PRECICULTURE

SELF-PROPELLED POWER FRAME

PR2540

ENGLISH OPERATION AND MAINTENANCE GUIDE

PLEASE READ THIS GUIDE CAREFULLY AND COMPLETELY BEFORE USING THE MACHINE

IF YOU DO NOT UNDERSTAND ANY PART OF THIS GUIDE, THEN PLEASE CONTACT YOUR "APPROVED DEALER".

FOR EXPLANATIONS REGARDING THIS MACHINE, DEMONSTRATIONS OR INFORMATION ABOUT SAFETY PRECAUTIONS, CONTACT YOUR "APPROVED DEALER".

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0. GENERAL INFORMATION

This operation guide should be considered as an integral part of the **Self-propelled power frame**. Any persons selling new or used **Self-propelled power frame** are recommended to keep written proof that this manual was supplied with the **Self-propelled power frame.**
Always keep the operation and maintenance booklet in the cabin of the Self-propelled power frame .

0.1. GENERAL COMMUNICATION

Definition of the **Self-propelled power frame**:

The **Self-propelled power frame** is a Tractor or Self-Propelled Agricultural Machine according to the type of vehicle as defined by the legislation in force.

Definition of **"APPROVED DEALER":**

The **"APPROVED DEALER"** is a professional approved by ***Préciculture S.A.S.*** further to special training delivered by ***Préciculture S.A.S***.

Definition of left-hand side:
The side located on the left when facing in the usual direction of forward movement of the **Self-propelled power frame**.

Definition of right-hand side:
The side located on the right when facing in the usual direction of forward movement of the **Self-propelled power frame**.

This guide is designed to help you with the running-in, driving, operation and maintenance of your tractor or machine. Your **Self-propelled power frame**, which can be used as a vehicle and as a power source, is designed for normal usage according to best agricultural practices.
Given that the conditions of operation are so diverse, ***Préciculture S.A.S.*** is not in a position to publish any definitive or complete statements regarding the performance or the usage methods of its machines, nor to accept liability for any loss or damage that may result from any statements, errors or omissions. If the tractor or machine is used under abnormal and potentially damaging conditions, then contact your "Approved Dealer" for special instructions. Failure to do so may lead to the warranty being refused.

Customers are strongly recommended to consult an officially "Approved Dealer" to solve any technical problems that may occur or to change the settings.
The "Approved Dealer" is specially trained and equipped to solve technical problems and to advise customers on the operation of the **Self-propelled power frame** under local conditions.

The **Self-propelled power frame** is designed and built to offer the best possible performance, cost efficiency and ease of operation under a broad range of working conditions. In order to maintain these conditions and protect the correct, problem-free operation of the machine, it is important to perform the operations described in the paragraph "MAINTENANCE" at the recommended frequencies.

As part of its policy to improve its products, ***Préciculture S.A.S.*** reserves the right to change the specifications of its machines at any time, without such modifications requiring ***Préciculture S.A.S.*** to give any notice, pay any indemnities or modify machines that have already been sold. ***Préciculture S.A.S.*** shall not be held liable for any differences that may exist between the specifications of these machines and the specifications included in these publications.

It is forbidden to make any modifications to the **Self-propelled power frame**, other than those that are specifically authorised in writing by the ***Préciculture S.A.S.*** After-Sales Service or Technical Division.

0.2. INSPECTION – START-UP

The "Approved Dealer" is bound to perform a number of operations when supplying a new ***Préciculture S.A.S.*** **Self-propelled power frame**. These operations include a complete inspection before delivery to check that the **Self-propelled power frame** is ready for immediate operation. Due to its unusual technological design, the **Self-propelled power frame** must be used by **experienced or well-informed drivers** only. On delivery, the "Approved Dealer" must provide the customer with complete instructions on the basic principles, the operation and maintenance of the **Self-propelled power frame** and indicate the limits of use, beyond which the safety conditions may become precarious (condition of the ground, manoeuvring speed, driving style, incorrect use of accessories, etc.) and place the user in danger. These instructions apply to controls and instruments, routine maintenance and safety. All persons involved in the operation and maintenance of the **Self-propelled power frame** must be present when the instructions are given.

0.3. COMMUNICATION FOR APPROVED DEALERS

The “Approved Dealer” appointed by ***Préciculture S.A.S.*** is responsible for starting up the **Self-propelled power frame**. Read the operation and maintenance guide and the safety rules. Check that all points in the pre-delivery and delivery check lists have been carefully verified and corrected if necessary before handing over the **Self-propelled power frame** to its new owner.

0.4. COMMUNICATION FOR THE OWNER

Thank you for choosing the ***Préciculture S.A.S.*** **Self-propelled power frame.** The machine has been designed and built to be used for several years. Just like any other mechanical system, the machine requires regular cleaning and maintenance. Maintain and use the **Self-propelled power frame** as indicated in this guide. Observe the instructions or prohibitions shown on the stickers on the **Self-propelled power frame**.

If you do not understand any part of this guide, contact your “Approved Dealer”.
Your “Approved Dealer” has been specially trained in the maintenance of this machine. He also has the original parts and the tools required to deliver quality service.

This manual is intended for worldwide distribution. Availability of the equipment, either as a basic **Self-propelled power frame** or as an option may vary depending on the country in which the **Self-propelled power frame** will be used. Details of equipment available in your region can be obtained from your “Approved Dealer”.

The purpose of this guide is to enable the owner to use and maintain the **Self-propelled power frame** efficiently and safely. If these instructions are carefully followed, then the machine will deliver many years of quality service.

Get into the habit of performing daily maintenance tasks and carefully note the operating hours.

Some of the illustrations in this guide may use photographs of the prototype **Self-propelled power frame**. Certain details may be different from the standard series produced models.

0.4.1. CLEANING THE TRACTOR

Your **Self-propelled power frame** is a modern system with sophisticated electronic controls. This fact must be kept in mind when cleaning the **Self-propelled power frame**, especially if high-pressure devices are used. Even if precautions have been taken to protect connections and electronic components, the pressure generated by certain cleaning devices is such that complete protection against water influx cannot be guaranteed.

When using a high-pressure cleaning device, do not stand too close to the **Self-propelled power frame** and avoid directing the water jet directly towards electric connections, electronic components, breathers, seals, filling caps, etc. Never spray a hot engine or exhaust pipe with cold water.

When cleaning or washing the **Self-propelled power frame**, make sure that you use suitable products that are not aggressive, are environmentally-friendly and are compatible with the protection requirements of the surfaces being cleaned (paint, etc.). The cleaning agent must be tested on a very small surface of the **Self-propelled power frame** to check that it is compatible with our paints and protective coatings.

If these precautions are not taken, then ***Préciculture S.A.S.*** is entitled to refuse any warranty and shall not be held liable for the financial consequences of the choice of an inappropriate cleaning agent.
If in doubt, contact the technical division at ***Préciculture S.A.S.***

Remove any mud or dirt concealing the safety stickers.

0.4.2. CHEMICAL ATTACK (PHYTOSANITARY PRODUCTS OR FERTILISERS)

Many phytosanitary products or fertilisers may attack the paint used on your **Self-propelled power frame**. Before any operations, spray the paintwork with efficient protective products for increased protection and in order to make the paint last longer.
If in doubt, contact the technical division at ***Préciculture S.A.S.***

0.4.3. SAFETY

The paragraph “NOTES AND CAUTIONS ABOUT SAFETY” in this guide includes a list of precautions to protect the safety of yourself and others. Please read this list of safety precautions and follow the instructions before starting the **Self-propelled power frame**.

0.4.4. REGULAR CHECKS OF THE SELF-PROPELLED POWER FRAME

At the beginning of the “Maintenance” section in this guide, you will find details of routine maintenance operations. These checks must be made by your “Approved Dealer” immediately after the first 40 or 50 hours of operation.

As a general rule, consult your "Approved Dealer", who will perform the required operations.

0.4.5. SPARE PARTS

The use of parts that are not original ***Préciculture S.A.S.*** parts may have a damaging effect on the operation of your **Self-propelled power frame** and affect performance and safety. ***Préciculture S.A.S.*** will not be held liable for any damage that may result from the use or installation of non-original parts or parts that are not approved by ***Préciculture S.A.S.*** Only original ***Préciculture S.A.S.*** parts must be used. Any adaptable parts will annul the warranty. Consult your "Approved Dealer" for original parts. Your "Approved Dealer" can also install the parts or advise you on how to install and use them.

0.4.6. WARRANTY

Préciculture S.A.S. sells its new products to "Approved Dealers" with, if certain conditions are observed, a warranty that the products are free of material and production faults. Since this guide is intended for all countries, it is impossible to present in detail the precise warranty terms and conditions applying to a given customer in a particular country. Purchasers of new ***Préciculture S.A.S.*** equipment should request complete details from the distributor supplying the equipment.

The warranty is automatically annulled if the **Self-propelled power frame** is not used, adjusted or maintained according to the instructions in this guide.

Filtration of engine oil and diesel fuel

The suppliers of internal combustion engines installed in our vehicles have indicated that in order to satisfy the warranty conditions, internal combustion engines must be fitted with original engine oil and diesel fuel filters.
The capacity of the original filters fitted on the engines is determined by the engine specifications and is defined by the manufacturer of the internal combustion engine. **These capacities must absolutely be respected.**
Several cases of engine malfunction have been caused by the use of non-compliant filters. You are informed that you will be required to pay any expenses incurred to solve any similar problems.

Internal combustion engine

The warranty only covers work done by **engine supplier agents**.

Once the warranty period has expired, your "Approved Dealer" is free to work on the internal combustion engines at his own risk. Spare parts must be procured from ***Préciculture S.A.S.***

CONTENTS

1. NOTES AND CAUTIONS ABOUT SAFETY

Operator safety is one of the major concerns in the design and development of a new machine. This is the reason why the designers at ***Préciculture S.A.S.*** integrate as many safety systems as possible.
Nevertheless, many accidents occur every year that could be avoided by a few moments of thought and attention on the part of the user and by more careful operation of agricultural equipment and tools.

Please read this guide carefully and learn the best way to correctly use the **Self-propelled power frame** and its different functions in complete safety. Never allow a person who has not received these instructions to use the machine.

The operator must be particularly careful when operating, moving, transporting, cleaning or maintaining the **Self-propelled power frame**.

Observing these safety instructions will avoid many accidents.

1.1. IDENTIFY AND UNDERSTAND THE SAFETY SYMBOLS AND WARNINGS

This is the warning symbol. This symbol is used on the **Self-propelled power frame** or in this guide to warn of the risk of injury.

	Follow all the safety instructions and the general accident prevention instructions. Take care to protect your own safety. This symbol indicates that: ➢ The safety instructions must be followed. ➢ Attention is required. ➢ Dangerous practices may cause injury.

The safety symbol is accompanied by a text, such as DANGER, WARNING or CAUTION.

- The term IMPORTANT is used to indicate that failure to observe instructions may cause damage to the **Self-propelled power frame**.
- The terms WARNING, CAUTION, DANGER are used with the safety warning symbol to indicate the level of danger to your safety.

 **WARNING**	Reminds you of safety rules. Failure to observe these rules may result in injury.
 **ATTENTION**	Draws your attention to a danger that may cause injury or result in death if the appropriate precautions are not taken.
	Draws your attention to severe danger that will certainly cause irreparable injury or result in death if certain precautions are not taken.

1.2. FOLLOW THE SAFETY INSTRUCTIONS

Carefully read all the safety instructions in this guide and the instructions affixed to the **Self-propelled power frame** on stickers. Read the safety instructions on a regular basis and check the stickers routinely.
Make sure that all the stickers are legible.
Replace any stickers that are missing or damaged. Make sure that the appropriate stickers are affixed to new equipment and spares. Replacement stickers can be obtained from your "Approved Dealer".

1.3. CONDITIONS OF USE

The **Self-propelled power frame** is designed exclusively for use in usual agricultural applications or similar works. Any other use shall be considered as abnormal operation. Strict observation of the conditions of operation, maintenance and repair, as specified by the manufacturer, are also an integral part of normal use.

The **Self-propelled power frame** must only be used, maintained and repaired by persons who are familiar with the machine's special characteristics and who are familiar with the corresponding safety procedures.

Rules to prevent accidents, all rules governing safety, rules defined by work health and safety authorities and regulations applying to road traffic shall be obeyed at all times.

Any arbitrary modifications made to the **Self-propelled power frame** may relieve the manufacturer of all responsibility for any consequent damage or injury.

1.4. QUALIFICATION OF THE OPERATOR

The **Self-propelled power frame** must only be used, maintained and repaired by persons who are familiar with the machine's special characteristics and who are familiar with the corresponding safety procedures.

Learn to use and handle the controls. Never allow untrained persons to use the **Self-propelled power frame**. Due to its unusual technological design, the **Self-propelled power frame** must be used by **experienced or well-informed drivers** only.

Before using the **Self-propelled power frame**, make sure that your are familiar with all the controls and the operation thereof.

Once you have started using the machine, it will be too late to do this.

1.5. DEFINITION OF THE WORKSTATIONS

ATTENTION The operator station in the cab is the main work station.

ATTENTION The zone giving access to the power take-off control and the hydromixer control and the accelerator control of the heat engine placed near the ladder for access to the driving cab is one of only two authorized work stations outside of the cab.

ATTENTION The zone for filling of the tanks placed near the access to the driving cab is one of only two authorized work stations outside of the cab.

ATTENTION When you leave one of the work stations mentioned above:

- Stop the **Self-propelled power frame** .
- put on the parking brake
- declutch the power take-off
- place the levers at the neutral point, lower the tool on the support provided for storage
- stop the heat engine
- remove the switch key
- Put the battery isolation switch to off.

Beware of the hot zones of the **Self-propelled power frame.**

No person other than the driver shall leave the cockpit (or the zone to access the power take-off control, the hydro mixer controls, the engine accelerator control, the vessel filling zone, depending on equipment level of the **Self-propelled power frame**).

Only use the proper means of accessing the workstations (ladders, steps, gangways, etc.).

Do not start the **Self-propelled power frame** or operate the controls (except the power take-off control, external accelerator of the engine or the hydro mixer (depending on version or equipment level) when outside the cockpit.

Never leave the cockpit when the **Self-propelled power frame** is running without checking all the safety devices (brakes, etc.).

Never get on or off the **Self-propelled power frame** when it is moving.

Always start the engine from the driver's seat, with the forward movement and power take-off levers in neutral.

Never try to start the **Self-propelled power frame** when standing beside the machine.

1.6. DEFINITION OF DANGER ZONES

DANGER All zones around the **Self-propelled power frame**, apart from the workstations, are considered as danger zones when the **Self-propelled power frame** is operating.

DANGER Keep children and all third parties (or from the repair technician) clear of the **Self-propelled power frame**.

Pay attention to any spectators and to children in particular. Always look around you for any hazards before moving the **Self-propelled power frame** or starting the engine.

The **Self-propelled power frame** is fitted with a reverse gear warning that sounds whenever the vehicle moves backwards. Never disable the reverse warning.

Certain safety stickers remind users that third parties must be kept clear and indicate particularly sensitive zones.

1.7. SELF-PROPELLED POWER FRAME SAFETY

WARNING

It is forbidden to make any modifications to the Self-propelled power frame, other than those that are specifically authorised in writing by Préciculture S.A.S. After-Sales Service or Technical Division.

It is forbidden to remove the safety hoods unless all the conditions described hereafter are met at the same time: the **Self-propelled power frame** is at a standstill, engine switched off, parking brake on, ignition key removed and circuit pressure zero. After any work, always replace the safety hoods.

Do not remove the power take-off guards from the **Self-propelled power frame** or from the tool.

Always use the handles and steps when getting on or off the **Self-propelled power frame** to avoid falling. Keep the steps and the floor clean and free of mud and debris. Always close the cabin door before driving the **Self-propelled power frame**. Keep the windows clean for clear visibility in all directions.

Check that the reverse gear warning is in working order.

Never let anyone other than the driver enter the **Self-propelled power frame**. There is not enough room to carry passengers. Never carry any passengers.

You are recommended to keep a fire extinguisher and a first aid kit in the **Self-propelled power frame**. You can usually obtain these from your "Approved Dealer".

The cabin in the **Self-propelled power frame** is fitted with an active carbon filter that needs to be replaced regularly, depending on the type of work done, but at least every six months.

Pressurised liquids that escape from tiny holes are almost invisible but represent a serious health and safety hazard.

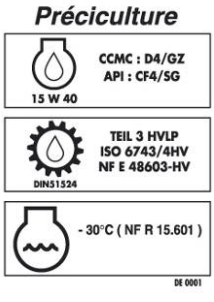
1.7.1. SAFETY STICKERS

WARNING

It is most important that the safety stickers remain in place and in good condition. The stickers will draw your attention to all the possible dangers and refer to the operation and maintenance guide.

Replace any safety stickers that are missing, illegible or damaged.

Clean off any mud or dirt that makes the safety stickers illegible.



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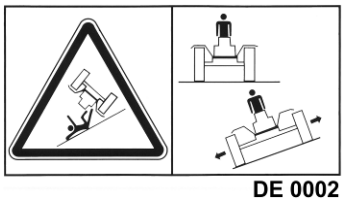
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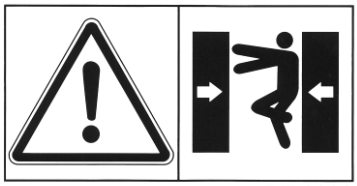
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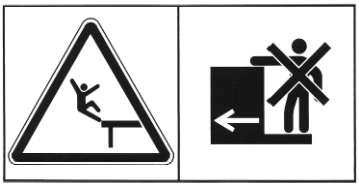
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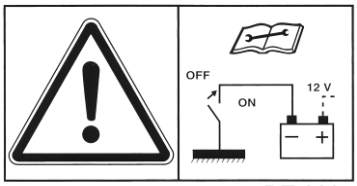

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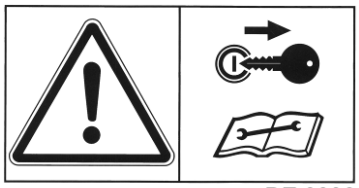
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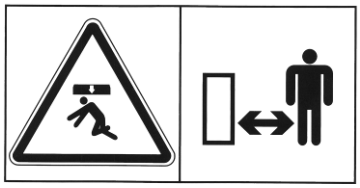
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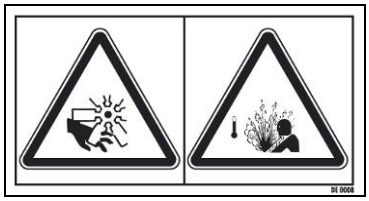
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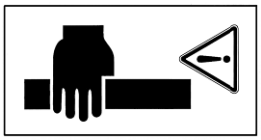
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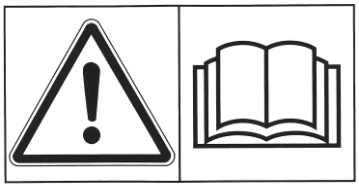
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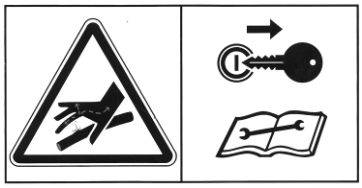
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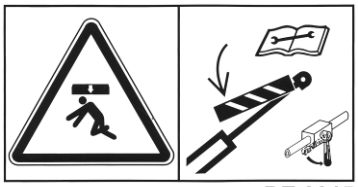
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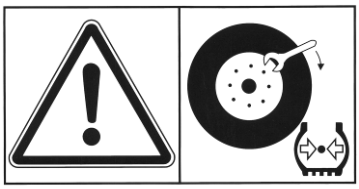
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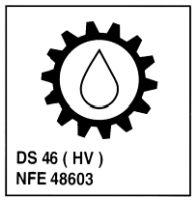

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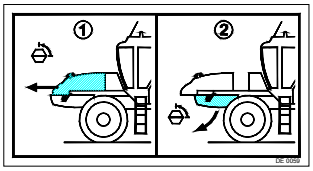

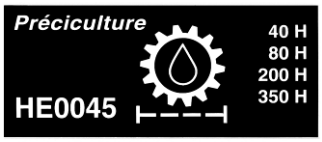

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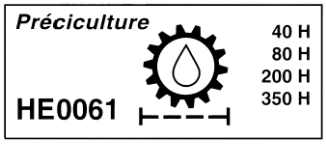

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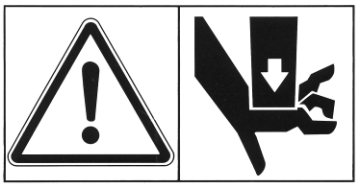
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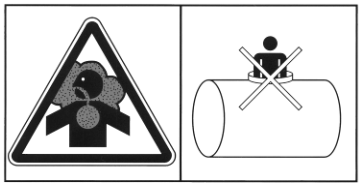
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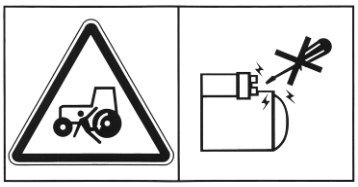
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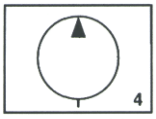

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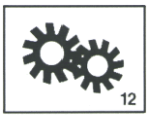

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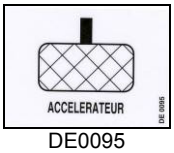

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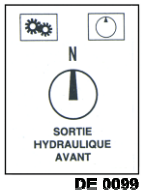

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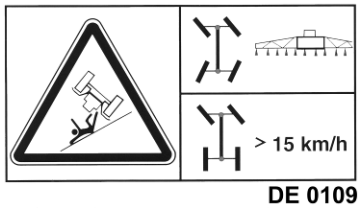

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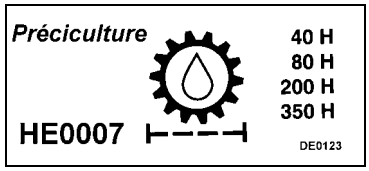

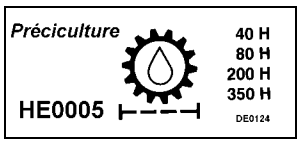

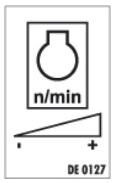

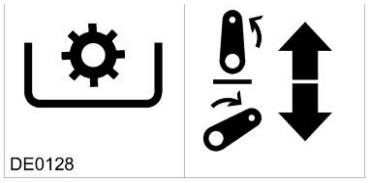

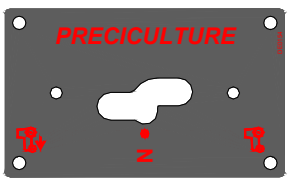

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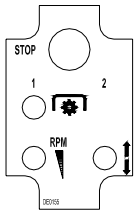

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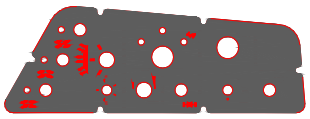
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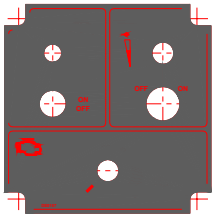
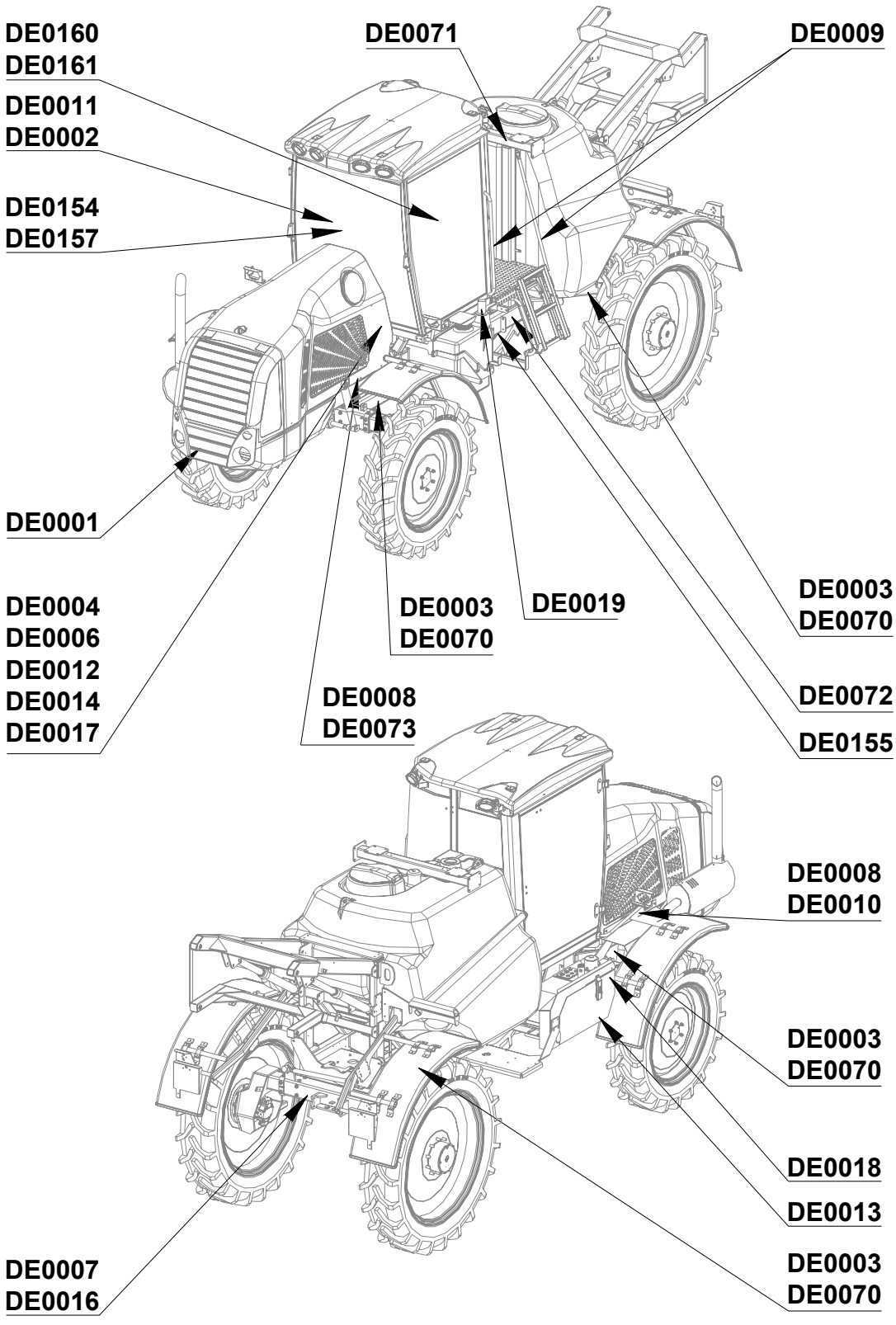

DE0157

REF.	DEFINITION
DE 0001	Service liquids.
DE 0002	Banking = risk of turning over.
DE 0003	Risk of crushing
DE 0004	Do not climb onto, park or get off the machine whilst working
DE 0005	Before carrying out any welding work, disconnect both the battery and the alternator.
DE 0006	Remove the ignition key before leaving the working position and lock your cabin door.
DE 0007	Stay a safe distance away from the machine.
DE 0008	Keep all protective devices in place.

DE 0009	Elements allowing you to safely get onto and off the machine.
DE 0010	Risk of burns.
DE 0011	Get into the habit of frequently consulting the user and maintenance manual.
DE 0012	High pressure. Never tighten a connection which is under pressure. Shut down the engine and bring the residual pressure in the circuit down before carrying out any maintenance operation.
DE 0013	Draining.
DE 0014	Risk of being crushed by a wheel.
DE 0015	Lifting
DE 0016	Risk of vertical crushing.
DE 0017	You must check that the wheel nuts are still tight after 2 hours' running, then periodically. Regularly check that your tyres are properly inflated.
DE 0018	Oil.
DE 0019	Fuel.
DE 0059	Mode d'ouverture des capôts
DE 0066	Original Préciculture S.A. parts. Filtering unit without by-pass: 40 hours, 80 hours then 200 hours after the 1st start-up, then every 350 hours.
DE 0067	Original Préciculture S.A. parts. Filtering unit with by-pass: 40 hours, 80 hours then 200 hours after the 1st start-up, then every 350 hours.
DE 0070	Risk of crushing the hand.
DE 0071	Tank. Risk of emanation of toxic fumes.
DE 0072	Risk of emanation of toxic fumes. Ear protectors must be worn.
DE 0073	Engine start-up risk.
DE 0077	Start-up
DE 0085	Power take-off.
DE 0092	Pédale d'approche
DE 0094	Pédale de Freins arrière
DE 0095	Pédale d'accélérateur
DE 0098	Vitesse : Tortue = vitesse travail – Lièvre = vitesse route.
DE 0099	Sortie huile hydraulique avant (voir DE 0077 et DE 0085)
DE 0107	Speed limited to 25 Km/h
DE 0109	4 W.D. prohibited on the road and risk of overturning beyond 15 km/h with 4 W.D.
DE 0123	Pièces d'origine Préciculture S.A. Elément filtrant : 40H, 80H puis 200H après la 1ère mise en route, ensuite toutes les 350H.
DE 0124	Pièces d'origine Préciculture S.A. Elément filtrant : 40H, 80H puis 200H après la 1ère mise en route, ensuite toutes les 350H.
DE 0126	Levier d'avancement
DE0127	Commande d'accélérateur à main
DE0128	Commande de prise de force & relevage latéral d'accéssoires

LOCATION OF SAFETY STICKERS



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1.8. SAFETY/DRIVING & OPERATION OF THE SELF-PROPELLED POWER FRAME

1.8.1. DRIVING ON PUBLIC ROADS

Users must obey the rules of the Highway Code in force in the country of use, when driving the **Self-propelled power frame** or its accessories on public roads. All rules to prevent accidents and all regulations applying to road traffic must be obeyed at all times.

When driving on public roads, switch on the yellow flashing light and always use the indicator lights whenever the law requires you to do so. Always obey local regulations applying to road traffic when driving on public roads. Never exceed the total authorised laden weight or the maximum axle load.

- Any modifications made to the **Self-propelled power frame** that may have an impact on observation of articles R 312-1 to R 312-25, R 314-1 to R 317-7, R 317-15 to R 317-17, and R 318-1 to R 318-5 of the French Highway Code and any modifications to the vehicle that prevent the vehicle from complying with the indications mentioned on the Certificate of Conformity (especially systems that are prohibited by any regulatory texts) must be accompanied by the following:
  - a declaration to the Prefect (in France. Consult the appropriate authorities in other countries)
- Depending on the country of use, **Self-propelled power frame** are required to observe special regulations when driving on public roads.

  In France, users must check the overall width of the **Self-propelled power frame** and its equipment. Above overall widths of 2.55 m, users must observe the requirements of the Highway Code (R433-1) and any orders in force locally. Users are responsible for obtaining information about local orders from their local authority. The user must carry any relevant orders when driving the **Self-propelled power frame** on public roads .

Slow down when approaching corners to avoid the risk of the vehicle turning over.
Take special care when operating the **Self-propelled power frame** on sloping surfaces. Never use the **Self-propelled power frame** on steep slopes (see specific table for each version of the **Self-propelled power frame**).

SLOPING GROUND = DANGER OF VEHICLE TURNING OVER Always select a track that is suited to the **Self-propelled power frame** and the terrain

1.8.2. LIGHTS, NIGHT WORK

Only use the **Self-propelled power frame** in day light. Otherwise, use the lighting systems provided on delivery or additional lighting systems.

1.8.3. LIFTING

All lifting operations using the **Self-propelled power frame** or systems attached to the **Self-propelled power frame** must be performed in accordance with the usual safety rules applying to lifting (suitable individual protective clothing, use of suitable slings, use of lifting tools that meet health and safety requirements, etc.). Lifting operations must follow the instructions in this guide in the “LIFTING OPERATIONS” section of the “MAINTENANCE” chapter.

1.8.4. FIRE PREVENTION

Preventive measures and warnings about inflammable products

Keep the **Self-propelled power frame** and accessories clean.

Keep all parts of the **Self-propelled power frame** free of grass, leaves or excess grease.
Handle the fuel with care because it is highly inflammable and gives off explosive vapours.
Never store fuel container or tanks containing fuel in premises where flames or sparks may occur.
Never fill the fuel tank indoors. Do not smoke when filling the fuel tank.
Never remove the fuel tank filler cap or fill the fuel tank when the engine is running or still hot.

Fire

Stop and/or leave the **Self-propelled power frame** in safety.
Disconnect the machine from all electric power sources (battery main switch).

In the event of fire, keep calm and takes steps to control the fire OR Immediately move clear of the machine and make sure that no-one else is nearby.

Owners are strongly recommended to install a fire extinguisher in the **Self-propelled power frame.** The extinguisher must be easily accessible and regularly checked.

1.8.5. RISKS DUE TO OVERHEAD ELECTRIC POWER LINES

When there is a danger of coming into contact with overhead power lines, check the maximum working height of the **Self-propelled power frame**, if greater than 3.5 m, when folding/unfolding the accessories installed on the **Self-propelled power frame** or when operating the **Self-propelled power frame**.

If the **Self-propelled power frame** is in danger of coming into contact with an overhead electric power line, then take the measures indicated in the insert below.

Check that the clearance around the **Self-propelled power frame** is sufficient in every operating configuration of the **Self-propelled power frame** (for example with the hoods open).
Remember to check the radio antenna, all original accessories and all accessories installed subsequently that may alter the height of the **Self-propelled power frame**.
If the **Self-propelled power frame** touches an overhead electric power line, immediately stop the **Self-propelled power frame**, switch off the engine and apply the parking brake.
Check whether you can move out of your current position without touching the power lines. Jump out of your seat, making sure that there is no permanent contact between your body and the ground when leaving the vehicle.
Do not touch the **Self-propelled power frame** until the electric power lines have been powered down.
Warn anyone approaching the **Self-propelled power frame** not to touch the machine and ask for the electric power lines to be switched off.

1.8.6. MAINTENANCE OF THE SELF-PROPELLED POWER FRAME

WARNING

Perform all maintenance work on the **Self-propelled power frame** under safe conditions.

Stop the engine before servicing your **Self-propelled power frame**.

Stop the engine and depressurise the pressure circuits before connecting or disconnecting any hoses or pipes. Tighten all couplings before starting the engine or pressurising the circuits.

Always keep the **Self-propelled power frame** and its sub-systems, especially the steering and brakes, in perfect working order for safe driving conditions and in order to comply with all legislation in force.

Before making any adjustments, always stop the **Self-propelled power frame**, apply the parking brake, disengage the PTO, set all levers to neutral, lower the tool to the ground, stop the engine and remove the ignition key before leaving the driver's seat.

Before starting the engine when indoors, make sure that the premises are suitably ventilated. Never run the engine in closed premises. The exhaust fumes may cause death.

Never perform any maintenance work on the **Self-propelled power frame** when the engine is running or still hot, or when the **Self-propelled power frame** is moving.
You are recommended to consult your "Approved Dealer" for all repairs and adjustments, which must be made by suitably trained staff.

Handle all liquids with care.
If you suffer injury by coming into contact with or absorbing a liquid, then consult a doctor immediately.

Pressurised liquids escaping through tiny holes are almost invisible but may be a major threat to health and safety. Check for leaks using a piece of cardboard or wood. Never check for leaks using your hands.

Always disconnect all the cables from the battery (negative cable first), before changing any settings or working on the electrics.

Never use the **Self-propelled power frame** hydraulic system as a jack to raise the vehicle. Always use a suitable support to raise the **Self-propelled power frame**.

When adjusting or installing equipment at the front or rear of the **Self-propelled power frame**, make sure that no-one is located in the vicinity before operating the hydraulic system.

Use the secure equipment provided when performing any maintenance work on the **Self-propelled power frame** and use any suitable additional equipment required, such as step ladders or platforms, to avoid the risk of falling (Including fillings of fuel, oils and cooling liquid.) To proceed at this operations, it's required to use a reserved place and not on the work site.

1.8.11.1. Engine

Before doing any work on the engine, switch the engine off, wait for it to cool down, apply the parking brake and remove the ignition key.

1.8.11.2. Fuel

Handle the fuel with care. It is highly inflammable. Do not smoke when filling the tank or working on the fuel feed circuit and stay clear of naked flames.

Stop the engine before filling the tank. Always fill the tank in the open air.
Never use barrels of fuel.
Always wipe off any spilt fuel.
Never completely fill the fuel tank. Fill to a level just below the filler tube to allow for possible expansion of the fuel.
Never add any gasoline, alcohol or other combustible mixtures to the fuel. These mixtures may be a further danger of fire or explosion.
Keep sufficient fuel stocks to avoid using summer fuel during the winter.
Always carefully close the filler cap of the fuel tank.
Do not smoke when filling the fuel tank. Stay clear of flames when filling the fuel tank.
Always keep a firm hold on the filler nozzle when filling the the tank with fuel.
To fill up the fuel tank, use all the protections and required equipments at your disposal, such as step ladders or platforms, to avoid the risks of falling.
Only use fuel that is compatible with the engine in the **Self-propelled power frame.** Using fuels that are not listed in the document below (CIRCULAR 0199-3005 fr / DEUTZ) may cause irreparable damage to the engine that may not be covered by the warranty.

Technical Bulletin

0199 - 99 - 3005/7 EN

This Circular supersedes: TR0199-99-3005/6

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Fuels

The 7th replacement was introduced due to more detailed specifications of

- Light heating oils for TIER III and EURO IV engines.
- Introduction of diesel fuel with 7% bio diesel according to DIN 51628
- Release of plant oils for DEUTZ NATURAL FUEL ENGINE®

This Technical Circular applies for all air-cooled and liquid-cooled compact engines made by DEUTZ. This TC applies accordingly for engines which are no longer built.

General

The following fuels are permitted for the compact engines made by DEUTZ:

- Diesel fuels
- MDF distillate fuels
- Light heating oils
- Jet fuels
- Bio fuels

For general fuel data, see subsection:

- Biological contamination in fuels
- Fuel additives

Distillate fuels with residue oil percentages or mixed fuels may not be used in DEUTZ compact engines.

The DEUTZ vehicle engines are designed for diesel fuels in accordance with EN 590 and DIN 51268 with a cetane number of at least 51. DEUTZ engines for mobile machinery are designed for a cetane number of at least 45. When using fuels of a low cetane number, troublesome white smoke and ignition misfires are to be expected under some circumstances.

Note:
The part numbers indicated in this document are not subject to updating.
Binding for the identification of spare parts is exclusively the spare parts documentation.

DEUTZ

Technical Bulletin

0199 - 99 - 3005/7 EN

TR

A cetane number of at least 40 is permissible for the US market, therefore special engine models have been developed to avoid starting difficulties, extreme white smoke or increased hydrocarbon emissions (EPA specification – US EPA REGULATIONS FOR LARGE NONROAD COMPRESSION-IGNITION ENGINES).

If the white smoke behaviour is unacceptable when using a very low cetane number, the use of ignition improvers is to be recommended as a later remedial measure. If the use of fuels with a very low cetane number can be anticipated, we recommend ordering engines in the EPA version.

The certification measurements for compliance with the legal emission limits are carried out with the test fuels prescribed by law. These correspond to the diesel fuels in accordance with EN 590, DIN 51628 and ASTM D 975 described in subsection 1. No emission values are guaranteed with the other fuels described in this bulletin. It is the obligation of the owner to check permissibility for the use of fuels in accordance with regional regulations.

Engines which are fitted with an exhaust aftertreatment via a particle filter, oxidation catalyst or SCR system (**S**elective **C**atalytic **R**eduction), may only be operated with diesel fuel according to EN 590 or DIN 51628. Otherwise, compliance with emissions requirements and durability are not guaranteed.

Diesel fuels

Diesel fuels are released and can be used according to the following specifications:

Fuel	Specifications
EN 590 (max. 5% bio-diesel)	Appendix 2
DIN 51628 (max. 7% bio-diesel)	Appendix 3
ASTM Designation: D 975 Grade-No 1-D and Grade Low Sulphur No. 1-D	Appendix 4
ASTM Designation: D 975 Grade-No 2-D and Grade Low Sulphur No. 2-D	Appendix 4
JIS K 2204 Grade 1 Fuel and Grade 2 Fuel	Appendix 5
NATO F-54, corresponds to diesel fuel in accordance with EN 590	Appendix 2

The European standard EN 590 has the status of a national standard with national appendix in most European countries, e.g. EN 590.

For DEUTZ engines for Tier III and EURO III/IV with electronic injection, US diesel fuels according to ASTM D 975 Grade-No 1-D and 2-D are approved. Japanese diesel fuels in accordance with JIS K 2204 Grade 1 Fuel and Grade 2 Fuel are only approved if the lubricating properties comply with the diesel fuel EN 590 (HFRR max. 460 micrometer according to EN ISO 12156).

Lubricity in low sulphur and sulphur-free fuels

Insufficient lubricity can lead to serious wear problems, above all in common rail injection systems. A lubricity which is too low is a particular problem in fuels with a low sulphur content (and in this regard, sulphur contents of <500mg/kg may be considered low). In low sulphur (<50mg/kg) and sulphur-free (< 10mg/kg or <15mg/kg) diesel fuels, in accordance with EN 590, DIN 51628 and ASTM D 975, sufficient lubricity is guaranteed by appropriate additives. The lubricity of low sulfur diesel fuels which do not comply with these standards must be guaranteed by additives. The parameter for adequate lubricity is a maximum wear spot of 460 micrometers in the HFRR test (ISO 12156-1).

Technical Bulletin

0199 - 99 - 3005/7 EN

DEUTZ

High sulphur content in the fuel

Fuels with sulphur content > 0.5 weight % require a shorter lubricating oil change interval (see Technical Circular 0199--99-3002). Fuels with a sulphur content >1.0 weight % are not permissible due to high corrosion and considerable shortening of the engine life.

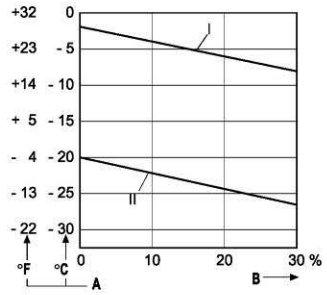
Low-ash engine oils (low SAPS oils, sulphated ash <1.0 weight%) may not be used with fuels with sulphur content > 500 mg/kg.

Winter operation with diesel fuel

Special demands are made on the behaviour in cold (temperature limit of filterability) for Winter operation. Suitable fuels are available at fuel stations at the specified times.

If only summer diesel fuel is available, up to 30% petroleum can be mixed with the diesel according to the diagram below at low temperatures to ensure the flow properties.

Mixing with petroleum is not allowed for TCD 2013 4V engines and fuels in accordance with ASTM D 975 1-D/2-D.



A 1 Mixing petroleum with the summer diesel fuel

Mixing should take place in the engine tank: First fill with the necessary amount of petroleum and then top up with diesel.

Mixing of regular gasoline is not permissible for safety and technical reasons (cavitation in the injection system). Diesel fuels up to - 44 °C are available for an Arctic climate. Mixing flow improvers with the diesel fuel is possible. The choice of a suitable additive and the necessary dosing and mixing procedure should be made in agreement with the fuel supplier.

Marine distillate fuels

These are distillate fuels which are principally used in ships. Only marine distillate fuels which contain no residual oils (residues from the distillation process) may be used.

DEUTZ

Technical Bulletin

0199 - 99 - 3005/7 EN

TR

The following marine distillate fuels may be used for DEUTZ marine engines:

Fuel	Specifications
ISO 8217 DMX	Appendix 6
ISO 8217 DMA (restriction: sulphur content max 1.0 weight%)	Appendix 6
NATO F-75	Appendix 7
NATO F-76	Appendix 8

- Marine distillate fuels are not approved for engine series 2008, 2009, 2015 and engines for Tier III and EURO IV with electronic injection.
- The cetane number must be at least 40, otherwise starting difficulties, extreme white smoke or increased hydrocarbon emission may occur.
- The higher density requires a return blocking in the injection pump (may only be carried out by authorised DEUTZ personnel).
- The possible high sulphur content ≥ 0.5 weight% requires a shorter lubricating oil change interval. Fuels with a sulphur content >1.0 weight % are not permissible due to high corrosion and considerable shortening of the engine life. Please bear in mind, therefore, that fuels in accordance with ISO 8217 DMA are only permissible, when the sulphur content is a maximum of 1.0 weight%.
- Due to the possible severe soiling, the fuel purification is particularly important, and if necessary an additional fuel filter with water separator may be installed.

Non-road fuels and light heating oils

In some European countries, non-road fuels are defined with the same properties as heating oil, but they are treated differently from heating oil for tax purposes. In Germany, systems which benefit from permission to use heating oils are described in the Energy Taxation Law (Section 3). Heating oils are usually not allowed in diesel engines. The user must always keep to the relevant tax regulations. These are not the subject of this bulletin. Regarding their application in engines (warranty claims), there is no difference between the corresponding non-road fuels and light heating oils.

The following non-road fuels and light heating oils can be used:

Fuel	Specifications
DIN 51603	Appendix 9
ASTM D 396 Grade-No 1	Appendix 10
ASTM D 396 Grade-No 2	Appendix 10
BS 2869 Class A2	Appendix 11
CSR 441	Appendix 12

Technical Bulletin

0199 - 99 - 3005/7 EN

- The cetane number must be at least 40, otherwise starting difficulties, extreme white smoke or increased hydrocarbon emission may occur.
- At a density of > 0.869g/cm^3 a return blocking in the injection pump is necessary (may only be carried out by authorised DEUTZ personnel).
- For engines for Tier III and EURO IV with electronic injection, light heating oils may only be used if they comply with all limit values of EN 590 except the fuel density, the cetane number and the sulphur content. For these parameters, the following limit values apply:

Fuel parameter	Unit	Limit value	Test method
Cetane number		min. 49	EN ISO 5165
Fuel density at 15°C	kg/m^3	820 - 860	EN ISO 3675 or EN ISO 12185
Sulphur content	mg/kg	max. 1000	EN ISO 14596

Jet fuels

The following jet fuels can be used:

Fuel	Specifications
F 34/F 35 (kerosene, NATO designation)	Appendix 13
F 44 (kerosene, NATO designation)	
F-63 (kerosene, NATO designation, equivalent to F-34/F-35 with additives)	
F-65 (kerosene, NATO designation, 1:1 mixture of F-54 and F-34/F-35)	Specifications available on request
JP-8 (kerosene, US military designation)	
JP-5 (kerosene, US military designation)	
Jet A (kerosene for civil aviation)	
Jet A1 (kerosene for civil aviation)	

- Jet fuels F 34 and F 35 are equivalent for use in diesel engines.
- The 1011/2011/912/913/914/2012/2013/2015 engine series are released up to Tier II and Euro III. These series are also released for Tier III in the case of engines with mechanical injection. Tier III and EURO IV engines with electronic injection are not approved for jet fuels
- Jet fuels may not be used for the 226/327/302/916/2008/2009/2010 engine series.
- The cetane number must be at least 40, otherwise starting difficulties, extreme white smoke or increased hydrocarbon emission may occur.
- A power loss of up to 10% is possible due to the lower density and the greater leak fuel rate due to lower viscosity, depending on engine speed and torque. **Blocking of the fuel injector is not allowed.**

- Since the jet fuels F 34/F 35 and F 44 are kerosene, there are some problematical fuel properties (viscosity, lubricity and low boiling point). A slight increase in wear on the injection system is to be expected, which may be reflected in a statistically shorter life of these components. The engine guarantee is retained when these fuels are used.
- Jet fuels can be mixed with each other. Mixing of kerosene with diesel fuel in accordance with EN 590 in order to improve the flow properties in winter operation is permitted.

Bio fuels

We understand bio fuels to mean bio-diesel and pure plant oils (rape seed oil).

Bio-diesel

At first only rape seed oil methylester (RME) was sold as bio-diesel in Europe, but fatty acid methylesters (FAME) based on other oils have come onto the market increasingly in recent years. However, with the latter there is a risk that the limit values of EN 14214 are not kept in the field. Since the quality of bio-diesel available in the market does not always meet requirements, DEUTZ customers in Germany are recommended to ensure quality by buying bio-diesel with an AGQM certificate (Arbeitsgemeinschaft Qualitäts-Management Biodiesel e. V.). Customers should also ensure that suppliers can confirm their compliance with quality requirements by showing a current certificate of analysis from a certified laboratory.

The use of US bio-diesel based on soy oil methylester is only permissible in mixtures with diesel fuel with a bio-diesel part of a max. 20 weight%. The US bio-diesel used for the mixture must comply with the ASTM D6751-07a (B100) standard. The use of bio-diesel whose quality has been assured in accordance with BQ 9000 is recommended.

Fuel	Specifications
Bio-diesel in accordance with EN 14214	Appendix 14
US bio-diesel in accordance with ASTM D6751 - 07a (B100) (only permissible for mixtures with diesel fuel of 20 weight%)	Appendix 15

Released engines

- The 912, 913, 914, 1011, 2011, 1012, 2012, 1013, 2013, 413 and 513 series are released for bio-diesel from year of manufacture 1993 under compliance with the basic conditions specified below.
- The TCD 2012 2V/4V and TCD 2013 2V/4V series for mobile machinery are released for bio-diesel in accordance with EN 14214 as well as a mixture of up to 20% US bio-diesel in accordance with ASTM D6751-07a (B100). The TCD 2013 4V series for commercial vehicles (EURO III/EURO IV) are not released for bio-diesel fuels.
- The 909, 910, 1015, 2008, 2009, 2015 series are not released for bio-diesel as a series standard. Further information is available from head office.
- Turbocharged engines are excepted from release for applications which are usually operated with a high load above 80% of rated output power.
  - Engines in district heating power stations
  - Engines in electricity generators with mains/parallel operation
  - Engines in harvesting machinery

Technical Bulletin

0199 - 99 - 3005/7 EN

Basic conditions to be observed

- A power loss of 5-9% and increased fuel consumption of 7-8% in relation to diesel fuel in accordance with EN 590 is possible due to the lower heating value. Blocking of the fuel injector is not allowed.
- The lubricating oil quality must correspond to TR 0199-99-3002. The lubricating oil change interval must be halved in relation to operation with diesel fuel in accordance with EN 590.
- Shutdown periods of longer than 4 to 6 weeks must be avoided with bio-diesel. Otherwise the engine must be started and stopped with diesel fuel.
- Engines with a low annual running time, e.g. emergency generators, are excluded from operation with bio-diesel.
- In series engines, the fuel hoses, the manual fuel supply pumps and the LDA diaphragms (series 1012, 1013, 2012, 2013, TCD 2012 2V mechanical and TCD 2013 2V mechanical) are not resistant to bio-diesel and must be changed once a year. Since the fuel hoses may disintegrate earlier with increasing fuel temperature and long running times, they may have to be replaced before the year is out. The fuel hoses must be checked for damage (swelling) in the course of daily maintenance E 20. The use of bio-diesel-resistant fuel hoses (Viton) is recommended, in which case there is no need to change them every 12 months.
- Bio-diesels can be mixed with normal diesel fuel, but the basic conditions described in this subsection apply for mixtures. Mixtures with a percentage of 5% or 7% (V/V) bio-diesel (B5 or B7), as permissible in EU countries according to national legislation, are excluded. In any case, however, bio-diesel mixtures must comply with EN 14214.
- Approx. 30-50 oh after changing over from diesel fuel to bio-diesel, the fuel filter should be changed as a precaution to avoid a drop in performance due to clogged fuel filters. Deposited fuel ageing products are dissolved by bio-diesel and transported into the fuel filter. They should not be changed immediately, but after approx. 30 to 50 hours, because the dissolving of dirt takes a certain amount of time.
- The fuel pre-filter must be suitable for operation with bio-diesel.

Plant oil

Pure plant oils (e.g. rape seed oil, soy oil, palm oil) are not classified as bio-diesel and exhibit problematic properties for engines which were not designed for operation with plant oils (strong tendency to coke, risk of piston seizure, extremely high viscosity, poor evaporation behaviour).

DEUTZ NATURAL FUEL ENGINE®

DEUTZ has developed the first series engines based on the TCD 2012 2V/4V and TCD 2013 2V/4V series with the DEUTZ Common Rail System ® (DCR) for use with rape seed oil.

These engines are released for use with 100% rape seed oil (raffinate or cold-pressed) in accordance with DIN V 51605 (appendix 16) and bio-diesel in accordance with EN 14214 (appendix 14).

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Technical Bulletin

0199 - 99 - 3005/7 EN

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Basic conditions to be observed

- A power loss of 5-10% and increased fuel consumption of 4-5% in relation to diesel fuel in accordance with EN 590 is possible due to the low heating value. Blocking of the fuel injector is not allowed.
- This motor has a 2 tank system with the possibility of using diesel fuel/rape seed oil. Alternatively, bio-diesel can also be used in place of rape seed oil and/or diesel fuel.
- Rape seed oil must be replaced by diesel fuel or bio-diesel at temperatures of under 5°C.
- Shutdown periods of longer than 4 to 6 weeks must be avoided with bio-diesel and rape seed oil. Otherwise the engine must be started and stopped with diesel fuel.
- The lubricating oil quality must correspond to TR 0199-99-3002. The lubricating oil change interval must be halved in relation to operation with diesel fuel in accordance with EN 590.
- Important fuel properties, such as for example water content; oxidation stability; calcium, magnesium and phosphorous content; and the total contamination, are particularly influenced by the harvest time, the pressing process in the oil mill, the storage of the rape seed oil and the continuing logistics chain. Therefore, due to continual infringements of limit values by decentralised oil mills, customers are recommended to confirm the quality of the supply of rape seed oil fuel with a certificate of analysis. In case of doubt, the quality can be proven with an analysis by a laboratory accredited according to ISO 17025 (e.g. ASG Analytik GmbH, D-86356 Neusäß, Tel. ++49 (0)821-450-423-0).
- Mixing with other plant oils, such as sunflower oil, soy oil or palm oil, is not permitted.

Notes for the storage of rape seed oil in fuel stations for own use:

- Store in the dark and at consistent low temperatures (maximum 20°C, ideally in underground tanks at 5-10°C). Storage temperatures of lower than freezing should be avoided, for this reason also underground tanks are ideal. Tanks must not be translucent (no polyethylene tanks).
- The storage of rape seed oil at storage temperatures of up to 20°C is limited to a maximum of 6 months, in underground tanks <10°C maximum 12 months).
- Due to the hygrosopic (attracting water) properties of rape seed oil, works fuel stations should if possible be fitted with dehumidification on the air exchange system.
- Minimise contact with air with the use of thick locks.
- Contact with metals with a catalytic effect, above all copper or brass, must absolutely be avoided. These materials must not be used at all in the storage system (e.g. pipes, screws, pumps, etc).
- Avoidance of gathering of sediments by removal approx. 10cm above the tank floor.
- The tanks should be regularly cleaned, if a bacterial infestation occurs the bactericide Grotamar 71 should be used by a specialised firm.

Technical Bulletin

0199 - 99 - 3005/7 EN

Series diesel engines

The conversion of other DEUTZ engines to operation with pure plant oil with conversion kits and modified tanks systems of various manufacturers is not allowed and leads to loss of the guarantee rights.

Only engines of the 912W/913W/413FW/413W series with the 2-tank system from Henkelhausen, D-47809 Krefeld, Fax no. ++49 (0)2151 574 112, can be operated with rape seed oil fuel according to the DIN pre-standard DIN V 51605, see appendix 15.

Biological contamination in fuels

Symptoms

The following symptoms may indicate that a fuel tank is contaminated by micro-organisms:

- Internal tank corrosion,

- Filter blockage and the associated loss of power due to gel-like deposits on the fuel filter (especially after long downtimes)

Cause

Micro-organisms (bacteria, yeasts, funguses) can form bio-sludge under favourable conditions (favoured particularly by heat and water).

Penetration by water is usually caused by condensation of the water in the air. Water does not dissolve in fuel so that the penetrating water collects at the bottom of the tank. The bacteria and funguses grow in the watery phase, at the phase boundary to the fuel phase, from which they draw their nutrition. There is an increased risk of this especially with bio-diesel (FAME).

In suspicious cases, biological contamination can be analysed according to DIN 51441 (determination of the number of colonies in mineral oil products in the boiling range below 400 °C) by laboratories certified according to ISO 17025 (e.g. PetroLab GmbH, D-67346 Speyer, Tel.: ++49 (0) 6232-33011).

Remedial measures

- Keep the storage tank clean, regular cleaning of the tank by specialist companies

- Installation of fuel pre-filters with water traps, especially in countries with frequently fluctuating fuel qualities and high percentage of water. (e.g. Separ filter or RACOR filter use of biocide GrotaMar 71 from

  Fa. Schülke & Mayr GmbH,
  D-22840 Norderstedt,
  Tel.: +49 (0)4052 100-0,
  E-mail: sai@schuelke-mayr.com

  if the fuel system and storage tank have already been attacked by micro-organisms. The biocide must be dosed according to the manufacturer's specifications.

- Avoid direct exposure of the storage tank to sunlight- Use smaller storage tanks with corresponding low holding times of the stored fuel

DEUTZ

Technical Bulletin

0199 - 99 - 3005/7 EN

TR

Fuel additives

The use of fuel additives is not permitted. The flow improvers mentioned above are an exception. Use of unsuitable additives will result in loss of warranty.

Service Information

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Particularités liées à l'emploi du « BIOCOMBUSTIBLE »

Selon les indications de la Ste DEUTZ FRANCE, l'emploi de carburant « BIOCOMBUSTIBLE » tel qu'il est cité dans la circulaire 0199-3005 fr (Carburant réalisé avec un mélange de Gazole et d'ester méthylique d'huile de colza. Pour respecter la norme 51606 –FAME, le pourcentage de « colza » ne doit pas dépasser 30%) entraîne les conséquences suivantes :

- Ce carburant à un faible pouvoir calorifique, ce qui entraîne une perte de puissance allant jusqu'à 5%.
- Ce carburant est agressif avec le caoutchouc : Il est nécessaire de remplacer tous les ans les tuyauteries de gazole et de remplacer régulièrement (tous les 2 ans) les joints de pompe à injection. Les intervalles de vidange doivent être réduits de moitié.

1.8.11.3. Battery

Keep the batteries and starter devices clear of naked flames. Follow the instructions for the operation of the auxiliary starter cables to avoid sparks that may cause an explosion.

Always check the voltage using a voltmeter. Always disconnect the negative cable from the battery first.

1.8.11.4. Wheels and tyres

Regularly check that all nuts are bolts are tight, especially the wheel hub and wheel nuts.

The wheels of the **Self-propelled power frame** are very heavy. They must be handled with care and stored in a secure position to avoid accidents.

1.8.11.5. Hydraulic system

Switch off the engine, block the wheels and make sure that the circuits are cold before doing any maintenance or servicing work on the hydraulic system.

Check that all hydraulic couplings are tight. Depressurise before disconnecting any hoses. Leaks of pressurised oil may cause serious injury.

When using tools or accessories, always follow the safety instructions indicated in the corresponding operating guide.

1.8.11.6. Air conditioning

Never attempt to work on the air conditioning system. Leaks of coolant may cause cold burns or serious injury. Special tools and equipment are required to work on the air conditioning system. Consult your "Approved Dealer".

1.8.11.7. Tanks, pipes and collectors

Depending on version and equipment level.

Pay special attention to fluid and energy tanks, pipes and collectors. They must not be subject to chemical, thermal or mechanical attack and must be kept clean and free of corrosion or visible faults.
If in doubt about the condition of these components, then immediately consult your "Approved Dealer".

The amended order of July 23, 1943 regarding gas pressure systems applies to the air tank for the pneumatic suspension system: hydraulic tests are required every ten years and internal and external inspections every three years.

1.8.11.8. Waste

Incorrect disposal of waste may be environmentally harmful. Some of the liquids or components used in ***Préciculture S.A.S.*** products, such as oil, fuel, coolants, brake fluid, filters and batteries may cause pollution.

When changing liquids, make sure that they are collected in watertight vessels. Do not use recipients for food or drinks to avoid the risk of accidental consumption of the fluids.

Never pour waste onto the ground, into the sewers or any other place that may result in pollution.

The coolants used in the air conditioning system may pollute the atmosphere if released into the air.

Consult the local authorities or your "Approved Dealer" about the measures to be taken when disposing of waste.

1.8.11.9. Decommissioning and scrapping

Your "Approved Dealer" is responsible for the procedures to scrap parts of the **Self-propelled power frame**. Please consult your "Approved Dealer" whenever necessary.

1.9. INDIVIDUAL PROTECTION/OPERATION AND MAINTENANCE

Always wear protective clothing and individual protective gear for the hands, eyes, ears, feet and head.

Never wear loose clothing that may become caught in the moving parts of the **Self-propelled power frame** or the tool and result in serious injury.

Special safety equipment may be necessary when working with fertilisers, toxic pesticides, etc. Follow the instructions provided by the manufacturer or supplier of chemical products.

If the use of **Self-propelled power frame** presents any risks of exposure to dust, particles, fogs or liquid, solid or gas vapor, use required individual protection equipment. Any failure on this instruction would be done under the one and whole responsibility of the user. Préciculture s.a.s can not be responsible of injuries whose the user of **Self-propelled power frame** could be victim if this instructions where not respected.

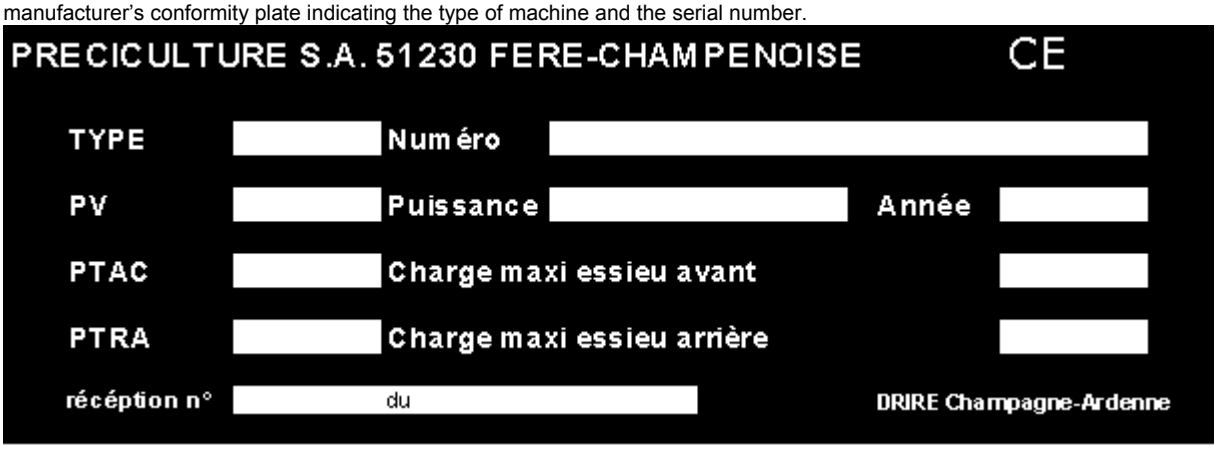
1.10. NOISE LEVEL

Noise level = 71 dB (A).
Measuring equipment: Lucas CEL Instruments Ltd. N° 5687071.
Measurement conditions: measured at a height of 0.7 m and 0.2 m to the right of the driver's seat. Driver seated in the cabin with the doors shut and the cabin ventilation off. Engine running at 2,100 rpm, with the vehicle at a standstill.

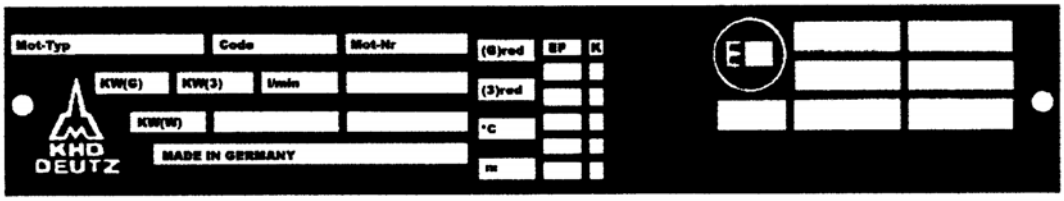
2. IDENTIFICATION OF THE SELF-PROPELLED POWER FRAME

Never removed the manufacturer's identification plates or the CE marking affixed to the **Self-propelled power frame**.

The **Self-propelled power frame** is identified by a serial number that is cold stamped on the left-hand side of the chassis and the manufacturer's conformity plate indicating the type of machine and the serial number.



The engine has its own type and serial number. A plate is affixed to the left-hand side of the engine.



For quick and efficient service when ordering spares or requesting information or technical explanations, please specify the chassis and engine serial numbers.

Chassis type and number: .....
Engine type and serial number: .....
Type of self-propelled power frame: .....
Transmission serial number: .....
Cabin serial number: .....

Owner/operator: .....

Reseller address: .....
.....
.....

3. CONTROLS, INSTRUMENTS AND OPERATION

3.1. OPERATOR'S COMPARTMENT

Reminder :

ATTENTION The operator station in the cab is the main work station.

DANGER Near the **Self-propelled power frame** , when the **Self-propelled power frame** is in functioning, all zones other than the work stations are dangerous zones.

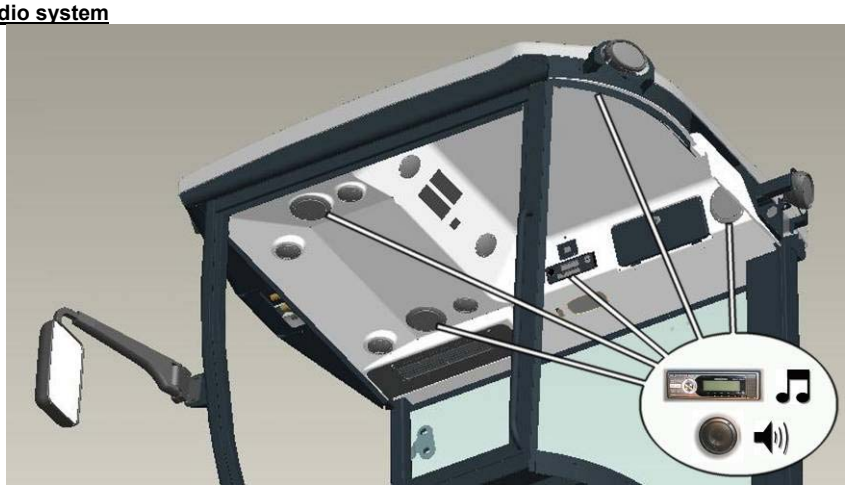
ATTENTION When you leave the operator station in the cab to fill the tanks or to access the power take-off control and the hydromixer control and the accelerator control of the heat engine placed near the ladder for access to the driving cab:

- stop the **Self-propelled power frame** .
- put on the parking brake
- place the levers at the neutral point, lower the tool on the support provided for storage

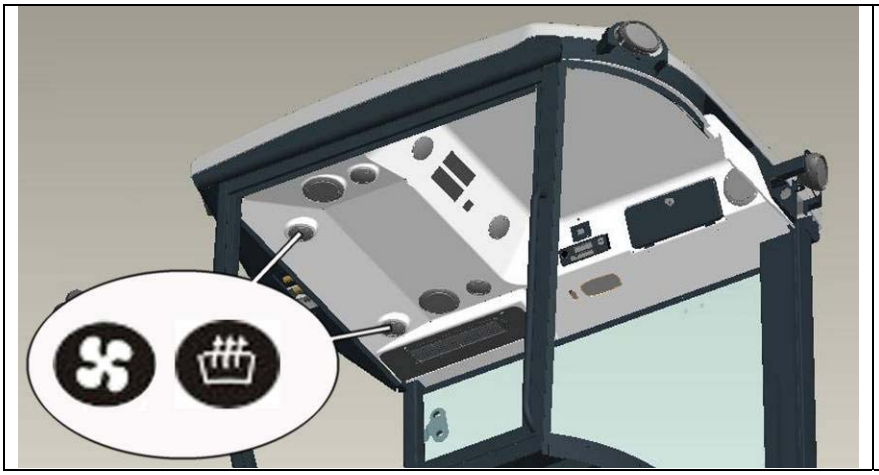
Beware of the hot zones of the **Self-propelled power frame.**

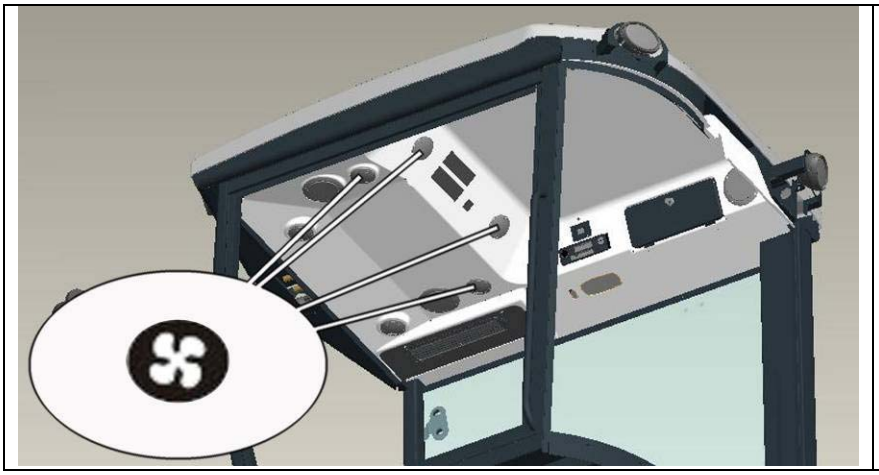
3.1.1. CAB CEILING AREA

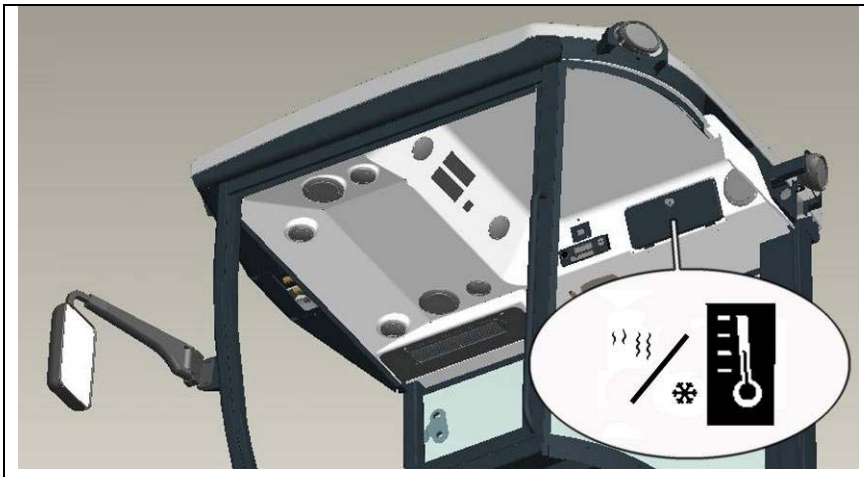
Audio system



AIR CONDITIONING AND HEATING







When the panel is powered with, it will show the panel software version. After, the
display's decimal point will start to blink, indicating that the panel is operating in stand by mode.

To turn the panel on « d », press « a » . for 3 seconds, and the numeric display will show the vehicle internal temperature.

To turn the panel off, press « a » for 3 seconds..

The display usually shows the vehicle internal temperature or setpoint, depending on the parameter. It also warns the operator whenever the system presents any failure.

Setpoint (is the desired temperature inside the vehicle).

.

- Press « c » or « b » to adjust it.
- The ***setpoint*** temperature will blink on the display.
- Press one of these buttons again until you obtain the temperature you want for inside the vehicle.

Ventilation

The ventilation will work even if the air conditioner function is not activated.

The panel has the VENTILATION option, which works in three different speeds: u1 (low speed) , u2 (medium speed) and u3 (high speed).

Initially, the system will start in Au mode, meaning Automatic ventilation control, which will be controlled by the temperature ***setpoint.***

To change the ventilation speed, press « g » and then press « c » (VENT_UP) or « b » (VENT_DOWN), selecting the desired speed or the automatic ventilation.

Refrigeration and Heating

- Air-conditioning :
  - With external temperature lower than 5ºC, the refrigeration will not be actived.
  - With external temperature equal or higher than 5ºC, the refrigeration will be automatically turned on whenever the temperature is higher than the **setpoint.** The refrigeration will be automatically turned off whenever the temperature is lower than the **setpoint** or the external temperature is lower than 5ºC.
- Heating :
  - The heating will turn on whenever the temperature is lower than ***setpoint***.
  - The heating will turn off whenever the temperature is greater than ***set-point***.

Defrost Control

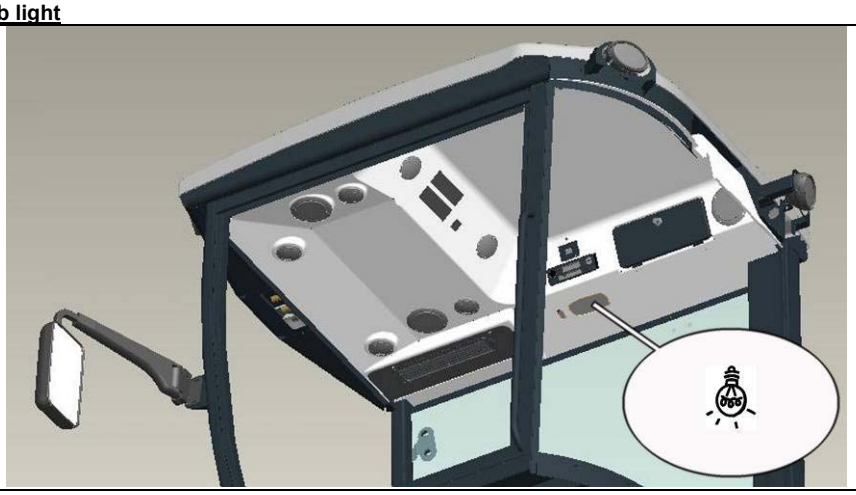
- The Defrost control is manually by pressing « e » .
- Refrigeration and Heating will turn on together, on High Ventilation. The refrigeration will turn off when the external temperature is lower than 5ºC.
- To change the ventilation speed, press « g » (VENT) and then press « c » (VENT_UP) or « b » (VENT_DOWN), selecting the desired speed for Defrost.
- ON period of Defrost:: 2 min.
- Once the ON period of Defrost is over, the system returns to previous status.

	The Defrost led « f » will be ON during the cycle. At the end, it will flash twice.

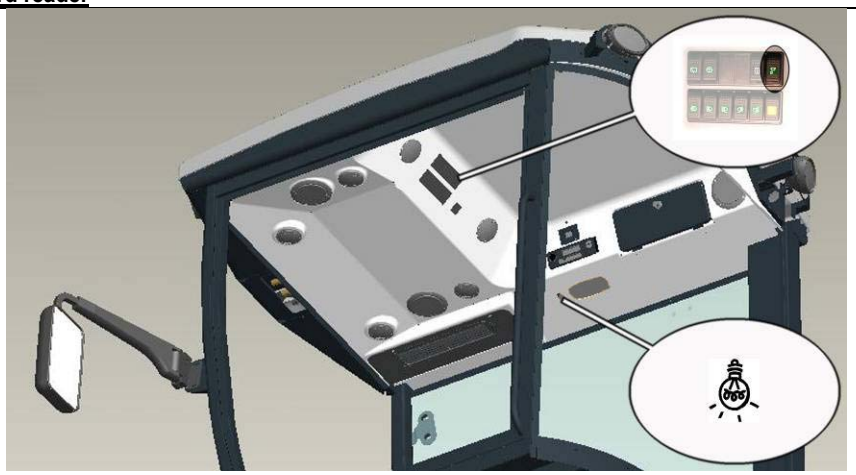
Viewing external temperature « h »

	The external temperature will be shown during 3 seconds by pressing (short press) the « a » . (POWER), and the display's decimal point « h » will be ON.

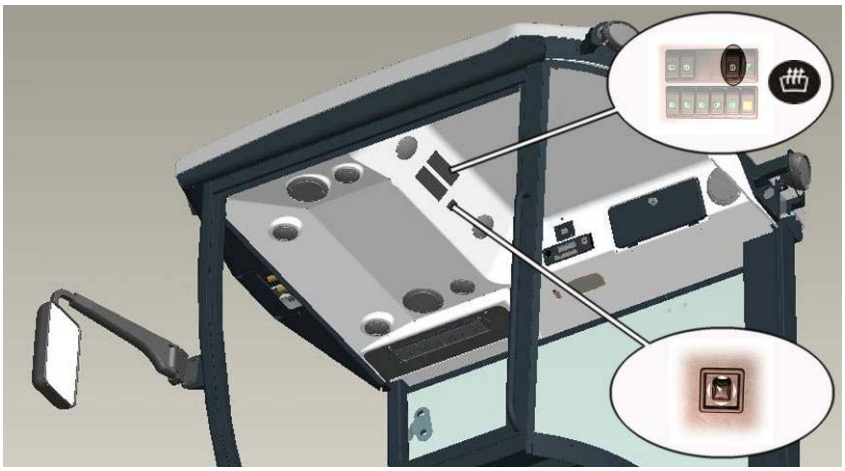
Cab light

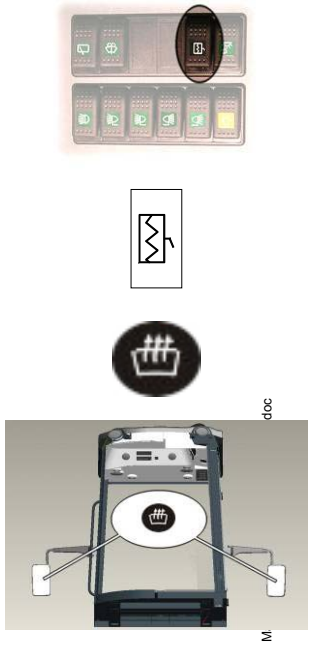


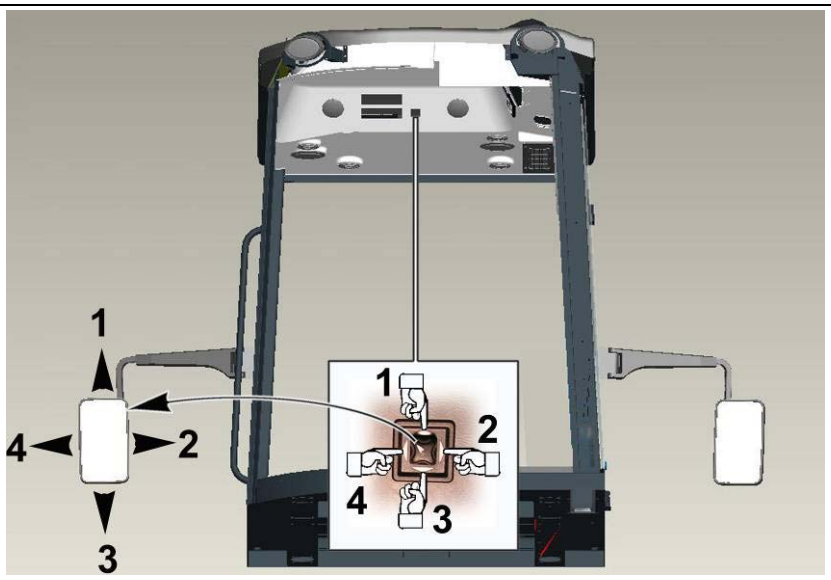
Card reader

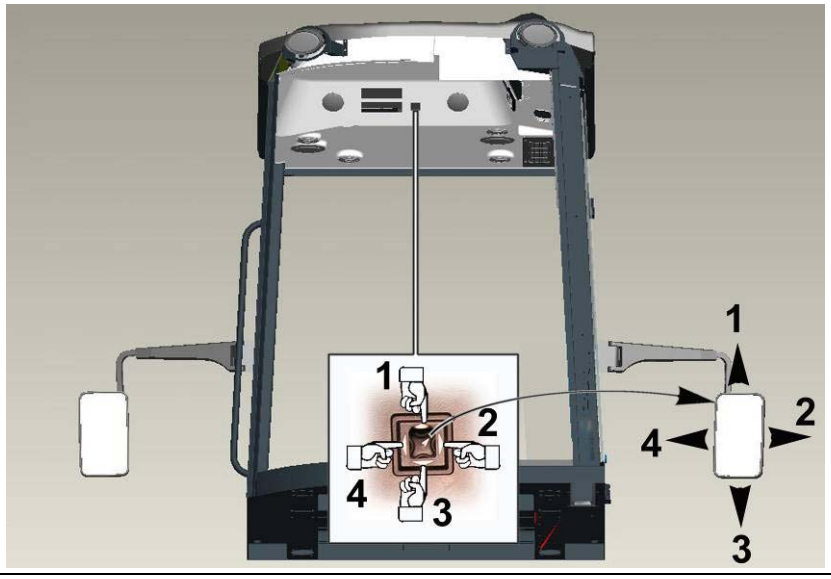


Rear view mirror controls



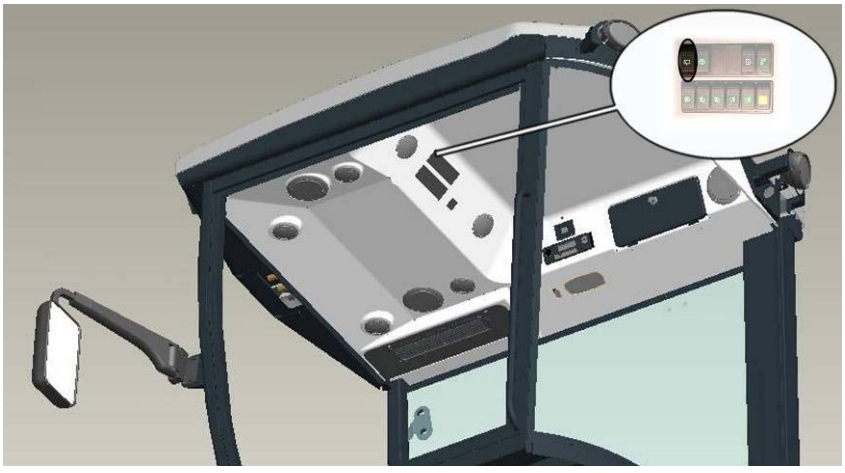




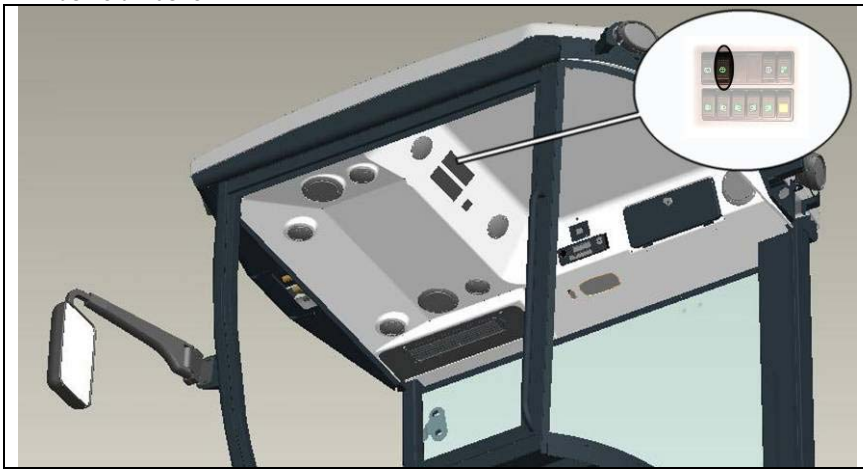


Various controls

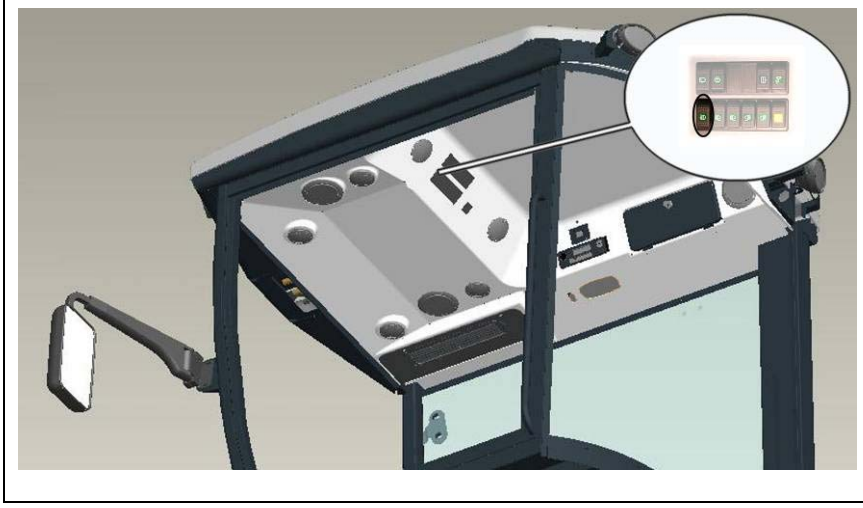
Windshield wiper

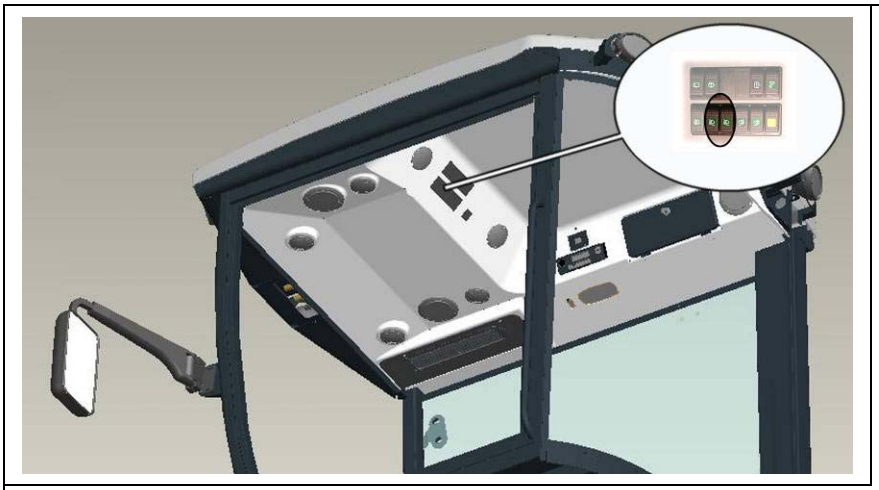


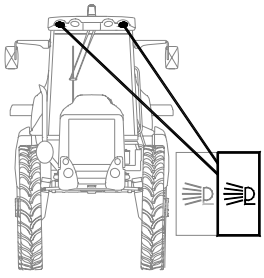
Windshield washer

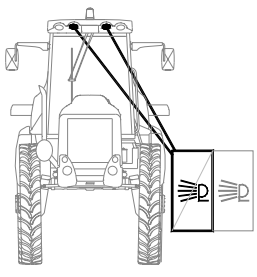


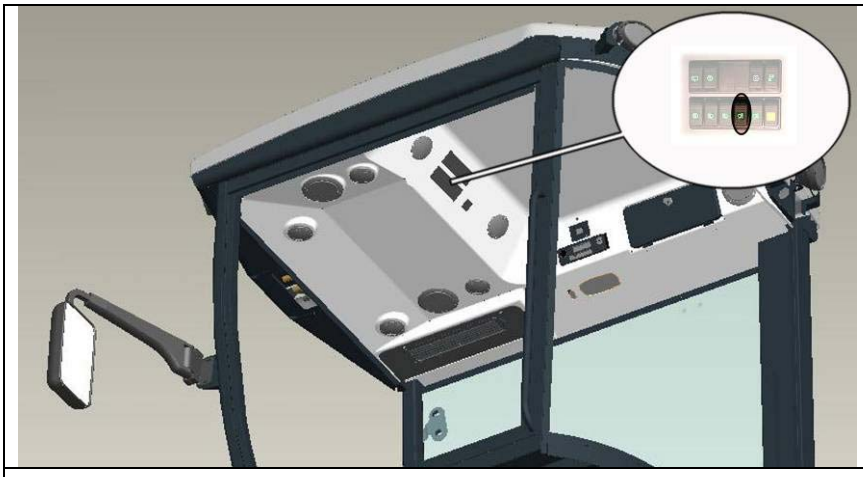
Working lights

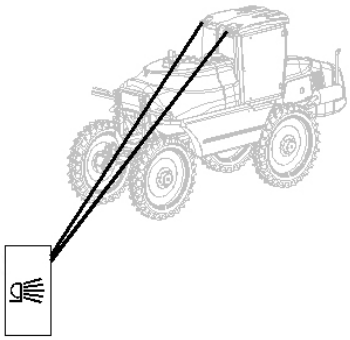


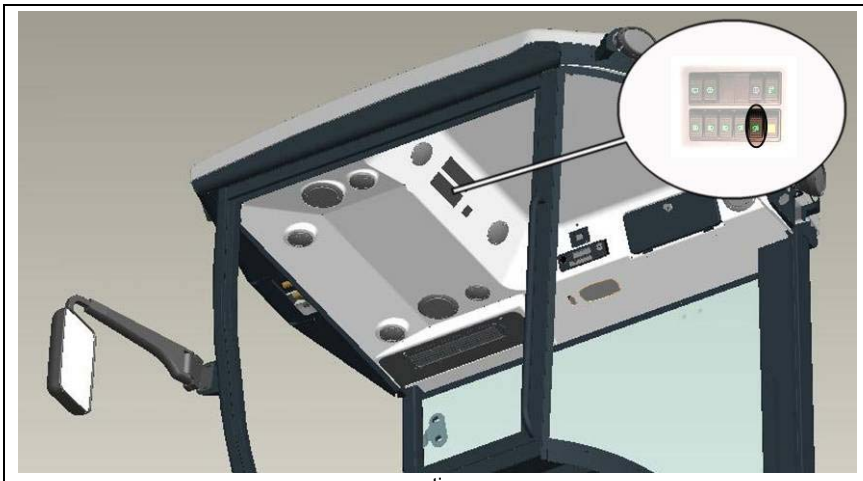




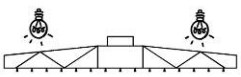




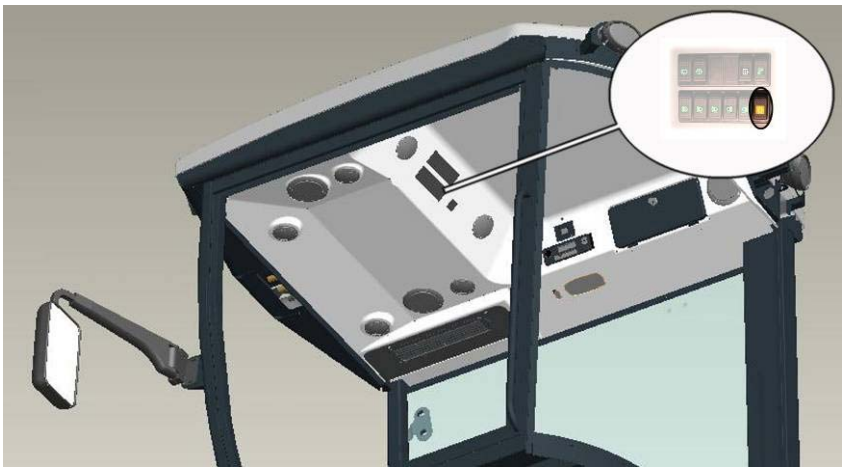


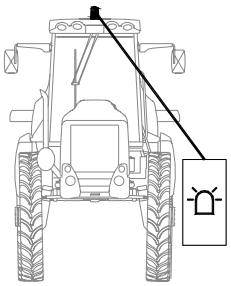


option

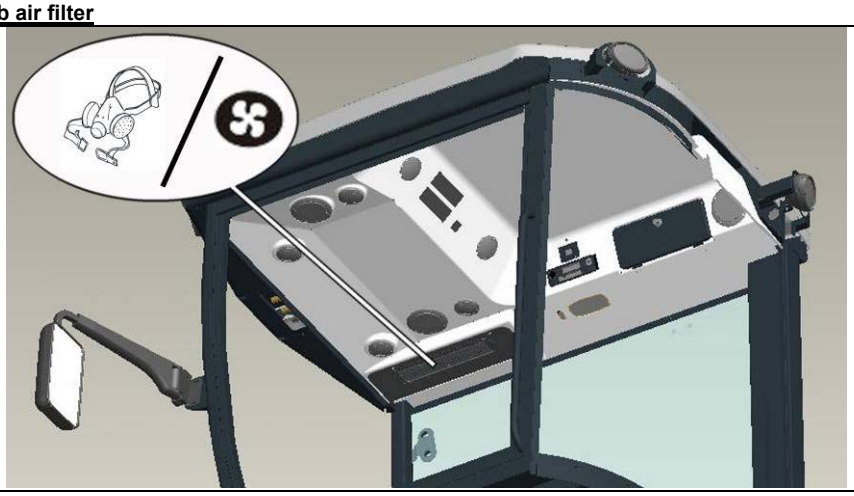


Rotating light





Cab air filter



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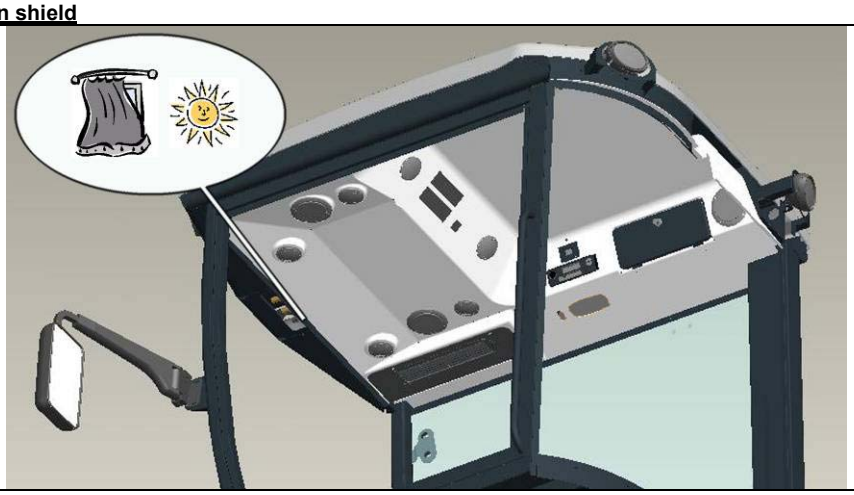
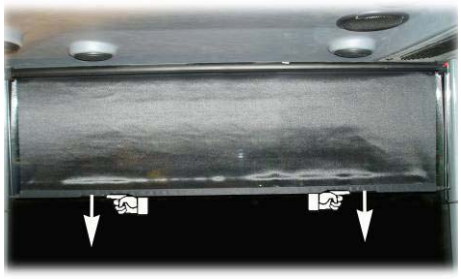
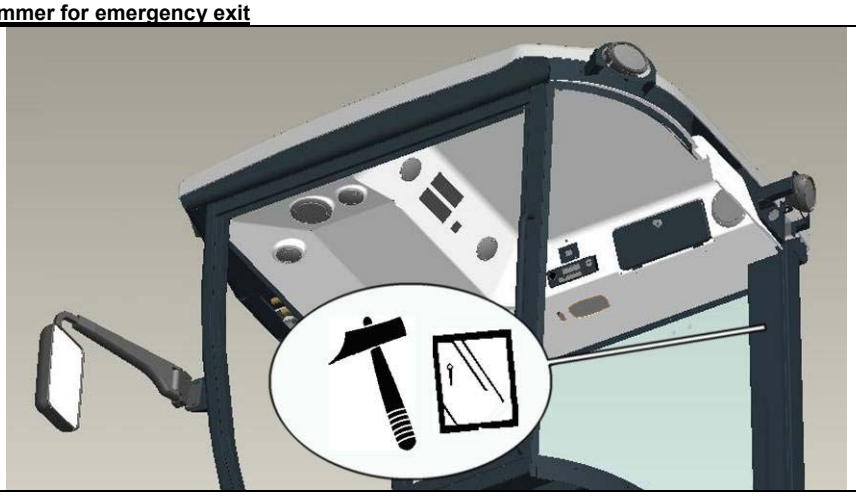
Sun shield





Hammer for emergency exit



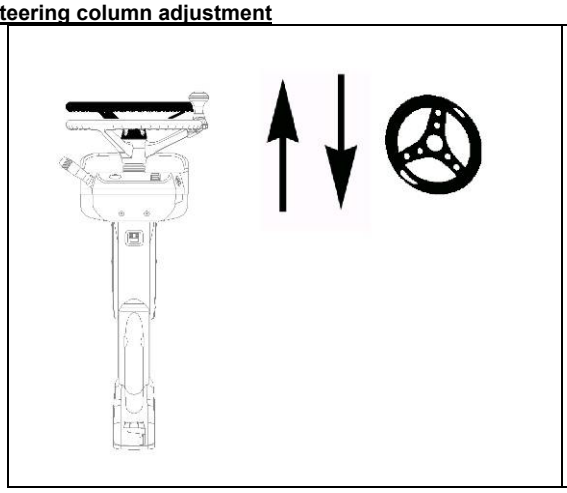
ATTENTION In the event of a dangerous situation, the hammer can be used to escape from the cab.

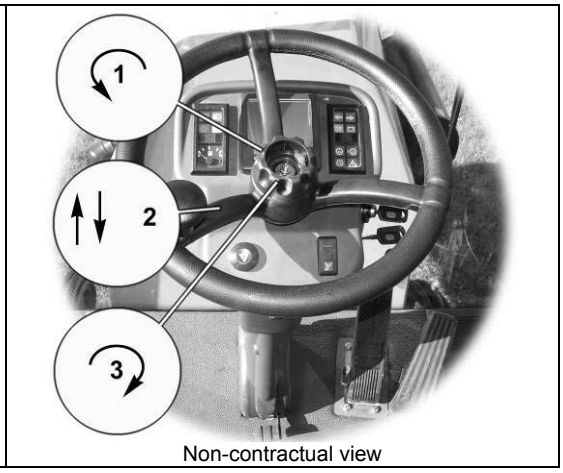
3.1.2. INSTRUMENT PANEL AREA

Steering wheel

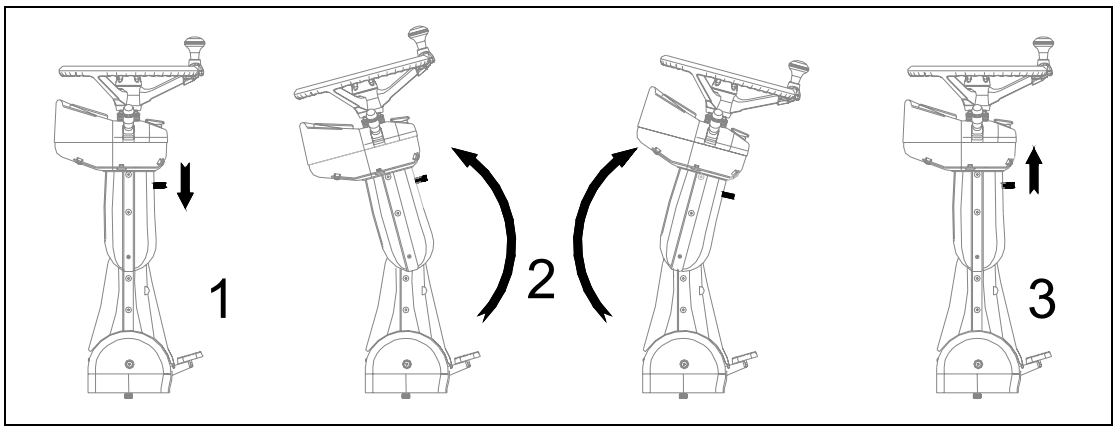
Non-contractual view

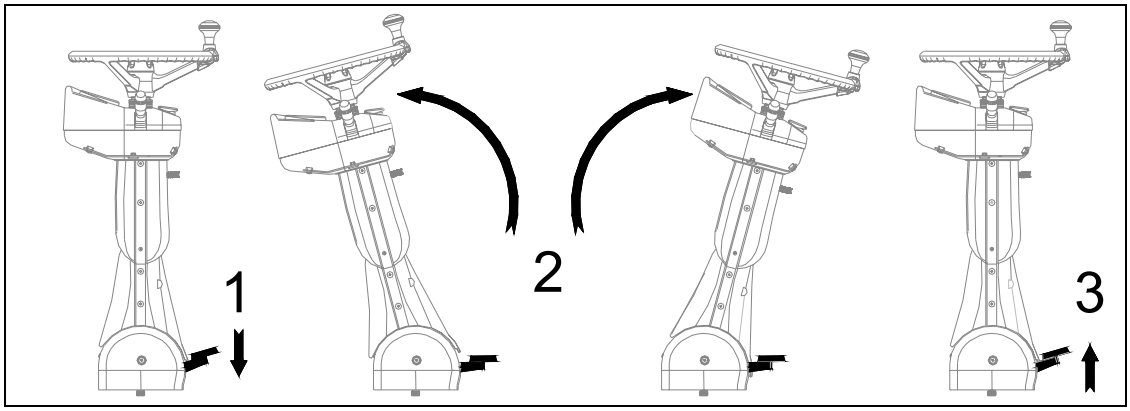
Steering column adjustment





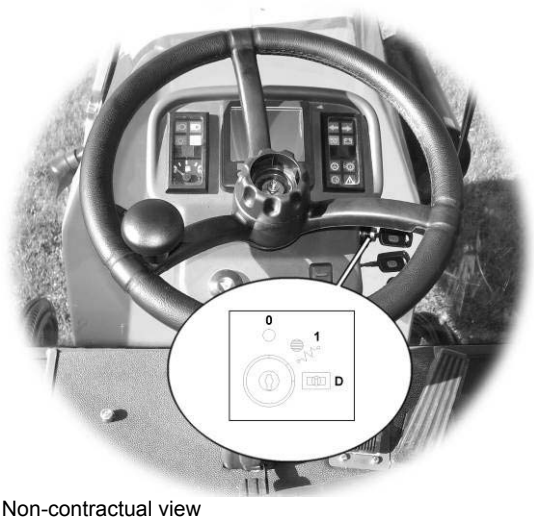
Non-contractual view



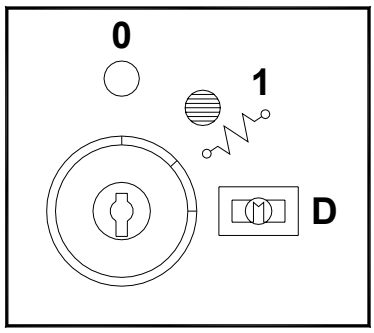


Manuel_PR2540_ED_09_05_11_GB.doc

Key switch



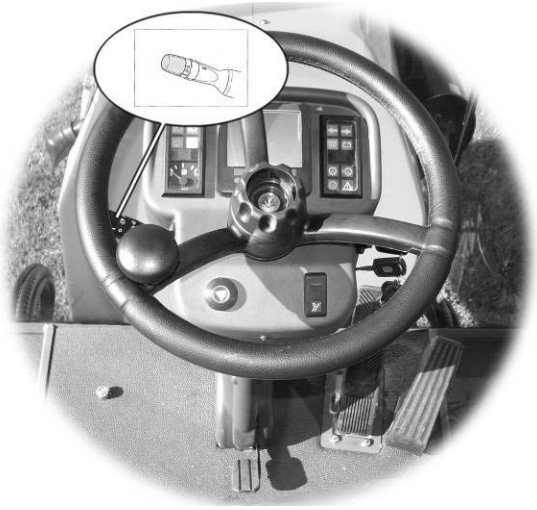
Non-contractual view



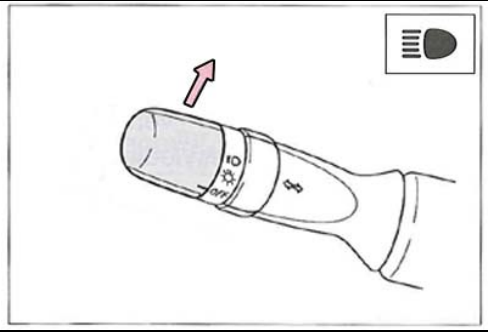
0	Pas de tension de service	Acc. OFF
	-	
1	Tension de service	Acc. ON
	En fonction de la température.	
D	START	DANGER

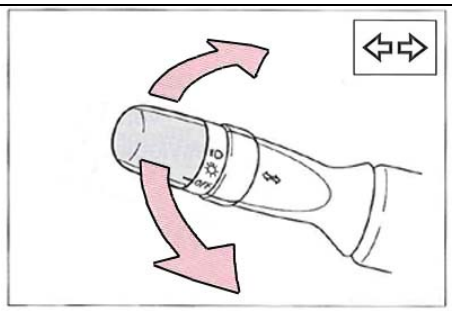
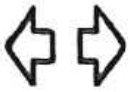
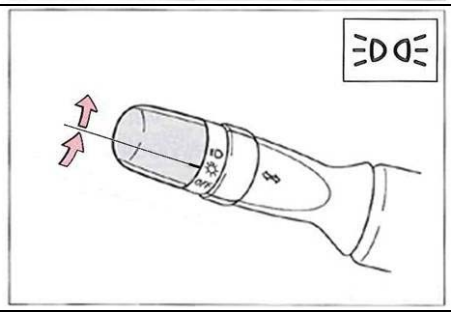
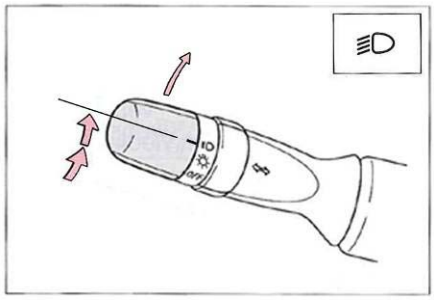
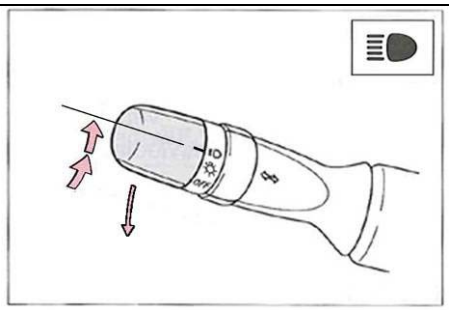
DE 0007

Commodo



Non-contractual view

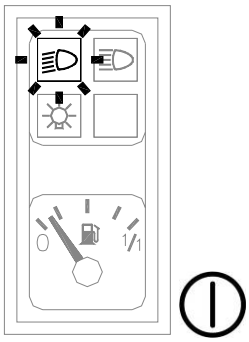


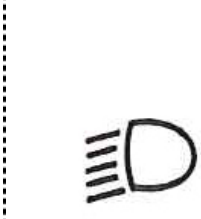
	
	
	
	

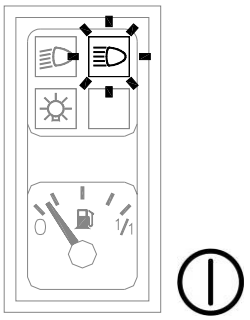
Instrument panel and indicator lamp

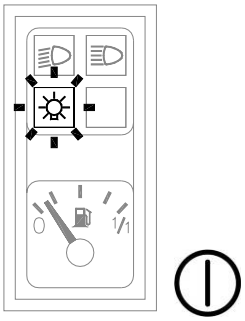
	Operating inspection
	

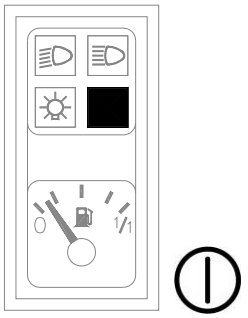
Non-contractual view

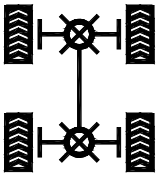


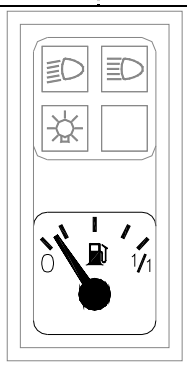




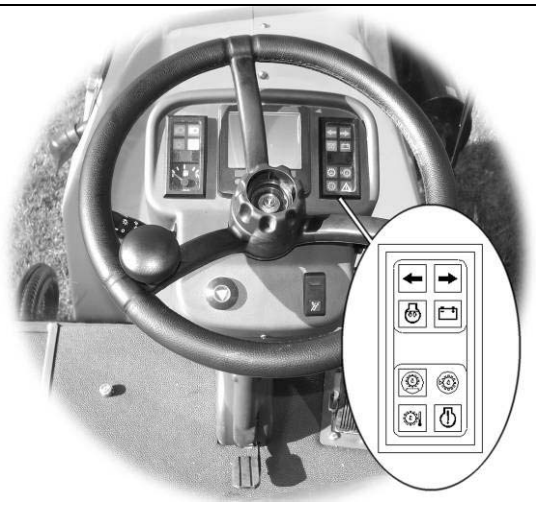








Fuel gauge



Non-contractual view

	Battery charge fault		
	Oil filter clogged/ transmission		Oil/transmission low level
	High oil/ transmission temperature		Fault/engine

Engine panel

Non-contractual view

General Description

The Deutz Display is a compact, robust panel-mountable module that enables a user to remotely request and display engine data.

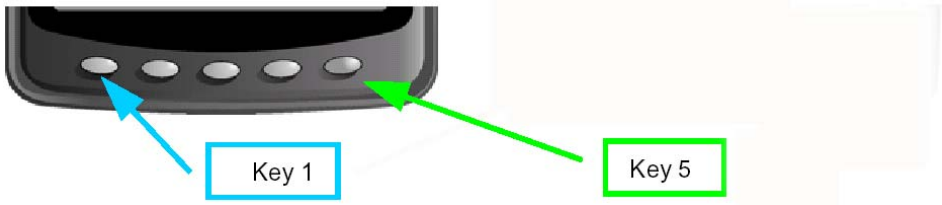


Figure 5.1: 'Soft' Keys

User Guide

General

On power-up the Deutz Display performs a series of self-test routines. The progress of these is shown in the lower right-hand corner of the display. In the unlikely event of a fault occuring the unit will emit a low-toned bleep. The user can attempt to rectify the fault by reverting to the factory defaults.

Following successful self-test, Deutz Display will commence to display engine data using the configuration settings held in its non-volatile memory.

Press any of the four key #1 to key #4 to make the menu bar visible on the LCD. Press the key below the relevant icon to select a display mode.
A folded page icon with an arrow on the page indicates that pressing the associated key will step through the various displays associated with a particular display format.

The menu bar will disappear after approximately five seconds of key inactivity.

Setting Display Contrast and Lighting

Pressing the right-hand blue key when the menu icons are not on display will bring up the lighting and contrast menu.

The LCD has four back-light levels that allow the display to be read in the dark. The appropriate level is selected by pressing key #1 to decrease the illumination or key #2 to increase it (see figure 7.2.1).

Adjusting the contrast of the LCD to an optimum level ensures that the display is clearly legible and that grey-scales are appropriately displayed. Contrast is reduced by pressing key #3 (which will tend to lighten the display) and increased by pressing key #4 (which will tend to darken the display) (see figure 7.2.2).

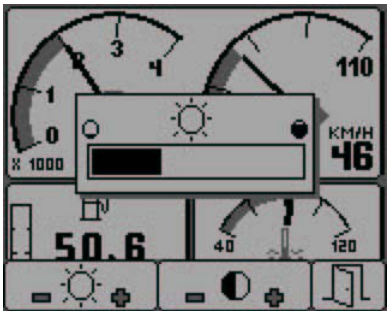


Figure 7.2.1: Lighting Adjust

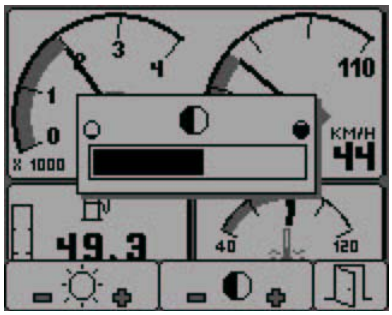


Figure 7.2.2: Contrast Adjust

The contrast and lighting menu is exited by pressing key #5.

The chosen settings are stored in non-volatile memory and will be automatically reinstated whenever the Deutz Display is powered up.

CONTRAST RESET.
If the display contrast was to be set so that the display was unreadable and so could not be adjusted back, press all four grey keys together.
This will reset the contrast to a central value and will reset the lighting to full. All other settings will not be lost.

Using the Soft Keys.

The use of 'soft' keys vastly simplifies the Deutz Display operator interface by ensuring the user is only presented with active keys that are appropriate to the current function. This is achieved by using the LCD to display icons that represent the current function of each key.

Positioning the icons above the appropriate key allows each key's function to change whilst ensuring that the operator is always presented with a clear and unambiguous understanding of what each key-press will do (see figure 7.3.1).

Figure 7.3.1: Main key Menu

The Main Engine Display

This display incorporates three independent windows and is intended to show the most important and frequently accessed engine data  .

To select the main engine display, press any of the four grey keys to show the top-level menu icons and then press key #1 (the left-hand key).

The main window, at the top of the display, shows two gauges; engine rpm on the left and speed on the right. Note that if speed data is not available the right-hand gauge will display engine oil pressure.

The window at the bottom-right of the display shows the coolant temperature.

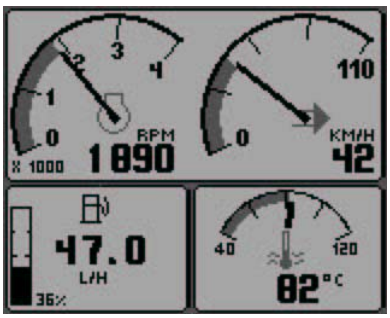


Figure 7.4.1: Main Screen

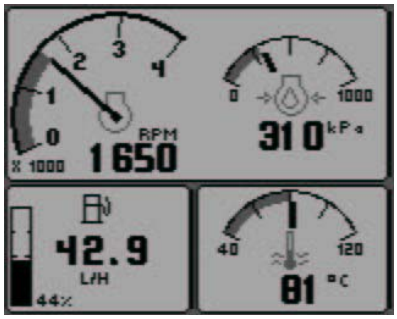


Figure 7.4.2. Main Screen (without Speed)

The window at the bottom-left of the display gives access to the fuel computer data and is similar to an automotive in-car fuel computer.
Various parameters can be displayed by repeated presses of key #1 (the left-hand key) which sequentially steps the window through the displays shown below. Note that fuel data parameters can only be shown if the required data is being received from the engine.

Instantaneous Fuel Rate The instantaneous fuel rate received from the engine displayed as a volume per hour.	
Average Fuel Rate per hour If total fuel consumption and fuel rate are being received then the average will be calculated since the last trip fuel and trip hours reset. This is displayed in units of volume per hour.	
Average Fuel Consumption per distance If vehicle speed is being received then the average will be calculated since last trip fuel reset. This is displayed in units of volume per distance.	
Trip Fuel If total fuel used is received from engine then this will be calculated since the last reset.	
Engine Hours Total engine hours received from engine.	
Trip Engine Hours Engine hours since last reset. Calculated from Total Engine hours.	

To carry out a 'reset' for each **reset** -able fuel computer parameter allow the menu bar to disappear and press and hold key [1] for at least 3 seconds.

Note: If the menu bar is not allowed to disappear then the display will move to the next parameter before the 'reset'.

The Quad Display

This display gives the user quick access to four screens, each displaying four gauges.
The first screen shows four digital gauges, whilst the second and third screens each show four analogue gauges. Example displays are shown below.

To select the quad display, press any of the four grey keys to show the top-level menu icons and then press key #2.

Using the adjust mode, each individual gauge displayed on the screens can be configured by the user to show a different engine parameter selected from an extensive list. The adjust mode is entered by pressing key #5 when the Deutz Display is running in quad display mode and the menu is visible (if the menu isn't visible, simply press any of the grey keys to make it re-appear).

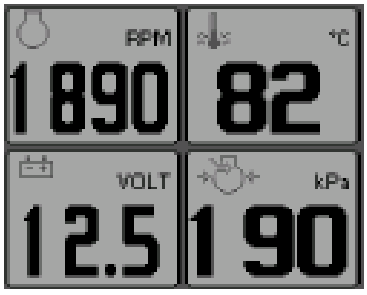


Figure 7.5.1: Representative view of first screen, showing four digital gauges.

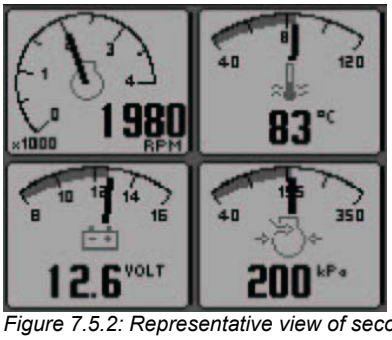
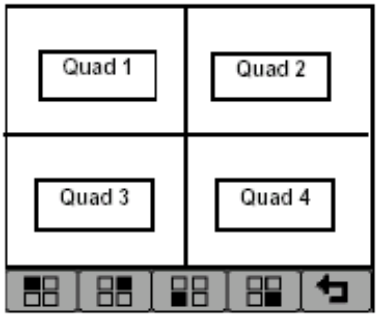


Figure 7.5.2: Representative view of second and third screens showing four analogue gauges.



In adjust mode, the menu will appear as shown on the left side.

Pressing key #1 will cycle the top-left display through all available engine parameters, key #2 will cycle the top-right display etc. The adjust mode is exited by pressing key #5.

For a list of engine parameters that can be displayed see section “The Quad and Graph Parameters”.

The Graph Display

The graph display shows data trends in one large window and is analogous to a traditional data plotter.

This mode is selected by pressing any of the four grey keys to show the top-level menu icons and then pressing key #3.

Data is shown in graph form, with the most recent data scrolling from the right of the display towards the left. The viewed time range can be adjusted in the configuration menu from 2, 10 or 30 minutes up to 1, 2, 4 or 8 hours. See other section of this document for further details.

The maximum and minimum values of the Y axis (defining the span of readings displayed) are adjusted automatically to give the optimum view of the visible data.

The data to be displayed can be selected by repeatedly pressing key #3 whilst in the graph display mode.

For a list of engine parameters that can be displayed see section “The Quad and Graph Parameters”.

The Quad and Graph Parameters

Following is a list of engine parameters that can be displayed in the Quad and Graph screens :

	Paramètres	Quad	Graph	Ico
a)	Engine Speed (rpm)	X	X	
b)	Coolant Temperature	X	X	
c)	Battery Voltage	X	X	
d)	Turbo Pressure	X	X	
e)	Coolant Pressure	X	X	
f)	Fuel Pressure	X	X	
g)	Engine Oil Pressure	X	X	
h)	Transmission Oil Pressure	X	X	
i)	Transmission Oil Temperature	X	X	
j)	Exhaust Temperature	X	X	
k)	Engine Oil Temperature	X	X	
l)	Inlet Manifold Temperature	X	X	
m)	Engine Torque (actual)	X	-	
n)	Accelerator Position	X	-	
o)	Fuel Rate	-	X	

The Alarm Display Screen

The Deutz Display recognises alarm messages received from the engine via the data link.
When a new alarm is received the Deutz Display will start to beep, a flashing pop-up window will appear with the latest alarm details.

Figure 7.8.1: A representative alarm pop-up message, showing low engine oil pressure.

Pressing any key will display the alarm list screen which contains details of all previous alarms. Those that have already been acknowledged are shown as black text on a grey background. New alarms, that have not yet been acknowledged, are shown as highlighted grey text on a black background. If engine hours data is available, the list will also indicate the engine hours when the alarm message was first received.

When first entering the alarm page the list will automatically go to the most recent alarm received. If the list is longer than the screen size, the alarm list can be scrolled up and down using keys #1 and #2.

The screen cannot be exited until all alarms have been acknowledged by pressing key #3.
Alarm messages will be automatically cleared from the list if no longer received.

The alarm list screen can be viewed, at any time, by pressing key #4.

Figure7.8.2: The alarm list screen, showing unacknowledged alarm conditions.

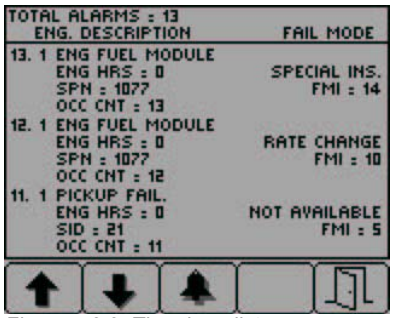


Figure 7.8.3: The alarm list screen, showing that alarm conditions have been acknowledged. Note that the exit key (key #5) has now been activated.

Pop-up Messages and Warnings

In the configuration menu (see section 7.10), the user can set the engine service interval in hours. When the Deutz Display determines that an engine service is due, it will display a “SERVICE REQUIRED” message overlaying the start-up screen which appears for seven seconds following power-up.

Should the Deutz Display not detect valid engine data, a flashing pop-up window will appear displaying a “Communications Failure” icon denoting this fault condition. Once engine data transmissions have been detected the pop-up window will disappear and normal data display will continue.

Quand l'afficheur détecte que la révision doit être effectuée, il affiche un message “SERVICE REQUIRED”

Si l'afficheur DEUTZ ne détecte aucune donnée moteur. Une icone clignotante apparaitra signalant " un problème de communications”. Cette icone disparaitra lorsque les problèmes de connections ou de communications seront résolus.

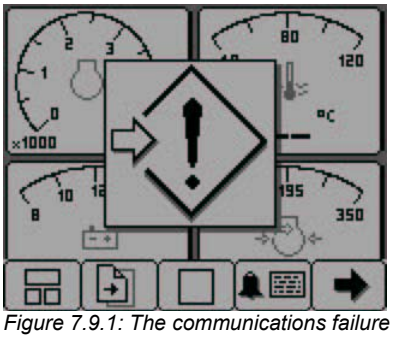


Figure 7.9.1: The communications failure icon.

Configuration

The configuration mode allows the user to set various operating parameters and modes of the Deutz Display. These include such choices as imperial or metric units, scale limits for the speedometer gauges, engine service interval etc.

The configuration menu is entered by pressing and holding key #5 (the blue key) for at least 3 seconds when the Deutz Display is in its normal operating mode. The top-level configuration menu will be displayed on the LCD, as shown below.

Keys #1 and #2 allow the operator to move up and down the menu whilst key #4 enters the highlighted menu item. Key #5 exits the configuration menu and saves all configuration data into non-volatile memory.

The SETTINGS sub-menu allows the Deutz Display to be configured according to the user's preferences whilst SYSTEM accesses maintenance and low-level system configuration settings.

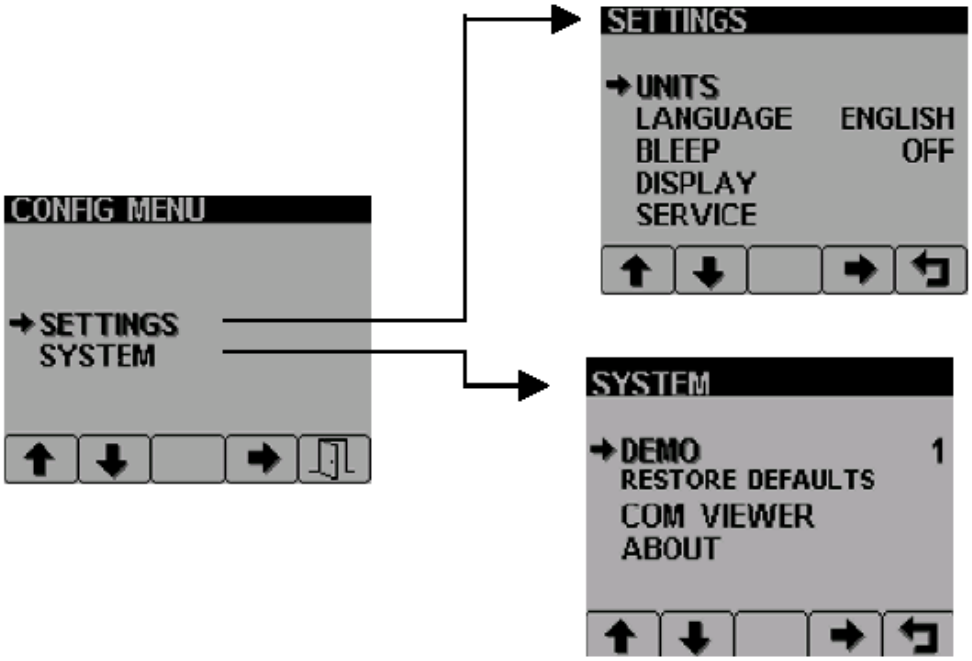
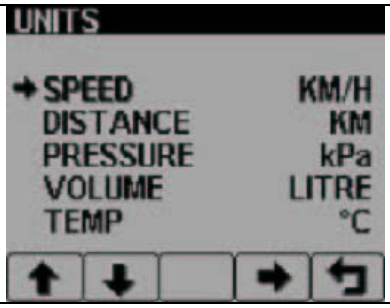


Figure 7.10.1: The top-level configuration menu and SETTINGS and SYSTEM sub-menus.

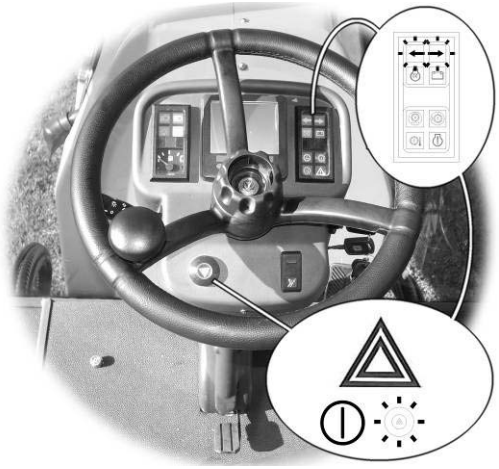
Selecting UNITS from the SETTINGS submenu gives access to five parameters which can be displayed in units selected from a list. Use the up and down keys (key #1 and key #2) to select the required parameter, then press key #4 to cycle through the permitted units of measurement. Pressing key #5 returns the user to the main SETTINGS menu.	

The LANGUAGE sub-menu allows the user to select which language Deutz Display uses to display messages and prompts. Use the up and down keys (key #1 and key #2) to highlight the required language and then press key #4 to select it. Pressing key #5 returns the user to the main SETTINGS menu. BLEEP selects whether each key press is acknowledged with an audible bleep. Note that, even with BLEEP switched off, the audible alarm will still sound if an alarm condition occurs. The DISPLAY sub-menu allows the user to define the maximum rpm shown on the tachometer, the maximum speed shown on the speedometer and the speed with which the display scrolls when using Deutz Display in the graph display mode (see section "The Graph Display" for further details of the graph mode).	 
SERVICE allows the user to set the engine service interval so that the Deutz Display can, on power-up, remind the operator when a service becomes due. See section "Pop-up Messages and Warnings" for details of the pop-up message that signals this event.	

DEMO, the first item on the SYSTEM menu, allows the Deutz Display to run in a demonstration mode, showing its capabilities even if not connected to a valid engine data stream. There are three different demo modes.
DEMO 1 has speed data simulated by the Deutz Display, DEMO 2 does not generate simulated speed data, DEMO 3 simulates various alarm conditions. For normal use, the demo mode must be switched to OFF.

Setting	Metric	Imperial
Language	German	
max RPM	4000	
max Speed	110 KmH	70 MPH
Graph range	2 mins	
Speed	KmH	MPH
Distance	Km	Miles
Pressure	kPa	PSI
Volume	L	Gal
Température	ºC	º F

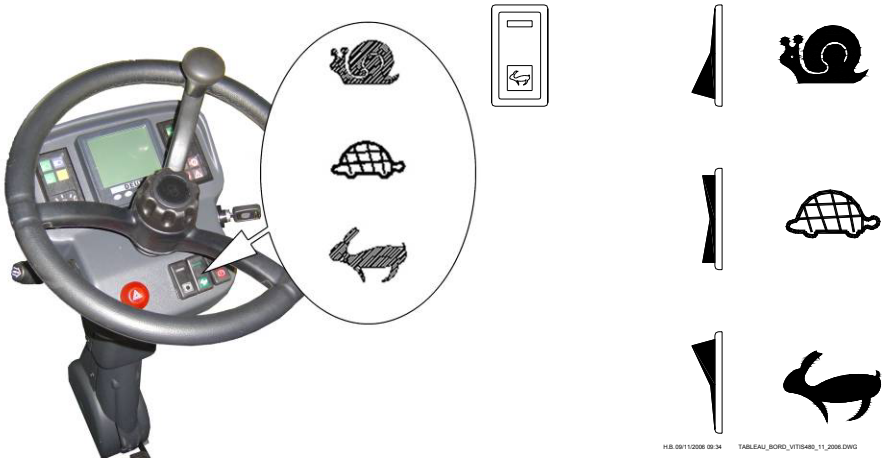
Hazard light control switch



Non-contractual view

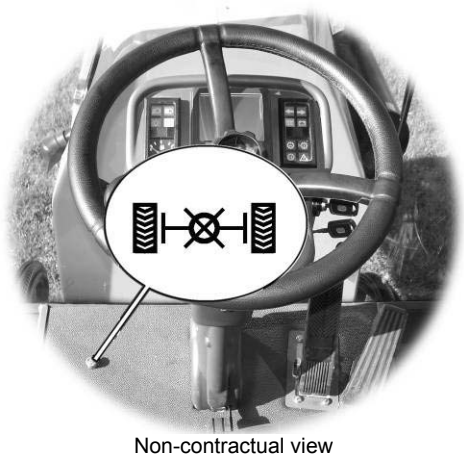
Power take-off control

Control of range of speed

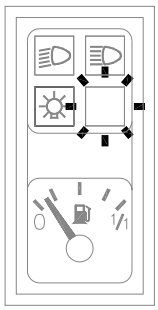


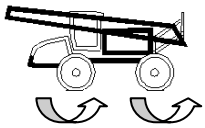
Control of parking brake

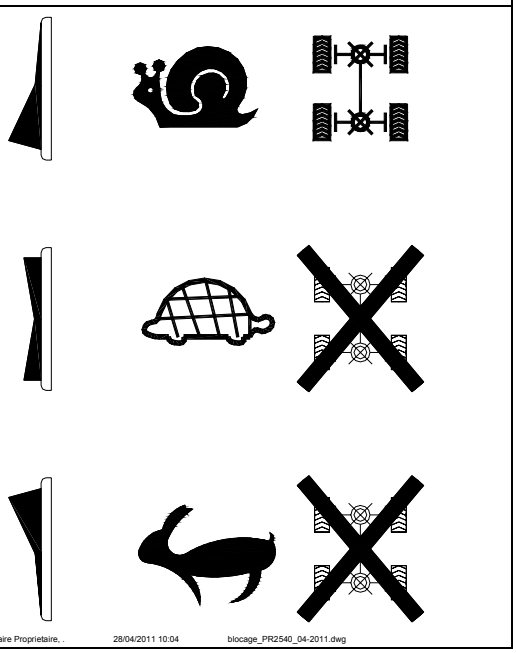
Lockout control



Non-contractual view







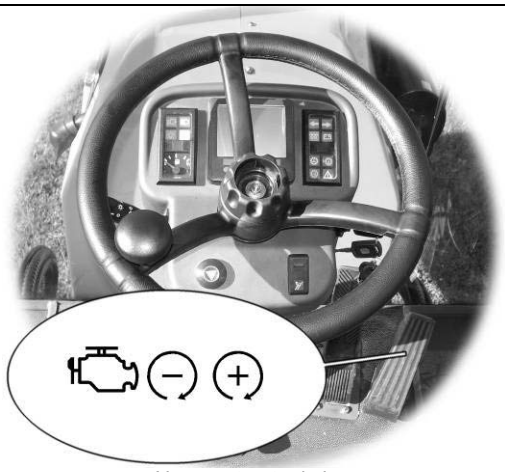
Brake pedal

Non-contractual view

Brake pedal engaged 

travel lever position N to initialise the system.

Accelerator pedal

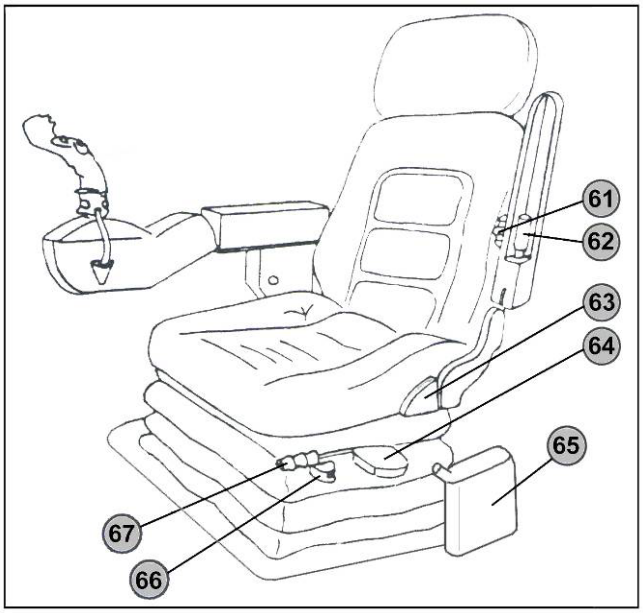


Non-contractual view

3.1.3. OPERATOR'S SEAT AREA

Opening/closing the door

SEAT



61 - Dorsal adjustment

62 - Adjusting the arm-rest

63 - Adjust the back angle

64 - Adjusting the seat height

65 –

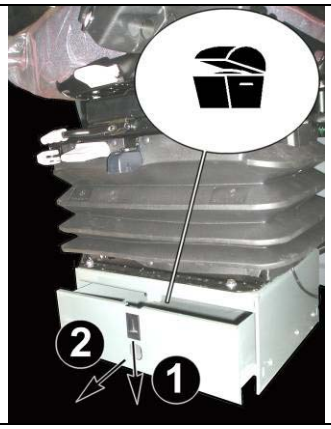
66 - Locking the horizontal cushioning

67 – Longitudinal adjustment of the seat

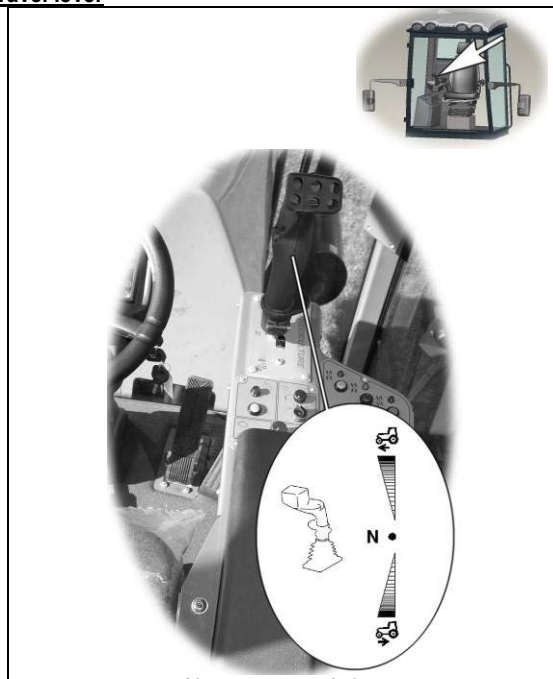
68 – Seat rotation

69 – Storage

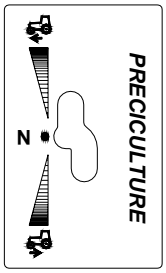
Storage compartment

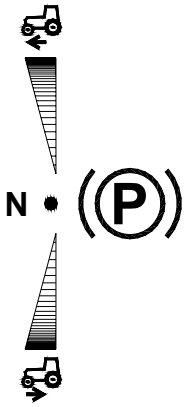


Travel lever



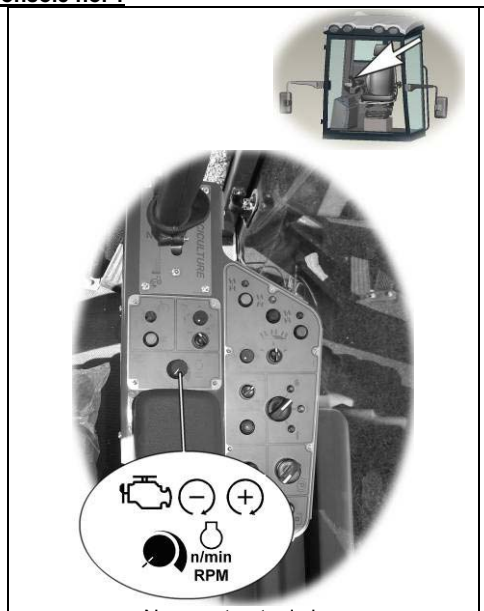
Non-contractual view



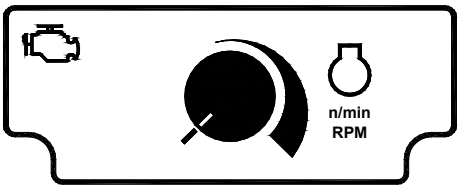


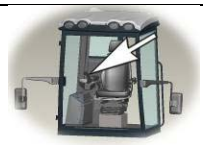
Parking brake automatically activated in neutral position (N)

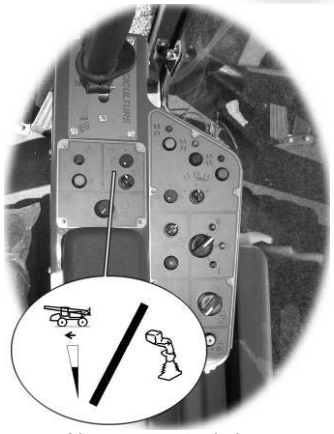
Console no. 1



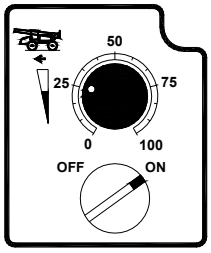
Non-contractual view

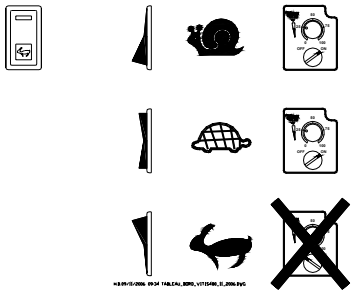




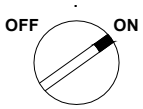


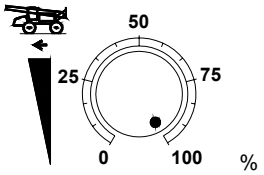
Non-contractual view



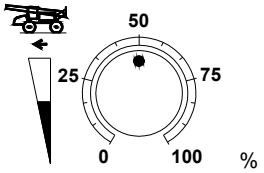


Speed limit

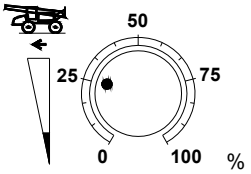




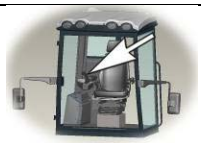
100 % : The total stroke of the travel lever covers the entire gamut of the speed range selected

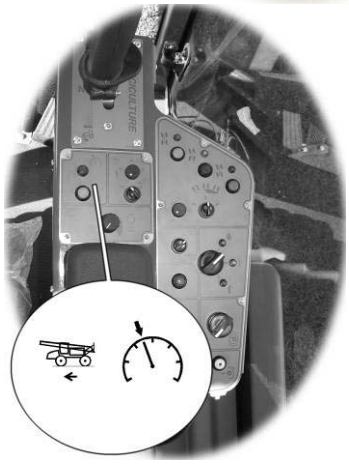


50 % : The total stroke of the travel lever covers half the gamut of the speed range selected.

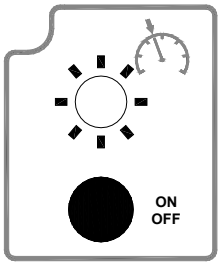


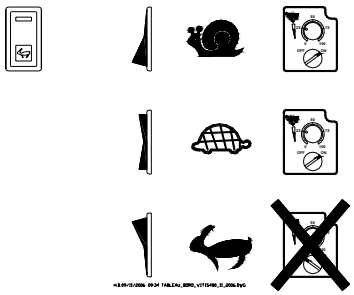
25 % : The total stroke of the travel lever covers a quarter of the gamut of the speed range selected.



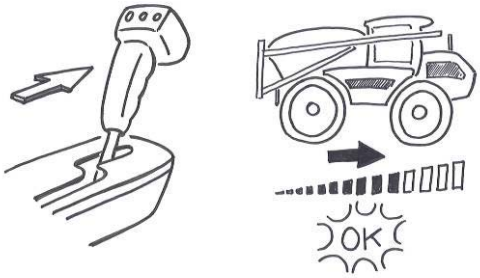


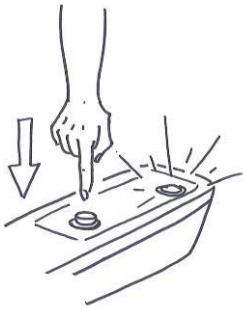
Non-contractual view





Constant speed





Activated or deactivated = push-button (ON/OFF).

The indicator flashes.

Storage of the speed, after 3 seconds without variation

The indicator lights up continuously.

The change of speed or the speed limit potentiometer will lead to the storage of a new constant speed.

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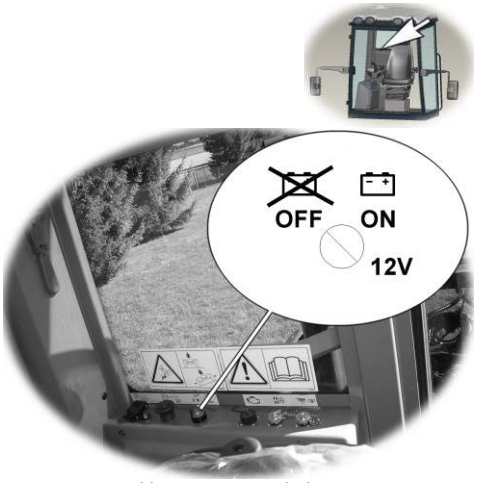
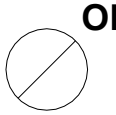
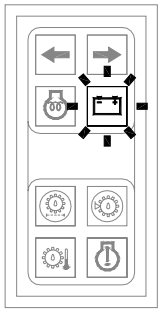
Windshield washer

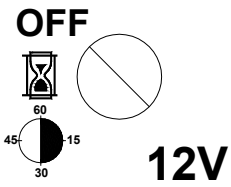


Non-contractual view

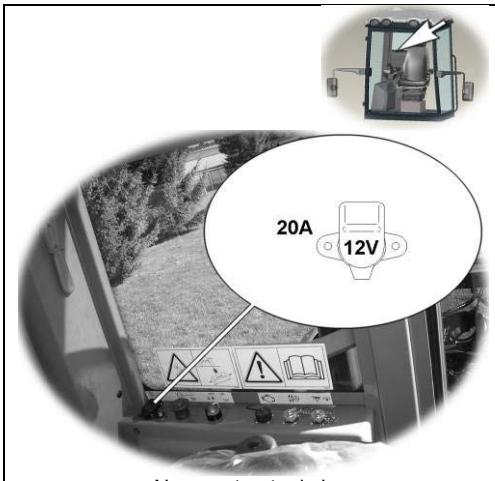
Battery shut-off





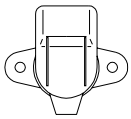


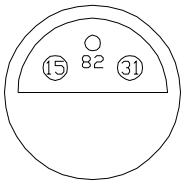
(30 s)



Non-contractual view

DIN 12 V socket

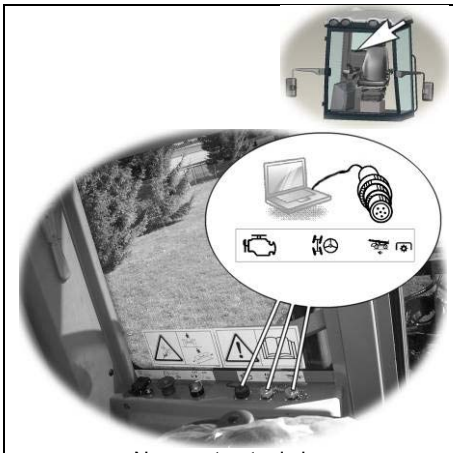




15 => +
31 => -
82 => +

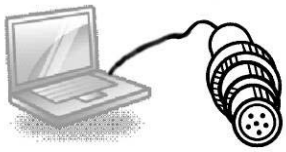
15 & 31 : 20 A maxi
82 : 5A

20 A MAXI



Non-contractual view

Diagnostic test points



Libre
Free

Libre
Free

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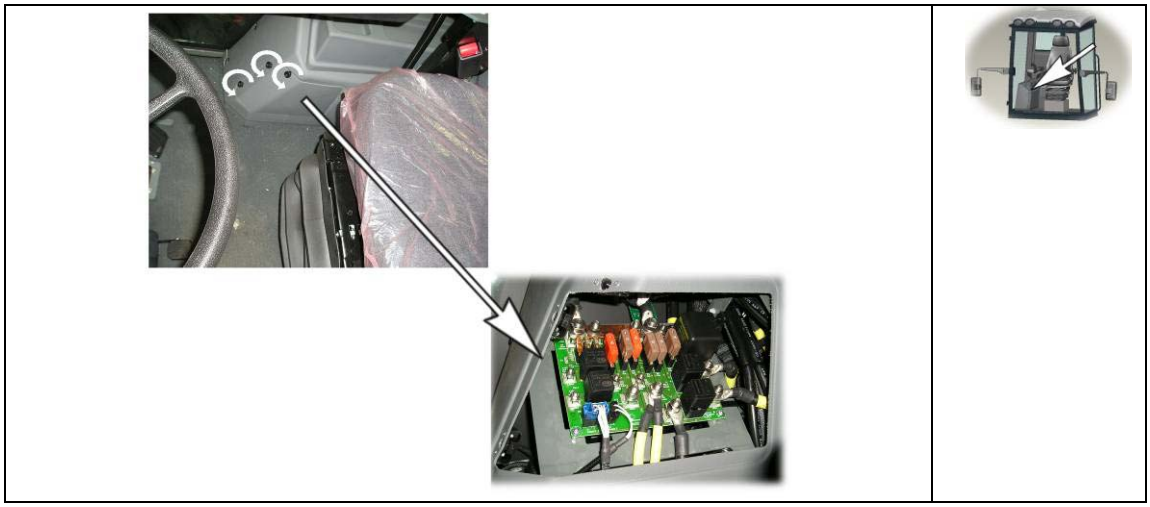
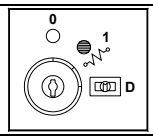
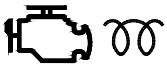
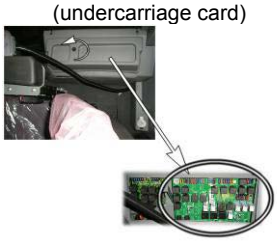
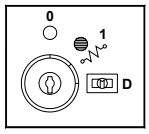
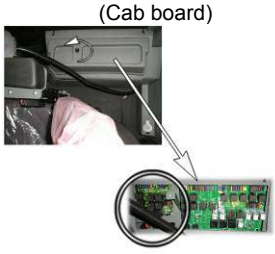
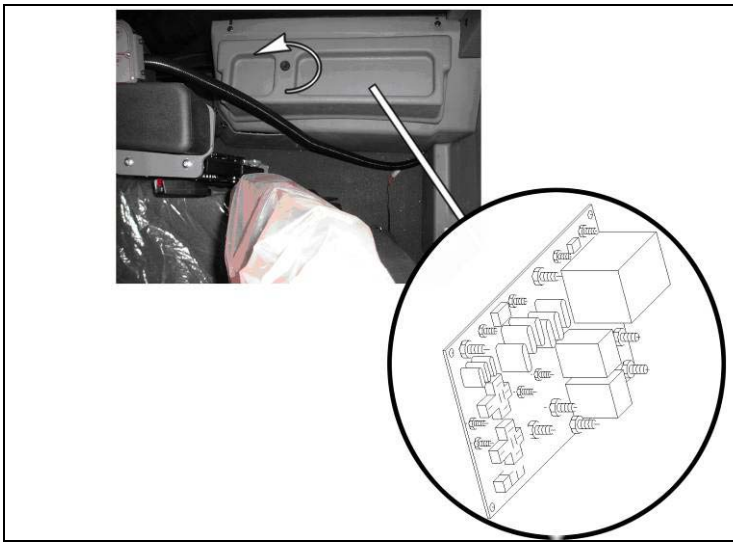
Fuse access panels

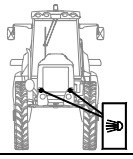
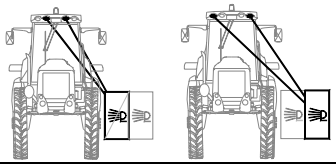
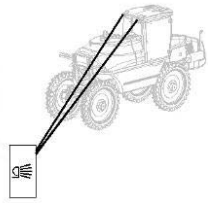
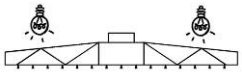
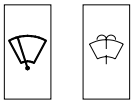
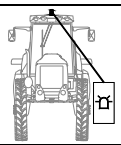


Fuses

Items	Functions	Current
F2	Free	250
F3	Before ignition (0) 	70
F4		125
F5	Spray 1	40
F6	Spray 2	40
F7	Free	40
F8	More after ignition (undercarriage card) 	70
F9	After ignition (1)  (Cab board) 	70
F10	Free	25
F11	Free	25
F12	Spray 3	5

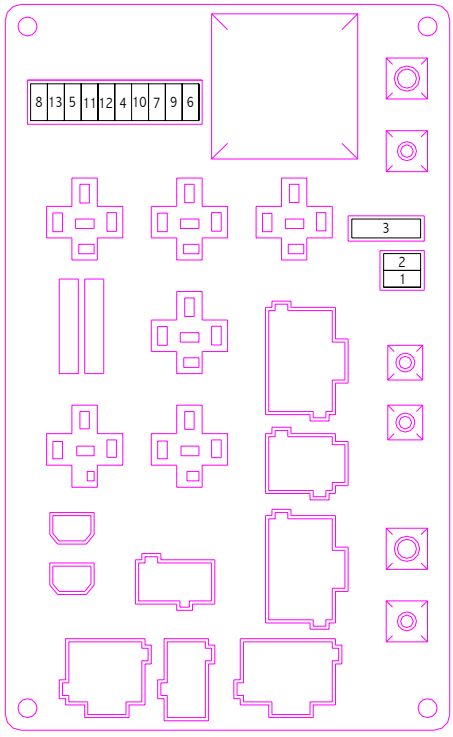


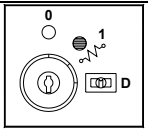
Fuses

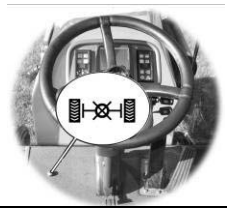
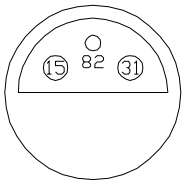
Items	Functions	Current
F2		30
F3	Relay control  (heating solenoid valve, ventilation, air conditioning compressor, power supply air conditioning regulator)	2
F4	Air conditioning compressor 	5
F5		10
F6		20
F7		15
F8		20
F9		15
F10		7,5

Items	Functions	Current
F11	 	7,5
F12		7,5
F13	Free	15
F14	Free	15
F15	Free	15
F16	Free	15
F17	Free	15

Non-contractual representation



Items	Current	Functions	-
1	10 A		Before battery isolation switch
2	5 A	 + Power board control	Before battery isolation switch
3	30 A	Heat engine (power)	After battery isolation switch
4	2 A	Heat engine (control)	After battery isolation switch

5	2 A		After battery isolation switch
6	15 A	Free	After battery isolation switch
7	10 A	Pneumatic seat	After battery isolation switch
8	15 A		After battery isolation switch
9	15 A	  15 => + 31 => - 82 => + 15 & 31 82 = 0	After battery isolation switch
10	10 A	 + Turn signal lights	After battery isolation switch
11	15 A	Commodo (dim/headlight power supply)	After battery isolation switch
12	3 A	Electronic board power supply (drive)	After battery isolation switch
13	15 A	Brake - speed range	After battery isolation switch

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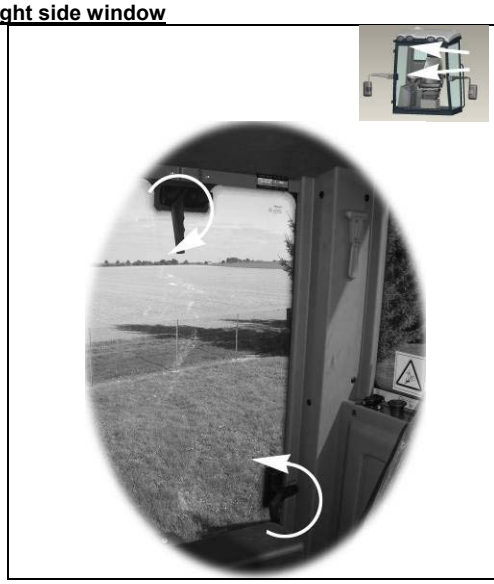
right side window



- ⚠ Too large opening = breaking
- Close before travel

3.2. CAB EXTERIORS

Reminder :

⚠ **ATTENTION** The zone giving access to the power take-off control and the hydromixer control and the accelerator control of the heat engine placed near the ladder for access to the driving cab is one of only two authorized work stations outside of the cab.

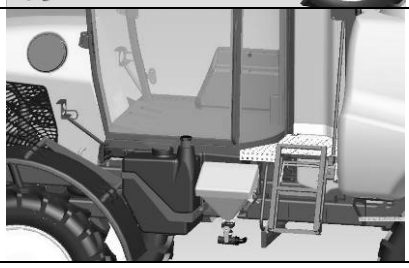
⚠ **DANGER** Near the **Self-propelled power frame** , when the **Self-propelled power frame** is in functioning, all zones other than the work stations are dangerous zones.

⚠ **ATTENTION** When you leave the operator station in the cab to fill the tanks or to access the power take-off control and the hydromixer control and the accelerator control of the heat engine placed near the ladder for access to the driving cab:

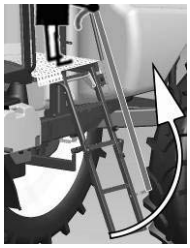
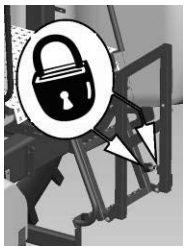
- stop the **Self-propelled power frame** .
- put on the parking brake
- place the levers at the neutral point, lower the tool on the support provided for storage

Beware of the hot zones of the **Self-propelled power frame.**

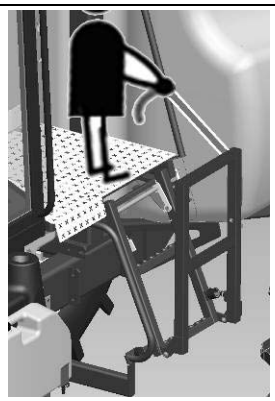
Ladder for access to the cab

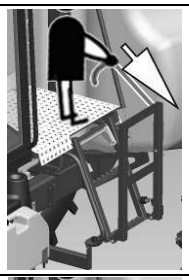
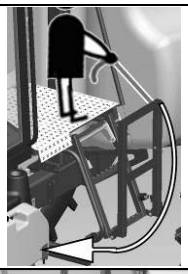
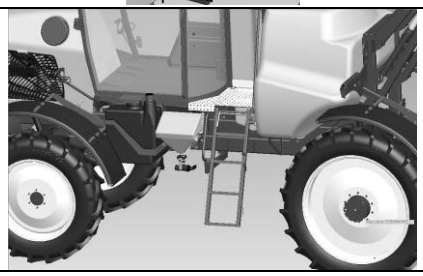
Unfolded ladder ⚠ DANGER Parking brake imperative Ⓟ	
Ladder folded up ⚠ DANGER Position obligatory during moving of the **Self-propelled power frame.**	

Procedure for the folding of the ladder

<table>
<tr><td colspan="2"> 
</td><td>The string lets you hold the ladder during the unfolding.
  </td><td>  </td></tr>
<tr><td>1</td><td>Pull on the string to fold up the ladder</td><td colspan="2">  </td></tr>
<tr><td>2</td><td>The hinged ladder folds up</td><td colspan="2">  </td></tr>
<tr><td>3</td><td>Lock the ladder in the folded position</td><td colspan="2">  </td></tr>
<tr><td colspan="2">Ladder folded up</td><td colspan="2">  </td></tr>
</table>

Procedure for unfolding the ladder

<table>
<tr><td colspan="2">DANGER
Parking brake imperative
  </td><td rowspan="2">The string lets you hold the ladder during the unfolding.
  </td><td rowspan="2">  </td></tr>
<tr><td colspan="2">DANGER
 
DE 0004</td></tr>
<tr><td>1</td><td>Unlock the ladder in folded up position by pushing it with your feet.

Hold it with the string.</td><td colspan="2">  </td></tr>
<tr><td>2</td><td>Let the string go to unfold the ladder</td><td colspan="2">  </td></tr>
<tr><td>3</td><td>The hinged ladder unfolds</td><td colspan="2">  </td></tr>
<tr><td colspan="2">Unfolded ladder</td><td colspan="2">  </td></tr>
</table>

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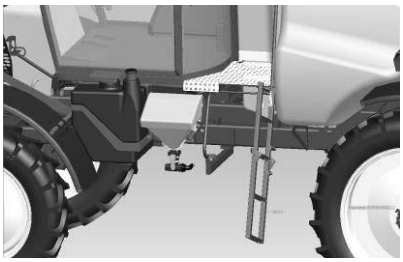
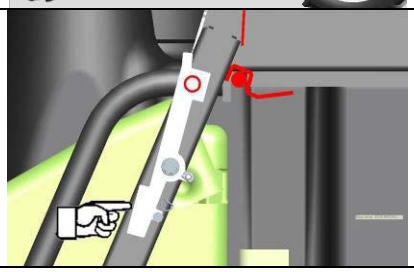
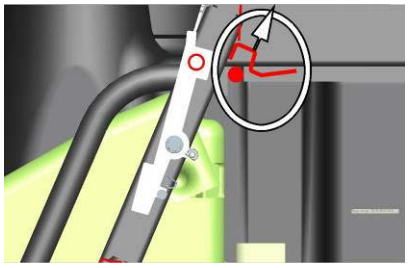
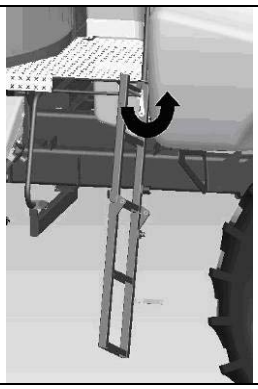
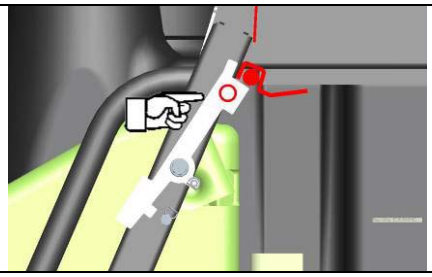
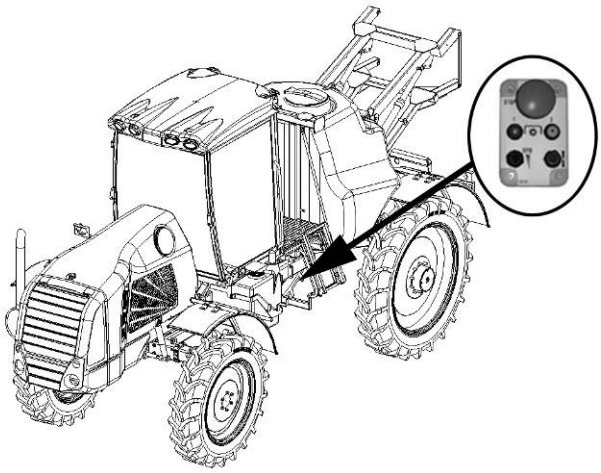
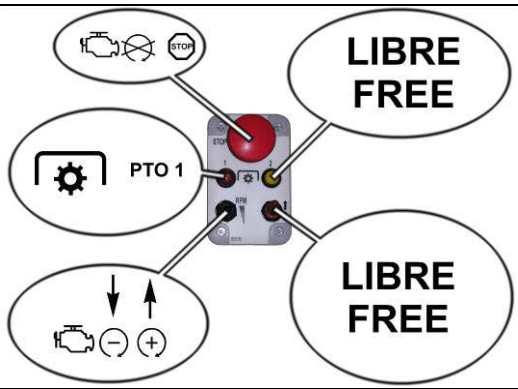
Procedure for pivoting the ladder

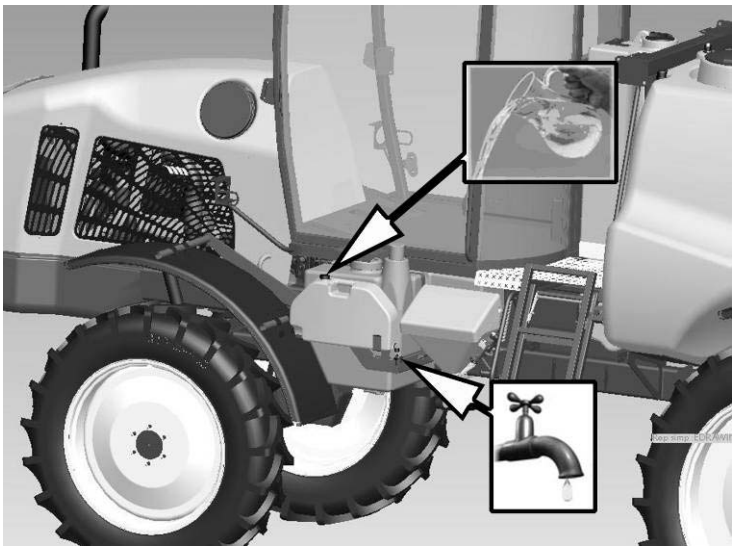
DANGER Parking brake imperative 			
DANGER 			
0	Unfold the ladder		
1	Unlock the ladder by pressing in the place indicated. Keep the ladder unlocked.		
2	Support and push the ladder upward to take it out of its anchoring.		
3	Pivot the ladder		
4	Locking of the ladder in normal position. • Pivot the ladder in normal position. • Lower the ladder into its anchoring. • Lock the ladder by pressing in the place indicated		





ATTENTION

The accelerator control is only authorized if the parking brake is activated.



4. STARTING AND USE

Planned use conditions

DANGER

Reminder:

This **Self-propelled power frame** is exclusively intended to be used for standard agricultural work or other similar work. Any other use is considered contrary to normal use . Conformity to and strict compliance with the conditions of functioning, upkeep and repair specified by the manufacturer are also essential elements of normal use.

This **Self-propelled power frame** should only be operated, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

The rules of prevention of accidents, all other regulations generally recognized with regard to safety and occupational health and the regulations concerning road traffic must be observed at all times.

Any modifications made arbitrarily on this **Self-propelled power frame** may remove the liability of the manufacturer for any resulting damage or injury.

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Learn to use and handle the controls. Do not assign the **Self-propelled power frame** to a person who is not trained for this. The **Self-propelled power frame**, because of its particular technological design, must be used by **drivers who are experienced** or well informed.

Before using your **Self-propelled power frame**, familiarize yourself with all of the controls and its proper use.

Definition of the work stations - Definition of the dangerous zones

Reminder :

ATTENTION The operator station in the cab is the main work station.

ATTENTION The zone giving access to the power take-off control and the hydromixer control and the accelerator control of the heat engine placed near the ladder for access to the driving cab is one of only two authorized work stations outside of the cab.

ATTENTION The zone for filling of the tanks placed near the access to the driving cab is one of only two authorized work stations outside of the cab.

DANGER Near the **Self-propelled power frame** , when the **Self-propelled power frame** is in functioning, all zones other than the work stations are dangerous zones.

ATTENTION When you leave the operator station in the cab to fill the tanks or to access the power take-off control and the hydromixer control and the accelerator control of the heat engine placed near the ladder for access to the driving cab:

- stop the **Self-propelled power frame** .
- put on the parking brake
- place the levers at the neutral point, lower the tool on the support provided for storage

Beware of the hot zones of the **Self-propelled power frame.**

Safety of the **propelled power frame**

Reminder:

WARNING

Modifications of the Self-propelled power frame are forbidden, except for those authorized specifically and in writing by the After-Sale Service Department or Technical Department of “PRECICULTURE S.A.S”.

It is forbidden to remove the protection casings unless all of the conditions mentioned below are met simultaneously: **Self-propelled power frame** stopped, heat engine stopped, parking brake on, switch key removed, pressure in the circuits reduced to zero. After the intervention, put all of the casings back in their places.

Do not remove the power take-off guards on the **Self-propelled power frame** or on the tool.

To avoid falling, use the handles and the steps for getting into and out of the **Self-propelled power frame** . Keep the steps and the floor clean and free of mud and other debris. Always make sure to properly close the door of the cab before driving the **Self-propelled power frame**. Keep the windows clean in order to ensure good panoramic visibility.

Verify the proper functioning of the reversing indicator.

Never let anyone, with the exception of the driver, get into the **Self-propelled power frame**. There is no room for passengers other than the driver. Never transport passengers.

Safety / Driving & use of the **propelled power frame**

Reminder:

Driving on public roads

Users must comply with the rules of the traffic code in effect in the country where they are located when operating the **Self-propelled power frame** and its accessories on public roads. Rules for the prevention of accidents and all road traffic regulations must be observed at all times.

On public roads, use an orange rotating light, and lights to indicate changes of direction when these are required by law. Always observe local road traffic regulations during journeys on public roads. Do not exceed the total authorized load weight nor the maximum loads per axle.

Driving and use in general

Rules for the prevention of accidents, all the other regulations generally recognized in terms of safety and occupational health must be observed at all times.

Before starting the Self-propelled power frame, activate the parking brake system, set the power take-off control (or controls for the activation of tools in general) to the "stop" position, the distributor control levers (according to the equipment version or level) in neutral position and the drive lever in neutral position.

If there is the least failure of a control or instrument outfitting the Self-propelled power frame, the user must:

- Stop the Self-propelled power frame , avoiding any dangerous situation.
- Cut off the key contact and set the battery isolation switch to off.

Call the "AUTHORIZED DEALER" immediately to request that the fault be remedied.

Do not by-pass the start-up safety systems of the heat engine, of the transmission or the power take-off. Consult your "AUTHORIZED DEALER" in the event of defective start-up safety systems. Only use auxiliary start-up cables in the recommended way. Anarchic use may lead to unintentional start-ups.

Be careful not to move the drive lever when the engine is running. This can cause an untimely movement of the Self-propelled power frame.

In the case of work done near aerial electrical power lines, make sure that there is a sufficient safety distance between the work zone of the Self-propelled power frame and the electrical power line.

In the event of a breakdown of the power steering or the engine, immediately stop the Self-propelled power frame, otherwise, it may become very difficult to control (you must stop in a perfectly secure area).
According to the level of the equipment, before getting out of the Self-propelled power frame, park it on a flat area, put on the parking brake, bring the tool down to the ground, disengage the power take-off and stop the heat engine . Do not park on an incline.

Do not run the Self-propelled power frame in a closed building without making sure that there is adequate ventilation. Exhaust gases are toxic and can lead to fatal accidents.

Make sure that the tools borne and the accessories used are correctly mounted and approved for use with the Self-propelled power frame. Do not overload the Self-propelled power frame. Use and maintain the tools and accessories according to the indications from the manufacturer of the equipment.

A Self-propelled power frame, because of its technological design, should only be used by experienced users. Based on their professional experience, users must themselves determine, for each piece of equipment or each model, the limits of use beyond which the conditions of safety would become precarious.

The least external factor such as the condition of the terrain, the speed of maneuvering, the mode of driving, poor adaptation of the accessories, etc… can immediately put the user in danger.

The steering and braking performances can be significantly influenced by the installation and maneuvering of the system of the installed tool.
Never pull or tow the Self-propelled power frame.

Always start the engine from the driver's seat, with the drive and power take-off levers in the neutral position.

Never make the start-up safety system inoperative by by-passing the terminals of the starter to start the engine. This could cause a sudden movement of the machine. If the starting switch is not working, consult your "AUTHORIZED DEALER".

Drive at a speed that allows you to stop the Self-propelled power frame efficiently and in full safety in the event of an emergency.

Reduce speed when approaching turns in order to avoid the risk of overturning.

The accessories mounted on all of the Self-propelled power frames must be those recommended by the "AUTHORIZED DEALER" and mounted according to his instructions, under his responsibility, observing the equilibrium of loads, and the stability of the whole while making sure not to exceed the load capacity of the tires. To maintain the required contact pressure with the ground, make sure that the Self-propelled power frame is correctly ballasted. Your "AUTHORIZED DEALER" can advise you on this subject.

Make sure to totally stop the Self-propelled power frame at the neutral point of the hydrostatic drive control lever.

When you stop the Self-propelled power frame remove the switch key.

Personal protection / use and maintenance

Reminder:

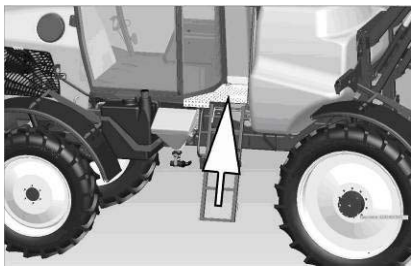
Wear protective clothing and personal protective equipment for the hands, eyes, ears, feet and head.

Do not wear loose clothing that could be caught in the moving parts of the **Self-propelled power frame** or the tools and cause injury.

Special safety equipment may be necessary for the application of fertilizer, toxic pesticides, etc... Follow the recommendations given by the supplier and the manufacturer of the chemical products.
If the use of the Self-propelled power frame involves a risk of exposure to dust, particles, fogs or vapors, whether solid, liquid or gaseous, wear appropriate personal protective equipment. Any breach of this instruction is under the sole and full responsibility of the user of the **Self-propelled power frame**. Consequently, "***PRECICULTURE S.A.S"*** may in no way be held responsible for any injury to the user of the **Self-propelled power frame** if it turns out that this instruction was not followed.

Encourage a "heating" travel by activating the travel lever in "working" range (1600 rpm).

4.1. ACCESS TO THE CAB



⚠ **ATTENTION** No travel of the machine if the ladder is not raised.

4.2. PRELIMINARY OPERATIONS

Check all of the levels: engine oil, hydraulic oil , fuel (The reference is always the mark on the gauge).

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2. Verify the tightness of all of the nuts and bolts Tightening of fasteners.

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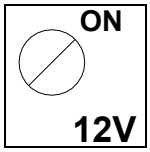
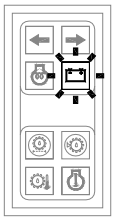
3. Set the battery isolation switch to ON. 

(the battery indicator lamp of the dashboard comes on )

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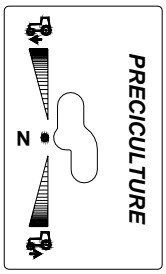
4. Travel lever in neutral position (N)



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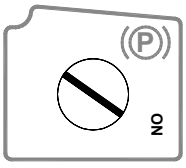
1. Parking brake activated (ON)



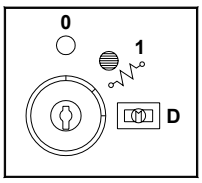
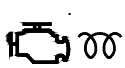
⚠ **ATTENTION** 

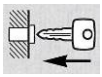
Before starting, make sure that there is nobody in the working area of the **Self-propelled power frame**

4.3. STARTING THE ENGINE

ATTENTION 

Starting the engine

	0	No circuit voltage	
	1	Service voltage	
	D	Starting	

1. Put the key into the key switch 
   Position 0 = No circuit voltage, turn the key to the right.

---

2. Turn the key clockwise in the key switch
   Position 1 = Circuit voltage, the indicator lights are turned on. (This position automatically starts the preheating of the heat engine when the outside temperature is low).

---

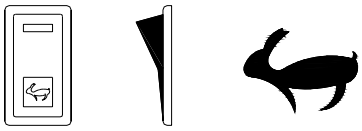
3. Turn the key clockwise in the key switch (rep.C22):
   Position D = Start-up: release the key as soon as the engine starts. The control lights go off. When the outside temperature is low, let some time pass between position 1 and position D so that the system reaches the automatic starting of the preheating of the heat engine).

4.4. DRIVING IN AUTOMOTIVE MODE (ROAD)

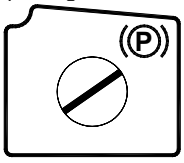
DANGER

4.4.1. STARTING THE VEHICLE

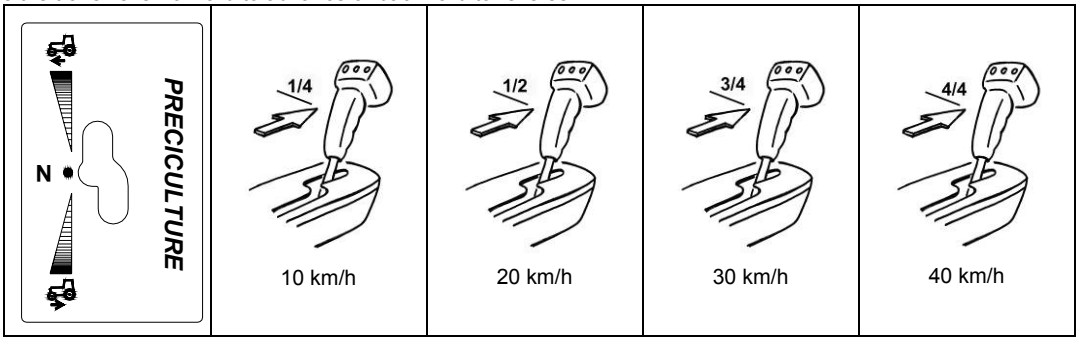
1. Select the road speed range.



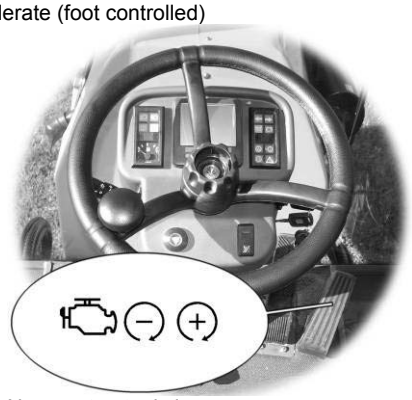
2. Engine idling
3. Raise the cab access ladder
4. Raise the parking brake .



5. Move the travel lever forward to advance or backward to reverse.



6. Accelerate (foot controlled)

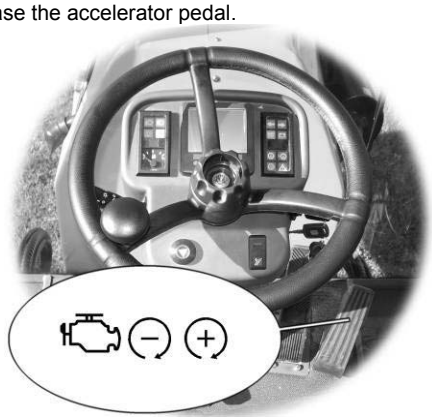


Non-contractual view

The travel of the vehicle will depend on the action on the accelerator pedal.

4.4.1. STOPPING THE VEHICLE

1. Release the accelerator pedal.



Non-contractual view

ATTENTION

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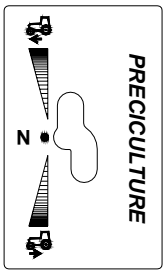
2. In the event of an emergency: Brake (brake pedal).

Non-contractual view

---

3. Return the lever to point N.

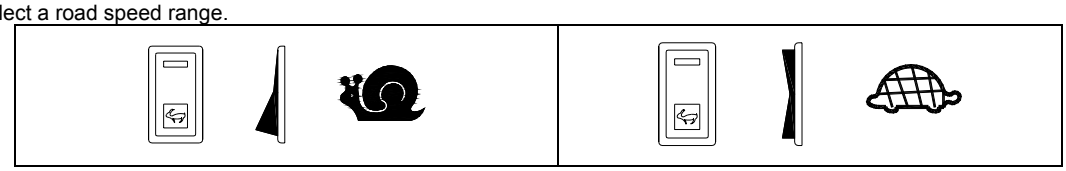


4.5. DRIVING IN NORMAL MODE (FIELDS)

DANGER

4.5.1. STARTING THE VEHICLE

1. Select a road speed range.



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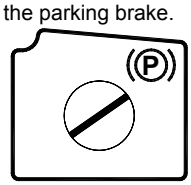
2. Raise the cab access ladder
3. Remove the parking brake.



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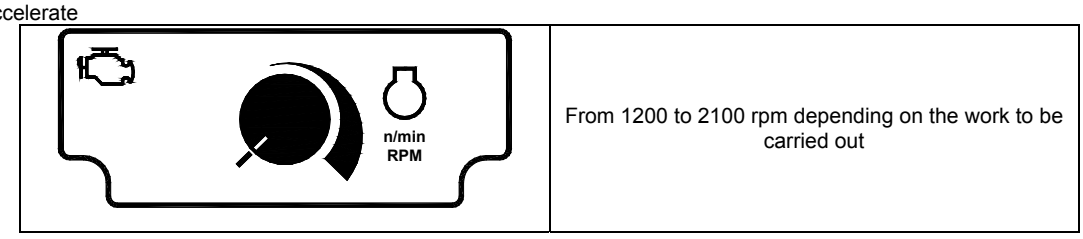
4. Accelerate



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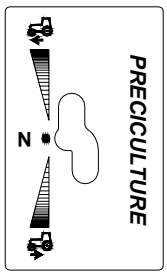
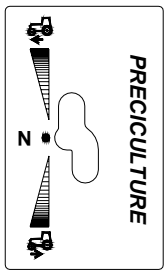
5. Move the travel lever forward to advance or backward to reverse.



The travel speed will depend on the position of the travel lever and action on the accelerator.

4.5.2. STOPPING THE VEHICLE

1. Return the travel lever to N.



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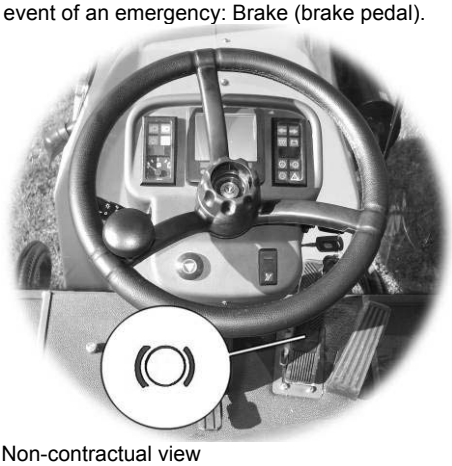
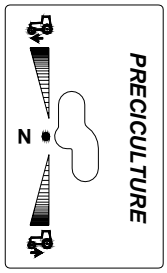
2. In the event of an emergency: Brake (brake pedal).

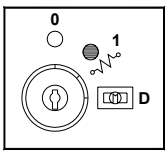


Non-contractual view

3. Return the lever to point N. Activate the parking brake.



4.6. STOPPING THE ENGINE

1. 

Return the key to 0.

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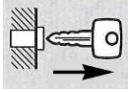
2. 

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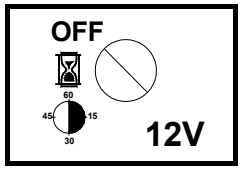
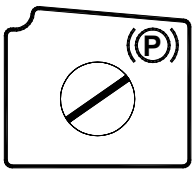
3. 

Battery shut-off on OFF

4.7. STATIC BRAKING



4.8. WHEELS AND TYRES

(Tyre manufacturer)

Only the mounting of tyres mentioned below is authorised. The effective mounting depends on the approval granted in each country

Verify the load on each wheel motor according to the rim offset.

Verify the max loads per axle in function of the approval granted.

4.8.1. TABLE INDICATING TYRE PRESSURES (FOR MAX LOAD).

	(bar)
270/95R38 148A2/137A8	3,6
320/85R38 143A8/143B	3,6
340/85R36 132A8/129B	1,6
420/85R30 140A8/137B	1,6
460/85R30 145A8/142B	1,6
270/95R48 142A8/142B	3,6
300/95R46 148A8/146B	3,6
340/85R46 150D/161A2	3,6
420/85R38 144A8/141B	1,6
460/85R38 149A8/146B	1,6
520/70R38 150A8/150B	1,6

4.8.2. INSTALLATION OF FRONT AND REAR WHEELS

The original installations must be scrupulously respected. ***«Préciculture S.A.S.»*** may not be held responsible in case of problems if different installations are carried out.

4.8.3. ADJUSTMENT OF VARIABLE TRACKS.

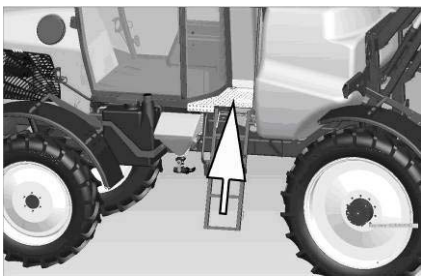
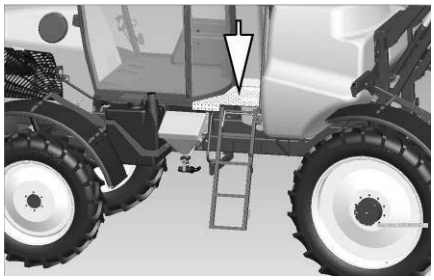
Contact your "APPROVED DEALER"

4.9. ACCESS AND FILLING OF THE TANK AND THE AUXILIARY TANK (DEPENDING ON THE EQUIPMENT LEVEL)

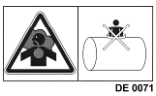
Reminder :

ATTENTION The zone for filling of the tanks placed near the access to the driving cab is one of only two authorized work stations outside of the cab.

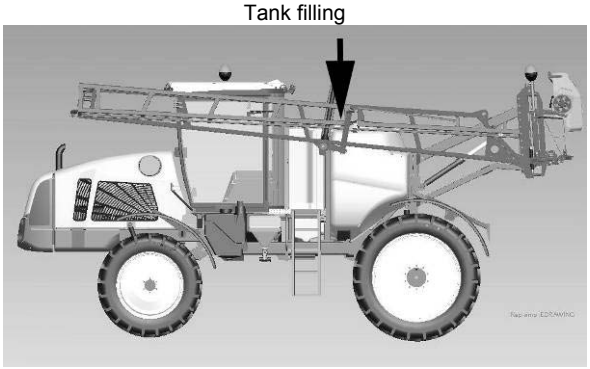
DANGER Near the **Self-propelled power frame** , when the **Self-propelled power frame** is in functioning, all zones other than the work stations are dangerous zones.

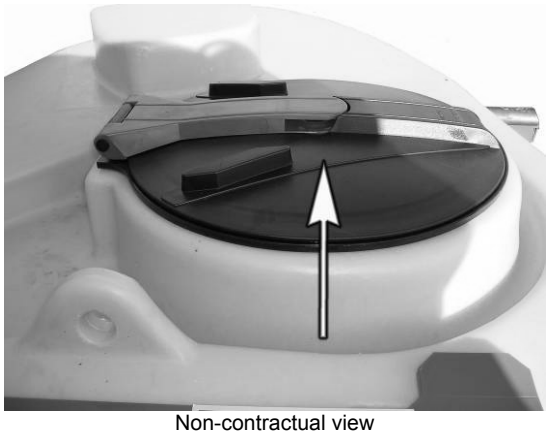



DANGER 

DANGER 

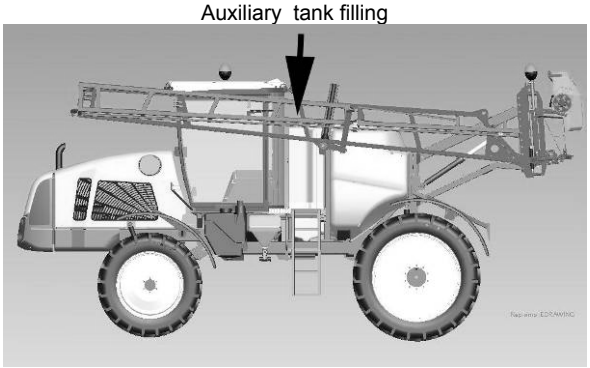
Tank filling

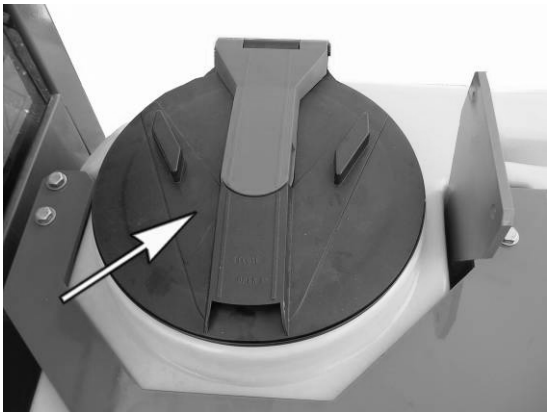




Non-contractual view

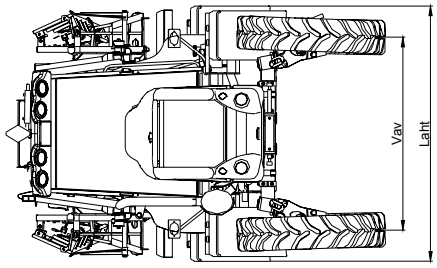
Auxiliary tank filling

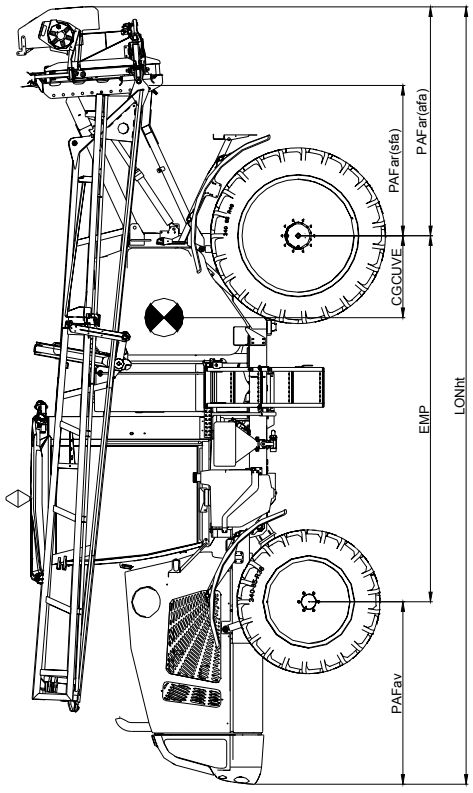


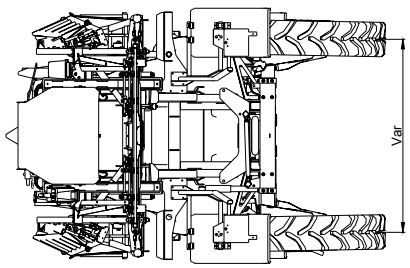


Non-contractual view

4.10. SPECIFICATION OF THE SELF-PROPELLED POWER FRAME







PR2540

	Version	Mini	Maxi
Vav	MN	1,80	2,26
Var	MN		2,259
Vav	MO1		2,235
Var	MO1		2,23
Vav	MO2		2,196
Var	MO2		2,196
Vav	MO3		2,103
Var	MO3		2,105
Vav	MO4		2,072
Var	MO4		2,062
Vav	MO5		2,072
Var	MO5		2,014
PAFav	Idifférent	1,90	3,80
PAFar(sfa)		1,05	
PAFar(afa)		1,05	3,60
Laht		2,34	2,55
EMP		3,77	
LongHT		6,72	11,17
CGCUVE		0,85	

Laht* : Maximum 2.55 m for France

Manuel_PR2540_ED_09_05_11_GB.doc

PR2540

Type	PR	Vehicle family
	25	Load capacity family of the vehicle
	40	Vehicle speed family

GVWR variant	A	B
GVWR:	9900	10000

Tyre version	MN	MO1	MO2	MO3	MO4	MO5
Tyres mounting:	270/95R38 148A2/137A8	320/85R38 143A8/143B	340/85R36 132A8/129B	420/85R30 140A8/137B	460/85R30 145A8/142B	460/85R30 145A8/142B
	270/95R48 142A8/142B	300/95R46 148A8/146B	340/85R46 150D/161A2	420/85R38 144A8/141B	460/85R38 149A8/146B	520/70R38 150A8/150B

Masses and dimensions (kg and m)

Within these instructions, the axles are numbered from the front of the vehicle to the rear.

Variant	A	C	E	D	B	E
Version	MN	MO1	MO2	MO3	MO4	MO5
Maximum permissible loading in operation in the condition (GVWR):	9900	10000	10000	10000	10000	10000
Maximum permissible loads:						
On axle 1	4600	5450	4000	5000	5800	5800
On axle 2	5300	6000	6700	5600	6500	6700
Front/rear track *	From 1,80 to 2,26	From 1,80 to 2,24	From 1,80 to 2,20	From 1,80 to 2,10	From 1,80 to 2,07	From 1,80 to 2,07
	From 1,80 to 2,26	From 1,80 to 2,23	From 1,80 to 2,20	From 1,80 to 2,11	From 1,80 to 2,06	From 1,80 to 2,01
Wheel base:	3.94					
Unladen weight of the vehicle in working order:						
Total	7375	7443	7513	7427	7515	7375
On axle 1	3464	3504	3490	3480	3520	3464
On axle 2	3911	3939	4023	3947	3995	3911
Front overhang:	From 1,90 to 3,80					
Front overhang:						
Without fitting or accessory:	1,05					
With fittings and accessories:	From 1,05 to 3,60					
Overall length	From 6,72 to 11,17					
Overall width *	2,55**					

*: Can vary depending on the configuration
**: Maximum 2.55 m for France

Dimensions and rotation circumference of reference tyres (m):

Version		Dimensions		Circumferences	
MN	Front and Rear	270/95R38 148A2/137A8	270/95R48 142A8/142B	4,397 m	5,255 m
MO1	Front and Rear	320/85R38 143A8/143B	300/95R46 148A8/146B	4,514 m	5,308 m
MO2	Front and Rear	340/85R36 132A8/129B	340/85R46 150D/161A2	4,48 m	5,27 m
MO3	Front and Rear	420/85R30 140A8/137B	420/85R38 144A8/141B	4,395 m	4,996 m
MO4	Front and Rear	460/85R30 145A8/142B	460/85R38 149A8/146B	4,602 m	5,208 m
MO5	Front and Rear	460/85R30 145A8/142B	520/70R38 150A8/150B	4,602 m	5,228 m

Maximum calculated speed (Km/h):

Version	MN	MO1	MO2	MO3	MO4	MO5
	39	39	39	37	39	39

---

5. MAINTENANCE

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Learn to use and handle the controls. Do not assign the **Self-propelled power frame** to a person who is not trained for this. The **Self-propelled power frame**, because of its particular technological design, must be used by **drivers who are experienced** or well informed.

Before using your **Self-propelled power frame**, familiarize yourself with all of the controls and its proper use.

Definition of the work stations - Definition of the dangerous zones

Reminder :

ATTENTION The operator station in the cab is the main work station.

ATTENTION The zone giving access to the power take-off control and the hydromixer control and the accelerator control of the heat engine placed near the ladder for access to the driving cab is one of only two authorized work stations outside of the cab.

ATTENTION The zone for filling of the tanks placed near the access to the driving cab is one of only two authorized work stations outside of the cab.

DANGER Near the **Self-propelled power frame** , when the **Self-propelled power frame** is in functioning, all zones other than the work stations are dangerous zones.

ATTENTION When you leave the operator station in the cab to fill the tanks or to access the power take-off control and the hydromixer control and the accelerator control of the heat engine placed near the ladder for access to the driving cab:

- stop the **Self-propelled power frame** .
- put on the parking brake
- place the levers at the neutral point, lower the tool on the support provided for storage

Beware of the hot zones of the **Self-propelled power frame.**

Safety of the Self-propelled power frame

Reminder:

WARNING

Modifications of the Self-propelled power frame are forbidden, except for those authorized specifically and in writing by the After-Sale Service Department or Technical Department of “PRECICULTURE S.A.S”.

It is forbidden to remove the protection casings unless all of the conditions mentioned below are met simultaneously: **Self-propelled power frame** stopped, heat engine stopped, parking brake on, switch key removed, pressure in the circuits reduced to zero. After the intervention, put all of the casings back in their places.

Do not remove the power take-off guards on the **Self-propelled power frame** or on the tool.

To avoid falling, use the handles and the steps for getting into and out of the **Self-propelled power frame** . Keep the steps and the floor clean and free of mud and other debris. Always make sure to properly close the door of the cab before driving the **Self-propelled power frame**. Keep the windows clean in order to ensure good panoramic visibility.

Verify the proper functioning of the reversing indicator.

Never let anyone, with the exception of the driver, get into the **Self-propelled power frame**. There is no room for passengers other than the driver. Never transport passengers.

Upkeep of the Self-propelled power frame

Reminder:

WARNING

Carry out the upkeep of the **Self-propelled power frame** in full safety.

Stop the heat engine before doing upkeep work on your **Self-propelled power frame** .

Stop the heat engine and loosen the pressures before connecting or disconnecting a tube. Tighten all of the connectors before starting the heat engine or putting the tubes under pressure.

Maintain the **Self-propelled power frame** and the equipment, particularly the brakes and the steering, in perfect operating condition to ensure operation in full safety in observance of the legislation in effect.

Before making any work adjustments, stop the **Self-propelled power frame** , put on the parking brake , declutch the power take-off, place the levers at the neutral point, lower the tool to the ground, stop the engine and remove the switch key before leaving the seat.

Before starting the engine within an area, make sure that there is sufficient ventilation. Never run the engine in a closed area. Exhaust gases can be deadly.

Do not carry out upkeep for the **Self-propelled power frame** , with the engine in operation or when it is hot, or if the **Self-propelled power frame** is in motion.
For repairs or adjustments, we recommended consulting your “AUTHORIZED DEALER“ and having the work done by trained personnel.

All liquids must be handled with care.
If you are injured by a leaking liquid or if you absorb it, see a doctor immediately.

Liquids under pressure that could escape through a very small hole are almost invisible but present a major danger for safety and health. To check for leaks, always use a piece of cardboard or wood. Never try to locate leaks using your hands.

Before making any adjustments or doing work on the electrical circuit, unplug all of the battery cables (negative first).

Do not use the hydraulic system of the **Self-propelled power frame** as a jack for lifting it. Lift the **Self-propelled power frame** with an appropriate support.

During adjustments or mounting of equipment on the **Self-propelled power frame** (front or rear), make sure that there is no one nearby before activating the hydraulic system.

During maintenance operations on the **Self-propelled power frame** use all the secured means at your disposal and use the additional adapted means such as secured boom lifts and step ladders to avoid all risk of falling. (Including the fillings and refilling to level of fuel, oil and coolant if any. It is therefore essential to do the fillings in an appropriate place reserved for these operations and not in the work place).

Personal protection / use and maintenance

Reminder:

Wear protective clothing and personal protective equipment for the hands, eyes, ears, feet and head.

Do not wear loose clothing that could be caught in the moving parts of the **Self-propelled power frame** or the tools and cause injury.

Special safety equipment may be necessary for the application of fertilizer, toxic pesticides, etc... Follow the recommendations given by the supplier and the manufacturer of the chemical products.
If the use of the Self-propelled power frame involves a risk of exposure to dust, particles, fogs or vapors, whether solid, liquid or gaseous, wear appropriate personal protective equipment. Any breach of this instruction is under the sole and full responsibility of the user of the **Self-propelled power frame**. Consequently, “***PRECICULTURE S.A.S”*** may in no way be held responsible for any injury to the user of the **Self-propelled power frame** if it turns out that this instruction was not followed.

During maintenance operations on the **Self-propelled power frame** use all the secured means at your disposal and use the additional adapted means such as secured boom lifts and step ladders to avoid all risk of falling. (Including the fillings and refillings with fuel, oil and coolant if any. It is therefore essential to do the fillings in an appropriate place reserved for these operations and not in the work place).

Call your “APPROVED DEALER”.

Before any intervention, shut-down the engine and let the entire machine cool.

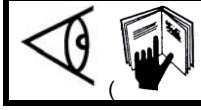
The symbol  requires you to take special precautions for recycling and/or disposal

5.1. MAINTENANCE TABLE OF THE HIGH-CLEARANCE TRACTOR UNDERCARRIAGE

	Every day	Hours H + 250 H: 80	250	500	750	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	Every year or If alert
	Périodicité															
OIL TRANSMISSION				❍		❍				❍				❍		❍
OIL TRANSMISSION LEVEL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
HYDROSTATIC ELEMENT		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
WHEEL REDUCTION GEARS OIL		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
ENGINE OIL		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
ENGINE OIL LEVEL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FUEL FILTER		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
WATER SEPARATOR FILTER		☐	☐	☐	☐	❍	☐	☐	☐	❍	☐	☐	☐	❍	☐	❍
ENGINE OIL FILTER		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
AIR FILTER	●	●	●	●	●	❍	●	●	●	❍	●	●	●	❍	●	❍
AIR FILTER SAFETY ELEMENT		●	●	●	●	❍	●	●	●	❍	●	●	●	❍	●	❍
Empty the dust discharge valve		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
FAN BELT		●	●	●	●	●	●	●	●	❍	●	●	●	●	●	
COOLANT LEVEL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
COOLANT						❍				❍				❍		
CHECKING THE EFFICIENCY OF THE PARKING BRAKE	●	●	●	●	●	●	●	●	●	●	●	●	●	❍	●	●
checking the dynamic braking efficiency	●	●	●	●	●	●	●	●	●	●	●	●	●	❍	●	●
CHECKING BRAK Accumulator		●		●		●		●		●		●		●		❍ (5 year)
TIGHTENING OF WHEELS	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TYRE PRESSURE		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
GREASE (GREASE GUNS)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
GREASE ball and socket joint frame (3)		❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍
FUEL TANK		☐				☐				☐				☐		☐
Air reserve	☐	❍ (10 year)														
CAB COAL FILTER		❍ (6 months)														
CAB PAPER FILTER		❍ (6 months)														
VALVE CLEARANCE	DEUTZ									●						
INJECTORS	DEUTZ					●				●		·		❍		

TO VERIFY : ● TO REPLACE * : ❍ TO BLEED : ☐

* REPLACE ONLY BY ORIGINAL ***«Préciculture S.A.S.»*** COMPONENTS TO HAVE THE ADVANTAGE OF THE CONTRACTUAL GUARANTEE..

 (DEUTZ TCD2012 2V)

5.2. WARRANTY INSPECTION : 80 HOURS OF OPERATION

ATTENTION

These maintenance operations represent a safety warranty. It is important to perform an overall inspection of the THE **SELF-PROPELLED POWER FRAME** at least once a year.

STEERING WHEEL BRAKES
- Check that the brakes are in good working order.
- Check the steering system and its hydraulic circuit.
- Check that the front and rear wheels are correctly tightened:
  - Steering pivot nuts
  - Hydraulic motor nuts
  - Wheel nuts

CONTROLS
- Check the forward travel and PTO controls.
- Check the PTO clutch.
- Check the settings of the neutral position if necessary.

HYDRAULIC CIRCUIT
- Check the feed pressure (30 bars at full speed).
- Check the oil level.

ELECTRICS
- Check the tank level sensors and the filter sensors.

OTHER CHECKS
- Check the level of electrolyte in the battery.
- Check the battery terminals.
- Check all electrical connections.
- Check the electric equipment and the alternator belt.
- Lubricate all joints and transmission subsystems fitted with a greaser.
- Lock all nuts and screws.
- Check that all nuts and screws are tight.
- Check the tyre pressure.
- Check that the fuel tank is clean and clean if necessary.
- Check that all hydraulic couplings are tight.
- Visually check the condition of the hydraulic pipes and all hydraulic components.

MIXING DIFFERENT BRANDS OF OIL MAY CAUSE IRREPARABLE DAMAGE TO THE HYDRAULIC CIRCUIT.

ALWAYS USE NEW CARTRIDGES IN THE OIL AND FUEL FILTERS;

5.3. LIFTING OPERATIONS

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

ATTENTION The dismantling and lifting of certain elements of the **Self-propelled power frame** (Complete vehicle, heat engine, tank, cab …) should only be done by specialized personnel because it is necessary to work on the hydraulic bushes, wiring harnesses, etc. Contact your "AUTHORIZED DEALER".

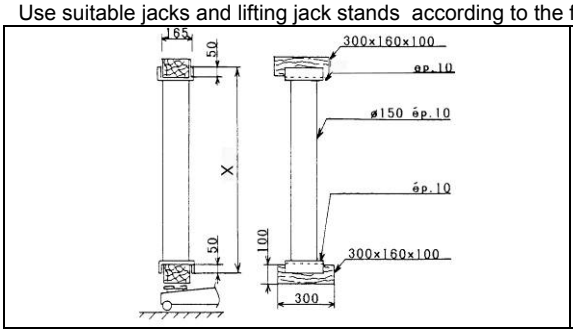
For upkeep and repairs, your "AUTHORIZED DEALER" has received training including technical work sessions. He has the original spare parts and tools needed to give you full satisfaction.

The lifting must be carried out only if:

- Immobilise the vehicle (on a flat surface) and its accessories
- Engine cooled down and shut-down.
- Ignition key removed
- Parking brake engaged
- Battery shut-off on OFF
- Shimming of wheels on each side on front and rear axles.
- Cab door closed.

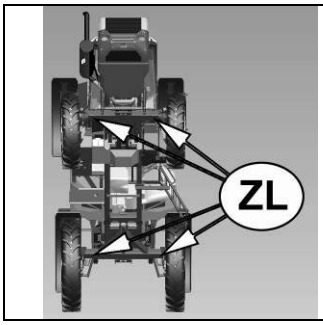
5.3.1. LIFTING THE VEHICLE

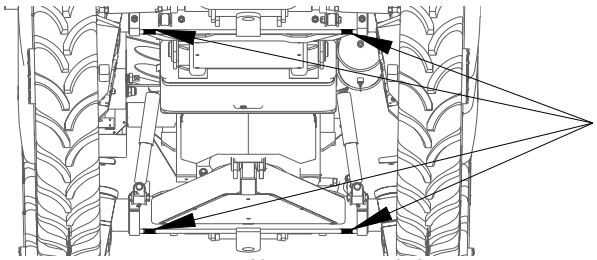
Do not use the hydraulic system of the **SELF-PROPELLED POWER FRAME** as a jack to raise it.
Use suitable jacks and lifting jack stands according to the figure below.



Height x to be adjusted according to configuration.

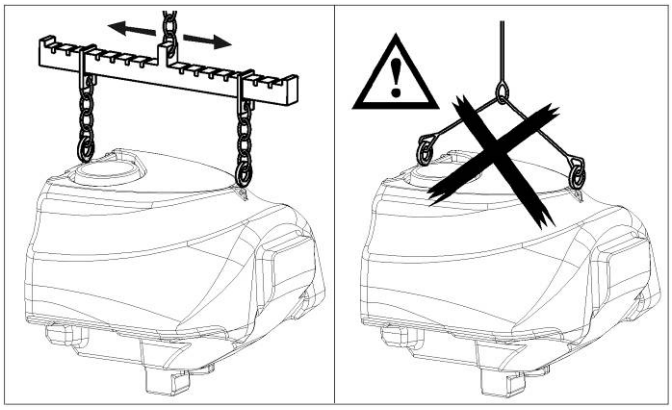
Support the **SELF-PROPELLED POWER FRAME** at the locations indicated below (ZL: Lifting area).





Non-contractual view

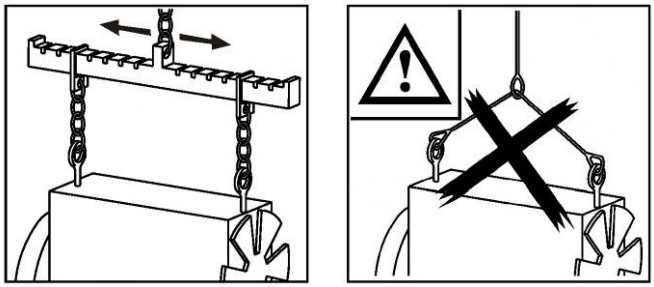
5.3.2. LIFTING THE TANK



Non-contractual view

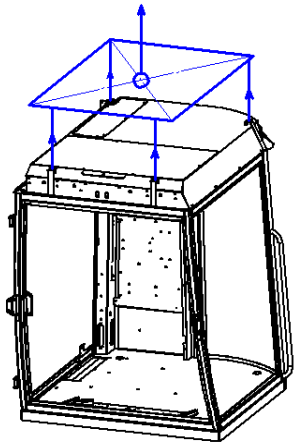
150 to 200 Kg

5.3.3. LIFTING THE ENGINE



500 to 600 Kg

5.3.4. LIFTING THE CAB



Approximately 600 kg

5.4. HYDRAULIC OIL FILLING LEVEL

Qualification of the operator

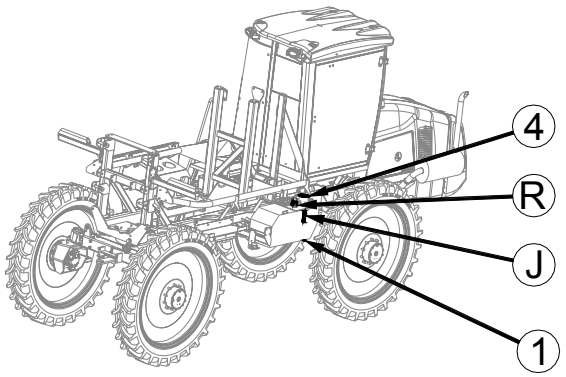
Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

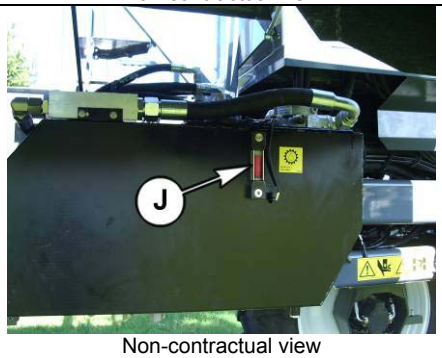
Before any intervention, stop the engine and let the whole machine cool down.

5.4.1. HYDRAULIC OIL LEVEL GAUGE

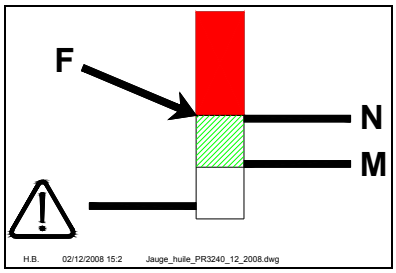
Gauge (J)



Non-contractual view

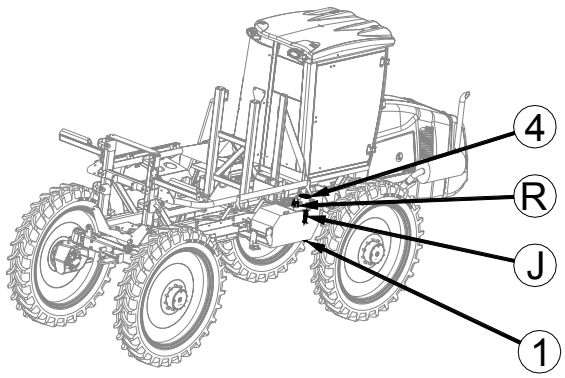


Non-contractual view

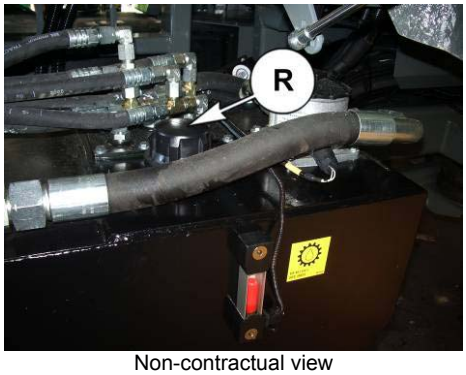


- F: Float level
- N: Normal oil level
- M: Minimum oil level

5.4.2. FILLING THE HYDRAULIC OIL RESERVOIR



Non-contractual view



Non-contractual view
FILLING (R)

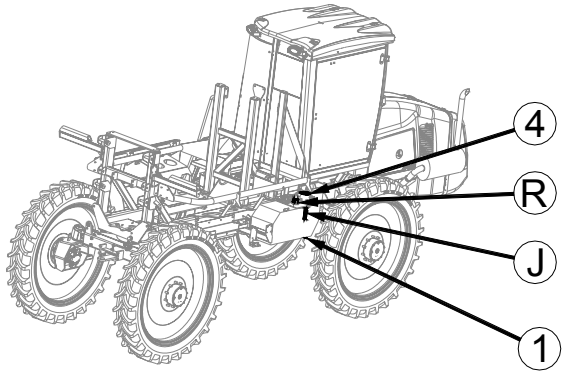
5.5. HYDRAULIC SYSTEM FILTER ELEMENT

Qualification of the operator

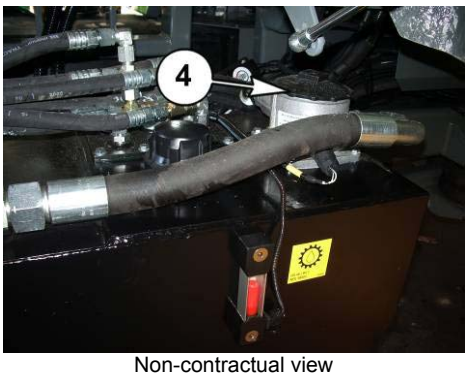
Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Before any intervention, stop the engine and let the whole machine cool down.

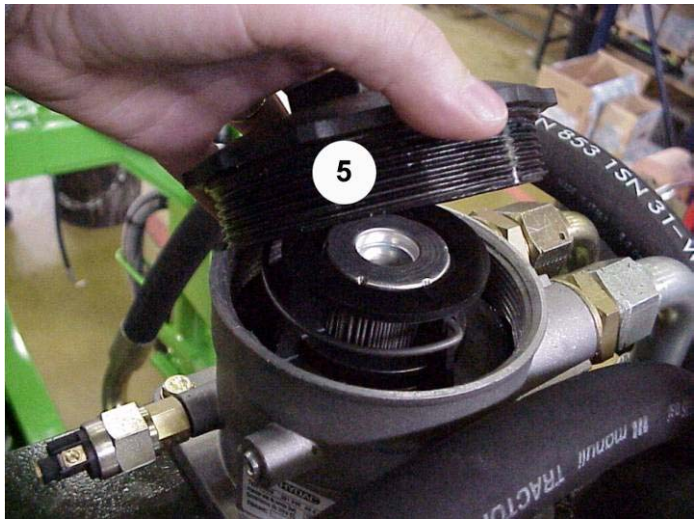


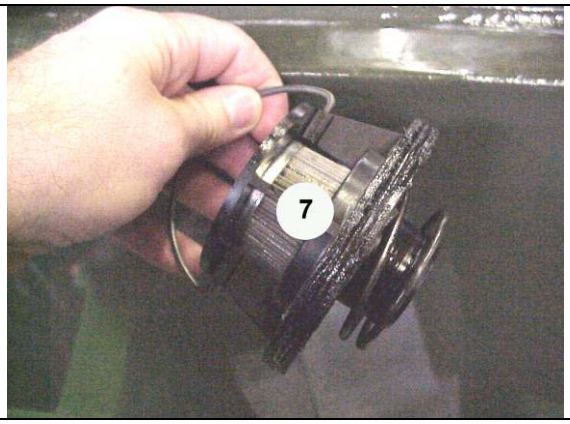
Non-contractual view



Non-contractual view
Hydraulic oil filter(4)

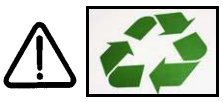
- Unscrew and remove the cover (mark 5), Remove the filter element (mark 6) (HE0005) and its bracket using the metal handle.





Check the cleanliness and clean the strainer filter if required mark 7

Replace it if necessary (part number HE0004-03)



- Replace the filter element (mark 6) (part number HE0005) (lubricate the seal).
- Replace the filter element and its bracket in the “shaft” of mark 4.
- Screw back the cover (mark 5) of mark 4 after having cleaned it carefully.
- Check the oil level.

This filter is fitted with a clogging probe.
In severe cold, it is possible that, in spite of changing this filter, the clogging indicator lamp (INSTRUMENT PANEL) remains lighted. The engine must be left running at 1800 rpm and travel forward very slowly for 10 to 15 min so that the heat is distributed in the hydraulic system.

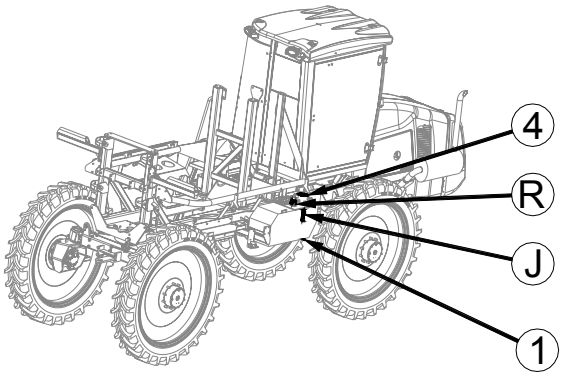
5.6. DRAINING THE HYDRAULIC OIL RESERVOIR

Qualification of the operator

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Before any intervention, stop the engine and let the whole machine cool down.



Non-contractual view

Non-contractual view
Drain port mark 1

Screw back the plug (mark 1) after cleaning it.

5.7. COOLING RADIATOR (CLEANING)

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

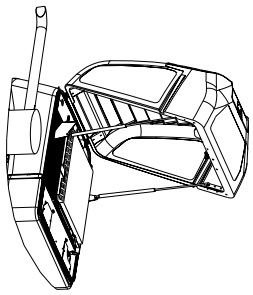
Before any intervention, stop the engine and let the whole machine cool down.

Use a compressed air or low pressure water jet.

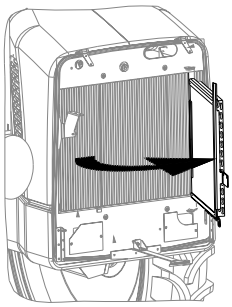
Do not use high pressure cleaner

In case of use in a dust or debris laden atmosphere, it is strongly recommended to carry out this cleaning every day or several times a day if required.

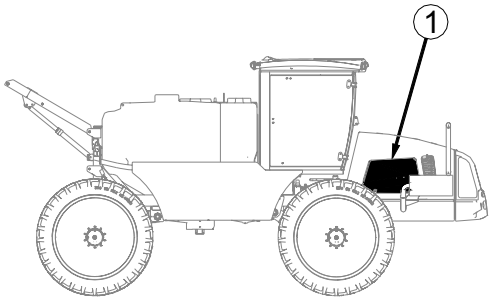
Open the front hood

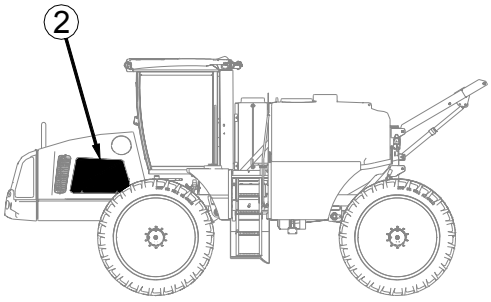


Pivot the air conditioning radiator



Remove the side hoods marks 1 & 2.





Non-contractual view

5.8. HYDRAULIC HOSES

Qualification of the operator

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Before any intervention, stop the engine and let the whole machine cool down.

All liquids must be handled with care.
If you are injured by a leaking liquid or if you absorb it, see a doctor immediately.

Liquids under pressure that could escape through a very small hole are almost invisible but present a major danger for safety and health. To check for leaks, always use a piece of cardboard or wood. Never try to locate leaks using your hands.

We would like to draw your attention to the importance of the technical characteristics of the components of a hydraulic hose: the pipes, the skirts and the nozzles.
Each pipe is defined by a standard specifying its dimensions, its working pressure (WP) and its bursting pressure (BP).
So we strongly advise you, when replacing a hydraulic hose, to use exactly the same characteristics as the original hose.
That is to say: - The same diameter; this can be found on the pipe
- The same type of pipe; the standard can be found on the pipe as can the working pressure (WP)
- The same nozzles
- The same skirts

To help you to recognise a hose, we have engraved the following information on the skirts:

PR	1	00	PE****	PS****
Préciculture	Quarter	Year	Bursting pressure	Working pressure

So we advise you to periodically check that your hoses are in good condition, especially transmission hoses, and change them frequently.

5.9. CHECKING THE EFFECIENCY OF BRAKES

Regularly check the brakes.

DANGER

Any service work or inspection on the system or components making up the braking (hydrostatic or friction braking, dynamic or static) will have to be exclusively carried out by your "APPROVED DEALER".

5.9.1. CHECKING THE DYNAMIC BRAKING EFFICIENCY

- Load the vehicle.
- Start the vehicle at its maximum speed.
- Press down the brake pedal fully.

Braking distance: approximately 19 m

5.9.2. CHECKING THE EFFICIENCY OF THE PARKING BRAKE

- Load the vehicle.
- Place the vehicle on a slope at maximum 18%

The vehicle must remain stationary with the engine stopped.

5.10. UNCOUPLING REDUCTION GEARS/TOWING

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

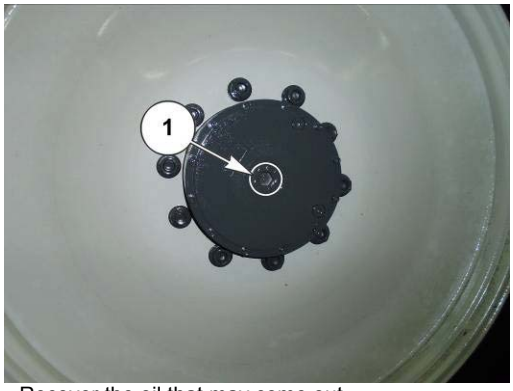
Before any intervention, stop the engine and let the whole machine cool down.

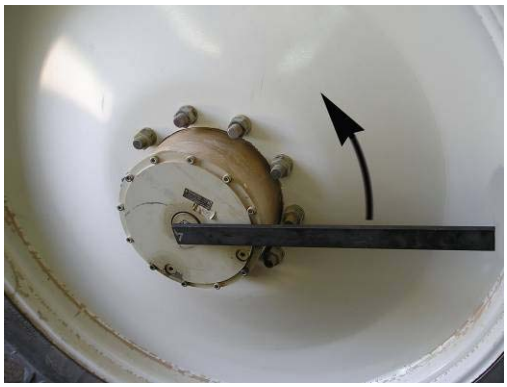
5.10.1. MODE OF OPERATION TO BE ADOPTED FOR UNCOUPLING

Connect the equipment to the towing vehicle using a towing bar.

Operate the uncoupling device only when the device is stopped.
Be careful about the temperature of the reduction gear in case the device has rotated beforehand.

- Clean the disconnection area of the reduction gear.
- Remove the screwed plug (mark 1).

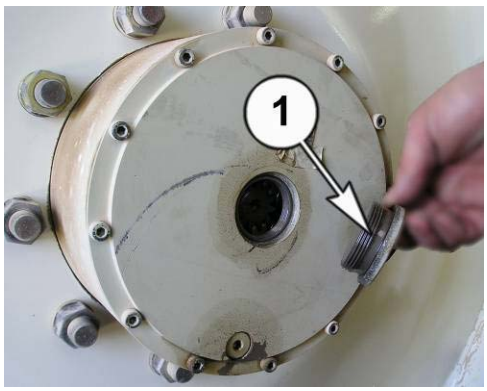




- Recover the oil that may come out.

- Completely remove the shaft from the planet gear (mark 2) of the reduction gear (use a screw [mark 3])

- Screw on the screwed plug (mark 1) in the cover.



Before towing, fill the reduction gear with oil.
The uncoupling device is used only to tow the vehicle over a short distance. Check that you do not exceed 2 to 3 km/h.
Before loosening the towing bar, couple the reduction gear (see above) or take suitable measures so that the device does not start rolling.

5.10.2. MODE OF OPERATION TO BE ADOPTED FOR COUPLING

Connect the equipment to the towing vehicle using a towing bar.

Be careful about the temperature of the reduction gear in case the device has rotated beforehand.

- Clean the disconnection area.
- Remove the screwed plug (mark 1).
- Recover any oil that may come out in suitable containers.
- Insert the shaft of the planet gear (mark 2) in the reduction gear.
- Screw the screwed plug (mark 1).

Before starting, fill the reduction gear with oil.

5.11. REPLACING THE BRAKE DISKS

DANGER 

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Before any intervention, stop the engine and let the whole machine cool down.

DANGER

Any service work or inspection on the system or components making up the braking (hydrostatic or friction braking, dynamic or static) will have to be exclusively carried out by your "APPROVED DEALER".

For upkeep and repairs, your "AUTHORIZED DEALER" has received training including technical work sessions. He has the original spare parts and tools needed to give you full satisfaction.

5.12. MAINTAINING REDUCTION GEARS OF WHEEL MOTORS

DANGER 

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

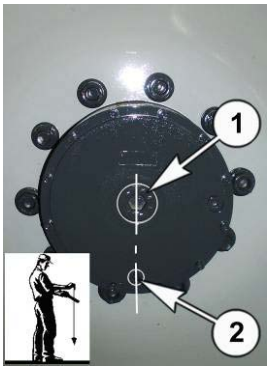
Before any intervention, stop the engine and let the whole machine cool down.

- Perform weekly visual inspections.
- Check the tightness of the reduction gear.
- Regularly ensure that the reduction gear does not emit suspicious noises.
- Regularly check the oil level.

5.12.1. DRAINING THE REDUCTION GEARS - SAE 80W-90

Always drain the hot oil immediately after the reduction gear is shut-down.

The draining of reduction gears is done from the plug mark 2 (open the plug mark 1 to facilitate flow).

	Note: The plug mark 2 must be placed at the bottom of the reduction gear directly below mark 1.

Open the plugs marks 1 & 2. Recover the oil 

5.12.2. FILLING OIL IN THE REDUCTION GEARS.

SAE 80W-90

Maintain the position of the reduction gear as above.

- Screw the plug mark 2.
- Fill from the plug port mark 1 until the oil attains the level of the plug port (mark 1).
- Screw the plug mark 1.

5.13.RAISING

DANGER 

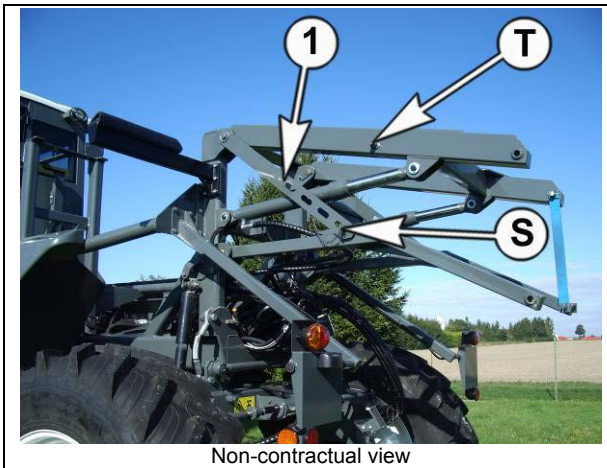
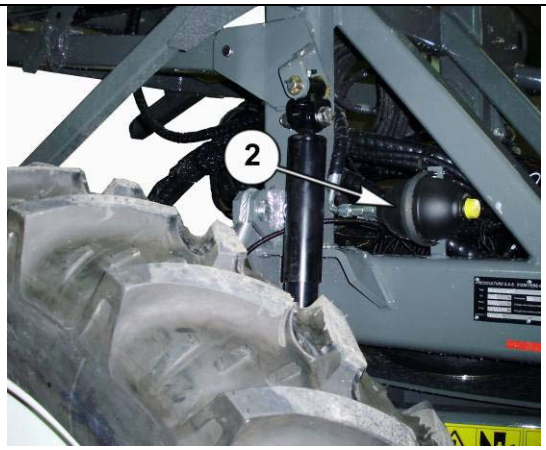
Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Before any intervention, stop the engine and let the whole machine cool down.

 Non-contractual view	 Non-contractual view
1 - Raising safety	2 - Accumulator

During storage or maintenance of the **SELF-PROPELLED POWER FRAME** you must move the bar mark 1 from position T (work) to position S (safety).

ATTENTION

The hydraulic accumulators must be checked every three years and must be replaced every ten years

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ATTENTION

Reminder :

It is essential to pay special attention to the tanks, piping and fluid and energy accumulators. They must not be subjected to any chemical, thermal or mechanical attack and must be kept in a good state of cleanliness and free of all corrosion and all visible flaws.
If you have the slightest doubt regarding the integrity of one of these components, immediately seek the advice of the "AUTHORIZED DEALER".

The air tank intended for the pneumatic suspension is subject to the decree of July 23, 1943 amended concerning gas pressure devices:
Hydraulic test every ten years, exterior and interior inspection every three years.

5.14.PNEUMATIC SUSPENSION

DANGER 

Qualification of the operator

DANGER

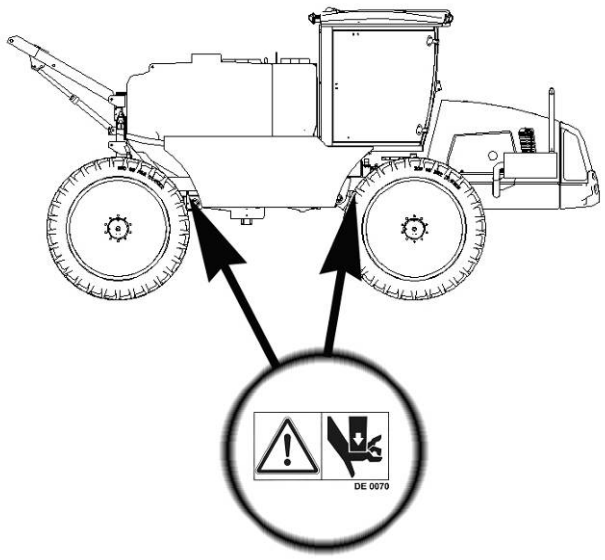
Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Before any intervention, stop the engine and let the whole machine cool down.

Any servicing operation on the pneumatic system must be done by your "APPROVED DEALER".

For upkeep and repairs, your "AUTHORIZED DEALER" has received training including technical work sessions. He has the original spare parts and tools needed to give you full satisfaction.



Non-contractual view

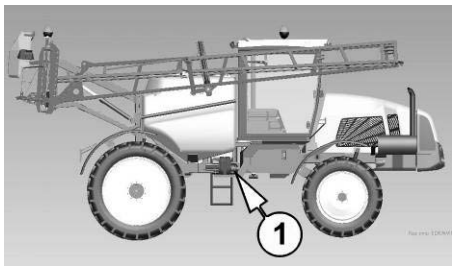
5.14.1. AIR RESERVOIR

DANGER

Reminder :

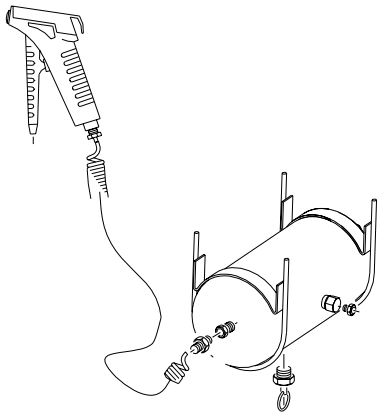
It is essential to pay special attention to the tanks, piping and fluid and energy accumulators. They must not be subjected to any chemical, thermal or mechanical attack and must be kept in a good state of cleanliness and free of all corrosion and all visible flaws.
If you have the slightest doubt regarding the integrity of one of these components, immediately seek the advice of the "AUTHORIZED DEALER".

The air tank intended for the pneumatic suspension is subject to the decree of July 23, 1943 amended concerning gas pressure devices:
Hydraulic test every ten years, exterior and interior inspection every three years.



Bleed the air reserve (mark 1) using the device mark 2 every day

5.15.BLOWER.



5.16.ACTIVATED CARBON FILTERS

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

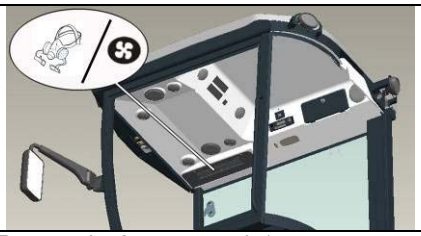
Before any intervention, stop the engine and let the whole machine cool down.

5.16.1. GENERAL

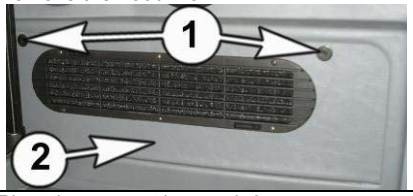
The life of filters depends on the type of products used. Their saturation being difficult to detect because of the various existing products, it is mandatory to change them at least every six months.

5.16.2. REPLACING FILTERS

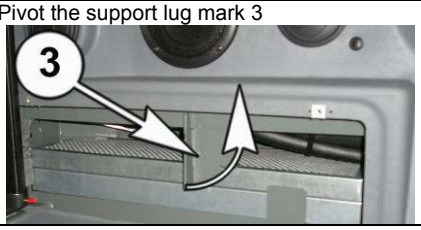
DANGER



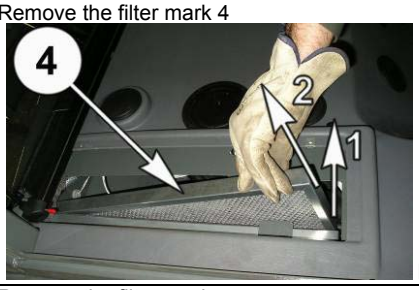
- Remove the 2 screws mark 1
- Remove the hood mark 2



- Pivot the support lug mark 3



- Remove the filter mark 4



Part number: CARA06400056

- Remove the filter mark 5

Part number: CARA06400055

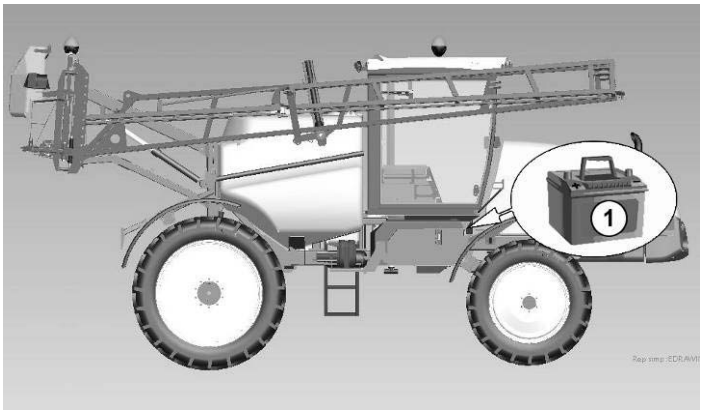
- Insert 2 new filters

ATTENTION

- The flats forward and upward.
- Respect the order of filters :
  1. CARA06400055 (paper)
  2. CARA06400056 (coal)

Put back the lug, the hood and the screws

5.17.GENERATOR - BATTERY



Never disconnect the battery (1) or place the battery master switch on OFF when the engine is rotating.

Before carrying out a weld on the **SELF-PROPELLED POWER FRAME**, disconnect the battery (1) and the generator.

5.18.FUEL SUPPLY

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

Reminder:

Carry out the upkeep of the **Self-propelled power frame** in full safety.

All work on the heat engine must be done with the engine turned off and cold, parking brake on, switch key removed.

Handle the fuel carefully, it is extremely inflammable. Never refill it or do upkeep for the feed circuit when smoking or near open flames. Keep all flames away.

Always refill the heat engine when it is turned off and in the open air.

Prevention against fire risks

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Prevention measures, warnings against inflammable products
Be sure to keep the Self-propelled power frame and its accessories clean
Keep all of the parts of the Self-propelled power frame free of grass, leaves or excess grease
Handle the fuel carefully. It is extremely inflammable and its vapors are explosive.
Never store the fuel drum or the tank that still contains gasoline in an area where the vapors can reach a flame or a spark.
Never fill the fuel tank within an enclosed area. Do not smoke when filling
Never remove the plug of the fuel tank or add fuel to the tank when the engine is in operation (or hot).

Fire prevention
Stop the Self-propelled power frame and/or remove the Self-propelled power frame in safety.
Disconnect the machine from sources of electrical energy (battery isolation switch).

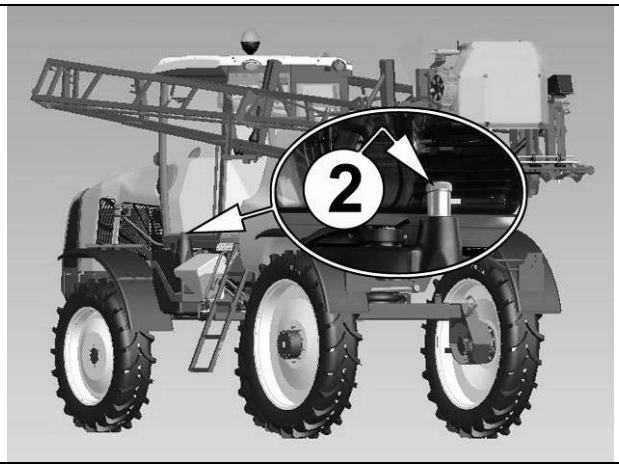
In any fire situation, use common sense and do your best to bring it under control.
OR
Immediately move away from the machine and make sure that there is no one close to it.

It is particularly recommended that the owner install an extinguisher on the Self-propelled power frame. This extinguisher must be put in a place that is easily accessible and it must be checked regularly.

Before any intervention, stop the engine and let the whole machine cool down.

During maintenance operations on the **Self-propelled power frame** use all the secured means at your disposal and use the additional adapted means such as secured boom lifts and step ladders to avoid all risk of falling. (Including the fillings and refillings with fuel, oil and coolant if any. It is therefore essential to do the fillings in an appropriate place reserved for these operations and not in the work place).

- Keep the plug (1) clean.
- Use a standardized fuel (See § 1.8.11.2)



After filling put the plug (2) back in place.

5.19.POSITION OF GREASE FITTINGS

DANGER

Qualification of the operator

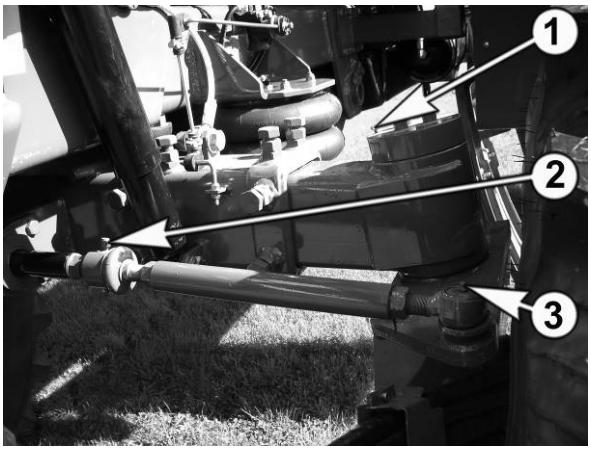
DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

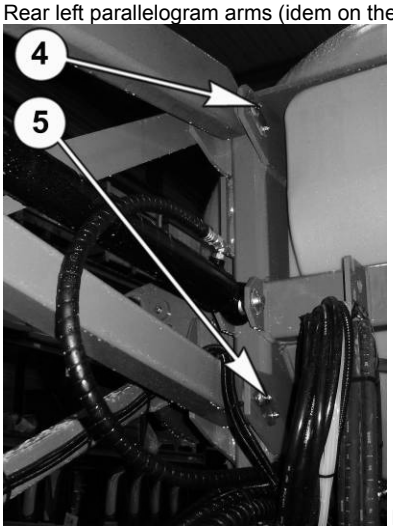
Before any intervention, stop the engine and let the whole machine cool down.

Grease fittings marks 1, 2, 3.
Front left of the vehicle (idem on the right)



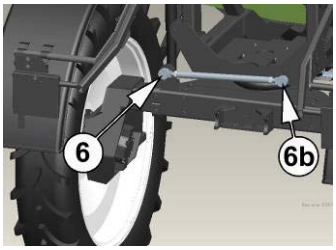
Non-contractual view

Grease fittings marks 4, 5.
Rear left parallelogram arms (idem on the right)



Non-contractual view

Grease fittings marks 6, 6b.
Rear left of the vehicle



Grease fittings marks 10, 11.
Rear left of the vehicle (idem on the right)

Non-contractual view

5.20.ENGINES

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

Reminder:

Carry out the upkeep of the **Self-propelled power frame** in full safety.

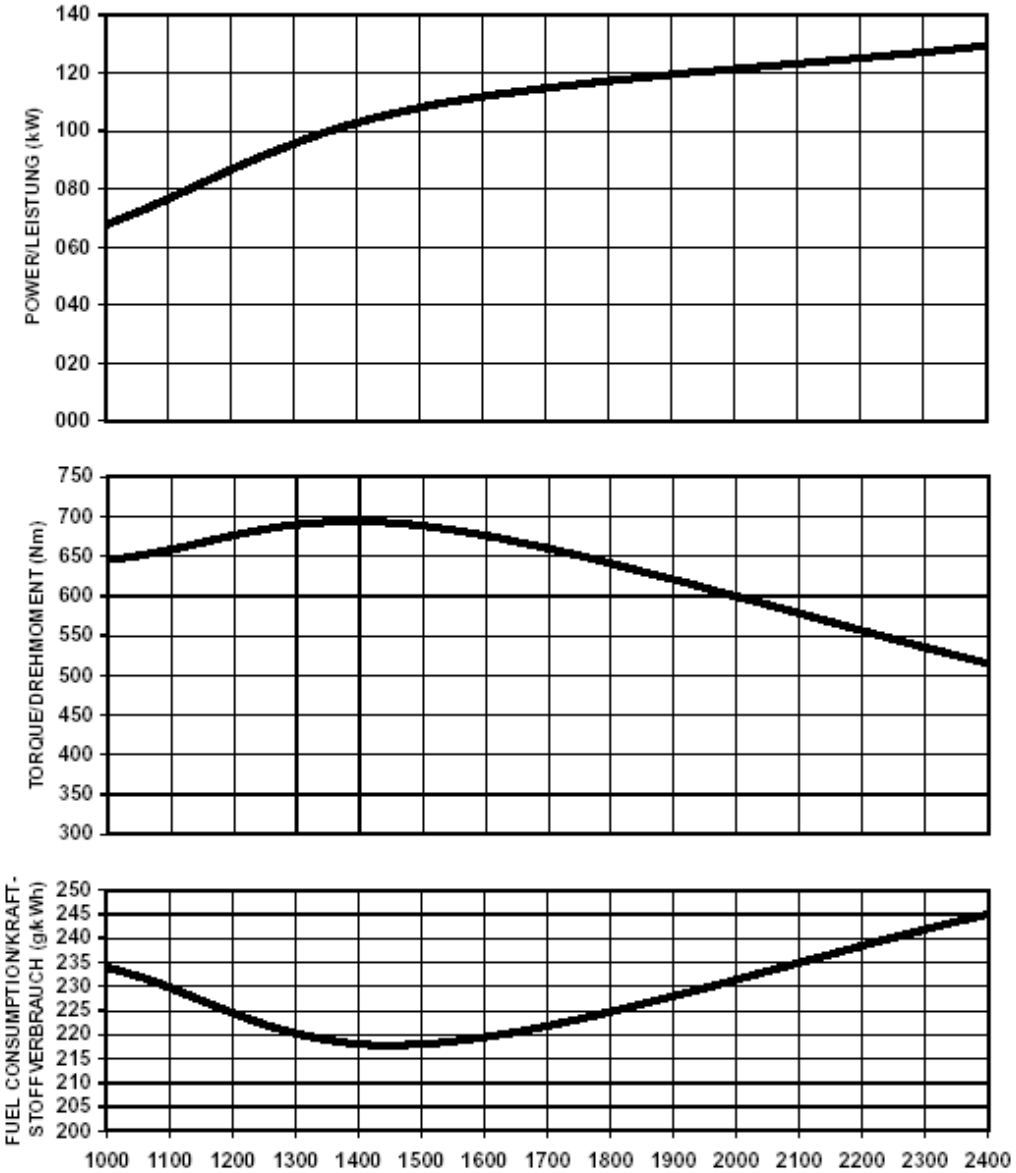
All work on the heat engine must be done with the engine turned off and cold, parking brake on, switch key removed.

Before any intervention, stop the engine and let the whole machine cool down.

5.20.1. ENGINE PERFORMANCE CURVE 129,4 KW

ENGINE PERFORMANCE CURVES / MOTORKENNLINIEN

ENGINE TYPE / MOTORTYP	TCD 2012 L06 2V
STANDARD / NORM	ISO 14396
RATED POWER / NENNLEISTUNG	129,4 kW at/bei 2400 rpm/U/min
MAX. TORQUE / MAX. DREHMOMENT	688 Nm at/bei 1500 rpm/U/min



COMPILED BY / ERSTELLT VON	DATE / DATUM	CUSTOMER / ERSTELLT FUER	FILE / DATEINAME
0	01/10/2010	0	C3UI129A

CURVES ARE BASED ON POCKETBOOK DATAS. DEVIATIONS OF SERIES PRODUCTION RESERVED.
KURVEN BASIEREN AUF TASCHENBUCHDATEN. ABWEICHUNGEN BEI SERIENFERTIGUNG VORBEHALTEN.

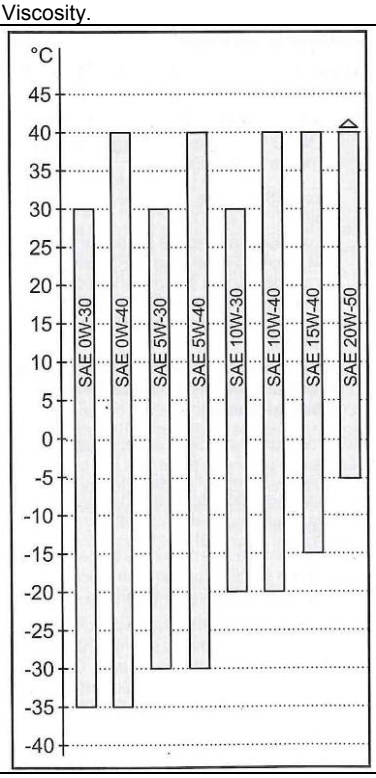
5.20.2. MAINTENANCE OF THE ENGINE & ENGINE ACCESSORIES.

DEUTZ TCD2012 2V

5.20.2.1. Engine lubrication oil

Recommended quality class.
ACEA: E5-02
API: CH4

Viscosity.



5.20.2.2. BEFORE STARTING

Check the level of all filling fluids : fuel, engine oil, coolant.
Make sure that the air filter is not clogged.

5.20.2.3. TO BE MONITORED

Fuel system

Avoid operating the engine with the fuel reservoir at the minimum (risk of formation of condensates and unpriming).

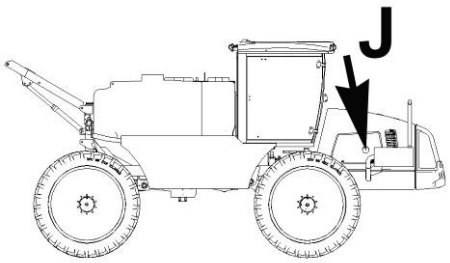
Suction and exhaust system

Regularly check the cleanliness of the air inlet system (idem for exhaust).

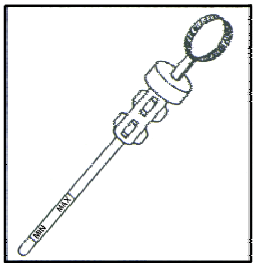
Electrical starting system

Periodically verify the charge of the battery and top up the electrolyte level if required.

5.20.2.4. PERIODIC INSPECTIONS OF THE OIL LEVEL IN THE ENGINE HOUSING



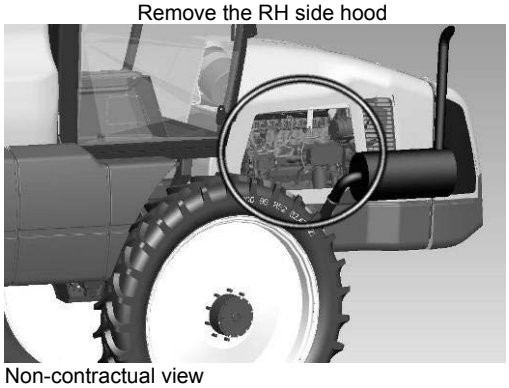
Non-contractual view



Test: engine stopped and cold.
The oil level: between minimum and maximum of the gauge.

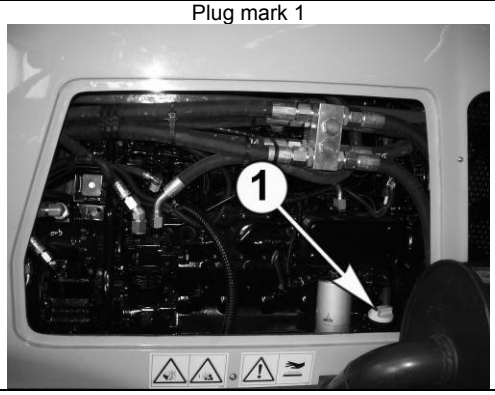
5.20.2.5. Engine oil filler plug

Remove the RH side hood



Non-contractual view

Plug mark 1



5.20.2.6. Checking the level & Filling coolant

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

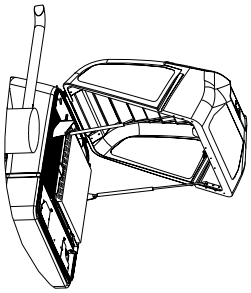
Reminder:

Carry out the upkeep of the **Self-propelled power frame** in full safety.

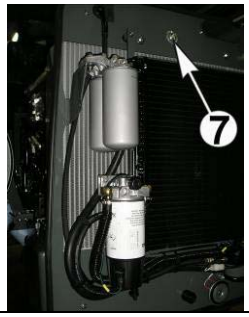
All work on the heat engine must be done with the engine turned off and cold, parking brake on, switch key removed.

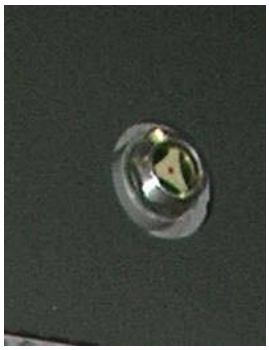
Before any intervention, stop the engine and let the whole machine cool down.

Open the front hood



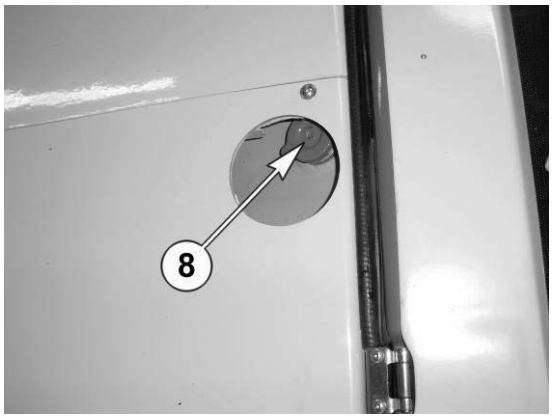
Checking using the peep sight mark 7





The filling is done from the plug mark 8.

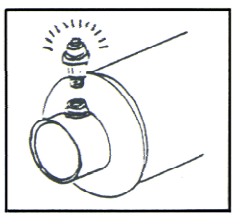
Non-contractual view



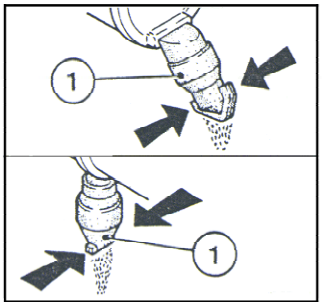
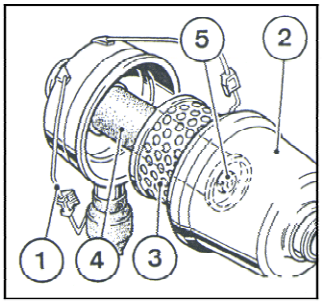
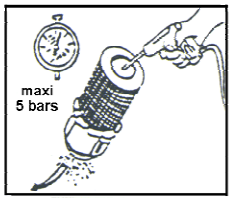
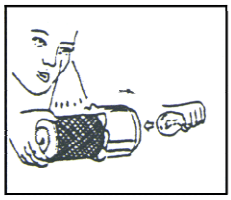
5.20.2.7. Care and maintenance work / Combustion air filter.

Non-contractual view

Operation to do daily.



If the control light is red (see "Before Starting"), it may be necessary to clean the air filter. Proceed as follows :

Cleaning	
	Remove any dust from the outlet valve (1) by pressing the outlet orifice in the direction indicated by the arrows. Make sure that no dust enters the sleeve. Clean the outlet orifice from time to time.
  	Remove the filter cap then remove the filter cartridge. Clean the cartridge with a jet of dry, compressed air directed from the inside outwards. Air pressure must not exceed 5 bar. Replace the filter cartridge (3) after one year at the most. Before installing the cartridge, check that it is in good condition using a torch. If the cartridge is torn or has holes, then replace it. Check that the lining inside the cartridge is in good condition. To install the cartridge, repeat the operations in reverse order, taking care to position the cartridge correctly in its housing.

ATTENTION

If the cartridge is not correctly installed, then unfiltered air may enter the engine and cause serious damage. We recommend that the above operations be carried out by qualified staff. Once the cartridge has been checked, repaired or replaced, reset the mechanical filter clogging indicator by pressing the pushbutton on the top of the indicator.

5.20.3. CHECKING THE THE ELECTROLYTE LEVEL / BATTERY

DANGER


Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

Reminder:

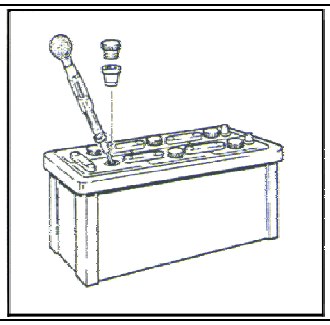
Carry out the upkeep of the **Self-propelled power frame** in full safety.

All work on the heat engine must be done with the engine turned off and cold, parking brake on, switch key removed.

Do not use open flames near batteries or starting devices. To avoid sparks that could cause an explosion, observe the instructions given for the use of the auxiliary starting cables.

Always use a voltmeter to check the voltage. Always begin by unplugging the negative cable of the battery.

Before any intervention, stop the engine and let the whole machine cool down.



When the battery is not in use and cold, check that the electrolyte level is located between the max and min readings. If the level is below minimum, then top up with distilled water. Check more often in the summer. If the engine is not used for a lengthy period, then check the electrolyte level at least once. Check that the battery terminals are perfectly clean, tight and protected by a coat of Vaseline.

5.20.4. WATER SEPARATOR(FUEL SYSTEM)

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

Reminder:

Carry out the upkeep of the **Self-propelled power frame** in full safety.

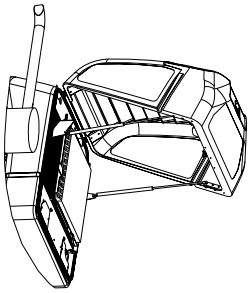
All work on the heat engine must be done with the engine turned off and cold, parking brake on, switch key removed.

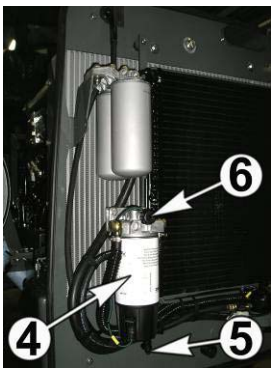
Handle the fuel carefully, it is extremely inflammable. Never refill it and never do upkeep for the feed circuit when you are smoking or near open flames. Keep all flames away.

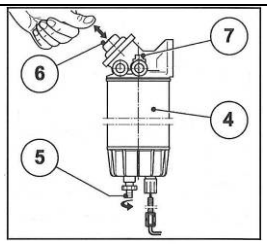
Always refill the heat engine when it is turned off and in the open air.

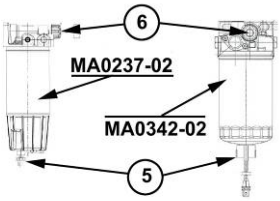
Before any intervention, stop the engine and let the whole machine cool down.

Open the front hood









- Filter cartidge (mark 4)
- drain screw (mark 5)
- push rod (mark 6)
- bleed screw (mark 7)

5.20.5.1. Draining the separator.

Operation to be carried out very regularly (daily).

Unscrew the drain screw (mark 5) and let any water contained in the separator flow out.

Screw back the screw.

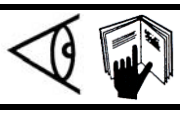
Note: When the alert system reacts (Alert + audible warning/) :
Immediately bleed the separator

5.20.5.2. Priming the system

Operate the push rod mark 6 to prime the fuel system (If required, use the bleed screw 7).

5.20.5.3. Replacing the element

To replace the element

To replace the element		DEUTZ TCD2012 2V

Prime after operation.

5.20.5. *REPLACING FUEL FILTERS.*

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

Reminder:

Carry out the upkeep of the **Self-propelled power frame** in full safety.

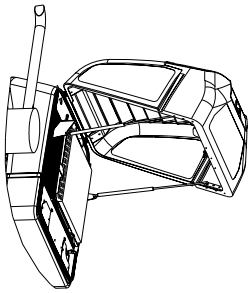
All work on the heat engine must be done with the engine turned off and cold, parking brake on, switch key removed.

Handle the fuel carefully, it is extremely inflammable. Never refill it and never do upkeep for the feed circuit when you are smoking or near open flames. Keep all flames away.

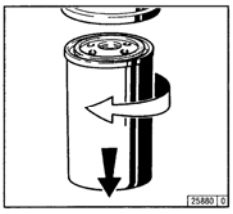
Always refill the heat engine when it is turned off and in the open air.

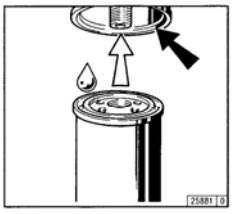
Before any intervention, stop the engine and let the whole machine cool down.

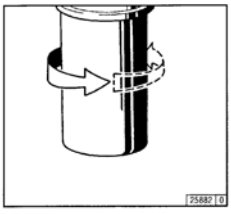
Open the front hood



Unscrew the elements mark 3 and replace them.







Prime after operation.

5.20.6. DRAINING THE ENGINE AND REPLACING THE ENGINE OIL FILTER

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

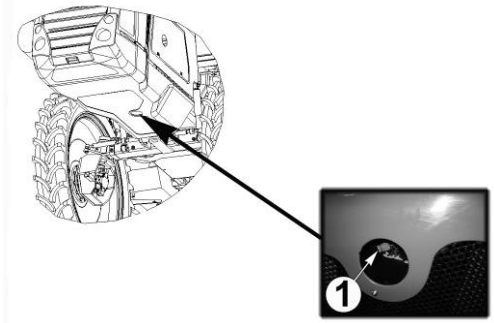
Reminder:

Carry out the upkeep of the **Self-propelled power frame** in full safety.

All work on the heat engine must be done with the engine turned off and cold, parking brake on, switch key removed.

Before any intervention, stop the engine and let the whole machine cool down.

5.20.7.1. Draining



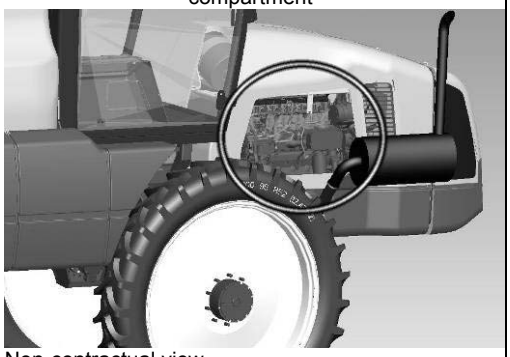
Non-contractual view

Unscrew the drain port mark 1

Screw back after the operation

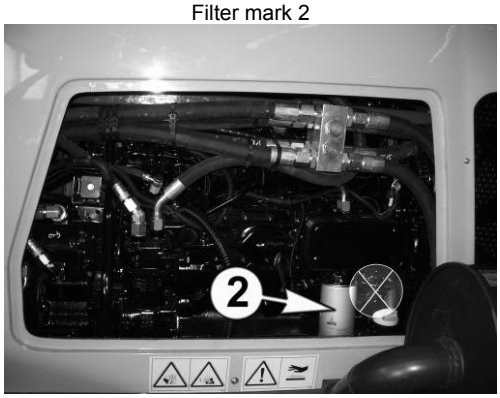
5.20.7.2. Replacing the oil filter

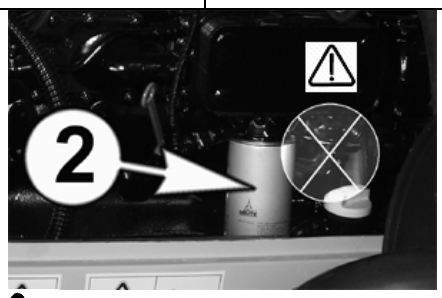
Remove the RH side hood to access the engine compartment



Non-contractual view

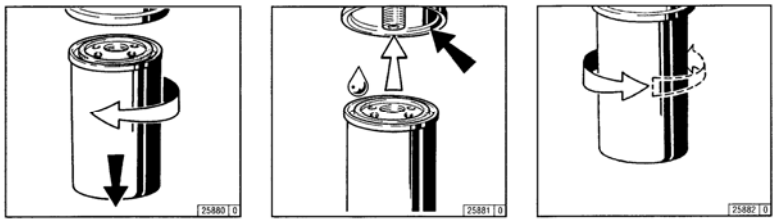
Filter mark 2





Do not use the bracket on the right of filter.

Unscrew the element mark 2 and replace it



Screw back after the operation
Top up the oil.

5.20.7. DEUTZ ENGINE MAINTENANCE TABLE

(DEUTZ TCD2012)

Maintenance TABLE of the **SELF-PROPELLED POWER FRAME**

5.21. AIR CONDITION

This operation must be carried out only by your "APPROVED DEALER".

5.22. FAILURE AND MAINTENANCE OF THE 4 STEERING WHEELS SYSTEM

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

Reminder:

Carry out the upkeep of the **Self-propelled power frame** in full safety.

Before any intervention, stop the engine and let the whole machine cool down.

This operation must be carried out only by your "APPROVED DEALER".

5.23. STORAGE OF THE SELF-PROPELLED POWER FRAME

Information required to store the **Self-propelled power frame** temporarily or for the winter.

DANGER

All operations in the section "STORAGE CONDITIONS OF THE **Self-propelled power frame**" must be carried out on the vehicle when it is stopped and parked in its final storage position. Do not restart the vehicle without first performing the operations included in the "STARTING THE **Self-propelled power frame** AFTER STORAGE" section.

5.23.1. STORAGE CONDITIONS OF THE SELF-PROPELLED POWER FRAME

Drain all tanks.

Check the level of anti-freeze protection of the liquid in the cooling circuit of the Straddle Chassis.
Top up the hydraulic oil and fuel tanks to avoid any condensation.
Store in a well ventilated place that is protected from poor weather and cannot be accessed by children.
Make sure the vehicle is stable (storage supports, jacks, etc.).
Make sure that protective devices are in place (tool guards installed, etc.).
The maximum storage time is 3 months.

5.23.2. CHECKS DURING STORAGE

Check the guards and protective devices.
Check the tyre pressure.
Check the battery charge and electrolyte level.

5.23.3. STARTING THE THE SELF-PROPELLED POWER FRAME AFTER STORAGE

DANGER

Qualification of the operator

DANGER

Reminder:

The **Self-propelled power frame** should only be used, maintained and repaired by people who are very familiar with its particular characteristics and who know the corresponding safety procedures.

Upkeep of the Self-propelled power frame

DANGER

Reminder:

Carry out the upkeep of the **Self-propelled power frame** in full safety.

Before any intervention, stop the engine and let the whole machine cool down.

DANGER

Follow this procedure when restarting the Straddle Chassis after performing the operations included in the "STORAGE CONDITIONS OF THE **Self-propelled power frame**" section.

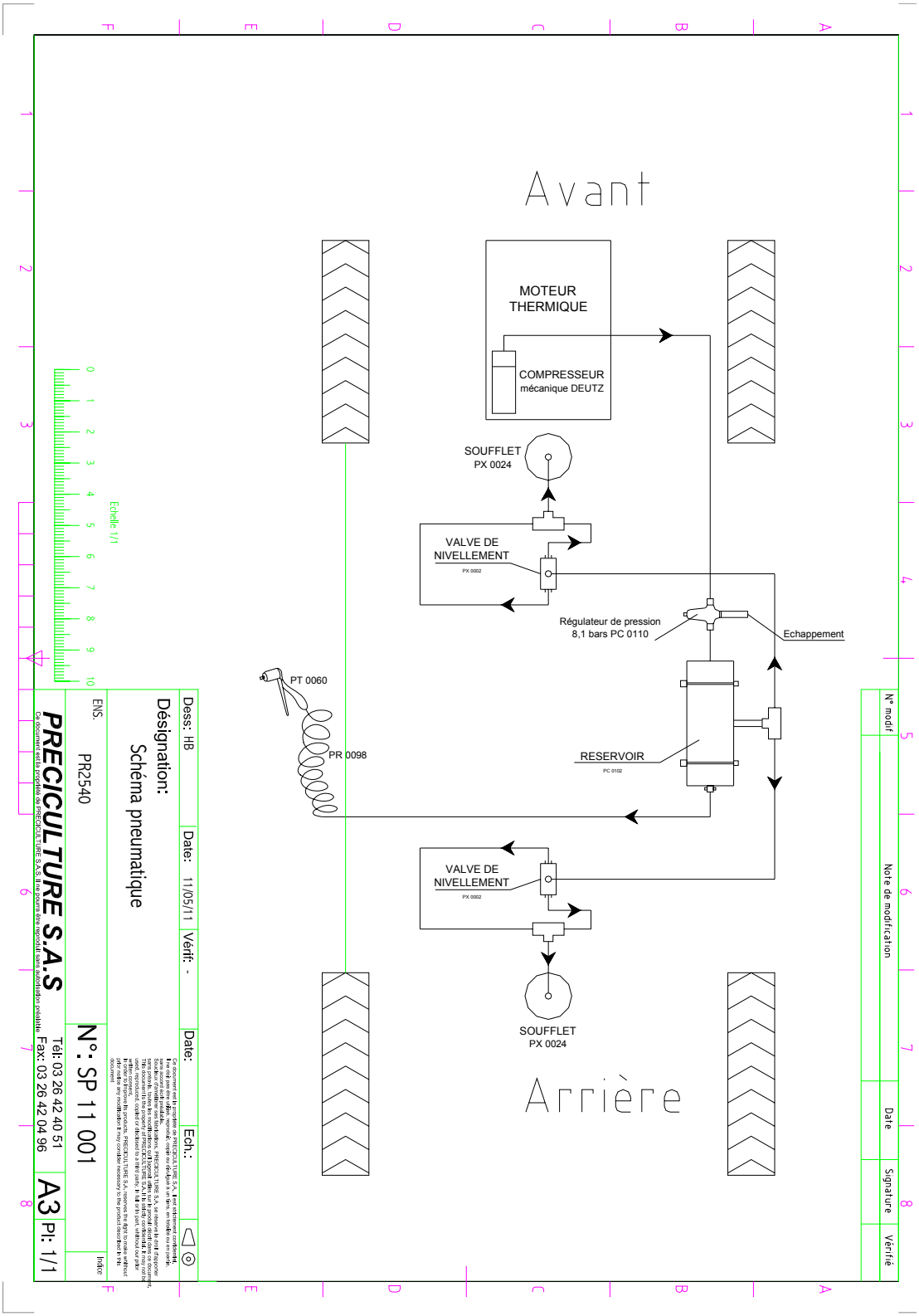
Check and top up the liquids (coolant, hydraulic oil, fuel, battery electrolyte) to their usual operating levels. Never start the Straddle Chassis if the hydraulic oil level is too low.
Check and clean the engine air inlet circuit.
Check the guards.
Check the tyre pressure.
Check the battery charge and electrolyte level.

5.24. PRECICULTURE PART REFERENCES

NAME		QUANTITY
ENGINE OIL FILTER	MA0009	1
DIESEL FILTER	MA0237-04	2
Fuel pre-filter (filter cartidge)	MA0237-02 / MA0343-02	1
AIR FILTER	MA0014	1
AIR FILTER SAFETY CARTRIDGE	MA0015	1
ALTERNATOR FAN BELT	MA0264	1
AIR CONDITIONING COMPRESSOR BELT	TMX0016	1
Filter cab « paper »	CARA06400055	1
Filter cab « coal »	CARA06400056	1
Hydraulic oil CARTRIDGE	HE0005	1
LID + JOINT OF FILTER HE0004 (FOR CARTRIDGE HE0005)	HE0004-02	1
FILTER SIEVE FOR HE0004	HE0004-03	1
ENGINE OIL	LH0003	17 L (with filter) *
HYDRAULIC OIL	LH0002	170 L*
REDUCTION GEAR OIL	LH0001	1 x 4 (approximately)*
COOLANT (READY FOR USE)	LH0012	*
COOLANT (TO BE DILUTED)	01011490 (5l)**	*
	01164160 (20l)**	
	12211500 (210l)**	
* The reference is always the mark on the gauge (or the level).		
** DEUTZ part numbers		

6. DIAGRAMS

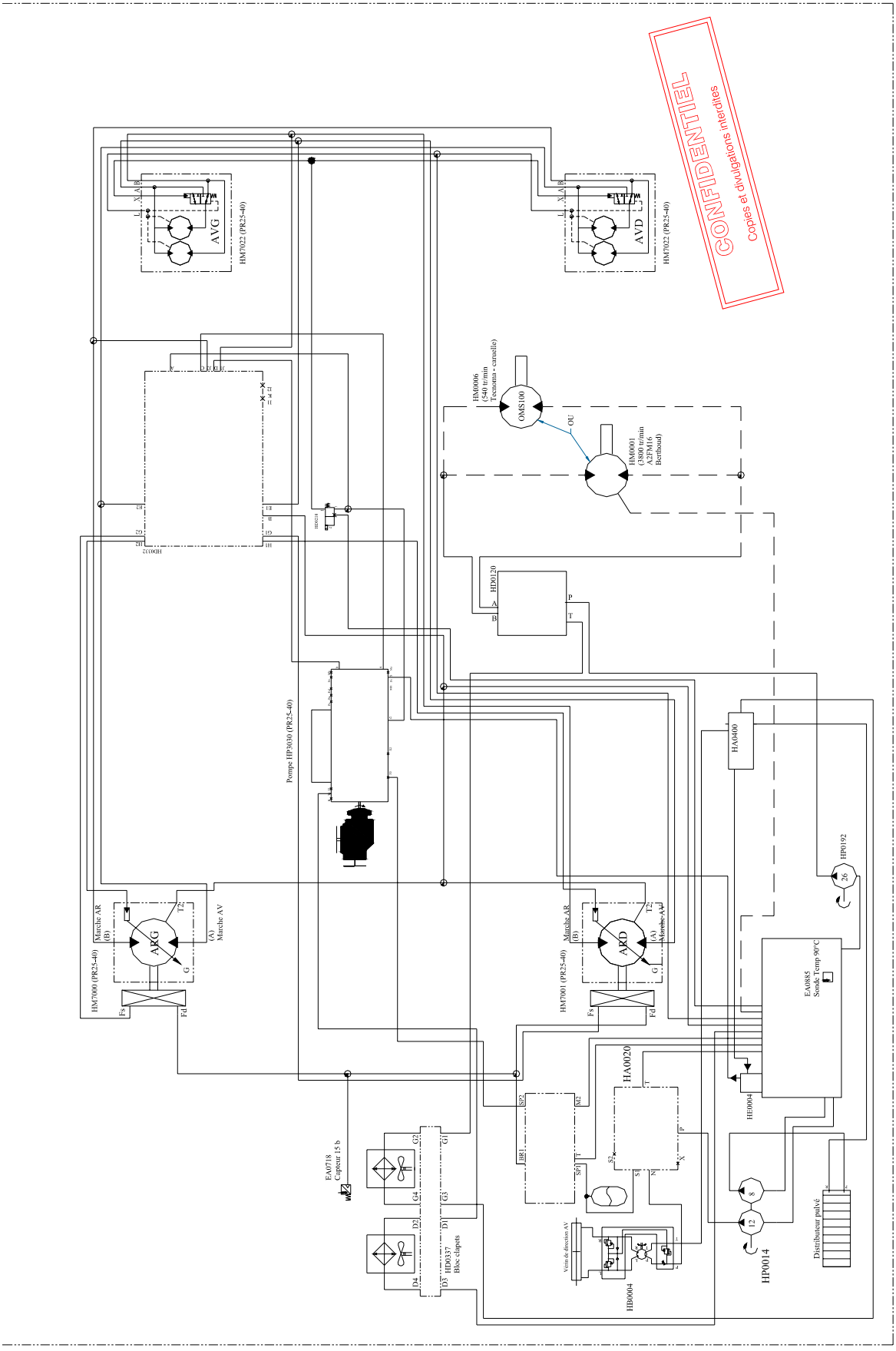
6.1. PNEUMATIC SUSPENSION DIAGRAM



6.2. CABLING DIAGRAM

Contact your “APPROVED DEALER”.

6.3. HYDRAULIC DIAGRAM



7. NOTEPAD

8. FAULT FINDING - REMEDIES

Contact your “APPROVED DEALER”.

9. CONTENTS

10. INDEX

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U

V

W