cage (F)
- Clean the filter case, the lid, the separating plate and the dirt collection cage.
- Check and replace the O-rings (G) when required.
- Wet the seal surfaces and the O-ring with clean fuel.



### Venting the filter:

- Fill the open filter case with hydraulic oil to just below the upper rim.
- Should the oil level drop, fill with oil.

**NOTICE**

The oil level slowly lowering by about 1/4 in./min. (1 cm/min) is normal!

- When the oil level remains steady, mount the assembled unit with the new filter cartridge, carefully into the housing and tighten the locking screws of the lid (B).
- Open the vent screw (H).
- Mount a transparent hose (I) on the vent screw and lead it into an appropriate container.
- Start the engine and run it at idle speed.
- Shut-off the bleeding screw (H) as soon as the oil discharged through the hose is clean and free of air bubbles.

**⚠ WARNING**

The process from mounting the filter lid until starting the engine should take place within 3 minutes or the oil level will drop too much in the filter case.

**⚠ CAUTION**

Check the seal after changing the filter.

## High pressure filter (3)

Replace the filter cartridge when the maintenance indicator on top of the filter cartridge head turns “red”.

- Unscrew filter housing (B).
- Remove the filter cartridge
- Clean the filter housing.

- Insert the new filter cartidge.
- Replace the seal (o’ring) on the filter housing.
- Screw the filter housing on by hand, then tighten it using the appropriate tool.
- Test the filter for tightness and leaks.



**⚠ WARNING**

Always replace the seal (o’ring) whenever the filter cartridge is replaced.

**NOTICE**

After the filter cartridge has been replaced, the indicator on top of the filter cartridge head will return to “green”.

## Pump distribution gear (4)

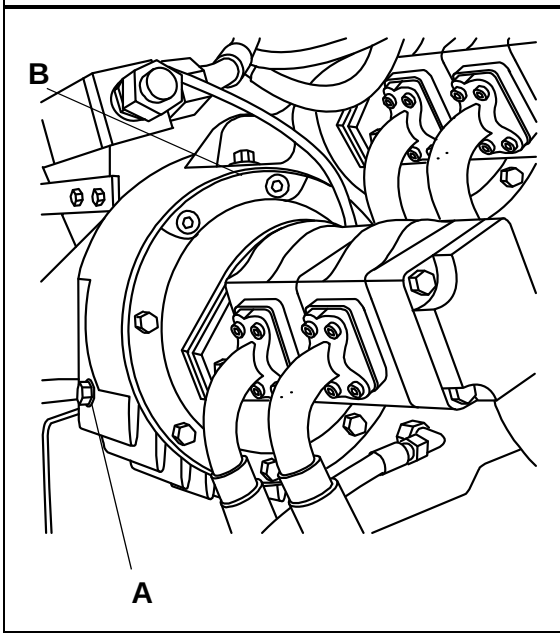

- **Check the Oil level** at the sight glass (A) (at the side of the distribution box).

NOTE:

The oil level must be up to the center of the sight glass.

To **add** oil:

- Unscrew the plug (B).
- Add oil until the sight glass (A) shows the correct fluid level.
- Return and tighten the plug (B).




**⚠ CAUTION**

Keep the work area clean!

**⚠ WARNING**

Hot oil or components can burn. Oil must be at normal operation temperature when draining. Avoid contact with hot oil or components.

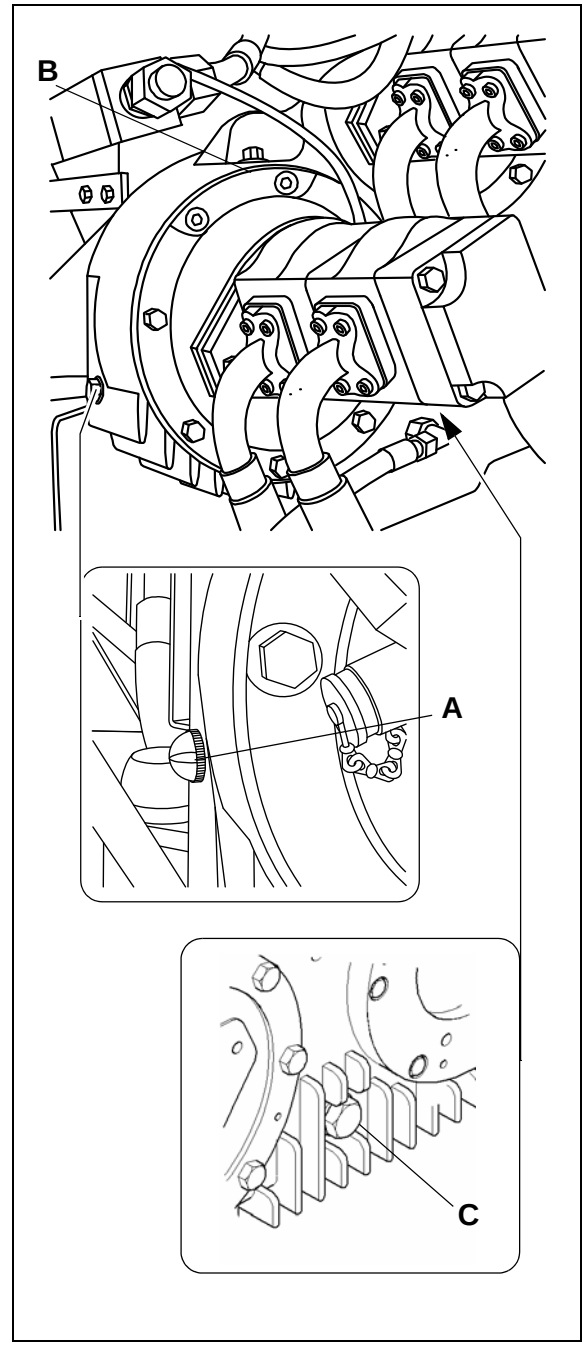
**⚠ WARNING**

Gearbox must be filled with fresh, clean oil.

## Oil change:

Change the oil when the engine is at operating temperature.

- Remove the cap for the oil drain port (C) and screw on the hose provided as an accessory.
- Place the end of the hose in an appropriate container and catch the oil.
- Open the shut-off valve and let the oil drain completely.
- Shut off the valve, remove the hose and return the cover cap.
- Add only approved oil to the distribution box (B) until the oil level is at the center of the sight glass (A).

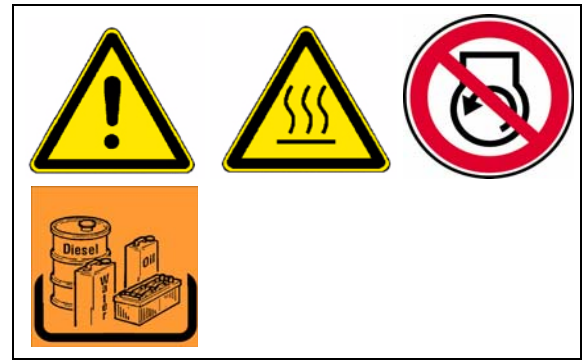



**⚠ WARNING**

Hot oil or components can burn. Oil must be at normal operation temperature when draining. Avoid contact with hot oil or components.

## Hydraulic hoses (5)

Frayed or damaged hoses can break instantly causing hot hydraulic fluid to spray causing severe burns. Always replace worn or damage hoses immediately.




**⚠ WARNING**

Hot oil or components can burn. Oil must be at normal operation temperature when draining. Avoid contact with hot oil or components.

- Check the condition of the hydraulic hoses carefully.
- Immediately replace any damaged hoses.


**⚠ DANGER**

Old hoses may become porous and burst! Hot oil spraying from a burst hose can cause severe burns!

**NOTICE**

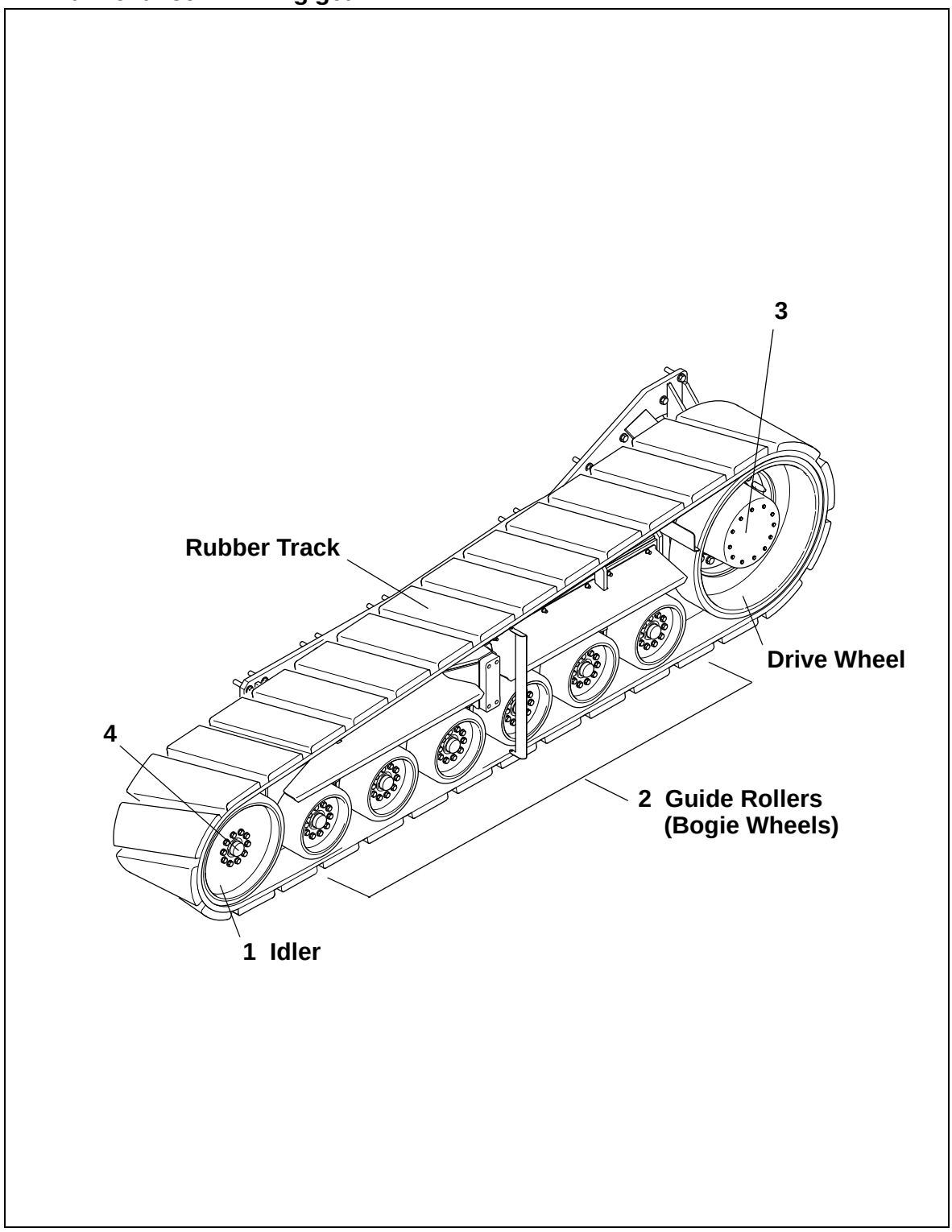
Each hose has the maximum pressure allowed for that hose printed on it.

**⚠ CAUTION**

Do not use hoses that have been in storage for a long time. Check for the proper pressure rating printed on the hose.

# F 7.0 Maintenance - Track

## 1 Maintenance - running gear



## 1.1 Maintenance intervals

| No. | Interval | | | | | | | | Points of maintenance | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 | 2000 / 1 years | as required | | |
| 1 | | ■ | | | | | | | - Idlers, guide rollers, drive wheels<br>- Check the torque at the bolts | |
| | | | | | | | | ■ | - Idlers, guide rollers, drive wheels<br>- Ensure proper torque for bolts | |
| 2 | ■ | | | | | | | | - Guide rollers - check straight running | |
| | | | | | | | | ■ | - Guide rollers - straight running, setting | |
| | ▼ | ■ | | | | | | | - Guide rollers - ensure the adjusting bolts are tight | |
| | | | | | | | | ■ | - Guide rollers - tighten the adjusting bolts | |
| 3 | | | | ■ | | | | | - Planetary gear<br>Check the oil level | |
| | | | | | | | | ■ | - Planetary gear - fill with oil | |
| | | | | | | ■ | | | - Planetary gear oil change | |
| 4 | | | | ■ | | | | | - Gear- guide rollers front -<br>Grease them | |

| | |
|---|---|
| Maintenance | ■ |
| Maintenance during run-in period | ▼ |

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## 2 Instructions for undercarriage maintenance

**NOTICE**

In order to avoid a disclaimer of responsibility by the manufacturer or dealer and to extend the life of the rubber parts, the directives below should be strictly adhered to.

**⚠ CAUTION**

Check and maintain the track and undercarriage as specified. Although the rubber itself needs little daily maintenance, the metal parts of the undercarriage are very sophisticated, therefore they require frequent checking. Ensure that they have no visible damage and that the drive wheels, idlers and guide rollers are properly secured to the vehicle. The drive wheels, idlers and rollers should not show evidence of unusual wear and tear (on the tread, on the driven surface and at the driving gears).

**⚠ CAUTION**

New drive wheels, idlers and guide rollers tend to become sticky. This is a normal consequence of the vulcanizing procedure. Generally, these parts work better if the sticky layer is removed. Therefore, we recommend coating each new drive wheel, idler and roller with chalk or similar non-corrosive material in order to make them work more smoothly. To do this, simply put a thin layer of this material on the driven surface of the drive wheel, idler or roller and turn on the drive for a very short period. This serves to remove the sticky layer and provides optimal “biting” for the gear and the drive wheel, idler and rollers. Pre-treatment of these parts is necessary only when they are new.

**⚠ WARNING**

The wheels, idlers or guide rollers should not come into contact with grease, oil, benzene, gasoline or other corrosive chemicals. These attack the rubber and in case of contact they should be immediately removed. When greasing the machine and/or the gear, strictly avoid grease or oil on the drive wheels, idlers and guide rollers. Frequently check for hydraulic oil leaks. Hydraulic oil making contact with the rubber should be avoided. Do not wash or treat the machine with gasoline or other fuels; use only appropriate cleaning materials instead (i.e. soft soap and water). Discuss use of other separating agents with your machine dealer.

**NOTICE**

If necessary, exchange the left and right side drive wheels with each other. In certain applications, wheel abrasion may differ. By exchanging the right and left wheels with each other, their lifetime can be prolonged.

In this chapter you shall find all information regarding lubrication materials required for maintenance of the undercarriage.

## 2.1 Long-term effect of parked machines

If the machine is not used for a long period, observe the following directives.

**⚠ WARNING**

Avoid exposing the machine to direct sunlight.
Over a period of time, the direct UV radiation may cause the drive wheels, idlers or guide rollers to become porous. They become rigid and tiny ruptures may appear. For these reasons, the machine should be stored under a roof or in a protected area when it is possible. If the machine must be stored outdoors, please cover the tracks, drive wheels, idlers and guide rollers with non-transparent canvas.

**⚠ WARNING**

Avoid excessive humidity. Longer contact with water may attack the drive wheels, idlers or guide rollers. Do not store the machine in standing water. The machine must be stored under a roof or in a protected area whenever it is possible. If the machine must be stored outdoors, please cover the tracks, drive wheels, idlers and guide rollers with watertight canvas.

**NOTICE**

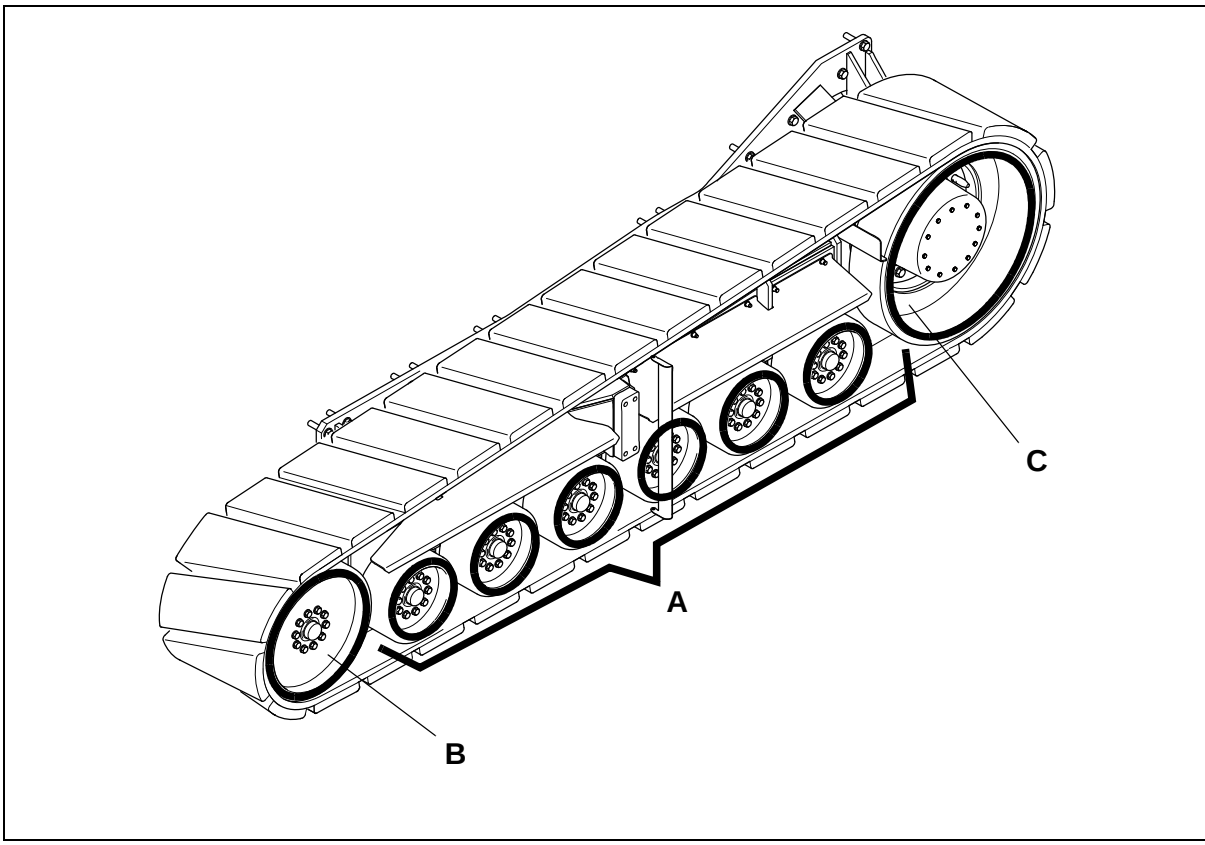
Separate directives apply to long/term storage for the drive wheels, idlers and guide rollers! Consult with the Dynapac, USA customer center for these directives.

## 2.2 Maintenance

### Idlers, guide rollers, drive (1)

### Check / tighten the mounting bolts

Mounting bolts for all idlers, guide rollers and drives should be checked and tightened if necessary!




The mounting bolts should be tightened to the following torque values:

- Guide rollers (A) - (12 rollers):
  105 ft. lbs / 142.4 Nm
- Idlers (B) - (2 idlers):
  314 ft. lbs / 425.7 Nm
- In addition to this, all mounting bolts on the drive wheel (C) should be checked and re-torqued if necessary!
- Drive Wheels (2 drive wheels):

  375 ft. lbs / 508.4 Nm

## Guide rollers - straight running, secure the adjustment bolts (2)

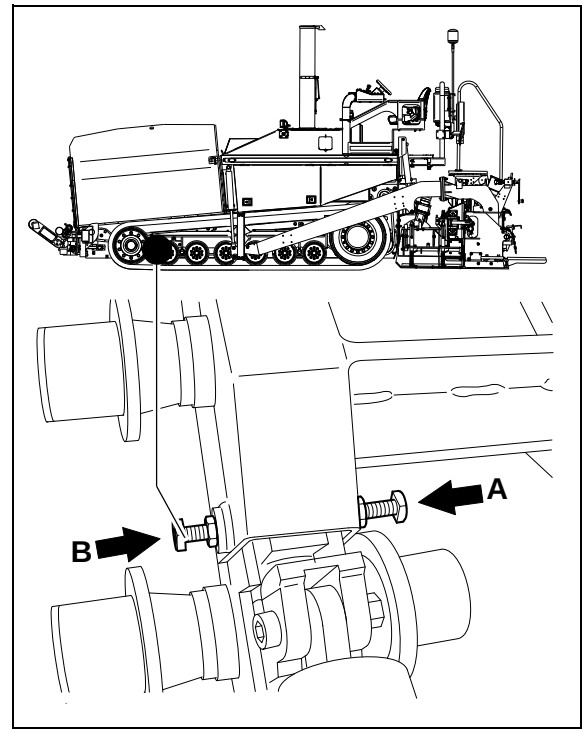
The adjustment bolts are located in the front part of the drives and at the regulator links of the guide rollers.

If the wheels and rollers run outwards or inwards or are not centered on the two guide rollers, side-ward tilt of the guide rollers should be adjusted.

Check whether the adjusting bolts and counter nuts are properly tightened and retighten them if necessary.

Guide rollers runs excessively inwards:

- Loosen the counter-nuts of both adjusting bolts (A) and (B).
- Loosen the inner adjusting bolt (A).
- Retighten the outer adjusting bolt (B).




**⚠ CAUTION**

Never turn the adjusting bolts more than a half turn!

If the guide rollers run excessively outwards, you should adjust the guide rollers in the opposite direction!

- Move the machine forward and check to see if the rollers are running straight. Repeat the adjustment if necessary.

When checking the adjustments, drive the machine until the drive wheels make two complete turns!

The adjustment is correct if the teeth of the rollers run in the middle between the idlers and the front/rear guide rollers!

- Tighten the counter-nuts on the adjusting bolts (A) and (B) on a regular basis!
- Move the machine forward and backward to check if the rollers are running straight!

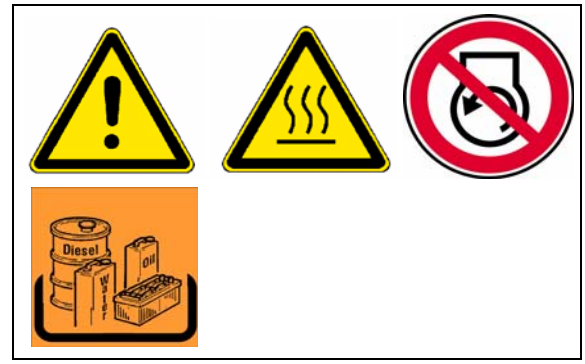
**⚠ CAUTION**

The rollers running straight is very important and directly affects their life cycle!

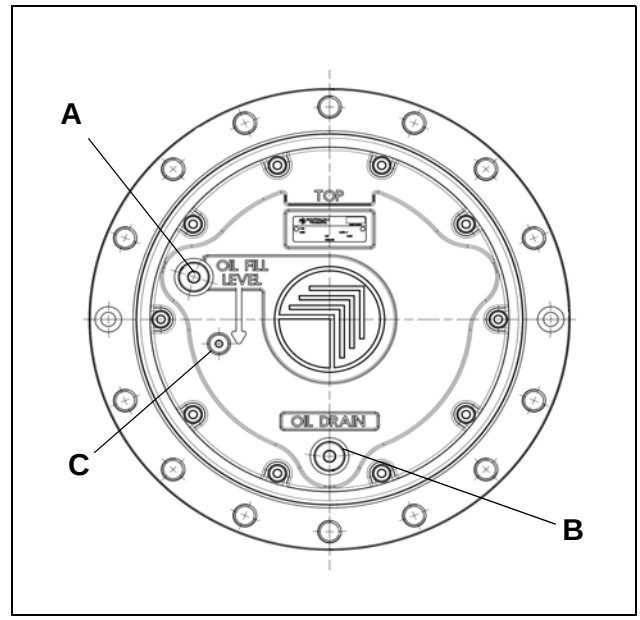
## Planetary gear (3)

**NOTICE**

Care must be taken to ensure fluids are contained during performance of inspection, maintenance, testing, adjusting and repair of the paver. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids. Dispose of fluids according to local regulations and mandates.




To check the oil level in the Planetary Gearbox:




- Position the planetary gearbox so that the oil drain (B) is vertical at its lowest point (about the 6 o'clock position). The oil filler plug (A) should then be on the Left or Right outside fo the planetary middle.
- Clean the area around the check plug (C) and fill plugs and the drain plug.
- Place an oil collection container underneath the planetary gearbox.
- Remove the oil level check plug (C). The oil level should be at the oil level check port.
- If the level is low, add oil through the fill plug (A).
- If the oil looks contaminated, drain the oil completely.
- Insert the drain plug (B) and tighten.

**⚠ WARNING**

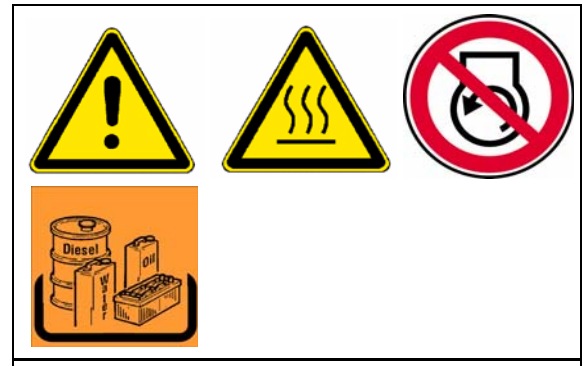
Gearbox must be filled with fresh, clean oil.

- Fill with oil until the level has reached the oil level check port (C). Insert check and fill plugs and then tighten

**⚠ WARNING**

Hot oil or components can burn. Oil must be at normal operation temperature when draining. Avoid contact with hot oil or components.

## Idler rollers, front (4)

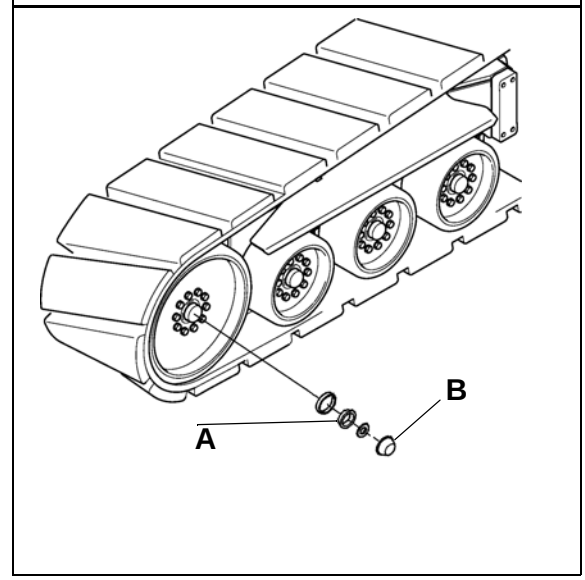



Tracks that are not adjusted properly can cause rapid wear at the idler bearings and can put extra stress on the undercarriage while wasting horsepower and causing higher fule consumption.

Check the drive idler bearing (A) for wear and ensure they are filled with grease.

To re-grease the idler bearings::

- Remove protective cap (B).
- Clean any used grease from the bearing assembly (A) and replace the old grease with the proper amount of new grease by packing the grease into the bearing.
- Return protective cap (B).




**⚠ CAUTION**

Ensure no contaminants or foreign materials enter into the bearing.

# 3 Gear- lubrication materials (5)

## 3.1 Lubricants and fuels

NOTE:

Use only the lubricants listed or the equivalent quality lubricants. Use only clean containers for adding oil or fuel.

Take into account the filling volumes (see the section “Filling volumes“).

**⚠ WARNING**

Low quality oil or lubricant causes faster wear and the failure of the machine.

**⚠ WARNING**

Mixing of synthetic and natural oils is explicitly prohibited!

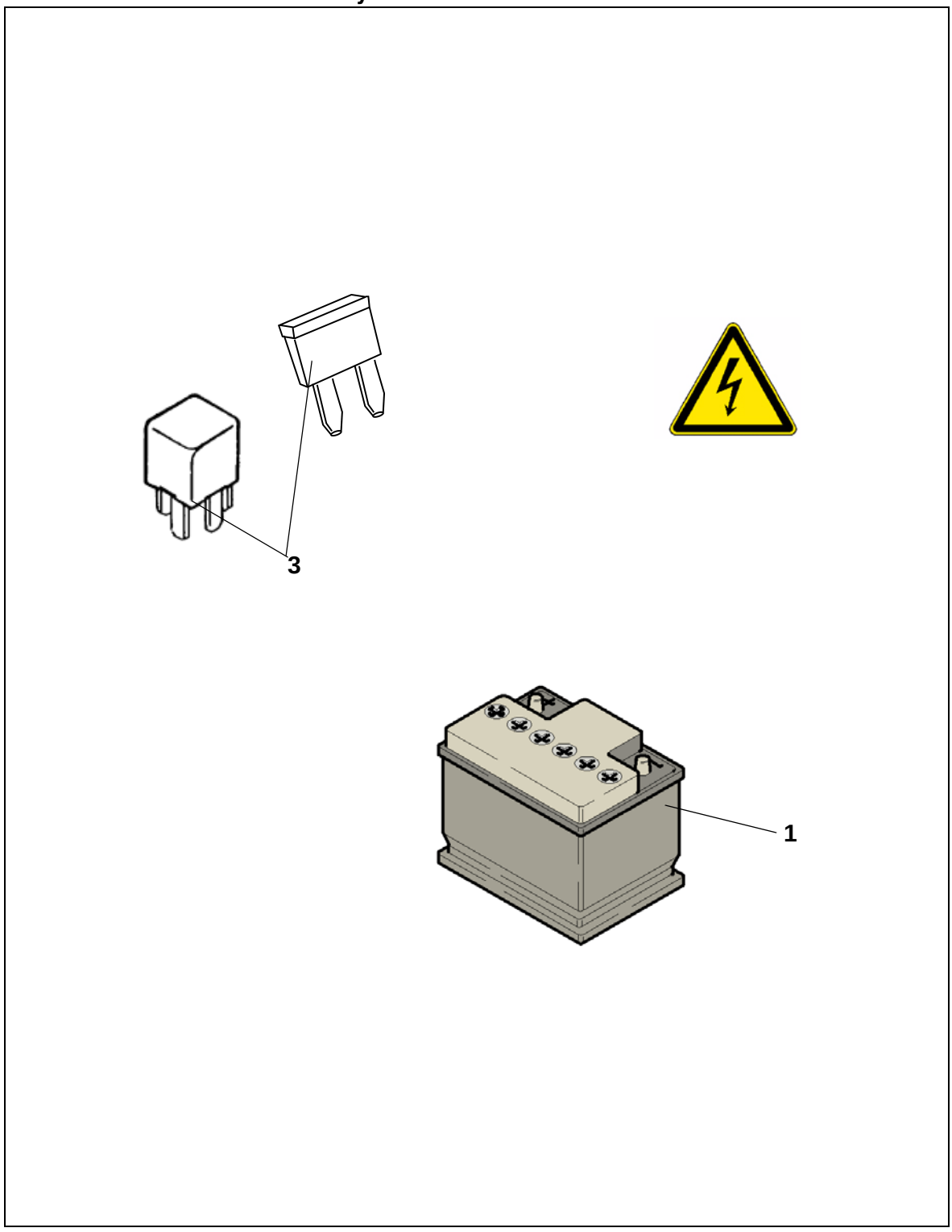
| | BP | Esso | Total Fina (Total) | Mobil | Renault | Shell | Wisura |
|---|---|---|---|---|---|---|---|
| Grease | BP universal grease L2 | ESSO Universal grease | Total Multis EP 2 | Mobilux 2 Mobiplex 47 | Universal grease | SHELL Alvania Grease EP (LF) 2 | Retinax A |
| Gear oil Machine drive | | | | | | SHELL Transaxle 75W-90 | |
| Transmission oil Idlers | | | | | | | |

## 3.2 Filling volumes

| | Fuel | Volume |
|---|---|---|
| Planetary gear | Transmission oil 220 | to the max. filling level |
| Lubrication points | Grease | |

# F 8.0 Maintenance - Electronic system

## 1 Maintenance - Electronic system



## 1.1 Maintenance intervals

| Item | Interval | | | | | | | | | Maintenance point | Note |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 / annually | 5000 | 20000 | If necessary | | |
| 1 | | | ■ | | | | | | | Check the charge level of the batteries, replace if necessary | |
| | | | | ■ | | | | | | Apply grease to battery terminals | |
| 3 | | | | | | | | | ■ | Electric fuses | |

| | |
|---|---|
| Maintenance | ■ |
| Maintenance during the running-in period | ▼ |

## 1.2 Points of maintenance

### Batteries (1)

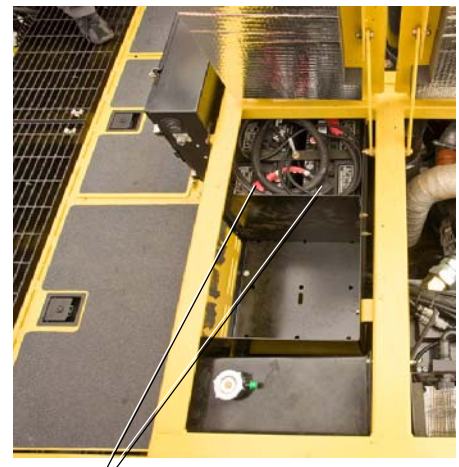
### Maintenance of batteries


NOTE:

The batteries equipped with the paver are “Maintenance Free” batteries. When batteries can no longer hold a charge, they must be replaced.

**NOTICE**

The battery terminal clips must be free of corrosion (oxide) and protected with grease.




**⚠ CAUTION**

When removing the batteries, always remove the negative terminal first, ensuring that the battery terminals do not short circuit.

**⚠ WARNING**

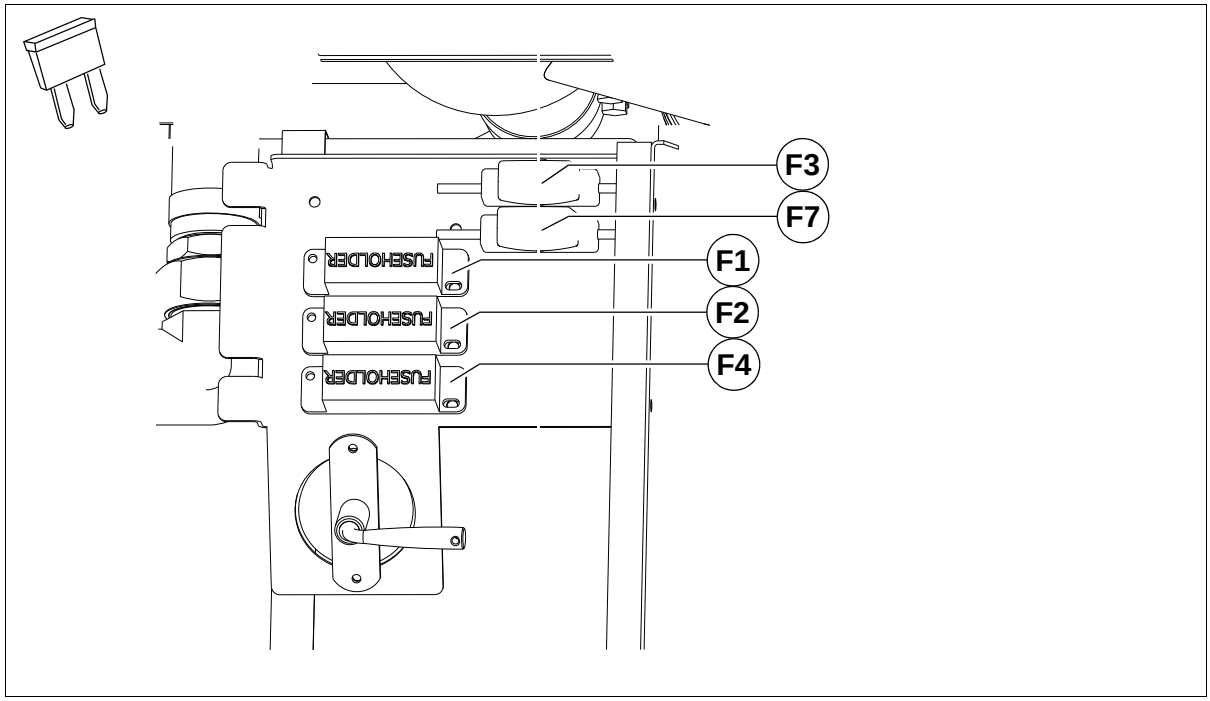
Always where protective glasses when working with battires.

**⚠ WARNING**

Never disconnect any charging unit circuit or battery circuit cable from the battery when charging unit is operating. A spark can cause explosions.

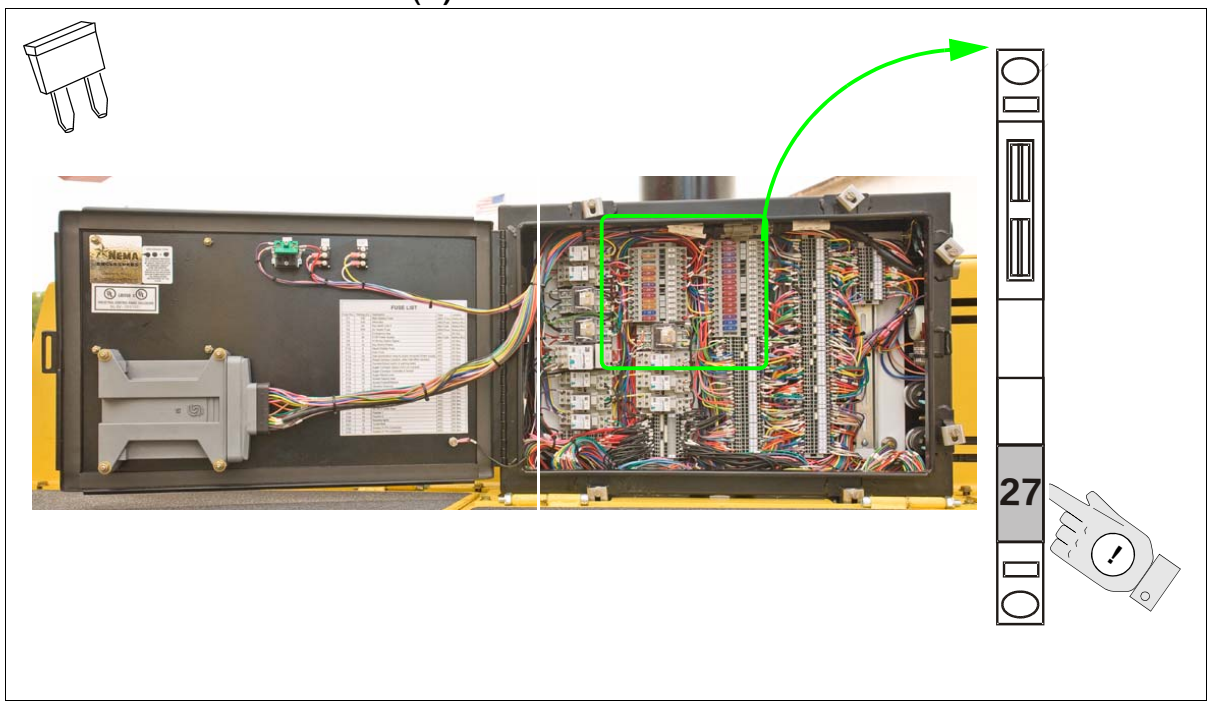
## Electric fuses / relays (3)

### Main fuses (A)




| Fuse No. | Description | Rating (A) |
|---|---|---|
| F1 | Main Battery Fuse | 100 |
| F2 | Alternator Fuse | 100 |
| F3 | Key Switch Line Fuse | 50 |
| F4 | Air Heater Fuse | 125 |
| F7 | ECM Power Supply Fuse | 30 |

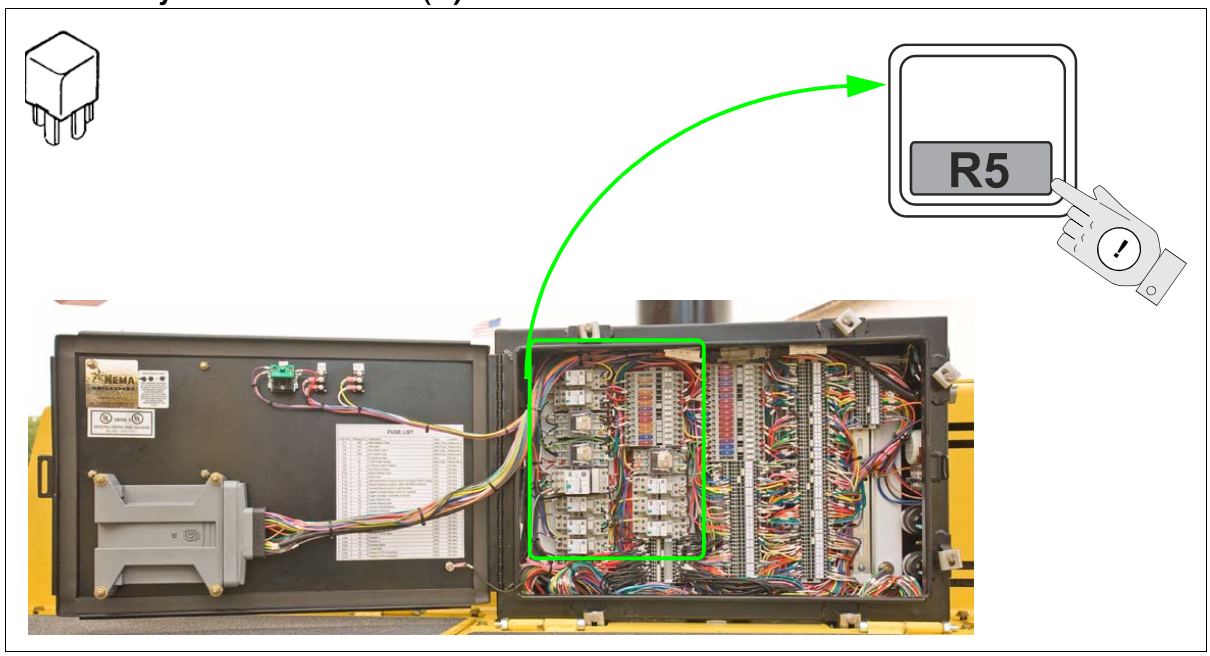
## Fuses in terminal box (B)




| Fuse No. | Description | Rating (A) |
|---|---|---|
| F5 | Propel Controller | 10 |
| F6 | Emergency stop | 5 |
| F8 | ECM Key Switch Signal | 5 |
| F9 | Key Switch Power | 10 |
| F10 | Multi functional Display | 5 |
| F11 | Horn Power Supply | 3 |
| F12 | Hour Meter & Track Low pressure Alarm | 10 |
| F13 | Propel Input Devices | 10 |
| F14 | Console Select switch & parking brake | 5 |
| F15 | Auger / Conveyor status LED´s on Console | 5 |
| F16 | Auger / Conveyor Controller & Sensor | 15 |
| F17 | Auger & Hopper Raise/Lower | 10 |
| F18 | Levelling Controls | 10 |
| F19 | Screed Extend/Retract, Float / Lock | 10 |
| F20 | Vibration Solenoid | 3 |
| F22 | Work Lights | 10 |
| F23 | Dash Board Lamp | 3 |
| F24 | DC 24 V outlet front | 10 |
| F25 | DC 24 V outlet front | 10 |
| F26 | DC 24 V outlet rear | 10 |
| F27 | DC 24 V outlet rear | 10 |
| F28 | Warning / Turning Lights | 10 |
| F29 | Warning / Turning Lights | 10 |
| F30 | Road lights | 10 |

| Fuse No. | Description | Rating (A) |
|---|---|---|
| F31 | Wash Down & Truck Hitch | 3 |
| F32 | Screed Power Supply | 15 |
| F33 | Screed Power Supply | 15 |
| F34 | FWA Switch & Steering Position Sensors | 3 |

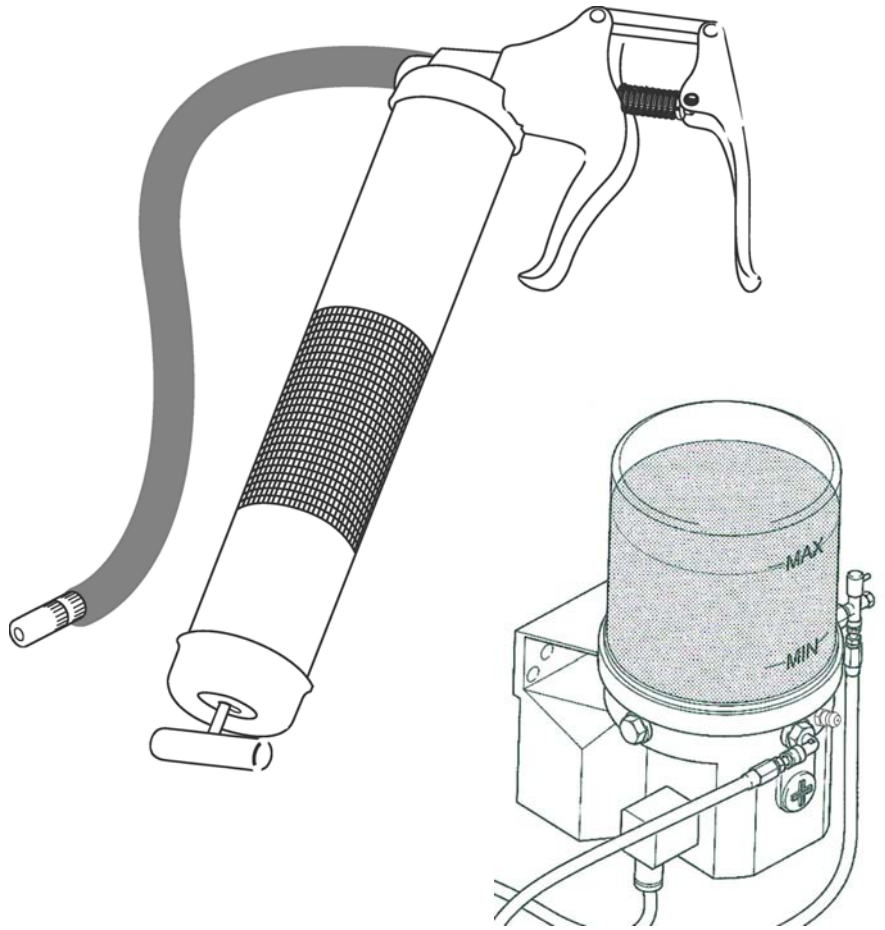
## Relays in terminal box (C)




| Relay No. | Description |
|---|---|
| R1 | Starter |
| R2 | Anti Start Circuit |
| R3 | Emergency Stop Circuit |
| R4 | Intake Air Heater |
| R5 | Auger / Conveyor ON / OFF |
| R6 | Auger / Conveyor Auto / Manual |
| R7 | Auger / Conveyor Auto Mode |
| R8 | Left Conveyor OFF |
| R9 | Right Conveyor OFF |
| R10 | Starter Lock Out |
| R11 | Screed Float / Lock |
| R12 | Console Select Indication |
| R13 | Left Auger OFF |
| R14 | Right Auger OFF |
| R15 | Key Switch Power |
| R16 | Flasher - Warning / Turning Signal |
| R17 | Flasher - Warning / Turning Signal |

# F 9.0 Maintenance - Lubricating Points

## 1 Maintenance - Lubricating points




NOTE:

The information on the lubrication points for the various assemblies is assigned to the specific maintenance descriptions (I.E. grease points for the auger are in the auger section and grease points for the undercarriage are in the section on undercarriages)!

## 1.1 Maintenance intervals

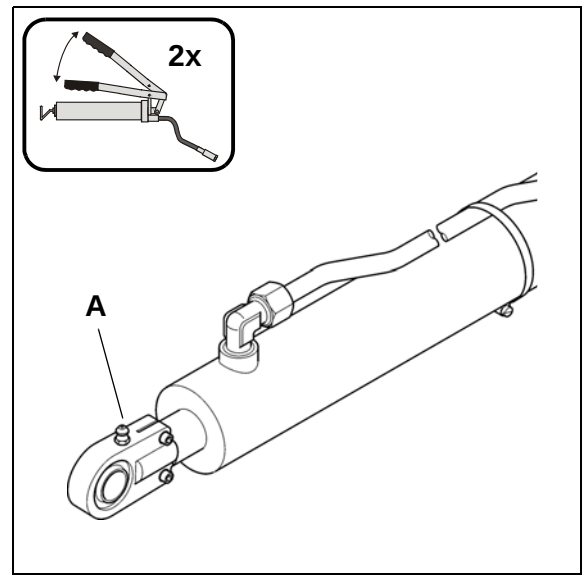
| Item | Interval | | | | | | | | Maintenance point | Note |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 / annually | 2000 / every 2 years | If necessary | | |
| 1 | | ■ | | | | | | | - Bearing points | |

| | |
|---|---|
| Maintenance | ■ |
| Maintenance during the break-in period | ▼ |

## 1.2 Points of maintenance

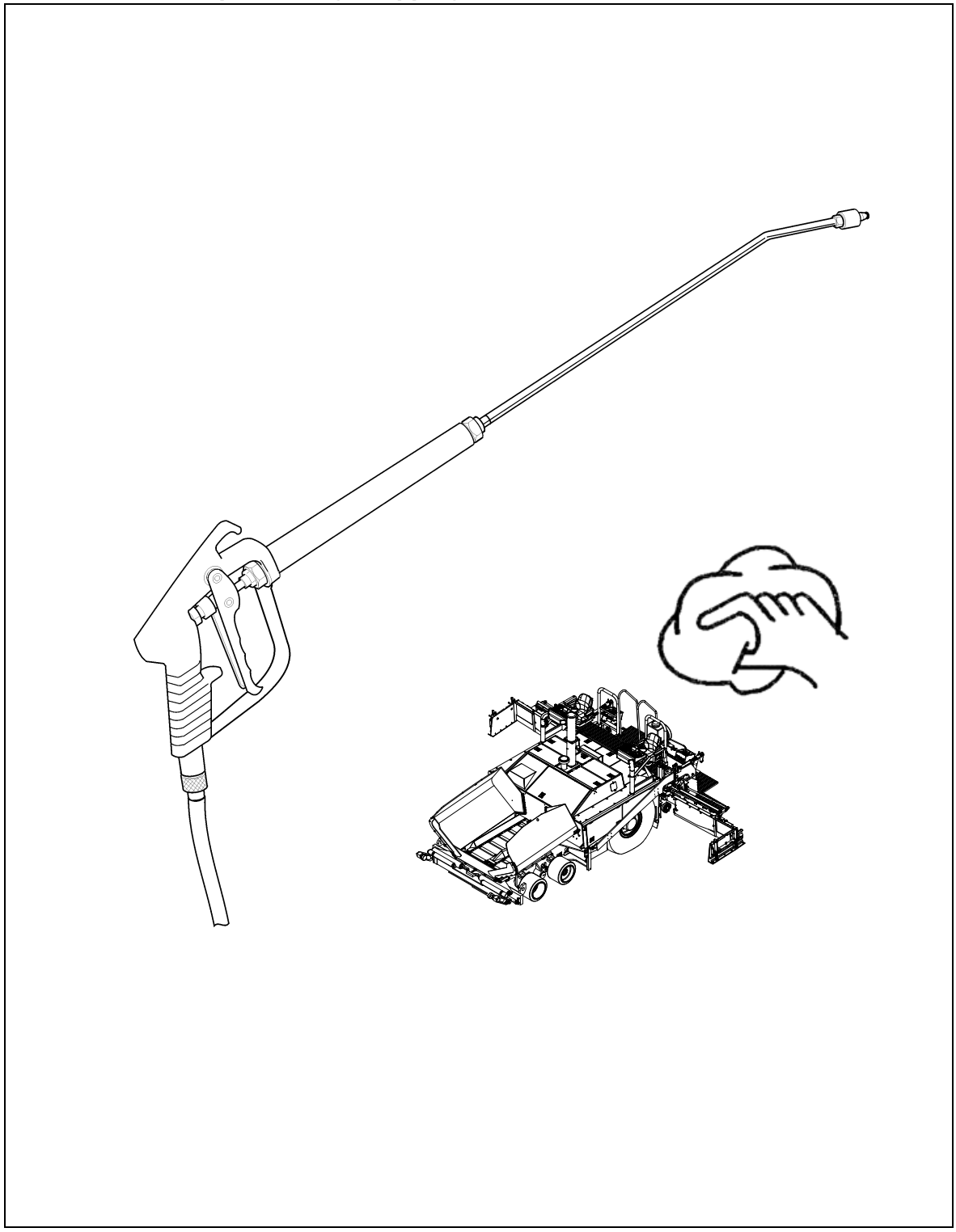
### Bearing points (1)

One grease zert (A) is located at each hydraulic cylinder bearing point (top and bottom).



# F10.0 Checks, Decommissioning

## 1 Tests, check-up, cleaning, stopping



## 1.1 Maintenance intervals

| No. | Interval | | | | | | | | Points of maintenance | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 50 | 100 | 250 | 500 | 1000 / year | 2000 / 2 years | as required | | |
| 1 | ■ | | | | | | | | - General observation | |
| 2 | | | | | | ■ | | ■ | - Checked by a specialist | |
| 3 | | | | | | | | ■ | - Cleaning | |
| 4 | | | | | | | | ■ | - Preservation for storage of paver | |

| | |
|---|---|
| Maintenance | ■ |
| Maintenance during run-in period | ▼ |

## 2 General observation

The daily check includes a walk around the machine while checking the following items:

- Are any of the parts or controls damaged?
- Are there leaks at the engine, the hydraulics, the gear box, etc.?
- Are all the locking points secure (conveyor, auger, screed)?

**⚠ CAUTION**

Repair the damages and clean any spills immediately to avoid risks of accidents and environmental pollution!

## 3 Check performed by a specialist

The paver, the screed and the electrical equipment MUST be checked regularly by a specialist:

- as required (according to the circumstances of application and operating conditions),
- however, at lease once a year, so that the machine retains its reliable operating condition.

## 4 Cleaning

- Clean all parts that come into contact with the material to be laid.
  - Spray these parts with the release agent spray equipment.

**⚠ CAUTION**

**Before** cleaning with high pressure jet, lubricate all the bearings with grease as specified.

- Clean the machine with water after laying mineral mixes, lean concrete etc. Remove all residue of the materials laid.

**⚠ WARNING**

Do not spray water on the bearings, electric or electronic parts.

- Remove the residue of the material laid.

**⚠ CAUTION**

**After** cleaning with the high pressure jet, lubricate all of the bearings with grease as specified.

**⚠ DANGER**

Slippery walkways and steps can result in severe or deadly slipping and falling! Ensure the cleanliness of the walkways and steps and that they are free of grease and oil.

# 5 Preservation for storage of paver

## 5.1 Downtime up to 6 months

- Stop the machine in a place protected from intensive sunshine, wind, moisture and frost.
- Lubricate all the lubrication points with grease as specified.
- Change the oil in the Diesel engine
- Seal the muffler of the exhaust pipe.
- Remove the batteries, charge and store them at room temperature in well ventilated premises.

**NOTICE**

Recharge the stored batteries every 2nd month.

- Protect all metal surfaces, (i.e. hydraulic cylinder piston rods) against corrosion using an appropriate agent.
- If the machine cannot be parked in a garage, barn or a shed, it must be covered with an appropriate canvas. In each case all the air inlets and outlets must be tightly sealed using plastic film and adhesive tape.

## 5.2 Downtime between 6 months and 1 year.

- Perform all operations described for “Downtime up to 6 months“.
- After draining the engine oil, fill the engine with preservative oil permitted by the manufacturer of the engine. Contact the Dynapac, USA (a part of Atlas Copco) customer center for further detail.

## 5.3 Re-commissioning:

- Reverse the steps in the section “Downtime“.

# F 11.0 Lubricants and Operating Substances

## 1 Lubricants and operating substances

**⚠ CAUTION**

Use only the lubricants listed below or their equivalents.

Only use clean containers for filling oil or fuel.

Follow to the correct filling volumes (see the section “Capacities“).

**⚠ CAUTION**

Incorrect oil or lubricant levels increase the wear and cause the paver to fail.

**⚠ WARNING**

Never mix synthetic oils with mineral oils!

| | BP | Exxon | Total Fina (Total) | Mobil | Shell | Shell |
|---|---|---|---|---|---|---|
| Grease | | | | XHP 462 Moly | | |
| Engine oil | | | | Delvac MX | Rimula 15W - 40 | |
| Hydraulic oils | | | | DTE 10 Excel - 46 | Tellus T46 | |
| Synthetic gearbox oil | | | | Delvac Synthetic Gear Oil 80W - 140 | Spirax 80 W - 140 | |
| Dist. water | | | | | | |
| Diesel fuel | | | | | | |
| Cooling liquid | Cooling liquid: 50% ethylene glycol or propylene glycol based antifreeze and 50% water mix (to -25°F) | | | | | |

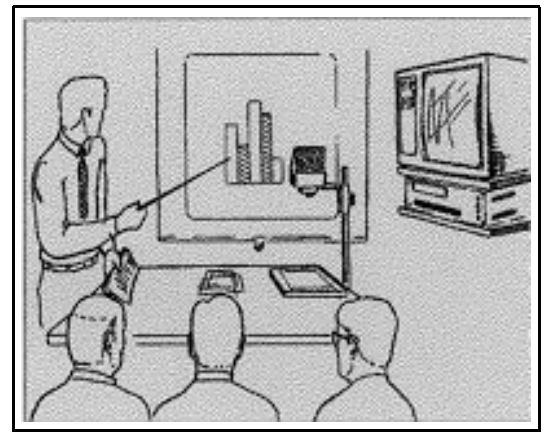
## 1.1 Capacities

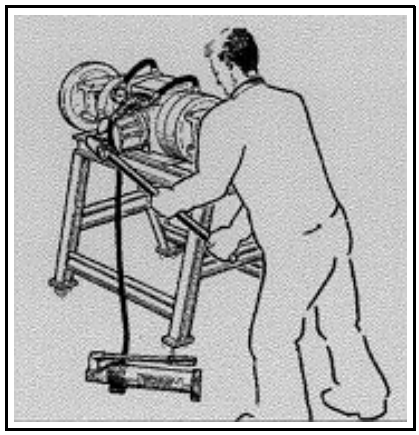
| | Substance | Volume |
|---|---|---|
| Fuel tanks | Diesel fuel | 49 gal (185.43 L) each |
| Hydraulic oil tank | Hydraulic oil (Multigrade Oil ISO 46-68) | 50 gal (189.21 L) |
| Pump distribution gear | 80W-140 full synthetic oil | 1.4 gal (5.3 L) |
| Planetary gear - track | 80W-140 full synthetic oil | 0.8 gal (3.0 L) each |
| Conveyor - gear box | 80W-140 full synthetic oil | 1.58 qt. (1.5 L) each |
| Auger - center gear box | 80W-140 full synthetic oil | 2.64 qt. (2.5 L) each |
| Auger - angle gear box | 80W-140 full synthetic oil | 0.63 qt. (0.6 L) each |
| Diesel engine oil (with filter) | Engine oil 15W-40 (API CI-4) | 18.5 qts (17.5 L) |
| Diesel - cooling system | Engine coolant 50:50 Mix | 6.5 gal (24.6 L) |
| Batteries | Distilled water | |

DYNAPAC
Part of the Atlas Copco Group

# TRAINING/ EDUCATION

We offer our Customers various training programs on DYNAPAC equipment in our specialised training center in our factory. We hold training sessions also for special arrangements in addition to courses and programs held on



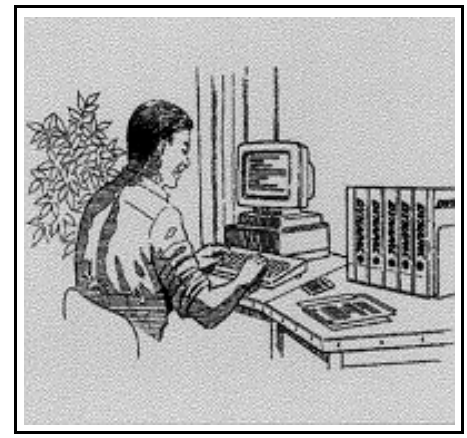


# SERVICE

In case of operational failures and questions related to parts, please, contact one of our authorised service representations. Our skilled specialists will arrange for fast and professional repair.

# OPERATING ADVICE

Anytime when our dealers cannot help you, please, feel free to contact us directly. Our team of "Technical Advisors" is at your disposal.



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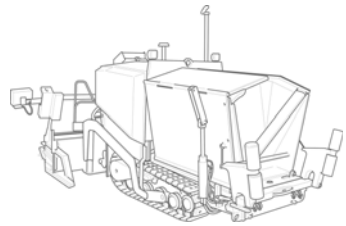


Don’t hesitate to contact
your local dealer for:
service
spare parts
documentation
accessories
and
information
about the complete
Dynapac
paving and planing
range