TRACK DUMPER

ATD11000

SAFETY & OPERATIONS MANUAL

Manual Part #: 081653 | Revision: 02/26
Language: English | Original Instructions

TRACK DUMPER

Safety & Operations Manual

This manual covers the Track Dumper model listed below:

Part No.	Description
081223	Track Dumper, ATD11000

NOTICE

This manual, or a copy of it, must be kept with the machine at all times.
There is a manual storage container located on the machine for your convenience.

Allen Products are covered under one or more of the following patent numbers:
10,100,537; 9,068,301; 9,068,300; 8,360,680; 7,690,864; 7,114,876B1; 6,857,815B2; 6,582,153
With other Patents Pending.
Printed in U.S.A.

Limited Warranty & Limitation of Liability

GENERAL INFORMATION

I. LIMITED WARRANTY & LIMITATION OF LIABILITY

Allen Engineering Corporation ("Allen") warrants its products to be free of defects in material or workmanship for:

TWO YEARS FROM END USER'S DATE OF PURCHASE, SUBJECT TO THE EXCEPTIONS AND SHORTER WARRANTY PERIODS DESCRIBED HEREIN.

The warranty period begins on the date of purchase by the End User of the product. All warranty is based on the following limited warranty terms and conditions, including the disclaimer of all implied warranties of any type and the disclaimer of consequential damages.

1. Allen's obligation and liability under this warranty are limited to repairing or replacing parts if, after Allen's inspection, there is determined to be a defect in material or workmanship. Allen reserves the choice to repair or replace.
2. All warranty-related parts must be purchased in advance through an Allen dealer. The parts will be made available to the Allen Distributor, Dealer, or Rental Center from whom the End User purchased the product.
For machines being prepared, a warranty request form and/ or RGA request form must be submitted to AEC after the repairs are completed.
3. Replacement warranty parts, installed in the product, are warranted only for the remainder of the warranty period of the product as though they were the original parts.
4. BATTERY POWERED PRODUCTS ARE WARRANTED FOR ONE YEAR FROM END USER'S DATE OF PURCHASE.
5. Allen does not warranty engines or batteries. Engine warranty claims should be made directly to an authorized factory service center for the particular engine manufacturer. Batteries are not warranted due to unknown treatment during transport, etc., and any battery claims should be directed to the battery manufacturer.
6. Allen's warranty does not cover the normal maintenance of products or their components(such as engine tune-ups and oil & filter changes). The warranty also does not cover normal wear and tear items(such as belts, tires, blades, pans and other consumables).
7. Hydraulic Component's are required to be maintained per Allen's mandatory service intervals in each machines owners manual. OEM Allen hydraulic filters and consumables are required to service machines during the warranty period. Failure to use OEM Allen hydraulic filters will result in denied warranty.
8. Allen's warranty will be void if it is determined that the defect resulted from operator abuse, failure to perform normal maintenance on the product, modification to product, alterations, or repairs made to the product without the written approval of Allen. Allen specifically excludes from warranty any damage to any trowels resulting from a drop or impact to the rotors.
9. Impact damage to gearboxes is not covered under the Allen warranty and is deemed customer abuse.
10. Impact damage to trowels in any way is not covered under the Allen Warranty and is deemed customer abuse. (Example: Dropping a machine)
11. Allen will pay shop labor on warranty items at the Allen Shop Labor Rate in existence on the date of the warranty claim. An Allen labor chart will determine the time allowed to complete a repair and will govern the shop labor hours that will be allowed.
12. Allen will credit the cost of ground freight on warranty replacement parts after approval of the warranty claim. No warranty replacement parts will be shipped air-freight at the expense of Allen. Allen does not pay any inbound freight.
13. ALLEN ENGINEERING CORPORATION'S WARRANTY POLICY WILL NOT COVER THE FOLLOWING: TAXES; SHOP SUPPLIES; ENVIRONMENTAL SURCHARGES; AIR FREIGHT; TRAVEL TIME;LOSS OF TIME;INCONVENIENCE;LOSS OF RENTAL REVENUE; RENTAL COSTS OF EQUIPMENT USED TO REPLACE THE PRODUCT BEING REPAIRED;LOSS OF USE OF THE PRODUCT; COMMERCIAL LOSS; OR ANY OTHER CHARGES WHATSOEVER OR ANY LIABILITIES FOR DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGE OR DELAY.
14. ALLEN ENGINEERING CORPORATION MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THIS LIMITED WARRANTY IS IN LIEU OF THE WARRANTY OF MERCHANTABILITY AND FITNESS. THERE ARE NO OTHER WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THIS DOCUMENT.
15. No Allen employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of Allen Engineering Corporation.
16. Warranty claims must be submitted within 30 days from the date of failure.
17. Once a warranty claim has been submitted, AEC has up to 90 business days to process the request.
18. Standard service part warranty will not exceed 90 days from the date of purchase. Exceptions to this are:
#1 Gearboxes: 1year warranty from date of purchase.
#2 Electrical Components: 30 day warranty from date of purchase. This applies to wiring harnesses, transmitters, ECUs, display screens, and toggle switches.
19. All purchased components are subject to the inspection and warranty of the respective manufacturer. This inspection may extend beyond 90 days.
20. If warranty is suspected do not disassemble any hydraulic or electrical components. Failure to comply with this instruction will lead to denial of a warranty claim.

GENERAL INFORMATION

Dealer Information & Ordering Parts

Your Dealer has Allen Engineering Corporation trained mechanics and original Allen replacement parts. Always contact the Allen Dealer who sold you this machine for Allen Certified repairs and replacement parts.

Place Allen Dealer information below for future reference.

Dealer Name: _____

Phone #: (___) -____- _____

Address: _____

City:_____ **State:**_____ **Zip:**_____

Salesman:_____ **Mobile Phone:**_____

Additional Comments:_____

_____

_____

_____

ALL INFORMATION, SPECIFICATIONS, AND ILLUSTRATIONS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE AND ARE BASED ON THE LATEST INFORMATION AT THE TIME OF PUBLICATION.

The “PARTS & DECALS MANUAL” contain illustrated parts lists for help in ordering replacement parts for your machine. Follow the instructions below when ordering parts to insure prompt and accurate delivery:

1. All orders for service parts - include the serial number for the machine. Shipment will be delayed if this information is not available.
2. Include correct description and part number from the “PARTS & DECALS MANUAL”
3. Specify exact shipping instructions, including the preferred routing and complete destination address.
4. **DO NOT** return parts to AEC without receiving written authorization from AEC. All authorized returns must be shipped pre-paid.
5. When placing an order, please contact the AEC dealer nearest you.

Model & Serial Number / Unit Identification

Manufacturer's Codes:
When ordering parts or requesting service information, you will always be asked to specify the model and serial numbers of the machine. The legends below specifically defines each significant character or group of characters of the Model Number and Serial Number codes.

Model Number
ATD 11000

- **Model**
- **Series**

Serial Number
The serial number found on the identification plate is a ten digit format. The model number identifies your machine and will ensure that you receive the correct replacement parts.

Serial Number Example
ATD 01 19 001

- **Sequence Number**
- **Year**
- **Month**
- **Series**

Unit Identification Plate Location:
An identification plate listing the model number and the serial number is attached to each unit and is located on the rear lower left side of mainframe or under the seat. Refer below for serial number and model number location. This plate should not be removed at any time.

Please record the information found on this plate below so it will be available should the identification plate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model and serial numbers of the machine.

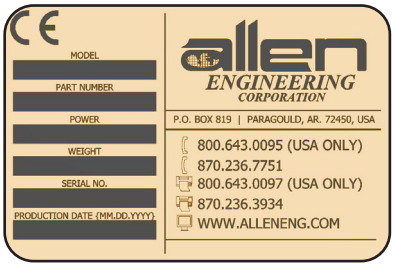
FILL IN FOR FUTURE REFERENCE

Model Number:_____

Serial Number:_____

Date Purchased:_____

Purchased From:_____



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ATTENTION!!!

THIS MANUAL MUST ALWAYS ACCOMPANY THE MACHINE AND MUST REMAIN AVAILABLE TO THE OPERATOR.
IN ADDITION TO INSTRUCTING YOU ON CORRECT USE OF THE MACHINE, IT WARNS YOU ABOUT THE RISKS AND DANGERS RESULTING FROM INCORRECT USE THAT IS NOT IN COMPLIANCE WITH THE USE FOR WHICH IT IS INTENDED.

TO BE KEPT FOR FUTURE REFERENCE.

1st issue of 21.11.2024

1. GENERAL ACCIDENT PREVENTION

For the machine to function properly, perfect installation (installation and use) and verification of the oil level of the various mechanisms are necessary. Imprecise checks or an error in assembly or use can compromise the efficiency of the machine and impact on operator safety.

All the information and illustrations contained in this manual refer to the model in production at the time of publication.

The manual was created and formulated in conformity with the EEC regulations and in particular with the **UNI-ISO 6750** regulation.

For further information, contact an Authorised Service Centre.

The Company reserves the right to make changes without giving prior notice.

Everything contained in this manual is the work of the company for which no part or illustration can be used for other use without authorisation.

Prudence is the main weapon in preventing accidents and therefore injuries.

Before putting the machine into operation, carefully read all the instructions contained in this manual. In case of doubt or uncertainties, consult the manufacturer.

Before starting the engine make sure that there are no persons close to the machine, especially children.

It is absolutely forbidden to transport or lift persons.

Do not use the machine if you are not in a good physical condition. Do not consume alcoholic beverages while working.

This machine is not approved for road use.

Do not use the machine on steep slopes but only on terrain with a slope lower than the limits indicated below.

It is absolutely forbidden to leave the machine with the diesel engine running or with the ignition key inserted. The engine must always be stopped.

It is absolutely forbidden for minors to use the machine.

Do not use the machine in closed or poorly ventilated rooms: the exhaust fumes are poisonous and could cause serious damage to the body, even death.

Refuelling must be performed with the engine off. Always keep away from flames and do not smoke.

During maintenance operations, avoid throwing hydraulic oil or lubrication and other liquids onto the ground but collect and dispose of them through Authorised Companies.

Operation of the machine by unauthorised personnel must be inhibited by removing the ignition key. The person to whom the machine is delivered is responsible for any damage caused to third parties.

It is absolutely forbidden to remove the installed safety devices.

Avoid stopping the machine in a place where there is a danger of landslides, especially if fully loaded.

Avoid operating the vehicle with inappropriate clothing (oil-stained, torn clothes, etc.).

It is absolutely forbidden to stop or park up with the diesel engine running. The engine must always be stopped.

In the manual and, if necessary, on some parts of the machine, there are a number of symbols which are followed, as appropriate, by safety-related messages. To allow them to be read more easily and carefully, follow the instructions below:

HAZARD !
Where this symbol appears, there is a high degree of danger and risk for the safety of the operator or of other persons, even death. Exercise all the precautions and cautions recommended in this manual.

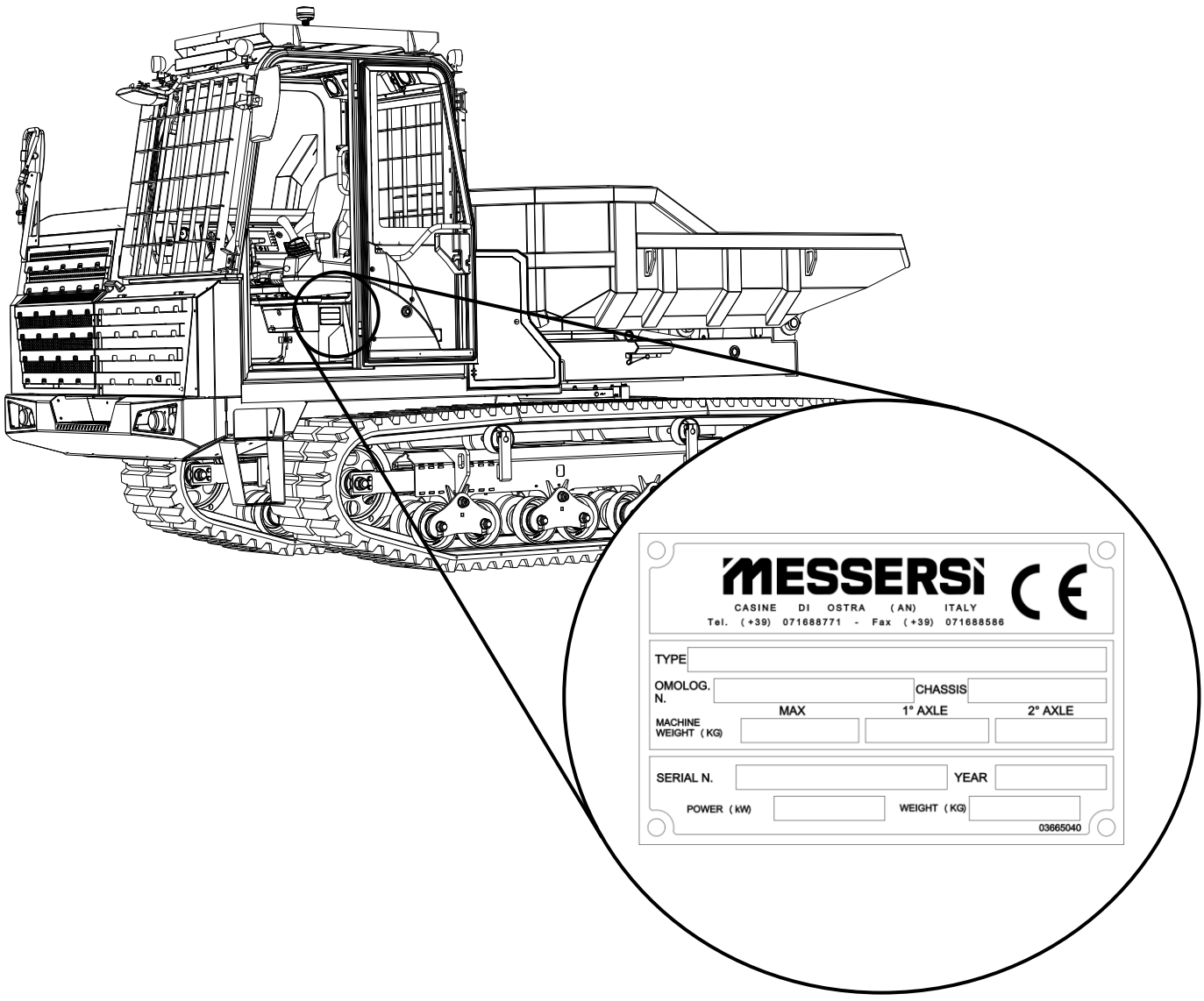
ATTENTION !
This symbol indicates the presence of a potential hazard that can be eliminated by using and respecting the indications provided in this manual or by using common sense.

2. MAIN CHARACTERISTICS

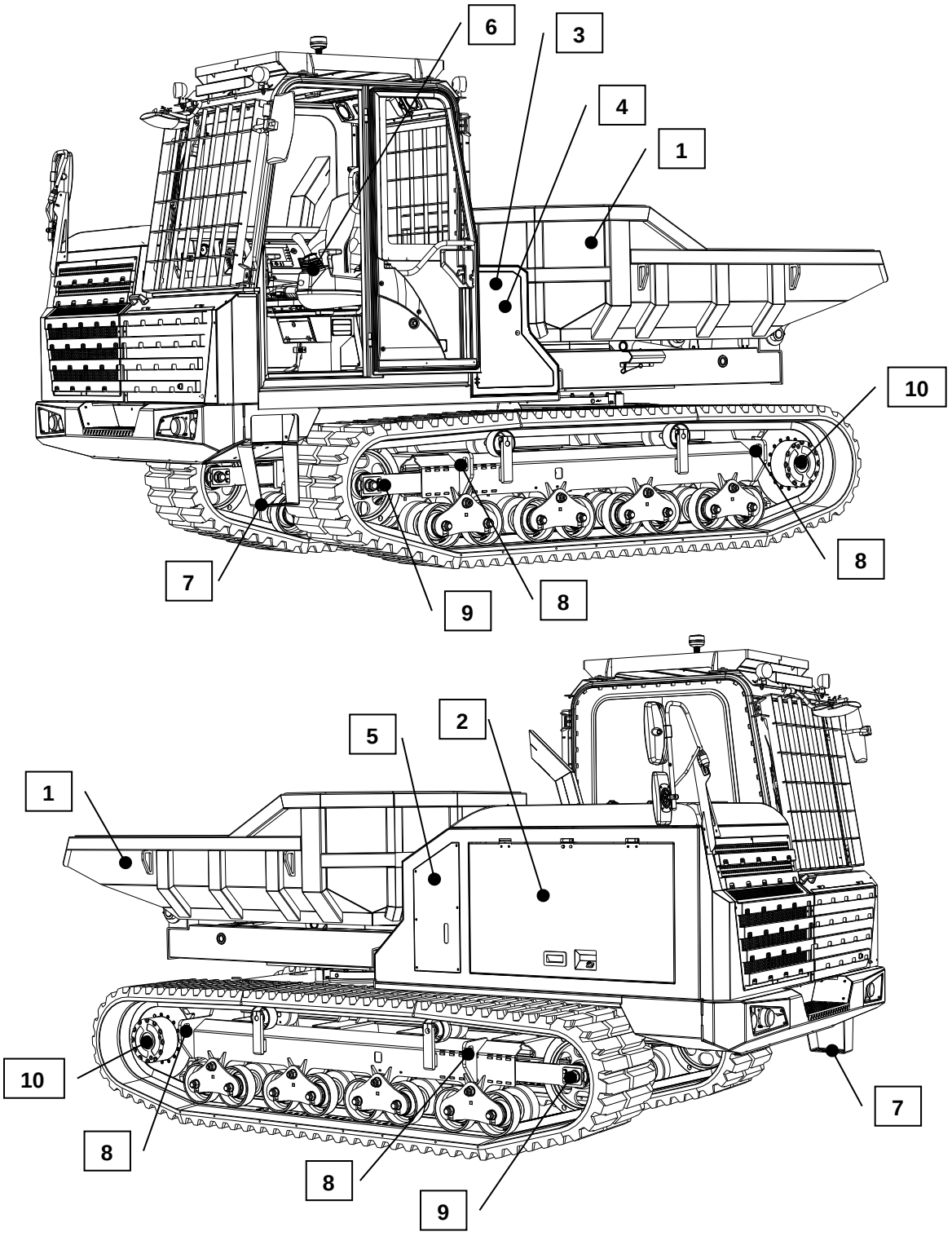
2.1. IDENTIFICATION OF THE MACHINE

The machine is equipped with a dedicated plate, with its identification data, riveted on the seat support column.
For any request, always quote the type and serial number shown on the plate.

For further explanations, refer to the procedures indicated in the Spare Parts Manual annexed to the machine.
Any accessories that can be installed in the machine will be equipped with their plate, which is generally visible on the outside of the accessory. For further information, consult the documentation relating to the specific element.



2.2. MAIN PARTS OF THE VEHICLE



1 – Loading body with unloading on three sides
2 – Engine hood
3 – Diesel tank
4 – Diesel filler cap
5 – Hydraulic oil tank
6 – Driver's seat
7 – Climbing step
8 – Lifting hooks / Tie-down points
9 – Track tensioner
10 – Gearmotor

2.3. CHARACTERISTICS – TECHNICAL DATA

FEATURES

The machine has been designed and built for the loading, transportation and unloading of earth, sand, excavation debris and other loose materials, corresponding to the characteristics and performances indicated in this manual.
It is a machine with Diesel internal combustion motorisation with hydrostatic transmission, joy-stick type servo-controls for traversing and manoeuvre of the arms and the skip.
Movement is obtained using four pneumatic tyres with suitable tread to operate inside without damaging the floor.

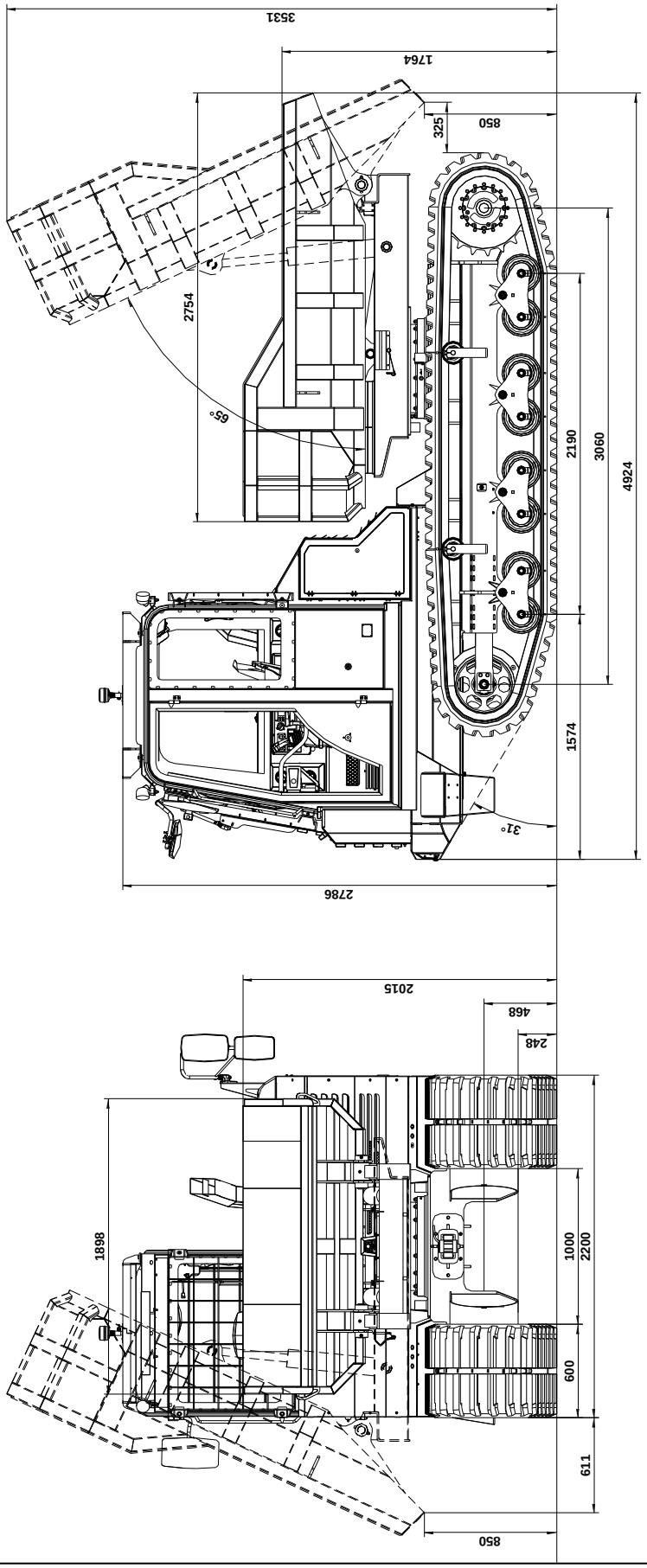
The machine is equipped with a closed driver's cabin with heating plant and an incorporated protective structure against tipping **ROPS** and against falling objects **FOPS – 1st level** and **FOPS 2nd level**.

Closed circuit hydrostatic transmission tracked undercarriage with variable displacement axial piston pumps and one double speed axial piston motor per track.
TIER 4/STAGE V common rail turbodiesel engine with electronic DPF and water cooling.
Double speed with automatic shift.
Mechanical parking brake with negative control to lock the machine on steep descents.
Double-acting cylinder for the frontal lifting of accessories.
600 mm wide rubber tracks made in monoblock structure with steel wire core and treated steel inserts.
Tipping rollers in the central area of the track for better adaptation to the unevenness of the ground.
The considerable ground clearance facilitates the tackling of dirt roads and difficult terrains.
Track layout to ensure a large support area, high stability and excellent driving comfort in all conditions of use.
Body with high unloading angle. The 180° rotation system of the bucket is equipped with an orbital rotation motor.
Closed cab with air conditioning.
Servo controls with joysticks assembled on the 180° rotating driver's seat with driving sense reversion.
Rear view camera.

TECHNICAL DATA

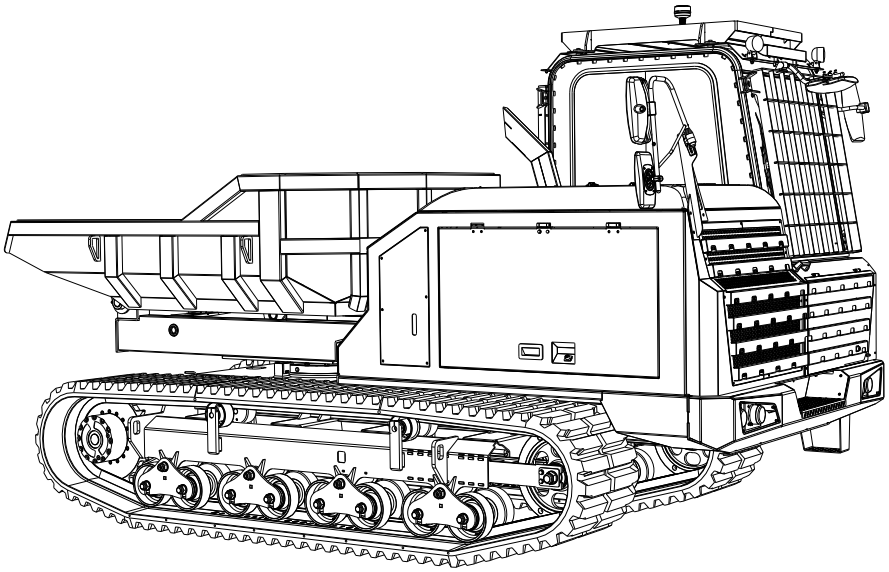
		TC550d / BT
Operating weight	**kg**	**7750**
Operating load	**kg**	**5000**
Load capacity: - heaped (SAE standard)	**m^3**	**2.97**
- level: sand/liquids	**m^3**	**2.18 / 1.24**
DIESEL engine	**type**	**PERKINS 904J-E36TA**
Maximum engine rotation speed	**rpm**	**2400**
Max power at maximum rotation speed	**hp/kW**	**85.9 / 115.2**
Displacement	**cm^3**	**3600**
Cylinders	**No.**	**4**
Max. torque at 1500 rpm	**daNm**	**50.0**
Cooling	**Type**	**liquid**
Transmission	**Type**	**Hidrostatic**
Variable displacement piston transmission pumps	**No.**	**2**
Total flow	**l/min.**	**125 x 2**
Gear services pump	**No.**	**1**
Flow	**l/min.**	**65**
Max. translation operating pressure	**Bar**	**450**
Max. services operating pressure	**Bar**	**200**
Maximum speed:	**km/h**	**5.0 / 11.0**
Independent track steering system	**Type**	**Hidrostatic**
Rubber track tensioning	**Type**	**grease**
Rubber track width	**mm**	**600**
Specific ground pressure: - unladen/loaded	**kg/cm^2**	**0.360 / 0.440**
Max. possible slope with full load	**max %**	**32**
FILLING		
Fuel tank capacity	**l**	**125**
DEF *(AdBlue)* tank capacity	**l**	**19**
Hydraulic oil tank capacity	**l**	**60**
Capacity of each reducer	**l**	**1,3**
Charge pump pressure	**bar**	**28 – 29**
Sound power level at 2400 rpm	**dBA**	**101**

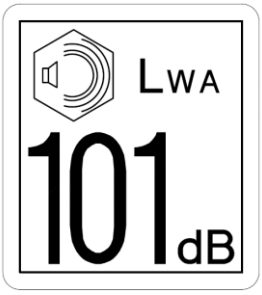
2.4. OVERALL DIMENSIONS



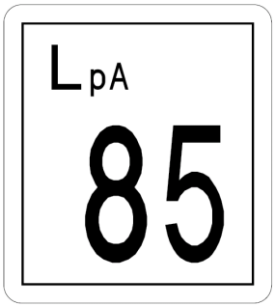
Implementation of **Directive 2000/14/EC** on the limitation of noise produced by the machine.

Sound power level guaranteed at 2400 rpm: **L_{WA} = 101 dB**





Sound pressure level at the operator's ear: **L_{PA} = 85 dB**



Implementation of **Directive 2002/44/EC** on minimum health and safety requirements relating to the exposure of workers to the risks deriving from mechanical vibrations.

Daily action values

- **Hand-arm system:** **less than 2.5 m/sec^2**
- **Whole body system:** **less than 0.5 m/sec^2**

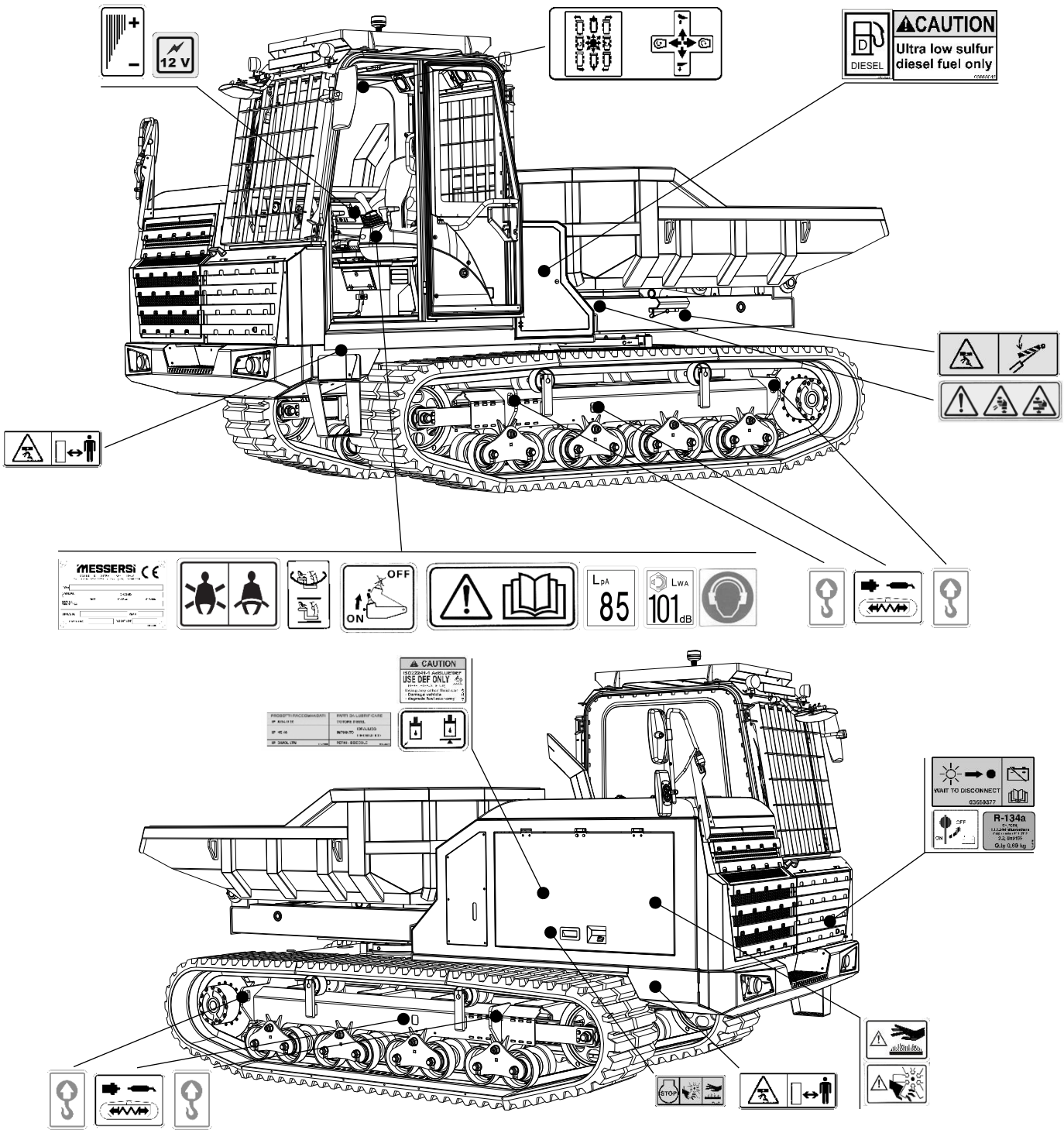
3. SAFETY RULES – USE

3.1. PLATES AND SAFETY DECALS

Besides indicating the various manoeuvres to use and control the vehicle, the affixed labels highlight the risks related to its operation.

Operators who normally wear spectacles must wear them to read the labels.

Keep all the labels applied clean and legible, paying particular attention to the indicated safety warnings; replace damaged or missing ones. The Company is available to supply any that may be requested.



3.2. GENERAL SAFETY RULES – USE

This manual contains the information necessary for operation of the machine.

It is advisable to contact the Manufacturer for any requirement for spare parts, accessories or for any other information.

The tracked conveyor equipped with the swivel skip is used to transport and tip material.

The material handled must be suitable for the characteristics of the equipment used in each case.

Avoid abrupt movements; all movements and manoeuvres must be performed with the utmost attention and at low speed.

Check that the work area is free and not accessible to unauthorised personnel and that no-one can enter or transit within the range of action of the machine.

In the event of operating anomalies during movement of the various moving elements of the machine, immediately stop the engine.

Do not carry out checks, controls or maintenance with the engine running.

It is absolutely forbidden to transport or lift persons in addition to the operator.

For the lifting and transportation phases of the machine, follow the instructions in the appropriate chapter.

Before starting the vehicle, make sure that the load has been placed correctly inside the skip.

When moving on slopes, whether forward or in reverse, always make sure that the weights are balanced. To improve stability, position the blade appropriately, if present.

<u>It is forbidden</u> to move on land where the **slope** is both **lateral and longitudinal at the same time**. The **ground must be solid and compact**, always suitable for the specific load of the machine.

Before tipping the body or the bucket, check that the material loaded inside is free to slide; lifting the body and the bucket with the material blocked inside can cause loss of stability and is therefore ***<u>forbidden</u>***. An even more risky situation occurs in the case of lifting and lateral unloading.

Lifting of the bucket, for unloading, must be carried out very slowly to avoid any oscillations that could favour overturning of the machine.

Before lifting the load, check that the material contained in the bucket has been placed inside the bucket in order to avoid the danger of its accidental spillage during handling.

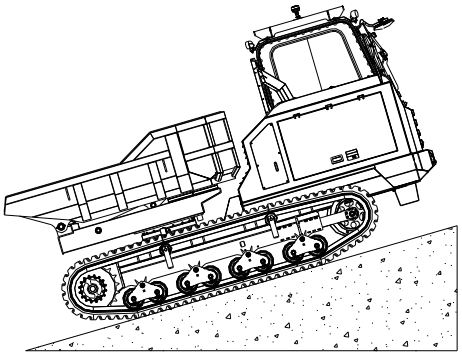
The machine can be used for unloading on land with a slope of less than 35% (longitudinal) and 15% (transversal). The bucket must always face uphill. It is forbidden to unload where the slope is both longitudinal and lateral at the same time.

Before tipping the bucket it is necessary to make sure that it does not interfere with objects, in particular with electric cables, wires, etc

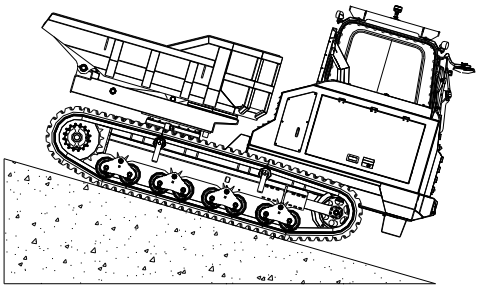
When unloading, proceed very carefully. In case of uncertainty lower the bucket again and check that the material is free to move. If the material is jammed, try to release it only with the bucket in the lowest position, otherwise the machine could overturn with the risk of crushing the operator and of damaging property.

3.3. STABILITY IN TRANSLATION

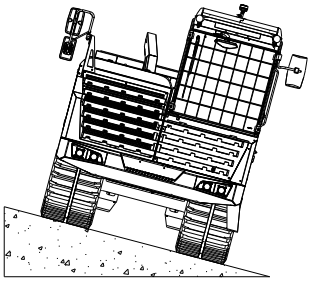
UNLADEN FORWARD AND BACKWARD DRIVING



MAX 50% (27°)

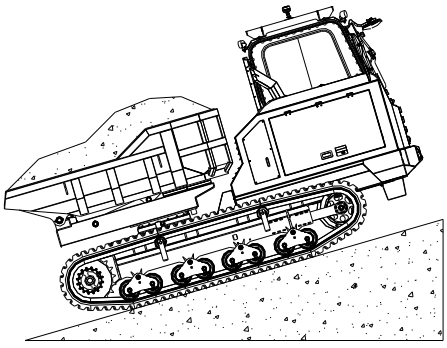


MAX 30% (17°)

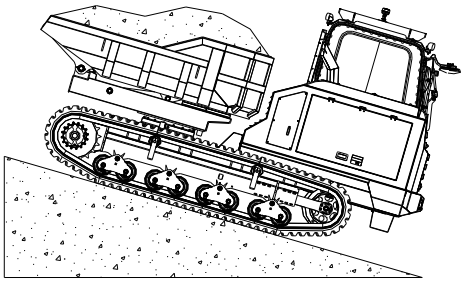


MAX 40% (22°)

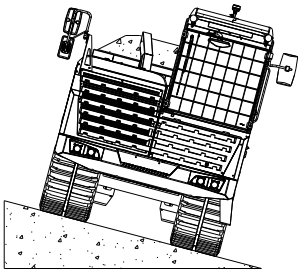
FULL LOAD FORWARD AND BACKWARD DRIVING



MAX 30% (17°)

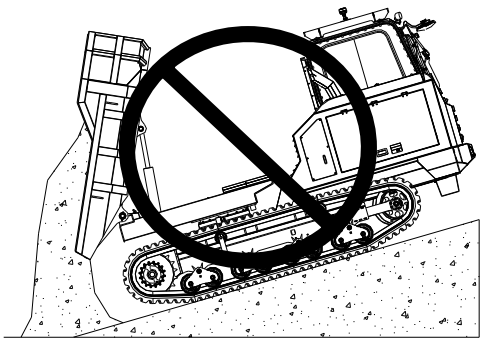


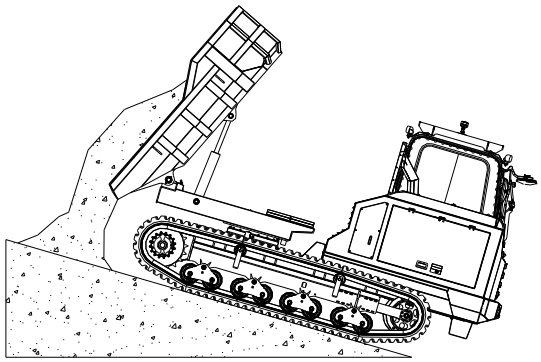
MAX 30% (17°)



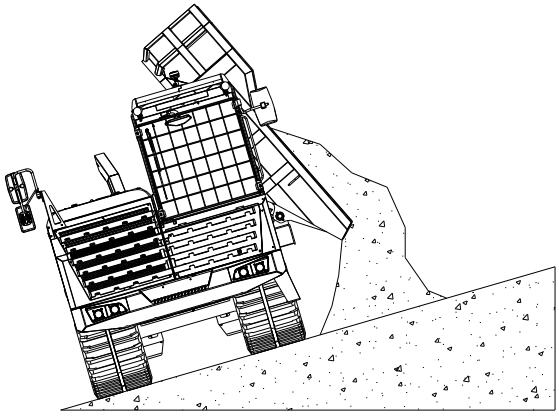
MAX 30% (17°)

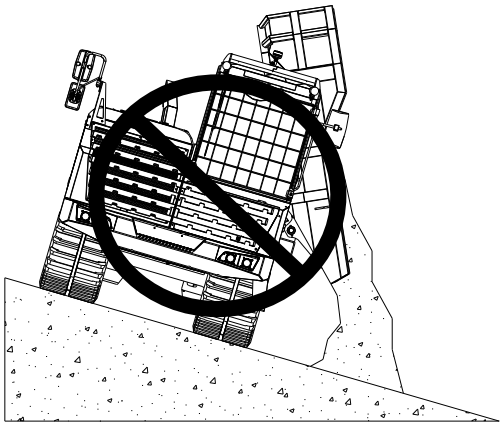
UNLOADING MATERIAL





MAX 30% (17°)





MAX 15% (9°)

The maximum permissible operating load on the bucket is 5000 kg.

IT IS **FORBIDDEN** to leave the machine with the engine running.

- **WARNING!**

IN THE EVENT OF PARKING OR A STOP ALWAYS STOP THE DIESEL ENGINE

Do not use the machine at the max. speed permitted for an excessively long time but instead interspersed with more moderate use breaks. In particular, do not perform overly long transfers to avoid harmful overheating of the hydraulic components.

Prevent foreign bodies (gravel, stones, debris, etc.) from wedging inside the rubber track creating interference between the various transmission parts with the risk of damage or breakage of the components involved.

3.4. TRANSPORT AND HANDLING

For the dimensions of the machine, refer to ***sect. 2.3*** of this manual and in the case of transportation by truck with ramps, follow the instructions below.

- Circumscribe the loading area, prohibiting access to unauthorised persons, and make sure that the area affected by the loading or unloading operations is clear from any obstacles.

- Loading and unloading of the machine must be performed on compact and flat ground.

- Check that the vehicle used for transportation is in perfect working order; apply the parking brake and insert the safety wedges in the front and rear of the rear axle tyres. The vehicle must have the engine turned off, without the ignition key in the ignition; the body must be level.

- Position the machine in the rear part of the truck making sure that the longitudinal axis is aligned with that of the truck.

- Check the suitability of the ramps for the vehicle to be loaded; use **only approved** and/or **certified ramps**.

- Check that the ramps are perfectly clean and degreased and that, in any case, they eliminate any risk of slipping of the tracks.

- Make sure the ramps are long enough to avoid any interference when getting on or off the machine from the truck. In particular, the length of the ramps must be such that their inclination with respect to the height of the truck's loading surface remains between 15° and 16°.

- Check that the ramps are correctly attached to the means of transport and appropriately spaced; the width of the ramp must be such as to allow comfortable passage of the track.

- The vehicle must get on and off the truck at standard speed and with hydraulic oil at working temperature.

- Do not use the ramps as a bridge from one vehicle to another.

- When loading, transporting and unloading the tracked conveyor, make sure that the loading bucket is locked in the central position.

- The tracked conveyor is equipped with a negative brake therefore no further safety devices are needed to prevent the machine from moving during transportation.

- For special transportation or handling needs (passage in areas of limited height, bridges, etc.), the conveyor operator protection can be folded forward. During the work phases, the protection must necessarily be locked in the open position.

- Load and unload the machine in the direction of travel shown below.

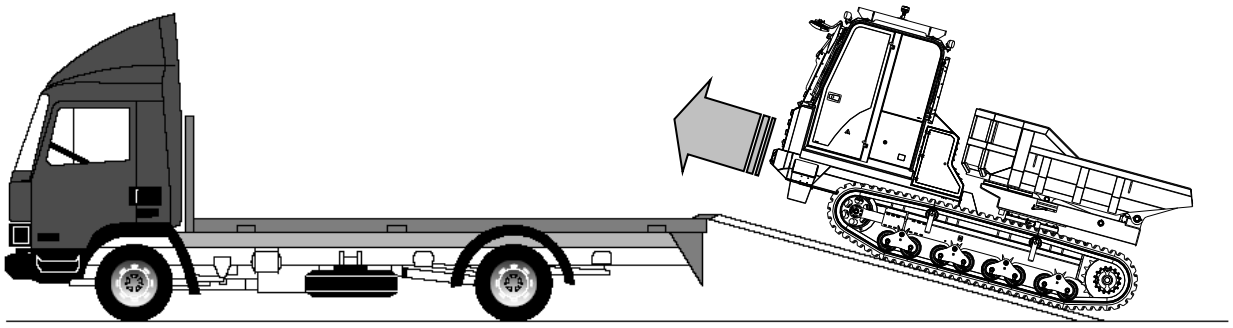
- Before getting on or off, check the perfect alignment between the tracks and the ramps. Do not turn and make directional adjustments while on the ramps; if necessary, return to the starting position, repositioning correctly.

- Pay attention to tipping in the connection area between the ramps and the loading platform of the truck; the abrupt variation of slope must be travelled by advancing very slowly and with extreme caution. Exercise double caution in the descent phase as this time the imbalance downwards is from a much greater height.

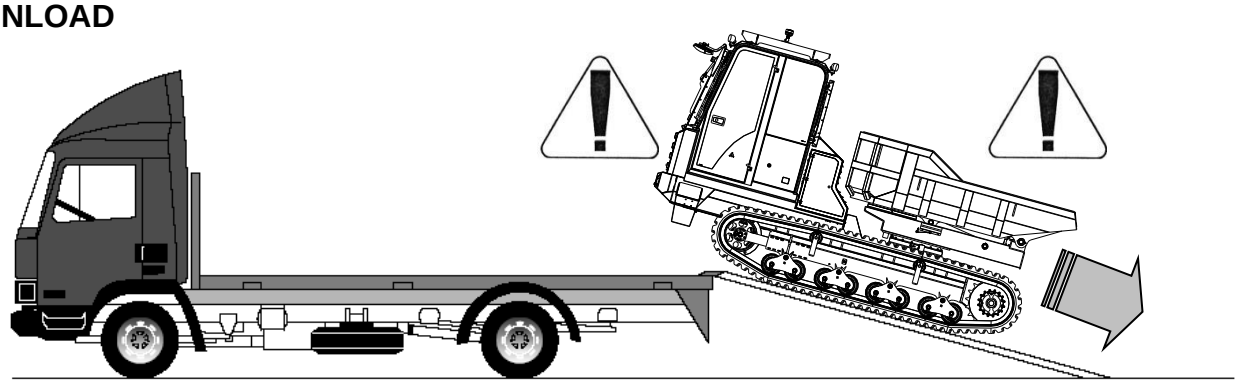
- All loading and unloading operations of the machine must be carried out and coordinated by at least a second person who checks the good progress of the operations.

For loading and unloading of the tracked conveyor from the truck, it is advisable to proceed as shown below. Particular attention must be paid to the connection area between the truck's loading bed and the ramps where there is an abrupt variation in slope.

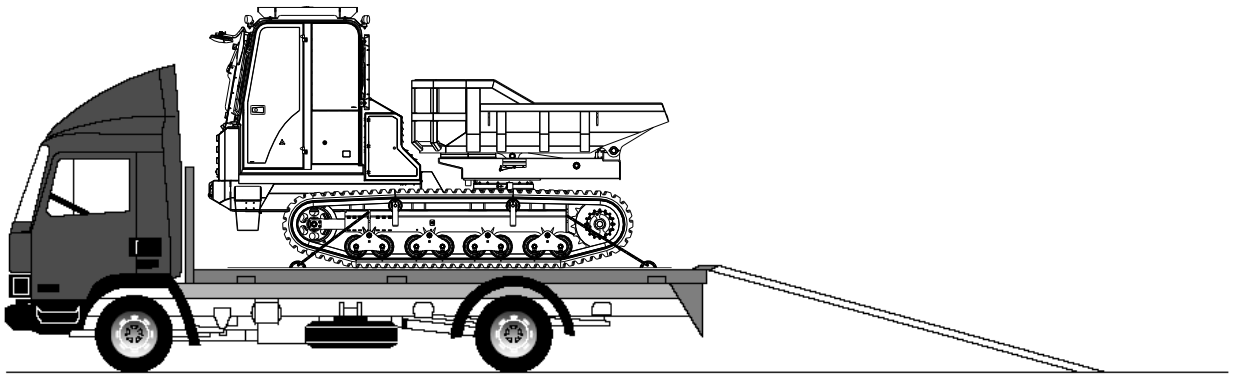
LOAD



UNLOAD



TRANSPORTATION



3.5. LIFTING AND TRANSPORTATION

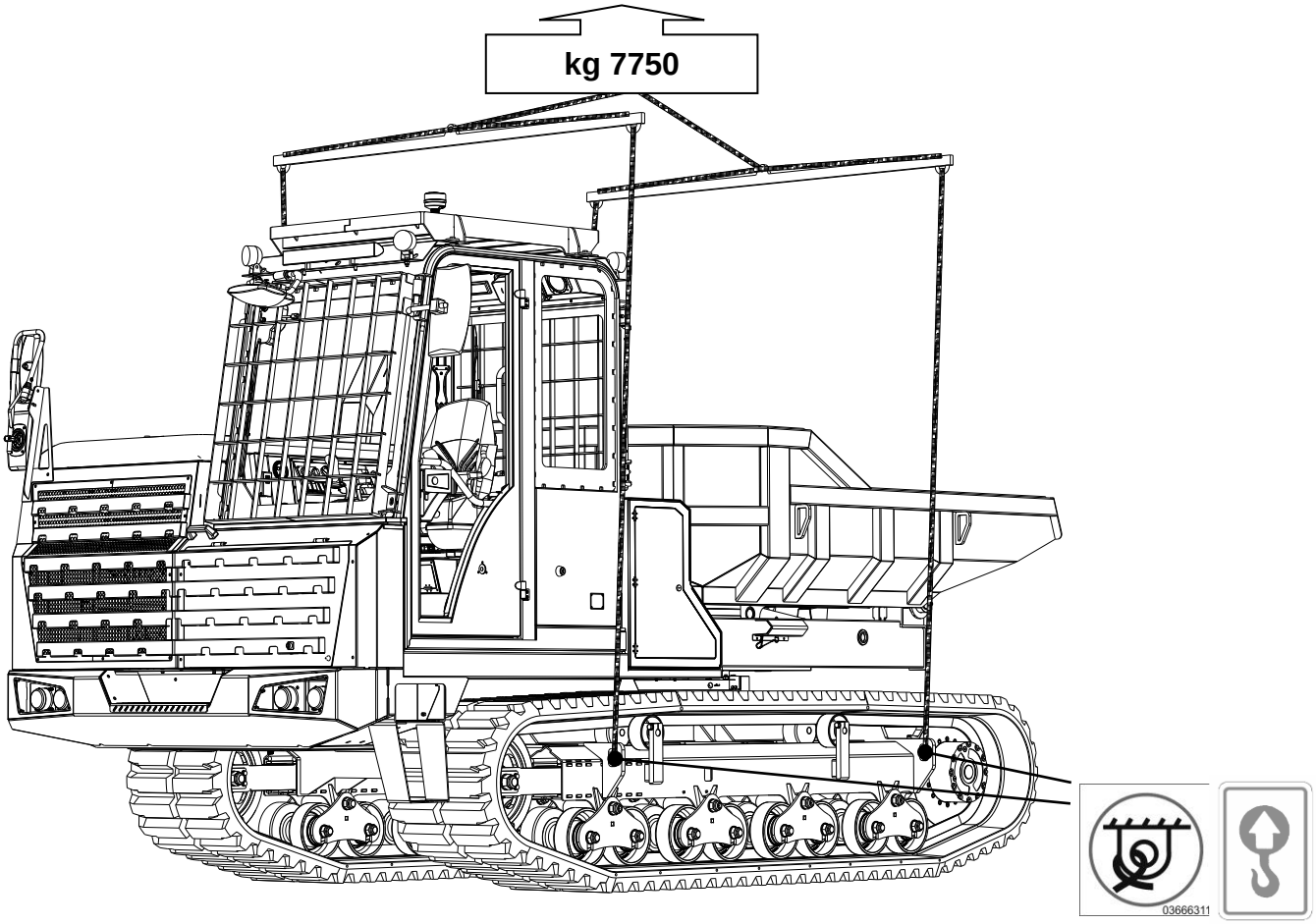
Lifting of the machine must be carried out only with the machine unloaded and it is necessary to strictly comply with the following:

- Circumscribe the lifting area, prohibiting access to unauthorised persons. Do not lift persons or property and make sure that the area affected by the loading or unloading operations is clear from any obstacles (electrical cables, telephone cables, etc.)
- It is absolutely forbidden for persons to pass or stand under the suspended load.
- Use cables or chains of adequate capacity for the load to be lifted: the empty machine, complete with bucket, weighs approximately **kg 7750**.
- Hook the machine in the points provided and marked by a specific plate and proceed with lifting avoiding moving jerkily and proceeding at very low lifting speeds.

It is absolutely forbidden to pass or stand under suspended loads.

For transportation follow the instructions previously recommended.

ATTENTION! During lifting adequately protect any parts of the machine that come into contact with the correctly hooked ropes or chains.



- Lift the machine and position it on the chosen means of transport, then securely anchor it by inserting and locking the wedges at the ends of the tracks on the bed.

- If necessary, fix the machine to the loading platform with steel cables of suitable capacity.

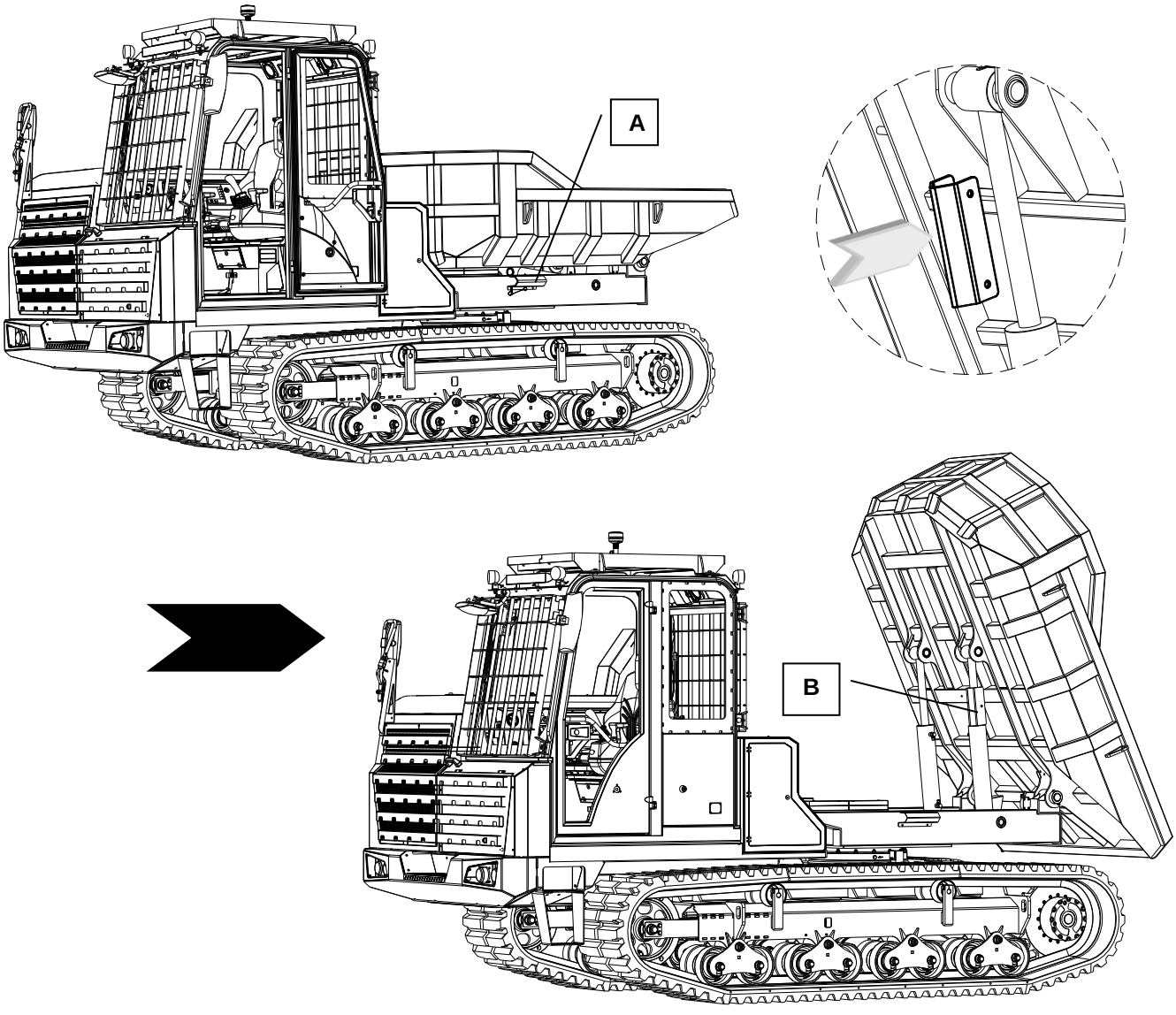
- To unload the vehicle proceed conversely, adopting all the precautions and safety measures necessary for the safety of the persons assigned to use the machine itself.

3.6. SAFETY STOP FOR OPERATIONS ON THE LIFTED BUCKET MACHINE

DANGER ZONES!:

Due to its functional characteristics, the machine has a number of areas of crushing (drop of the body on the frame, track, etc.) and therefore cutting must be used with particular care in the use of these movements, avoiding interposing limbs or parts of the body inside these areas.

In case of maintenance, the **raised body must be locked** with a dedicated safety **element**, supplied with the machine (***Ref. A***), to be inserted **on the lifting cylinder rod** (***Ref. B***)**.** Remove the safety wedge by pulling out the two metal pins and the two flexible pins, place it on the rod of the body lifting cylinder and always reinsert the pins and safety pins. Before parking the machine, the body must be placed on the frame to avoid the risk of crushing or shearing. This precaution is necessary for the safety of the operator or technician who is performing the maintenance.



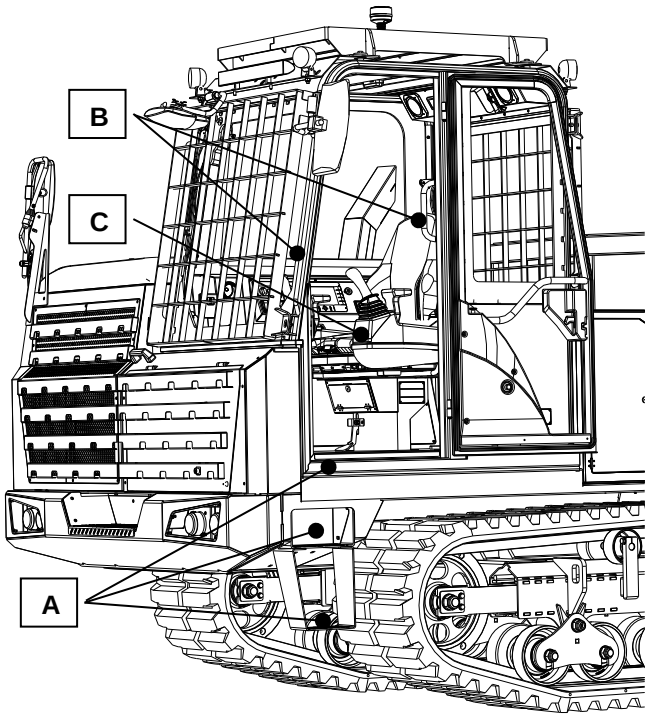
4. DRIVER'S POSITION – CONTROLS

4.1. GETTING IN / OUT OF THE DUMPER

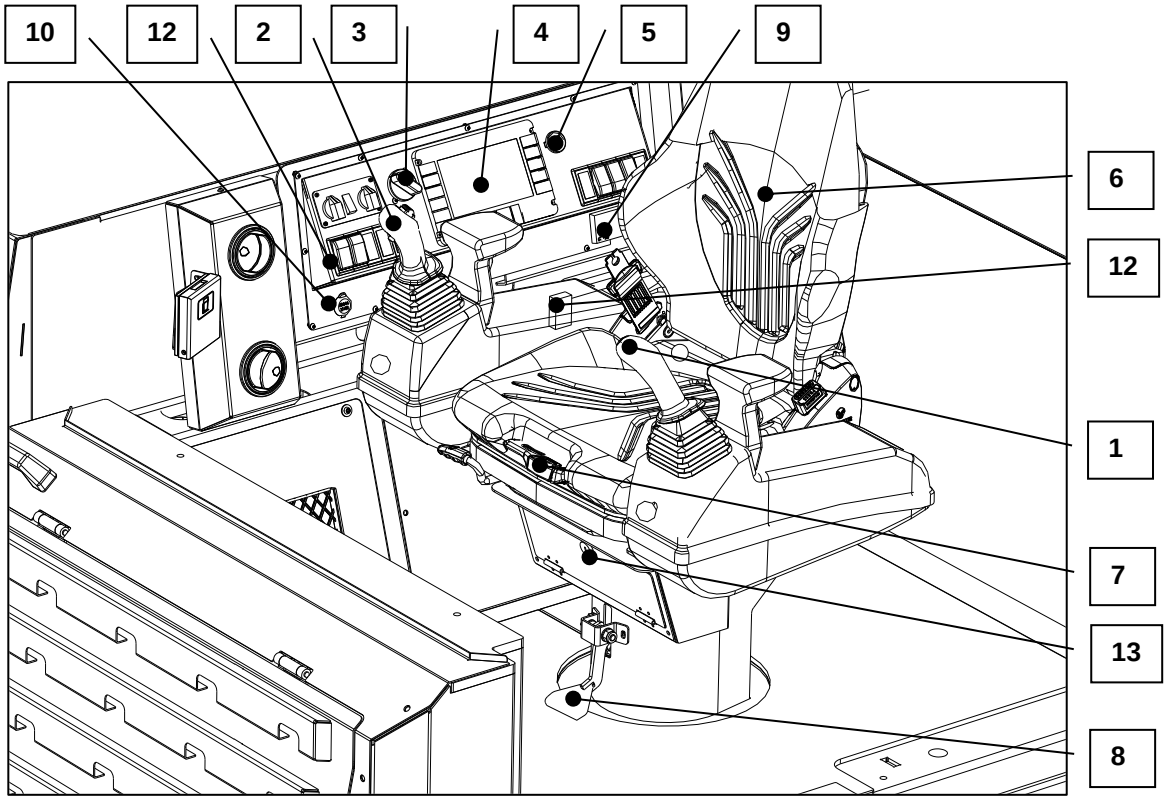
To access the driver's seat and to get on/off the machine, use the appropriate steps ***"A"*** and the appropriate handles ***"B"***. Always lift the left manipulator holder ***"C"*** using the appropriate grip; this operation, in addition to facilitating the ascent and descent of the machine, deactivates both manipulators. In this way, the involuntary activation of the main parts of the machine is avoided.

When entering or exiting the cabin, it is advisable to always face the vehicle.

Do not jump or use the controls as a handle.



4.2. MACHINE CONTROLS



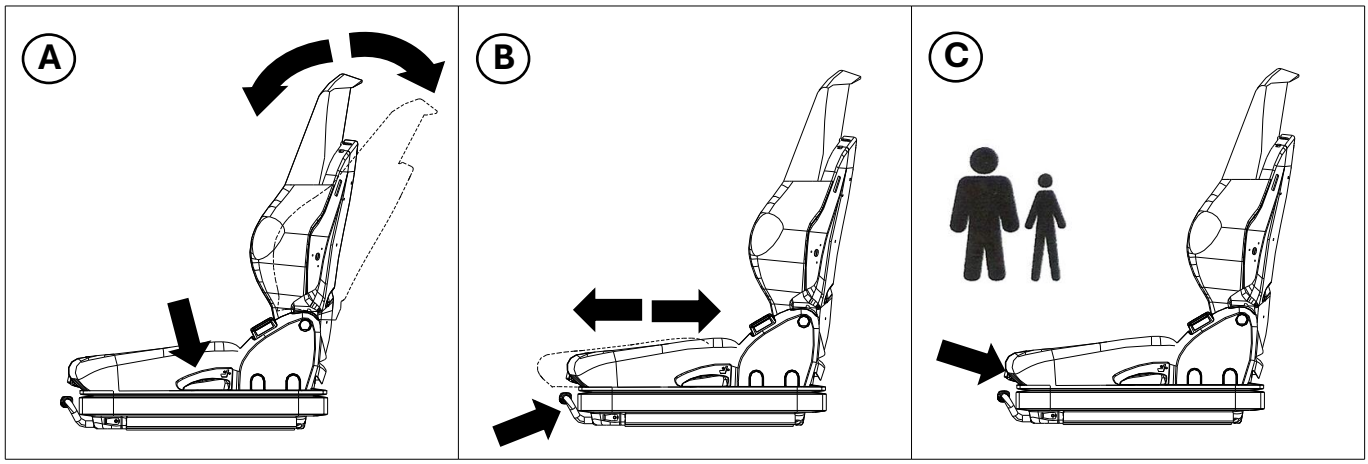
1 – LEFT JOYSTICK *(DRIVING controls)*
2 – RIGHT JOYSTICK *(SERVICES controls)*
3 – THROTTLE
4 – CONTROL PANEL *(Display)*
5 – IGNITION / STOP KEY
6 – OPERATOR SEAT
7 – SEAT POSITION ADJUSTMENT LEVER
8 – SEAT ROTATION RELEASE
9 – FUSE BOX
10 – 12 V AUXILIARY SOCKET
11 – HORN
12 – CONTROL PANEL
13 – STORAGE COMPARTMENT

To operate the various commands, follow the instructions below.

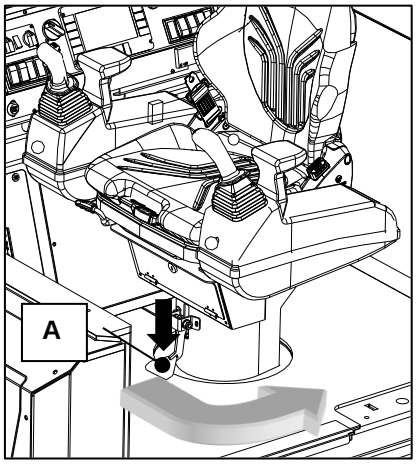
4.3. OPERATOR SEAT

The driver's seat **must not** be adjusted when the vehicle is running. Risk of accidents!
Always fasten the seat belts.
The driver's seat is important for good health. Therefore keep it functional with proper maintenance.
The driver's seat has 3 types of adjustments:

A – Back inclination adjustment.
B – Lengthwise adjustment.
C – Weight adjustment.



To work constantly in the best conditions of comfort, visibility and safety, the operator seat can be rotated 180°. Operate as shown below to release the seat rotation.



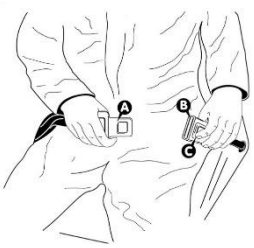
While sitting on the seat, press the lever to release the rotation (***Ref. A***), then rotate the seat in the desired direction of travel. Make sure that the seat is locked again after the rotation is complete.

The presence of a particular electro-hydraulic device reverses the translation controls so that the direction of travel of the tracked conveyor remains consistent with the operator's driving position.

The vehicle cannot be manoeuvred if the seat is not correctly locked in one of the two directions of travel.

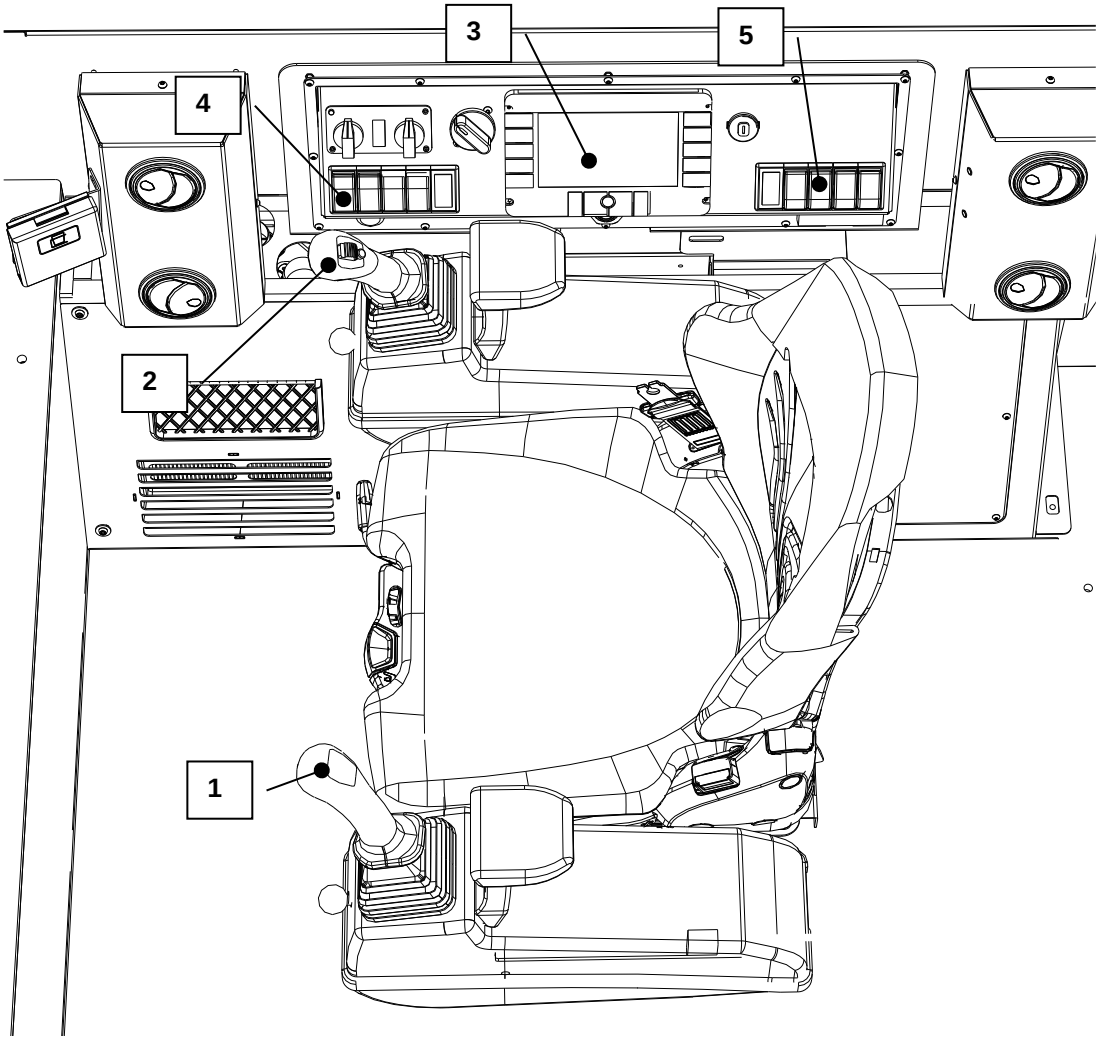
4.4. SEAT BELTS

FASTENING:
Sit correctly in the driver's seat, adjust the length of the belt, check that it is not twisted, then insert the connecting tab ***"A"*** into the slot ***"B"*** until it is locked.



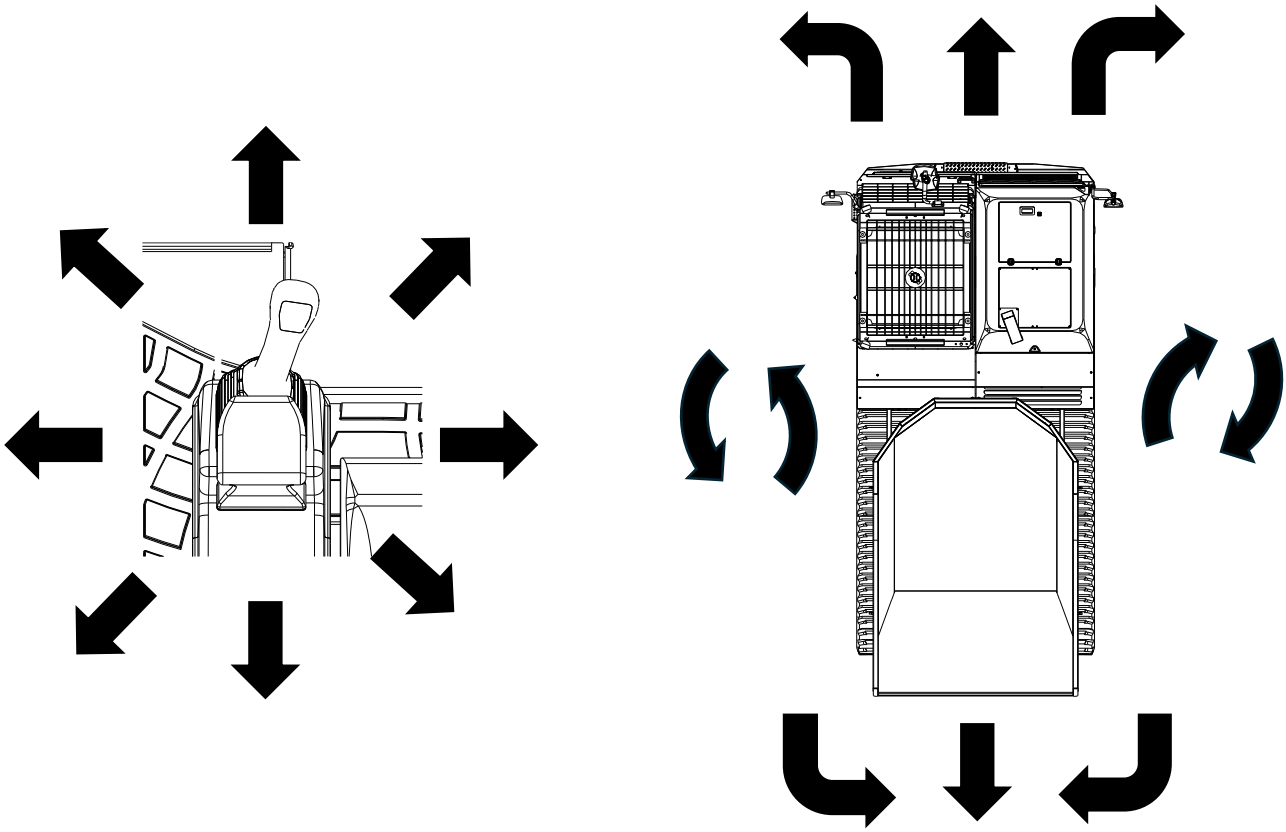
RELEASE:
Push the button ***"C"*** and remove the belt from the fixed part, placing it on its right side.

4.5. CONTROL AND AUXILIARY DEVICES

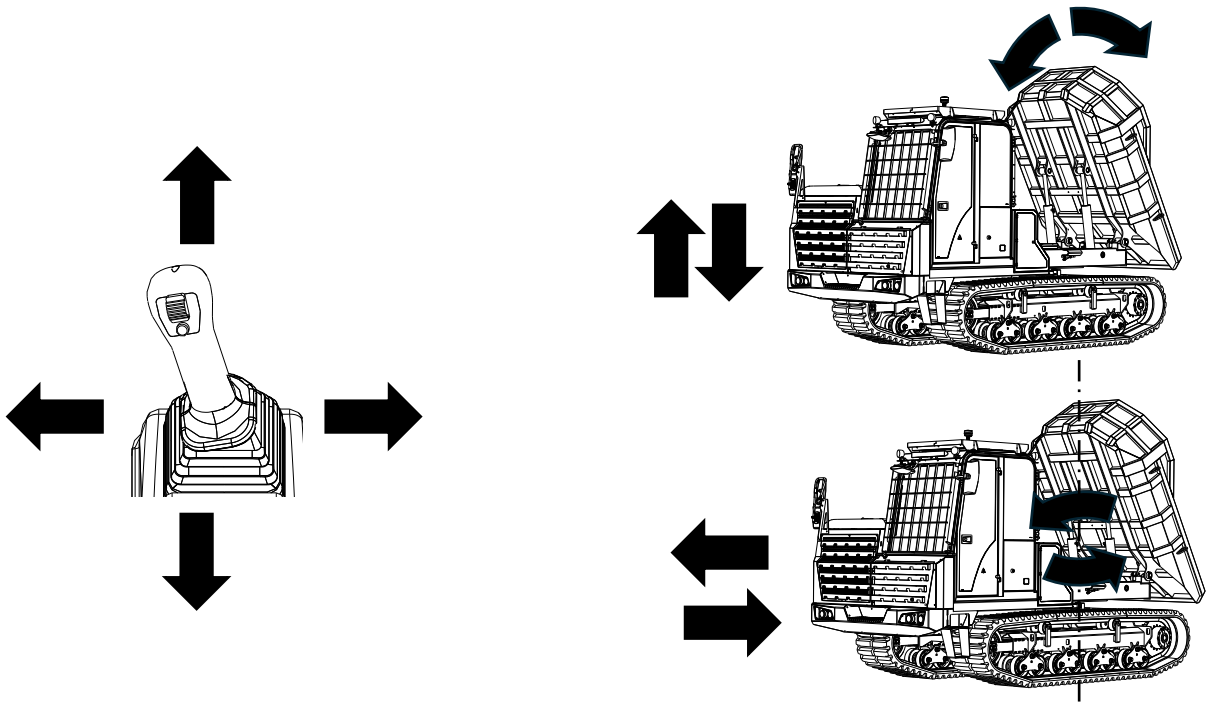


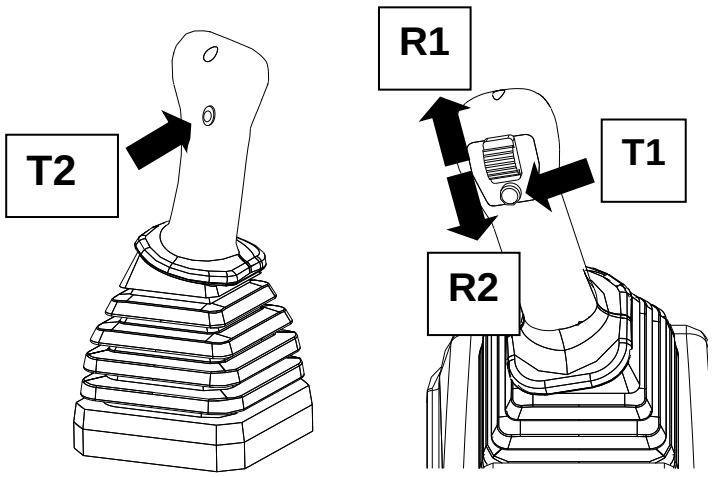
1 – LEFT JOYSTICK *(DRIVING controls)*
2 – RIGHT JOYSTICK *(SERVICES controls)*
3 – CONTROL PANEL *(Display)*
4 – LEFT DASHBOARD
5 – RIGHT DASHBOARD

4.6. LEFT JOYSTICK



4.7. RIGHT JOYSTICK



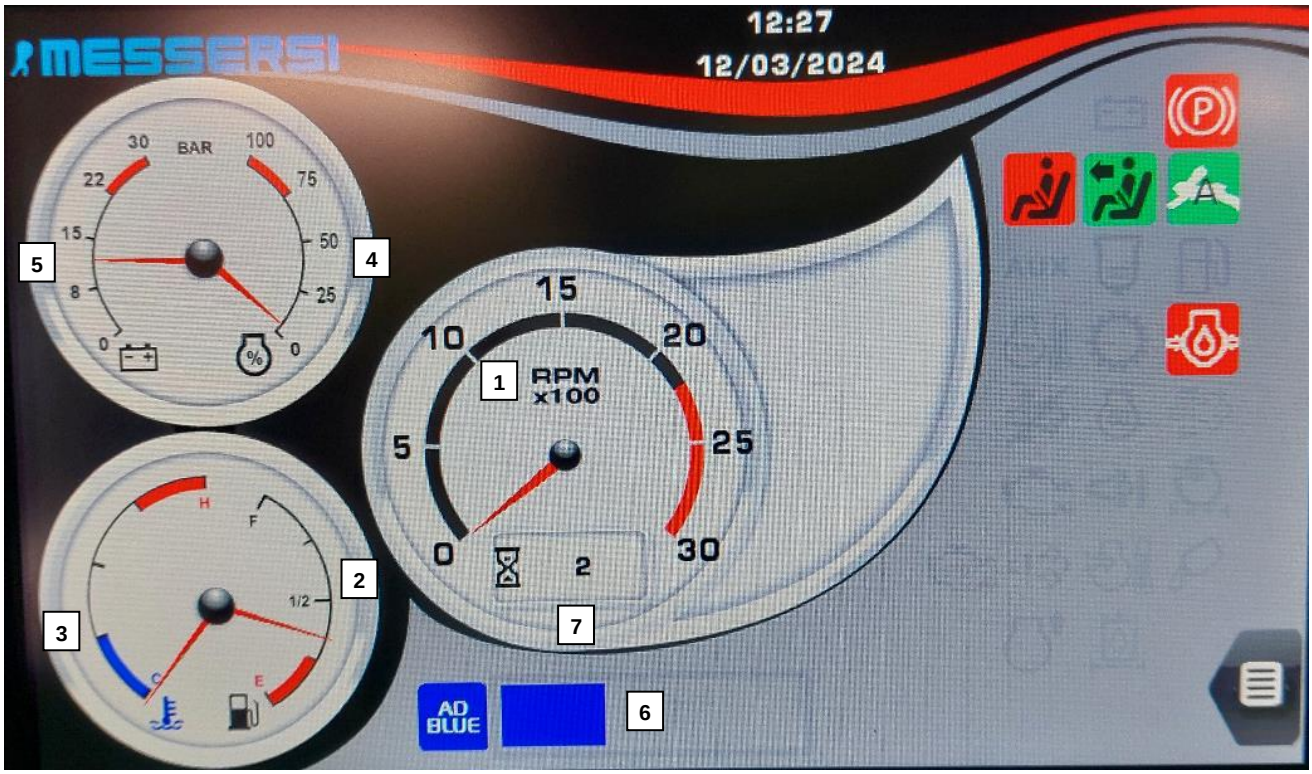


T1: Horn. To activate press the button at the end of the joystick.
T2*: enable hydraulic power take-off (HPTO). To use the hydraulic equipment at constant drive, activate the PTO by pressing **R1** or **R2** and then press the button **T2** to lock the PTO in the work position without continuing to press **R1** or **R2**.
R1*: hydraulic power take-off (HPTO) engaged I
R2*: hydraulic power take-off (HPTO) engaged II

(*) *option*

4.8. DISPLAY

GAUGES



1		**DIESEL ENGINE ROTATION SPEED GAUGE** Indicates the number of revolutions per minute of the Diesel engine.
2		**FUEL LEVEL GAUGE** Indicates the amount of fuel (diesel oil) present in the tank.
3		**DIESEL ENGINE COOLANT LIQUID TEMPERATURE GAUGE** Indicates the temperature level reached by the engine cooling circuit. When the red area of the indicator is reached, stop the vehicle and cool off the engine. If needed, check the cooling circuit.
4		**ENGINE TORQUE GAUGE** It shows the percentage of the torque currently being used by the engine.
5		**VOLTAGE ELECTRIC POTENTIAL GAUGE** It shows the current voltage value (V) available.
6		**DEF** *(AdBlue)* **LEVEL GAUGE** Indicates the quantity of AdBlue additive present in the tank.
7		**HOUR METER** Signals the progressive working time; it works with the engine running.

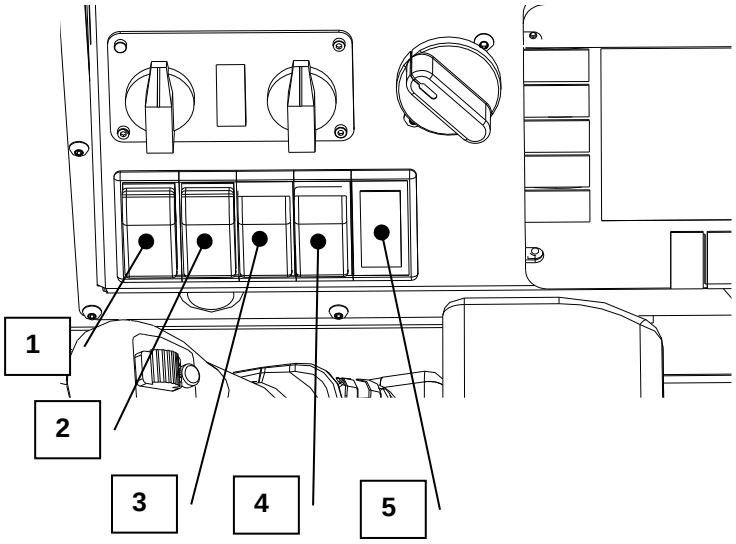
WARNING LIGHTS

8		**ALTERNATOR LOAD LIGHT** OFF: during normal operation (it turns off immediately after start-up). ON: it signals abnormal operation in the battery charging system.
9		**PARKING BRAKE LIGHT** OFF: during normal operation. ON: it signals activation of the parking brake.
10		**SEAT RELEASED LIGHT** OFF: during normal operation. ON: it signals incorrect position of the driver's seat which is not locked in one of the two positions suitable for driving. The machine cannot operate when the indicator light is active.
11		**OPERATOR SEAT DIRECTION LIGHT** OFF: the light is off if the operator seat is released (light ***ref. 10*** on). ON: during normal operation it signals the direction and correct position of the operator seat.
12		**TRAVEL SPEED INDICATOR** It graphically indicates the selected travel speed. TORTOISE: slow speed HARE: fast speed\ A: *"Auto Two Speed"* mode with automatic displacement change according to the engine load (see sect. ***4.16***).

13		**OPTIONAL AUX** INDICATOR The light comes on if an auxiliary accessory is being used.
14		**WATER IN THE FUEL WARNING LIGHT** OFF: during normal operation. ON: it reports water or other impurities in the fuel. Stop the engine immediately and proceed to check the water separator.
15		**LOW FUEL LEVEL LIGHT (RESERVE)** The light comes on if there is an overly low level of fuel in the diesel tank; refuel as soon as possible.
16		**HIGH WATER TEMPERATURE WARNING LIGHT** OFF: during normal operation. ON: it reports abnormal operation in the diesel engine cooling system. Stop immediately.
17		**HYDRAULIC POWER TAKE OFF ACTIVATION LIGHT (H.P.T.O.)** OPTIONAL The light comes on when the hydraulic power take-off is activated.
18		**ENGINE OIL PRESSURE WARNING LIGHT** OFF: during normal operation (it turns off immediately after start-up). ON: it reports an anomaly in the diesel engine lubrication system; insufficient pressure or oil. Stop the vehicle immediately and find out the cause.
19		**DIESEL PARTICULATE FILTER (DPF) REGENERATION INHIBITION LIGHT** OFF: during normal operation. ON: it indicates that the user has manually suspended the DPF regeneration procedure. It can be activated/deactivated by pressing key ***F1→F5.***
20		**SPARK PLUGS PREHEATING LIGHT** The light comes on after turning the key in the ignition switch clockwise. When it is turned off, start up in the manner indicated in the appropriate paragraph.
21		**DIESEL PARTICULATE FILTER (DPF) LIGHT** OFF: during normal operation. ON: the anti-particulate filter regeneration procedure is required. FLASHING: the active regeneration procedure of the particulate filter has been required for more than one hour. FAST FLASHING: the active regeneration procedure of the particulate filter is required and the engine power is limited.
22		**ENGINE ANOMALY WARNING LIGHT** OFF: during normal operation. ON: it indicates abnormal operation of the diesel engine or DPF system. Check it by contacting an authorised workshop.

23		**DIESEL PARTICULATE FILTER (DPF) REGENERATION INDICATOR** OFF: during normal operation. ON: it indicates that the particulate filter regeneration procedure is in progress. The exhaust gas temperature rises up to 650°C.
24		**AIR FILTER CLOGGING WARNING LIGHT** OFF: during normal operation. ON: indicates an anomaly in the air filter. Stop the engine immediately and check the air intake circuit.
25		**SERIOUS ENGINE FAULT WARNING LIGHT** OFF: during normal operation. ON: it indicates a serious and abnormal operation of the diesel engine or DPF system. Stop immediately and search for the cause, contacting an authorised workshop.
26		**EMISSION SYSTEM FAULT WARNING LIGHT** OFF: during normal operation. ON: indicates an abnormal operation of the diesel engine emissions system. Check by contacting an authorised workshop.
27		**HIGH INTAKE AIR TEMPERATURE WARNING LIGHT** OFF: during normal operation. ON: indicates a high intake temperature of the diesel engine. Check by contacting an authorised workshop.
28		**LOW DEF** *(AdBlue)* **LEVEL WARNING LIGHT** The warning light comes on when there is a low level of AdBlue additive in the tank, refuel as soon as possible.
29		**ENGINE ELEVATED IDLE WARNING LIGHT** OFF: during normal operation. ON: an increase in the diesel engine speed is required to initiate the active regeneration procedure of the particulate filter. FLASHING: an increase in the diesel engine speed is urgently required to initiate the active regeneration procedure of the particulate filter.
		A: the diesel engine speed is automatically increased to perform active regeneration of the particulate filter.
30		**HYDRAULIC OIL FILTER CLOGGING WARNING LIGHT** OFF: during normal operation. ON: indicates an anomaly in the hydraulic oil filter. Stop the engine immediately and proceed to check.

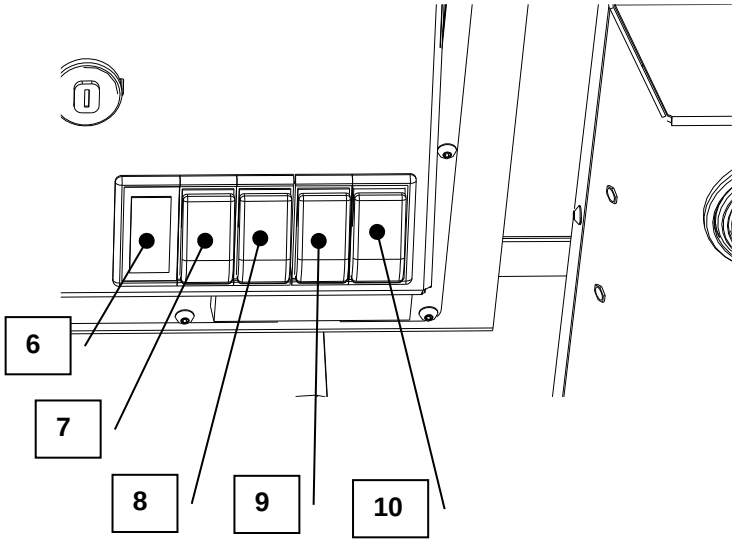
4.9. LEFT DASHBOARD



1 – TURN SIGNALS SWITCH *
2 – LOW BEAM – HIGH BEAM SWITCH
3 – LOW SPEED LOCK
4 – WORK FRONT – REAR LIGHTS SWITCH
5 – SKIP LOCK SWITCH **

(*) *option*
(**) *block the movement of the skip when driving on public roads*

4.10. RIGHT DASHBOARD



6 – HAZARD *
7 – FLASHING BEACON LIGHT SWITCH
8 – WINDOW WIPER/WASHER SWITCH
9 – CAB LIGHT SWITCH
10 – FUEL REFUELING PUMP SWITCH

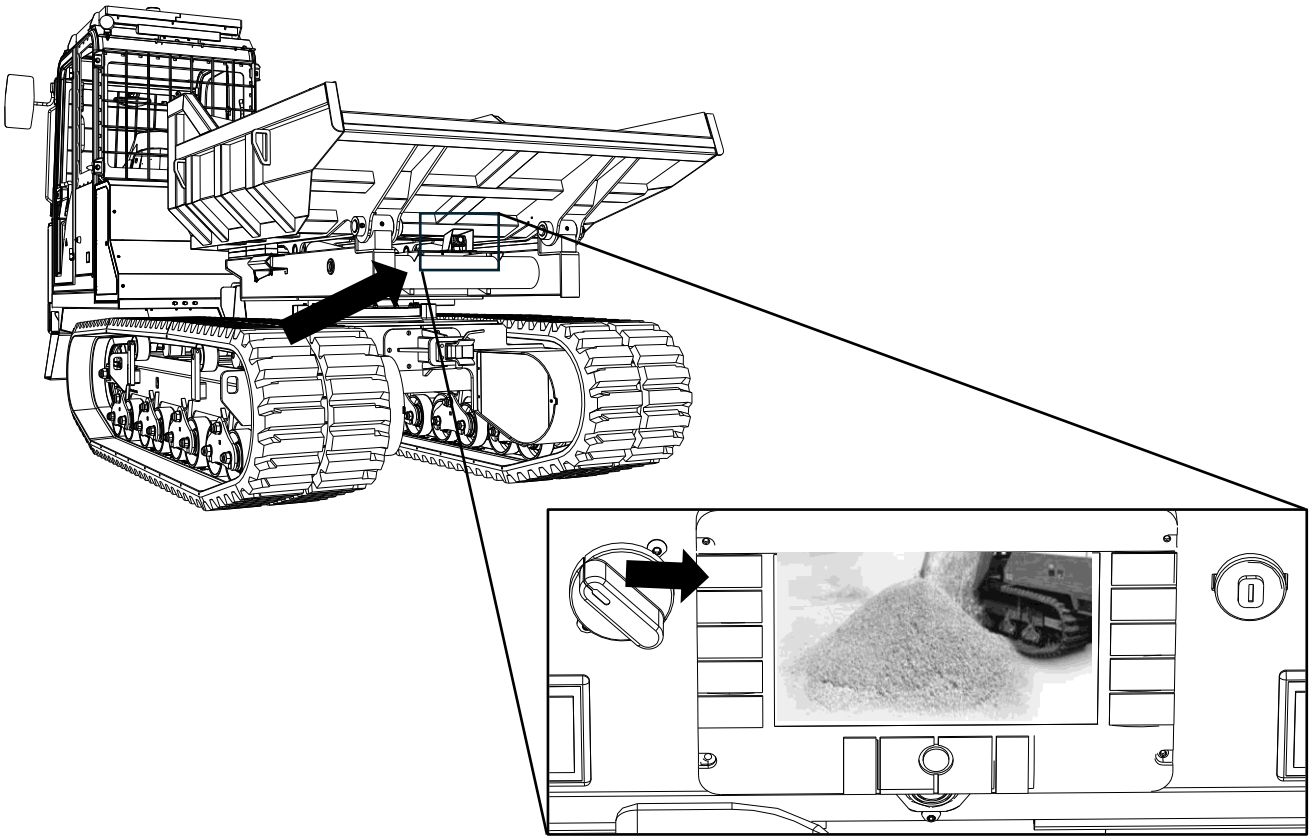
(*) *option*

4.11. REAR VIEW CAMERA

A rear-view camera is installed on the vehicle to provide a clear view of the area behind the machine, improving safety when reversing, manoeuvring in tight spaces or when loading and unloading material.

The camera helps reduce blind spots at the rear of the vehicle and the captured images are displayed on the display inside the cabin.

- Press **F1→F1** on the display to activate the rear view camera.



Check operation regularly: Make sure the camera lens is clean and free of obstructions such as dirt or ice. Use a soft cloth if necessary to avoid scratches or damage.

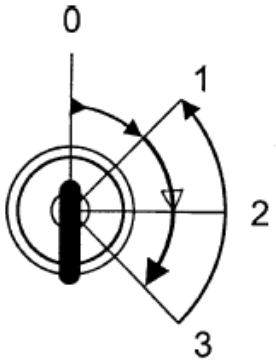
Do not rely solely on the camera: the camera is a driving aid; continue to use mirrors and look directly to ensure the safety of your surroundings.

Visibility conditions: The camera's performance may be affected by low light, heavy rain, or other environmental conditions.

Periodically check the camera's wiring and mounting to ensure proper operation.

4.12. START-UP

To start up the machine, proceed as follows:



a – Insert the key in the key start switch (***pos. 5 p. 25***) and turn clockwise to position ***"1"*** (Panel ignition).
b – Move the accelerator *(**pos. 3 p. 25**)* to approximately half of its stroke.
c – Continue to turn the key to position **"2"** and keep it for approximately ***13-15* sec.** until the spark plug preheating light located on the verification and control instrument turns off *(**pos. 20 p. 32**)*.
d – Continue to turn the key to position **"3"** to obtain start-up.
e – After starting, the key automatically returns to position **"1".**
f – In case of failure to start, return the key to **"0"** and repeat the operation from the beginning.

For correct ignition, comply with that described above and that which follows.

Once the engine is started, gradually bring the accelerator back to idle, to a sufficiently low rpm, avoiding sudden accelerations until the hydraulic system has reached operating temperature *(5 ÷10 minutes depending on weather and climatic conditions).*

Do not allow unauthorised personnel to drive the vehicle; the person who has been given control of the vehicle is responsible for it.

When you are not sure of vehicle operation and you must perform some manoeuvres that you have not practised adequately, this should be done in an open and free space.

As for driving, follow the indications below remembering which is the front of the machine.

ATTENTION!
ENGINE REFUELLED WITH DIESEL AND DEF (*AdBlue*)

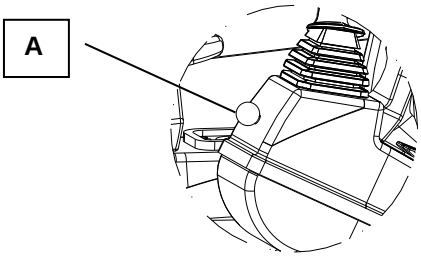
DO NOT PERFORM PROLONGED START-UPS

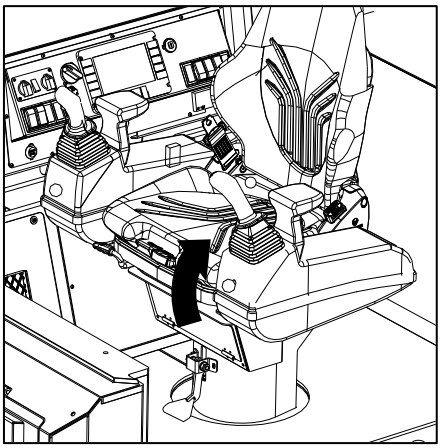
4.13. STOP

To stop the engine, simply turn the ignition key anti-clockwise. It is recommended to idle the engine for a few minutes before stopping the vehicle.
Remove the key every time you leave the driver's seat; never leave the machine running unattended

4.14. EXCLUDING SERVOCONTROLS

To access the driving position, always lift the joystick holder using the appropriate grip ***(Ref. A***). This operation, in addition to facilitating the ascent and descent of the machine, deactivates both the joysticks and therefore blocks all the movements of the tracked conveyor. This prevents the main devices of the vehicle from being activated by accident.





Do not hang on the joystick holders as excessive load could damage them.

Even if it comes down for a few seconds, the joystick holder must remain up.
Before resuming work, remember to lower the joystick holder to enable all the machine controls.

It is advisable to always close the cap after removing the key from the ignition switch and, in the case of washing, especially with pressurised jets, make sure that it is tightly closed.

Do not direct jets of water or steam directly onto the dashboard.

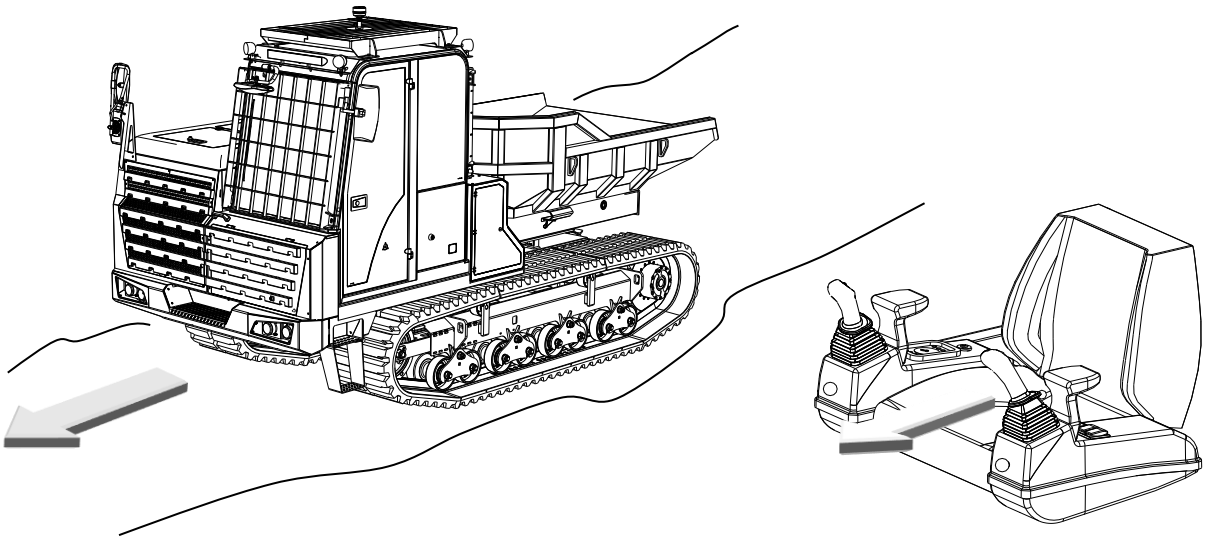
It is not possible to start the machine with the armrest lowered.

4.15. DRIVING

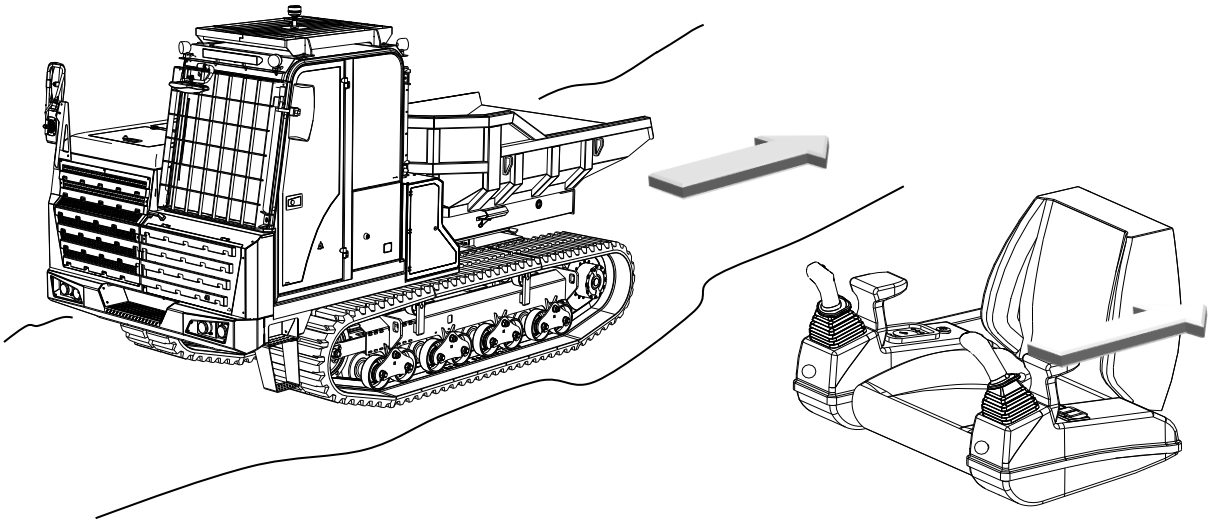
Movement of the tracked conveyor is completely servo-assisted and is obtained by operating the left joystick (***pos. 1 p. 24***).

Now let's look in detail at the manoeuvres to be performed to proceed in the forward and reverse directions and for steering. The positions that the joystick must assume to obtain the desired manoeuvre will be shown.

FORWARD DRIVING: move the left joystick forward.

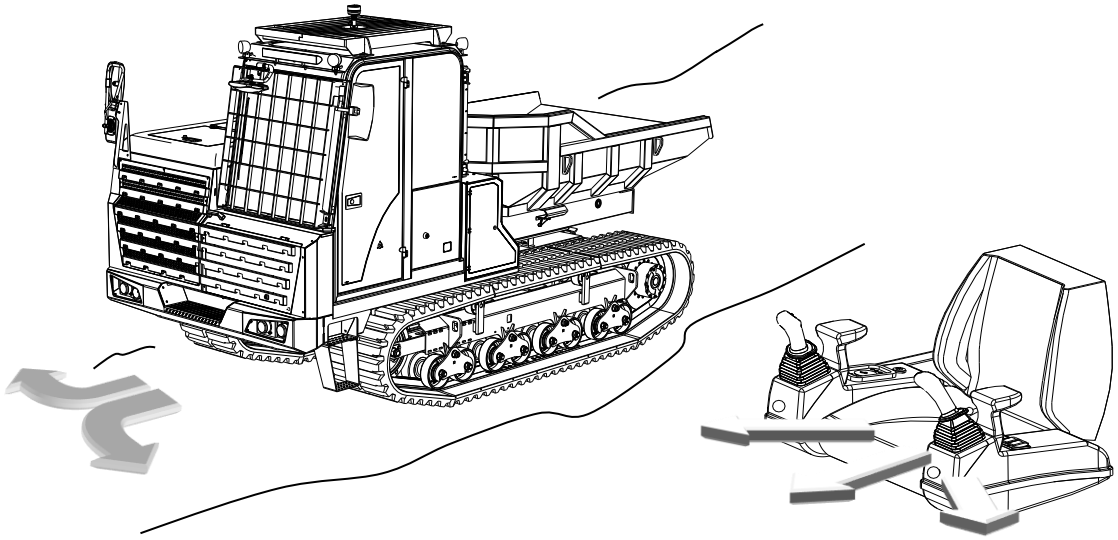


BACKWARD DRIVING: move the left joystick back.



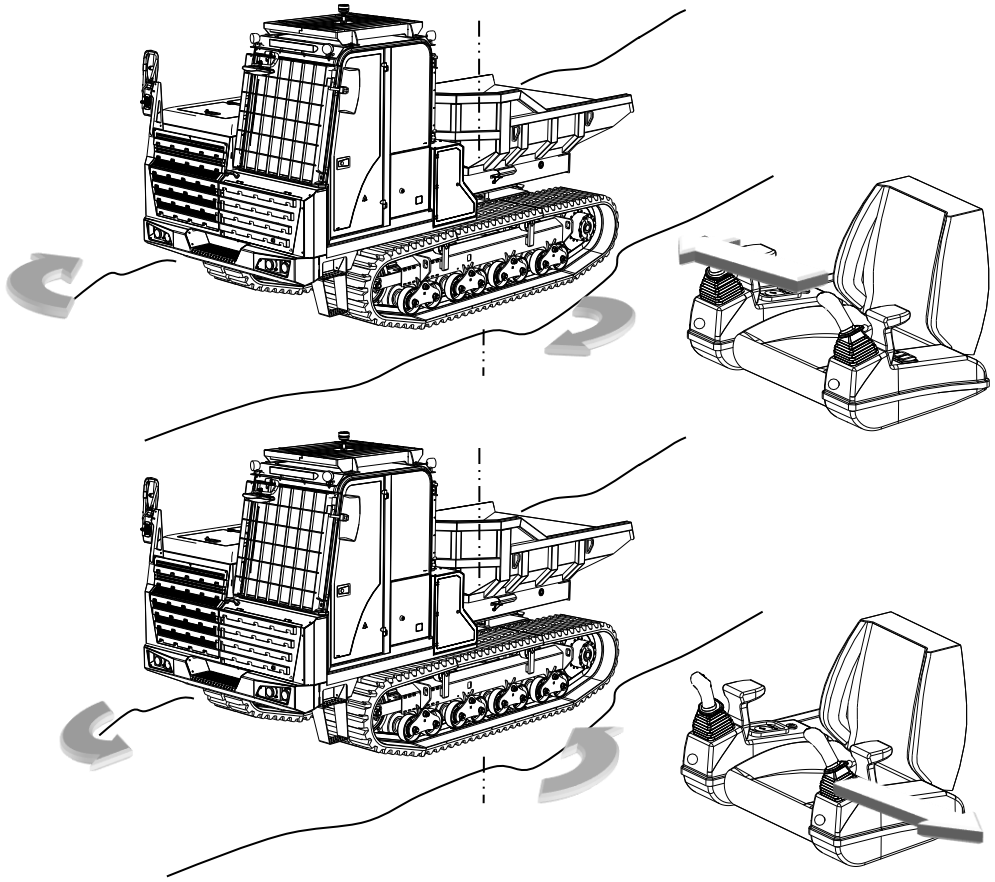
For work requirements and to always ensure maximum visibility, the operator can rotate the driving position by 180° *(**see sect. 4.3**)*. The tracked conveyor is equipped with a particular electro-hydraulic device which is used to keep the joystick direction consistent with the direction of travel. Therefore, in any direction the driver's seat is rotated, forward travel will always be achieved by pressing the left joystick forward; the opposite is true for reverse travel.

FORWARD TRAVEL PROGRESSIVE STEERING: move the left joystick forward and simultaneously in the direction to be steered in.



The same operating modes apply for progressive steering in reverse.

COUNTER STEERING: this manoeuvre allows the machine to rotate around its centre, inverting the rotation of the two tracks. To perform counter steering, move the left joystick to the right or to the left according to the direction to be steered in.



ALL STEERING AND DIRECTION CORRECTION MANOEUVRES MUST BE PERFORMED GENTLY AND WITH CAUTION.

4.16. DRIVING GEARMOTORS

As standard, the ***TC550d*** dumper is equipped with an automatic displacement gearbox.
For work needs on rough terrain, with steep slopes or for particularly heavy loads, it is possible to deactivate the automatic gearbox and leave it locked in first gear *(maximum displacement).*

For correct use of the vehicle, use second gear only when moving. During normal excavation phases the first gear must be used. In this configuration the automatic displacement change is disabled.

Press the switch on the left dashbboard (***see ref. 3 sect. 4.9***) to deatctivate the automatic displacement change and lock the driving gearmotor in 1st gear.

The display shows the speed and the change mode of the selected displacement (***pos. 12 p. 28***).

Slow speed

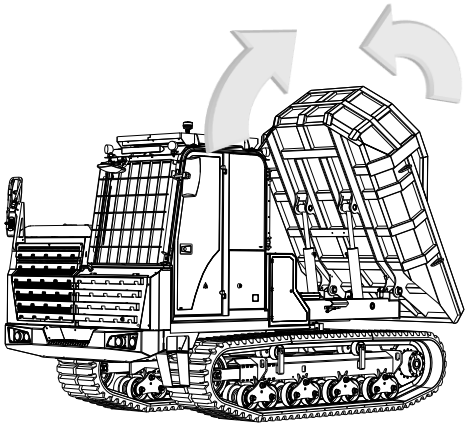
High speed – Automatic shift selected

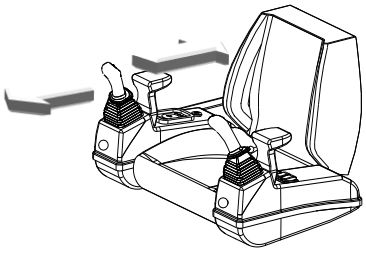
4.17. HYDRAULICS

All the services of the tracked dumper are completely pilot-assisted and are driven by operating the right Joystick (***pos. 2 p. 24***).

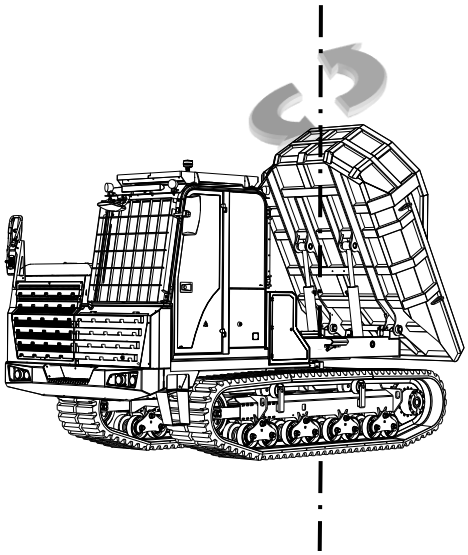
Let's now look at in detail which movements and services are associated with the various positions of the right joystick.

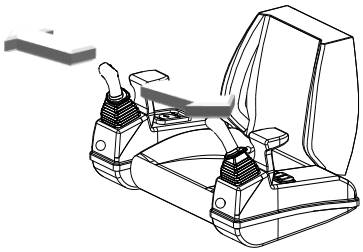
SKIP DUMPING: the hydraulic dumping cylinder of the skip is controlled by the right joystick and in particular by the "forward-backward" movements.





SKIP SWIVELLING: the machine's skip can rotate 180° around the vertical axis. To rotate, simply operate the right joystick by moving it to the left or right according to the direction in which to unload the transported material.





ATTENTION!

Use the controls in such a way as not to endanger the health of persons and the condition of the surrounding objects.

To maintain the machine's performance for a long time, avoid excessive strain on the transmission and the related overload of the internal combustion engine.

4.18. STARTING AND STOPPING THE ENGINE

The energy source element in the conveyor is the internal combustion engine.
For details, see the copy of the use and maintenance manual of the engine supplied with the machine.

Before starting the engine, check that the machine is in perfect working order and in particular perform the following checks:

- Check that the refuelling points are level (engine oil, hydraulic oil, fuel and AdBlue).
- Check that there are no leaks of liquid from the fuel supply circuit and oil from the hydraulic circuit or other elements in an oil bath.
- Check that there are no damaged, worn or burnt hydraulic pipes.
- Check that there are no bodies unrelated to the vehicle interposed between the track and the other elements of the machine.
- Check that the state of preservation and wear of the track is adequate for use of the machine.
- Check that there are no electric cables with damaged and worn sheaths or electric cables with burns.
- Moving the machine control joysticks, check that there is no jamming or blockages.

In the event that one of the above checks gives a negative result, it is necessary to remove the cause of the problem and to restore correct operation of the machine. It is possible to intervene independently if the operations necessary to remove the problem fall within those described in this manual or by making use of the support of the assistance service in the remaining cases.

Before starting the engine, position the accelerator lever halfway through its stroke.

Once the engine has started, let it run at low speed for approximately 1 minute in order to allow the oil to reach all the points to be lubricated and to supply the various users with hydraulic oil. Proceed in the next 5 or 10 minutes at a slightly accelerated speed. Only after this time can the machine be used correctly.

For details of the operations to be performed for starting and stopping the engine, refer to the following pages.

ATTENTION!
ENGINE REFUELLED WITH DIESEL AND DEF (*AdBlue*)

4.19. DIESEL PARTICULATE FILTER (DPF) REGENERATION

In the life cycle of the diesel engine, at a strongly variable frequency depending on the operating, climatic and environmental conditions, it may be necessary to perform a regeneration cycle of the Diesel Particulate Filter (**DPF**).

The control system is designed to passively perform regeneration to maintain the efficiency of the particulate filter.

As part of the DPF maintenance strategy Active Regeneration will be required every 60 hours approximately. This will vary slightly depending on the load factor and ambient weather conditions as these factors affect the efficiency of the passive regeneration.

This regeneration will happen automatically without operator interaction in most cases as the engine can generate enough heat in the DPF whilst the engine is working.

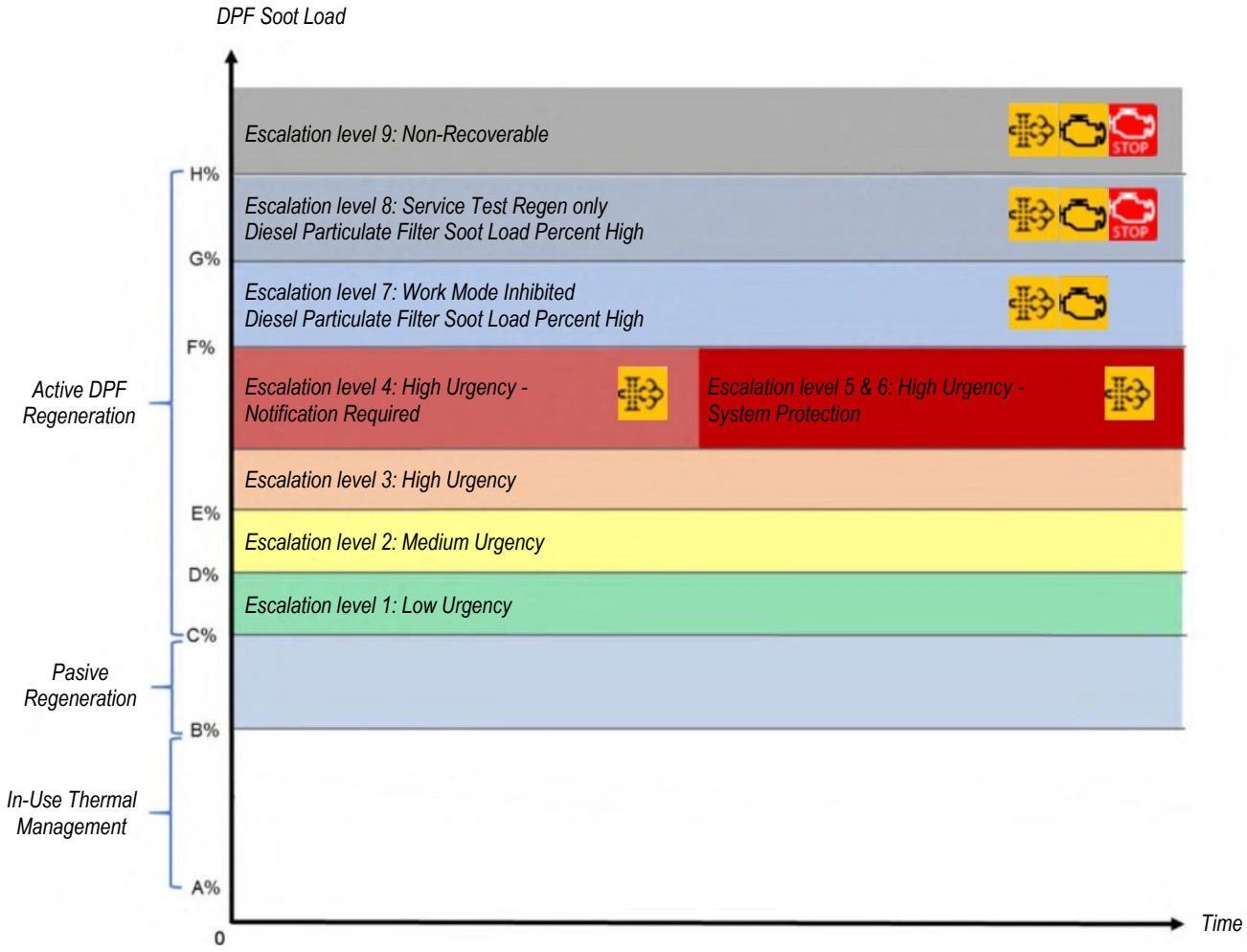
If Active Regeneration is not possible during normal work activities the *Elevated Idle Strategy* will be used to help regeneration.

If the aftertreatment is not able to perform a regeneration because the Elevated Idle request is never answered, the system will eventually limit the use of the engine, to encourage the user to allow a regeneration to happen.

Ignoring the need for a regeneration could result in very high soot levels accumulating in the DPF which will eventually damage the DPF. The DPF would then need to be replaced.

DIESEL PARTICULATE FILTER (DPF) SOOT LOAD

The image below shows the soot load levels of the diesel particulate filter and the related warning lights.



The escalation process has been designed so that even in applications where it is impossible to sustain active regeneration during normal work cycles e.g. light load and/or very transient operation, the control system is capable of performing the regen whilst the machine is parked up.

ACTIVE DIESEL PARTICULATE FILTER (DPF) REGENERATION

If the system was unable to complete passive regeneration and the Elevated Idle requests were ignored, warning lights ***ref. 21*** and ***29*** at ***page 28*** will be displayed.

At this point, to perform an active regeneration, you must:

- move to a suitable, well-ventilated environment and above all away from flammable materials as the temperatures of the exhaust gases during this operation rise considerably (even up to *650 °C*);
- check that there is an adequate quantity of fuel in the tank to cover the duration of the entire cycle;
- engage the parking brake by lifting the left handle holder (see ***sect. 4.14***);
- bring the accelerator control to minimum.

To signal the start of the active regeneration procedure, the warning light ***ref. 23*** on ***page 30*** will appear on the display.

When the regeneration cycle is in progress, it can be stopped by lowering the armrest, however it is not recommended to do so unless it is strictly necessary.

During the regeneration procedure very high exhaust gas temperatures are released. Risk of burns!
Make sure that there are no flammable materials near the machine.

At the end of the particulate filter regeneration cycle, work can be resumed normally.

5. GENERAL MAINTENANCE

The maintenance operation is only effective if this is carried out in the ways and respecting the scheduling indicated and mostly by qualified personnel. To facilitate control, the machine is equipped with an hour counter on the dashboard, which records the operating time.

Only proper maintenance keeps the vehicle perfectly efficient, making it possible to work well and in safety.

Before working on the machine, always make sure that all appropriate measures have been taken to ensure that the person or persons carrying out maintenance, repair, etc., work in complete safety.

All cleaning operations must be carried out with the engine cold using, where possible, a pressurised water jet. Do not use solvents or similar substances to avoid damaging guards, seals and the paint itself.

All hydraulic system verification and control operations must be carried out with the oil at operating temperature (*approximately 60°C*).

Do not release oil or other liquids leaked during maintenance into the environment. Collect them and deliver them to personnel authorised for waste disposal. It is advisable to set up an area reserved for maintenance operations, protecting it from dripping deriving from any leakage of pipes, connections, hydraulic couplings.

5.1. LONG TIME STOP

When the machine is expected not to be used for a long period, we recommend placing it under shelter in a dry place.

The following are some advice and precautions to be taken before shutting down the vehicle:

- Thoroughly clean and wash the vehicle with pressurised water and dry it especially in those areas not protected by paint or without particular protections. Touch up areas where paint is scraped or missing to avoid harmful rust.

- Empty the fuel tank completely and fill it with approximately 10 L of diesel with an oil additive and purge the system. Start the engine and let it run for approximately 10-15 minutes to evenly distribute the lubricant. When the operation is over, refill the tank with diesel oil.

- Completely change the oil of the diesel engine, of the hydraulic system and of the wheel gearboxes, also replacing the various filters.

- Remove the battery and check its level. Top it up with distilled water, if necessary, and store it in a sheltered and dry place. Periodically check the liquid during the period of inactivity.

- Lubricate all those delicate parts that require special care and protection.

5.2. RESTARTING AFTER INACTIVITY

To reactivate the machine, comply with the following recommendations:

- Put the battery back in, checking the liquid and charge level.

- Check the oil levels of the engine, of the hydraulic system and of the wheel gearboxes.

- Start the engine and let it run idle for about 10-15 minutes; afterwards make sure that all the mechanical, electric and hydraulic parts work properly.

5.3. PARTICULAR WORK CONDITIONS

MUDDY, WET AND SNOWY AREAS:

- Make sure that the caps and valves are watertight.

- Cleaning and general check of vehicle, check tightening of nuts and screws, check for possible structural collapse due to blows or cracks, etc.

MARINE AREAS:

- Make sure that the caps and valves are watertight.

- General cleaning of vehicle and washing with fresh water to eliminate deposited salt which causes corrosion and rust.

- Check and inspection of electric system operation to prevent corrosion and various problems.

DUSTY AREAS:

- Check and periodical cleaning of air filter.

- Check and cleaning of alternator and starter terminal block.

- Cleaning water/oil radiator

ROCKY AREAS:

- The machine must be used with caution. Manoeuvres and movements must be performed gently to avoid damaging the undercarriage and the rubber tracks.

- Before starting work, check the articulations, junctions, pins and fastening of the various parts of the machine.

FROZEN AREAS:

- Use suitable low temperature fuel or apply specific additives.

- Use suitable low temperature lubricants in the hydraulic system and engine system.

- Water in the radiator must be mixed with antifreeze.

- Periodically check the battery liquid level.

Protect the tracks from any compaction with the ground during prolonged parking or stops.

5.4. MAINTENANCE CHART

CHECK POINTS		MEASURES	Every 50 h or 1 month	Every 500 h or 6 months	Every 1000 h or 1 year	Every 2000 h	Every 3000 h	INTERVALS
Walk-around inspection		Check	Daily check					
Engine oil level		Check	Daily check					
Coolant level		Check	Daily check					
Radiator and oil cooler		Check	Daily check					
Hydraulic oil level		Check	Daily check					
Greasing the lubrication points		Grease	Daily check					
Fuel and AdBlue level		Check	Daily check					
Electrical equipments		Check	Daily check					
Swivel gear, bearing		Grease	●	●	●	●	●	Every 50 h or 1 month
Track tension		Check	●	●	●	●	●	Every 50 h or 1 month
		Adjust	●	●	●	●	●	Every 50 h or 1 month
Water separator		Clean	●	●	●	●	●	Every 50 h or 1 month
Battery		Check		●	●	●	●	Every 500 h or 6 months
Air cleaner*	Est. Element	Replace		●	●	●	●	Every 500 h or 6 months
	Int. Element	Replace		●	●	●	●	
Engine oil and engine oil filter		Replace		●	●	●	●	Every 500 h or 6 months
Water separator		Replace		●	●	●	●	Every 500 h or 6 months
Hydraulic oil return filter		Replace		●	●	●	●	Every 500 h or 6 months
Gearmotors oil		Check		●	●	●	●	Every 500 h or 6 months
Belt, belt tensioner		Check			●	●	●	Every 1000 h or 1 year
Water pump		Check			●	●	●	Every 1000 h or 1 year
Gearmotors oil		Replace			●	●	●	Every 1000 h or 1 year
Hydraulic oil, suction filter, complete return filter		Replace			●	●	●	Every 1000 h or 1 year
Hydraulic oil tank		Drain			●	●	●	Every 1000 h or 1 year
Fuel tank		Drain			●	●	●	Every 1000 h or 1 year
Alternator		Check				●		Every 2000 h
Starter		Check				●		Every 2000 h
Belt		Replace					●	Every 3000 h
DEF (AdBlue) filter		Replace					●	Every 3000 h

* - Clean or replace the air cleaner elements more frequently if used under dusty conditions. If the elements are very dirty due to dusty conditions, replace the elements.

5.5. LUBRICANT CHARTS

RECOMMENDED PRODUCTS	PARTS TO BE LUBRICATED	QUANTITY (Litres)
DIESEL	FUEL TANK	125,0
ENI SIGMA TOP MS 10/W40	DIESEL ENGINE	10,0
AGIP ARNICA 46	HYDRAULIC SYSTEM AND HYDROSTATIC SYSTEM	60,0
Q8 ADBLUE	DEF TANK	19,0
AGIP ROTRA MP 80W 90	GEARMOTORS	1,3 each
Q8 ANTIFREEZE LONG LIFE COOLANT	COOLER, COOLANT TANK	Tot. 15 lt (7,5+ 7,5 H_2O)
AGIP GR SM	GREASE NIPPLES	As needed

It is possible to replace the recommended products with other brands provided they have the same characteristics.

5.6. BOLTING TIGHTENING CHECK

Periodically check the effectiveness of the tightening of the main parts of the machine:
- transmission wheels *(nuts and bolts class 12.9);*
  - guide rollers;
  - engine fixing supports;
  - engine vibration dampers.

The strength class of the nuts and bolts not indicated is **8.8**

To facilitate the fixing operations, the values of the tightening torques are reported according to the size and the class of resistance to which they belong *(values expressed in daNm = Kgm).*

METRIC THREADING		TIGHTENING TORQUE CLASS	
		8.8	**12.9**
M6	DaNm	1 – 1.2	
M8		2.3 – 2.5	
M10		4.8 – 5.2	8.5
M12		8 – 9	
M20 x 1.5		42 -44	

5.7. FILLING

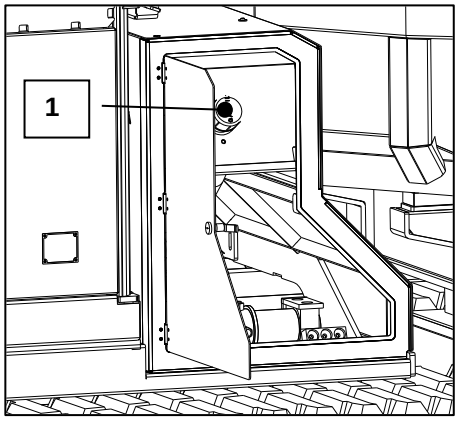
FUEL

The diesel fuel filler cap ***ref. 1*** is on the left side of the machine, protected by a door and marked with an adhesive plate. The level gauge is located on the control panel.

Avoid emptying the tank completely because the air introduced into the system would lead to failure of the diesel engine to start once the refuelling has been carried out if the circuit is not purged in advance.

Use a funnel with an extra thin metal mesh to fill the tank with fuel to prevent solid impurities in the fuel from causing problems to the injection system.

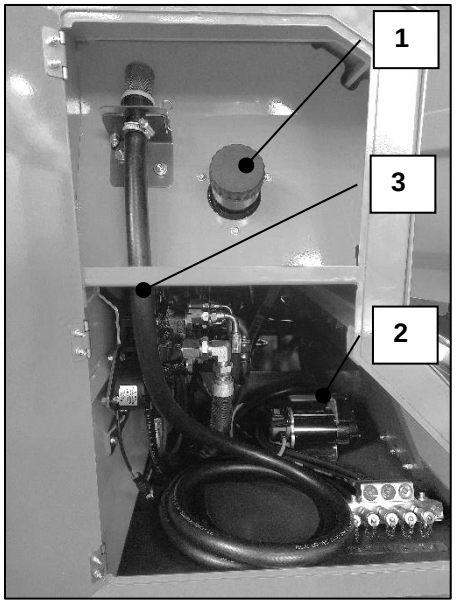
For refuelling it is advisable to fill the tank up to ¾ of the maximum overflow level in order to leave a space (approximately ¼) for expansion of the fuel inside it.

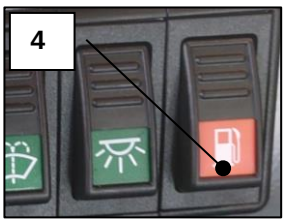


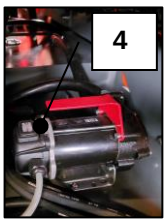
ATTENTION! : DIESEL ENGINE REFUELLED WITH DIESEL AND DEF (*AdBlue*)
Fuel tank capacity: **125 lt**.
Autonomy: **approximately 8 hours**

A fuel refueling pump (***Ref. 2***) is installed on the vehicle and is located near the fuel tank filler cap (***Ref. 1***).

The pump, to be used for refueling the machine from cans or tanks, is equipped with a hose with a mesh filter (***Ref. 3***) and can be activated either from the driving position using the appropriate switch on the right control panel or via the switch on the pump itself (***Ref. 4***).







DIESEL EXHAUST FLUID (DEF – AdBlue)

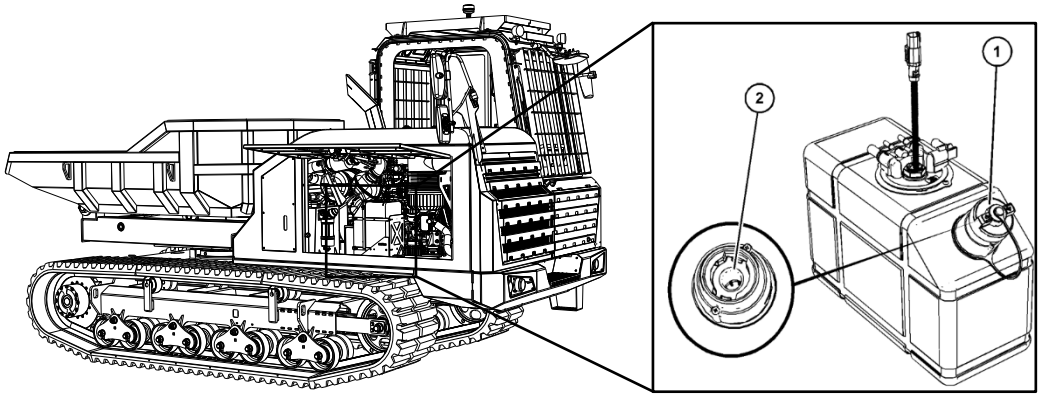
Ensure that the correct specification Diesel Exhaust Fluid (DEF) is used. Ensure the cleanliness of the
DEF.

Care should be taken when dispensing DEF. Spills should be cleaned immediately. All surfaces should be wiped clean and rinsed with water.

DEF that has been spilt will crystallize when the water within the liquid evaporates. Spilt DEF will attack paint and metal. If DEF is spilt, wash the area with water.

DEF that has been spilt will crystallize when the water within the liquid evaporates. Spilt DEF will attack paint and metal. If DEF is spilt, wash the area with water.

Ensure that the DEF tank is full before starting work.



Before filling the DEF tank, ensure that the DEF lines have been purged. Purging of the DEF lines will take place, after the engine has stopped. Only after the DEF lines have purged, should the DEF tank be filled.

Ensure that the DEF cap (***ref. 1***) and the surrounding area are clean and free from dirt. Ensure that all equipment use in filling the tank is clean and free from dirt.

Remove the DEF cap from the tank.

Fill the tank with the required amount of DEF. Ensure that dirt is not introduced into the tank during filling. Do not over fill the tank. The DEF will require room for expansion.

Note: Always fill the DEF tank on level ground. Cold weather can affect DEF.

The opening on the DEF tank (***ref. 2***) is a special diameter. Ensure that the correct nozzle is used when filling the DEF tank.

Note: At key on the DEF level gauge will show the last known DEF level and will transition to the new DEF level value.

Install the DEF cap. Check visually the DEF tank for leakage.

DEF tank capacity: **19 lt**.

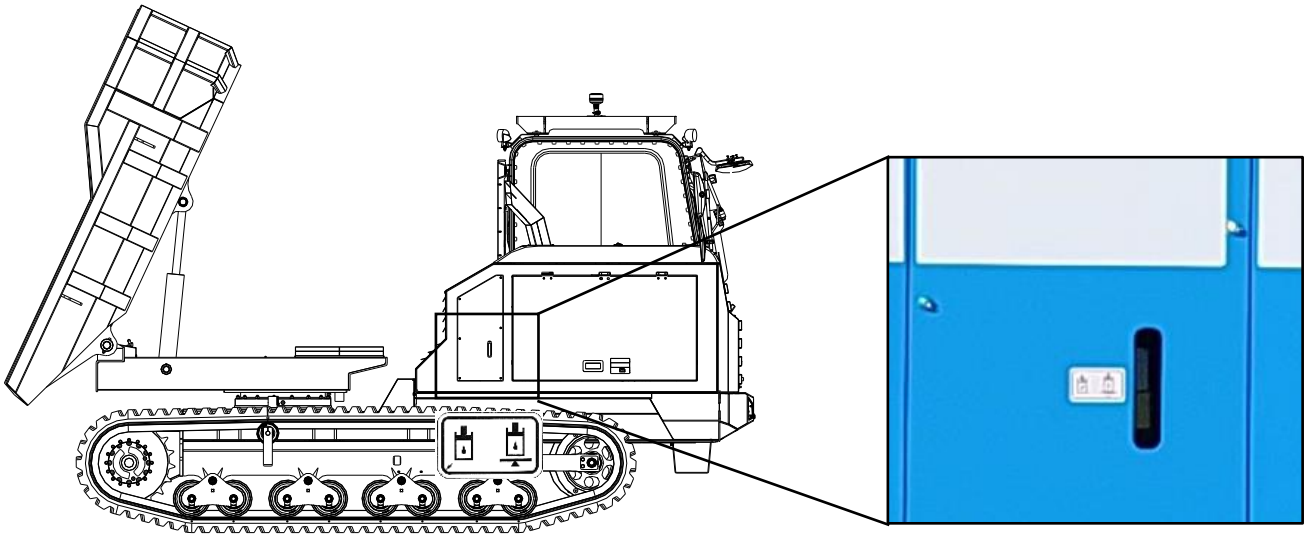
HYDRAULIC OIL

Complete change **60 lt.** for the type, follow the specific lubricant table.
Replace the oil every **1000 HOURS** or once a year.

For filling or any top-up, check that the oil is between the min. and the max. of the index positioned on the tank side and visible from the outside. The check must be carried out with the bucket raised (cylinder extended) and the machine on a level surface.

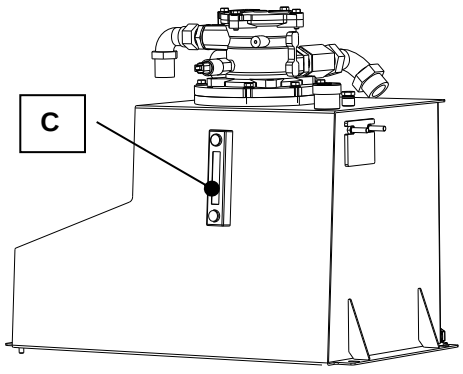
Always contain the level between the minimum and the maximum

Do not overfill as the tank acts as a container for the expansion of the oil itself when using the machine.



The oil level must be checked with the vehicle on flat ground and the cylinder rod extended all the way. In these conditions, the oil must not fall below the minimum level.
- The engine must be off.
- Oil must be at the operating temperature (approximately *60º C*).
- For top-ups, unscrew the filler cap and use a funnel to pour oil very slowly.

The external level indicator ***"C"*** is located on the external wall of the oil tank.



For capacity and filling, refer to the specific "LUBRICANTS CHART" chapter on page 48.

5.8. CHECKS AND CONTROLS: DAILY CHECKS

WALK-AROUND INSPECTION

Check the dumper for visible damage, loose nuts and screws, and leaks.

Check and remove the dirt accumulated around hot components such as engine, exhaust manifold, and muffler.

Check and remove the accumulated residues of leaves, straw, pine needles, twigs, bark, and other flammable materials.

Check the safety instructions on the machine. They must be complete and legible.

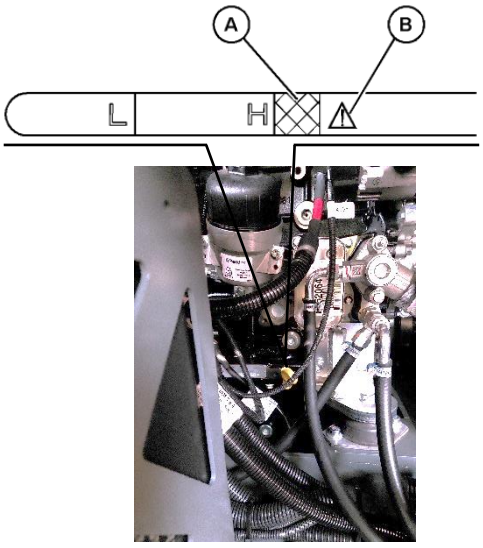
CHECKING THE ENGINE OIL LEVEL

If the oil level is too high or too low, the engine may be damaged during operation.

Park the machine on the firm and level ground and stop the engine.

Pull the dipstick out of the engine and wipe the engine oil off.

Check the engine oil level 5 minutes after the engine has stopped



Fully insert the dipstick into the dipstick port.

Pull the dipstick out of the engine again and check the engine oil level.

L) Minimum level
H) Maximum level
A) Crosshatched area
B) Warning symbol

Maintain the oil level between the mark ***L*** and the mark ***H*** on the engine oil level gauge (dipstick).
Do not fill the crankcase above the ***H***.

The oil level checked that falls in the crosshatched (***Ref A***) area between the ***H*** and below the warning triangle (***Ref. B***) is safe for engine operation.

Operating your engine when the oil level is the in-warning triangle area (***Ref. B***) above crosshatched section (***Ref. A***) could cause your crankshaft to dip into the oil. The air bubbles created from the crankshaft dipping into the oil reduces the oils lubricating characteristics and could result in the loss of power.

Remove the oil filler cap and add oil, if necessary.

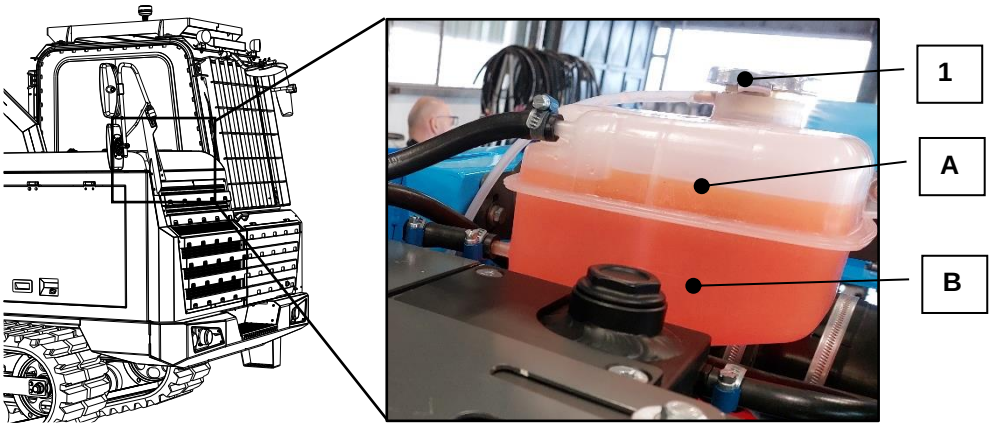
Clean the oil filler cap. Install the oil filler cap.

CHECKING THE COOLANT LEVEL

Check the coolant level in the reserve tank after the engine has cooled down. If the cap is still hot, use a protective glove or rags soaked in cold water.

Park the machine on the firm and level ground and stop the engine.

Check that the coolant level is between **FULL *(A)*** and **LOW *(B)***.



Replenish the coolant if necessary.

To top up the coolant, use the filler cap ***Ref. 1*** on the reservoir.

*Do not replenish the coolant exceeding **FULL**.*

Do not mix the coolant with dirty or salt water.

In the case that the coolant level decreases soon after replenishing, there is a possibility of cooling system leakage. Repair the cooling system before starting the engine.

Coolant quantity:	Cooler	**15 lt** (7,5 + 7,5 H_20)
	Reservoir	**1,5 lt** (0,75 + 0,75 H_20)

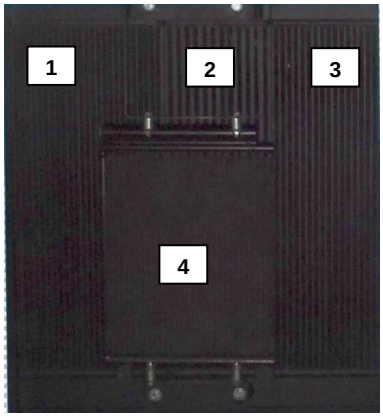
Restoring the radiator coolant level should only be done in the event of a broken pipe.

CLEANING THE RADIATOR

Wear an eye protector when cleaning the radiator and oil cooler with compressed air.

Park the machine on the firm and level ground and stop the engine.

Check if the fins and ribs of the radiator and oil cooler are clogged.



1) Radiator
2) Intercooler radiator
3) Oil cooler
4) Air conditioning radiator

Remove the dirt with compressed air if necessary.

Pressure of compressed air must be under 205 kPa (2.1 kgf/cm2, 30 psi).

Check the radiator and oil cooler for damage and replace them if necessary.

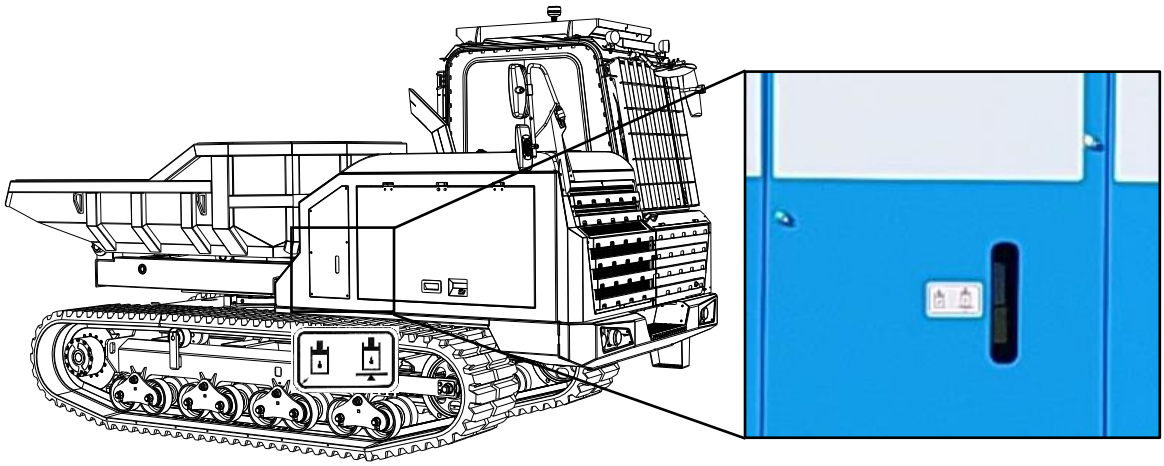
Check the rubber hoses and replace them if necessary.

Check the bolts that fix the hose clamps for any looseness and tighten them if necessary.

HYDRAULIC OIL LEVEL

Park the machine on the firm and level ground.

Check the hydraulic oil level with the level gauge while the temperature of the hydraulic oil is between 10°C to 30°C (50°F to 86°F).



Clean the surface of the hydraulic oil tank around the oil filler port before replenishing the hydraulic oil to avoid dust contamination.
Do not use or mix different oil.

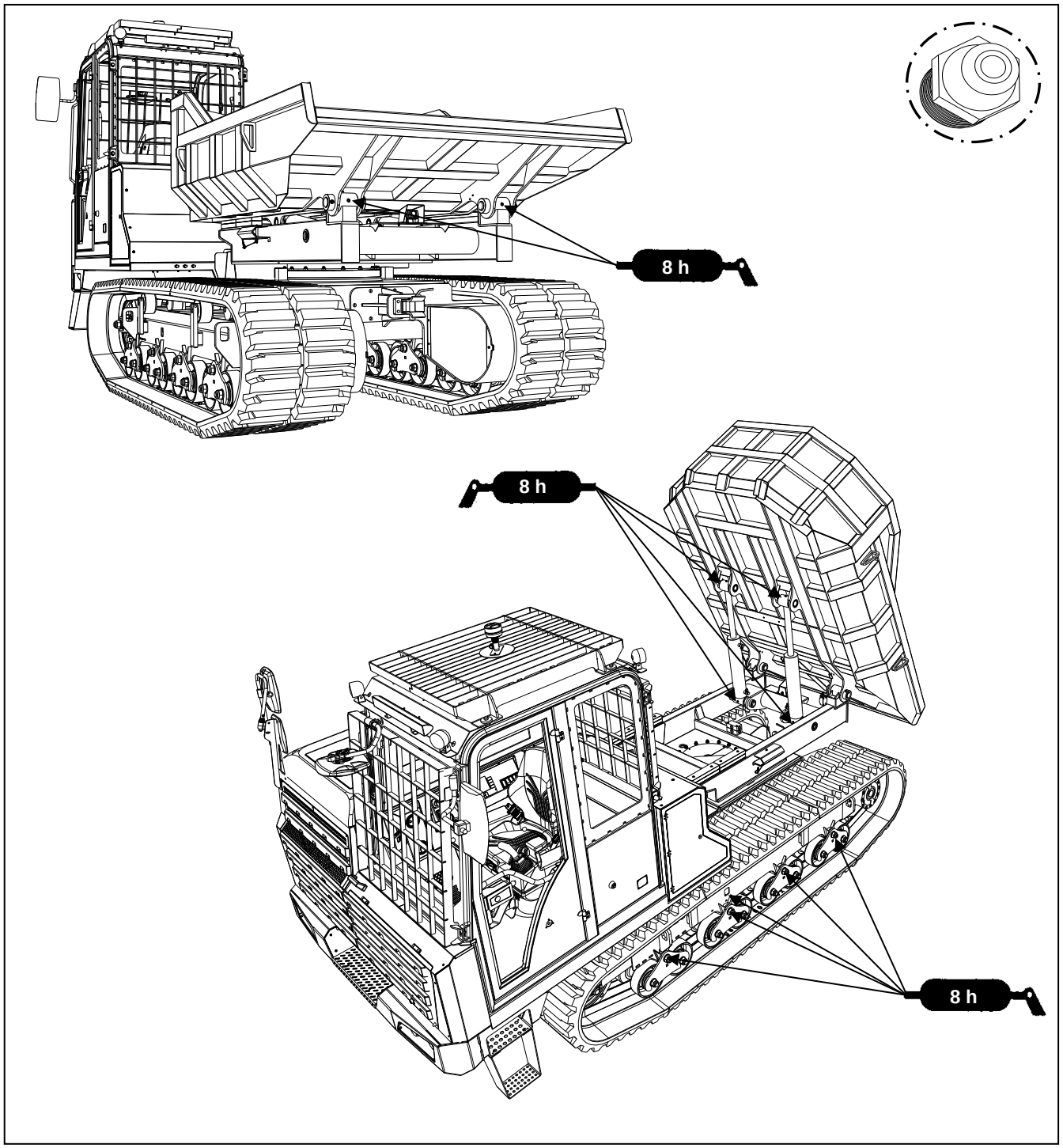
GREASING THE LUBRICATION POINTS

Periodically grease the points indicated. The lubrication and lubricant intervals to be used are indicated in the lubricant table below.

It is advisable to keep all the grease nipples clean and efficient and to replace them in case of inefficiency or damage.

Precise control and constant greasing allow the machine to operate in perfect efficiency and safety.

Also protect those parts exposed to weathering with grease and those that need adequate protection to prevent oxidation.



CHECKING THE FUEL AND DEF (ADBLUE) LEVEL

Keep fire and flammable items away from the working area.

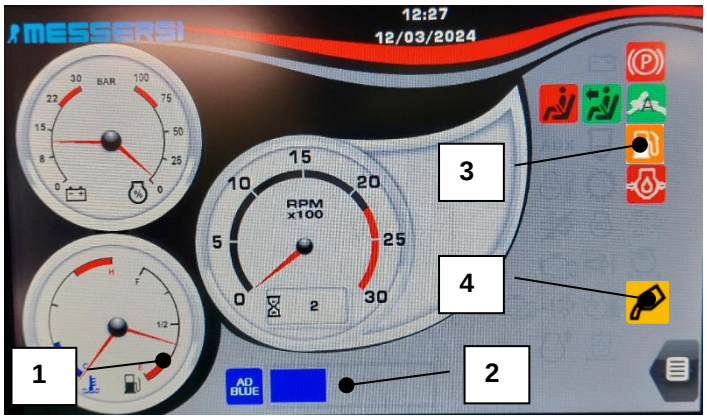
If the fuel or AdBlue is empty, do not start the engine to avoid mixing the air into the fuel system.
Fully replenish the fuel into the fuel tank before parking overnight to prevent accumulation of condensation in the fuel tank.

Park the machine on the firm and level ground and stop the engine.

Turn the starter switch to ***1*** (panel start-up).

Check the fuel level and AdBlue level.

1) Fuel gauge
2) AdBlue gauge
3) Fuel reserve
4) AdBlue reserve



Replenish the fuel and the AdBlue if necessary.

Immediately replenish fuel when lights *(**Ref.3**)* and *(**Ref.4**)* turn on.

CHECKING THE ELECTRICAL EQUIPMENT

Check the function of the work light.

Check the function of the beacon.

Check the tightness and condition of all accessible electrical wires and connectors.

Repair or replace damaged parts.

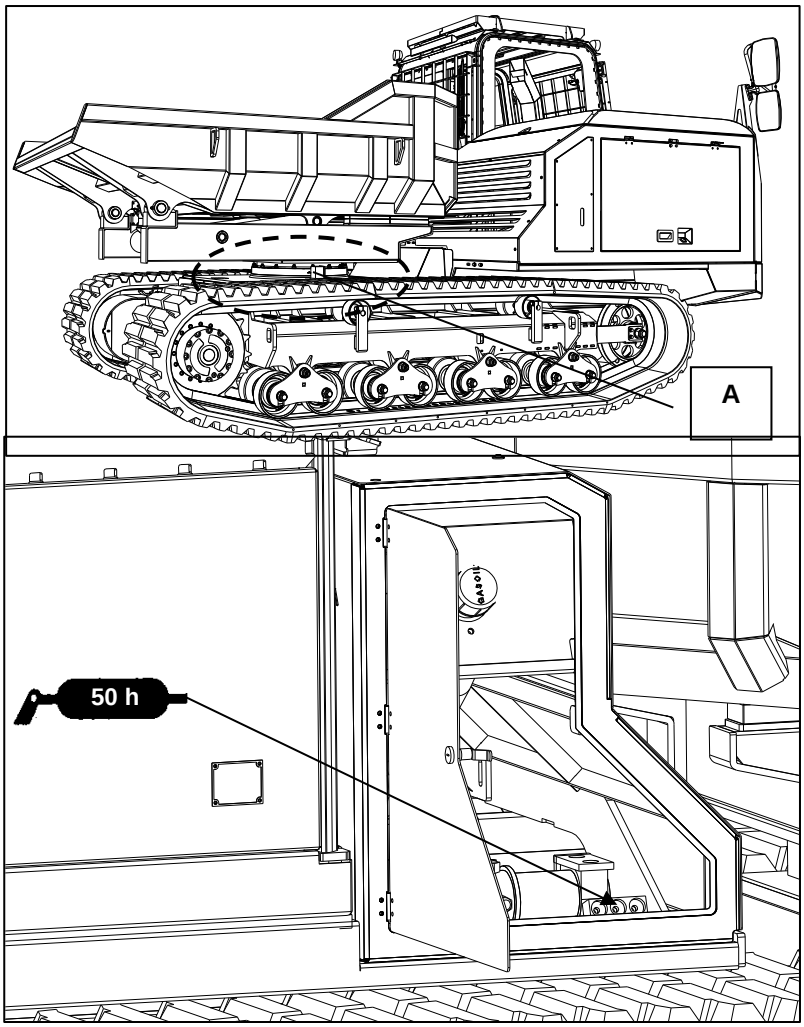
Check the rust and dirt of the fuses and clean if necessary.

5.9. CHECKS AND CONTROLS: EVERY 50 HOURS OR 1 MONTH

GREASING THE SWIVEL GEAR

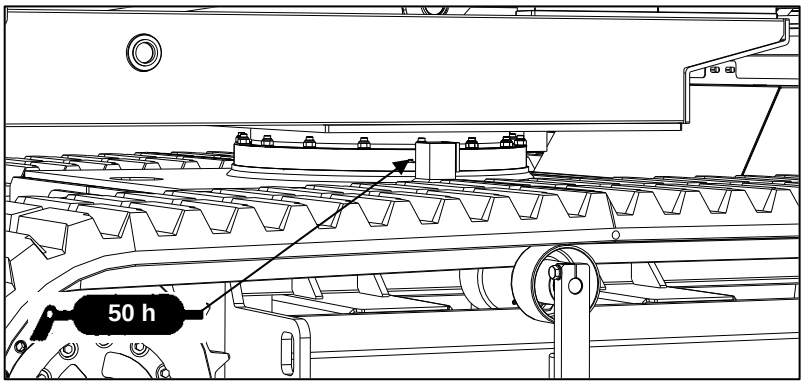
The swivel gear **"A"** for rotation of the loading bucket of the **TC550d** must be periodically greased (*every 50 h*) to maintain optimal conditions of use.

The dumper is equipped with 3 grease nipples to lubricate the right side of the swivel gear, the left side and the bearings respectively.



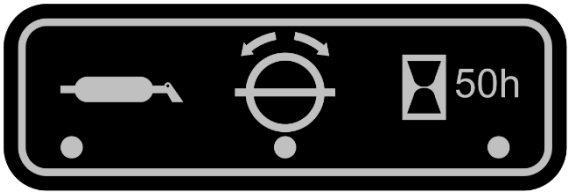
The left side and right side greasing points are located inside the side compartment on the left side of the machine and they are easily accessible.

The lubrication point for the swivel gear bearings is located on the side of the swivel gear and it is easily accessible.



Proceed with abundant greasing of the three points using the lever compressor supplied and finally completely rotate the skip several times on both sides in order to distribute the grease evenly over the entire surface of the swivel gear.

Repeat the greasing procedure of the swivel gear at **50-hour** machine work intervals.

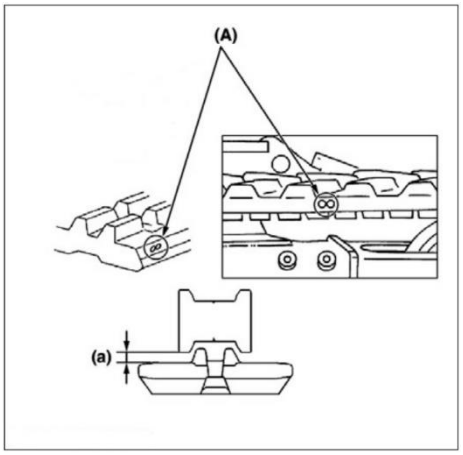


CHECKING AND ADJUSTING THE TRACK TENSION

The device is used to restore correct tension of the track that can loosen during use.
The track, working loose, tends to jump out from the teeth of the drive wheel with its release from the drive seat or in any case to work in a precarious way damaging and wearing the seat itself.
This is a condition that must occur and to restore the correct tension of the tracks please proceed as follows:

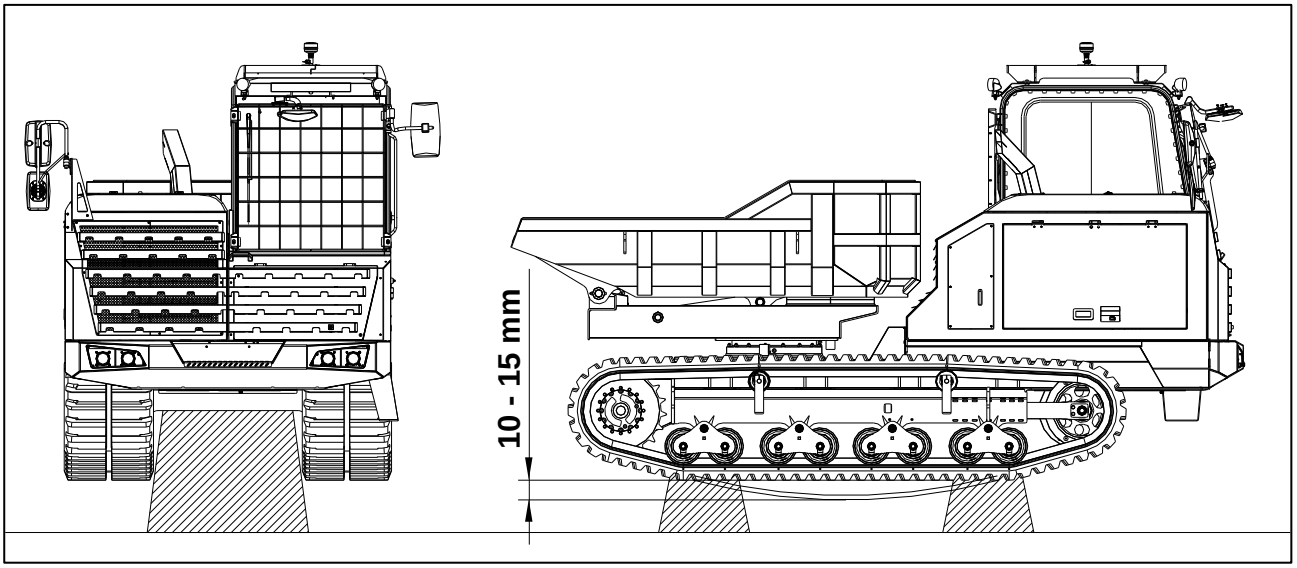
Move to a flat area with compact ground, ideally on asphalt or paving. Lift the machine and place it on blocks or supports of adequate capacity so that the tracks remain at a distance of approximately**100 mm** from the ground.

Rotate the track to set the match mark right over the carrier roller.



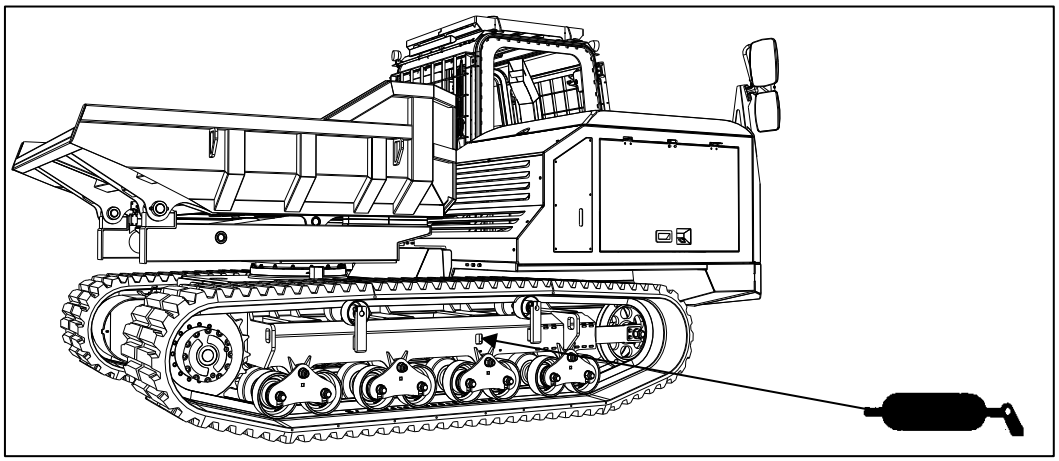
A) Match mark
a) Tension dimension

Measure the camber in the centre of the track with respect to the horizontal line; the value read must not exceed **10 - 15 mm**.



If the distance is greater, proceed as follows:

- take the greasing pump supplied with the machine;
- insert the end of the pump tube into the dedicated grease nipple as shown in the figure;
- pump grease inside the track tensioner device until the distance of 10 -15 mm as above is obtained;
- repeat the operation on the other side.



Before proceeding, it is advisable to inspect the track and the various parts of the transmission, removing any dirt and debris that may have deposited between the track and the drive wheel, idler wheel and support rollers as they could alter the tension setting.

At this point the correct track tension initially set with the new tracks will be restored.
Allow the track to idle for a few minutes to settle. With the track stopped, check that the track is correctly tensioned after which lift the machine and place it on the ground, ready for use.

Clean all the moving mechanical parts of the machine daily.

Track replacement

To replace one or both tracks, proceed as follows:

- lift the machine in the manner previously described when adjusting the track tension;
- unscrew the greasing valve until the grease comes out, taking care not to disperse it in the environment;
- at this point remove the track and for the replacement repeat the operations previously described in reverse order and precisely insert the track on the track tensioner wheel taking care to check the exact position of the guide rollers; grease until the correct tension is obtained; idle the track to settle.

Use of the machine

In order to safeguard the integrity and functionality of the track, please follow the recommendations specified below:

- Avoid sharp turns and sudden changes of direction while driving on the road, especially on rough and hard ground, full of sharp and cutting unevenness, with a high degree of friction**. DO NOT COUNTER STEER**; to turn left and right, both during travel and when stationary, control only one track.
- Do not allow the tracks, while driving, to come into contact with protrusions and sharp and pointed parts.
- Avoid contact of the tracks with oils, solvents, fuel or other corrosive materials; if necessary, immediately clean and wash them.
- Avoid prolonged use of the machine in marine areas or in a saline environment, as this condition favours detachment of the metal core from the rubber.
- For the basic characteristics of the rubber with which the track was built, it is recommended to use it at temperatures of between **–25°C and +55°C**.
- Avoid leaving the tracks exposed to weathering for prolonged periods: abrupt climatic variations favour their premature ageing.

- Any wear of the transmission wheels can be the cause of abrasions or leaking of the metal core of the tracks; please promptly replace them.

Problems and operating anomalies

BREAKING OF THE STEEL CORDS OF THE TRACK
- Excessive track tension combined with use between stones and loose materials that accumulate between the track and the undercarriage.
- Exit of the track from the guides on the wheels
- Strong friction in the event of subsequent and rapid changes of direction.

WEAR OR BREAKING OF THE METAL CORES
- Excessive track tension
- Improper contact between toothed wheel and track (worn toothed wheel, interposition of debris between toothed wheel and track, etc.)
- Use on sandy soil

DETACHMENT OF METAL CORES FROM THE RUBBER
- Excessive abrasion of the internal side parts of the track with the guide rollers (excessive and sudden steering and counter steering).
- Harpooning of the toothed wheel, worn, during rotation.

ATTENTION !!!
The anomalies listed above require immediate replacement of the damaged track.

ABRASIONS OR LACERATIONS DUE TO FATIGUE OR EXTERNAL FACTORS
- Generally these problems are caused both by the way in which the machine is used and by the nature of the place where it is operating. These alterations of the track can be reduced but not eliminated with careful and responsible use of the machine and do not involve the immediate replacement of the track, even if its use is near the end and it is time to replace it. **It is advisable to replace it even if the notching ("tread") is reduced to approximately 2 ÷ 5 mm.**
- The abrasions, lacerations and cuts on the external surface of the track (the one in contact with the ground) are due, in most cases, to contact with sharp stones or sharp materials (plates, glass, nails, splinters of bricks, etc.). that cause cuts and complete or partial removal of parts of the track. It is clear that from the point of view of the properties of the rubber that this is inevitable, even if it depends on the specific use and the service conditions.

N.B.: The integrity of the rubber track and its fairly rapid wear depend mainly on the use and on the mode of use of the machine.

WATER SEPARATOR CLEANING

Keep fire and flammable items away from the working area.

Do not work soon after the engine has stopped.
– Engine, fuel, and oil are extremely hot.

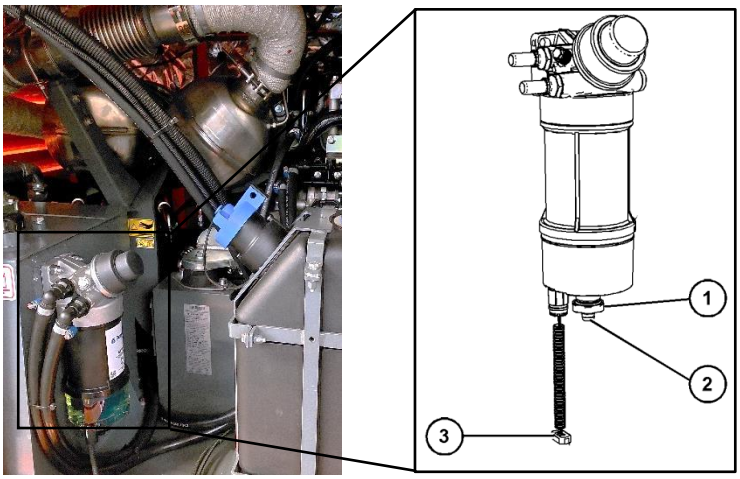
Do not reuse removed O-rings for assembly to avoid oil leakage.

Park the machine on the firm and level ground and stop the engine.

Place a suitable container under the water separator to catch any fluid that might spill. Clean up any spilled fluid.

Ensure that the outer body of the filter assembly is clean and free from dirt.

1) Drain valve
2) Drain
3) Sensor harness



Install a suitable tube onto drain (***Ref. 2***). Open the drain valve (***Ref. 1***). Rotate the drain valve fully counterclockwise. Two full turns are required.

Visually check that the fluid will drain. Allow the fluid to drain into the container.

When fluid free from water comes from the primary fuel filter, tighten the drain valve clockwise by hand only. Remove the tube and remove the container.

5.10. CHECKS AND CONTROLS: EVERY 500 HOURS OR 6 MONTHS

CHECKING THE BATTERY

In the case that the electrolyte level is below the lower-level line, do not use or charge the battery to avoid battery explosion.

Do not remove the vent caps while the engine is running.

Keep electrolyte away from your eyes, hands and clothing. Sulfuric acid in battery electrolyte is poisonous, and it can burn your skin and clothing or cause blindness. In case that you spill electrolyte on yourself, rinse with water and get medical aid immediately.

Do not use metal tools when cleaning battery terminals. It may cause short circuit.

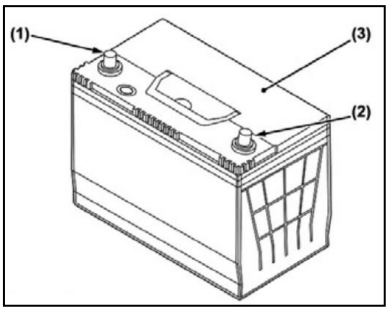
Keep a fire (welding sparks, grinding sparks, cigarettes) away from the battery. The battery produces oxygen and hydrogen gas which are flammable.

Disconnect the negative (-) terminal first when removing the battery cable.
Connect the positive (+) terminal first when connecting the battery cable.

Checking the battery terminal

Park the machine on the firm and level ground and stop the engine.

Check the condition of the battery terminal.



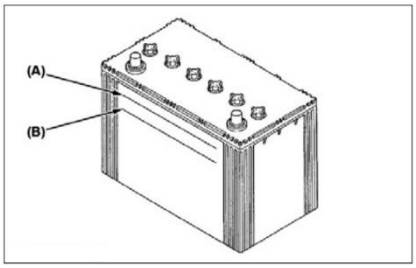
1) Positive (+) terminal
2) Negative (-) terminal
3) Battery

Clean the battery terminal and grease with petroleum jelly if necessary.

Checking the electrolyte level

Check that the electrolyte level is between the upper (***Ref. A***) and lower level (***Ref. B***) lines.

Replenish distilled water if necessary.



A) Upper level line
B) Lower level line

Do not replenish distilled water exceeding the upper-level line.

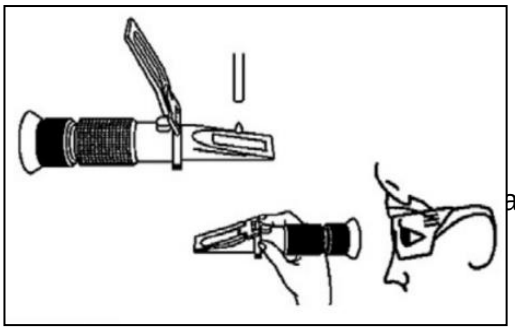
Checking the electrolyte density

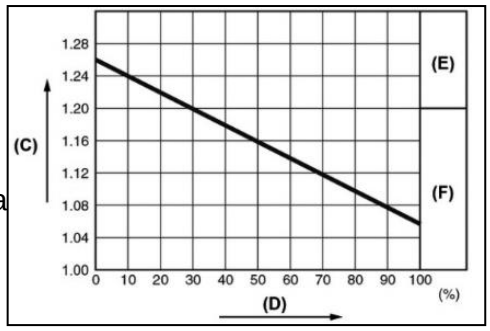
Wear protective gloves, work clothing and eye protector to protect your skin and eyes from sulfuric acid in battery electrolyte.

Remove the vent caps from the battery.

Measure the density of electrolyte with the refractometer and charge the battery if necessary.

C) Electrolyte density
D) Discharge
E) Normal
F) Charging is necessary





Service specification:

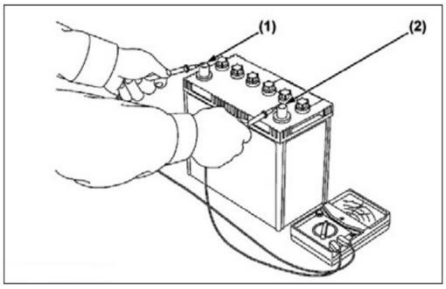
Normal	>1.20
Charging is necessary	< 1.20

Install the vent caps.

Checking the battery voltage

Check the battery voltage with a voltage tester.

1) Positive (+) terminal
2) Negative (-) terminal



Service specification:

Battery voltage	> 12 V

Check the electrolyte density in the case that the battery voltage is lower than the service specification.

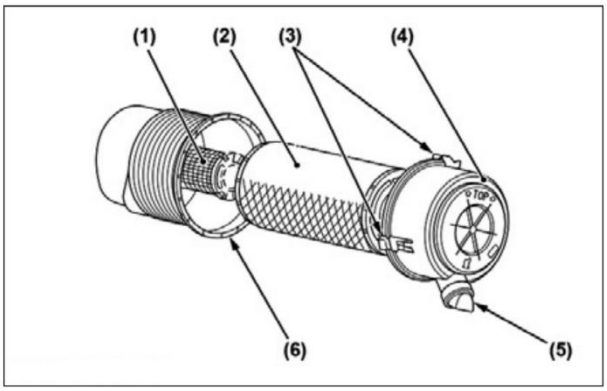
REPLACING THE AIR CLEANER ELEMENTS

In case of using the machine in extremely dusty conditions, check and clean or replace the air filter element more frequently.

Do not start the engine without installing the filter elements.

Park the machine on the firm and level ground and stop the engine.

Open the clips and remove the cover.



1) Inner element
2) Outer element
3) Clip
4) Cover
5) Dust valve
6) Air cleaner case

Remove the outer element from the air cleaner case.

Clean the air cleaner case and cover without removing the inner element.

Clean the dust valve.

Replace the inner element.

Install the new outer element and the cover.

REPLACING THE ENGINE OIL AND ENGINE OIL FILTER

Do not work soon after the engine has stopped.
– Engine, fuel, muffler, and oil are extremely hot.
– Pressure in the engine oil line is high.

When replacing the engine oil, replace the engine oil filter at the same time.

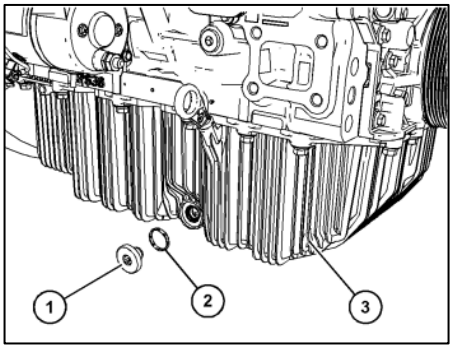
Park the machine on the firm and level ground and stop the engine.

Put a tray under the drain plug to receive the engine oil.

Remove the drain plug and drain all of the engine oil.

Remove the filler cap to drain the engine oil faster.

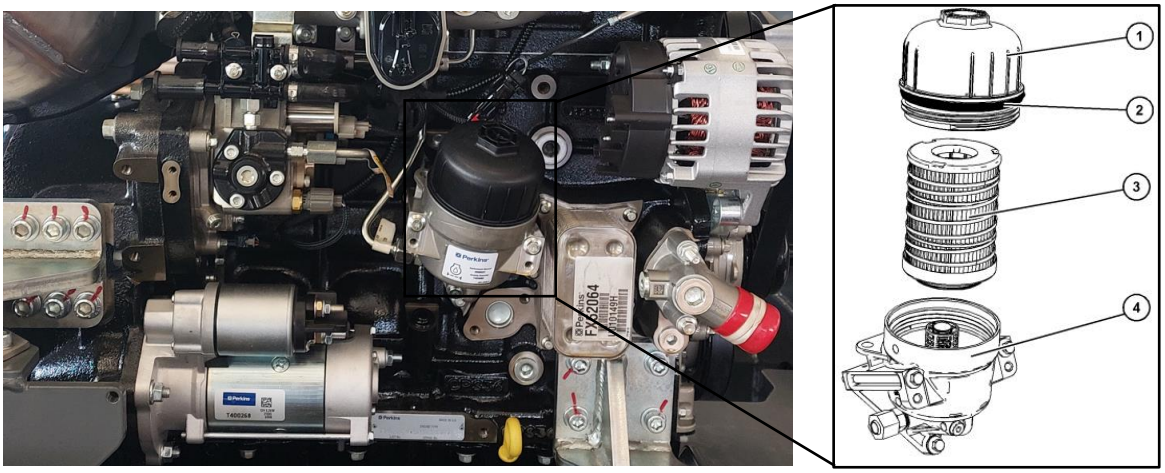
Install the drain plug with a new washer (tightening torque 24 Nm).



1) Drain plug
2) Plug seal
3) Oil pan

Put a tray under the oil filter.

1) Cap
2) O-ring
3) Filter element
4) Filter body



Remove cap (***Ref. 1***) from filter body (***Ref. 4***). The filter element (***Ref. 3***) will be attached to cap (***Ref. 1***). Remove filter element (***Ref. 3***) from cap (***Ref. 1***). Discard old filter element.

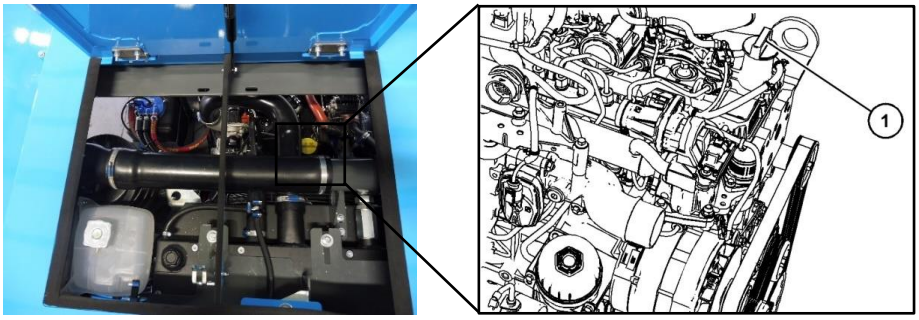
Remove O-ring seal (***Ref. 2***) from cap (***Ref. 1***). Discard O-ring seal.

Ensure that cap and filter body are clean and free from dirt or damage. Inspect new filter element for damage before installing.

Install new O-ring seal (***Ref. 2***) onto cap (***Ref. 1***). Install new filter element (***Ref. 3***) into cap (***Ref. 1***). Install new filter element (***Ref. 3***) and cap (***Ref. 1***) to filter body (***Ref. 4***).

Tighten cap (***Ref. 1***) to a torque of 24 N·m.

1) Filler cap



Fill the oil pan with the correct amount of new engine lubricating oil.

Allow the oil to drain down to the oil pan for a minimum of 30 minutes before starting the engine.

After installing the oil filler cap, start the engine and run the engine at low idle for 2 minutes. Perform this procedure to ensure that the lubrication system has oil and that the oil filter is filled. Inspect the oil filter for oil leaks.

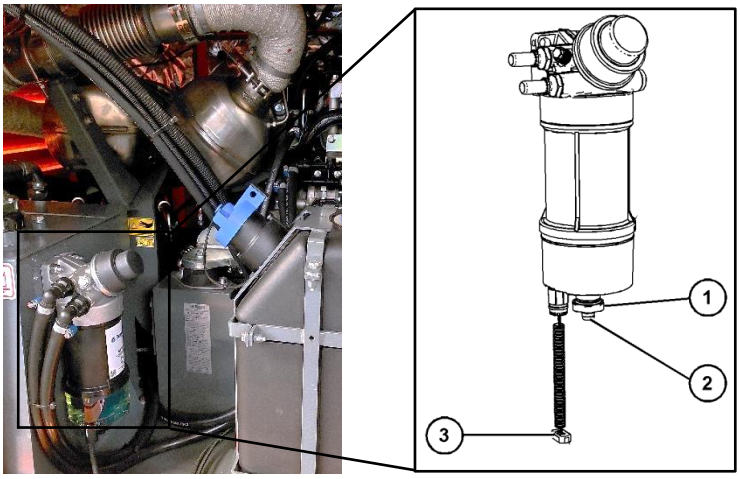
Stop the engine and allow the oil to drain back to the oil pan for a minimum of 30 minutes.

Remove the engine oil level gauge to check the oil level. Maintain the oil level between ***"L"*** and ***"H"*** marks on the engine oil level gauge. Do not fill the crankcase above the ***"H"*** mark.

REPLACING THE WATER SEPARATOR FILTER

Replace the water separator filter periodically to prevent wear of the supply pump or the injector, due to dirt in the fuel.

Place a suitable container under the water separator to catch any fuel that might spill. Clean up any spilled fuel. Clean the outside body of the filter assembly.



1) Drain valve
2) Drain
3) Sensor harness

Install a suitable tube onto drain (***Ref. 2***). Open the drain valve (***Ref. 1***). Rotate the drain valve fully counterclockwise. Two full turns are required.

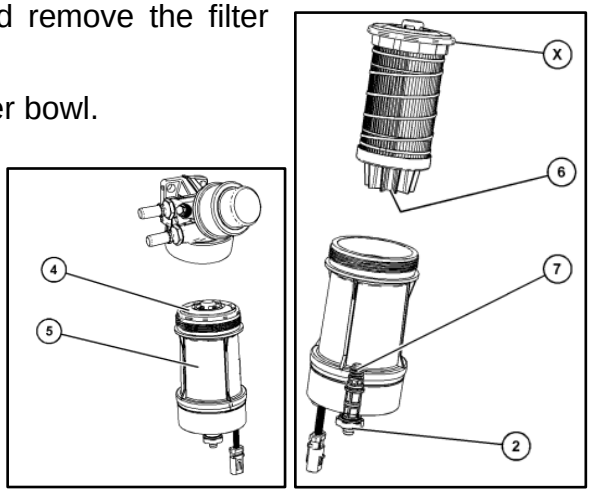
Visually check that the fluid will drain. Allow the fluid to drain into the container.

Remove the tube from the drain ***ref. 2***.

Remove the wiring harness from connection ***ref. 3***.

Rotate filter bowl ***Ref. 5*** counterclockwise and remove the filter bowl from assembly.

Remove the filter element ***Ref. 4***. Clean the filter bowl.



4) Filter element
5) Filter bowl
6) Filter element thread
7) Bowl Thread
X) Lip

After repositioning the self-venting drain up, locate the thread in the new filter element ***Ref. 6*** onto the thread ***Ref. 7***. Spin on the filter element and tighten the drain valve ***Ref. 2*** securely.

Lubricate the lip (***Ref. X***) with clean engine oil. Do NOT fill the bowl with fuel before the assembly is installed.

Note: Do not use a tool to install the filter assembly.

Align the filter bowl ***Ref. 5*** to the assembly. Rotate the filter bowl ***Ref. 5*** clockwise by hand. Rotate the filter bowl ***Ref. 5*** until there is no visible gap between the element and the filter bowl and the assembly.

Remove the container and dispose of the fuel in a safe place.

Install the wiring harness to connection ***ref. 3***.

REPLACING THE RETURN FILTER

The hydraulic devices and oil are extremely hot. Handle with care before preparation, measurement, and restoration.

The return filter for the hydraulic oil (***Ref. 1***) is located on top of the hydraulic oil tank.

Capacity: **300 lt/min**
Filtering degree: **10 micron**

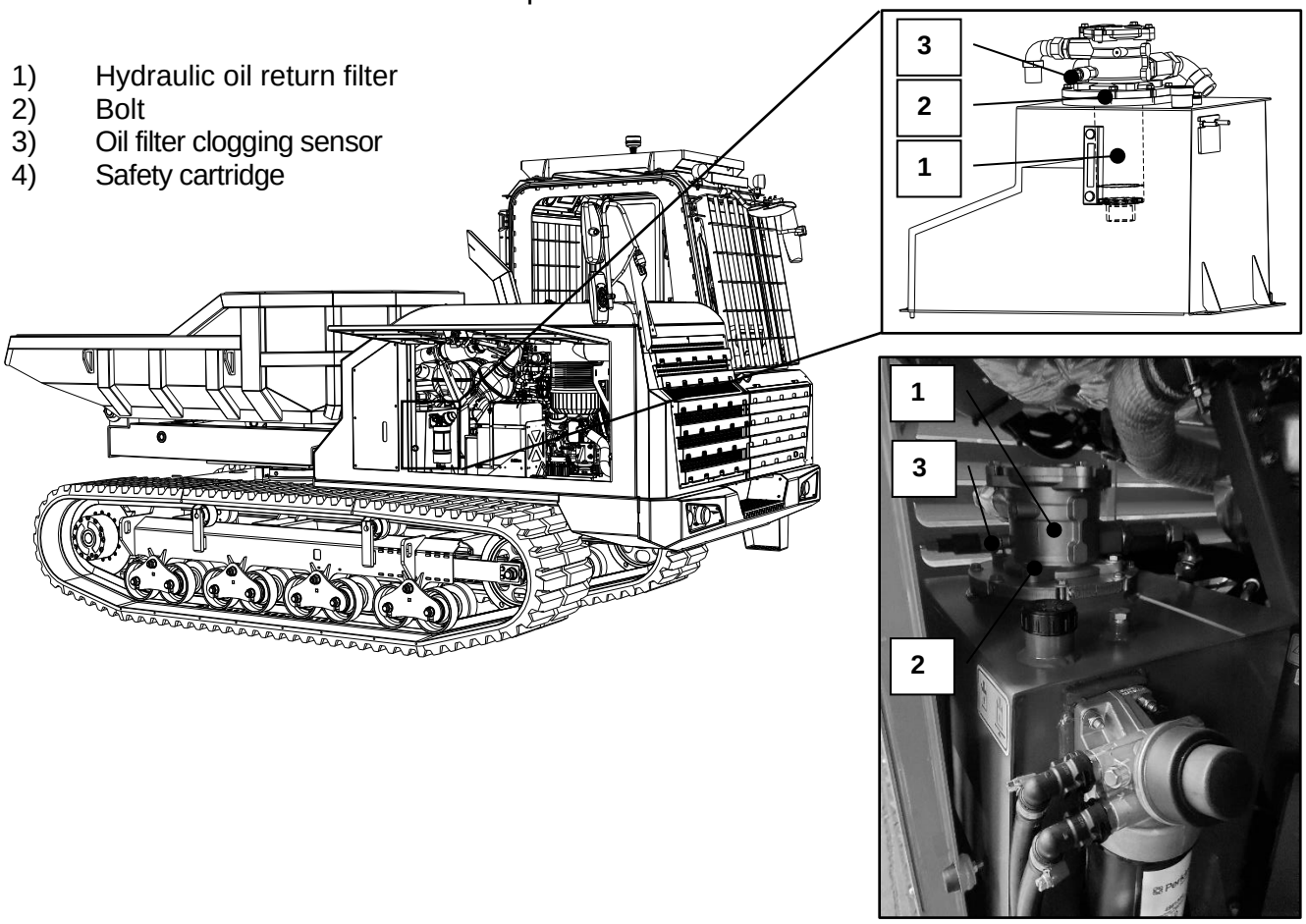
For correct maintenance of the machine, the drain filter must be replaced every **500 hours** of operation of the dumper.
The safety cartridge must be replaced every **1000 hours** of operation of the dumper.

Park the machine on the firm and level ground and stop the engine.

Release the residual pressure and remove the hydraulic oil tank filling cap.

Unscrew the bolts on the oil filter cap.

1) Hydraulic oil return filter
2) Bolt
3) Oil filter clogging sensor
4) Safety cartridge

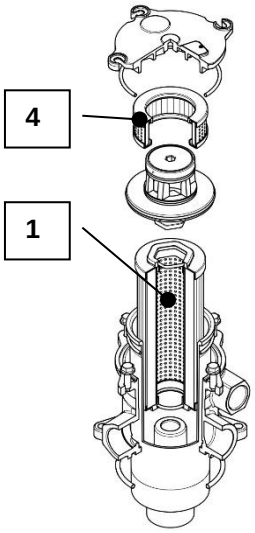


Install the new return filter.

Apply hydraulic oil to the O-ring and reassemble the filter cover.

Tighten the return filter cover bolts.

Check the hydraulic oil level and replenish if necessary.



GEARMOTOR OIL (CHECK AND REPLACE)

Each track is driven by a reducer coupled to a hydrostatic motor. For checking, filling and replacing the oil in the wheel reducers, follow the indications specified below:

Periodically check *(see maintenance table)* that there are no leaks and that with the machine stopped and reducers positioned as shown below, the oil reaches the expected level; top-up if necessary.

Topping up more than 10% of the total quantity can be an indication of reducer leaks.

Check the oil level after **500 hours** of operation **or at least once a year.** Oil must be replaced every **1000 hours** of operation of the dumper.

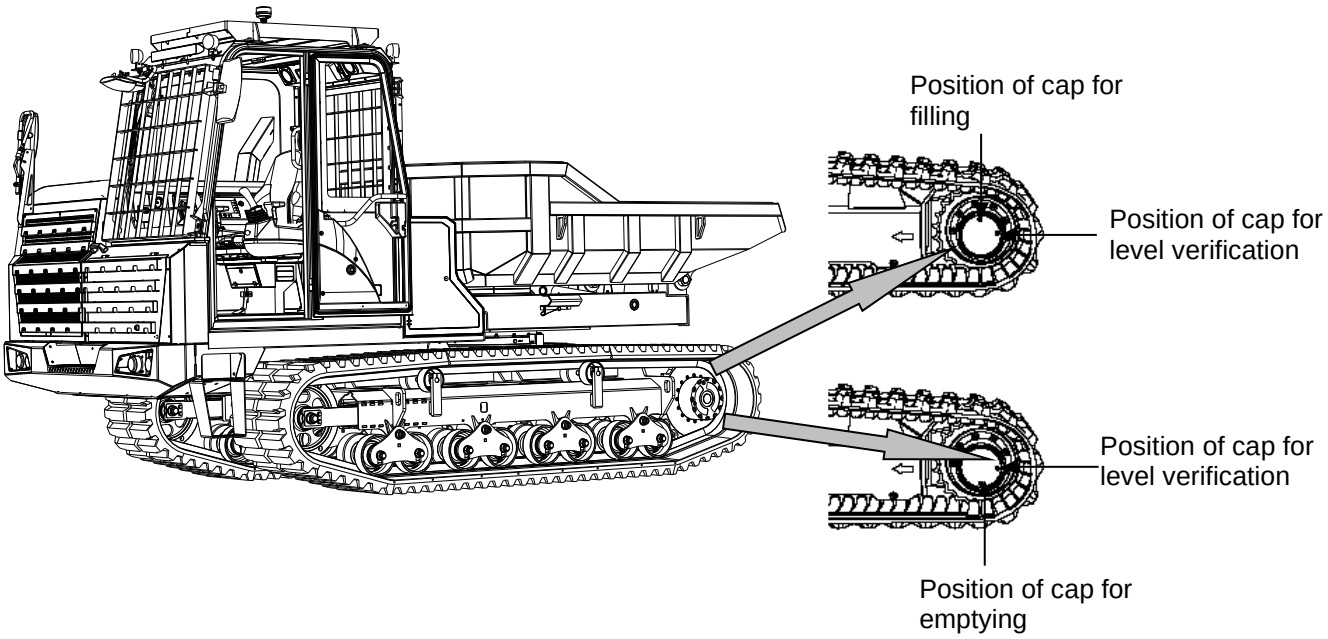
Capacity of each individual reducer: **1.3 lt**
Depending on the type, follow the appropriate lubricant table.

The reducer is emptied immediately after operation, while the oil is still hot, in order to prevent any impurities from being deposited. Pay particular attention when emptying as hot oil could cause serious burns; protect hands. Clean the cap with detergent while paying particular attention to cleanliness during the filling phase. Cleaning is an essential component for correct functioning of the machine and of the hydrostatic system in particular.

In the event that, from a check, there is a decrease in the oil level inside the reducer, in the absence of external leaks, it is necessary to service the internal seals of the reducer itself to be carried out at an Authorised Service Centre.

The vehicle must be level and horizontal and the engine OFF when verifying the level, topping up, refuelling and emptying. Insert an adequately sized container under drain plug to collect the oil.

Do not disperse used oil in the environment; disposal must always be performed by authorised companies.

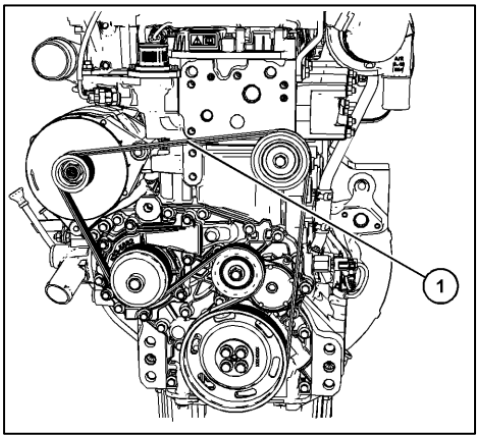


5.11. CHECKS AND CONTROLS: EVERY 1000 HOURS OR 1 YEAR

BELT, BELT TENSIONER REPLACING

Stop the engine, remove the key when checking, adjusting or replacing the fan belt.

To maximize the engine performance, inspect the belt (***ref. 1***) for wear and for cracking. Replace the belt if the belt is worn or damaged.



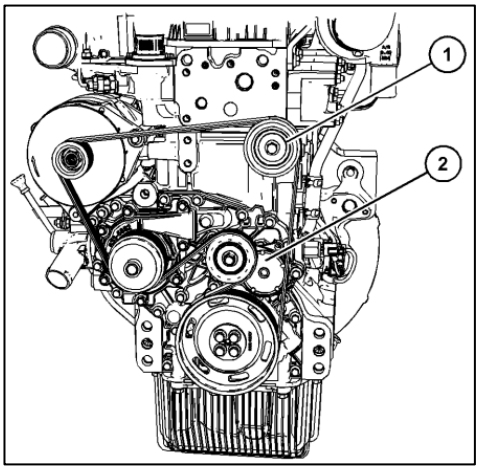
Inspect the belt for cracks, splits, glazing, grease, displacement of the cord and evidence of fluid contamination. The belt must be replaced if the following conditions are present.

The belt has a crack in more than one rib.

More than one section of the belt is displaced in one rib of a maximum length of 50.8 mm.

Remove the belt.

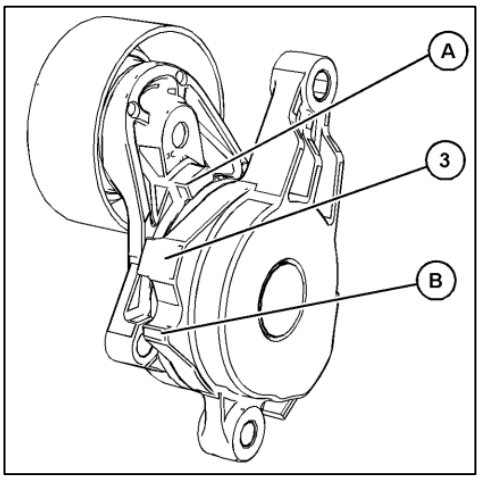
Ensure that the belt tensioner (***ref. 2***) is securely installed. Visually inspect the belt tensioner for damage. Check that the pulley on the tensioner rotates freely and that the bearing is not loose.



Ensure that the idler pulley is securely installed. Visually inspect the idler pulley for damage. Ensure that the idler pulley can rotate freely and that the bearing is not loose.

Ensure that the tensioner has full movement of travel from stop (***ref. A***) the other stop (***ref. B***). Using a constant force the tensioner should move smoothly between the tensioner stop and the tensioner body stop.

If necessary, replace damaged components.



1) Belt
2) Tensioner
3) Tensioner body stop
A) Tensioner stop
B) Tensioner stop

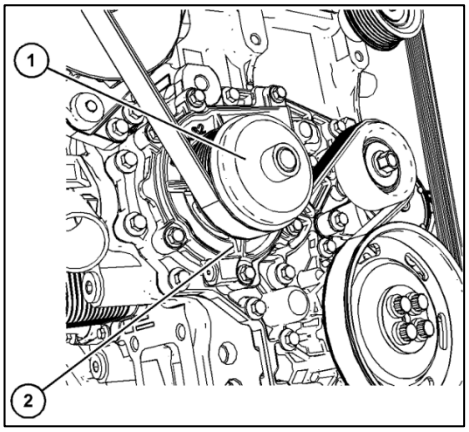
CHECKING THE WATER PUMP

A failed water pump may cause severe engine overheating problems that could result in the following conditions:

- Cracks in the cylinder head
- A piston seizure
- Other potential damage to the engine

Visually inspect the water pump for leaks between water pump pulley (***ref. 1***) and water pump body (***ref. 2***).

The water pump is not a serviceable item.



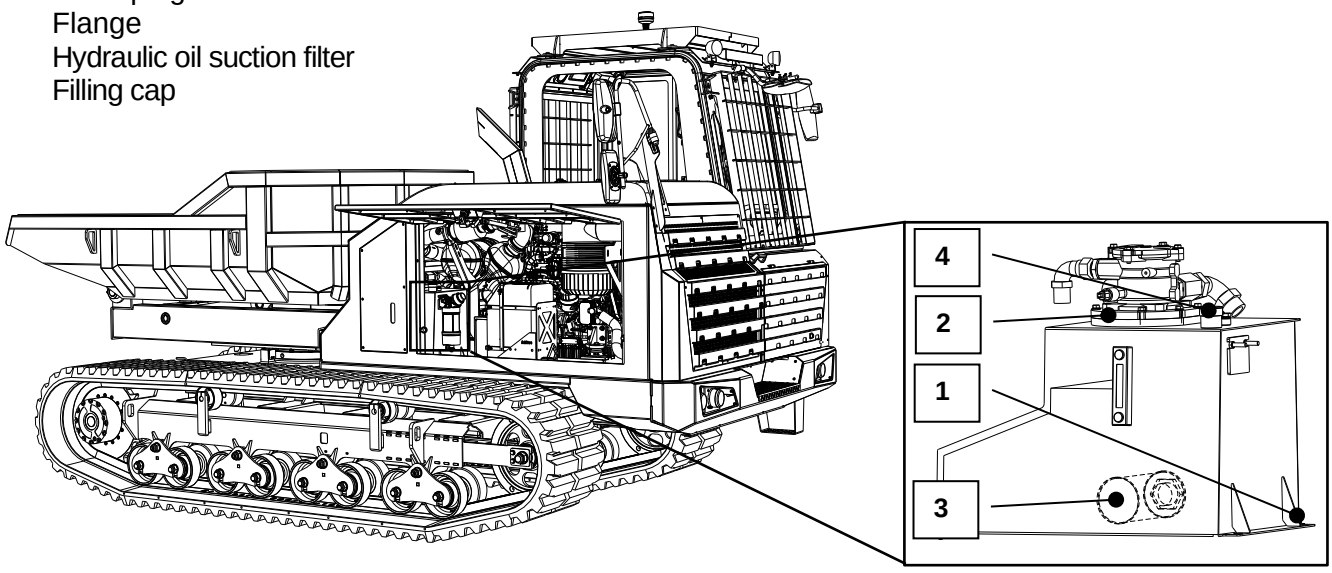
HYDRAULIC OIL SUCTION FILTER AND HYDRAULIC OIL TANK

The pump suction filter is positioned inside the hydraulic oil tank.

Capacity: **90 lt/min**
Filtering degree: **90 micron**

The filter must be replaced every time the hydraulic oil is replaced.
Completely empty the oil tank by means of the drain plug located on the rear of the same (***Ref. 1***), inserting a container of adequate capacity (*approximately 60 lt*). Unscrew the flange (***Ref. 2***)**,** lift it and replace the filter (***Ref. 3***) with another one with the same filtering characteristics.
Reassemble the flange taking care to position the seal correctly in the same place. The operation can be facilitated by using grease.
Fill the tank again with new oil of the same type indicated and recommended by the manufacturer using the cap (***Ref. 4***).

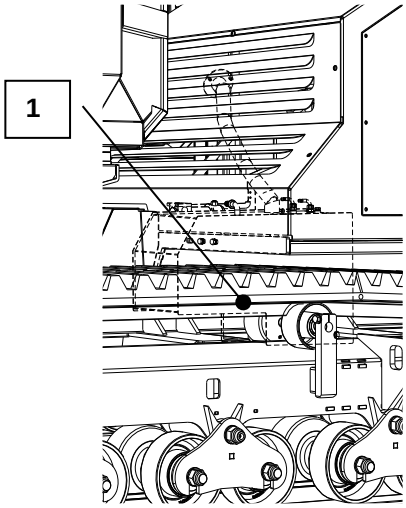
1) Drain plug
2) Flange
3) Hydraulic oil suction filter
4) Filling cap



When the hydraulic oil and the hydraulic oil suction filter are replaced, the hydraulic oil return filter (filter element + safety cartridge) must also be replaced.

FUEL TANK CLEANING

The fuel tank is located in the central part of the machine. The drain plug (***Ref. 1***) is located on the front wall of the tank.



Cleaning the diesel tank is a delicate operation that requires attention for safety reasons and to ensure the efficiency of the system.

Follow these instructions for thorough cleaning:

Place a suitable container under the diesel spill point and empty it completely.

Make sure the tank is completely empty or with a minimum amount of fuel.

Turn off and disconnect any appliances connected to the tank.

Make sure the area is well ventilated to prevent the accumulation of vapors.

Remove sediment from the bottom with a spatula or a manual vacuum cleaner, taking care not to damage the tank.

Prepare a solution of a specific detergent and hot water.

Pour the solution into the tank and leave it to act for the indicated time.

Use a brush or a suitable tool to remove dirt, algae or paraffin residues.

Rinse the tank thoroughly with clean water to remove any detergent residue.

Make sure the rinse water is collected and disposed of in accordance with environmental regulations.

Use an air compressor to dry the inside of the tank or leave the cap open to allow complete evaporation.

Wipe the internal surfaces with a clean cloth to remove any traces of moisture.

Replace the drain cap and proceed with filling.

CHECKING THE ALTERNATOR

Inspect the alternator (***Ref. 1***) for loose connections and correct battery charging. Check the ammeter on the display during engine operation in order to ensure correct battery performance and/or correct performance of the electrical system.

Make repairs, as required.

Check the alternator and the battery charger for correct operation.

All batteries should be kept charged.

The batteries should be kept warm because temperature affects the cranking power. If the battery is too cold, the battery will not crank the engine.

When the engine is not run for long periods of time or if the engine is run for short periods, the batteries may not fully charge. A battery with a low charge will freeze more easily than a battery with a full charge.

CHECKING THE STARTER MOTOR

If the starting motor (***Ref. 1***) fails, the engine may not start in an emergency situation.

Check the starting motor for correct operation.

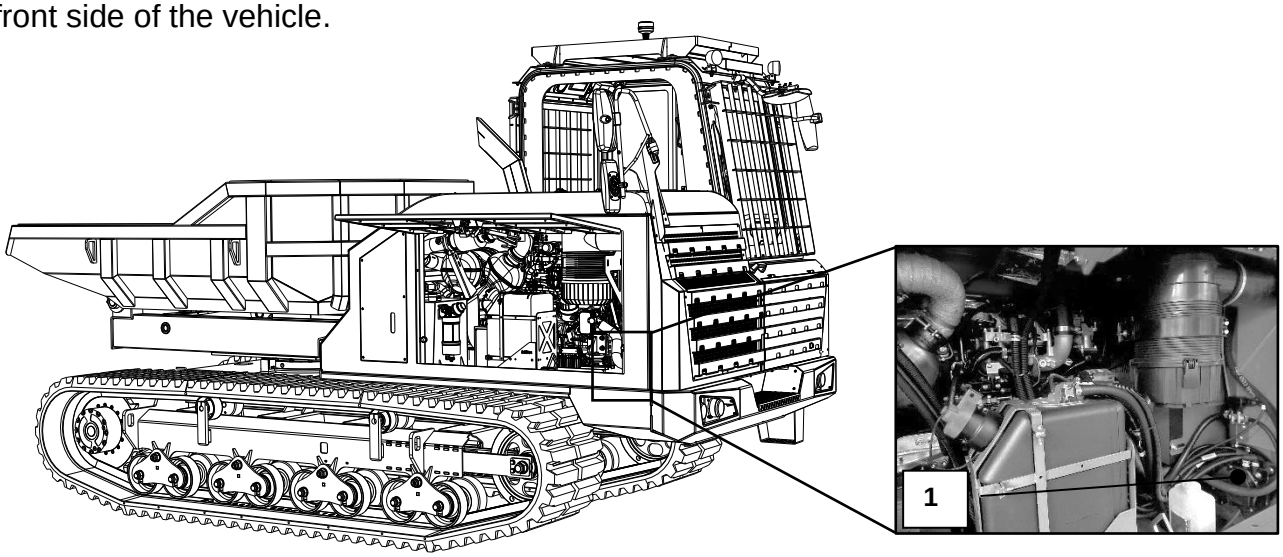
Check the electrical connections and clean the electrical connections.

REPLACING THE FAN BELT

To replace the fan belt, contact an AUTHORIZED WORKSHOP.

REPLACING THE DIESEL EXHAUST FLUID (DEF) FILTER

The Diesel Exhaust Fluid (DEF, Diesel Exhaust Fluid ***ref.1***) pump can be located on the front side of the vehicle.



Ensure that the area around the DEF filter is clean and free from dirt. Use a 27mm Bi-Hex socket to remove filter cap (***ref. 4***).

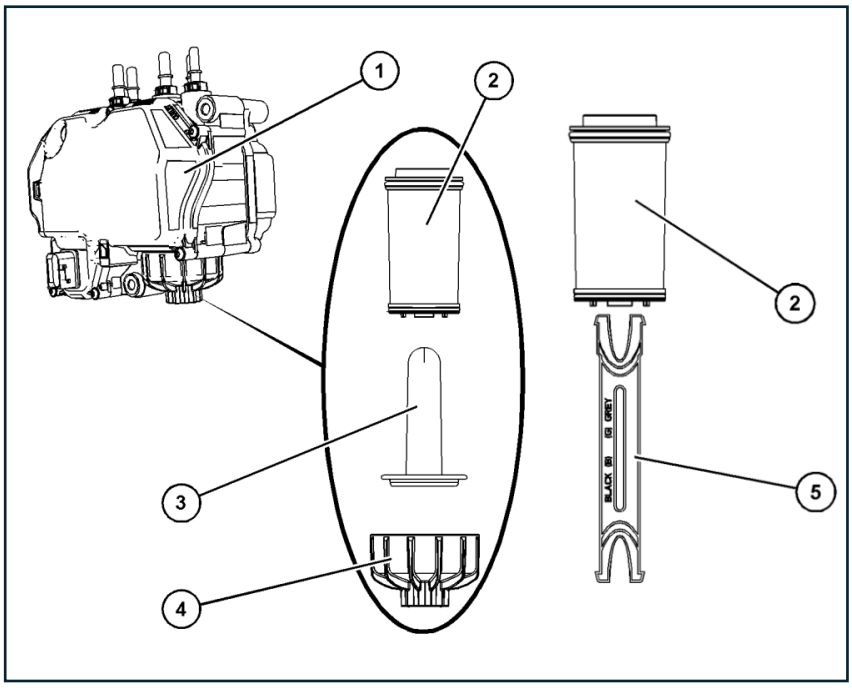
Remove the expansion device ***ref. 3***.

Use supplied tool ***ref. 5***, to remove filter element ***ref. 2*** from DEF pump assembly (***Ref. 1***).

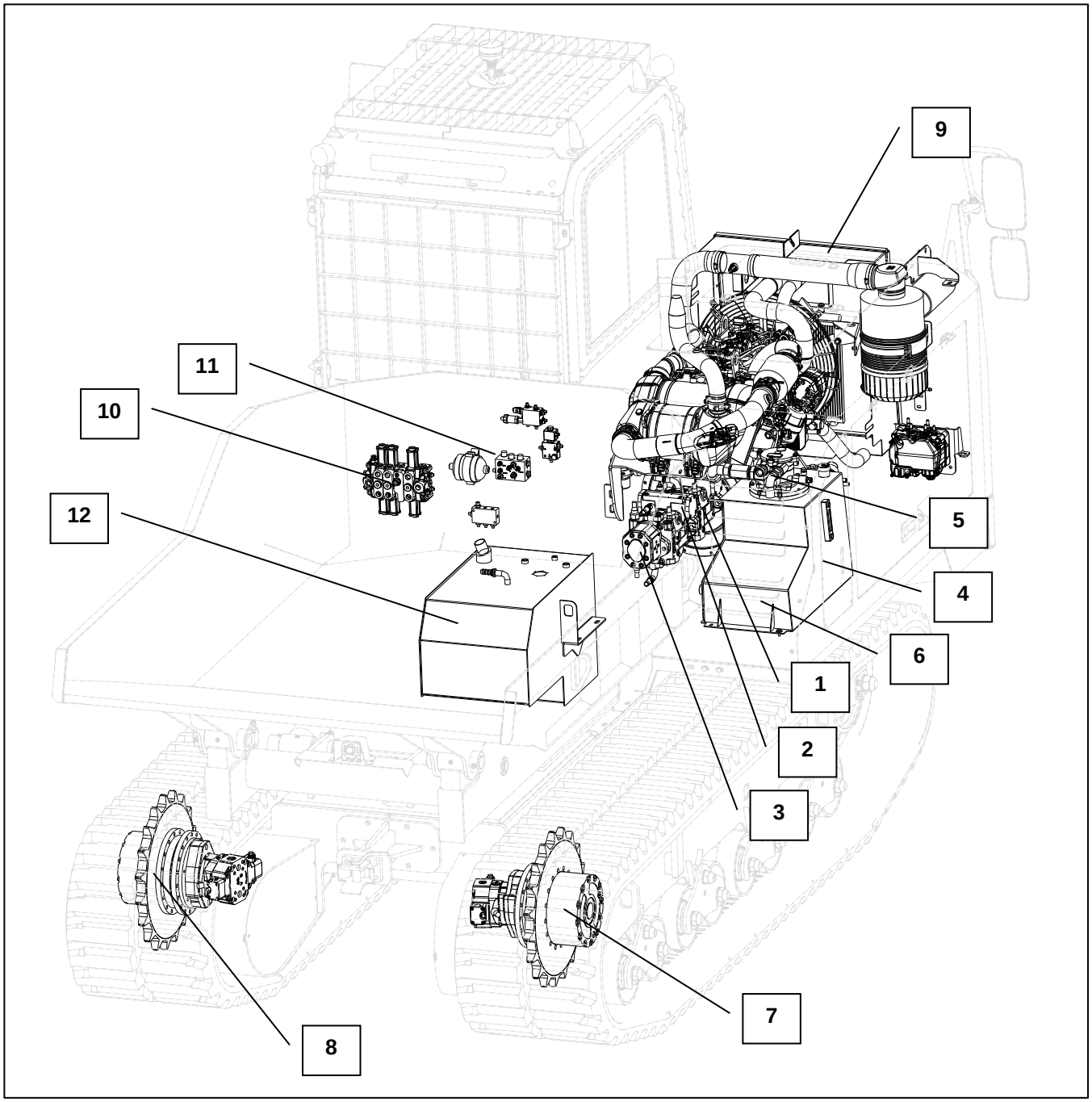
Install new filter element (***Ref. 2***) into DEF pump assembly (***Ref. 1***).

Install expansion device (***Ref. 3***) into filter element (***Ref. 2***). Install filter cap (***Ref. 4***) and tighten cap to 20 N·m.

1) DEF pump
2) Filter element
3) Expansion device
4) Filter cap
5) Tool



6. HYDROSTATIC TRANSMISSION SYSTEM



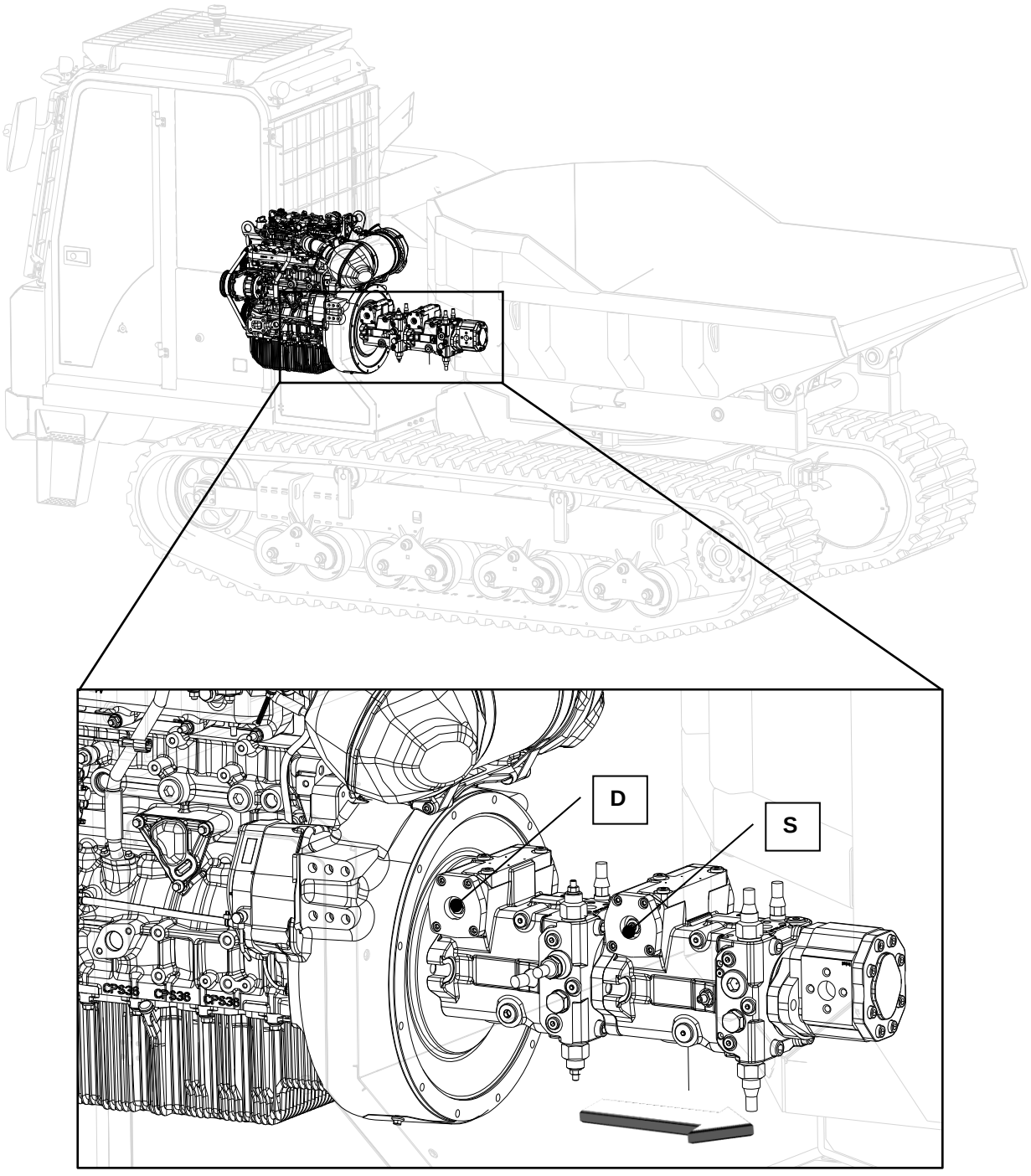
1 – Right track hydraulic pump
2 – Left track hydraulic pump
3 – Hydraulic pump services
4 – Hydraulic oil tank
5 – Hydraulic oil return filter
6 – Hydraulic oil suction filter
7 – RH gearmotor
8 – LH gearmotor
9 – Oil cooler
10 – Main valve
11 – Unload valve
12 – Fuel tank

ATTENTON!!!
For the oil filter change see details in the paragraph “CHECKS AND CONTROLS”.

6.1. SETTING AND ZEROING THE HYDROSTATIC PUMPS

All parts of the machines produced are strictly checked in order to provide the customer with a perfectly efficient and functioning machine from the mechanical, electrical and hydraulic point of view.

To facilitate control of the hydraulic system as much as possible, the machine is equipped with quick-fit couplings on which it is possible to check the pressure setting values of the individual users.



Once free access to the hydrostatic pumps has been obtained, it will be possible to operate on them in order to obtain the desired adjustment.

The control joysticks have automatic return to zero (neutral position) regardless of the rotation speed of the internal combustion engine.

If the machine, over time, despite the travel control joystick is in the zero (neutral) position, should move slowly, forward, reverse or start rotating, it is necessary to intervene on the pump which moves the track or possibly on both.

To adjust and zeroing the pumps proceed as follows:

- place the machine on level and horizontal ground;
- lift the machine in the manner previously described when adjusting the track tension;
- gain access to the pumps by removing the protections as shown above;
- slightly loosen the hexagonal screws **"S"**, **"D"** or both using a hexagonal wrench, then use an Allen wrench for adjustment and zeroing;
- turn the adjusting screw to **"S"** and **"D"** or both using the Allen wrench in order to obtain stopping of the track concerned and therefore stopping of the machine;
- retighten the screw **"S"**, **"D"** or both in this position ensuring perfect immobility of the machine.

IN CASE OF DOUBTS, UNCERTAINTIES OR DIFFICULTIES IT IS ADVISABLE TO CONSULT AN AUTHORISED SERVICE CENTRE

6.2. CHECK, CONTROL, CALIBRATION OF HYDRAULIC SYSTEM PRESSURES

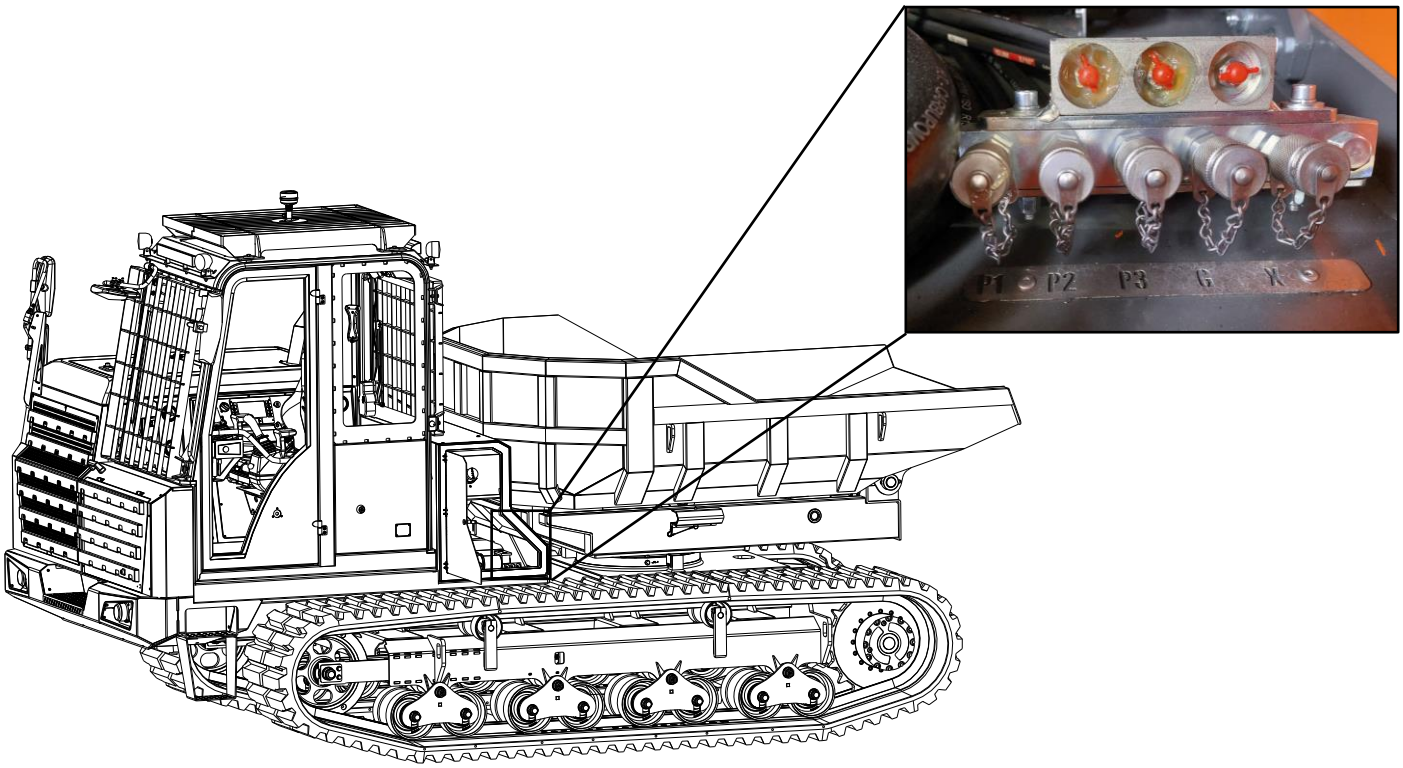
The operation consists of detecting the maximum pressures to the service distributor, any supercharging and the translation pumps.

IMPORTANT!!!

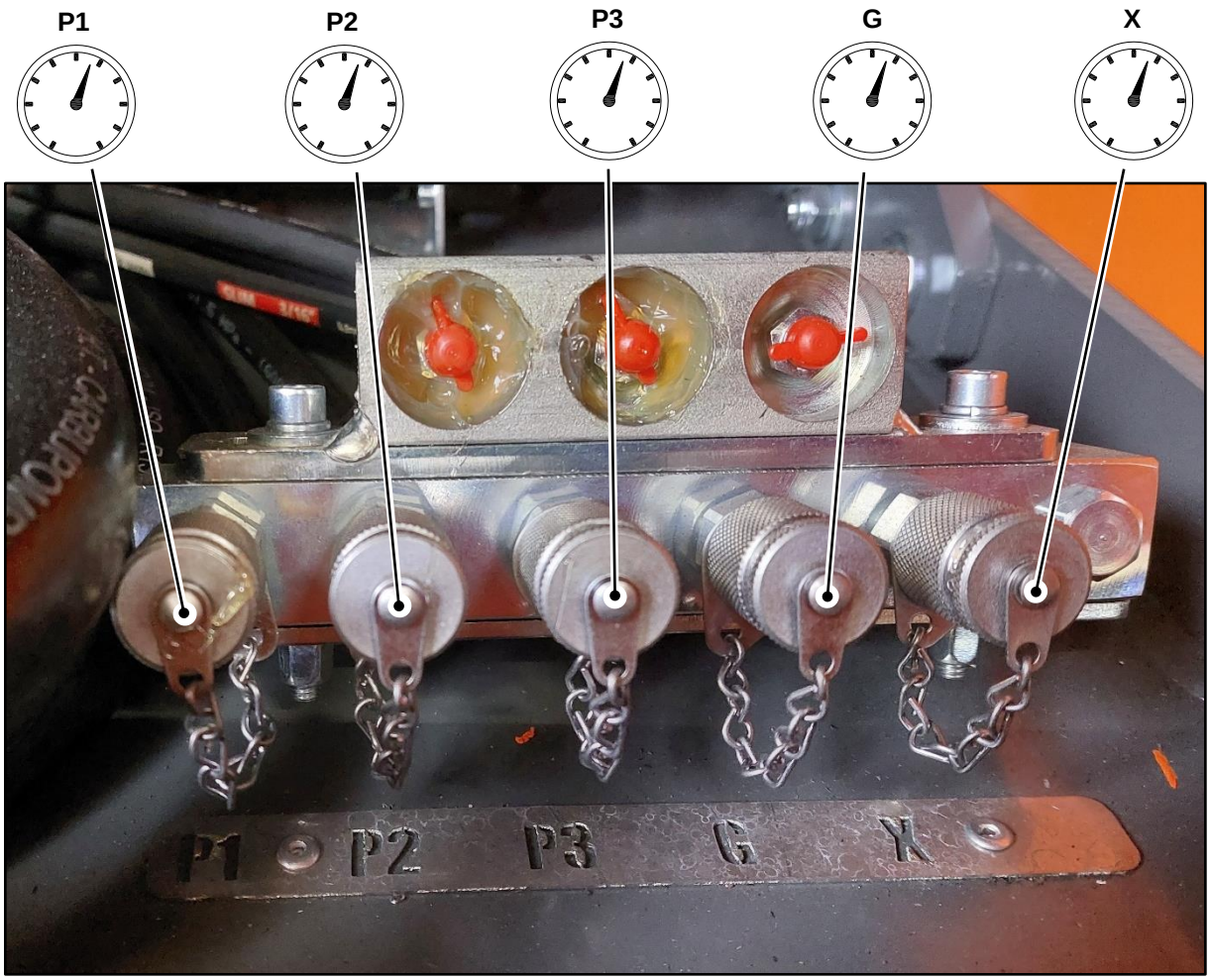
For correct use of the machine, it is advisable to bring the hydraulic oil to the operating temperature by idling and slightly accelerating the internal combustion engine for approximately 5 – 10 minutes.

To check the pressures of the hydraulic system, it is necessary to obtain free access to the pressure detection unit located on the left side of the vehicle.

To be able to access it comfortably, it is necessary to open the door.



Install pressure gauges of adequate full scale in the points indicated and accelerate the tracked conveyor to maximum rotation speed.



CHECKPOINT	PRESSURE TO BE DETECTED	PRESSURE GAUGE FULL SCALE	TYPE OF COUPLING	ENGINE RPM
P1 (Right Forward Drive) (Right Backward Drive)	420 ÷ 450 bar	600 bar	1/8” G	Max rpm
P2 (Left Forward Drive) (Left Backward Drive)	420 ÷ 450 bar	600 bar	1/8” G	Max rpm
P3 (Services Pressure)	195 ÷ 205 bar	400 bar	1/8” G	Max rpm
G (Boost pressure)	28 ÷ 30 bar	60 bar	1/8” G	Max rpm
X (Pilot pressure)	25 ÷ 26 bar	60 bar	1/8” G	Max rpm

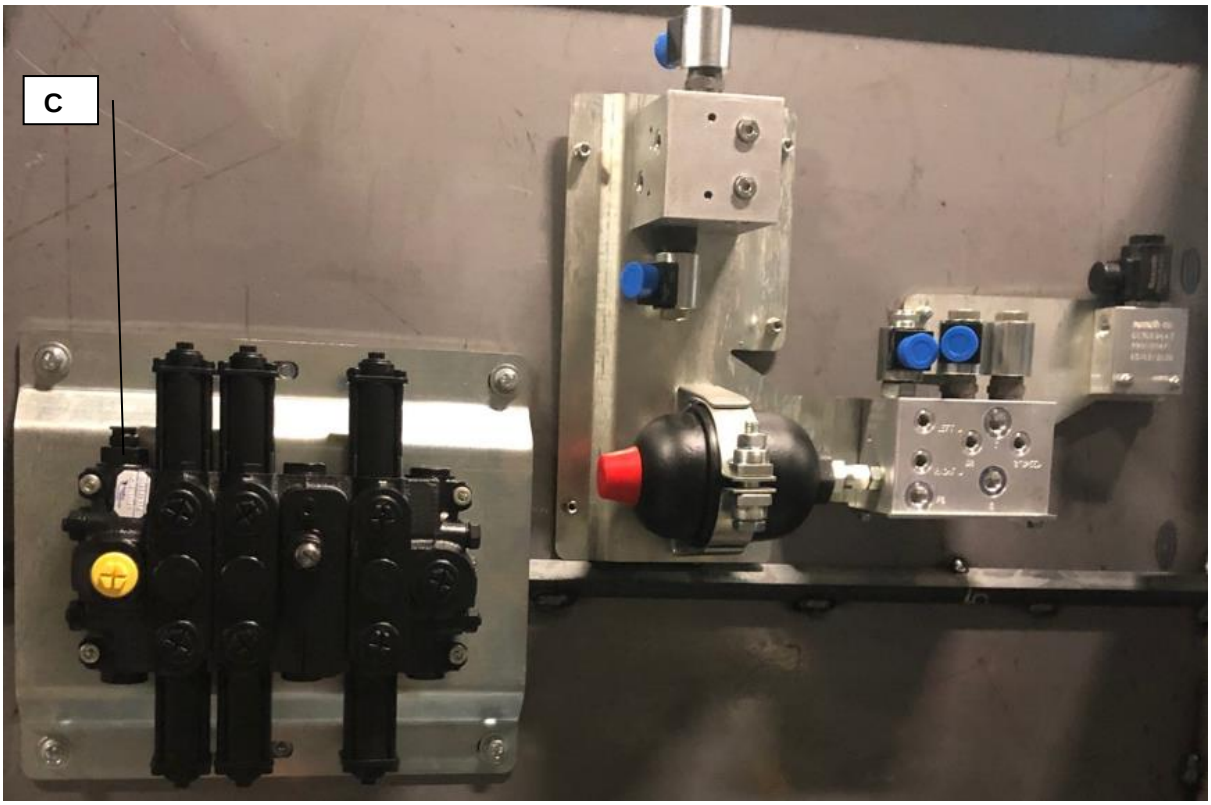
To calibrate the travel pumps, the track must be locked.

IN THE TEST CONDITIONS OF THE FOUR USERS, THE SUPPLY PRESSURE DETECTED AT POINT “G” MUST REMAIN UNCHANGED AND INCLUDED WITH THE LIMITS ALREADY INDICATED (**28 – 30 bar**).

If the values found deviate from those listed above, it is advisable to contact the ASSISTANCE SERVICE.

N.B.: IN CASE OF DOUBTS, UNCERTAINTIES OR DIFFICULTIES IT IS ADVISABLE TO CONTACT AN AUTHORISED SERVICE CENTRE

6.3. CHECK, CONTROL, CALIBRATION OF HYDRAULIC SYSTEM SERVICES PRESSURES



The operation consists of detecting the maximum pressure (overload relief valve) of the main valve; to check, follow the instructions below:

- with the machine stopped and the engine off, connect a pressure gauge with full scale **400 bar** to position **"P3"**;
- start the engine and bring it to maximum speed, after which measure the pressure indicated on the pressure gauge;
    - Skip dumping pressure: → **195 ÷ 205 bar**
    - Skip swivelling pressure: → **195 ÷ 205 bar**
- if the detected pressure differs from the calibration value, restore it by acting on the adjustment screw **"C"** located at the end of the overload relief valve of the main valve.

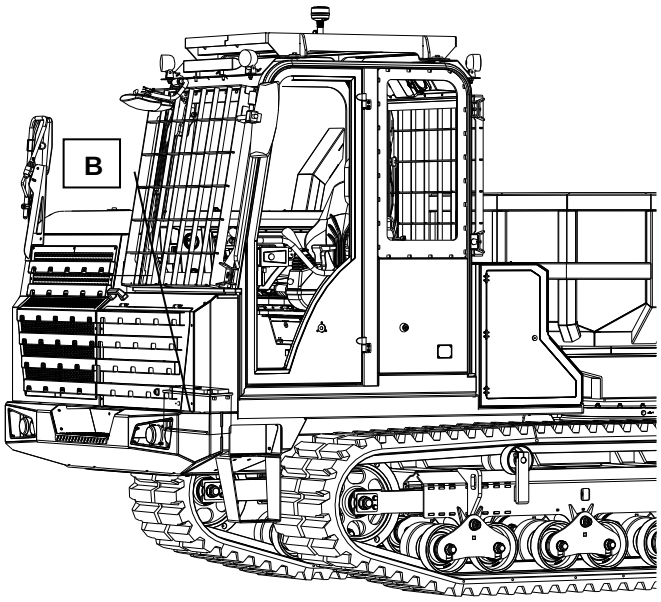
Once all the verification and control operations have been completed, return the hydraulic service system and the hydrostatic transmission system to their initial operating conditions.

N.B.: for a correct response of the pressures it is advisable to carry out the measurements described above with hydraulic oil at the operating temperature, around 65°C.

It is also advisable to have the afore-mentioned checks and controls carried out by an authorised workshop always under the indication of the AFTER-SALES SERVICE.

7. ELECTRICAL SYSTEM

7.1. BATTERY



Battery **"B"** is located under the operator's seat.

BATTERY CHARACTERISTICS:

VOLTAGE: 12 V
CONSUMPTION: 120 Ah
DISCHARGE: 950 A

The key located on the ignition panel is only removed when it is in the "OFF" position).

ATTENTION!

Check the battery liquid level every **100 HOURS.**

For the level, follow the instructions on the battery casing itself.

To top up, use only distilled water, do not use acid; the electrolyte could escape by boiling and cause serious burns.

Always make sure that the filling caps are perfectly closed.

Do not fully discharge the battery.

In case of fast discharge, check the voltage regulator; if not, recharge the battery or replace it if necessary.

Disposal of the used battery must be carried out by a company or by authorised personnel.

THE LIQUID CONTAINED INSIDE THE BATTERY IS HIGHLY CORROSIVE; PROTECT YOUR EYES AND HANDS WHEN VERIFYING AND RESTORING THE LEVEL.

BURN HAZARD!

Keep cable clamps well fixed and protected by grease or, even better, by pure petroleum jelly.

When disconnecting the battery, the earth conductor (-) must first be disconnected.

When connecting the battery, the positive (+) conductor must be connected first.

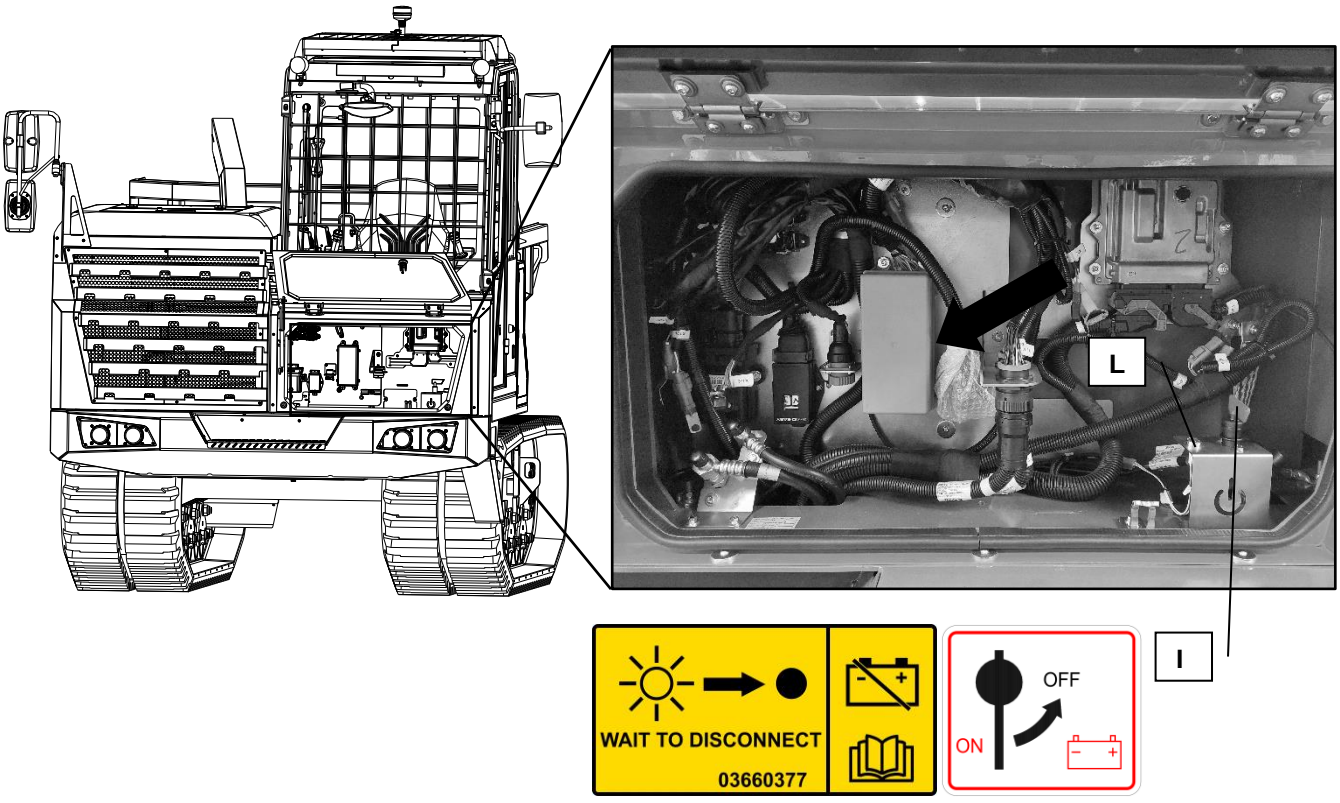
Keep tools and metal objects away from the battery poles as they could cause a short-circuit of the same terminals with risk of burns.

For any recharging always contact **Authorised Workshops**.

7.2. MAIN BATTERY SWITCH

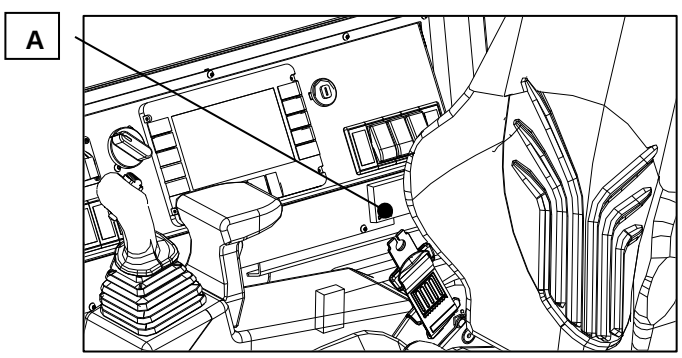
The machine is equipped with a switch *(**Ref. I**)*, located under the hood that allows the battery to be disconnected for any EMERGENCY that becomes necessary and in case of prolonged standstill *(over 4 hours)*.

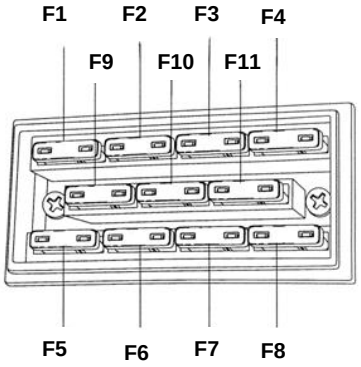
After stopping the machine, before disconnecting the battery you must wait until the red warning light (***Ref. L***) goes off (*approximately 1 min.*). Only at this point can the battery be safely disconnected.



7.3. FUSE BOX

The fuse box ***(Ref.A)*** is easily accessible as it is located on the driver's seat.

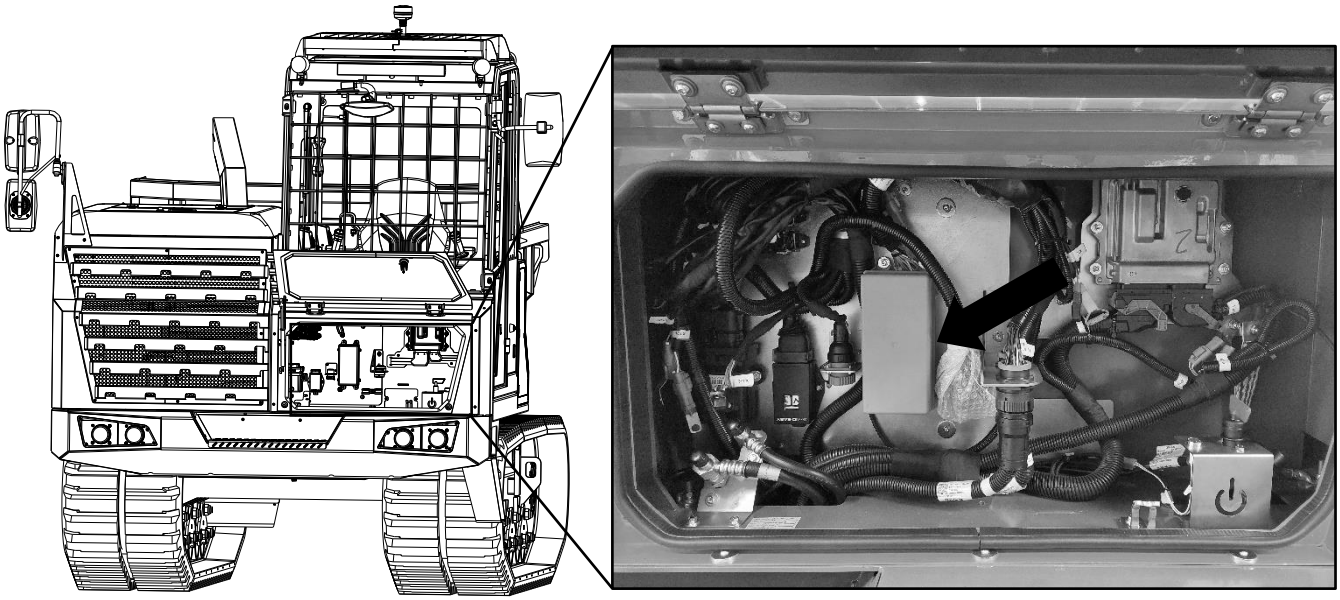


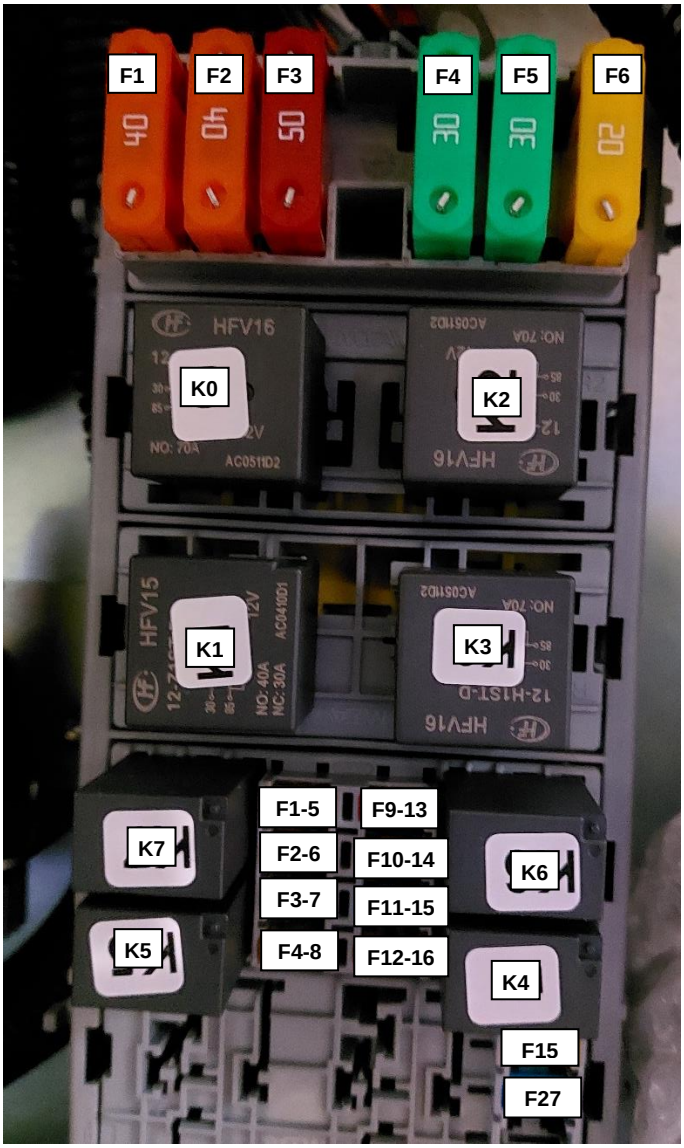


FUSES

REF.	PROTECTED DEVICE	CAPACITY
F1	External sensor power supply	5 A
F2	Rear view camera	3 A
F3	Controls panel lighting	7,5 A
F4	Work lights	15 A
F5	Low beams	15 A
F6	Auxiliary 12 V socket	10 A
F7	Windscreen wiper-washer	10 A
F8	Radio	10 A
F9	Rotating beacon switch	7,5 A
F10	Heating/air conditioner fan	20 A
F11	Control unit power supply	10 A

Instead, the fuses of the general power supply, the alternator and the relays are located on the front side of the vehicle as shown in the picture below.





REF.	PROTECTED DEVICE	CAPACITY		REF.	PROTECTED DEVICE	CAPACITY
F1	Services	40 A		F9-13	DEF suction	10 A
F2	General power supply	40 A		F10-14	Diagnostics – Communication	5 A
F3	Diesel engine glow plug	50 A		F11-15	Fuel pump	15 A
F4	Start-up	30 A		F12-16	Horn	10 A
F5	(SCR) Catalyst fuse	30 A		K0	Services relay	
F6	Ignition fuse	20 A		K1	Main relay	
F15	Midac+ power supply	20 A		K2	Starter motor relay	
F27	I/O Easy power supply	15 A		K3	Diesel engine glow plug relay	
F1-5	(SCR) relay coil	5 A		K4	DEF relay	
F2-6	Nitrogen Oxide Sensors	10 A		K5	(SCR) catalyst main relay	
F3-7	DEF heating	7,5 A		K6	Buzzer relay	
F4-8	DEF relay	5 A		K7	Fuel pump relay	

8. PROBLEMS: CAUSES AND SOLUTIONS

8.1. ENGINE

PROBLEM	CAUSE	SOLUTION
Engine does not start	Battery cut-off switch disengaged	Engage
	Battery flat	Recharge, replace
	Battery terminals rusted, disconnected or loose	Clean, connect, tighten
	Spark plug fuse intervention	Fuse replacement
	Starter motor inefficient	Check and replace, if necessary
	Injection pump, injectors faulty	Replace faulty component
	Water, impurities or air in the fuel supply system	Eliminate air, clean tank
	Incorrect motor oil	Replace with recommended oil
	Injectors inefficient	Replace
	Fuel missing	Check and top up
	Fuel filter clogged	Replace
	Fuel supply tubes damaged	Verify and replace, if necessary
Irregular operation	Low motor oil level	Check and top up
	Air vents obstructed	Check, clean or replace filter
	Fuel filter clogged	Replace
	Injectors faulty	Check, replace
	Accelerator faulty, broken	Check, replace
	Low compression	Contact an authorised workshop
	Insufficient feed	Replace fuel filter
Excessive black smoke	Air vents clogged	Check, clean or replace filter
	Injectors faulty or soiled	Replace
	Injection pump inefficient	Contact an authorised workshop
	Impurities in fuel	Filter or change brand
	Engine cold	Heat up for about 10 minutes with accelerator at half stroke
Engine heating  **Stop immediately**	Motor oil level too low	Top up
	Thermostat faulty	Check, contact an authorised workshop
	Radiator broken, faulty, clogged	Verify and clean or replace, if necessary
	Air filter clogged	Clean and replace, if necessary
	Faulty fan belt	Adjust or replace if damaged
	Water temperature indicator light on dashboard malfunction or bulb blown	Check and replace the involved component, if necessary
	Low refrigerant liquid level in radiator	Check and top up, if necessary
	Cooling fan faulty, broken	Verify and replace, if necessary
	Water pump/alternator belt broken	Verify and replace, if necessary
	Water pump broken	Verify and replace, if necessary

PROBLEM	CAUSE	SOLUTION
Motor oil low pressure  **Stop immediately**	Motor oil level too low	Check and top up
	Tube and fitting oil leakage	Check, replace or tighten
	Motor oil filter clogged	Replace
	Oil leakage	Check and top up, if necessary
	Incorrect motor oil	Replace with recommended oil
	Oil pressure indicator light or bulb damaged	Check and replace the involved component, if necessary
Alternator warning light on	The alternator does not charge	Check the efficiency of the belt tension and have the alternator replaced by an authorised workshop
The battery does not recharge	Terminals loose or rusted	Check, clean, fasten
	Alternator belt faulty	Restore tension
	The alternator does not charge	Contact an authorised workshop
The starter motor rotates too slowly or is blocked	Terminals loose or rusted	Check, clean, fasten
	Battery flat	Check electrolyte liquid level
	Incorrect motor oil	Replace with recommended oil

8.2. HYDRAULIC DRIVING SYSTEM

PROBLEM	CAUSE	SOLUTION
High temperature of hydraulic oil	Unsuitable hydraulic oil	Use only recommended oil
	Hydraulic tubes clogged	Contact an authorised workshop
	Hydraulic filter clogged	Replace
	Hydraulic pumps damaged	Check, contact an authorised workshop
	Max pressure valves faulty	Check and replace, if necessary
	Low hydraulic oil level	Verify and restore, if necessary
	Oil foamy, possible air infiltration	Eliminate by suctioning pumps
	Hydraulic oil soiled	Verify and replace, if necessary
	Manoeuvres do not conform with machine use	Use the vehicle properly without exaggerating on the commands, especially with the cylinders at end of travel.
Slow movement of hydraulically controlled parts (insufficient performance)	Hydraulic oil overheating	Cool it off for a sufficient amount of time
	Incorrect hydraulic oil	Check, use only as indicated
	Hydraulic pumps damaged	Have them checked by authorised workshop
	Irregular operation of hydrostatic motors	Have them checked by authorised workshop
	Valves out of calibration	Check and contact an authorised workshop, if necessary
Foamy hydraulic oil	Air in intake system	Check and purge, if necessary
	Water in oil	Change the oil and clean the tank
	Incorrect hydraulic oil	Replace, use recommended oil
	Oil level too low	Top up
Pressure in system low or missing	Incorrect hydraulic oil	Replace, use recommended oil
	Low hydraulic oil level	Top up
	Max pressure valves faulty	Verify and replace, if necessary

PROBLEM	CAUSE	SOLUTION
Both gearmotors do not work	Breakage or faulty connection of the pump-diesel engine coupling joint	Check and replace (contact an authorised workshop)
	Tubes, connections, fittings damaged	Check and replace the involved component, if necessary
A gearmotor does not work	Hydraulic motor damaged	Check and replace (contact an authorised workshop)
	Pilot valve damaged	Check and replace (contact an authorised workshop)
	Tubes, fittings damaged	Check and replace the involved component, if necessary
	Brake release or damaged connection pipes	Check and replace (contact an authorised workshop)
Irregular carriage movement	Belt too tight or too loose	Check and restore correct tension
	Traction pump leakage	Check and replace (contact an authorised workshop)
	Traction motor leakage	Check and replace (contact an authorised workshop)
	Valve oil leakage	Check (contact an authorised workshop)
2nd gear engagement failure	Solenoid valves broken	Replace solenoid
	Faulty motor	Verificare, sostituire
Different speed between the two running tracks forwards or backwards	Joysticks faulty	Check the integrity of the components
	Pump servo-controls	Contact an authorised workshop
	Damaged pilot pipes	Verify and replace, if necessary

8.3. HYDRAULIC SERVICES SYSTEM

PROBLEM	CAUSE	SOLUTION
The manoeuvre cylinders do not work or they work irregularly	Faulty gear pump	Check and replace if necessary
	Max valve on the distributor incorrect or defective	Check, calibrate and replace if necessary
	Gaskets worn or damaged	Check, replace
	Damaged pipes, fittings, oil leak	Check and replace the involved component, if necessary

Refer to the information provided in the relative manual supplied with the vehicle when inspecting the combustion engine.

9. MAINTENANCE NOTES

DATE	WORK COMPLETED	HOURS OF WORK	PARTIES INVOLVED

AEC FACTORY & HEADQUARTERS

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PARAGOULD, ARKANSAS 72450
870.236.7751
800.643.0095 (TOLL FREE (USA ONLY)

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