

OPERATION MANUAL

WHEEL LOADER

V7 / V7-HW

YANMAR

Fill in the following information before starting the machine	
Model	
Machine serial number	
Serial number of the engine	
Year of manufacture	
Start-up date	
Your YANMAR dealer Address Telephone	
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Original manual

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From serial number: XXXXXXXXXXXX



YANMAR COMPACT GERMANY GMBH THANK YOU FOR PURCHASING A YANMAR MACHINE

Read this manual carefully to find out how to use and maintain your machine correctly.

If the safety rules are not respected, injury may be caused or the equipment may be damaged.

This manual must be considered as a permanent part of your machine and must not be separated from the machine when you sell it.

This machine has been designed metrically. The measurements in this manual are given in both the metric and imperial systems.

The right and left hand sides are determined by facing the forward movement direction.

The warranty is a part of the YANMAR product support programme for customers who use and maintain their equipment as described in this manual. If the equipment has been used incorrectly or modifications have been made to transform its performances beyond the original factory specifications, the warranty expires and the improvements on site under warranty are rejected. The use of fuel beyond the specifications required or modifying the power of the machine's engine will void the warranty.

All the information, illustrations and specifications contained in this manual are based on the latest product information available on publication. YANMAR reserves the right to modify the information and illustrations in this manual without notice. For any further information, please contact your approved YANMAR dealer.

The images that appear in this booklet are provided for information purposes and may vary according to each model.

⚠ WARNING

Never try to run or use this machine without having read and understood all the applicable security messages contained in this manual.

Injury may be caused if the safety messages are not respected.

To ensure that this manual remains available for other users, always put it back in its compartment when it is not being used.

EC declaration of conformity

Original declaration of conformity

We,

Yanmar Compact Germany GmbH, Kraftwerkstraße 4, D-74564 Crailsheim, Germany

declare that the earth-moving machine:

Type: V7
Function: Wheel loader
Commercial name: V7 / V7-HW
Serial number: YCGXXXXXXXXXXXXXXXXX

complies with all the relevant requirements of Machinery Directive 2006/42/EC.

The machine also complies with the following relevant requirements of guidelines:
2014/30/EC (EMC), 2000/14/EC (noise emission)

Harmonized standards used:

EN ISO 12100, EN 474-1, EN474-3

Document editor, who is authorized to compile technical documentation:

Engineering, Yanmar Compact Germany GmbH, Kraftwerkstraße 4, D-74564
Crailsheim

Net power installed: 35,5 kW @ 2400 min⁻¹
Representative sound power level: 100,3 dB (A)
Guaranteed sound power level: 101 dB (A)

Conformity evaluation process according to RL 2000/14/EC Annex VIII, by:

Deutsche Gesetzliche Unfallversicherung e.V.
DGUV Test Prüf- und Zertifizierungsstelle Fachbereich Bauwesen
c/o BG BAU – Prävention
Am Knie 6
D-81241 München
Notified Body number: 0515

Crailsheim, XX.XX.XXXX

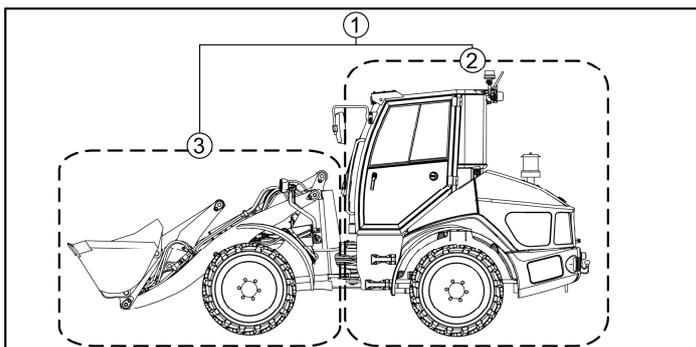
INTRODUCTION

This User Manual has been designed to provide you with important information and the suggestions you need for safe and effective use of the machine. This document is an original manual. Read the manual before you use the machine to familiarise yourself with the operation, verification and maintenance procedures and instructions. A serious accident may be caused if you do not respect the precautions contained in this user manual or use any procedures that are not recommended.

⚠ DANGER

Incorrect use of the machine may cause serious injury or even death. Personnel involved in using and maintaining the machine must familiarise themselves with the content of this manual before carrying out a task.

- Do not start the machine before you have familiarised yourself with the content of this manual.
- The personnel responsible for using the machine must keep this manual within easy reach and consult it from time to time.
- If you lose or damage the manual, order a new one immediately from your dealer.
- When you sell the machine to another user, do not forget to pass on the manual at the same time.
- YANMAR provides its customers with products that conform to the regulations and industrial standards that apply in their respective countries. If you are using a YANMAR machine that you have bought from a foreign company, you should be aware that certain safety mechanisms may be missing from the machine. Consult your dealer to find out whether your machine complies with the regulations and industrial standards that apply in your country.
- Some of the machine's specifications may differ from those described in the manual because the machine's design and performances have been improved. If you have any comments to make concerning the content of the manual, do not hesitate to consult your dealer.
- When the machine and its accessories are exported to another country, comply with the laws and regulations on export and trade control.
- The important safety instructions are presented in this manual in sections:
 - 📖 **1 Basic precautions, page 69**
 - 📖 **2 Usage precautions, page 74**
- In this manual, the main product sections are designated as follows:



(1) **Machine** = whole product

(2) **Rear hinged section** = section including the rear wheels and the cab.

(3) **Front hinged section** = section including the front wheels, lifting arm and loader tool.

SAFETY SIGNALS

The following signals are used in this manual to indicate the severity of the risks that may be encountered if the warnings concerning the product are not respected:

- | | |
|--------------------|---|
| ⚠ DANGER | Dangerous situation imminent that may cause death or serious injury. |
| ⚠ WARNING | Potentially dangerous situation likely to cause death or serious injury. |
| ⚠ CAUTION | Potentially dangerous situation likely to cause slight or medium-seriousness injury. |
| ⚠ IMPORTANT | Remarks or instructions to be respected to ensure the completely safe operation and maintenance of the machine. |

⚠ WARNING

The operator of this machine must be competent and trained in its use.

⚠ WARNING

Never try to operate or repair the machine if you have not read and understood all the applicable warnings and usage instructions contained in this manual and on the safety signals on this machine. Physical injury may be caused if the safety instructions are not respected.

⚠ WARNING

Never modify the design of the machine or its engine.

Never remove or deactivate the protections or safety mechanisms installed.

Any unauthorised modification to the design or use of unauthorised accessories may cause physical damage.

In addition, in that these actions would constitute an explicit violation of the terms of the YANMAR Product Warranty, the applicable warranty would also become null and void.

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A Description and illustration of the machine

CHAPTER COVERED IN THIS PART:

- 1 APPLICATIONS AND REGULATIONS
- 2 IDENTIFICATION PLATES
- 3 WARNING LABELS
- 4 IDENTIFICATION OF IMPORTANT PARTS
- 5 DESCRIPTION OF THE DRIVING POSITION
- 6 BONNET
- 7 REAR ATTACHMENT POINT
- 8 HYDRAULIC CONNECTION OF THE ACCESSORY
- 9 OPTIONS



1 APPLICATIONS AND REGULATIONS

1.1 Applications

The machine is designed to carry out the following tasks:

- Displacement
- Bucket work (Loading, Excavation)
- Handling (Bucket, Forks)
- Lifting

⚠ CAUTION

The machine must not be used for any tasks that are not covered.

⚠ CAUTION

It is forbidden to transport or lift people with the machine.

Note

Other applications are possible depending on the accessory fitted to the machine. Refer to the accessories manual.

1.2 Warranty

All our products are carefully manufactured and have a long service life. In addition to the standard guarantee, we offer various "Guarantee Plus" options, enabling you to put together the guarantee package that best suits your needs. Please contact your dealer at any time, who will be happy to offer you advice and various services.

1.3 Driving permits

Before using this machine, check the requirements applicable to its use concerning the driving permits. Respect all applicable laws. See your dealer for questions about usage permits.

1.4 Environmental regulations

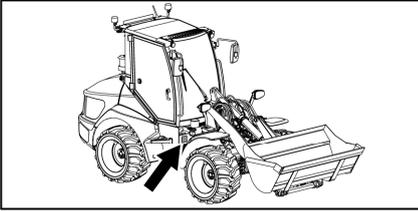
The safety of our products and the protection of the environment are important concerns for Yanmar Compact Germany GmbH

In accordance with Article 33 of the REACH Regulation EC/1907/2006 (Registration, Evaluation, Authorisation and Restriction of CHemicals), we inform you that our machines may contain substances included in the ECHA (European CHemicals Agency) candidate list.

For more information, please visit our website.

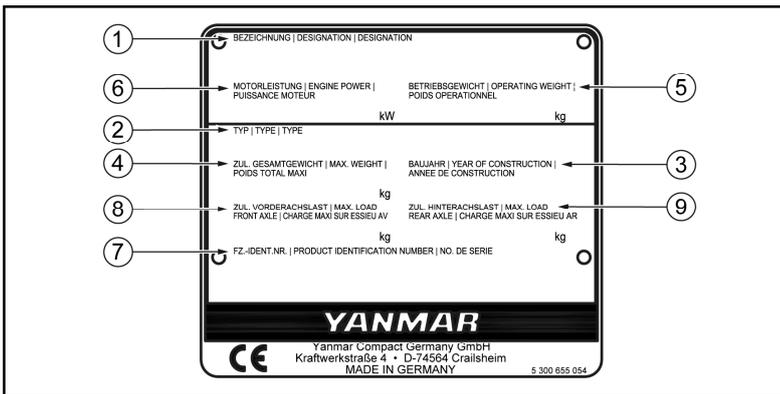
2 IDENTIFICATION PLATES

2.1 Machine serial number plate



The machine's serial number plate is located on the frame, as shown opposite.

Never remove this plate for any reason.



1 = Model name

2 = Type (Machine Category)

3 = Date of manufacture of the machine

4 = Maximum total weight

5 = Weight of the machine (with operator +75 kg (165 lbs))

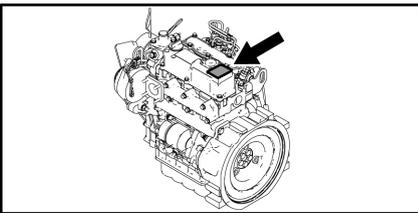
6 = Net power output

7 = Machine serial number

8 = Maximum front axle load

9 = Maximum rear axle load

2.2 Engine serial number plate

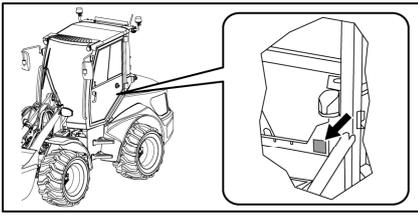


The engine's serial number plate is located on the top of the cylinder head cover and on the adhesive label located inside the bonnet. Never remove this plate for any reason.

2.3 EPA information plate

The EPA information plate is attached to the engine. Never remove this plate for any reason.

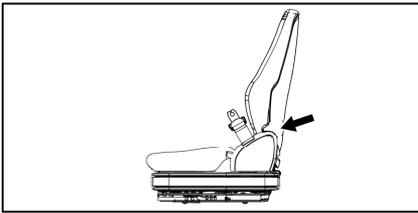
2.4 Safety structure plate



The safety structure plate is located inside the cockpit on the cab/canopy. Never remove this plate for any reason.

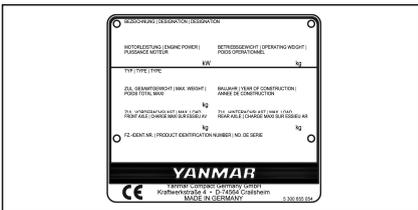
 **2.1.3 Check the safety structures, page 76**

2.5 Seat identification

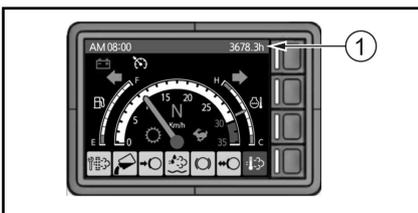


The seat identification is located behind the seat. Never remove it for any reason.

2.6 Spare parts order and intervention request



When you order spare parts or call for an intervention, tell your dealer the model name, the serial number of the machine and the serial number of the engine and the number of hours displayed on the time counter.



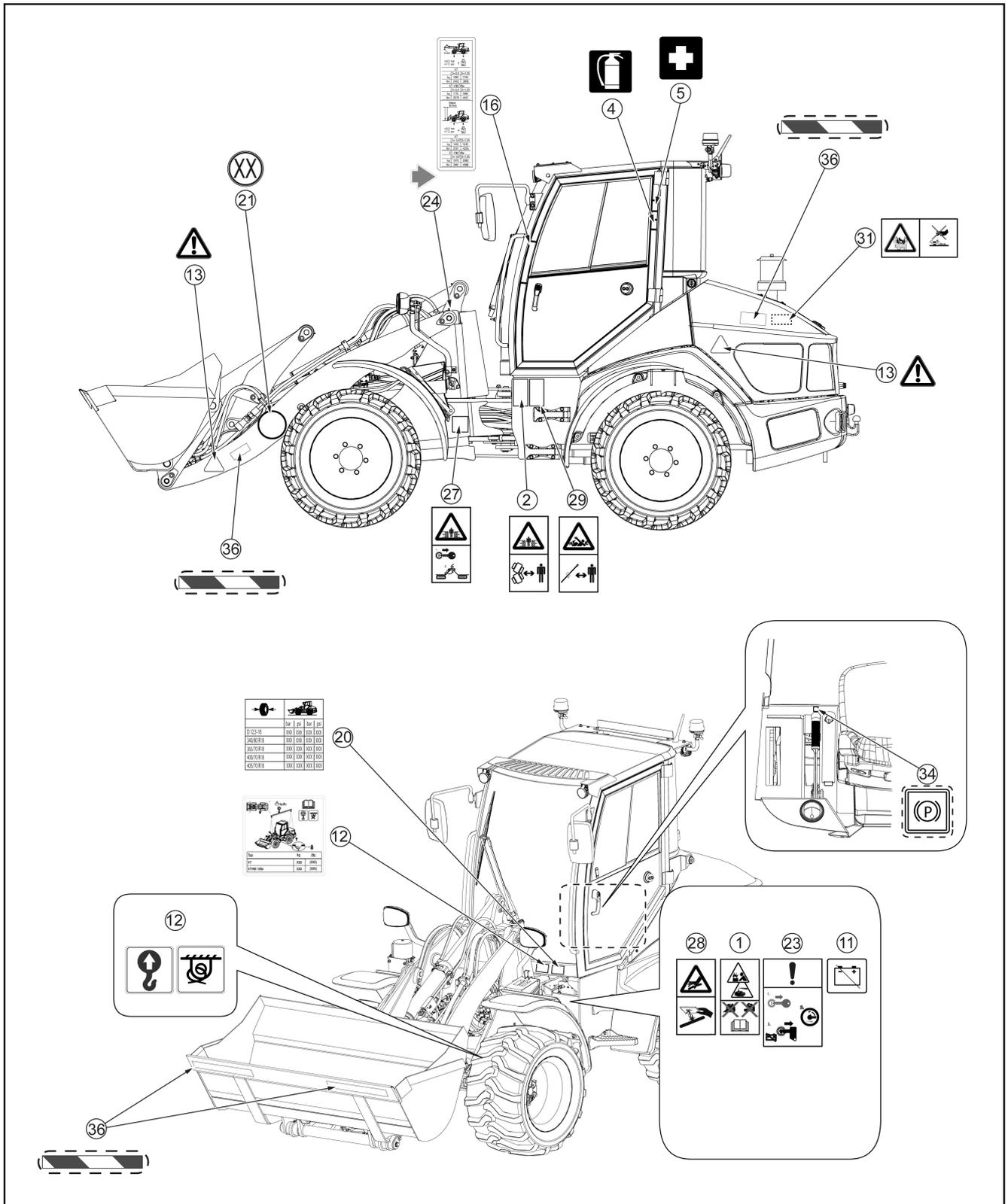
1 = Time counter

3 WARNING LABELS

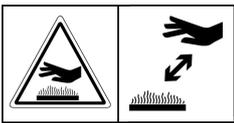
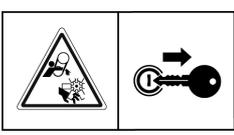
- Several safety messages are configured on the machine. The description and location of all the safety messages are provided in this chapter. Check regularly to see whether all the messages are in the correct location and are legible.
- If an adhesive label is missing, damaged or illegible, replace it straight away. In the same way, if an adhesive label is on a part that has been replaced, add a new adhesive label to the new part.
- Contact your YANMAR dealer to obtain new adhesive labels. The part code number is clearly indicated on each label.

 = Options

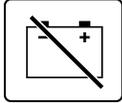
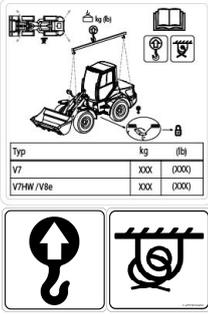
3.1 Location of the warning adhesive labels

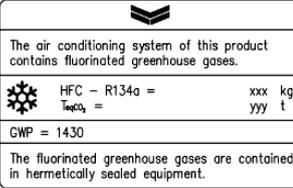
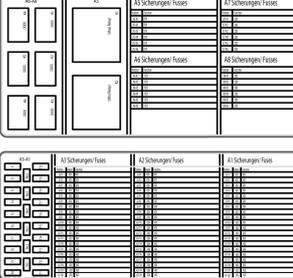
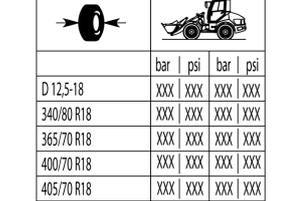
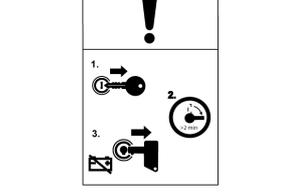


3.2 Explanation of the warning adhesive labels

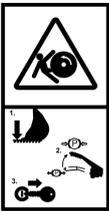
1		<p>Explosion hazard</p> <p>Be careful when handling the battery. The battery electrolyte can cause severe burns to the eyes or skin.</p> <p> 2.6 Precautions for the battery, page 87</p>
2		<p>Machine's Danger Zone</p> <p>Maintain a safe distance in relation to the machine.</p> <p> 2.2.1 Machine's Danger Zone, page 79</p>
3		<p>Cabin's emergency exit</p> <p> 1.14 Cabin's emergency exit, page 72</p>
4		<p>A location to install an extinguisher is provided inside the machine's cab.</p> <p> 1.10 Have an extinguisher and a first aid kit, page 71</p>
5		<p>Place a first aid kit in a specific location.</p> <p> 1.10 Have an extinguisher and a first aid kit, page 71</p>
6		<p>Hot surfaces.</p>
7		<p>Filling orifices of the different machine tanks.</p> <p> 3.4 Checking and topping up the fuel level, page 91</p>
8		<p> 3.5 Checking and topping up the hydraulic oil level, page 92</p>
9		<p>This adhesive label describes the operation of the controls located on the lever of the machine.</p> <p> 5.4.3 Multifunction control lever, page 37</p>
10		<p>Do not remove the protective casings while the machine is running.</p> <p> 1.2.8 Radiator ventilator, page 130</p>

3 Warning labels

11		<p>The batterie is located under the floor of the cabin.  2.6 Precautions for the battery, page 87</p>									
12	 <table border="1" data-bbox="327 495 521 555"> <tr> <td>Typ</td> <td>kg</td> <td>(lb)</td> </tr> <tr> <td>V7</td> <td>XXX</td> <td>(XXX)</td> </tr> <tr> <td>V7HW /V8e</td> <td>XXX</td> <td>(XXX)</td> </tr> </table>	Typ	kg	(lb)	V7	XXX	(XXX)	V7HW /V8e	XXX	(XXX)	<p>Tie-down and slinging plans for the machine  10 Transporting the machine, page 107</p>
Typ	kg	(lb)									
V7	XXX	(XXX)									
V7HW /V8e	XXX	(XXX)									
13		<p>Read the user manual.</p>									
14		<p>Always fasten your safety belt before starting the machine.  2.1.5 Fasten your safety belt, page 77</p>									
15		<p>Measured sound power  3 Noise emitted by the machine, page 157</p>									
16		<p>Machines equipped with forks have a smaller lifting capacity.  7.1 Machine stability when using with a bucket or an accessory, page 98</p>									
17		<p>Check the brake fluid level daily. Top up if the level is low.  3.6 Checking and topping up the brake fluid level, page 93</p>									

<p>18</p>	 <p>The air conditioning system of this product contains fluorinated greenhouse gases.</p> <p>HFC - R134a = xxx kg CO_2 = yyy t</p> <p>GWP = 1430</p> <p>The fluorinated greenhouse gases are contained in hermetically sealed equipment.</p>	<p>The air conditioning system contains fluorinated greenhouse gases.</p> <p> 1.15 Air conditioning system, page 73</p>																														
<p>19</p>		<p>Fusebox</p> <p> 5.5.1 Fusebox, page 41</p>																														
<p>20</p>	 <table border="1" data-bbox="316 748 545 949"> <thead> <tr> <th></th> <th>bar</th> <th>psi</th> <th>bar</th> <th>psi</th> </tr> </thead> <tbody> <tr> <td>D 12,5-18</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> </tr> <tr> <td>340/80 R18</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> </tr> <tr> <td>365/70 R18</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> </tr> <tr> <td>400/70 R18</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> </tr> <tr> <td>405/70 R18</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> <td>XXX</td> </tr> </tbody> </table>		bar	psi	bar	psi	D 12,5-18	XXX	XXX	XXX	XXX	340/80 R18	XXX	XXX	XXX	XXX	365/70 R18	XXX	XXX	XXX	XXX	400/70 R18	XXX	XXX	XXX	XXX	405/70 R18	XXX	XXX	XXX	XXX	<p> 4.1.5 Checking tire pressure, page 142</p>
	bar	psi	bar	psi																												
D 12,5-18	XXX	XXX	XXX	XXX																												
340/80 R18	XXX	XXX	XXX	XXX																												
365/70 R18	XXX	XXX	XXX	XXX																												
400/70 R18	XXX	XXX	XXX	XXX																												
405/70 R18	XXX	XXX	XXX	XXX																												
<p>21</p>		<p>Maximum permitted speed</p>																														
<p>22</p>		<p> 9.4 Travel alarm, page 51</p>																														
<p>23</p>		<p> 5.3.9 Circuit breaker, page 33</p>																														
<p>24</p>		<p>Align the arrows to ensure that the lifting arm is at the correct height during transport.</p>																														
<p>25</p>		<p>Diesel exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive disorders.</p>																														
<p>26</p>		<p>The machine is designed to comply with standards limiting electromagnetic interference.</p>																														

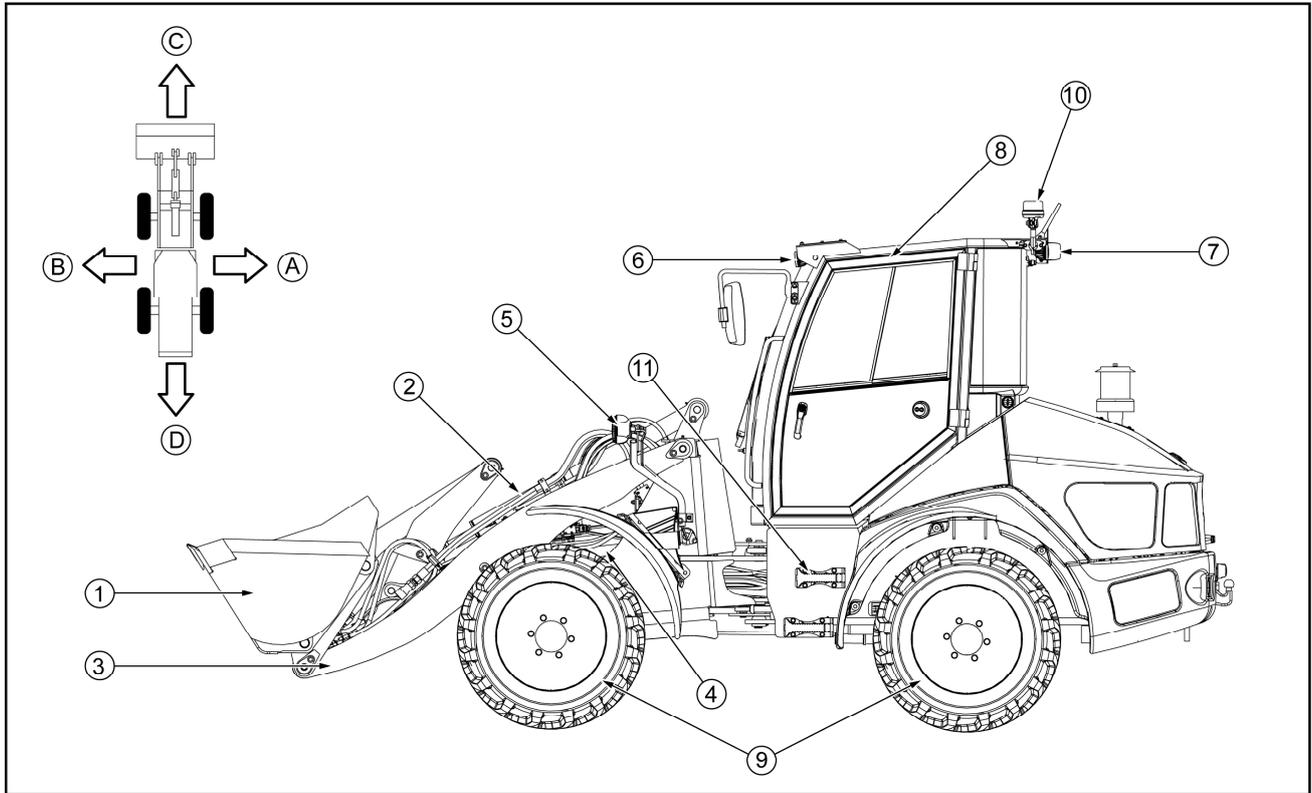
3 Warning labels

27		<p>Crushing hazard Lock the centre joint before transporting the machine.</p> <p> 10.2 Immobilising the machine on the truck, page 108</p>
28		<p>Risk in the event of a leak</p> <p> 1.2.7 Hoses, page 129</p>
29		<p>Risk of entanglement</p> <p> 2.2.1 Machine's Danger Zone, page 79</p>
30		<p>Risk of falling</p> <p> 2.1.4 Accessing the machine, page 76</p>
31		<p>Pressurised elements.</p> <p> 1.8 Avoid removing the caps when the temperatures are high, page 71</p>
32		<p> 2.3.2 Working near electricity lines, page 83</p>
33		<p>Crushing hazard</p> <p> 2.2.1 Machine's Danger Zone, page 79</p> <p> 2.4 Parking precautions, page 86</p>
34		<p> 5.4.4 Parking brake lever, page 39</p>

<p>35</p>		 1.3 Driving permits, page 3
<p>36</p>		<p>Reflective strips make the machine more visible in the dark.</p>

4 IDENTIFICATION OF IMPORTANT PARTS

4.1 General view of the machine



A = Right

B = Left

C = Front

D = Rear

1 = Bucket

2 = Tilt cylinder

3 = Lifting arm

4 = Lifting arm jack

5 = Headlights

6 = Work lamp

7 = Tail light

8 = Cabin

9 = Wheels

10 = Flashing light

11 = Step

5 DESCRIPTION OF THE DRIVING POSITION

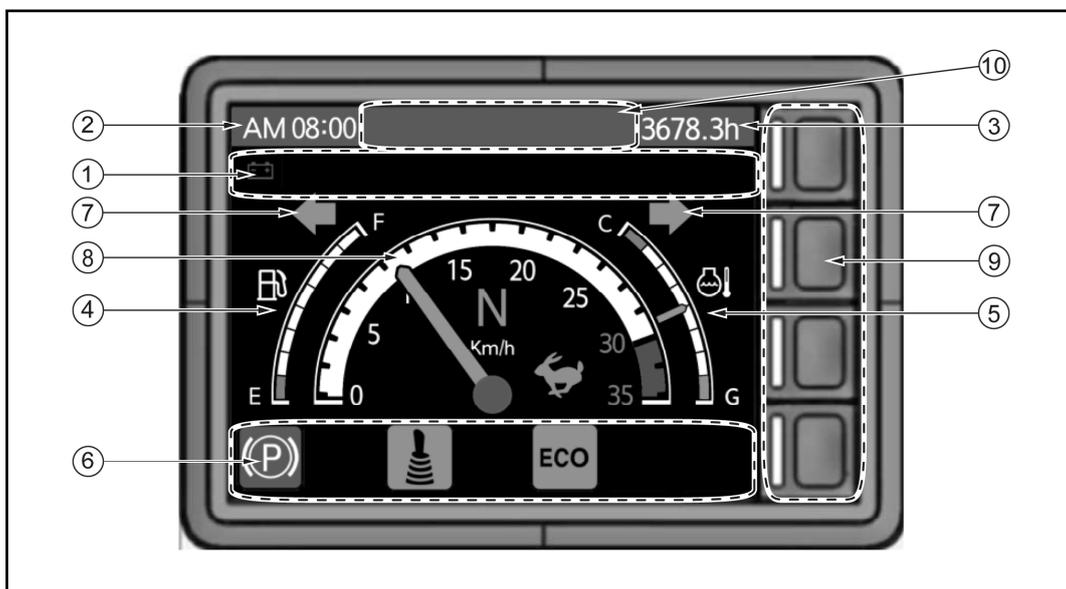
This section describes the different command mechanisms necessary to operate the machine. In order to work in complete safety and comfort, it is vital that you understand how to operate and use these mechanisms.

5.1 Operator display station

⚠ WARNING

When an indicator light comes on and the alarm sounds during operation, stop the engine immediately and follow the steps recommended in this manual.

 2.3.4 Emergency stop and securing the machine, page 84



- 1 = Lights
- 2 = Clock
- 3 = Time counter
- 4 = Fuel gauge
- 5 = Cooling fluid temperature indicator
- 6 = Other information
- 7 = Direction indicators
- 8 = Speed indicator
- 9 = Navigation keys
- 10 = Notification zone

5 Description of the driving position

5.1.1 Lights

a. Battery charge warning alert



- The warning light comes on when the battery charge level is too low.
- In this case, check the battery charge circuit.
- If you detect any faults, contact your dealer.

b. Separator/settler indicator light



- The warning light comes on when water is detected in the separator/settler. If this is the case, clean it.

 **4.1.4 Cleaning the separator/decanter, page 141**

c. Engine oil pressure alert indicator



- If the engine oil pressure falls below the normal level, the warning light comes on and the alarm sounds. In this case, shut down the engine.

 **13.1.1 Engine, page 119**

d. Water temperature alarm light



- The warning light comes on if the cooling system temperature exceeds the maximum permitted temperature. In this case, shut down the engine.

e. Preheating light

IMPORTANT

Do not leave the key in START position for over 10 seconds.

If the engine does not start, position the key at OFF. Wait 30 seconds then restart the engine.



- Keep the key in the ON position to warm up the engine until the "warm-up" icon no longer appears on the screen.

f. Air filter clogged lamp



- This icon indicates a clogged air filter.

g. Engine failure lamp



- In this case, shut down the engine.

h. Stopping the machine



- Perform the machine's parking operations.

 **2.4 Parking precautions, page 86**

- Take the necessary corrective measures.



- After stopping the machine, check the error details and take corrective measures.

i. Gearbox fault alarm



- The warning light comes on if the gearbox control unit returns an error.

j. Main control unit fault alarm



- The warning light comes on if the main control unit returns an error.

k. Steering circuit pressure fault alarm



- The warning light comes on if the pressure in the steering hydraulic circuit is too low.

l. Seat pressure sensor fault alarm



- The warning light comes on if the pressure sensor under the seat measures implausible values.

m. Particle filter regeneration request indicator



- This icon indicates that a manual regeneration of the DPF must be performed.

 **5.3.16 Manual regeneration, page 35**



 **5.3.17 DPF regeneration blocking, page 35**

5 Description of the driving position

n. Maintenance of the particle filter



- To service the DPF, contact your YANMAR dealer.

 **4.4.6 Maintenance of the particle filter, page 146**

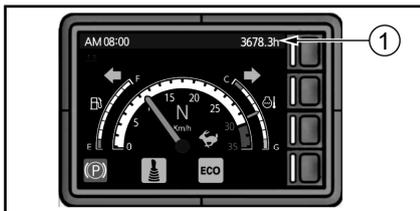
5.1.2 Clock



1 = Clock

- The clock displays the current time.
- The clock can be adjusted in the screen settings.

5.1.3 Time counter



1 = Time counter

- The time counter indicates the number of hours for which the machine has been working.
- Reading this time counter will help you define the intervals between maintenance operations.
- When the starter key is in ON position, the time counter permanently records the time even if the machine is not being used.
- The time counter records "1" for one hour without considering the engine rotation speed.
- The decimal to the far right records "1" for 0.1 hours (6 minutes).

5.1.4 Diesel gauge



F = Full

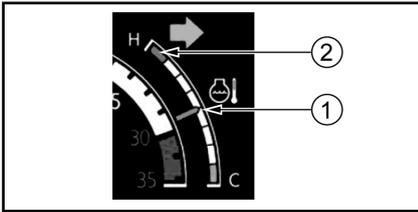
E = Empty

- The diesel gauge operates when the starter key is in ON position. It indicates the level of diesel in the tank.
- When the indicator needle is close to E, fill up as soon as possible.

Note

The gauge indication is affected by the level of machine tilt.

5.1.5 Cooling fluid temperature indicator



C = cold

H = hot

- It indicates the temperature of the engine cooling fluid. The normal temperature is close to zone (1) during normal operation.
- If the temperature of this coolant reaches the limit (2) during working, then slow the engine down and wait for it to return to normal.
- When the engine is cold, top up with cooling fluid following the procedure described in chapter

 **3.2 Checking and topping up the level of cooling fluid, page 89**

5.1.6 Other information

a. Applied parking brake



- This warning light comes on when the parking brake is applied.

 **5.4.4 Parking brake lever, page 39**

b. Quick hitch unlocked



- The warning light comes on if the quick-release is not locked.

 **5.3.3 Quick coupler safety switch, page 31**

c. Command lever



- Working hydraulics enabled



- Deactivated working hydraulics

 **5.3.14 Control lever deactivation switch, page 34**

d. Exhaust gas temperature lamp



- The warning light comes on if the exhaust gas temperature exceeds the maximum permitted temperature.

e. Eco mode indicator



- The indicator lights when eco mode is activated.

5 Description of the driving position

f. Crawling speed



- The warning light comes on when creep speed mode is activated.

g. Normal mode



- The warning light comes on when normal mode is activated.

h. Overspeed



- The warning light comes on if the machine exceeds the maximum permitted speed.

i. Seatbelt attachment indicator light



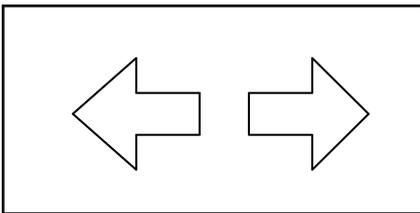
- The warning light comes on when the seatbelt is not fastened.

j. Seat sensor



- The warning light comes on if the operator is not sitting on the seat.

5.1.7 Direction indicators



- The direction indicators flash according to the position of the direction switch to indicate a change of direction.

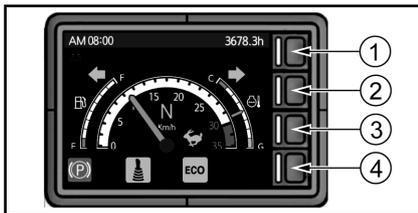
5.1.8 Speed indicator



- The speedometer displays the machine speed in km/h.

5.1.9 Navigation keys

Use the keys to browse the menus and change the settings.



- 1 = Up arrow
- 2 = Down arrow
- 3 = Enter key
- 4 = Menu key

Up arrow

This key is used to browse the menus and increase the value when changing a setting.

Down arrow

This key is used to browse the menus and reduce the value when changing a setting.

Enter key

Press the enter key to validate the setting.

Menu key

Press this key to change menu.

5.1.10 Notification zone

Several types of message may appear in the notification area:

- Warnings in red. The machine must be stopped immediately.
- Alerts in yellow. After stopping the machine, take the necessary corrective measures.
- Notifications in grey.

Note

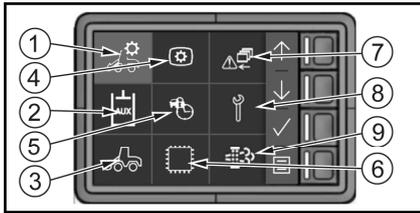
If several messages arrive at the same time, the notifications area will display the messages one after another.

When an error appears on the home screen, press OK to go to the error history menu.

 **5.2.7 Error history, page 28**

5 Description of the driving position

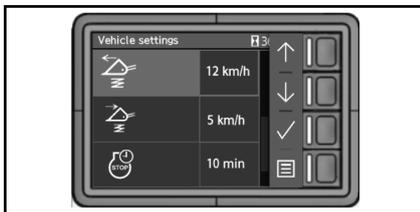
5.2 Using the LCD screen



Press the Menu key to access the main menu from the Home screen. Use the up and down arrows and OK keys to navigate through the menu.

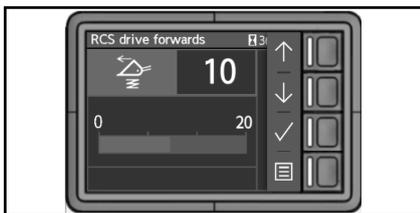
1. Machine parameters
2. PTO setting
3. Machine data (unavailable for now)
4. Display settings
5. Immobilizer (Option)
6. Main control unit information
7. Error history
8. Maintenance
9. Dust particle filter (DPF) regeneration information

5.2.1 Machine parameters



This menu lets you configure certain parts of the machine.

a. Load oscillation damping (Option)



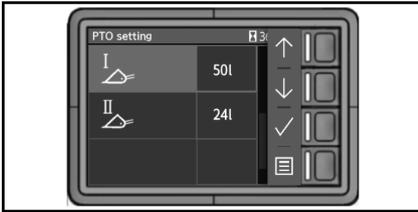
This menu is used to set the speed at which the load oscillation damping system is triggered.

b. Automatic engine stop delay



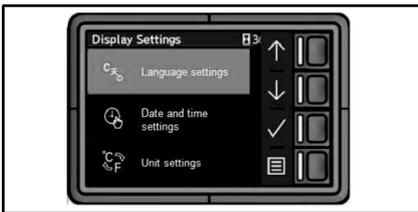
Use this menu to set the delay before the machine motor stops in the event of inactivity.

5.2.2 PTO setting



Use this menu to set the PTO flow rate.

5.2.3 Display settings



This menu is used to set the screen parameters.

a. Language



Use this menu to change the language used on the display.

b. Time and date settings

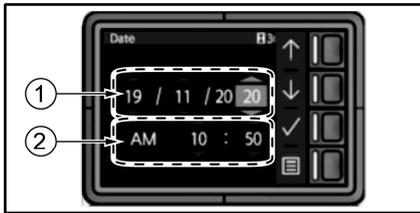


Use this menu to set the screen date and time.

5 Description of the driving position



This parameter switches between automatic and manual setting of the date and time.



Manual setting

1 = Setting the date

2 = Setting the time



Automatic setting

The time and date are set by the time zone defined by the user.

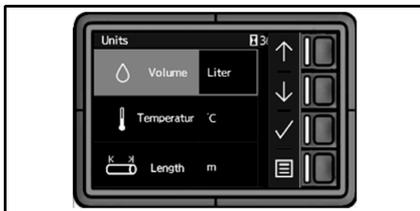


This parameter is used to set the format used to display the time (12hr/24hr).



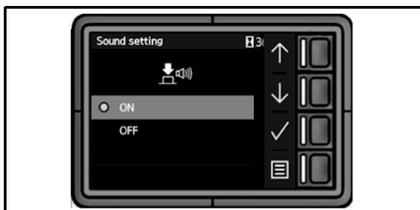
This setting lets you choose between summer and winter time.

c. Unit system



Use this menu to change the units shown on the display.

d. Sound adjustment

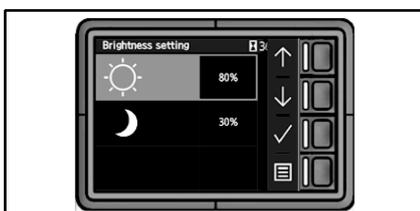


Use this menu to enable or disable notification sounds.

Note

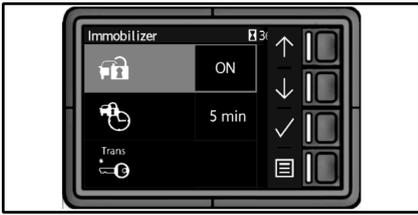
The alarm sound remains activated regardless of the setting chosen in this menu.

e. Setting the brightness



Use this menu to adjust the brightness of the screen. Day mode and night mode brightness can be set independently.

5.2.4 Immobilizer (Option)



These menus allow you to change the immobiliser options and the various codes.



Enabling/disabling the immobiliser



Setting the activation delay



Carrier code



Driver code



Owner code

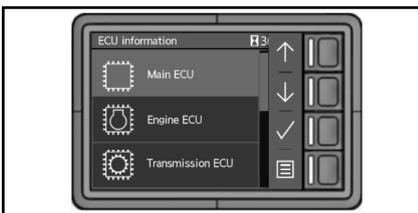


Master code

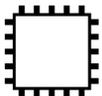
Note

Contact your YANMAR dealer if you have any problems.

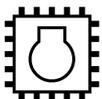
5.2.5 Electronic Control Unit (ECU)



Use this menu to consult the machine's electronic controller information.

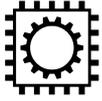


Main control unit

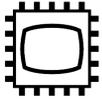


Engine Electronic Control Unit (ECU)

5 Description of the driving position

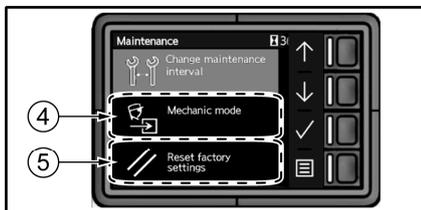


Electronic transmission controller



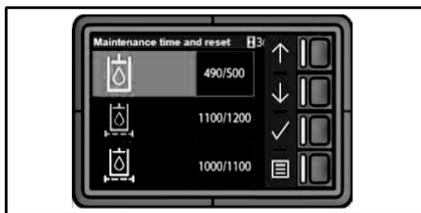
Electronic screen controller

5.2.6 Maintenance



- 1 = Maintenance intervals
- 2 = Maintenance log
- 3 = Changing the maintenance interval
- 4 = Mechanic mode
- 5 = Return to default values

a. Maintenance intervals



Use this menu to consult information about machine maintenance.

Note

The maintenance intervals icon is white by default. It turns yellow when a maintenance deadline is approaching. It turns red if the deadline has passed.

Use this menu to check the time remaining before the next maintenance deadline for certain items.

Note

The icons are white by default and turn yellow as the item's maintenance deadline approaches, then turn red if the deadline has passed.

Press OK when an item is selected to reset its maintenance time.

The various icons in this menu are as follows:



Hydraulic oil

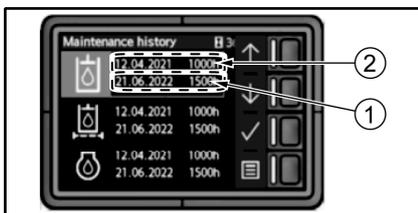


Hydraulic oil return filter



Oil for travel gears

b. Maintenance log

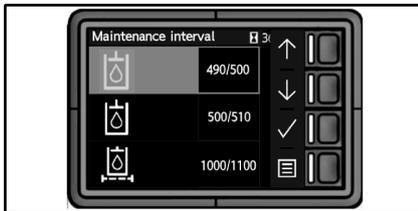


This menu allows you to check the date of the last 2 maintenance operations carried out on various parts of the machine.

1 = Date and number of hours at last maintenance

2 = Date and number of hours at last-but-one maintenance

c. Changing the maintenance interval



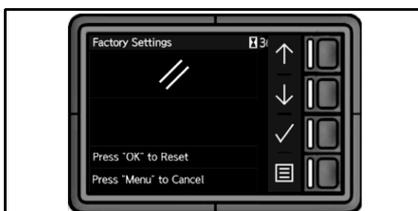
This menu lets you change the maintenance intervals.

d. Mechanic mode



This menu is used for advanced settings. It is reserved for approved mechanics.

e. Return to default values



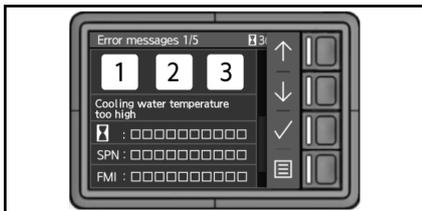
Use this menu to reset the screen settings to their original values.

5 Description of the driving position

5.2.7 Error history

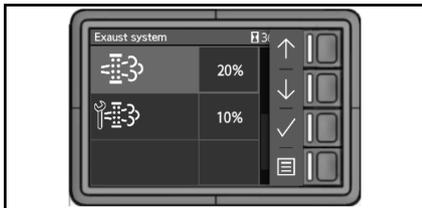


Use this menu to consult the list of errors encountered by the machine. Use the OK key to access the details of the selected error.



The detailed view gives the date, time, and number of hours of the machine when the error occurred, as well as advice on how to resolve the error.

5.2.8 Diesel particulate filter (DPF)



Use this menu to check the status of the particle filter.

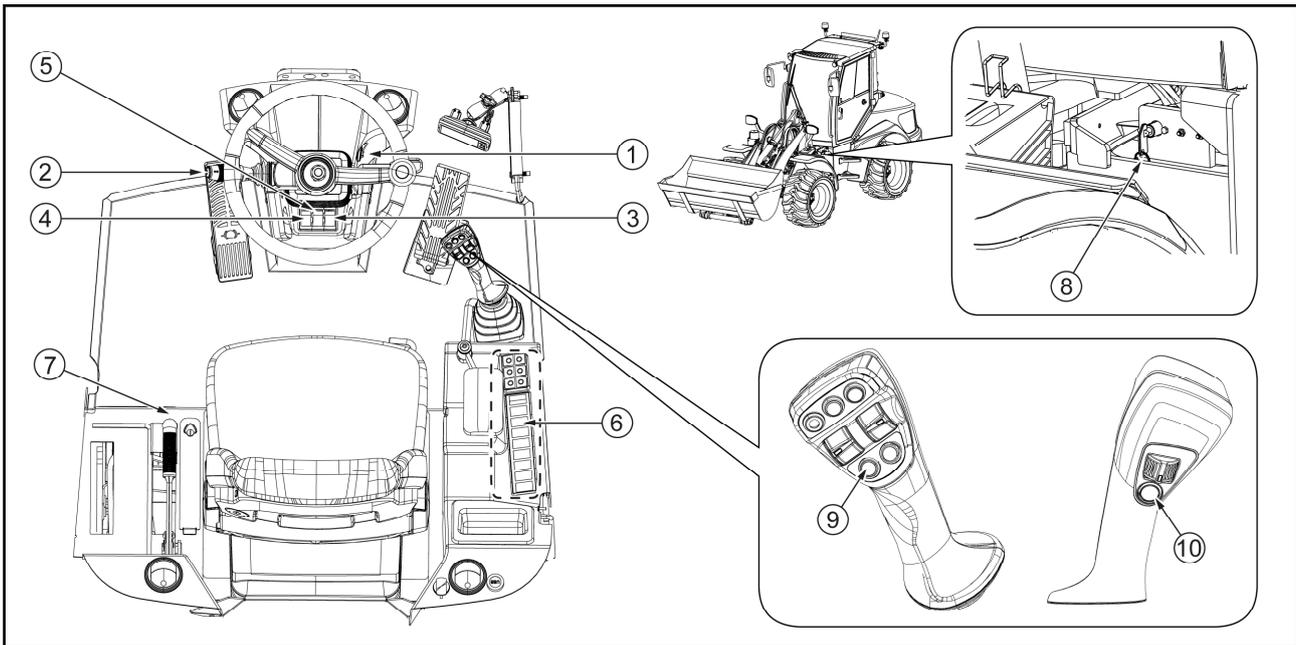


Soot accumulation rate



Ash build-up rate

5.3 Switches



- 1 = Start key
- 2 = Horn
- 3 = Flashlight switch (Option)
- 4 = Quick coupler safety switch
- 5 = Warning lights switch
- 6 = Control panel
- 7 = Engine emergency stop switch
- 8 = Circuit breaker
- 9 = Neutral position switch
- 10 = Position holding button

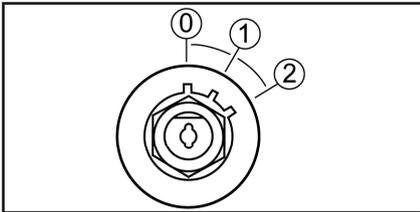
5 Description of the driving position

5.3.1 Start key

⚠ IMPORTANT

The machine is fitted with an electrical safety system. Put the control lever into neutral.

- Use this command to start and stop the engine.

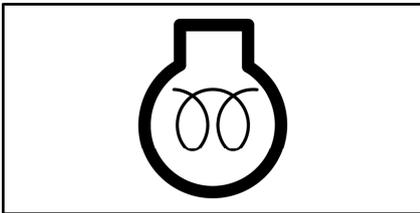


0 = OFF
1 = ON
2 = START

OFF position = shutdown

Turn the key to OFF position to switch off the engine and disconnect the electrical circuit.

ON position = operation



Turn the key to the ON position to turn on the power circuit and the charging circuit. Keep the key in this position while the engine is running.

This position is also used for preheating the machine. When the start switch is in the ON position and preheat the symbol appears on the monitor screen, hold the key in the ON position until the symbol is no longer displayed.

START position = startup

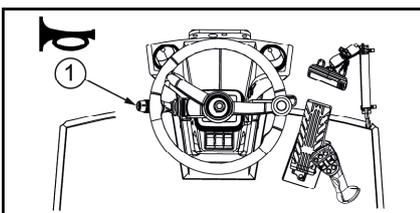
Turn the key to START position to start the engine. Release the key after the engine starts and it will return itself to ON position.

⚠ WARNING

To protect the starter and battery :

- **Do not keep the ignition key more than 10 seconds in the START position**
- **If the engine does not start, move the ignition key to the OFF position and wait 30 seconds before trying to start the engine.**

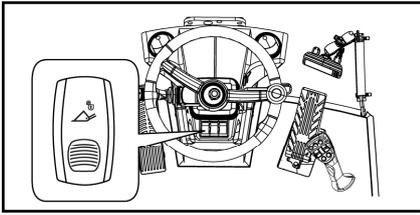
5.3.2 Horn



Press the button to sound the alarm.

1 = Horn

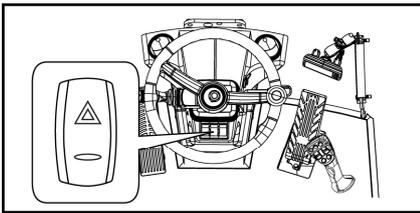
5.3.3 Quick coupler safety switch



- Hold the quick coupler safety switch to activate the hydraulic coupler.

 **5.4.3 Multifunction control lever, page 37**

5.3.4 Warning lights switch



This switch activates all blinkers of the machine simultaneously. The switch indicator switches on when the warning lights are triggered.

Note

The warning lights may be switched on even when the engine is not running.

IMPORTANT

The battery discharges and the engine can no longer be started.

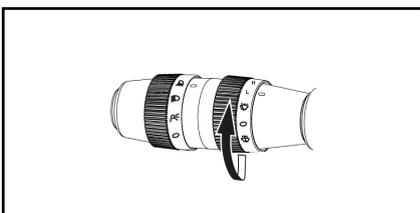
5.3.5 Front wiper switch

IMPORTANT

Do not press the washer command when the washer tank is empty as this may damage the pump.

Using windscreen wipers on a dry windscreen may damage the glass. Only use the windscreen wipers when the windscreen is wet.

The windscreen wiper blade may freeze in cold weather. Do not try to activate it if it is frozen as this may damage the windscreen wiper motor and the windscreen wiper blade.



- This switch is used both for the windscreen wipers and the washer.

O The windscreen wipers are switched off.

 Intermittent operation

L low speed.

H high speed.

 Windscreen washer

- Check the windscreen washer fluid level daily.

5 Description of the driving position

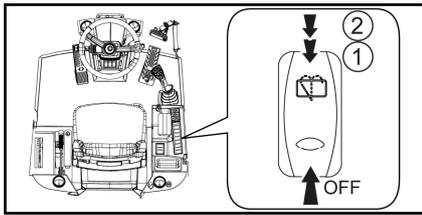
5.3.6 Rear wiper switch

⚠ IMPORTANT

Do not press the washer command when the washer tank is empty as this may damage the pump.

Using windscreen wipers on a dry windscreen may damage the glass. Only use the windscreen wipers when the windscreen is wet.

The windscreen wiper blade may freeze in cold weather. Do not try to activate it if it is frozen as this may damage the windscreen wiper motor and the windscreen wiper blade.



- This switch is used both for the windscreen wipers and the washer.

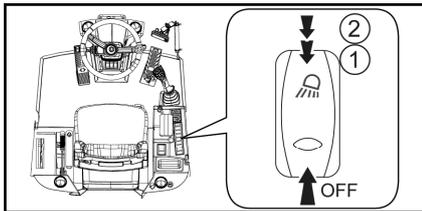
1 = The windscreen wipers work.

2 = Press and hold the switch to spray wiper fluid onto the windscreen.

OFF = The windscreen wipers stop.

- Check the windscreen washer fluid level daily.

5.3.7 Work lights switch



⚠ IMPORTANT

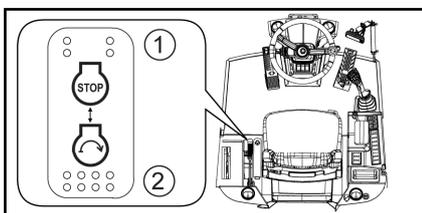
Do not leave the headlights switched on when the engine is not running. The battery discharges and the engine can no longer be started.

1 = Front work light

2 = Front work light + Rear work light

OFF = The headlights switch off.

5.3.8 Engine emergency stop switch



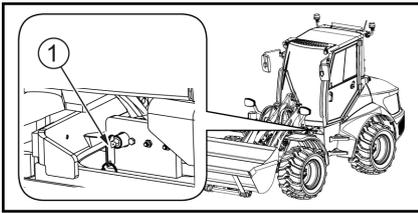
1 = STOP

2 = Normal

- If the engine does not stop when the ignition key is set to "OFF", set this switch to "STOP". After stopping the engine, make sure you put the engine stop switch to the "NORMAL" position.

- When this switch is set to "STOP", the engine can not be started. Also, make sure to position the ignition key to the "OFF" position to avoid draining the battery.

5.3.9 Circuit breaker



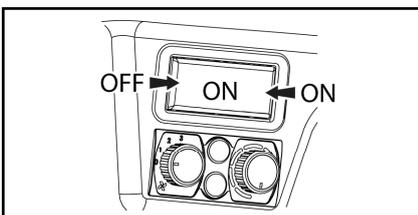
⚠ IMPORTANT

Do not disconnect the battery while the engine is running as it may cause damage to the alternator.

This switch is used to disconnect the battery directly.

1 = Circuit breaker

5.3.10 Interior lighting switch



ON = The lighting is activated.

OFF = The lighting is deactivated.

⚠ IMPORTANT

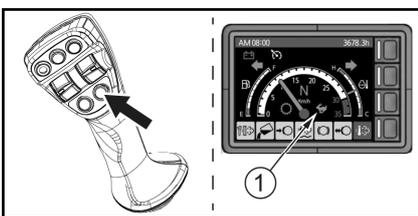
Do not leave the lights switched on when the engine is not running. The battery discharges and the engine can no longer be started.

5.3.11 Neutral position switch



- This switch is used to engage neutral.

5.3.12 Speed movement switch



- Use this switch to change the machine's travel speed.

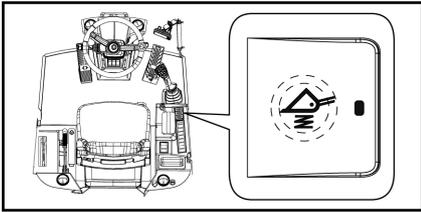
1 = Travel speed indicator

 = high speed.

 = low speed.

5 Description of the driving position

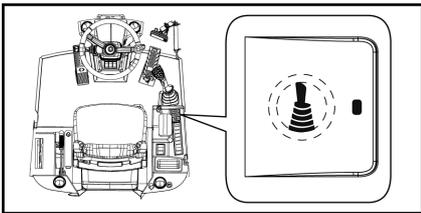
5.3.13 Load oscillation damping switch



- This switch is linked to an option and only works if the option is installed.

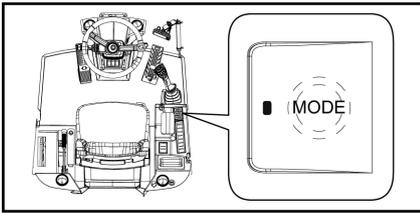
 **9.28 Load oscillation damping, page 65**

5.3.14 Control lever deactivation switch



- This switch is used to activate or deactivate the hydraulic functions of the control lever.

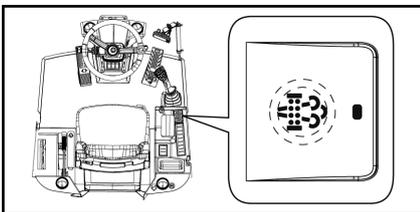
5.3.15 Switch "MODE"



- Use this switch to change the machine operating mode.
 - Normal mode
 - Eco mode : Used to reduce fuel consumption by reducing the engine speed.
 - Crawling speed (Option) : Allows independent adjustment of machine travel speed and engine speed.

 **9.5 Crawling speed, page 52**

5.3.16 Manual regeneration



- Repeated use of the machine with the engine at low speed or at no-load can cause insufficient regeneration of the DPF.
- In case of insufficient regeneration of the DPF, the monitor displays the DPF regeneration icon. 
- Conduct a manual regeneration of the DPF as soon as possible

 **9.4 Manual regeneration of the particulate filter, page 106**

5.3.17 DPF regeneration blocking

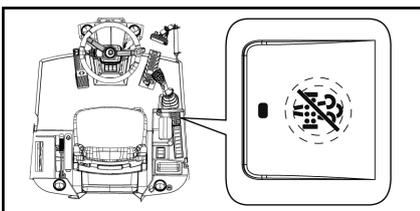
IMPORTANT

As long as the regeneration locking mode is activated, automatic DPF regeneration is not triggered.

If this state is extended, the DPF soot filter may be clogged.

Block DPF regeneration only in case of absolute necessity.

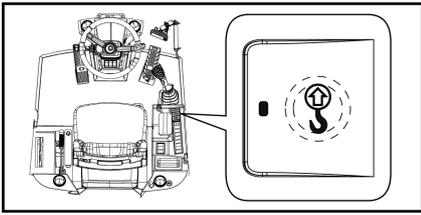
DPF regeneration lock mode is automatically deactivated when the ignition key is in the OFF position.



- When using the machine in the presence of flammable objects such as leaves, dry grass, paper waste, oil or used tires, block particle filter (DPF) regeneration to prevent any risk of fire.

5 Description of the driving position

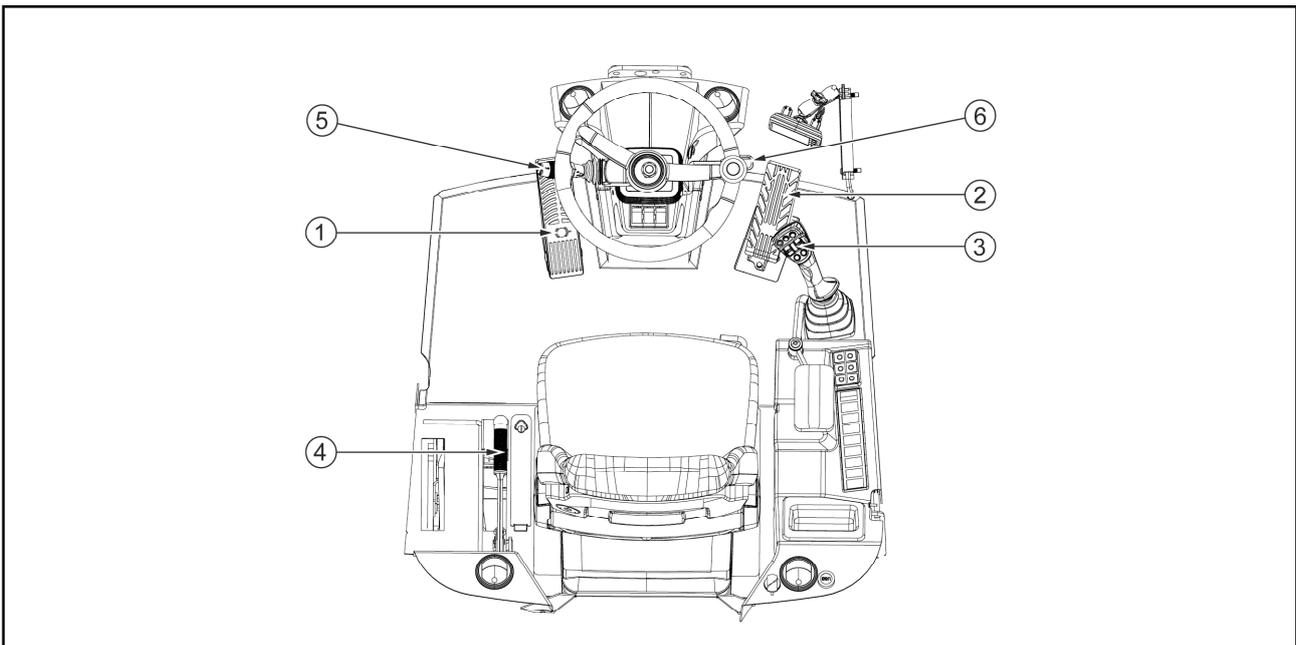
5.3.18 Overload switch



- This switch is linked to an option and only works if the option is installed.

 **9.26 Overload alarm, page 64**

5.4 Joysticks and pedals



1 = Brake pedal

2 = Accelerator pedal

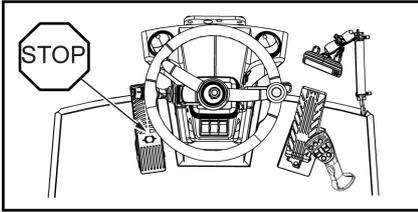
3 = Multifunction control lever

4 = Parking brake lever

5 = Direction indicator and high/low beam selector lever

6 = Steering wheel adjustment lever

5.4.1 Brake pedal

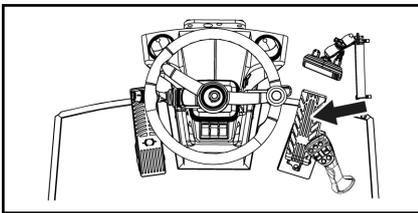


- Press this pedal to decelerate or stop the machine.

Note

When braking, the hydrostatic drive can increase the engine speed. As a result, it is only possible to speed up the machine after a few seconds when it is restarted.

5.4.2 Accelerator pedal



- The angle of this pedal determines the engine's rotation speed and the machine's travel speed when a drive type is engaged.
- Press this pedal slowly to increase the machine's displacement speed and release it to lower the displacement speed.

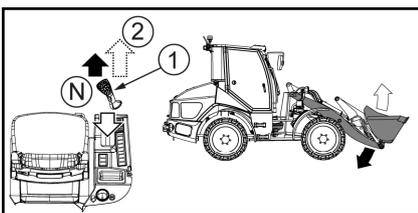
5.4.3 Multifunction control lever

The command lever is used to control the movements of the lifting arm and the bucket. The speed of the accessory movements changes according to the control lever angle.

Note

The control lever returns to the neutral position when released.

Lifting arm controls

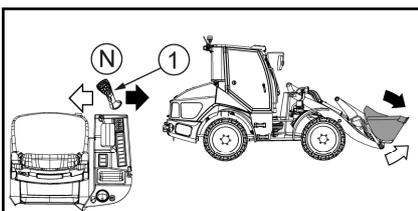


N = Neutral position

1 = Multifunction control lever

2 = Floating position of the lifting arm. The accessory follows the terrain profile without having to move the lever.

Accessory inclination



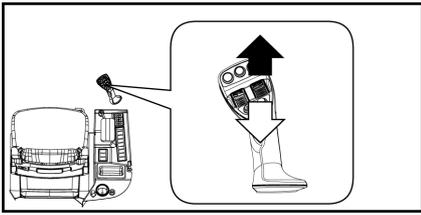
N = Neutral position

1 = Multifunction control lever

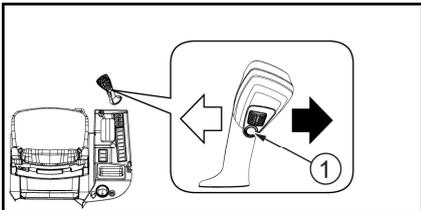
Use this lever to control the accessory.

5 Description of the driving position

PTO : Handling of accessories



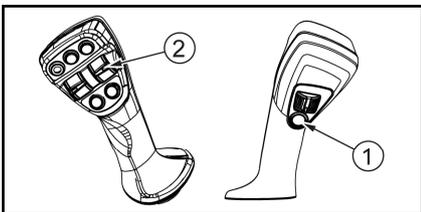
Use the roller to operate the PTO.1



Use the roller to operate the PTO.2 (Option)

1 = Position holding button

Position holding button



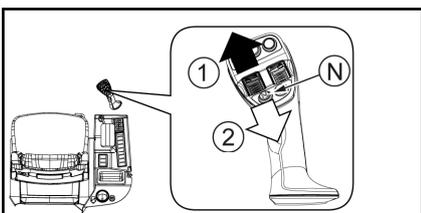
1 = Position holding button

2 = Proportional roller

To use the position holding button:

1. Operate the accessory with the proportional roller
2. Press the position holding button. The oil flow rate set by the current roller position is saved. Release the proportional roller.
3. Press the position holding button again to return the pressure to its starting level, or press the roller to interrupt the oil flow.

Steering control switch



Use this switch to select the machine's driving direction. This command has three positions:

N = Neutral position

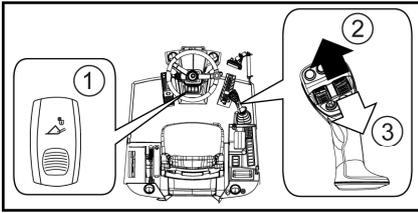
1 = Forward

2 = Reverse

Note

A sound signal buzzes when reversing is selected.

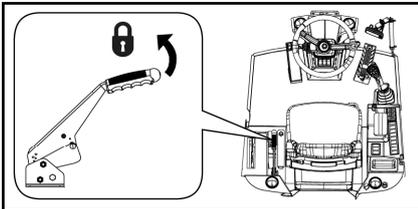
Hydraulic quick fastening control



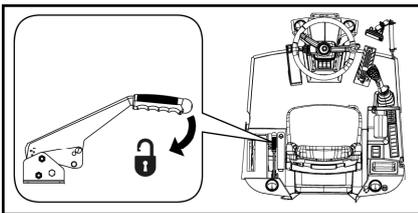
To operate the hydraulic quick coupler keep the quick coupler safety switch engaged and operate the roller on the multifunction lever.

- 1 = Quick coupler safety switch
- 2 = Unlocking
- 3 = Locking

5.4.4 Parking brake lever



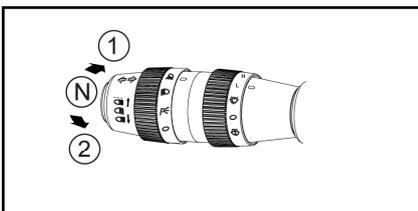
- Pull this lever to lock the four wheels.



- To unlock the wheels, press the button on the top of the lever, and lower the lever.

5.4.5 Direction indicator and high/low beam selector lever

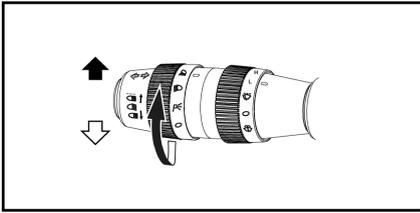
Direction indicator lever



- N = Neutral position
- 1 = The right direction lights flash.
- 2 = The left direction lights flash.

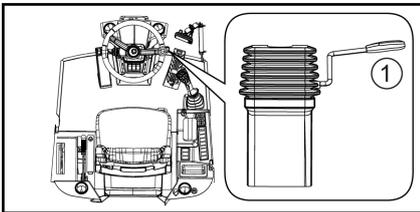
5 Description of the driving position

High/low beam selector



- The lights are off.
- P≡ Position lights
- ☾ Low beam
- ☼ Working headlights
- ☾☼ High beam flasher
- ☼ Low beam
- ☼ High beam

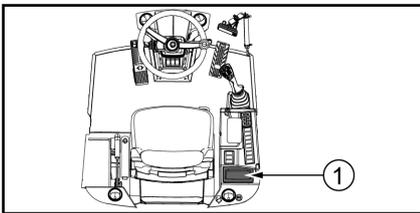
5.4.6 Steering wheel adjustment lever



1= Steering wheel adjustment lever

1. Lower the adjustment lever to release the steering wheel's position.
2. Adjust the steering wheel position to have a comfortable driving position.
3. Raise the adjustment lever to lock the steering wheel's position.

5.5 Fuses

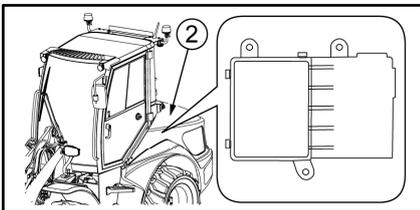


1 = Cover (Fuses + Relay)

- The fuses protect the equipment and the electrical cabling against a surge. If an element of the electrical system is inoperative when the key is in the ON position, replace its fuse with a fuse in good condition. If the malfunction persists, contact your dealer.

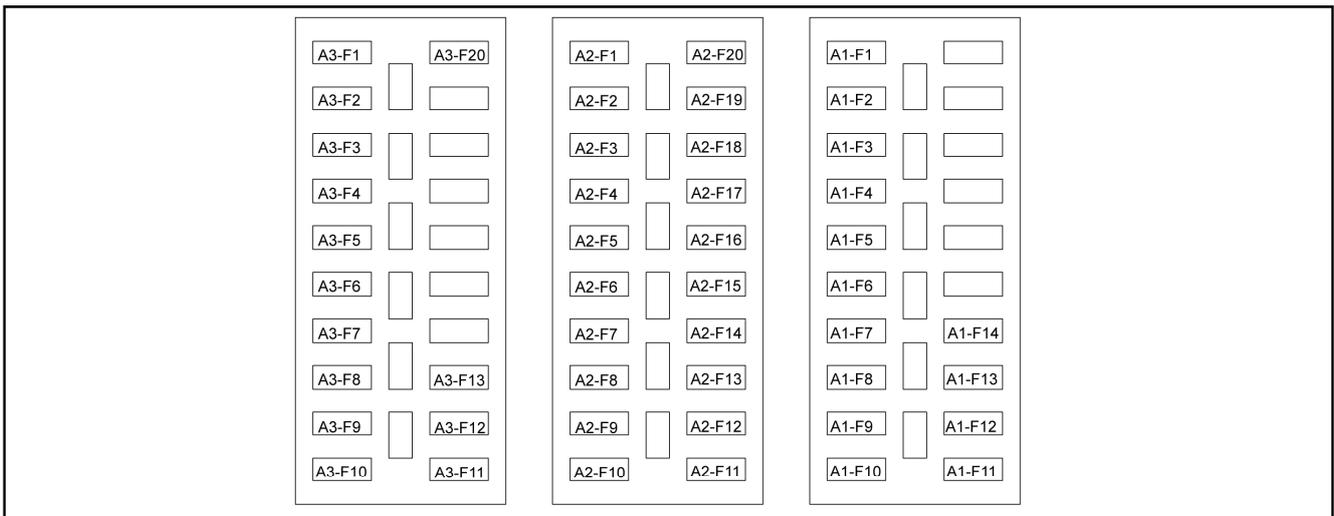
4.4.1 Fuse replacement, page 144

- The fusebox is underneath the cover.
- The power fuses are located under the rear cover.



2 = Rear cover (Power fuses)

5.5.1 Fusebox



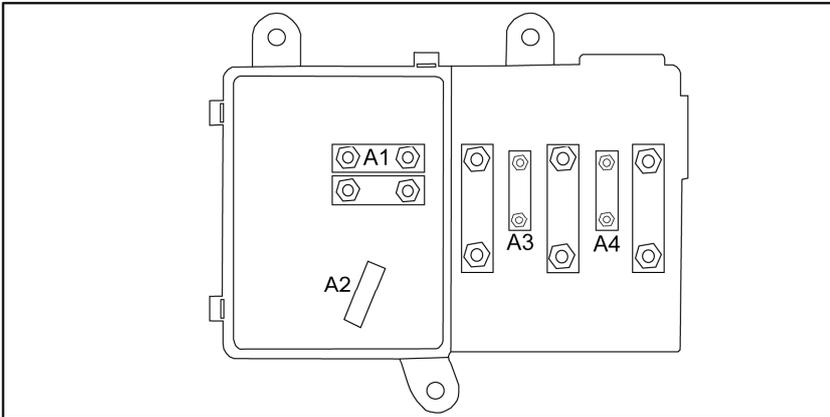
Fuses

Symbol	Fuse capacity	Circuit name
A3-F1	10A	Parking light (Left)
A3-F2	10A	Parking light (Right)
A3-F3	10A	Low beam (Left)
A3-F4	10A	Low beam (Right)
A3-F5	10A	Full beam headlights
A3-F6	10A	Left indicator
A3-F7	10A	Right indicator
A3-F8	20A	Parking light
A3-F9	10A	Rear fog lights
A3-F10	20A	Seat
A3-F11	3A	Switch indicators
A3-F12	20A	Coupling power supply
A3-F13	20A	Coupling power supply
A3-F20	5A	Emergency stop
A2-F1	20A	Electric engine fuel supply pump
A2-F2	10A	Machine Control Unit (MCU)
A2-F3	10A	Machine Control Unit (MCU)
A2-F4	10A	Machine Control Unit (MCU)
A2-F5	10A	EGR valve
A2-F6	3A	Parking brake
A2-F7	7,5A	Valve
A2-F8	5A	Steering pressure sensor
A2-F9	15A	Front wiper
A2-F10	5A	Floating bucket position Water nozzle
A2-F11	10A	Broom
A2-F12	10A	Horn
A2-F13	10A	Warning lights switch

5 Description of the driving position

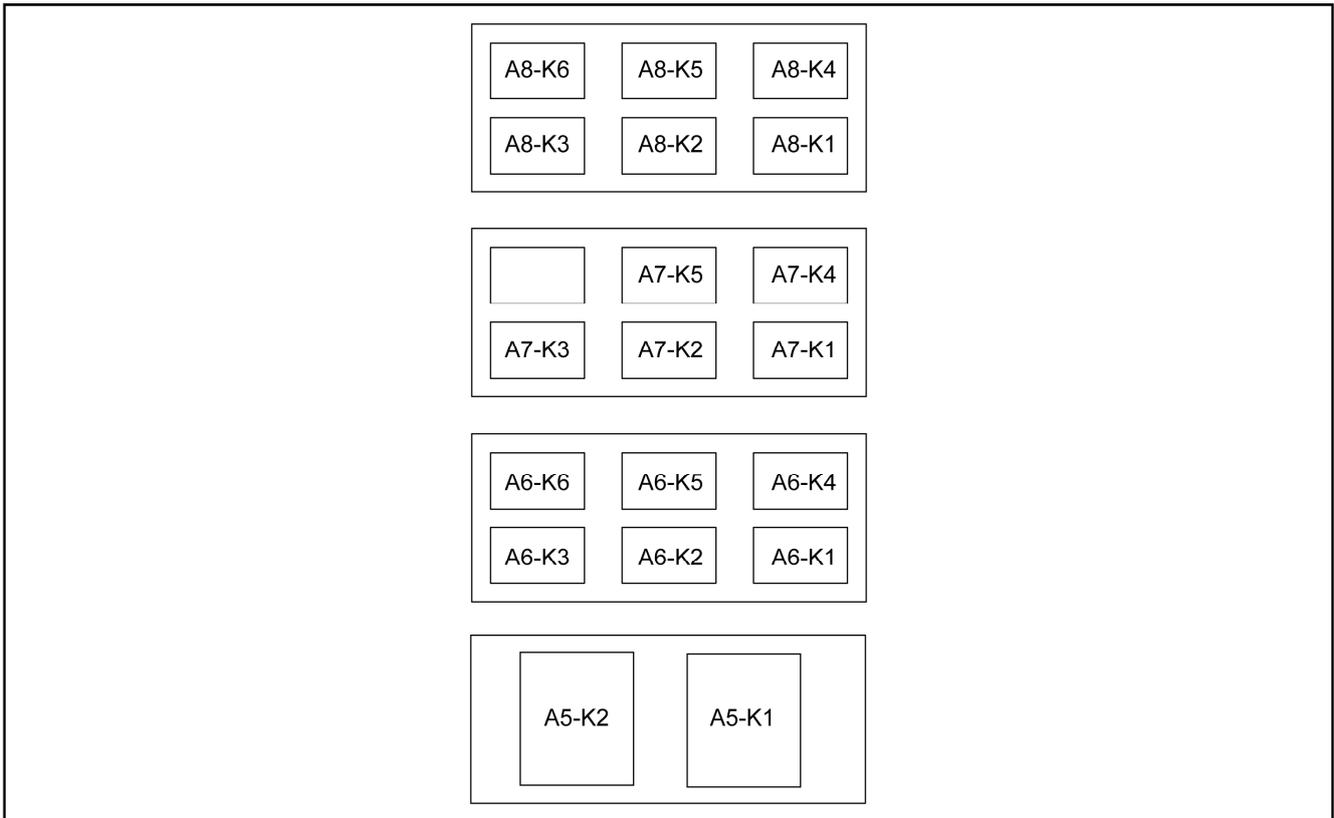
A2-F14	10A	Heating
A2-F15	2A	LCD monitor
A2-F16	10A	Diagnostic socket
A2-F17	10A	Telematics
A2-F18	5A	Defrosting of mirrors
A2-F19	10A	Radio
A2-F20	15A	Rear windscreen wiper
A1-F1	7,5A	Start key
A1-F2	20A	Telematic Control Unit (TCU)
A1-F3	10A	PTO Quick attachment
A1-F4	20A	Floating bucket position Water nozzle
A1-F5	10A	Warning lights switch
A1-F6	15A	Reversing light
A1-F7	20A	Air conditioning/heating system
A1-F8	5A	LCD monitor
A1-F9	10A	Diagnostic socket
A1-F10	10A	Telematics
A1-F11	10A	Flashing light
A1-F12	10A	Radio
A1-F13	20A	Headlights
A1-F14	10A	Supply machine control unit (MCU)

Power fuses



Symbol	Fuse capacity	Circuit name
A1	80A	Glow plugs
A2	60A	Starter relay
A3	80A	Cabin power supply
A4	30A	Engine Electronic Control Unit (ECU)

5.5.2 Relay

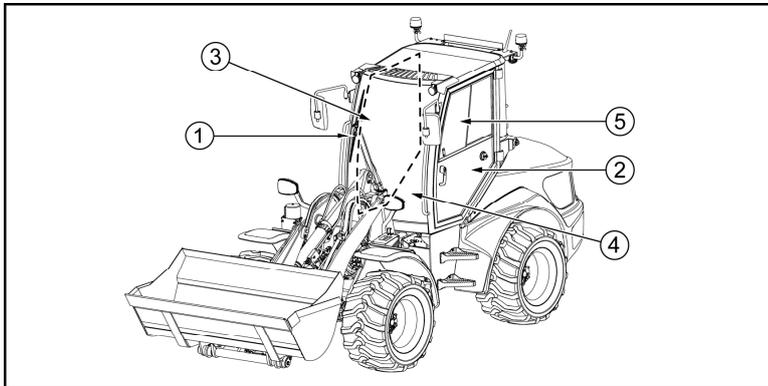


Symbol	Capacities	Relay
A8-K1	12V/16A	Front wiper
A8-K2	12V/16A	Front wiper
A8-K3	12V/16A	High beam
A8-K4	12V/24A	Low beam
A8-K5	12V/24A	Left indicator
A8-K6	12V/24A	Right indicator
A7-K1	12V/16A	Slow ventilation
A7-K2	12V/16A	Medium ventilation
A7-K3	12V/16A	Fast ventilation
A7-K4	12V/24A	Air conditioning
A7-K5	12V/24A	Parking light
A6-K1	12V/16A	Working hydraulics
A6-K2	12V/16A	Water nozzle
A6-K3	12V/16A	Rear windscreen wiper
A6-K4	12V/24A	Reversing light
A6-K5	12V/24A	Socket for trailer brake light
A6-K6	12V/24A	Floating bucket position
A5-K1	12V/70A	Start key
A5-K2	12V	Socket for trailer indicators

5.6 Cabin

⚠ CAUTION

Do not put your head or your hands through the open doors or windows.



- 1 = Windscreen wiper
- 2 = Left-hand door
- 3 = Right-hand door
- 4 = Windscreen
- 5 = Left-hand cab window

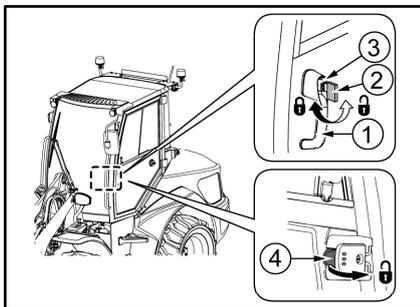
5.6.1 Cab side door

⚠ WARNING

The machine door must be locked in the open or closed position when the machine is in use.

Note

The cab has two doors. The operation of both doors is identical.



- 1 = Exterior handle
- 2 = Key
- 3 = Opening button
- 4 = Interior handle

a. Opening and closing of the door

From the exterior

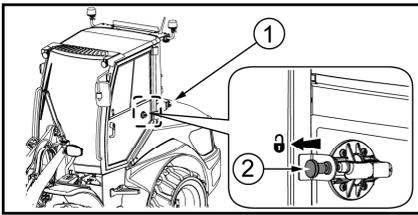
- To open the door :
 1. Insert the key into the lock.
 2. Turn the key anti-clockwise to unlock the door.
 3. Press the button on the exterior handle to open the door.
- To close the door :

Slam the door and turn the key clockwise to lock it.

From the interior

- Pull the interior handle to open the door.

b. Locking the door



1 = Cylindrical lock

2 = Handle

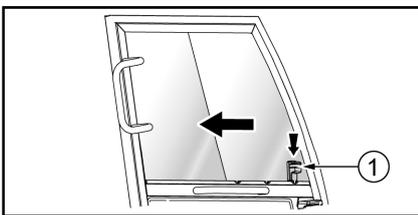
To lock the door:

1. Open the door.
2. Push the door against the outer side of the cabin for engaging the cylindrical lock.

To unlock the door:

1. Pull the handle to disengage the cylindrical lock.
2. Close the door with the handle.

5.6.2 Left-hand cab window



1 = Latch

1. Press the latch.

2. Open the cab window by sliding it in the direction indicated by the arrow.

5.7 Driver's seat

⚠ WARNING

Do not adjust the seat position when you are working on the machine; adjust it before you start.

Always fasten your safety belt and adjust it before starting the machine.

Do not leave your seat while operating the machine. Otherwise, the machine switches to neutral and slows down with the engine brake, creating a risk of falling.

- Adjust the seat position so that the driver can operate the controls easily and comfortably.

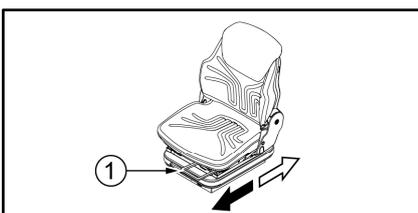
Note

The seats are available in several variants (material, ergonomics, functions, etc.).

The seat adjustment controls vary according to the type of seat installed in the machine.

 **9.22 Comfort/premium seats, page 62**

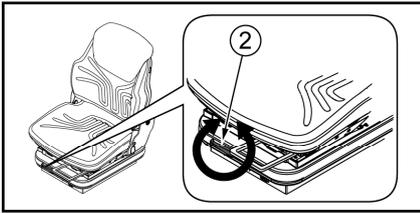
Seat position adjustment



- Pull the lever (1) to move the seat forward and back.

5 Description of the driving position

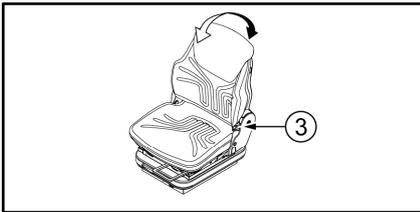
Suspension adjustment



2 = Suspension adjustment crank

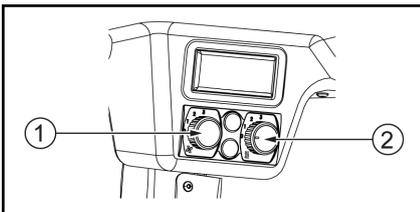
- The seat suspension can be adjusted according to the weight of the driver. Use the crank located under the seat to adjust the suspension.

Seat angle adjustment



- Pull lever (3) to adjust the seat back.

5.8 Heating control



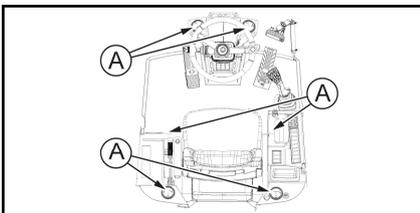
- Setting the temperature : Set the potentiometer to the temperature required.

- Adjust the air output by turning the air vents.

1 = Ventilation switch

2 = Temperature switch

A = Outlet nozzles

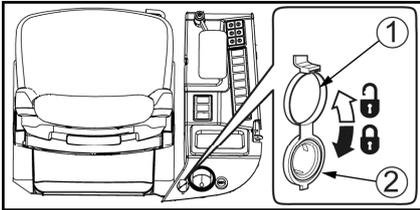


5.9 Power socket

⚠ IMPORTANT

Always close the lid if the plug is not used to seal for dust.

Prolonged use when the machine is switched off may damage the battery.

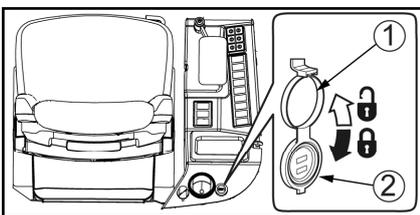


- The intake works when the ignition key is in the ON position. Appliances up to 12V-120W (10A) may be connected.

1 = Lid

2 = Power socket

USB ports



- The machine has USB ports enabling electrical equipment to be charged.

1 = Lid

2 = USB ports

Note

The USB port is not used for communication with the machine, but only for charging electrical devices.

5.10 Location for the user manual

- The location for the user manual is behind the driver's seat.

5.11 QR code



The QR code gives access to the user manual in digital format, to instructional videos and to summary sheets.



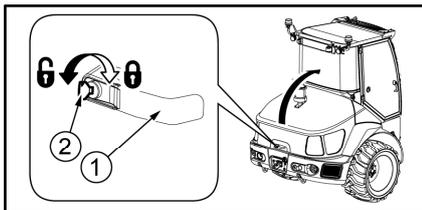
6 BONNET

⚠ WARNING

Do not open the bonnet during machine operation. Verification and topping up of the various levels should be done when the engine is stopped and the temperatures are brought back down.

- Under the bonnet you find:
 - the expansion flask
 - the engine oil gauge
 - the engine oil tank orifice
 - the hydraulic oil tank opening cap
 - the fuel tank
 - the expansion container for the brake fluid
 - the air filter
 - the radiator

Opening the cover

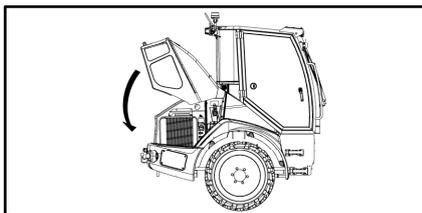


1 = Handle

2 = Key

1. Insert the starter key into the lock.
2. Turn the key counterclockwise.
3. Pull the exterior handle to open the bonnet.

Closing the cover

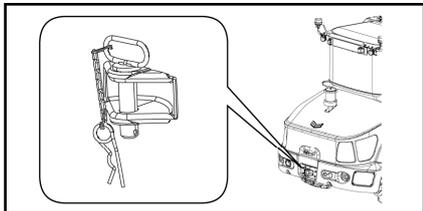


1. Close the cover.
2. Press on it until you hear a click.
3. Turn the key clockwise to activate the lock.

7 REAR ATTACHMENT POINT

⚠ WARNING

The rear attachment point must not be used to couple a trailer.



- The rear attachment point can be used to tow the machine if it breaks down or to tow another machine that has broken down.

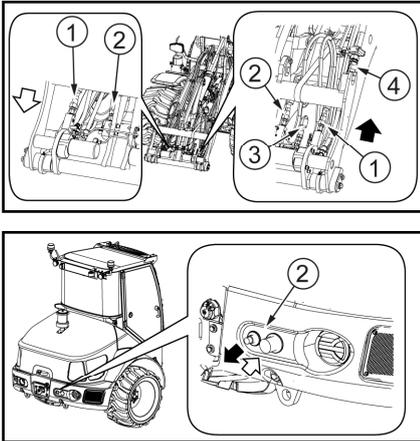
 11 Towing the machine, page 113

8 HYDRAULIC CONNECTION OF THE ACCESSORY

⚠ WARNING

Before any connection or disconnection of the hydraulic hoses, remove the residual pressure from the hydraulic circuit.

 1.1.2 Removing the residual pressure, page 125



The layout of the possible hydraulic connections on this machine is shown in the illustration opposite.

Refer to the accessory manual to make the hydraulic connections for your accessory.

1 = PTO 1

2 = PTO 2 (Option)

3 = Accessories drain line (Option)

4 = PTO return line (Option)

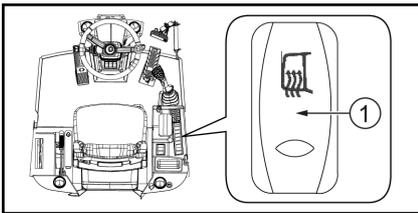
↓ Out (PTO 1, PTO 2)

↑ Back (PTO 1, PTO 2)

9 OPTIONS

- Mounting options that are not authorised by YANMAR may cause accidents and reduce the machine's life span.
- The installation and use of unauthorised parts may lead to the warranty being cancelled.
- The machine can be fitted with the options presented in this section, on request.

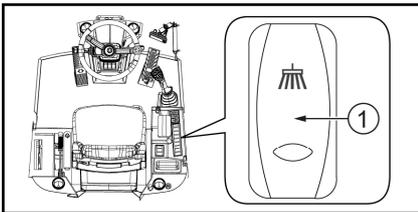
9.1 Heated rear-view mirrors



1 = Mirror defrost switch

- This option improves visibility when using the machine in sub-zero temperatures.
- Use this switch to melt the ice on the mirrors in cold weather.

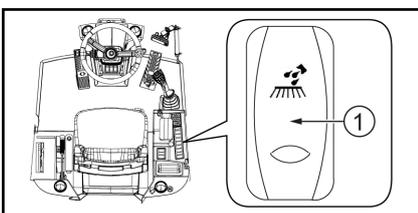
9.2 Broom



1 = Brush switch

- This option allows the machine to be fitted with an additional control for cleaning operations.
- This switch is used to activate or deactivate the brush.

9.3 Water nozzle

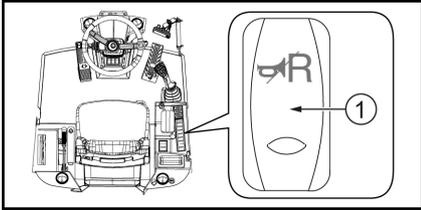


1 = Water nozzle switch

- This option allows the machine to be fitted with an additional control for cleaning operations.
- This switch is used to activate or deactivate the water nozzle.

9.4 Travel alarm

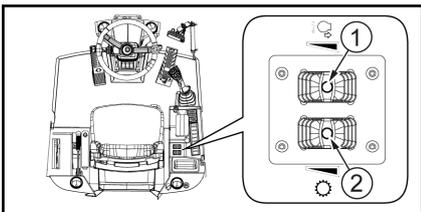
- The travel alarm is composed of displacement sensors and a buzzer.
- The audible alarm is triggered when reverse gear is engaged.
- The audible alarm may be a “beep” tone or “white noise” tone, depending on the option chosen.



1 = Reverse alarm deactivation switch

- The machine can also be fitted with a switch to deactivate the travel alarm.

9.5 Crawling speed



1 = Engine speed joystick (black)
2 = Travel speed joystick (orange)

- When the machine is in creep speed mode, you can use the 2 joysticks to independently adjust engine speed and machine travel speed.

 **5.3.15 Switch "MODE", page 35**

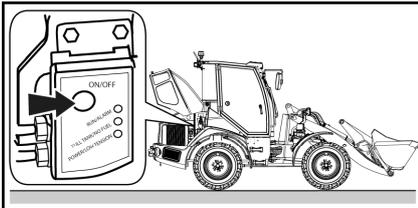
9.6 Electric fuel tank filling pump

⚠ WARNING

Do not actuate the fuel filling pump when empty, as this could damage the pump by cavitation.

If you spill any fuel, wipe it up with a cloth. Absorb spilled fuel to prevent it from entering the environment/ground.

- Park the machine on flat, firm ground.
- Stop the engine by turning the key from ON position to OFF position.



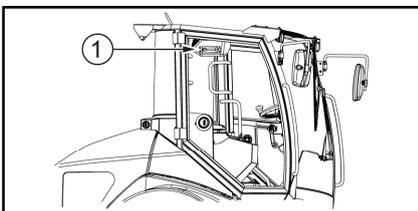
1. Open the rear bonnet.
2. Connect the suction hose to the machine.
3. Unscrew the aspiration suction cap.
4. Dip the aspiration suction into the volume of diesel to be aspirated.
5. Open cap on the fuel tank.
6. Switch the pump on by pressing the on/off button.

Note

The tank is equipped with a level sensor (automatic shutdown of the pump).

7. Wait for the pump to stop automatically, or shut it off manually.
8. Remove the suction strainer from the Diesel volume.
9. Close the suction cap.
10. Disconnect the suction hose.
11. Close the tank cap.
12. Close the cover.

9.7 Radio



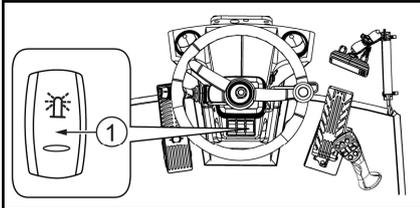
1 = Radio

- Refer to the user manual supplied with the radio.

9.8 Flashing light

IMPORTANT

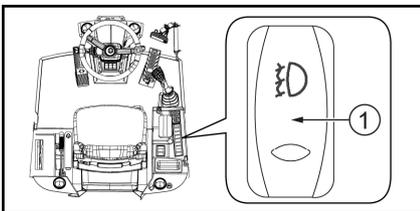
Do not leave the beacon switched on when the engine is not running. The battery discharges and the engine can no longer be started.



1 = Beacon switch

- Press this switch to light the machine's flashlight.

9.9 Rear fog light



1 = Rear fog light switch

- Use this switch to turn on the rear fog light and increase the visibility of the machine.

9.10 Bio oil

WARNING

When working on your hydraulic system, contact your dealer

Panolin bio oil (HLP 68)

The machine can operate with biodegradable hydraulic oil (Panolin). The percentage of mineral oil mixed with the bio oil must not exceed 2 %. Refer to the datasheet VDMA 24 569 of March 1994.

9.11 Seatbelt attachment indicator light



- When the ignition key is placed in the ON position, the indicator light is lit if the operator is not fastened in.
- The machine can also be fitted with a green revolving warning light that comes on when the ignition key is in the ON position and the operator is strapped in.

9.12 Fleet management system SMARTASSIST-REMOTE

⚠ CAUTION

Do not use in areas where the use of mobile phones is prohibited (hospitals, airports, mining operation area...).

Do not enter a potentially explosive area with your machine, your box may result in an explosion or fire, resulting in serious physical injury. Hazardous areas are indicated by signage on the work area; observe these to avoid any accidents.

Do not open, repair, disassemble or rebuild the fleet management system and contact your dealer if it malfunctions.

To operate communication devices, comply with the legal requirements, regulations and conditions of your country.

Dispose of batteries in an environmentally friendly way.

⚠ DANGER

If you have a Pacemaker, do not carry a mobile phone on your person in a machine fitted with a telemetry control box, to avoid any interference with your medical equipment.

People with a Pacemaker must keep a minimum distance of 22 cm (9 in) between the Pacemaker and the SMARTASSIST-REMOTE antenna.

- The telemetric device can be coupled on your machine to an immobilizer box and a key reader installed in the cockpit.
- The fleet management system makes it possible to know the geographical position of the machines that are equipped.
- Accessing the fleet management system's interface is handled from YANMAR's website or using a smartphone application. Assistance modules and a presentation of the fleet management system's functions are also available from YANMAR's website.
- The telemetry control box is fitted with a GSM modem and a GPS receiver to transmit the data for the fitted machine.

Note

Communication may be disturbed in tunnels, buildings or areas with a poor mobile network.

The fleet management system is connected to the power supply of the machine and is also equipped with its own battery. This allows data exchange even when the machine is switched off.

- For more details, contact your dealer.

9.13 Air conditioning

⚠ WARNING

Ice may form on the air intake if the air conditioning is running. This is normal and comes from the condensation of water particles suspended in the air.

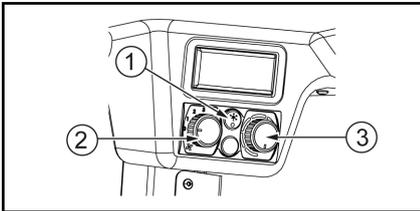
After long exposure to heat, run the air conditioning while opening the cab door and window to facilitate the circulation of air.

Correctly adjust the temperature; if it is too low it may be bad for health.

If the air circulates with difficulty in the cab, or if the air conditioning is ineffective, stop it immediately (switch to OFF) and contact your dealer. Use under abnormal conditions may damage the installation.

Every week, run the air conditioning at least once for a few minutes ; this will help to keep the installation in good condition.

- Activate the operating switch.



1 = Operating switch

2 = Ventilator switch: sets the ventilator speed.

3 = Temperature switch

⚠ IMPORTANT

Only start up the air conditioning after starting the machine to avoid overloading the thermal motor on start-up.

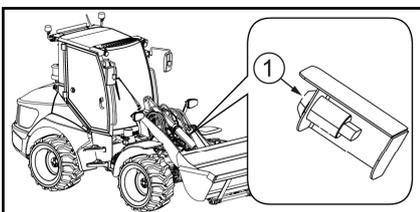
Note

In hot weather, open the windows to let out the hot air before turning on the air conditioning.

Keep doors and windows closed when using the air conditioning.

Only lower the temperature inside the cab by a maximum of 6-8°C (10-14°F) below the outside temperature.

9.14 3rd circuit de-pressurisation button



1 = 3rd circuit de-pressurisation button

- Use this button to eliminate the residual pressure in the 3rd circuit before fitting or removing an accessory.

1. Place the accessory on the ground.

2. Apply the parking brake.

 **5.4.4 Parking brake lever, page 39**

3. Turn the key to the ON position.

4. Press the button to de-pressurise the 3rd circuit.

9.15 Coupling

⚠ WARNING

Check the condition of the machine coupling and trailer coupling before hitching a trailer.

Take care not to trap a hand or other part of your body when coupling a trailer.

Do not use any tools to force the coupling device open or to close it.

When a trailer is attached, adapt your driving speed and driving style accordingly.

Only use trailers approved for this machine.

If the trailer is to be used on a road, check that it is approved for road use.

Comply with the regulations and laws in force in your country concerning coupling devices.

If necessary, check the trailer's lighting and hydraulic connections.

Comply with the support load and towed load values for each type of coupling used.

The coupling is designed for use with trailers over short distances.

Failure to comply with these instructions may result in damage to the machine, the trailer or the coupling.

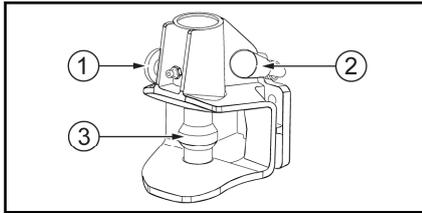
Automatic coupling	D value of the coupling	35 kN
	Maximum support load	250 kg
	Maximum towed load without brake	750 kg
	Maximum towed load with brake	7000 kg
	DC value of coupling	35 kN
	Diameter of the coupling ring (ISO 8755)	40 mm
Towing ball	D value of the coupling	35 kN
	Maximum support load	250 kg
	Maximum towed load without brake	750 kg
	Maximum towed load with brake	3500 kg
	Coupling height	750 mm

Automatic coupling

⚠ WARNING

Before coupling the machine, check that the diameter of the spherical part of the coupling pin is greater than 36.5 mm. Also check that there is no axial play on the coupling pin.

Coupling



- 1 = Safety handle
- 2 = Coupling lever
- 3 = Coupling pin

1. Put the machine in front of the trailer to be coupled.
2. Pull the coupling safety handle.
3. Pull the coupling lever upwards.
4. Adjust the height of the trailer so that the ring on the trailer coupling head is at the same height as the machine coupling device.
5. Move the machine slowly backwards until the ring on the trailer coupling head is aligned with the axis of the coupling pin.

Note

The spindle automatically descends back into place, locking the coupling.

6. Check that the coupling lever has returned to its initial position and that the safety handle is retracted.

⚠ DANGER

If the safety handle is not fully retracted, the coupling is not secured. In this case, repeat the coupling procedure.

7. Connect the trailer electrically and hydraulically if necessary.

Uncoupling

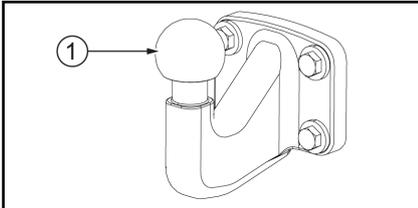
1. The machine and trailer must be on firm, level ground.
2. Secure the trailer with a brake or chocks.
3. Disconnect the trailer electrically and hydraulically if necessary.
4. Pull the coupling safety handle.
5. Pull the coupling lever upwards.
6. Move the machine forward to separate it from the trailer.

Towing ball

⚠ WARNING

Before coupling the machine, check that the diameter of the coupling ball is greater than 49 mm.

Coupling



1 = Towing ball

1. Put the machine in front of the trailer to be coupled.
2. Adjust the height of the trailer coupling head so that it is slightly higher than the coupling ball.
3. Align the coupling head and the coupling ball.
4. Lower the trailer so that the coupling head rests entirely on the coupling ball.
5. Lower the coupling head lever to lock the coupling.
6. Connect the trailer electrically and hydraulically if necessary.

Uncoupling

1. The machine and trailer must be on firm, level ground.
2. Secure the trailer with a brake or chocks.
3. Disconnect the trailer electrically and hydraulically if necessary.
4. Pull the coupling head lever to unlock the coupling.
5. Raise the coupling head to disengage it from the coupling ball.
6. Move the machine forward to separate it from the trailer.

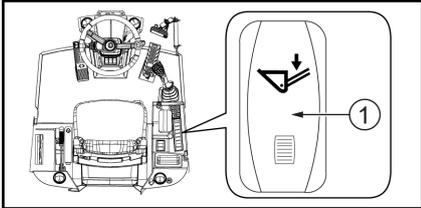
9.16 Safety valves

- In the event of a hose rupture, safety flaps prevent the load being handled from falling to the ground.

Note

This option may be mandatory for lifting with the machine. Refer to the regulations in force in your country.

This option is subject to periodic inspection.



1 = Emergency load lowering switch

- The emergency load lowering switch allows the load to be lowered to the ground if the safety flaps are holding it up.

⚠ DANGER
The load falls quickly to the ground.

9.17 4th hydraulic circuit (PTO 2)

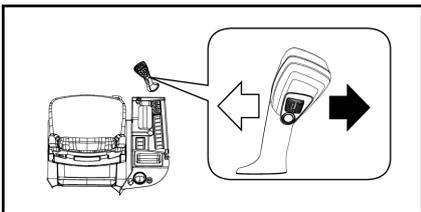
⚠ CAUTION

Do not operate the controls of the 4th circuit if there are no accessories installed.

⚠ WARNING

Before any connection or disconnection of the hydraulic hoses, remove the residual pressure from the hydraulic circuit.

 1.1.2 Removing the residual pressure, page 125



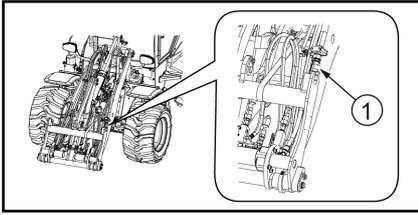
- Use the roller to operate the PTO.2
- Use the display to accurately set the maximum flow rate for the hydraulic outlets.

 5.2.2 PTO setting, page 23

- The location of the 4th circuit outputs depends on the configuration of the machine.

 8 Hydraulic connection of the accessory, page 50

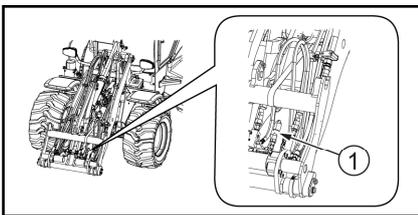
9.18 PTO return line



1 = PTO return line

- This line enables you to use a single-acting accessory. To do this, connect the accessory power supply to one of the PTO outputs and the return to the PTO return line.

9.19 Accessories drain line



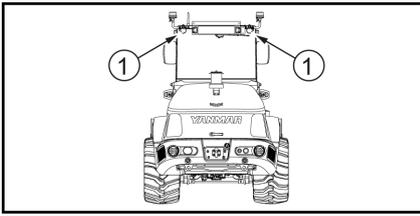
1 = Accessories drain line

- Use this line for accessories that require a drain line for them to operate properly.

9.20 Fire extinguisher and first aid kit

- The workplace must be equipped with a fire extinguisher and a first aid kit. The machine can be fitted with these components on request.

9.21 Rear work lights

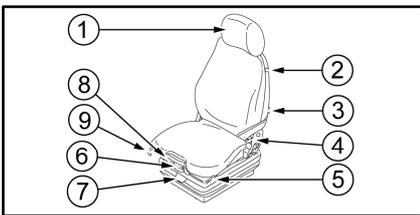


1 = Rear work lights

- Use the switch in the cab to turn the rear working lights on or off.

 **5.3.7 Work lights switch, page 32**

9.22 Comfort/premium seats



1 = Headrest (Option)

2 = Heated seat switch

3 = Lumbar support adjustment

4 = Seat angle adjustment

5 = Seat horizontal suspension adjustment

6 = Adjustment of the tilt of the lower part of the seat

7 = Suspension adjustment

8 = Seat depth adjustment

9 = Seat position adjustment

9.23 Quick connector

⚠ CAUTION

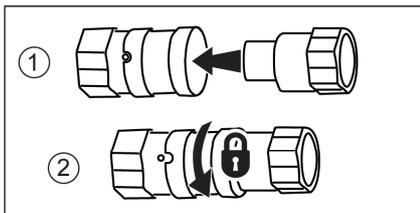
Before any connection or disconnection of the hydraulic hoses, remove the residual pressure from the hydraulic circuit.

Note

Before each use, clean the receiver surfaces.

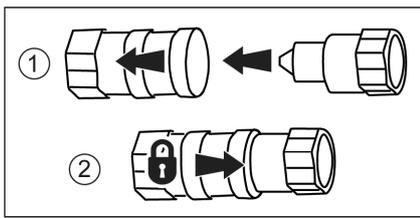
The operation of the quick coupler depends on the type of coupler installed.

Connecting



For couplers fitted with a ball:

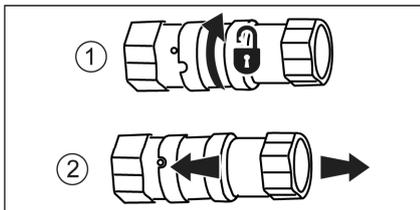
1. Insert the adapter into the receiver. A slight click indicates that the connection is successful. The ball is released from the adapter groove located on the receiver.
2. Turn the adapter on the receiver to secure the connection.



For other connectors:

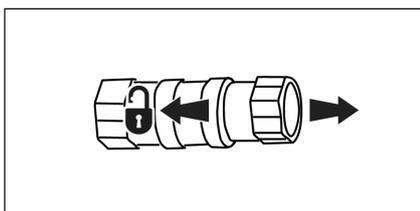
1. Connect the male plug to the female socket and pull on the socket to insert the plug.
2. Release the female socket to lock the connection.

Disconnecting



For couplers fitted with a ball:

1. Turn the socket to align the ball with the groove in the female socket.
2. Slide the socket back to release the male plug.



For other connectors:

1. Pull on the socket of the female plug to release the male plug.

9.24 Tires

- Depending on its use, the machine may be fitted with different types of tyre. For more information, contact your dealer.

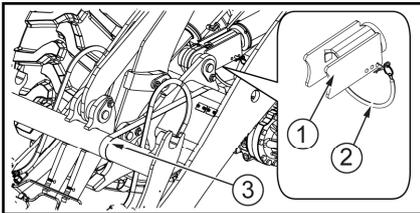
Note

Tyre pressure depends on the type of tyre fitted.

 **4.1.5 Checking tire pressure, page 142**

- The machine can also be supplied with an additional wheel on request.

9.25 Lifting frame support



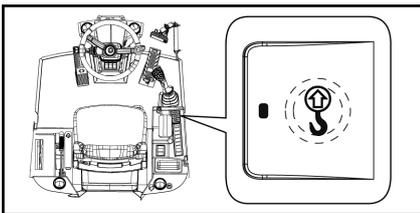
- 1 = Lifting cylinder bracket
2 = Bracket locking system
3 = Strap

- This option locks the lifting frame when the machine is being driven on the road.
1. Install the support on the lifting cylinder.
 2. Secure the bracket by installing its locking system.
 3. Fit the strap between the lifting arm and the quick coupler.

Note

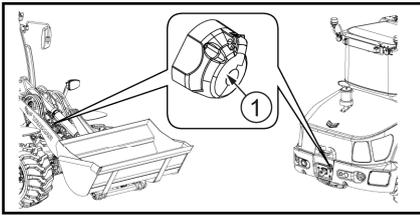
This option may be mandatory for driving the machine on a road. Refer to the regulations in force in your country.

9.26 Overload alarm



- When the operator wishes to perform handling, it is essential for the overload switch to be in the ON position, for the purpose of informing the operator of the tipping points according to the load being handled and the position of the equipment.
- An audible signal warns the operator that the load that he is handling is too heavy and could well topple the vehicle.
- When the audible signal sounds, the operator must promptly put the load being handled down on the ground because it could well topple the vehicle.

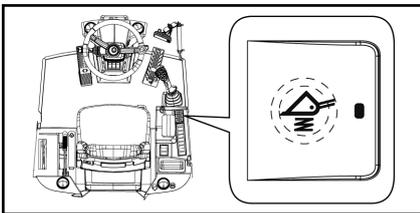
9.27 Accessory socket



1 = Accessory socket

- A front or rear socket enables you to plug in an accessory that requires a power supply.

9.28 Load oscillation damping



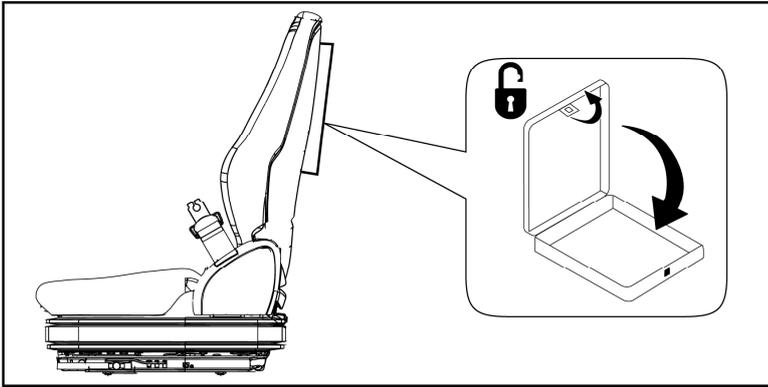
- When moving, load oscillation may occur.
- Use this switch to activate load oscillation damping.
- Damping has the following benefits:
 - Higher transport speed
 - Higher transport capacity
 - More stable steering behaviour
 - Reduced braking distance
 - Increased driving comfort

Note

Load oscillation damping can be activated automatically depending on the speed of travel.

Damping of load oscillations is only possible if the tilt and frame cylinders are not in the stop position.

9.29 Document holder



- The option consists of:
 - a document box
 - its fasteners

- The location for the document box is behind the driver's seat.
 - Pull the tab to unlock the box and open it.
 - To close it, push the lid until it locks.

B Operating instructions

CHAPTER COVERED IN THIS PART:

- 1 BASIC PRECAUTIONS
- 2 USAGE PRECAUTIONS
- 3 CHECKS BEFORE STARTING THE MACHINE
- 4 CHECKS AFTER START-UP
- 5 CHECKS AFTER USE
- 6 USING THE MACHINE IN COLD WEATHER
- 7 HANDLING OF ACCESSORIES
- 8 QUICK HYDRAULIC HITCH
- 9 USING THE PARTICLE FILTER
- 10 TRANSPORTING THE MACHINE
- 11 TOWING THE MACHINE
- 12 IF THE BATTERY IS DISCHARGED
- 13 DETECTING ANOMALIES



1 BASIC PRECAUTIONS

⚠ CAUTION

The user must determine whether dangerous phenomena may occur in an application, for example, the release of toxic gases, or whether the ground conditions require specific precautions. The user establish the measures to be taken to eliminate or reduce the risks.

1.1 Comply with your workplace's safety rules

- This machine must only be used and maintained by qualified personnel.
- When using or maintaining the machine, comply with all safety rules, precautions and procedures at all times.
- Any task performed in teams or with a flagman should be performed based on regulatory signals.
- When using the machine on public roads, the operator must ensure that the machine and its equipment comply with applicable local laws, regulations and restrictions.

 **2.2.4 Driving on the road, page 81**

⚠ DANGER

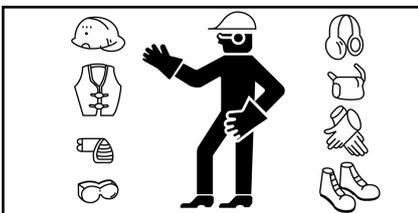
The machines are not designed to work in explosive or polluted environments.

The machine configuration cannot guarantee the safety of the operator in a harmful environment. The machine must therefore not be used in such environments.

1.2 Put the safety mechanisms in place

- Make sure that all covers and all housings are properly installed in their respective positions. If any of them are damaged, repair them immediately.
- Never remove the safety mechanisms. Check that they are operating correctly at all times. If the safety mechanisms are operating incorrectly this may cause serious physical injury.

1.3 Wear suitable clothing and protective equipment



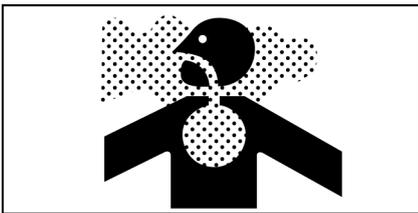
- Never wear bulky clothing or jewellery that may be caught in the control levers or a part of the machine. Also avoid wearing soiled work clothes, which can be risky when using the machine.
- Wear a helmet, protective goggles, safety shoes, a mask, gloves, and any other protective equipment necessary according to the working conditions and the regulations in force.

1 Basic precautions

1.4 Do not drive under the influence of alcohol, drugs or medication

- Never use the machine if you are under the influence of alcohol and/or drugs, if you are ill or if you do not feel well as this may cause an accident.

1.5 Provide adequate ventilation when working in an enclosed space

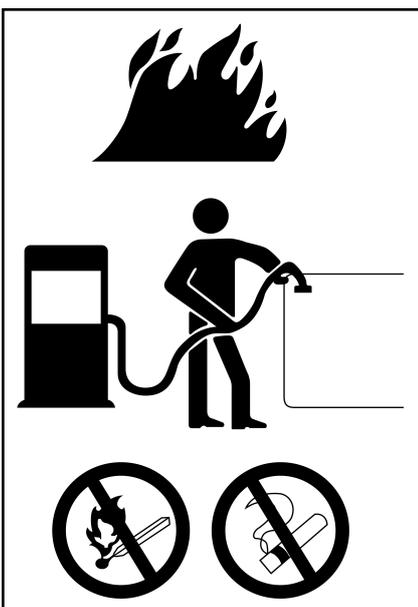


- The engine exhaust fumes are harmful to the human body and it is very dangerous to inhale them. When you start the engine in an enclosed space, open the windows and doors to let air circulate.
- Never let the engine idle unnecessarily and never leave the engine running when you are not using the machine.
- Provide respirators based on working conditions to ensure the machine operator works safely.

1.6 Protect plants from hot air and exhaust fumes

- The silencer and radiator release hot air and exhaust fumes at high temperatures. If the hot air directly reaches a plant, it alters its state and may cause its death.
- Protect plants from hot air and exhaust fumes with a protective plate when you are working near a hedge or plants.

1.7 Fire hazard



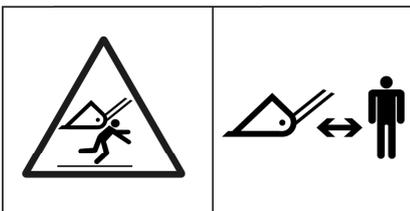
- Leaving flames near fuel, oil, hydraulic oil or anti-freeze solutions, which are highly flammable and dangerous, may cause a fire.
- Specific attention must be paid to the following points :
 - Keep flammable materials away from cigarettes, lit matches or any source of fire.
 - Never top up any fluids while the engine is running. Do not smoke when topping up any fluids.
 - Tighten the fuel and oil tank caps firmly.
- Store fuel and oil in a cool, well-ventilated place away from direct sunlight.
- The fuel and oil must be stored in a place that responds to applicable safety regulations. Unauthorised personnel must not enter this area.

1.8 Avoid removing the caps when the temperatures are high



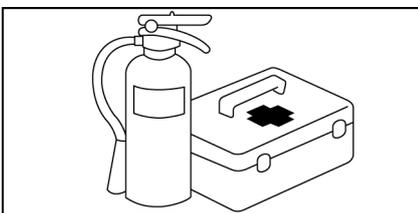
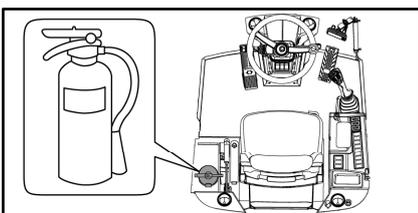
- The engine coolant, engine oil and hydraulic oil are hot and pressurised after the engine stops.
- Removing caps, draining coolant or oil or replacing a filter under these conditions risk causing burns.
- Before you remove the cap from the hydraulic oil tank, shut down the engine then gently turn the cap to release all the pressure and avoid any oil spilling.
- When you remove the radiator cap, shut down the engine and let the coolant cool down enough then gently turn the cap to release all the pressure.

1.9 Avoid crush injuries due to accessories and the lifting frame



- Keep your hands, arms and other parts of your body away from moving parts, between the machine's accessories or between the lifting frame and the accessories as jamming points may be created.

1.10 Have an extinguisher and a first aid kit



- The workplace must be equipped with an extinguisher. Read the instructions on the adhesive labels to find out how to use it.
- Place a first aid kit in a specific location.
- Specify the action to be carried out in the event of a fire or accident.
- Indicate the person to be contacted in the event of an emergency and leave the emergency call number near your telephone.
- A location to install an extinguisher is provided inside the machine's cab.
- In the event of a fire in a building, activate the fire alarm for that building.

1.11 Avoid any unauthorised modifications

- Any unauthorised modification to the design or use of unauthorised accessories may cause physical damage. YANMAR cannot be held responsible for any physical injuries, accidents, failure or damage to the machine due to any unauthorised modifications.
- In addition, in that these actions would constitute an explicit violation of the terms of the YANMAR Product Warranty, the applicable warranty would also become null and void. If you want to modify your machine, you must contact your dealer.

1.12 Precautions for optional parts and tools

- Any modifications that are not approved by YANMAR may cause safety risks.
- If the equipment you want to add to your machine is not listed by YANMAR, you must contact your dealer. YANMAR cannot be held responsible for any physical injuries, accidents, failure or damage to the machine due to any unauthorised modifications. Any unauthorised modification will lead to the YANMAR warranty being cancelled.
- When you install or use optional accessories, read their operating instructions and the section in the manual that relates to the installation of accessories.
- Only use accessories authorised by YANMAR. The use of unauthorised accessories not only risks affecting the safety of the machine but also its operation or life span.
- The use of unauthorised equipment will contravene the terms of the YANMAR warranty and cancel it.

1.13 Warning concerning the cab windows

- If, by accident, a cab window is broken, the sharp edges may represent a danger to the operator. Stop the machine immediately and replace the broken window with a new one.

1.14 Cabin's emergency exit



1. Lock the hydraulic functions of the control lever with the control lever deactivation switch.
2. Secure the machine from rolling away by applying the handbrake.
3. Stop the engine.
4. If you can open the left door, open it to leave the cab.
5. If that is not possible, exit via the door on the right.

Note

The emergency exit is indicated by a safety sticker.

6. Do not return inside the machine as long as the issue having triggered emergency evacuation has been identified and corrected.

1.15 Air conditioning system

The air conditioning system contains fluorinated greenhouse gases. The characteristics of these gases are indicated on the sticker affixed to the machine, and are listed below.

3 Warning labels, page 6

		
The air conditioning system of this product contains fluorinated greenhouse gases.		
	HFC – R134a =	0,900 kg ⁽¹⁾
	TeqCO ₂ =	1,287 t ⁽²⁾
GWP = 1430 ⁽³⁾		
The fluorinated greenhouse gases are contained in hermetically sealed equipment.		

(1) Machine finalisation date

(2) Mass of HFC-R134A fluorinated greenhouse gases in the air conditioning system

(3) CO₂ equivalent mass

(4) Potential global warming due to the gas

(5) Lubricant

WARNING

In case of a problem with the air conditioning system, contact your dealer.

2 USAGE PRECAUTIONS

2.1 Precautions before using the machine

2.1.1 Make sure that your workplace is safe

- Before you start the engine, make sure that there is no danger in your working area. If there are any underground installations such as water or gas pipes, high voltage lines or other elements, contact the responsible companies to locate them exactly and to avoid damaging them.
- Examine the field and the ground and decide on the best way to work.
- When working on the street, make sure the worksite is secure.
- Be aware of the position and the work undertaken by other machines present at the place of work.
- Do not work near a fire.
- Do not start the machine near flammable products.
- If you have to use the machine under specific conditions (water, snow, etc.)



2.3.5 Working in an area covered with snow, page 84



2.3.8 Working in a submerged area, page 85



2.3.9 Working in a muddy area, page 85

2.1.2 Clean the machine

Cleaning

⚠ WARNING

Before using compressed air, make sure there are no people nearby and wear safety glasses and appropriate clothing.

Do not use compressed air above 0.7 MPa.

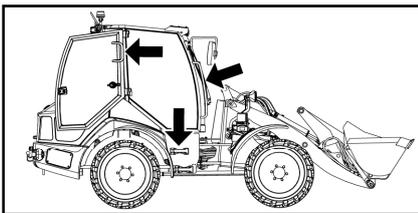
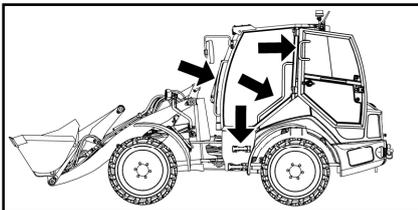


- Wood chips, dead leaves, detritus, mould, and other flammable materials around the engine can catch fire. Clean these materials from the machine.

- Dirt, oil and snow on the cab floor, the levers, handles or steps are slippery and dangerous. Clean them completely.
- Clean the machine's windows to ensure perfect visibility from the driver's seat. De-mist and de-ice the windows where necessary.
- Proceed to the checks:

 **3 Checks before starting the machine, page 88**

Keep the headlights and mirrors clean



- To clean the cab exterior :
 - Be sure to keep three points of support with the machine when cleaning the external elements (e.g. mirrors).
 - Use the support points identified in the illustration opposite.
 - If 3 points of stable support are not accessible for cleaning or maintenance of the external elements, use adapted equipment in order to safely work on the machine.

Note

Do not fold the rear view mirrors completely on the wind shield, as they may be damaged by the wiper.

- Check that your machine is fitted with headlights and specific working lamps and that they are working correctly.
- If your machine is equipped with a camera and a screen, clean them in order to work with the machine in complete safety.

2 Usage precautions

2.1.3 Check the safety structures

⚠ WARNING

If one of the safety structures is damaged, replace it immediately to avoid any injury. Do not repair or modify it.

- The standard machine is equipped with a Falling Objects Protection Structure (FOPS) on the machine's roof.
- For your safety, the machine includes a protection structure in the event of it turning over (ROPS), for protection against falling objects (FOPS) and protection against side tipping (TOPS). Never modify any of these structures' elements.
- The protection structures mounted on the machine comply with the recommendations of:
 - **ROPS:** ISO 3471
 - **FOPS:** ISO 3449

For the specifications of these structures, refer to the table below :

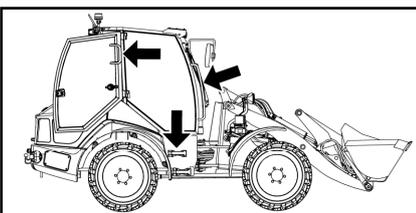
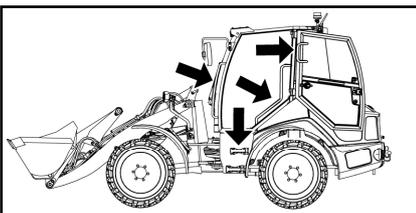
Type	ROPS / FOPS
Weight (in conformity with CE standards)	5200 kg (11464 lbs)

2.1.4 Accessing the machine

- Do not jump on or out of the machine. Do not climb into or out of the machine when it is operating as this may cause physical injuries.
- Do not bear on the steering wheel, control levers or door opening handles to climb into the driver's seat.
- Do not use the covers as steps.

⚠ WARNING

The hoods are fragile and slippery, bearing on them may result in falling and injury.



- Use the contact points indicated by arrows in the illustration opposite to climb onto and descend from the machine.
- Always maintain three points of contact.
- Clean the handles or steps immediately when dirty or covered with oil.

⚠ CAUTION

Make sure that you do not bang your head against the rearview mirror when you climb into or out of the cab.

2.1.5 Fasten your safety belt

⚠ WARNING

The seat belt must be replaced after an accident or if it is damaged.



- The operator's seat is fitted with a safety belt.
- Always fasten your safety belt before starting the machine.

- The seat and its support must be checked by your dealer after an accident.
- If the seat and/or its support are damaged they must be replaced immediately.

2.1.6 Rear-view mirror adjustment

⚠ WARNING

Any damaged rear-view mirror must be changed immediately.

Ask a second person to assist with adjusting the rear-view mirrors.

Use suitable accessories for adjustment (e.g. ladder or platform).

- Adjust the rearview mirror(s) so that you have perfect visibility around the machine.
- Adjust the mirror so that the left rear edge of the machine is visible at a height of 1.5m (59in).
- Adjust the mirror so that the right rear edge of the machine is visible at a height of 1.5m (59in).

2.1.7 Precautions before starting the engine

- Do not start the machine if a label indicating that a maintenance operation is in progress is present on the machine or on the control levers.
- Place the control lever in the neutral position.

2.1.8 Precautions during the break-in period

- Check proper operation of all machine devices and accessories.
- The drawbacks and faults which may occur when using the machine mainly result from from loosening of fastening devices and the presence of leaks. During the machine break-in phase, the mechanical devices and hydraulic fittings stabilise, which requires checking the machine very carefully.
- It is vital that you respect a running in period for the machine during the first hundred hours of service (read the time counter). During this period, the machine must not be used with an excessive load, even though it has been correctly prepared and checked before despatch. Otherwise there is a risk that its performance will be affected and its life span shortened.
- When running in the machine, make sure to :
 - Preheat the engine by running it on idle for 5 minutes after starting it.
 - Do not run the machine with a heavy load or at a high speed.
 - During the break-in period, check the engine oil and coolant levels.
 - Never run the engine too intensely in low gear (wheels turning slowly or stopped with the engine at high speed).
 - Do not start, accelerate or stop the engine suddenly.
 - Do not change direction too suddenly.

Note

Observe these precautions throughout the life of the machine in order to preserve the good condition of the engine.

⚠ IMPORTANT

In order for the emissions performance of the engine to be maintained, the engine and the emission-management system must run, be used and be maintained according to the instructions provided in this manual.

It is forbidden to modify or deliberately misuse the engine's emission management system.

Any problems caused by malfunction, misuse or faulty maintenance of the emission management system, and indicated by warnings displayed on the control screen, must receive immediate remedial action.

The machine is equipped with an operator-warning system for any malfunction of the emission management system. If warning messages go unheeded by the operator, the system is programmed to reduce the engine's performance.

2.2 Movement precautions

2.2.1 Machine's Danger Zone

⚠ DANGER

The operator must manipulate the machine controls from the operator seat. Any use of the machine controls from the ground is strictly prohibited because it can lead to physical injury.

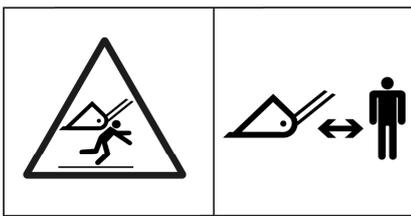
⚠ WARNING

Start the engine and run the machine only from the operator seat.

⚠ DANGER

If a person is in the machine's danger zone, it may be struck by the machine's moving parts or be wedged between the machine's parts, which can result in serious injury or death.

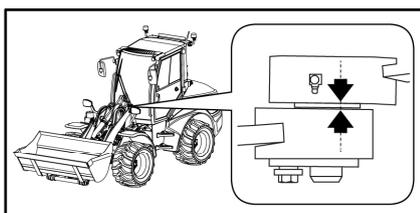
The field of vision from the machine is limited when looking backwards. Ensure nobody is located behind the machine before reversing.



- A signaller must be provided when the working site is dangerous or has poor visibility.
- Keep all other people away from the working site or movement route of the machine.
- Keep any other persons out of the danger zone represented by the equipment's operating radius.
- Alert people nearby using the horn or any other signal before starting the machine.

2.2.2 Movement and accessories

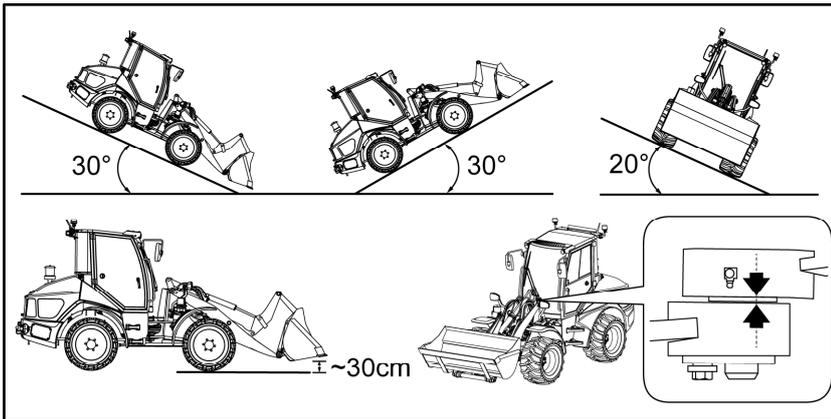
- Adapt your speed and behaviour according to the work conditions, the road and weather conditions.
- If you need to use the command levers when moving, do not make any sudden movements when operating them.
- Move the machine at low speed and slow down when turning on hilly terrain.
- Avoid driving over obstacles if possible. Avoid them or remove them. If this is not possible, drive the machine at low speed keeping the tool near the ground.
- Distribute the load evenly before any transport.
- Uneven distribution can affect the stability of the machine.



- Move loads close to the ground if possible. Align the two arrow-shaped stickers to ensure that the height of the accessory is correct.

2 Usage precautions

2.2.3 Driving the machine on a slope



- Drive the machine carefully on a slope to avoid any tipping over or slipping to the side.
- Do not drive the machine on a continuous slope exceeding 28° uphill and 20° downhill with the machine in the slope's direction, nor on an intermittent slope exceeding 35° for 15 seconds maximum.
- When driving the machine on a slope, keep the attachment approximately 30 cm (12 in) above the ground to be able to lower it to the ground and stop the machine in the event of an emergency. Align the two arrow-shaped stickers to ensure that the bucket height is correct.
- Point the attachment upwards when driving on a slope.
- When driving on a slope of more than 8%, drive slowly.
- The machine will slide easily on grass, dead leaves or a damp metal plate, even with a slight tilt. Drive the machine carefully at low speed to prevent it slipping.

2.2.4 Driving on the road

⚠ WARNING

The user must ensure that the machine and its equipment comply with applicable legal provisions and local regulations and restrictions.

Always drive on the road in forward gears.

Reduce speed when travelling downhill.

Before driving off, take into account the actual dimensions and weight of the machine and the dimensions and weights allowed when driving on and under bridges, roofs, arches, etc.

Always drive at an appropriate speed and adapt your driving to the conditions on site.

The operator is responsible for their driving style.

⚠ IMPORTANT

Before any travel, check the condition and pressure of the tires.

Before any road trip, check proper operation of the machine's lighting and signalling systems.

On long journeys, take regular breaks to allow the tyres and components to cool down. Remove the forks before travelling on a public road, if the machine is equipped with them.

1. Start the machine.
2. Empty the bucket.
3. Install the tooth guard or blade guard on the bucket and the guard for other attachments.
4. Raise the lifting arm so that it has sufficient ground clearance.
5. Check the adjustment of the rear view mirror, install the beacon on the cab and switch it on.
6. Check the operation of the indicators and the horn.
7. Close the cab door.
8. Fasten your safety belt
9. Release the parking brake.

2.3 Working precautions

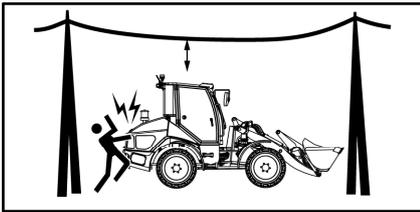
2.3.1 Precautions for using the equipment

⚠ WARNING

Using the equipment control lever when moving the machine affects the stability of the machine.

- Always avoid skidding on the tires. A wheel slipping on the ground transmits only part of the vehicle's power, resulting in early wear of its tread.
- The bucket mounted on the lifting arm must be placed horizontally with respect to ground during the work. The machine is fitted with an arm position indicator to position the bucket properly.
- To optimize the yield of the wheel loader, the engine needn't be pushed beyond its performance limits. Respect the indications of use given in this manual.

2.3.2 Working near electricity lines



⚠ DANGER

Working close to overhead electricity lines is very dangerous and specific precautions must be taken.

- For this manual, you are considered as working near overhead electricity lines once the equipment or your machine's load can reach the minimum distances indicated in the table below.
- Follow these procedures to prevent any accident or injury :
 - Wear shoes with rubber or leather soles.
 - Use a signaller to warn the operator when the machine is too close to an electrical line.
 - If the machine is to enter into contact with a cable, the operator must not leave his seat.
 - Warn all personnel on the ground to stay far enough away from the machine.
- In the event of an electrostatic discharge, move the machine away from the electrical hazard zone by raising or lowering the work equipment, removing it or rotating it. If this is not possible :
 - Do not leave the driver's seat.
 - Do not allow any other person to approach the machine or to touch it.
 - Ask to have the power cut off.
- To determine the voltage of the wires on the work site, contact the electricity production company concerned.

⚠ WARNING

This table is provided for information only. Please refer to the regulations in force in your country.

	Voltage (V)	Minimum safety distance (m (ft))
Electricity lines	< 50000	3 (10)
	≥ 50000	5 (16)

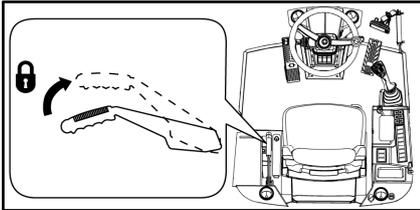
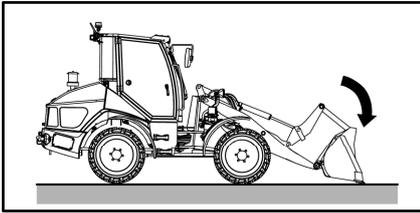
2.3.3 Working near obstacles

- When moving in a tunnel, under a bridge or when you are working in an area near tall obstacles, drive the machine carefully to avoid knocking the cab, the loader arm or the accessory against these obstacles.

2 Usage precautions

2.3.4 Emergency stop and securing the machine

In case of an emergency stop of the machine, immediately put the accessory or load being handled on the ground according to the following procedure:



1. Place the accessory on the ground.
2. Apply the parking brake.
3. Turn the key to OFF position to switch off the engine and disconnect the electrical circuit. Remove the key from the ignition.
4. Determine the fault and if necessary call your dealer for a diagnostic and an intervention.

Note

If necessary, take measures to prevent the machine from being used.

2.3.5 Working in an area covered with snow

- Ground covered with snow and icy roads are dangerous as the machine may slip, even on a slight incline. Drive the machine at reduced speed; do not stop or turn suddenly.
- Remove the snow carefully as verges or other potential dangers may be buried beneath the snow.

2.3.6 Working on unstable ground

⚠ WARNING

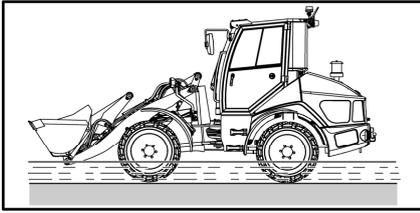
Unstable ground increase the risks of the machine tipping over.

- Keep away from cliffs, verges and ditches as the ground there is unstable. There is a risk that it will give way because of the machine's vibrations or weight, which would cause the machine to tip over or fall. Be careful when working immediately after rainfall or an explosion as the ground is unstable.
- Infills and grounds near trenches are not stable and risk giving way because of the weight or vibrations of the machine, which would cause the machine to tip over or fall. Be very careful when working on this type of ground.
- When you are working in an area with a high risk of rock fall, wear a helmet and remain under the canopy or in the cab.

2.3.7 Work in narrow road

- Driving in narrow roads can cause a collision with other objects or the machine to tip over.
- Before driving the machine in narrow roads, check the machine's outer dimensions and the road width. When driving on roads likely to cause the machine to hit other objects or with soft shoulders, implement reinforcement or other appropriate measures, and deploy guides to secure the machine.

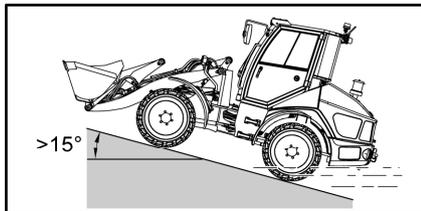
2.3.8 Working in a submerged area



- Before using the machine in an immersed zone, check that the water depth and ground condition allow to work safely.
- The maximum water depth must not be above the bottom of the machine's axles.

⚠ IMPORTANT

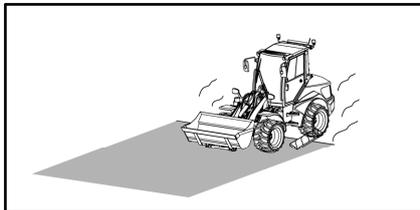
When you come out of the water, if the machine is climbing a slope with an angle of over 15°, there is a risk that the rear of the upper structure will remain submerged in the water, which risks damaging the radiator when it stirs up the water. Be aware of this when you exit the water.



- After use, apply a large quantity of grease to the moving parts (in particular the bucket pin and the moving parts of the extendible chassis) that were submerged in water for a long time, until the grease used is extruded from the bearings.
- Then wipe off the extruded grease with a cloth.

2.3.9 Working in a muddy area

- Operate the machine carefully so that it does not get stuck. If it does get stuck, release it using the following procedures.



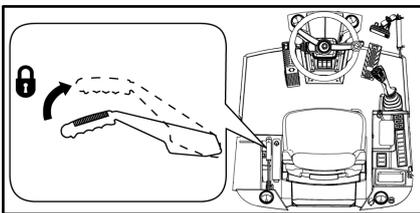
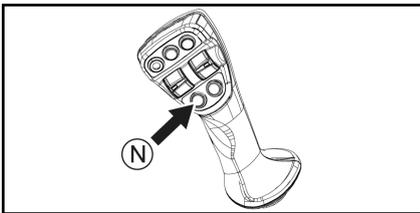
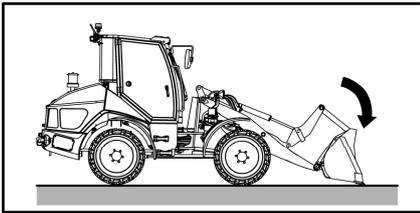
1. Lift the accessory above the ground.
2. Place a block or wood under the machine's tires in the mud.
3. Start the machine and try driving it out at low speed.

- In case of total immobilisation, have the machine towed to pull it out of the mud.

2.3.10 Working in an area with reduced visibility

- When working in a dimly-lit area, switch on the lights and front headlights and provide additional lighting if necessary.
- Stop all work when fog, snow or rain hinders your visibility.
- When working on the road, park the machine without disturbing traffic and implement machine warning signage (warning lights, warning triangle...).

2.4 Parking precautions



1. Park the machine preferably on a stable, flat and level surface.
2. Lower the accessory to place its lower surface in contact with the ground.
3. Select the neutral position on the gearbox.
4. Apply the parking brake.
5. Turn the key to OFF position to switch off the engine and disconnect the electrical circuit. Remove the key from the ignition.
6. Make sure that the doors and engine cover are closed properly.
7. Disconnect the battery using the circuit breaker.

⚠ WARNING

Check that no element of the machine protrudes onto the road, and if this cannot be avoided, fit signs compliant with the currently enforced legislation.

If the machine must be parked in a slope, use blocks to block the wheels.

2.5 Precautions for the accessories

⚠ CAUTION

An accessory that is not adapted to the machine may imbalance it.

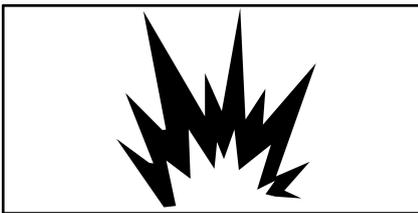
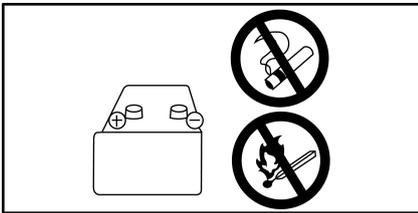
- When you mount or remove an accessory, follow these precautions :
 1. Place the machine on flat, firm ground.
 2. Keep the parts clean and well greased.
 3. Never mount any accessories that exceed the maximum accepted dimensions.
 4. Do not stay beneath a suspended load.
- See the accessories manual for a complete list of usable accessories. The user must ensure that the accessory is compatible with the capabilities of the machine and the task at hand. If in doubt, contact the accessory manufacturer or dealer.
- The user must read and keep the instructions related to mounting and using accessories. Refer to the accessories manual.

2.6 Precautions for the battery

- The battery is located under the floor of the cabin.

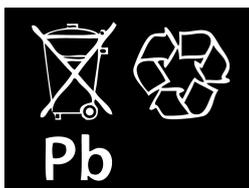
⚠ DANGER

Be careful when handling the battery.



- The battery electrolyte can cause severe burns to the eyes or skin. Always wear safety glasses and clothes when handling the battery.
- If the battery electrolyte comes into contact with your skin or clothes, rinse it off immediately in a large quantity of water and consult a doctor.
- An explosion may occur as the hydrogen produced by the battery is flammable. Keep the battery away from flames, sparks, and direct sunlight.

- Before inspecting or handling the battery, switch off the engine and turn the starter switch to OFF.
- Make sure that you do not cause a short circuit by touching the battery terminals with a tool.
- If a terminal connection comes loose, heat and sparks may be caused because of a poor contact and may cause an explosion. Make sure that the terminals are connected safely.
- Do not try to recharge the battery with a booster.
- The battery requires no maintenance, so do not try to open it.



- The battery contains lead. It must be collected by specific means.

⚠ CAUTION

To start the engine using the connection cables, comply with the procedure described

 **12 If the battery is discharged, page 115**

3 CHECKS BEFORE STARTING THE MACHINE

3.1 Overall visual inspection

⚠ WARNING

If there is any fuel on hot areas or if there are any fuel and/or oil leaks, this may cause a fire. Carefully check these possible causes of fire. If there are any faults, contact your dealer.

1. Check the hydraulic components : wear and leaks around the cylinders, damage to the hoses and connectors come loose.
2. Clean dust and flammable materials (dead leaves, shavings) from areas that become hot, for example: around the engine, battery, and radiator.
3. Check that there are no oil leaks from the engine or water leaks from the cooling system.
4. Check that there are no oil leaks from the hydraulic system, the hydraulic oil tank, the pipes and seals.
5. Check that there are no traces of grease or leaks from the lubrication points.
6. Check that the bolts have not broken or come loose.
7. Check the proper operation and the condition of the operator display station.
 - If any screws are loose, retighten them.
 - If the screen is damaged, replace it with a new operator display station.
 - Clean the surface of the operator display station.
8. Check the tyre pressures.

3.2 Checking and topping up the level of cooling fluid

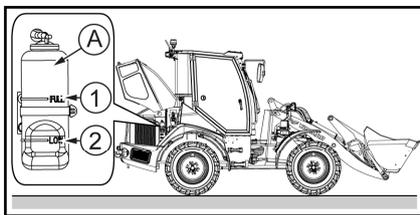
⚠ IMPORTANT

If the expansion vase is empty, check for leaks and the water level in the radiator.

⚠ WARNING

Only remove the radiator cap to top up the radiator.

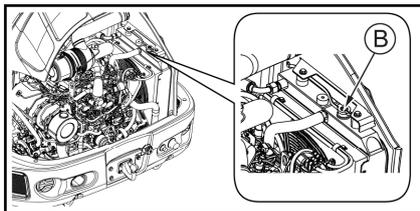
- Check the level of cooling fluid every day according to the following procedure :
 1. Place the machine on flat ground.
 2. Stop the machine and take the key out of the starter switch.
 3. Wait until the engine and the radiator have cooled down.
 4. Open the bonnet with the ignition key.
 5. Check that the level of liquid in the expansion vase is between the minimum and maximum markers.



A = Expansion flask

1 = Maximum

2 = Minimum



B = Cap

- If the level is below the min marker :
 1. Remove the radiator cap.
 2. Top up to the maximum marker.
 3. Retighten the radiator cap.
 4. Close the engine bonnet.
- If the level exceeds the maximum mark, contact your dealer.

For the fluids and quantities to use, refer to:

 **2 Recommended greases and fluids, page 131**

3.3 Checking and topping up the engine oil level

⚠ WARNING

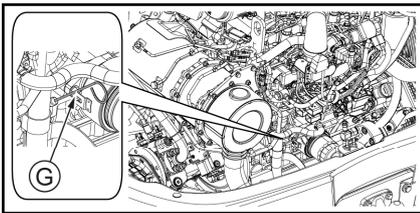
At operating temperature, the oil and the gauge area are hot.

Avoid the hot oil or the components coming into contact with your skin to avoid any physical injuries.

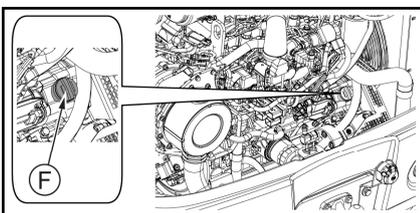
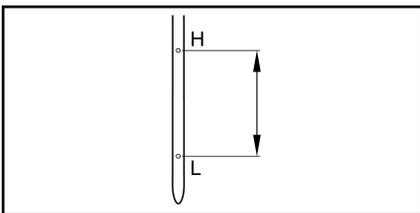
⚠ IMPORTANT

Do not over-fill. Excess oil may cause white smoke, engine overspeed or internal damage.

Do not allow any impurities to contaminate the engine oil. Carefully clean the cap, the gauge and the surrounding area before removing the cap.



G = Gauge



F = Filler hole

1. Place the machine on flat, firm ground.
 2. Wait until the engine has cooled down.
 3. Open the bonnet with the ignition key.
 4. Read the engine oil gauge.
 5. Clean the gauge with a cloth to remove any oil deposits.
 6. Insert the gauge into its tube.
 7. Remove it. The engine oil level must be between markers H and L.
- If the oil level is below marker L, open the filling hole and top up to marker H.
 - If the oil level is above marker H, remove the excess quantity of oil via the drainage cap then check the level again.

Note

Dispose of excess engine oil in accordance with applicable laws and regulations.

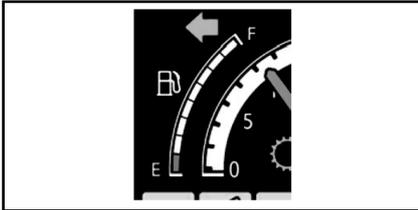
For the fluids and quantities to use, refer to:

 **2 Recommended greases and fluids, page 131**

3.4 Checking and topping up the fuel level

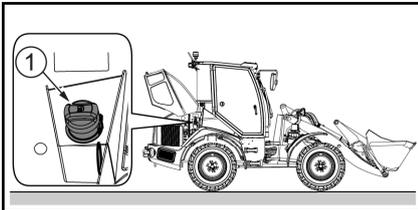
⚠ WARNING

If you spill any fuel, wipe it up with a cloth. Absorb spilled fuel to prevent it from entering the environment/ground.



F = Full

E = Empty



1 = Tank cap

1. Place the machine on flat, firm ground.
2. Set the starter key to ON position.
3. Check the fuel level using the fuel gauge.
4. Set the starter key to OFF position.
5. To top up the fuel level, you can use the machine's filling pump (Option)

📖 9.6 Electric fuel tank filling pump, page 53

Otherwise do the following:

- a. Open the rear bonnet.
- b. Take the cap off the tank.
- c. Top up through the filler hole.
- d. Close the tank again.
- e. Close the bonnet.

For the fluids and quantities to use, refer to:

📖 2 Recommended greases and fluids, page 131

3.5 Checking and topping up the hydraulic oil level

⚠ CAUTION

When you remove the cap from the oil filling opening, loosen it gently to release the pressure from the tank and avoid any high pressure oil leaks that would be dangerous.

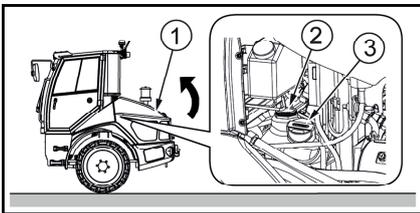
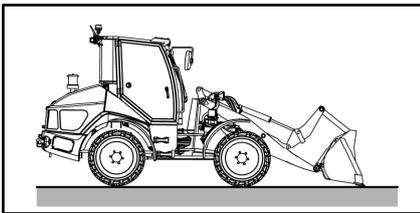
⚠ IMPORTANT

Do not top the hydraulic oil over the upper limit marker on the oil level gauge. An excessive quantity of hydraulic fluid may damage the hydraulic system by applying too much pressure to these components, which would cause a dangerous high pressure leak.

Note

The oil level varies according to the oil temperature.

- Before start-up, the oil level must be on or around the central point of the gauge scale (oil temperature : 10 to 30°C (50-86°F)).
- During normal operation, the oil level must be around the upper limit marker on the oil gauge scale (oil temperature : 50 to 80°C (122-176°F)).



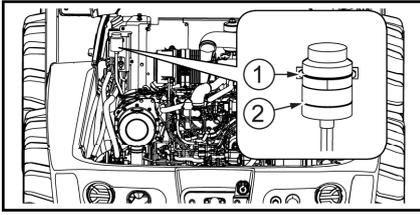
- 1 = Bonnet
2 = Gauge
3 = Cap

1. Place the machine on flat, firm ground.
2. Make sure the machine is not turned, lower the lifting arm, and tilt the attachment completely.
3. Stop the machine and take the key out of the starter switch.
4. Open the rear bonnet.
5. Determine the oil level by looking at the gauge on the left hand side of the machine.
6. If necessary, top up to the correct level according to the oil temperature as follows:
 - a. Open the hydraulic oil tank opening cap.
 - b. Top up through the filler hole, keeping an eye on the gauge located on the tank.
7. Close the tank again.
8. Close the engine bonnet.

For the fluids and quantities to use, refer to:

 **2 Recommended greases and fluids, page 131**

3.6 Checking and topping up the brake fluid level



1 = Maximum

2 = Minimum

1. Place the machine on flat, firm ground.
2. Stop the engine.
3. Open the rear bonnet.
4. Check that the level of fluid in the tank is between the min and max markers.
5. Top up if the level is low.
6. Close the engine bonnet.

Check the brake fluid level daily.

For the fluids and quantities to use, refer to:

 **2 Recommended greases and fluids, page 131**

4 CHECKS AFTER START-UP

WARNING

Emergency stop : if an abnormal action occurs, turn the key in the ignition switch to the OFF position. The electrical system is interrupted and the engine stops. Ask your dealer to check the machine.

IMPORTANT

The hydraulic oil must be at a temperature from 50°C to 80°C (122-176°F). If the temperature is low, wait until it reaches 20°C (68°F) before using the equipment. If you need to use a command lever before the oil reaches this temperature, handle it gently.

Avoid unnecessary jerky acceleration and steering until the engine is warm.

After the engine starts, do not use the machine immediately but respect the following procedure :

1. Run the engine on idle.
2. Check that the gauges correspond to the following statuses :
 -  **5.1.4 Diesel gauge, page 18**
 -  **5.1.5 Cooling fluid temperature indicator, page 19**
3. Run the engine about 5 minutes with no load at the intermediate rotational speed.
4. Use the control levers to extend and retract the cylinders to the end of their stroke to raise the temperature of the hydraulic oil to at least 20°C (68°F).

IMPORTANT

When moving the accessory, make sure it does not hit the ground or the machine.

Check that there is no abnormal noise in the hydraulic circuit.

5. Check the colour of the exhaust gas, the noise and the vibrations of the machine.
6. Switch off the working hydraulics and immobilise the equipment if possible. Check that the hydraulic functions of the control lever are not operable.

 **5.3.14 Control lever deactivation switch, page 34**

7. Activate the working hydraulics via the keyboard.

IMPORTANT

If you observe the slightest anomaly during this procedure, contact your dealer.

5 CHECKS AFTER USE

- Check the global aspect of the machine.
- Check there are no cracks or damage.
- Check that no nuts or screws are missing.
- Check for leaks.
- Lock the cab (if equipped) and the cover(s).

If the machine is used in a rocky place :

- Check the lower part of the chassis for damage.

If the machine is used in a dusty place :

- Check whether the air filter is clogged.
- Check the air filter cartridge regularly.
- Check whether the radiator vents are clogged.
- Clean or replace the fuel filter cartridge regularly.
- Clean the electrical equipment, particularly the starter and the alternator to avoid any dust deposits.

If the machine is used in mud, snow or sand :

- Clean the machine.
- Apply grease to all equipment axes that have been submerged in mud, snow or sand.

⚠ IMPORTANT

If you detect any faults, contact your dealer.

6 USING THE MACHINE IN COLD WEATHER

6.1 Preparation for use in cold weather

- De-mist and de-ice the windows where necessary.
- In cold weather, you may have difficulty starting the engine if the coolant and the fuel are unsuitable.
- Consequently, take the following measures :
 1. Use oil and fuel suitable for the outside temperature.

 **2 Recommended greases and fluids, page 131**

2. Keep the battery charged. In cold weather, remove the battery after using the machine and store it in a heated room to facilitate restarting the machine.

6.2 Starting in cold weather

WARNING

Consult these pages and respect these safety instructions before starting up the machine.

 **2.1 Precautions before using the machine, page 74**

1. Turn the key to the ON position.

Note

Keep the key in the ON position to warm up the engine until the "warm-up" icon no longer appears on the screen.

2. Turn the key to START position to start the engine.
3. Press the accelerator pedal to obtain a uniform idle speed.
4. After starting, heat the engine before starting work or travel.

IMPORTANT

Do not leave the key in START position for over 10 seconds.

If the engine does not start, position the key at OFF. Wait 30 seconds then restart the engine.

Moving or operating the machine without warming it up first may affect its performance.

6.3 Precautions after use

To avoid that the machine is jammed due to mud, water or frozen deposits on the wheels :

1. Remove the mud or water stuck to the machine.
2. Park the machine on firm, dry ground or place boards on the ground and park the machine on these boards to avoid the wheels freezing on the ground.
3. Drain the water built up in the fuel system by turning the evacuation tap to avoid and freezing.
4. Cover the battery or place it in a warm place and reinstall it on the machine the next morning.

6.4 When cold weather is over

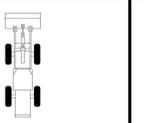
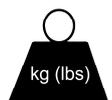
- When the exterior temperature increases, replace the engine oil and the fuel.

 **2 Recommended greases and fluids, page 131**

7 HANDLING OF ACCESSORIES

7.1 Machine stability when using with a bucket or an accessory

- The maximum weight when in use in bucket mode or with accessories that ensures machine dynamic stability in use. It corresponds to the maximum permissible weight at the end of the lifting frame.
- It must absolutely be taken into account by the operator before using the machine for excavation, levelling operations or in working conditions with the accessories.
- Depending on the machine configuration and working conditions, the operator must make sure that:
 - the equipment and accessories selection is made according to the nature of the task to be carried out and according to the machine's stability limits.
 - the total weight of the quick coupler, the accessories used (bucket, forks, etc.) and the load being handled does not exceed the maximum permitted weight.

			
 kg (lbs)	V7	3000 (6614)	2650 (5842)
	V7-HW	3250 (7165)	2900 (6393)

DANGER

Any excess can lead to a loss of stability of the machine and tip it over. Yanmar Compact Germany GmbH accepts no responsibility in case of non compliance with the safety instructions described in this chapter.

WARNING

When using the machine with a heavy accessory (bucket in loader mode or log loader for example) associated with travel movement, the maximum weight guaranteeing the stability of the machine and the loads shown in the lifting table must be reduced by 20%.

To determine the weight that your machine will handle, make the following calculation:

Weight handled =	
+	Weight of equipped quick hitch
+	Weight of the accessory (forks, empty bucket, etc.)
+	(Bucket load capacity x material density)

Weight of quick coupler and accessories (forks, empty bucket, etc.):

Please refer to the stickers or C.E. and manufacturer's plates affixed on the accessories mounted on your machine.

C.E. sticker sample



Manufacturer's plate example



Weight of material handled:

The bucket loading capacity (or SAE volume) allows calculating the weight of material handled in the bucket (in case of full buckets) and it takes into account the extra weight caused by the dome piling of certain materials. To determine the weight of materials handled, make the following calculation:

$$\text{Weight of materials (kg)} = \text{Load Capacity (L)} \times \text{Density}$$

$$\text{Weight of materials (lbs)} = 0,48 \times \text{Load Capacity (gal)} \times \text{Density}$$

7 Handling of accessories

The density of the materials has a great influence on the weight of the load handled. The opposite table specifies the density of the most commonly handled materials.

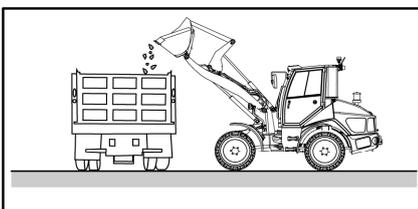
Density	Materials
2,5	Crushed stone
2,1	Terracotta / Loam
2,0	Wet gravel / Basalt
1,9	Cement / Wet sand / Plaster / Dry gravel
1,8	Damp soil (after extraction) / Granite / Crushed gypsum / Crushed slag / Shale
1,7	Rotten stone mixed with rocky soil (50%-50%) / Dry gravel, 0 to 50 mm / Hard limestone
1,6	Dry sand / Sandstone / Soft limestone
1,5	Crushed gravel
1,4	Natural hard layer / Bauxite
1,3	Dry soil
1,1	Coal / Potash
1,0	Fertiliser / Peat
0,8	Wheat
0,7	Hardwood
0,6	Beetroot / Coke
0,5	Softwood / Compost
0,4	Dry bark / Oats
0,2	Fine sawdust

7.2 Compatible accessories

See the accessories manual for a complete list of usable accessories.

7.3 Loading

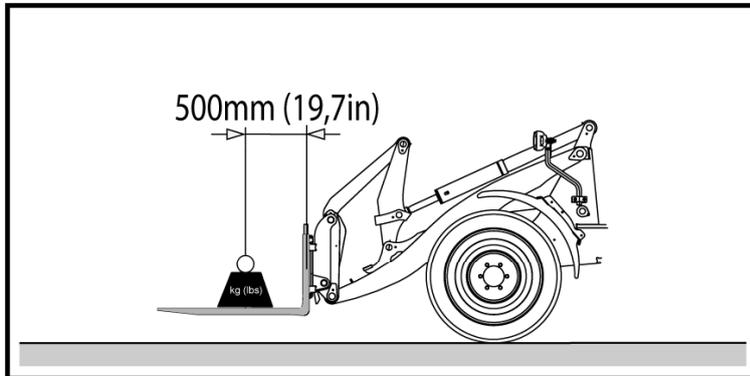
Loading



- To increase effectiveness, position the skip truck at a location where the operator may view it and where the machine's rotation angle is minimised.
- Load the earth from the side of the truck to facilitate loading and maximise the quantity of earth loaded.

7.4 Universal forks

- The machine can be equipped with universal forks, which are installed on the lifting arm.
- Machines equipped with forks have a smaller lifting capacity. The position of the load affects the machine's centre of gravity, which increases the risk of tipping.



⚠ WARNING
The load's centre of gravity must not be more than 500 mm (19,7in) of the vertical stop.

⚠ WARNING

A machine carrying a load must not travel faster than 15 km/h (9mph).

- The lifting capacities indicated below comply with EN 474 recommendations and are determined under the most unfavourable conditions for the machine, with the front articulated part turned to 40°:

	V7	V7-HW
	1750 (3858)	1890 (4167)

8 QUICK HYDRAULIC HITCH

8.1 Mounting the accessory

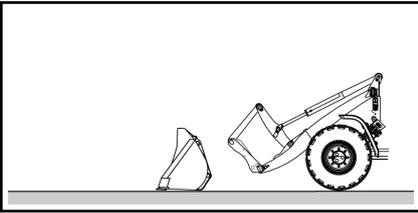
⚠ WARNING

To avoid any injury, never place your hands or any other part of your body between the quick hitch and the accessory.

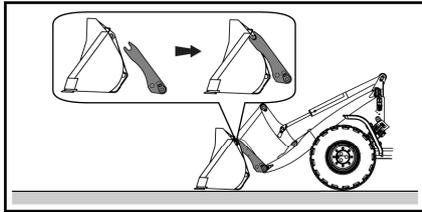
Never approach the accessory before it has been placed on a stable, flat surface.

You must respect these precautions to avoid serious or even fatal injury.

1. The accessory must be laid on stable and flat ground.
2. Position the machine in line with the attachment.

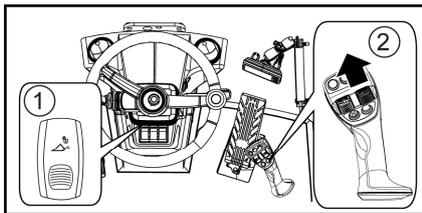


3. Handle the control lever using the unloading function to engage the upper axis of the snap coupling into the accessory.



 **5.4.3 Multifunction control lever, page 37**

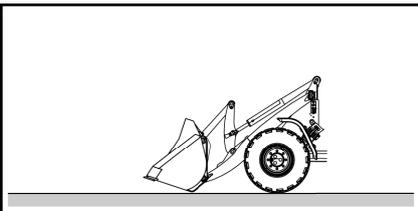
4. Press and hold the quick coupler safety switch and actuate the roller of the third hydraulic circuit to disengage the lower pin of the quick coupler.



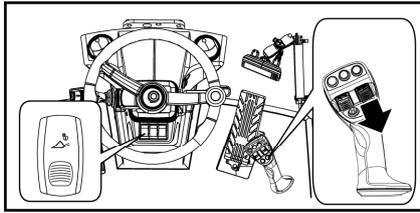
1 = Quick coupler safety switch

2 = Roller of the 3rd hydraulic circuit

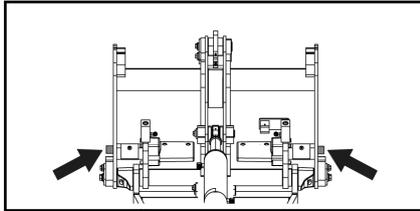
5. Handle the control lever to move the accessory towards the machine and engage the lower axis of the snap coupling into the accessory.



6. Actuate the quick coupler until the locking pins are fully out.



7. Check that the pins are in the accessory and that they lock it.



8. Place the accessory on the ground.

9. For an attachment requiring a hydraulic supply, connect the fittings of the attachment to those on the machine's auxiliary circuit.

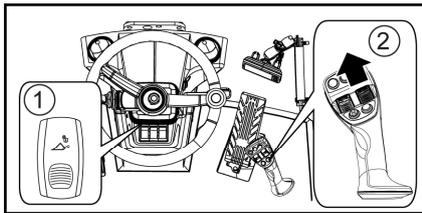
10. Before starting work and after each change of accessory, check that the accessory is secured or that the quick coupler is locked correctly. If quick couplings are used, check that they are properly locked.

8.2 Dismantling the accessory

1. Park the machine on flat, firm ground.
2. Place the accessory on a stable, flat surface.
3. For an attachment requiring a hydraulic supply, first remove the residual pressure from the hydraulic system and then disconnect the hoses from the attachment.

1.1.2 Removing the residual pressure, page 125

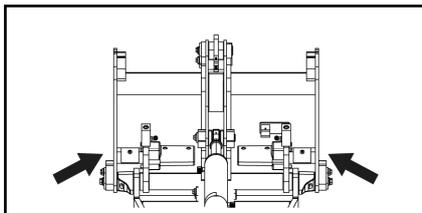
4. Press and hold the quick coupler safety switch and actuate the roller of the third hydraulic circuit to disengage the lower pin of the quick coupler.



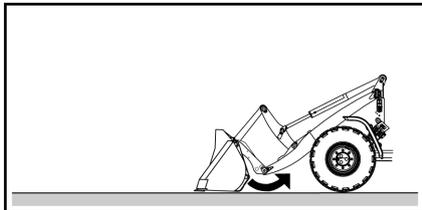
1 = Quick coupler safety switch

2 = Roller of the 3rd hydraulic circuit

5. Check visually that the axes of the snap coupling are retracted properly.



6. Move the control lever to disengage the lower axis from the accessory.



7. Lower the lifting arm to disengage the upper axis from the accessory's snap coupling.

9 USING THE PARTICLE FILTER

⚠ WARNING

When launching the regeneration, fuel is burned directly in the DPF. The heat is used to regenerate the particle filter and the combustion increases the temperature of exhaust gas to a temperature close to 600°C (1100°F). In case of insufficient regeneration of the DPF, the DPF regeneration request lamp comes on.

The regeneration of the DPF must be carried out in a well ventilated place. Carbon monoxide (CO) that is contained in the exhaust gas is colourless and odourless, and can cause carbon monoxide poisoning which is dangerous to health.

The regeneration of the DPF is necessary to prevent the substances recovered from clogging the filter, which could reduce engine performance.

YANMAR engines are equipped with a continuous regeneration system which filters harmful substances using a DPF and to perform the regeneration without interrupting the operation of the machine.

The soot accumulated in the DPF contains mainly metal components; it accumulates in large amounts within the filter, but it can not be burned in the DPF. It is necessary to perform periodic maintenance to remove the DPF soot accumulated in the filter.

⚠ IMPORTANT

To maintain optimal functioning of the DPF:

- **Contact your dealer when the maintenance interval of the DPF is reached.**
- **Diesel fuel with sulphur levels of 15 ppm or less shall be used as fuel.**
- **A low ash oil must be used as engine oil.**

9.1 Auto-regeneration

While using the machine at high speed or high load, harmful substances are systematically burned and removed.

9.2 Assisted regeneration

When the accumulation of pollutants reaches a certain level in the DPF, the engine's ECU increases the exhaust gas temperature and automatically performs the regeneration of the DPF.

9.3 Launching the regeneration

The exhaust gas temperature increases to high levels. When launching the regeneration, an icon representing the temperature of the exhaust gas is displayed on the operator display station to warn of the emission of high temperature gas.

Note

The following phenomena are not faults:

- White smoke can be emitted from the exhaust pipe when the engine is cold or accelerating. The vapour accumulated in the DPF causes the emission of smoke which ceases when the temperature of the exhaust gas increases.
- The exhaust gases cleaned by the catalytic converter on the DPF emit a smell different from that of conventional engines.
- When regeneration is underway, engine noise may change if the engine is idling with no load.
- When regeneration is in progress, the noises from the engine and the DPF may be different from the noise that occurs during normal operation.

9.4 Manual regeneration of the particulate filter

- In case of insufficient regeneration of the DPF, the monitor displays the DPF regeneration icon.  To perform a manual regeneration:
 1. Park the machine in a well-ventilated place.
 2. Hold the DPF manual regeneration switch in the ON position for 3 seconds or more to start a manual regeneration.
- When regeneration starts, the engine speed will increase gradually reach high speed idle to perform the regeneration.
- During the regeneration, the exhaust gas temperature icon is displayed on the operator display station.
- The manual regeneration lasts about 30 minutes and then the engine speed gradually decreases and the operator display station stops displaying the exhaust gas temperature icon.

WARNING

In case of an emergency stop of the machine, you can stop the regeneration of the DPF by performing one of the following

- Press the manual regeneration switch.
- Set the starter key to the OFF position.

10 TRANSPORTING THE MACHINE

⚠ WARNING

Choose a road taking account of the width, height and weight of the machine loaded on the truck.

Transport the machine safely according to the rules associated with applicable legislation.

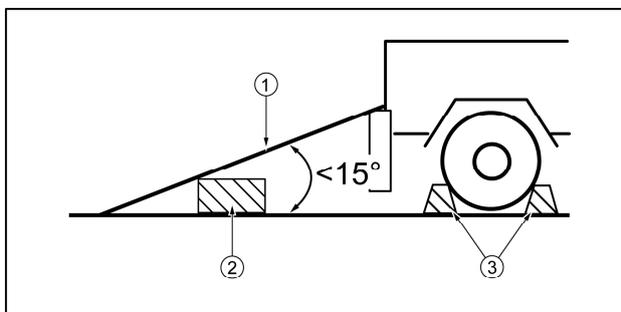
10.1 Loading/unloading the machine

10.1.1 Precautions for loading/unloading the machine

- Load or unload the machine on a flat, firm surface, a good distance away from any verges.
- Use adequate power ramps with hooks at their extremities.
- Make sure the ramps are sufficiently wide, long and thick to hold the machine so that you can load it and unload it safely. If the ramps flex excessively, consolidate them with wedges.
- Install the ramp safely on the truck deck so that they do not become detached.
- Clean grease, oil and any other slippery deposits from the ramps and remove the mud from the wheels to avoid the machine sliding sideways on the plates.
- Do not load or unload the machine if the ramps are slippery due to rain, snow or frost.
- Load or unload the machine at reduced speed.
- Never change the direction of travel on the ramps. If you need to change your path, take the ramps down, and do it on the ground.

10.1.2 Procedure

1. Engage the truck's brake.
2. Position buttresses to immobilise the truck.
3. Position the ramp plates on the truck deck so that the centre of the truck and the centre of the machine are aligned. Check that the left and right ramp plates are at the same level.
4. The angle between the ground and the ramp plates must be less than 15°.



- 1 = Ramps
2 = Wedge
3 = Stops

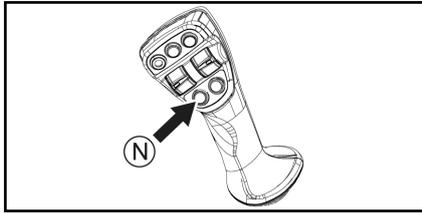
5. Raise the attachment high enough before engaging the machine on the ramps.
6. Direct the machine towards the ramp plates at low speed and load the machine onto the truck.

10 Transporting the machine

10.2 Immobilising the machine on the truck

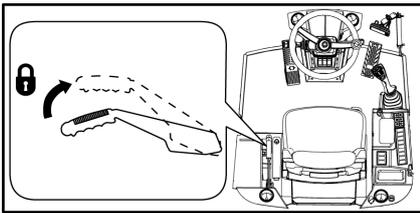
Once the machine is in a suitable position on the truck, immobilise it as follows :

1. Shift to neutral using the neutral button on the control lever.

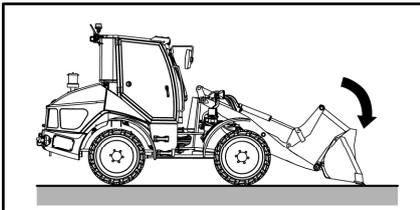


N = Neutral position

2. Apply the parking brake.



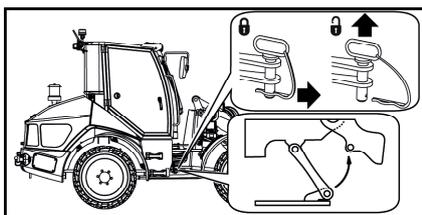
3. Lower the bucket to place its lower surface in contact with the ground.



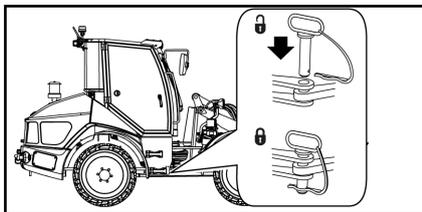
4. Lock the hydraulic functions of the control lever with the control lever deactivation switch.

 **5.3.14 Control lever deactivation switch, page 34**

5. Fit the locking pin of the central hinge.



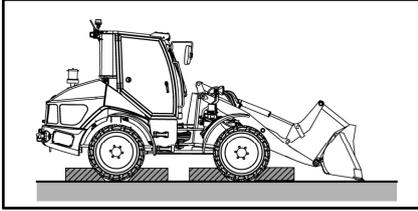
- a. Pull the pin from the bore.
- b. Install the safety pin as shown.



 **WARNING**
Risk of trapping

6. Turn the key to OFF position to switch off the engine and disconnect the electrical circuit. Remove the key from the ignition.
7. Fold the mirrors inwards and ensure that both doors are closed.

8. Place wooden stops at the front and the rear of the wheels and tie-down the machine with a tie-down accessory so that it does not move during transport, and especially that it does not slide.



10.3 Tying down the machine

⚠ WARNING

Do not perform the tie-down if a person stands on the machine or on an accessory.



Use a tie-down accessory compatible with the weight of the machine and compliant with European standards.

Check the tie-down accessory labelling to know the WLL.¹ In the absence of or damage to the accessory labelling, do not use it without being assured of its WLL.¹

⚠ WARNING

Before transporting the machine, check the total height of the load.



1 Working dimensions, page 155

All specifications refer to the maximum permissible weight of the machine and are only valid for the type of tie-down shown in this manual.

For the calculation, the standard value of the friction coefficient $\mu=0.2$ was used (ISO 15818).

⚠ IMPORTANT

If other tie-down methods are used, Yanmar Compact Germany GmbH does not guarantee the machine tie-down.

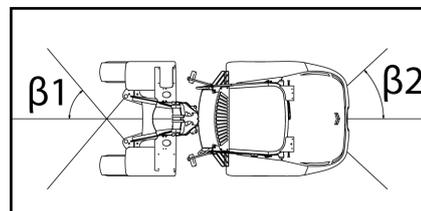
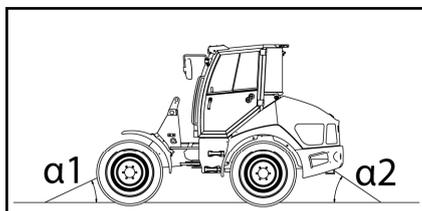
The driver must ensure that the angles α and β are determined so that there is no deflection of the tie-down accessories.

1. Check the condition of the transport vehicle surface. If the surface is greasy, it must be cleaned before installing the machine on the transport vehicle.

Note

If the transport vehicle surface is steel, provide a non-slip mat or spacers to prevent the machine wheels from slipping.

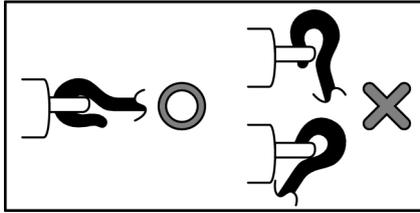
2. Check the WLL of the tie-down points of the transport vehicle, it must be at least the WLL recommended for tying down the accessories.¹
3. Check the location and condition of the machine tie-down points.



Front	2,7 tf (5845 lbf)	Rear	3,1 tf (6744 lbf)
$\alpha 1$	11°-17°	$\alpha 2$	15°-29°
$\beta 1$	34°-55°	$\beta 2$	25°-60°

4. Tie-down the machine at the points provided for that purpose and that are indicated on the machine.

¹ Working Load Limit (WLL)



- a. Correctly position the hooks on the tie-down points.
- b. Be alert to where tie-down accessories pass; they should not rest on sharp edges or have knots present when tying down.
- c. Make sure to load balance the various tie-downs and do not overload them.

10.4 Slinging the machine



⚠ WARNING

Never lift the machine with someone on it or on an accessory.

Use a slinging method that is compatible with the weight of the machine and that complies with current standards.

If you do not lift the machine as shown, it will be out of balance.

Do not pivot the machine when it has been raised.

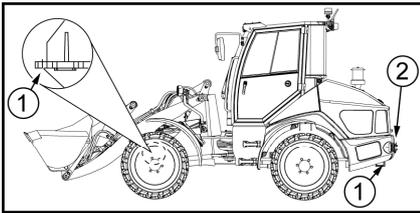
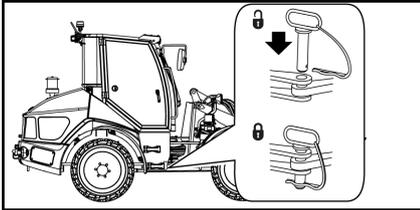
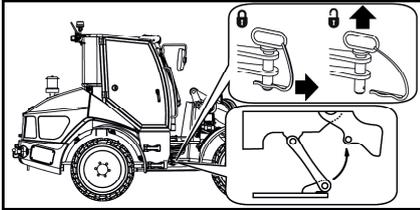
Never walk under or beside a suspended machine.



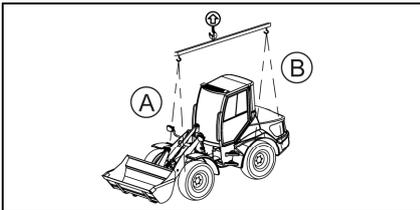
⚠ DANGER

Use only the slinging points indicated on the machine. Slinging the machine using unplanned locations may cause the machine to fall, inflicting severe physical injuries and damaging the machine.

10 Transporting the machine



1 = Holes



- Lift the machine as follows :
 1. Lower the bucket to place its lower surface in contact with the ground.
 2. Fit the locking pin of the central hinge.
 - a. Pull the pin out off the joint lock.
 - b. Turn the joint lock towards the front carriage.
 - c. Put the pin back into the joint lock.
 - d. Secure the pin the splint attached to it.

⚠ WARNING
Risk of trapping

3. Turn the key to OFF position to switch off the engine and disconnect the electrical circuit. Remove the key from the ignition.
4. Hook the shackles to the suspension holes at the front (2 points) and the rear (2 points).
5. Install the sling in a sleeve or a sheath to protect it from sharp edges of the machine during slinging.
6. Tension the load lifting accessories carefully.

	Length	WLL ² (tf(lbf))
A	2,5 m (8,2 ft) x 2	1,5 (3372)
B	2,5 m (8,2 ft) x 2	1,3 (2810)

7. Gently suspend the machine and wait until it stabilises before continuing to lift it.

2. Working Load Limit (WLL)

11 TOWING THE MACHINE

⚠ WARNING

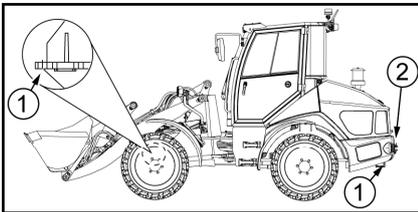
Always tow a machine that has broken down in complete safety by using the suitable tools. Failure to follow the correct procedure may result in serious personal injury and damage to the machine.

Risk of burns. Towing must be carried out over a limited distance and at a limited speed, as the lubrication of moving parts is reduced, causing them to heat up. Wear suitable protective equipment to avoid burns.

The machine's coupling devices must not be used to tow the machine.

⚠ IMPORTANT

Check that the metal cables, the slings and the towing mechanisms to be used are resistant enough and that they are not cracked or broken. Never tow the machine that is only attached to a hook.



- Use the holes at the front or rear of the machine for towing.

1 = Holes

2 = Attachment point

- Tow the machine under the following conditions:

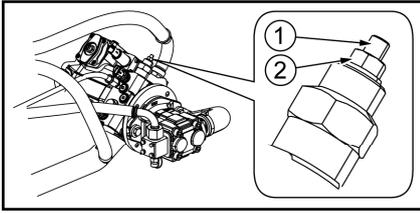
Max. distance: 50 m (164 ft)

Max. speed: 10 km/h (6,2 mph)

- Make sure that the machine is not in a danger zone after towing.
- When towing a machine with another machine, use a towing equipment suited for the machine's weight.
- Never tow the machine on a slope.
- Never use a deformed or damaged towing cable.
- Do not roll over the towing equipment.
- When you hook on an object to be towed, make sure that there is no-one between the machine and the object.
- Leave the engine running when towing. When the engine is switched off or if the steering pump fails, the steering is no longer assisted. The machine has an emergency steering system and is still manoeuvrable, but the steering forces are very high.

11 Towing the machine

- Apply the following procedure before towing the machine:



1 = Bypass screw

2 = Lock nut

1. Open the bonnet with the ignition key.
2. Loosen the locknut on the hydraulic pump.
3. Screw in the bypass screw until it comes into contact with the spring seat and resistance can be felt.
4. Screw in the bypass screw a further half-turn.
5. Tighten the locknut to a torque of 22 Nm.

Note

The machine is ready to be towed.

Once you have finished towing, repeat the operations in reverse before using the machine again.

⚠ IMPORTANT

Risk of damage to equipment. If the hydraulic circuit is bypassed while towing, it will drain. Before restarting the machine, the hydraulic circuit must be bled and refilled. Contact your YANMAR dealer to perform this operation.

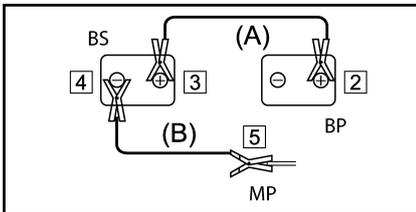
12 IF THE BATTERY IS DISCHARGED

12.1 Precautions for connecting and disconnecting the starter cables

⚠ WARNING

- When you start the engine using connection cables, wear protective goggles.
 - If you start the engine by taking electrical power from another machine, check that your machine does not come into contact with the other machine.
 - To connect the starter cables, start with the positive terminal. To disconnect them, start with the negative terminal (mass).
 - If a tool comes into contact with the machine's positive terminal, there is a risk of sparks.
 - Do not connect the connection cables to the terminals in reverse polarity. For example, never connect the negative terminal on one machine to the positive terminal on the other machine.
- The capacity of the starter cables and the size of the clips must be adapted to the size of the battery.
 - Check that there is no damage, cracks or corrosion on the starter cables and clips.
 - The machines' batteries must have the same capacity.

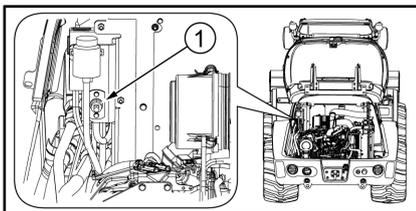
12.2 Connecting the starter cables



BS = giving battery

BP = discharged battery

MP = machine engine broken down



1 = Auxiliary positive terminal

1. Set the start switches on both machines to OFF.
2. Connect the clip of the red starter cable (A) to the positive terminal of the battery on the machine that has broken down or to the auxiliary positive terminal.
3. Connect the other clip of the red starter cable (A) to the positive terminal of the battery on the repair machine.
4. Connect the clip of the black starter cable (B) to the negative terminal of the battery on the repairing machine.
5. Connect the other clip of the black starter cable (B) to the engine block of the machine that has broken down or to a conductive part of the rear chassis.

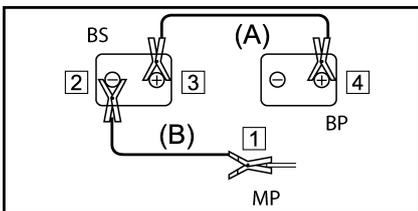
12 If the battery is discharged

12.3 Starting the engine

1. Check that the cables are connected safely to the battery terminals.
2. Start the engine on the repair machine and increase the engine speed to maximum.
3. Turn the starter switch of the machine that has broken down to START to start the engine. If the engine does not start, wait at least two minutes before trying again. Do not stop the engine on the repair machine and keep the engine speed at full rate.

12.4 Disconnecting the starter cables

- After starting the engine on the machine that has broken down, disconnect the starter cables in reverse order to the connection procedure.



BS = giving battery

BP = discharged battery

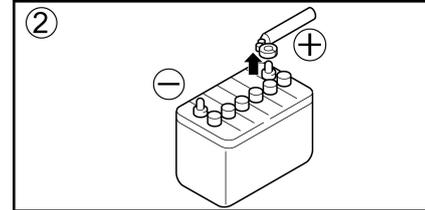
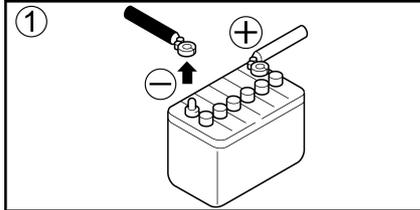
MP = machine engine broken down

1. Remove the clip of the black starter cable (B) from the engine block or the conductive part of the rear chassis of the machine that has broken down.
2. Remove the clip of the black starter cable (B) from the negative terminal of the battery on the repairing machine.
3. Remove the clip of the red starter cable (A) from the positive terminal of the battery on the repairing machine.
4. Remove the clip of the red starter cable (A) from the positive terminal of the battery of the machine that has broken down or from the auxiliary positive terminal.

12.5 Charging the battery

Disconnecting

- To disconnect, start with the negative terminal.(-)



Charging the battery

⚠ WARNING

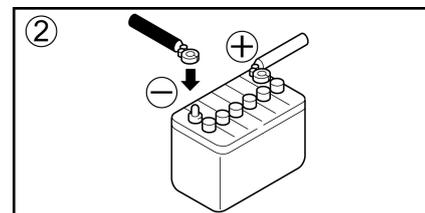
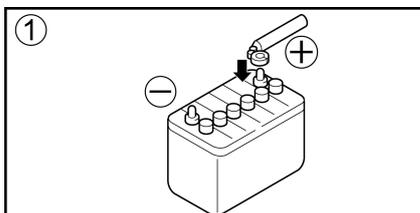
Remove the cables from the positive and negative terminals of the battery before setting the battery to charge. Otherwise, abnormal voltage may be applied to the alternator and may damage it.

Do not connect the connection cables to the terminals in reverse polarity. For example, never connect the negative terminal on one machine to the positive terminal on the other machine. A polarity reversal may damage the alternator.

- If the battery overheats (the electrolyte temperature exceeds 45°C), stop the operation.
- Stop the charging operation as soon as the battery is charged. If you continue, the following faults may occur :
 - battery overload
 - reduction in the battery electrolyte
 - battery failure
- The battery must only be handled once the cables have been disconnected (except for checking the level of electrolyte and the specified electrolyte density measurement).

Connecting

- To connect, start with the positive terminal.(+)



13 DETECTING ANOMALIES

13.1 Detecting anomalies

If a fault occurs and the proposed solutions do not resolve it, contact your dealer for diagnosis and possible repair.

13.1.1 Engine

Problem	Action to be taken
The engine oil pressure indicator light comes on.	Check the engine oil level and top up if necessary.  3.3 Checking and topping up the engine oil level, page 90
The coolant temperature warning light comes on or steam comes out of the top of the radiator.	Check the coolant level and top up if necessary.  3.2 Checking and topping up the level of cooling fluid, page 89
	Check that the fan belt tension is correct.  4.2.1 Checking alternator belt tension, page 143
	Check the condition of the radiator.  4.1.2 Checking and cleaning the radiator fins, page 139
The starter works correctly but the engine does not start.	Check the fuel level and top up if necessary.  3.4 Checking and topping up the fuel level, page 91
	Check the condition of the fuses and replace if necessary.  4.4.1 Fuse replacement, page 144
	Check that the correct fuel is being used and replace it if necessary.  4.4.5 Purging the fuel tank, page 145
	 3.4 Checking and topping up the fuel level, page 91
	Follow the cold weather starting instructions when the temperature is low.  6.2 Starting in cold weather, page 96
Black smoke escapes from the machine.	Make sure the workload is appropriate for the machine and reduce it if necessary.
	Check the condition of the air filter and clean or replace it if necessary.  4.4.7 Air filter cleaning, page 146
	Check that the correct fuel is being used and replace it if necessary.  4.4.5 Purging the fuel tank, page 145
	 3.4 Checking and topping up the fuel level, page 91
White or bluish-white smoke comes out of the machine.	Check that the correct fuel is being used and replace it if necessary.  4.4.5 Purging the fuel tank, page 145  3.4 Checking and topping up the fuel level, page 91

13.1.2 Electrical equipment

Problem	Action to be taken
The starter does not rotate or turns slowly.	Check the battery's state of charge and recharge it if necessary.  12.5 Charging the battery, page 117
	Check the condition of the fuses and replace if necessary.  4.4.1 Fuse replacement, page 144
	Check that the circuit breaker is in the ON position.  5.3.9 Circuit breaker, page 33
	Check that the parking brake is engaged.  5.4.4 Parking brake lever, page 39
The battery charge indicator lights up.	Check that the alternator belt tension is correct.  4.2.1 Checking alternator belt tension, page 143
	Check the battery's state of charge and recharge it if necessary.  12.5 Charging the battery, page 117
The horn does not make any sound.	Check the condition of the fuses and replace if necessary.  4.4.1 Fuse replacement, page 144
The headlights do not light up.	Check the condition of the fuses and replace if necessary.  4.4.1 Fuse replacement, page 144

13.1.3 Machine structure

Problem	Action to be taken
The power or speed of the moving parts is low.	Check the hydraulic oil level and top up if necessary.  3.5 Checking and topping up the hydraulic oil level, page 92
	Make sure the workload is appropriate for the machine and reduce it if necessary.
	Check the position of the travel speed switch.  5.3.12 Speed movement switch, page 33
The hydraulic oil temperature is too high.	Check the hydraulic oil level and top up if necessary.  3.5 Checking and topping up the hydraulic oil level, page 92
	Make sure the workload is appropriate for the machine and reduce it if necessary.
The lifting arm equipment does not work.	Check the position of the control lever disable switch.  5.3.14 Control lever deactivation switch, page 34

C Periodic maintenance programme

CHAPTER COVERED IN THIS PART:

- 1 MAINTENANCE PRECAUTIONS
- 2 RECOMMENDED GREASES AND FLUIDS
- 3 PERIODIC INSPECTIONS AND UPKEEPS
- 4 MAINTENANCE BY THE OPERATOR
- 5 MAINTENANCE BY THE DEALER



1 MAINTENANCE PRECAUTIONS

CAUTION

No maintenance operations described in this guide are to be performed with the engine running; please refer to the Maintenance Manual for any other operation.

1.1 Maintenance precautions

- Perform the maintenance operations as per the periodic intervals specified.
- Read the machine's time counter every day to determine whether maintenance operations are required.
- When using the machine in difficult conditions (dusty environment, corrosion...) shorten the maintenance intervals.

1.1.1 Stop the engine

1. Park the machine on flat, firm ground.
2. Stop the engine by turning the key from ON position to OFF position.

Note

Perform the machine's parking operations.

 **2.4 Parking precautions, page 86**

1.1.2 Removing the residual pressure

Before performing any maintenance operation, remove residual pressure in the hydraulic circuit.

1. Perform the machine's parking operations.

 **2.4 Parking precautions, page 86**

2. Turn the key to the OFF position to stop the machine's engine, then turn it to the ON position.

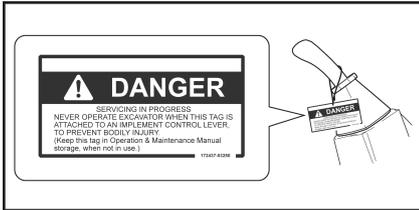
WARNING

The engine must not be restarted.

3. Move the control lever several times in all functions.
 - Lower and raise the lifting arm.
 - Tilt the attachment forward and backward.
4. Remove the key from the ignition.

1 Maintenance precautions

1.1.3 Place a warning label



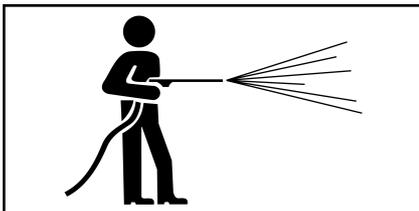
⚠ WARNING
Do not operate the control lever during servicing. Maintenance personnel may be seriously injured.

Place a "MAINTENANCE IN PROGRESS" label on the machine and on the joysticks.

1.1.4 Establish a safety perimeter

- Anyone who is not part of the maintenance team must be kept away from the working area.
- Pay attention to the safety of people nearby, notably during milling or welding operations or when a hammer is used.
- When the machine is checked or adjusted by two people, one of them must commission the machine according to the signals given by the other person.

1.1.5 Keep the machine clean



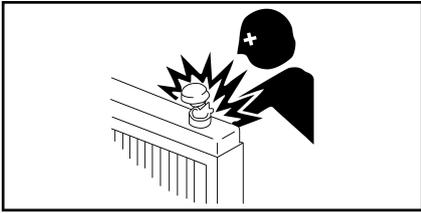
- Cleaning the machine will enable you to detect any leaks and defective parts quickly.
- In particular, clean the filler caps and vent holes for the various fluids in the machine to prevent dust from entering them.

1 Maintenance precautions

- Spots of oil or grease or dispersed part fragments are dangerous and may cause slipping.
- Any water that gets into the electrical system may cause it to malfunction, leading to defective operation of the machine. This also risks causing short circuits that may cause a fire or electric shock.
- Do not spray any vapour directly onto the electrical components.
- Do not use harsh chemicals to clean the machine, as these affect the visual and technical characteristics of the machine components. Use car cleaning products, for example.
- Do not spill any water onto the dashboard.
- Do not spray water directly at high pressure onto the radiator or the oil radiator.
- During the first two months after commissioning or after touching up the paintwork, do not clean the machine with a steam or high-pressure jet so that the paintwork can harden.
- When using a pressure washer, wear a helmet with a full face shield and protective clothing.
- Place the machine to be cleaned on a cleaning surface equipped with an oil separator.
- Clean from the ground up.
- If a steam jet is used, the jet must not exceed 90°C (194°F) and 60bar (870psi).
- Keep a minimum distance of 1m (3ft).
- Do not clean the insulation, the exhaust outlets and the air filter outlets with a direct stream of water, steam or high pressure water.
- When cleaning the engine, do not expose sensitive parts (alternator, sensors, etc.) and cover the electrical components and tubes.
- Only clean the engine when it is cold.
- To clean the engine with a cold cleaner, spray the engine with the cleaner and allow about 10 minutes for it to work, then rinse the engine.
- Run the engine to evaporate the residual water.
- Clean the washing station.
- The operator is responsible for the design of the cleaning area and must ensure that the wastewater is disposed of in accordance with environmental regulations.

1.2 Precautions during maintenance

1.2.1 Oil and grease



- Always use oils and greases recommended by YANMAR.

 **2 Recommended greases and fluids, page 131**

- Use clean oils and greases. Avoid any contamination by dust.

⚠ WARNING

Oil, grease or other fluids may be sprayed when certain parts are maintained.

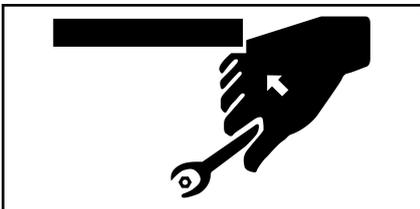
For maintenance in complete safety, respect to the letter the procedures described in the following chapters.

If oil or grease comes into contact with the skin or eyes, seek medical attention immediately.

⚠ IMPORTANT

Do not mix different types of oils. If you need to top up the oil with an oil of a different brand or type from the oil left in the tank, remove the remaining oil completely.

1.2.2 Tools



- Use tools that are adapted to the planned task.
- The use of damaged, worn or inappropriate tools is very dangerous and there is a risk that the machine will be damaged.

1.2.3 Parts

- Use YANMAR original parts as recommended in the parts catalogue.
- Clean parts with a non-combustible and non-aggressive detergent.
- If you need to remove a seal or a hydraulic component, refer to the maintenance manual.

1.2.4 Dismantling the accessory



- If the scheduled task requires the dismantling of the accessory, remove it carefully by following the instructions described in this manual.

 **8.2 Dismantling the accessory, page 104**

- Reinstall it carefully and follow the instructions described in this manual.

 **8.1 Mounting the accessory, page 102**

1.2.5 Working under the machine

- Before you carry out any maintenance or repairs under the machine, place the accessory on the ground or in its lowest position.



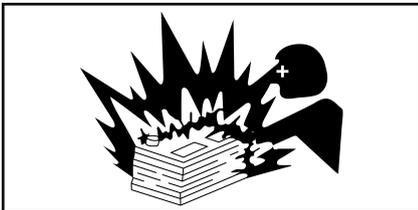
⚠ DANGER

Park the machine on flat, firm ground.

If the machine is not stable, do not carry out any maintenance under the machine.

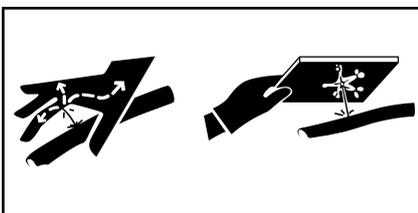
Do not work under the machine if it is only held up by its hydraulic system.

1.2.6 Battery



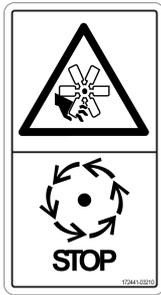
- Disconnect the negative terminal of the battery or use the circuit breaker to disconnect the electric current when working on the electrical circuit (repair, soldering, brazing).

1.2.7 Hoses



- Do not fold the hoses. Do not strike them against any hard objects.
- Damaged or incorrectly bent hoses, pipes and ducts explode easily under high pressure ; never reuse them.
- Fuel and oil leaks may cause a fire.
- A pressurized hot oil jet from a minor leak may cause severe injury. Wear protective goggles and gloves when searching for leaks. Use a piece of cardboard or plywood to detect sprays of hot oil.

1.2.8 Radiator ventilator



⚠ WARNING

Never touch the moving radiator ventilator or the ventilator belt with an object as this may cause serious physical injuries.

1.2.9 Soldering

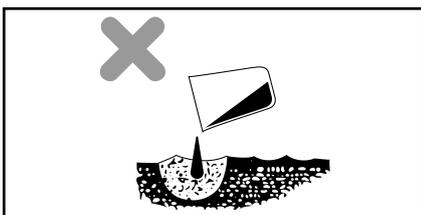
⚠ WARNING

A bursting tire may cause injuries. Do not carry out welding operations near a tyre. If it is impossible to do otherwise, cover the tyre.

If you need to solder, respect the following points :

- Disconnect the battery cabling (negative terminal then positive terminal).
- Disconnect the control units from the machine.
- Disconnect the operator display station before performing a welding operation.
- Ground the machine no more than 1 metre (3ft) away from the part to be welded.
- Connect the machine's ground to the element to be welded.
- Never connect the ground to an element of the hydraulic circuit.
- Make sure there are no seals or bearings between the soldered part and the earthed part.
- Do not earth near the axes of the equipment or the hydraulic cylinder.

1.2.10 Waste processing



- When powering off the machine or its components, disassemble all the parts and separate the different materials to send them to the appropriate treatment centres.
- Do not dispose of the various fluids contained in the machine by pouring them down the drain.
- Drain them into a suitable container and never directly onto the ground.
- When you get rid of toxic waste such as fuel, oil, cooling water, solvents, filters and used batteries, respect the regulations that apply to this subject.

2 RECOMMENDED GREASES AND FLUIDS

⚠ IMPORTANT

Grease and fluids must be stored in a location complying with currently enforced regulations and recommendations of the manufacturers of these products.

This machine's engine is fitted with a high accuracy injection system ensuring it complies with regulations on emissions.

For the fuel, avoid using galvanised steel containers, but rather containers in plastic or stainless steel. Dissolved zinc or lead in the fuel can alter engine performance.

2.1 Cooling fluid

Temperatures °C (°F)								Quantity prescribed L (gal)
-40 (-40)	-20 (-4)	0 (32)	20 (68)	40 (104)	60 (140)	80 (176)	100 (212)	
Long-life cooling fluid YANMAR POWER COOLANT B-36								7,1 (1,87) Radiator
								0,5 (0,13) Expansion flask

To top up:

 **3.2 Checking and topping up the level of cooling fluid, page 89**

2.2 Axle and gear oil

Do not mix different types of oils. If you need to top up the oil with an oil of a different brand or type from the oil left in the tank, remove the remaining oil completely.

Use an oil of the following grade or better:API-GL 5

Select the viscosity of the oil depending on the room temperature in which the machine will be used.

Temperatures °C (°F)							Quantity prescribed L (gal)
-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)	
75W90LS							4,6 (1,22) Front axle
80W90LS							5,4 (1,43) / 5,5 (1,45) ³ Rear axle

2 Recommended greases and fluids

2.3 Engine oil

Do not mix different types of oils. If mixing, the lubricating properties of the oil may be altered. If you need to top up the oil with an oil of a different brand or type from the oil left in the tank, remove the remaining oil completely.

Only use the specified oils. Using other oils may affect the warranty and damage the engine and reduce its life cycle.

Ensure that the oil, the oil cans and the oil filling accessories are not contaminated by impurities or by water.

It is not recommended to use additives.

The engine oil must be changed when the total base number (TBN) becomes less than 2 mgKOH/g. (Test method JIS K-2501-5.2-2 (HCl) or ASTM D4739 (HCl))

Use oil which has the same or superior quality than the following classifications:

- API category CJ-4, CK-4
- ACEA category E6
- JASO category DH-2

Select the viscosity of the oil depending on the room temperature in which the machine will be used.

Temperatures °C (°F)							Quantity prescribed L (gal)
-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)	
10W30							6,5 (1,72)
15W40							

To top up:

 **3.3 Checking and topping up the engine oil level, page 90**

2.4 Fuel

The fuel used must comply with one of the following standards depending on the geographic zone in which the machine is used:

- No. 2-D, No. 1-D, ASTM D975-94 (United States)
- EN590:96 (European Union)
- ISO 8217 DMX (International)
- BS 2869-A1, BS2869-A2 (United Kingdom)
- JIS K2204 Grade No.2 (Japan)
- KSM-2610 (South Korea)
- GB252 (China)

Additional specifications to respect:

- The cetane number must be 45 or above.
- The quantity of sulphur must not exceed 0.5% in volume. It is preferable to not exceed 0.05%.
- Never mix kerosene, used engine oil or fuel oil with the fuel.
- Water and deposits must not exceed 0.05% in volume.
- Keep the tank clean as well as equipment used to handle fuel.
- Poor quality fuel may reduce engine performance and damage it.
- It is not recommended to use additives. Some additives may reduce the engine's performance.
- The quantity of ash must not exceed 0.01% in volume.
- The quantity of residual carbon must not exceed 0.35% in volume. It is preferable to not exceed 0.1%.
- The quantity of aromatic compounds must not exceed 35% in volume. It is preferable to not exceed 30%.
- The quantity of polycyclic aromatic hydrocarbons must not exceed 10% in volume.
- The quantity of Na, Mg, Si and Al metals must not exceed 1ppm in mass. (Test method JPI-5S-44-95)
- Lubricity: The WS1.4 wear rate measured during the HFRR test must not exceed 460µm.

Select a fuel depending on the room temperature in which the machine will be used.

Temperatures °C (°F)							Quantity prescribed L (gal)
-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)	
No. 1-D / No. 2-D							65 (17,17)

To top up:

 **3.4 Checking and topping up the fuel level, page 91**

2 Recommended greases and fluids

Biodiesel

In some countries, non-mineral fuels such as rape methyl ester or soybean methyl ester, known by the name of fatty acid methyl ester, are added to mineral fuels.

Biodiesel may be used if it contains a maximum of 7% in volume of fatty acid methyl ester for 93% in volume of mineral fuel (type B7 fuel).

These type B7 fuels must comply with the following standards depending on your location:

- ASTM D-6751 (United States)
- EN14214 (European Union)

Only buy biodiesel from an approved fuel distributor.

Precautions concerning biodiesel:

- The methanol contains in fatty acid methyl esters may lead to corrosion of aluminium or zinc parts.
- The water contained in the fatty acid methyl esters may block the fuel filters and lead to the growth of bacteria.

2.5 Hydraulic oil

Do not mix different types of oils. If you need to top up the oil with an oil of a different brand or type from the oil left in the tank, remove the remaining oil completely.

The following viscosities must be observed (in accordance with the ASTM D445 standard):

- Minimum 8 mm²/s (cSt) at 100°C (212°F).
- About 1500 mm²/s (cSt) at -10°C (14°F).

Select the viscosity of the oil depending on the room temperature in which the machine will be used.

Temperatures °C (°F)							Quantity prescribed L (gal)
-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)	
VG46							60 (15,85) in the tank
VG68							20 (5,28) the rest

To top up:

 **3.5 Checking and topping up the hydraulic oil level, page 92**

2.6 Brake oil

⚠ WARNING

Mixing different brake fluids can impair the performance of the braking system and cause accidents.

Do not mix different types of oils. If you need to top up the oil with an oil of a different brand or type from the oil left in the tank, remove the remaining oil completely.

Select the viscosity of the oil depending on the room temperature in which the machine will be used.

Temperatures °C (°F)							Quantity prescribed L (gal)
-20 (-4)	-10 (14)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)	
ATF Dexron II D							0,5 (0,13) in the tank

To top up:

 **3.6 Checking and topping up the brake fluid level, page 93**

3 PERIODIC INSPECTIONS AND UPKEEPS

◇ Check/Adjust/Supply □ Cleaning ■ Oil and grease ● Replacement ◆ Oil sample + = and / = or

Check and Service items		Daily	Every 50h	Every 100h	Every 250h	Every 500h *	Every 1000h *	Every 2000h **	
General	Missing or broken parts	◇							
	Tightening of nuts and bolts	◇							
	Engine condition, exhaust and inlet hoses	◇							
	Machine overall	□							
	Operation manual		◇(1)			◇	◇	◇	
Greasing	Greasing points	■							
Engine	Diesel filter		●(1)		●	●	●	●	
	Oil	◇	●(1)			◆+●	◆+●	◆+●	
	Oil filter		●(1)			●	●	●	
	Cooling fluid and leakage	◇						●	
	Radiator fins	◇+□							
	Belt		◇	◇	◇	◇	◇	●	
	Fuel hose, coolant hose							◇/●	
	Performance of engine control and engine speed		◇(1)			◇	◇	◇	
	Governor lever and accelerator device		◇(1)			◇	◇	◇	
	Air filter	External air cleaner element	□(3)			●(3)	●	●	●
		Safety cartridge element (if equipped)					●	●	●
	Intake and exhaust valves							◇	
	Injectors and injection pressure							□+◇	
	Crankcase breather system							◇	
	Engine silent-bloc and bracket		◇	◇	◇	◇	◇	◇	
	Decanter/separator	Drain	◇						●
		Pre fuel filter					●	●	●
Exhaust	EGR valve						□+◇	□+◇	
	Diesel Particulate Filter						□+◇	□+◇	
Travel	Axle and gear oil		●(1)	◇(2)	◇/●(2)	●	●	●	
	Tires, tire pressure	□+◇							
	Fastening of wheel nuts		◇(1)			◇	◇	◇	
	Fastening of axles and propeller shaft		◇(1)			◇	◇	◇	
	Function of hydraulic axle locking and bleed plunger cylinder		◇(1)			◇	◇	◇	
	Brakes and brake disk play		◇(1)			◇	◇	◇	
	Brake oil	◇	◇(1)			◇	◇	●	
	Performance of travel		◇(1)			◇	◇	◇	
Hydraulic	Oil	◇	◆(1)			◆/●(4)	◆+●	◆+●	
	Aspiration filter		●(1)		●(4)	●	●	●	
	Ventilation filter						●	●	
	Hydraulic oil return filter		●(1)		●(4)	●	●	●	
	Other filter				●(4)	●	●	●	
	Pump pressure		◇(1)			◇	◇	◇	
	Steering system, bushing and bolts of articulation		◇(1)			◇	◇	◇	
	Low pressure		◇(1)			◇	◇	◇	
	Front-end slewing device		◇(1)			◇	◇	◇	
	Lifting frame		◇(1)			◇	◇	◇	
	Bucket		◇(1)			◇	◇	◇	
	Options		◇(1)			◇	◇	◇	
Electric	Time counter	◇	◇	◇	◇	◇	◇	◇	
	LCD monitor	◇	◇	◇	◇	◇	◇	◇	
	Wire breakage, short circuits, loosened terminals	◇	◇	◇	◇	◇	◇	◇	
	Battery		◇(1)			◇	◇	◇	
Cabin	Cab filters				●(3)	●	●	●	
	Air conditioning					◇	◇	◇	
Final	Sign inspection card and return to YANMAR		◇(1)		◇(2)(3)(4)	◇	◇	◇	

* or annually first time occurs

** or two years

(1) 1st inspection at 50-80h

(2) If machine does more than 30km (20mi) / 2 hours drive per day.

(3) If machine is used at dusty worksites.

(4) If an animated hydraulic tool is used more than 30% of the machine operating time.

◆ Collect oil sample and keep analysis report.

3 Periodic inspections and upkeeps

It is important to entrust the machine to a dealer at the intervals indicated so that the dealer can carry out the maintenance operations necessary for the machine to operate correctly.

You should also contact your dealer in the following cases :

- part missing, broken or loose
- horn defective
- time counter defective
- electric circuit defective
- battery defective
- light(s) defective

In general, contact your dealer as soon as you think something is wrong.

4 MAINTENANCE BY THE OPERATOR

IMPORTANT

Before any upkeep or maintenance, follow the precautions described in this manual.

4.1 Daily maintenance

4.1.1 Checking the machine before use

Before each use of the machine, visually check the following :

- No missing, broken or loose parts
- Greasing

4.1.3 Greasing points, page 140

- Engine in good condition
- Decanter/separator

4.1.4 Cleaning the separator/decanter, page 141

- Engine oil

3.3 Checking and topping up the engine oil level, page 90

- Cooling fluid

3.2 Checking and topping up the level of cooling fluid, page 89

- Radiator vents

4.1.2 Checking and cleaning the radiator fins, page 139

- Air filter

4.4.7 Air filter cleaning, page 146

- Hydraulic oil

3.5 Checking and topping up the hydraulic oil level, page 92

- Brake fluids

3.6 Checking and topping up the brake fluid level, page 93

- Tire pressure

4.1.5 Checking tire pressure, page 142

- Checking the hydraulic hoses
 - Visually check that there are no oil leaks from the hydraulic hose connectors.

- Visual inspection of the fuel hoses
 - Visually check that the fuel does not leak from the fuel hose connectors.
 - Also check that the hoses are not damaged.
- Checking the seat
 - Check that the safety belt is present and in good condition.
- Also check that the time counter, the headlights, the alarm and the lights are working correctly.
- Checking the commands
 - Operate the commands.
 - Release the levers, they should return to neutral position themselves.
 - If they do not, contact your dealer.

⚠ IMPORTANT

If an element is not working or you think it is defective, shut down the machine's engine immediately and contact your dealer.

4.1.2 Checking and cleaning the radiator fins

⚠ WARNING

After the machine has stopped, the engine components are hot and may cause burns. Check or clean the radiator fins only after the engine has cooled down.

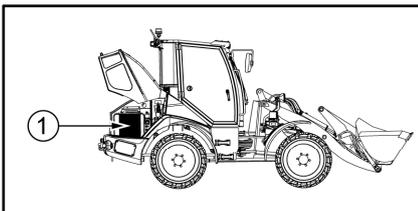
Before using compressed air, make sure there are no people nearby and wear safety glasses and appropriate clothing.

Do not use compressed air above 0.7 MPa (102psi).

⚠ IMPORTANT

Keep a sufficient distance from the radiator when using compressed air to avoid damaging it. A damaged radiator may leak and the machine may overheat.

Dirty fins may cause overheating.



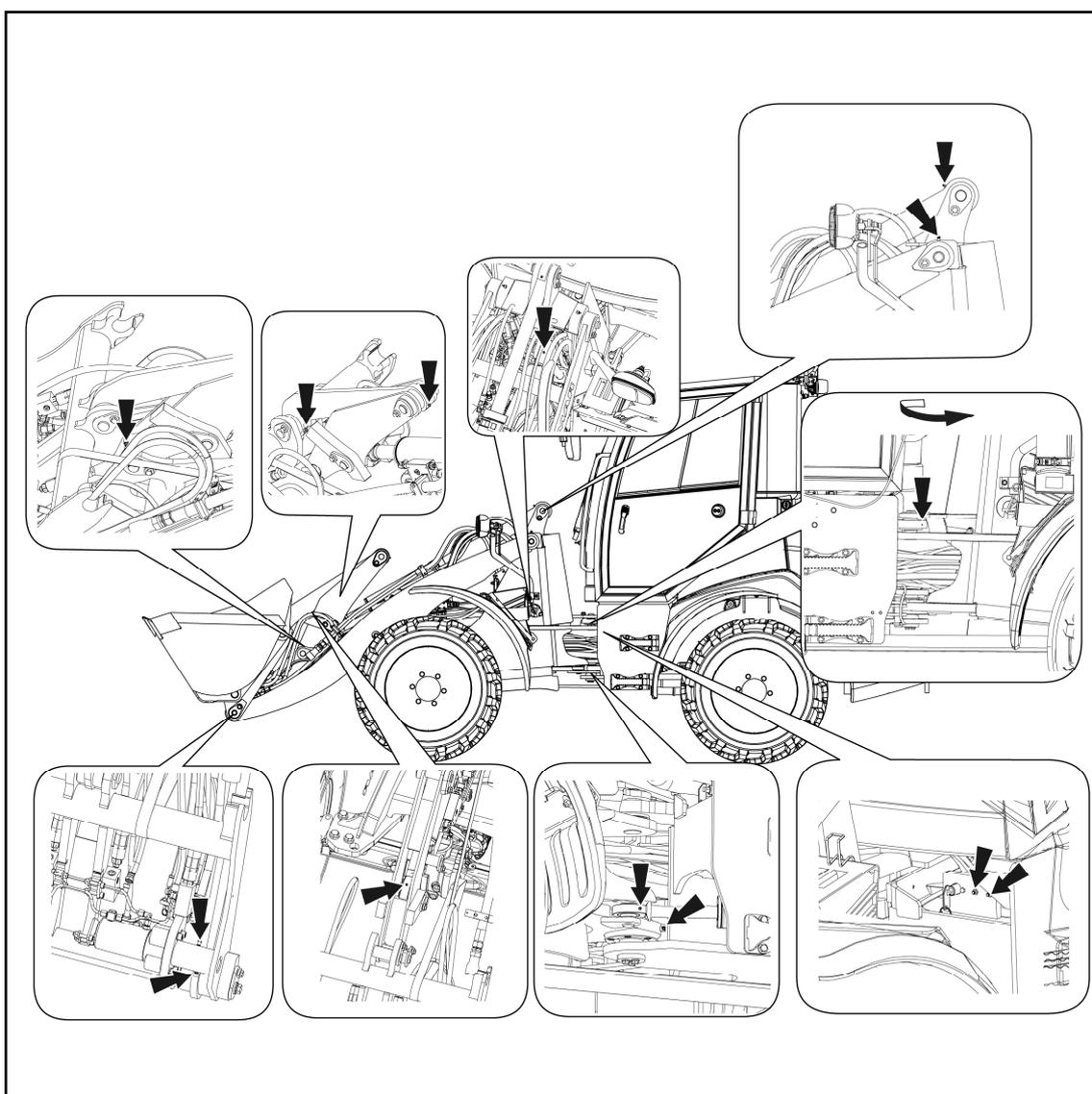
1 = Radiator

1. Open the bonnet with the ignition key.
2. Use compressed air to remove dust from the radiator fins.
3. Close the engine bonnet.

4 Maintenance by the operator

4.1.3 Greasing points

- Grease the machine swivel pins daily using the nipples, and also before using the machine or after use in the rain, on soft ground or in muddy water.
- Proceed as follows :
 1. Lower the equipment to the ground.
 2. Stop the engine.
 3. Clean the greasing connectors indicated by the arrows on the figures.
 4. Grease them with a grease pump.
 5. Wipe off the excess grease with a cloth or equivalent.



4.1.4 Cleaning the separator/decanter

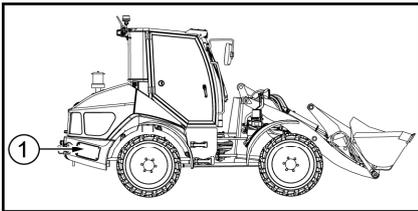
⚠ WARNING

Keep all sparks, flames or cigarettes away.

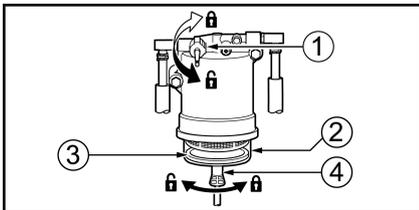
At operating temperature, the engine components are red hot and may cause burns.

Disconnect the battery mass and clean the separator when the engine has cooled down enough.

A diesel leak or spray onto a red hot element may cause a fire.



1 = Protection grill



1 = Fuel inlet tap

2 = Bowl

3 = Ring

4 = Drain valve

1. Remove the protective grid.
2. Fit a drain hose to the drain cock and place it in a container to collect the used fuel.
3. Close the fuel inlet tap.
4. Loosen the drain valve to drain the separator. Let the liquid drain until pure fuel comes out.
5. Tighten the separator drain valve.
6. Remove the drain hose.
7. Open the fuel inlet tap.
8. Replace the protective grid.

4 Maintenance by the operator

4.1.5 Checking tire pressure

⚠ WARNING

A bursting tire may cause injuries.

⚠ IMPORTANT

Protect the tyres from direct sunlight.

- When checking tire pressure or inflating the tires, do not stay opposite the tire, always stand next to the tread.
- Keep any third party away when checking tire pressure.
- Once the wheel is removed, use an inflating cage.
- When changing the tires, fit the tread in the direction indicated.



Tires	Tire pressure (bar (psi))	
	Front	Rear
D 12,5–18	2,5 (36)	1,75 (25)
340/80 R18	2,8 (41)	1,9 (28)
365/70 R18	3,2 (46)	2,2 (32)
400/70 R18	2,3 (33)	1,6 (23)
405/70 R18	2,6 (38)	2,0 (29)
500/45 R20	1,9 (28)	1,2 (17)

4.1.6 Checks after using the machine

After each use, several checks must be carried out according to how the machine is used ; refer to chapter :

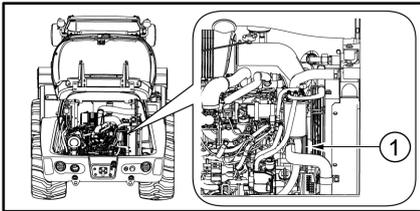
 **5 Checks after use, page 95**

4.2 Maintenance every 50 hours

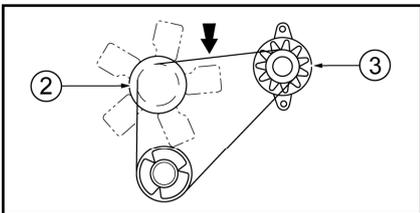
4.2.1 Checking alternator belt tension

⚠ WARNING

After the machine has stopped, the engine components are hot and may cause burns. Check the tension of the belt once the engine parts have completely cooled.



1 = Alternator belt



2 = Fan pulley

3 = Alternator pulley

1. Open the bonnet with the ignition key.
2. Check the belt tension by pressing the section of the belt between the fan pulley and the alternator pulley with your finger.

Compressive force : approximately 10 kgf (22 lbf)

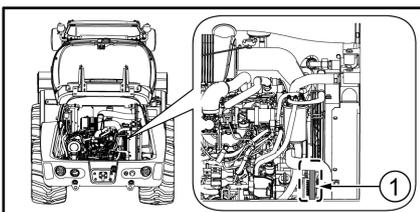
Correct range of travel: 7-10 mm (0,28-0,39in)

3. Check that the pulleys, the V-groove, and the fan belt are not damaged, and check that the fan belt is not touching the lower part of the V-groove.
4. If the belt or pulleys are damaged or the belt is loose, contact your dealer.
5. Close the engine bonnet.

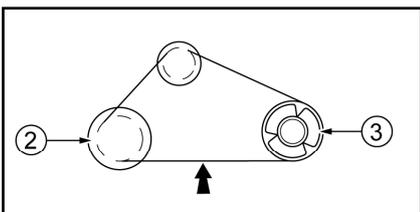
4.2.2 Checking the compressor belt tension

⚠ WARNING

After the machine has stopped, the engine components are hot and may cause burns.



1 = Belt



2 = Compressor

3 = Drive pulley

1. Open the bonnet with the ignition key.
2. Check the belt tension by pressing the section of the belt between the intermediate pulley and the compressor pulley with your finger.

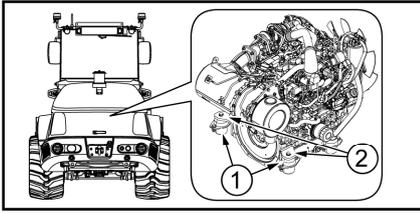
Compressive force : approximately 5kgf (11 lbf)

Correct range of travel: 8-9 mm (0,31-0,35 in)

3. Check that the pulleys, the V-groove, and the compressor belt are not damaged, and check that the compressor belt is not touching the lower part of the V-groove.
4. If the belt or pulleys are damaged or the belt is loose, contact your dealer.
5. Close the engine bonnet.

4 Maintenance by the operator

4.2.3 Engine silent-bloc and bracket



1 = Silent-bloc

2 = Bracket

- Check the condition of the silent blocks and their supports.

4.3 Maintenance every 500 hours

4.3.1 Tightening the wheel bolts

Check the tightening of the wheel bolts (tightening torque 350Nm (3098 in.lb)).

Note

Check the wheel nuts torque daily during the first 50 hours of service.

When mounting the wheels, tighten the nuts gradually in a cross pattern and repeat until the correct torque is reached.

4.4 Non periodic maintenance

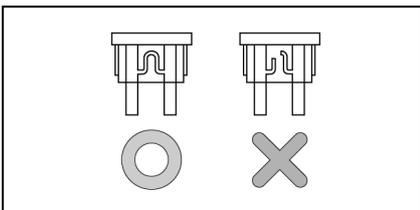
4.4.1 Fuse replacement

⚠ IMPORTANT

An unsuitable fuse or a fuse holder with a short circuit may cause overheating and damage the electrical circuit or the electrical components.

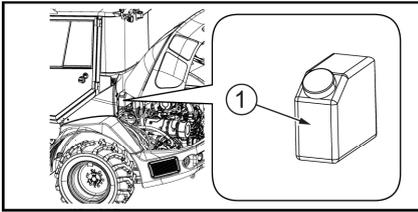
1. Set the starter key to OFF position.
2. Remove the lid from the fusebox.
3. Identify the burnt out fuse.
4. Replace it with an equivalent fuse.

Fuse strip



- If a fuse burns out immediately after it is replaced, this means there is a problem in the electric circuit.

4.4.2 Top up the windscreen washer fluid



1 = Windscreen washer tank

⚠ IMPORTANT

Do not let any impurities into the tank.

1. Open the bonnet with the ignition key.
2. Open the windscreen washer tank.
3. Top up the windscreen washer fluid.

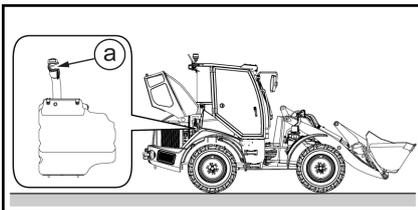
4.4.3 Replacing the windscreen wiper

- Replace the windscreen wiper when it no longer cleans the windscreen correctly. Follow the procedure indicated by the windscreen wiper manufacturer.

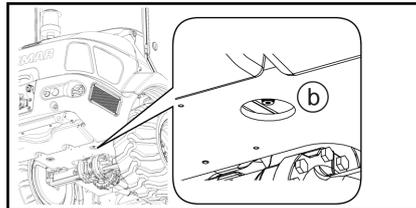
4.4.4 Accessory state check

- When working on an accessory, please contact your dealer or refer to the manufacturer user manual supplied with the accessory.

4.4.5 Purging the fuel tank



a = Cap



b = Drain plug

1. Place a container to collect the fuel residue.
2. Remove the tank filling cap.
3. Remove the tank bleed plug.
4. Bleed completely the fuel as well as the water and dirt deposit at the bottom of the tank.
5. Reinstall the drain plug.
Maximum torque = 22 Nm
6. Top up the fuel tank.

 **3.4 Checking and topping up the fuel level, page 91**

7. Close the tank cap.

4 Maintenance by the operator

4.4.6 Maintenance of the particle filter

To service the DPF, contact your YANMAR dealer.

- Particle filter, cleaning around every 3000h and replacement every 9000h.

⚠ IMPORTANT

When the control panel displays the DPF regeneration icon, stop work and carry out manual DPF regeneration as soon as possible.

- Catalytic converter, replace every 9000h.

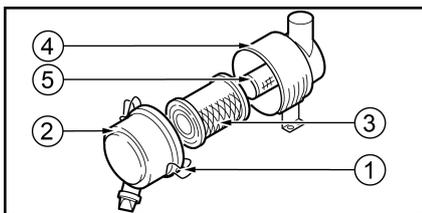
4.4.7 Air filter cleaning

⚠ WARNING

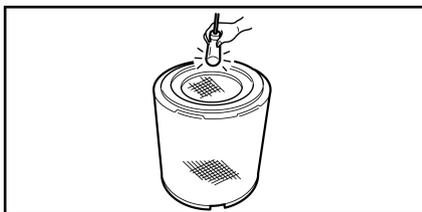
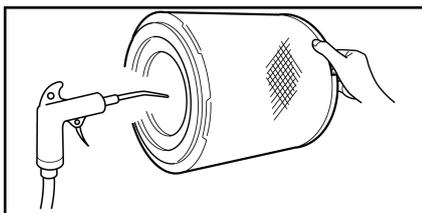
Do not clean or change the air filter if the engine is not stopped. Wait until the engine has cooled down.

Compressed air is used to clean the air filter. Wear protective goggles to prevent eye injury.

When cleaning, the compressed air pressure must be below 0.5 MPa (73psi).



- 1 = Fastener
- 2 = Air filter cover
- 3 = Filter
- 4 = Air filter body
- 5 = Inner filter



1. Open the bonnet with the ignition key.
2. Release the fasteners to remove the air filter lid.
3. Clean the air filter cover.
4. Remove the filter.

⚠ IMPORTANT

The air filter of this machine is made of two filters. Do not remove the inner filter.

5. Clean inside the air filter body.
6. Remove dirt by blowing dry compressed air inside the filter, along the folds.
7. Then blow dry compressed air outside the filter.
8. Blow dry compressed air again inside the filter to finish cleaning.
9. After cleaning, check filter integrity using a lamp. Change the filter if you notice holes or worn zones.

⚠ IMPORTANT

Do not hit the filter against other objects when you clean it, as this would damage it.

Do not reuse the filter if damaged.

Store spare filters in clean paper and in a dry location.

10. Reposition the clean filter.
11. Close the filter with its cover while turning it in the direction shown by an arrow on the cover.
12. Close the cover.

5 MAINTENANCE BY THE DEALER

5.1 After the first 50 hours of service

- Checks carried out by the dealer :
 - User manual available and in good condition
 - Engine
 - Alternator belt : Tension check
 - Performance of engine control and engine speed
 - Governor lever and accelerator device
 - Engine silent-bloc and bracket
 - Travel
 - Performance of travel
 - Fastening of wheel nuts
 - Fastening of axles and propeller shaft
 - Brake oil
 - Command lever: Play of control lever
 - Hydraulic
 - Pump pressure
 - Steering system
 - Equipment
 - Lifting arm
 - Accessories
 - Quick attachment
 - Options
 - Electrical equipment
 - Time counter
 - Wire breakage, short circuits, loosened terminals
 - Operator display station
 - Battery
- Servicing carried out by the dealer :
 - Diesel filter: Replacing the element
 - Engine oil : Oil sample
 - Oil filter : Replacing the element
 - Axle and gear oil : Oil replacement
 - Hydraulic oil : Oil sample
 - Hydraulic oil return filter : Replacing the element
- Sign inspection card and return to YANMAR



D Conservation and storage

CHAPTER COVERED IN THIS PART:

- 1 CONSERVATION
- 2 STORAGE
- 3 RECOMMISSIONING

IMPORTANT

The conservation and storage of the machine must comply with standard NF ISO 6749 " Earth moving equipment, conservation and storage ". The following chapters take part of the standard mentioned above but are not exhaustive. Refer to the standard for any additional information.

1 Conservation

- Placing in conservation is intended to ensure the protection of the machine against corrosion from the environment and against minor damage that may occur during handling, transport and storage.
- Return the machine to good condition before placing it in conservation.
 1. Clean all the parts.
 2. Apply rust remover and paint to metal components the paintwork of which is damaged.
 3. Apply greasing oil and grease to the machine's metal surfaces and replace the engine oil.
 4. Apply grease to the exposed parts of the cylinder rods.
 5. To avoid condensation in the fuel tank, drain the tank or fill it up.
 6. The battery must be disconnected. If the storage period exceeds one month, the battery must be removed and stored in a special room.
 7. Make sure the liquid in the cooling system has sufficient performance characteristics and is appropriate for the machine's storage temperatures.

2 Recommended greases and fluids, page 131

If necessary, top up the water.

3.2 Checking and topping up the level of cooling fluid, page 89

WARNING

Do not open the bonnet during machine operation. Verification and topping up of the various levels should be done when the engine is stopped and the temperatures are brought back down.

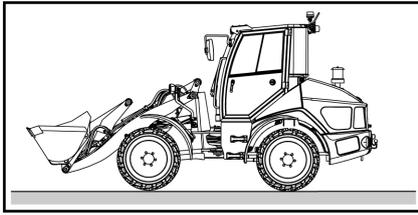
WARNING

When you place the machine in an enclosed space, ventilate by opening the doors and windows to avoid any gas intoxication.

Note

The machine rusts easily if it is left near the sea or in a place exposed to sea winds. Apply rust protector to all the exposed parts of the piston rods and cover the machine with a polyethylene sheet or oiled paper. Certain rust protection solvents damage rubber materials. Make sure you use an adapted rust protector.

2 Storage



- You are recommended to store the machine in a closed and covered location.
- If the machine is stored outdoors, park it on flat ground and cover it with a protective sheet.
- The machine must be placed in the position illustrated opposite to protect the hydraulic cylinder rods against corrosion.

- In a long-term storage, move the machine at least once a month to form new oil on all the moving parts and remove the battery.

⚠ WARNING

Before using the machine indoors, ensure the area is ventilated properly by opening the windows and doors.

- The conservation and recommissioning instructions, as well as the conservation date must be placed in an impermeable envelope with a label and secured to the machine at a visible location.
- To protect the machine against rainwater, trap it to avoid accumulation of water that can promote corrosion of metal parts.
- The machine in prolonged storage must be regularly inspected in terms of its external appearance, the condition of the protected surfaces and the protection materials. The inspection intervals are the following :
 - every 6 months under temperate weather conditions,
 - every 3 months under tropical, cold, Arctica or coastal weather conditions.

3 Recommissioning

WARNING

After storage of the machine at temperatures outside the machine's operating temperature range, make sure the temperature is again in the operating temperature range before restoring the machine to working order.

Before using the machine again after a storage period of two months, do the following:

1. Clean the machine.
2. Check the global aspect of the machine.
3. Remove the protective grease from the cylinder rods.
4. Grease the machine.

4.1.3 Greasing points, page 140

5. Drain the water from the fuel tank, from the engine oil casing and from the hydraulic fluid tank by removing the drainage caps.
6. Leave the machine to warm up after you start the engine.

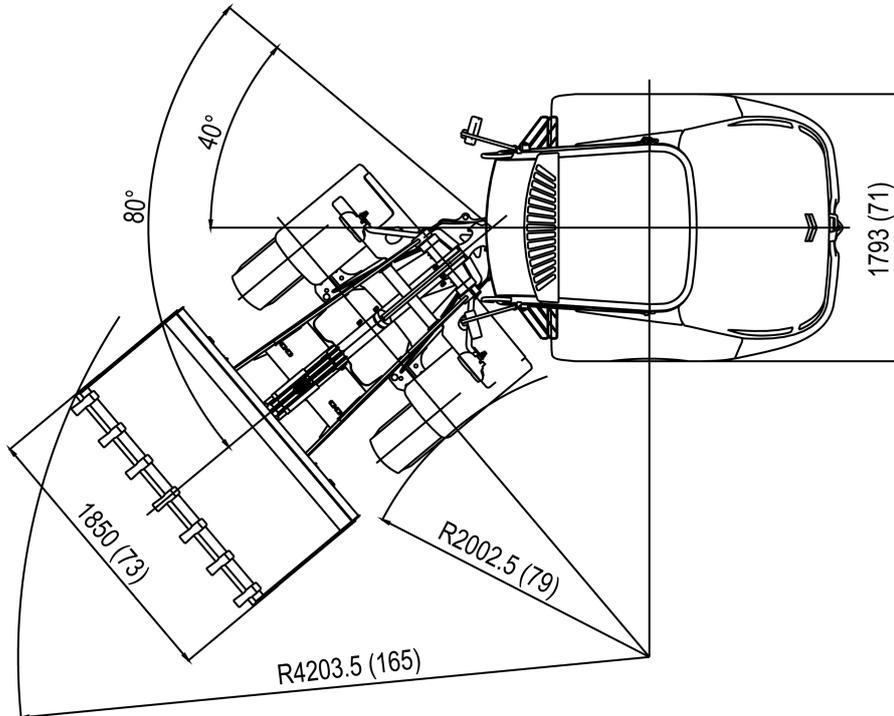
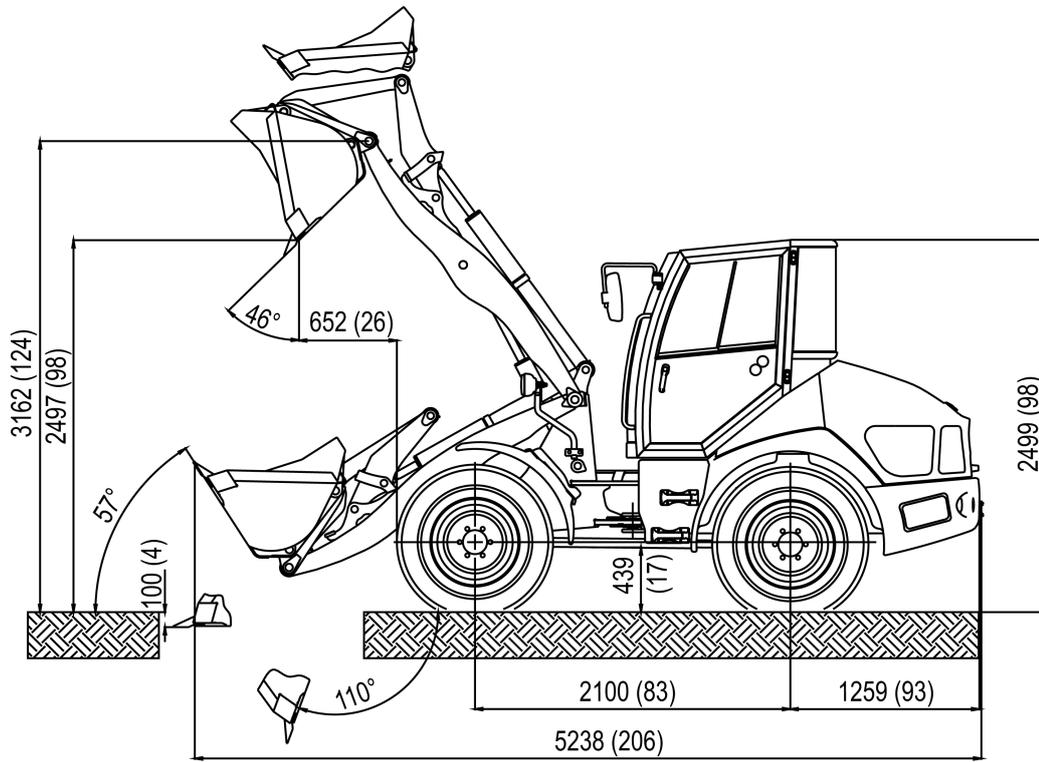
E Technical data

CHAPTER COVERED IN THIS PART:

- 1 WORKING DIMENSIONS
- 2 SPECIFICATIONS
- 3 NOISE EMITTED BY THE MACHINE
- 4 VIBRATIONS EMITTED BY THE MACHINE
- 5 LIFTING CAPACITIES



1 WORKING DIMENSIONS



Dimensions(mm (in))

2 SPECIFICATIONS

Model	V7	V7-HW
-------	----	-------

Weight (in conformity with European standards)

Weight of the machine(with operator +75 kg (165 lbs)) (ISO 6016)	kg (lbs)	4330 (9546)	4500 (9921)
--	----------	-------------	-------------

Working range and performance

Operating temperature range	°C (°F)	-15 ~ 40 (5 ~ 104)	
Bucket capacity, standard	m ³ (ft ³)	0,7 (24,7)	0,8 (28,3)
Bucket width, standard	mm (in)	1850 (72,8)	
Tear-off force on the ground (ISO 14397-2)	kN (lbf)	41,7 (9,4)	
Lifting force on the ground (ISO 14397-2)	kN (lbf)	43,6 (9,8)	
Travel Speed : high/ low	km / h (mph)	20 (12,4) ⁴ / 6 (3,7)	
Maximum slope		30°	
Hydraulic pump rate	L / min (gal / min)	63,1 (16,7)	
Maximum hydraulic circuit pressure	MPa (psi)	25,0 (3626)	

Engine: YANMAR 4TNV86CT-P

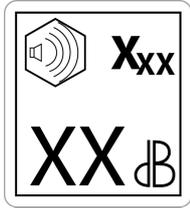
Type	4 cylinders ; water cooling ; direct Diesel injection		
Power / revs	kW (hp) / rpm	35,5 (47,6) / 2400	
Alternator capacity	V / A	12 / 80	
Battery	V / Ah	12 / 77	
CO ₂ emissions	g / kWh	841 ⁵	
Test cycle		HOT NRTC	

Dependent on technical modifications.

4. 30 km/h (18.6 mph) for the "S" version
5. This CO₂ measurement is the result of tests, carried out in laboratory conditions on a fixed cycle, on a parent engine, representative of a family of engines, and may in no way be considered as an indication or a guarantee of the performance of any particular engine.

3 NOISE EMITTED BY THE MACHINE

Examination results :



	Cabin	Canopy
LwA (dBA)	101	
LpA/LAeq (dBA)	78	89

Rounded values

LwA : weighted acoustic power level A.

LpA/LAeq : weighted acoustic pressure level A on operator's ears.

LwA : determined and guaranteed according to Directive 2000/14/CE amended by Directive 2005/88/CE.

LpA/LAeq : measured and guaranteed according to standard NF-ISO 6396: 2008.

These values are declared in accordance with Directive 2006/42/CE and do not correspond to exposure values over 8h of work.

4 VIBRATIONS EMITTED BY THE MACHINE

Declared vibration value in accordance with EN 12096		Unit : m/s ² (ft/s ²)
Vibrations	Measured vibration emission value	Uncertainty
Hand-arm in m/s ² (ft/s ²)	< 2,5 (<0,55)	–
Full body in m/s ² (ft/s ²)	< 0,5 (<0,11)	–

The following provisions should be taken in order to transmit the minimum amount of vibration to the whole body while the machine is operating and to avoid damaging the operator's health :

- Adjust the seat according to the operator's size.
- Keep the terrain in good condition.
- Use the machine under the conditions provided for, taking account of the real conditions of the terrain and the specific effects of the vibration that results from the actual operation of the machine.

The user must read and keep the instructions related to mounting and using accessories.

5 LIFTING CAPACITIES

⚠ IMPORTANT

Using the machine as a hoist is subject to the Machinery Directive 2006/42/EC for members of the European Community, and to the legislations specific to each country for states outside the EC.

⚠ IMPORTANT

The payloads are determined according to ISO 14397-1 and EN ISO 474-3 with a safety factor of 1.25 or 80% of the tipping load (on level ground).

The payloads are determined according to ISO 14397-1 with a safety factor of 2.0 or 50% of the tipping load for a hook on the forks and a load distance of 500 mm (1,64 feet) to the back of the forks.

The payloads apply to 405/70 R18 tyres and to the equipment status described for the machine according to ISO 6016.

Yanmar Compact Germany GmbH declines all responsibility for any use of the machine that does not respect the instructions in this regulation.

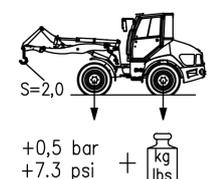
⚠ IMPORTANT

The weight of the tool must be deducted from the indicated payload.

Note

When using the machine for lifting, the front tyre pressure must be increased by at least 0,5 bar (7,2 psi).

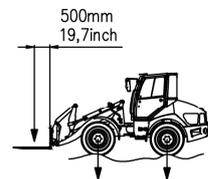
4.1.5 Checking tire pressure, page 142



V7		
	S=2,0	S=1.25
kg	1090	1750
lbs	2403	3858

V7 HW/V8e		
	S=2,0	S=1.25
kg	1170	1890
lbs	2579	4167

① ②



V7		
	S=1,67	S=1.25
kg	1450	1930
lbs	3197	4255

V7 HW/V8e		
	S=1,67	S=1.25
kg	1570	2080
lbs	3461	4586

③ ④

1 = Lifting capacity with a hook

2 = Lifting capacity with forks

3 = Lifting capacity in transport position (with forks only) on uneven ground

4 = Lifting capacity in transport position (with forks only) on flat ground



Appendices

Additional informations:

- A Notes
- B Lashing record

A Notes

B Lashing record

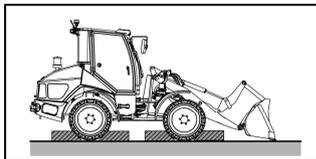
Yanmar Compact Germany GmbH
Kraftwerkstraße 4
74564 CRAILSHEIM, GERMANY
+ 49 (0) 7951 9357-0

GENERAL PRINCIPLE OF APPLICATION

Road transport

Model: V7 / V7-HW

Type of operation :Tie-down



Activity:

Earthmover

Group:

Wheel loader

Size:

L.= 5238 mm (206 in)

l.= 1850 mm (73 in)

H.= 2498 mm (98 in)

⚠ WARNING

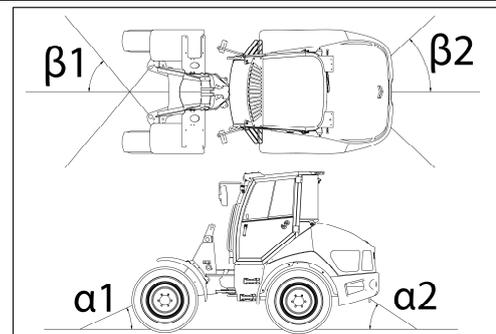


Do not perform the tie-down if a person stands on the machine or on an accessory.

Use a tie-down accessory (belt, chain, cable) compatible with the weight of the machine and compliant with European standards.

The tie-down process is defined based on the characteristics of a trailer with a Maximum Authorised Total Weight (MATW) of $\geq 8t$

1. Check the condition of the transport vehicle surface. If the surface is greasy, it must be cleaned before installing the machine on the transport vehicle.
2. Check the location and condition of the machine tie-down points.
3. Tie-down the machine at the points provided for that purpose and that are indicated on the machine.



⚠ DANGER

Additional accessories (bucket, arm, etc)

Rigging

Tension in lashing accessories

Measure the loading height

Grip on truck bed

* Using additional rigging accessories depends on the nature of the contact between the device and the transport vehicle and the weather conditions.

Please refer to the machine user manual.



10.3 Tying down the machine, page 110

Reference standards

NF EN 474-1 & NF ISO 15818

Created:–

Updated: –

DEVICE

Weight of the vehicle (kg)	4255 (9381) - 4425 (9755)
----------------------------	---------------------------

DEVICE CARRIER DEVICE

Nature of the contact	Steel-wood
Angle range $\alpha 1$	11°-17°
Angle range $\alpha 2$	15°-29°
Angle range $\beta 1$	34°-55°
Angle range $\beta 2$	25°-60°

ACCESSORIES

		WLL min (t) ⁶
Wedge (Lengthwise direction FR)	YES	
Wedge (Lengthwise direction RR)	YES*	
Wedge (Lateral direction)	NONE*	
Slip resistant mat	NONE*	
Tie-down accessories	4	4 t



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YANMAR



Scan to access the
documentation.

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