Instruction Manual

4812325556EN
Operation and Maintenance

Pneumatic Tire Roller
CP1200 / CP1200W

Diesel Engine
Cummins QSF 2.8 – Tier III e IV

Serial number
100005x0xxB005427 -
10000515xxB005762 -

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Introduction

CP1200/CP1200W

Dynapac CP1200 is a 12 tones pneumatic tire roller with 5,77 ft. (1760 mm) width. CP1200 is also available on the wide base version (CP1200W), with larger tires and 6.857 ft (2,090 m) width.

It has 5 front wheels, and four back wheels. The flexible ballast solution and the wide range of option equipment indicate that the machine has different settings available. CP1200 is mainly used together with other asphalt rollers to seal surfaces. Thanks to its weight, it also serves as a roller for other types of ground.

Warning symbols

WARNING! Damage to the machine or its parts.

CAUTION! Risk of death or injures.

Safety information

The Safety Manual delivered with the machine shall be read by the operator. Always follows the safety instructions and keep the Manual inside the machine.

It is recommended to at least train the operators on daily handling and maintenance of the machine, according to the Instruction Manual. Passengers are not allowed on the machine, and the operator must be on the seat whenever he operates the equipment.

Read throughout the manual before starting the machine and before performing any maintenance.

Request immediately new manuals if the old ones are lost damaged or become illegible.

Make sure there is a good vent (air exhaust) when the engine is turned on in closed facilities.

General Information

This manual contains instructions to operate and perform the maintenance of the machine.

The machine's maintenance shall be made correctly in order to obtain the maximum performance and the equipment shall also be kept clean, so leakage, loosen bolts and connections can be found as soon as possible.

Perform a daily inspection in the machine before starting, so you can find possible leakage or other failures.

Verify the machine's floor. Leakages are easier detected on the floor than on the equipment itself.

If leaks are detected in hoses or connections, immediately contact the authorized technical assistance to carry out the necessary repairs.

THINK ABOUT THE ENVIRONMENT! Do not dispose oil, fuel or other hazard substances to the environment. Always dispose correctly used filters, draining oil and fuel residues. Is prohibited dispose of tires in the environment. Dispose of waste tires at authorized collection points.

This manual contains instructions for periodic maintenance, which is usually performed by the operator.

Other engine instructions can be found at the manufacturer's manual.

CE Marking and Statement of Compliance

(APPLIED TO MACHINES SOLD WITHIN THE EUROPEAN COMMUNITY)

This machine has a CE Marking. It shows that at its delivery, it meets all the applicable health and safety basic directives, according to 2006/42/EC Machinery Directive, besides attending other directives applicable on machinery.

Following the machine there is a "Statement of Compliance" specifying the directive and supplement applicable, as well as the harmonized norms and other regulations relevant to the case.

Safety - General Instructions

(also read the Safety Manual)

1. **Read and understand this Manual before starting and operating the machine. The operator must be fully familiar with the equipment before starting it.**
2. **Observe and follow all instructions in the Maintenance Section.**
3. **Do not operate the machine if you are unqualified, untrained or do not have experience. NEVER allow passengers to be present and ALWAYS operate the machine seated on the operator seat.**
4. **Do not operate the equipment if it requires repair or adjustment.**
5. **When getting on and off the machine, use the stairs and handrails. NEVER go up or down with the machine in motion.**
6. **The ROPS (Roll Over Protective Structure) should always be used when the machine is operated on unsafe ground. Always use the seat belt when the ROPS is on.**
7. **On sharp turns, travel at low speed.**
8. **Avoid moving near of cliffs or with a steep side slope. Operate the machine in Turtle mode and always examine the operation of the brakes.**
9. **When operating the machine near potholes or by the curb, make sure that at least 2/3 of the tires are over compacted material.**
10. **Be careful of obstacles above your head. Always look up and down. Make sure there are no obstacles in the direction of travel, either on the ground or in front of and behind the compactor.**
11. **Pay special attention when operating on uneven floors.**
12. **Obey all safety rules and use the appropriate protective equipment for the work to be performed.**
13. **Always keep the compactor clean. Immediately wipe off dirt, oil, and grease present on the operator's platform. Keep all flares, flashlights, headlights, and decals clean and clearly visible and legible.**
14. **Observe the following safety measures when fueling the machine:**
    - **Turn off the engine;**
    - **Do not smoke;**
    - **Do not allow sparks or flame near the equipment;**
    - **To avoid sparks, ground the refueling nozzle.**
15. **Before performing any maintenance operation, ensure that the machine is in a suitable location. Turn off the engine, chock the compactor wheels, apply the emergency/parking brake, and place a warning tag on the instrument panel indicating that maintenance work is in progress. If necessary, isolate the machine’s electrical circuit by disconnecting the battery using the master switch.**
16. **If the noise level of the machine is higher than 85 dB (A), wear suitable ear protectors. The noise level can vary according to the type of work the equipment is subjected to.**
17. **Do not modify the machine for any reason, as this action may affect personal and equipment safety. Any modification to the machine requires prior written approval from *DYNAPAC.***
18. **Operate the equipment in turtle mode until the hydraulic oil reaches normal working temperature. The braking distance can become longer than normal when the oil is cold.**

19. **For your own protection, always wear:**
    - **Helmet;**
    - **Working boots with steel toecaps;**
    - **Ear protectors;**
    - **Reflecting clothing;**
    - **Working gloves.**
20. **If there is a cab in the machine, operate it always with the doors closed and with the seat belt.**

Safety - When operating

Avoid people entering at the danger area, that is, at a distance of at least 23 ft (7 m) in all the directions from the machine operating. The operator can allow one person to be at the danger area, but in this case, care must be taken and the machine can only be operated when this person is in a visible place or with clear indication of where he/she is.

Avoid driving across a slope. Drive straight up and down sloping ground.

Operating on slopes

The machine must never be operated from the outside of the cab. The operator shall be seated when operating.

Slopes

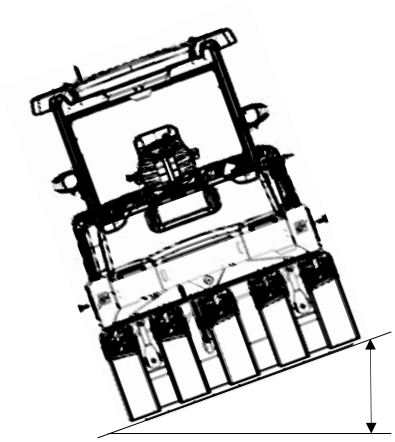


Fig. – Slopes angle

This angle was measured on a flat, hard surface and with the machine in a stationary position.

The steering angle is zero, the tires pressure is normal and all the tanks are full.

Always remember that loosen ground, the steering of the machine, different tire pressures, the operation speed and the gravity center raising may cause the machine to turn, even on slopes smaller than the ones stated here.

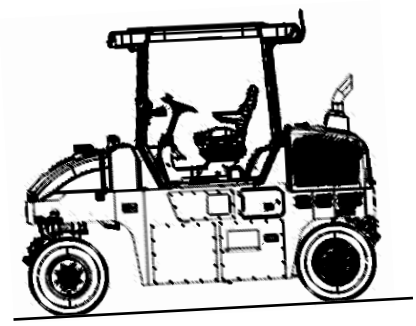
If you need to leave the cab in emergency situations, take off the hammer at the rear pillar on the right and break the opening windows that are also on the right.

It is recommended that ROPS (Roll Overprotective Structure) is always used when driving on slopes or unsafe ground.

Whenever possible, avoid driving across slopes. On slopes, drive straight up and down.

The speed must always be slow when operating on slopes.

Always operate the machine with the doors closed and with the seat belt.



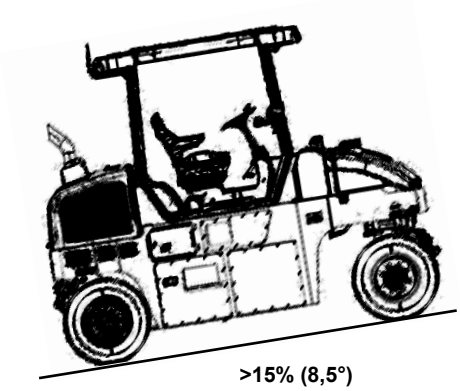
>5% (2,8°)

Fig. – Steep ground
v < max. speed. (9.3 mph or 15 km/h).

Transport on steep ground

During the transport on steep ground (slope >5%), be careful to not exceed the roller's maximum speed.

Selecting the low speed will increase the engine brake system efficacy and also the life of the braking system.



>15% (8,5°)

Fig. – Steep slope
Low speed (up to 4.7 mph or 7.5 km/h)

Operation and transport on steep ground

Always drive the machine in slow speed when operating or during transport on steep ground.
(>15%).

To drive or stop the machine, the rear wheels shall **always** be towards the slope, that is, the roller shall go up normally and shall go down in reverse.

Make sure there are no obstacles both in front or behind your work area.

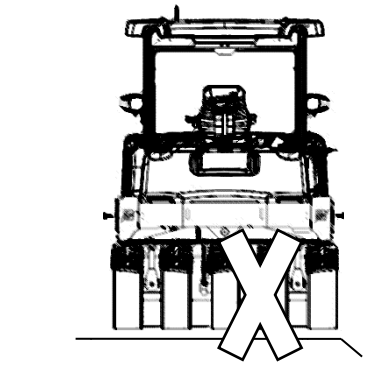


Fig. – Incorrect position of wheel when driving near edges.

Driving near edges

Never operate with the tires outside the edge, the substrate might not have full bearing strength or the edge is close to a slope.

Keep in mind that the machine's center of gravity moves outwards when steering. For example, the center of gravity moves to the right when you steer to the left.

Avoid operating close to edges and ditches and the like as well as on poor ground conditions that jeopardizes the tires strength and capacity to support the machine. Pay attention to potential obstacles above the machine, such as overhead cables and the branches of trees etc.

Pay particular attention to the stability of the substrate when compacting close to edges and holes. Do not compact with a large overlap from the previous track in order to maintain tires stability.

Safety – Option items

Air conditioning

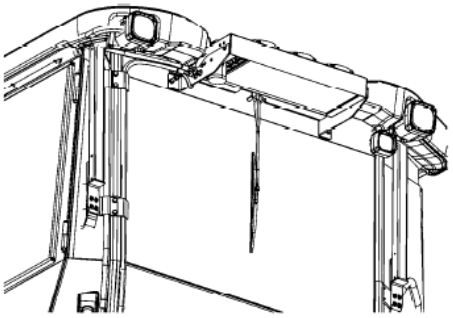


Fig. – Position of air conditioning

The system contains pressurized refrigerant. It is forbidden to release refrigerant to the atmosphere.

The maintenance of the air conditioning system shall be carried out only by trained people and with the proper tools and equipment.

The air conditioning system is pressurized. The incorrect handling can result in serious personal injury. Do not loose or disconnect hoses and connections with the system loaded.

The system must be refilled with approved coolant when necessary. Refer to the safety decal next to the replacement and filling place.

Fire extinguisher

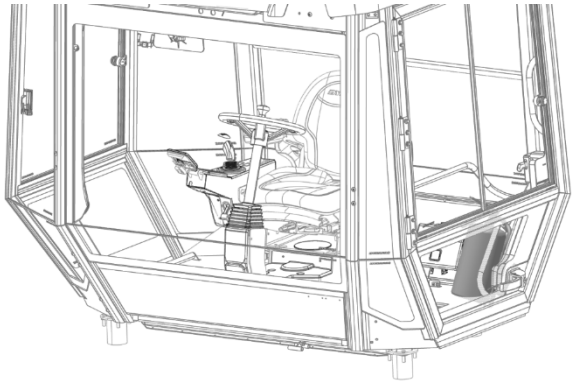


Fig. Fire extinguisher inside the cabin (Optional).

It is recommended that fire extinguishers be handled only by personnel previously trained in fire extinguishing techniques.

Follow all basic instructions provided on the instruction panels of each extinguisher.

The fire extinguisher is located inside the cabin, to the left of the operator.

For proper use, read the instructions on the extinguisher label.

Do not test the extinguisher. Even a small discharge may reduce the internal pressure, rendering the extinguisher inoperative.

Never discharge a fire extinguisher at a person's face.

Never throw a fire extinguisher into a fire or leave it unattended. Increased pressure may cause an explosion, even if the extinguisher is only partially discharged.

Fire extinguishers must undergo periodic maintenance immediately after the charge expiration date.

After use, leave it at a collection point so that it can be recharged immediately.

Environment – General information

Operation with low-sulfur diesel fuel

Dynapac machine engines require operation on low-sulfur diesel fuel that does NOT exceed 15 ppm sulfur content by mass.

Fuels must meet the standards as shown in the Table below.

Norm	Country
ASTM D975	United States
GB19147 and GB252	China
EN590	European Union (EU)
IS	India
Australia Fuel Standard Determination 2019	Australia
JIS K 2204	Japan
CAN/CGSB-3.517 Types A and B ULS	Canada
ANP Resolution 50/2013 S10	Brazil

If there are differences, the Table below is considered as a minimum requirement.

Fuel Properties Required by the Engines Used by Dynapac				
Property	**Units**	**Bound**	**Method**	**Value**
Flash Point	°C [°F]	Min.	ASTM D93	38 [100,4]
				52 [125,6]
Density	g/cc [lb/pol3]	Min.	ASTM D4052	0,816 [0,029]
		Max.		0,876 [0,032]
Distillation	°C10% [°F10%], % vol	Min.	ASTM D86	150 [302]
	°C90% [°F90%], % vol	Min.		282 [539,6]
		Max.		338 [640,4]
Cleaning	-	-	ISO 4406	Associate Codes 18/16/13
Grey	% mass	Max.	ASTM D482	0,01
Sulphur	Ppm	Max.	ASTM D5453 ASTM D2622	Refer to the corresponding Owner's Manual.

Copper Strip	classification	Max.	ASTM D130	No. 3
Cetane Number	-	Min.	ASTM D613	42
Kinematic Viscosity	Cst	Min.	ASTM D445	1,3
		Max.		4,1
Water	Ppm	Max.	ASTM D6304 ISO 12937	200
FAME Content	% vol	Max.	EN 14078	20
Fog Point	°C [°F]	Max.	ASTM D2500	Must meet the minimum expected ambient temperature
Lubricity (HFRR)	micron [in.]	Max.	ASTM D6079	520 [0,0205]
Sodium Content	Ppm	Max.	ASTM D7111	0,5
Chlorine Content	Ppm	Max.	ASTM D4929	10

In situations of fuel oil leakage for any reason, immediately contain it with specific materials and dispose of them according to current environmental legislation.

Regarding the use of batteries

Preferably use batteries from companies with international quality and environmental certifications.

It is recommended to change the battery at vendors authorized by the supplier. If this is not possible, leave the discharged battery at a certified battery recycling center for the proper disposal.

Batteries with an electrochemical lead-acid system may not have levels of metals of interest, Mercury (Hg) and Cadmium (Cd), above the limits, according to current environmental legislation

Regarding the use of tires

For damaged tires, it is NOT recommended to be repaired but replaced. After the exchange, leave the used or damaged tires at authorized collection points so that they can be collected and disposed of in accordance with environmental legislation.

Used or unusable tires: consult the manufacturer's manual.

Precautions with the environment when replacing oils

The maintenance intervals for changing the hydraulic and lubrication oils (engine and transmission) must be respected according to the information in this manual.

The replacement must be carried out in a suitable location by trained professionals. In the event of oil leaking, immediate containment is required using suitable material. This material will then be disposed of in accordance with current environmental legislation.

The oils and their respective filters must be separated and classified according to their characteristics and left at the collection points for their final disposal, according to current environmental legislation.

When changing used or contaminated oil, separate EACH FILTER according to the filtered fluid, correctly identifying them for disposal according to current environmental legislation and updated standards.

Correctly identify the hydraulic fluids used in your equipment, as each type of fluid may have specific requirements for disposal, classifying them according to their composition and characteristics, according to current environmental legislation and updated standards.

Used or contaminated oil filter with Class I hazardous waste classification.

Cab/engine cooling system

Maintenance intervals must be respected for the cabin/engine cooling system, following all the guidelines in this manual or the manufacturer's for changing the engine coolant and A/C coolant.

Care must be observed when changing the HFC - R134A refrigerant. Each region or country establishes technical, environmental and safety criteria so that maintenance must be carried out efficiently and to avoid impacts on the environment.

The replacement of the engine coolant must follow all the procedures contained in this manual and the engine manufacturer, where it must be drained in an appropriate place and separate this liquid so that it can be disposed according to current environmental legislation.

If there is a leak, containment must be immediately with appropriate material and disposed of correctly.

Its improper disposal and contamination in the environment can result in serious impacts: pollution of water resources, soil contamination, impact on biodiversity and human health problems.

Technical Specifications

Vibrations – Operator station (ISO 2631)

The vibration levels are measured according to the operational cycle described in the EU directive 2000/14/EC on machines equipped for the EU market with the operator's seat in the transport position.
The measured vibrations on the whole body are below the 0.5 m/s² (aren) and 9,1 m/s^{1,75} (VDVR) action value, as specified in the directive 2002/44/CE. The limit is 1.15 m/s² (aren). The measured vibrations on the hand/arm are also below the 2.5 m/s² (aren) action value, as specified in the same abovementioned directive. The limit is 5 m/s² (aren).

Noise level

The sound levels are measured according to the operational cycle described in the EU directive 2000/14/EC on machines equipped for the EU market with the operator's seat in the transport position.

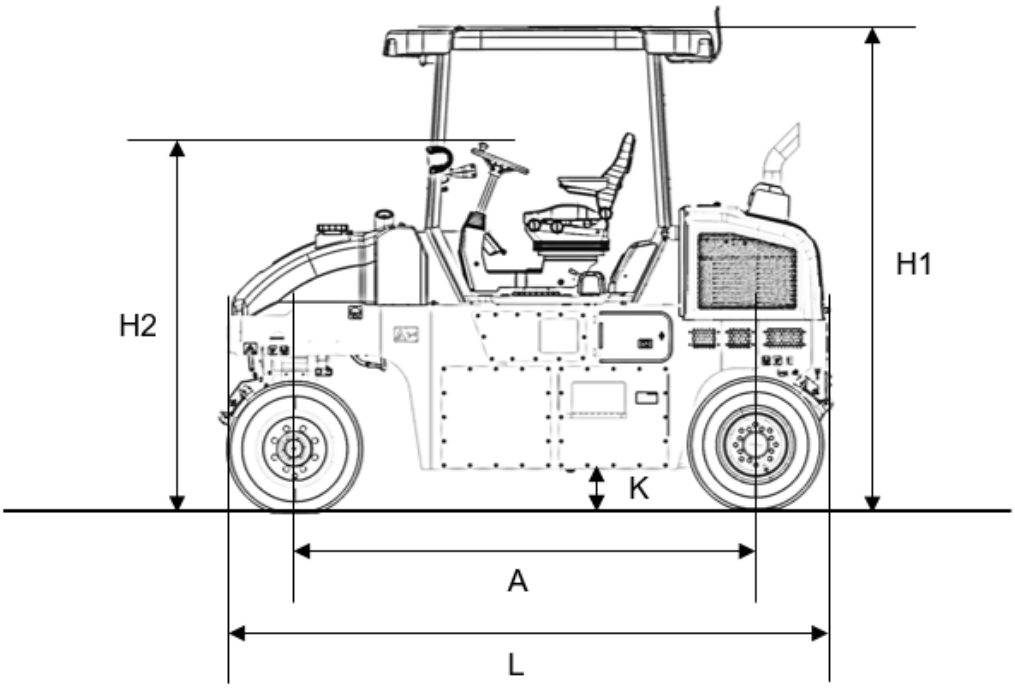
Guaranteed sound power level, L_{wA}	101 dB (A)
Sound pressure level at the operator's ear (platform), L_{pA}	85 ±3 dB (A)
Sound pressure level at the operator's ear (cab), L_{pA}	80 ±3 dB (A)

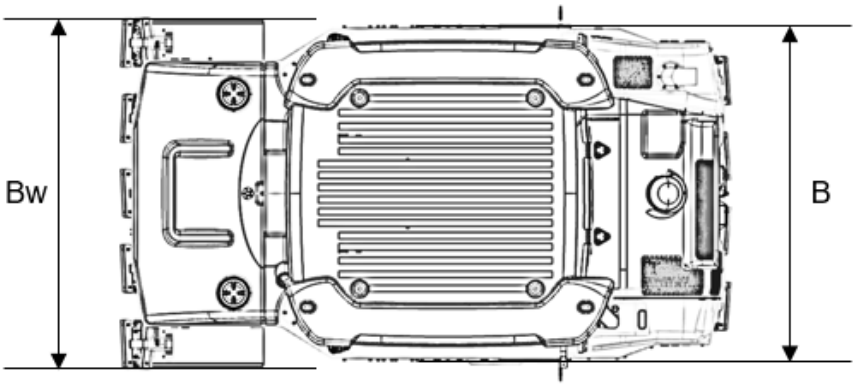
During normal operations, the values abovementioned may differ, depending on the work specific conditions.

Electrical system

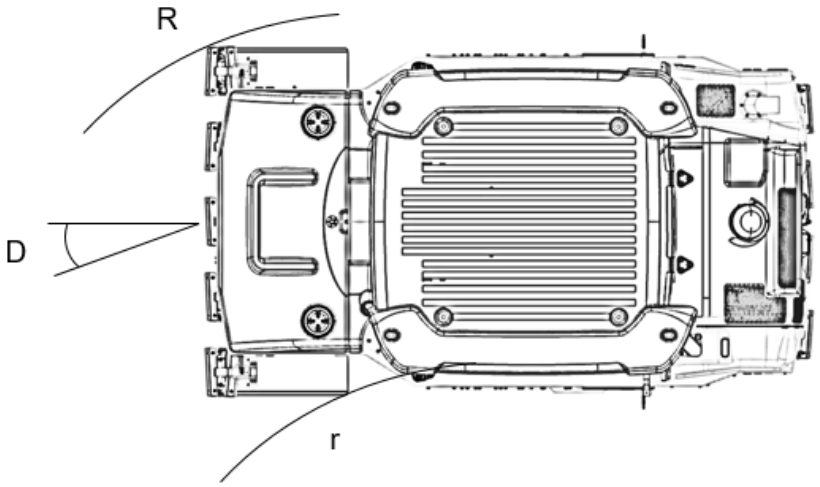
The machines were tested for electromagnetic compatibility (EMC) in accordance with EN 13309:2000: "Construction machinery".

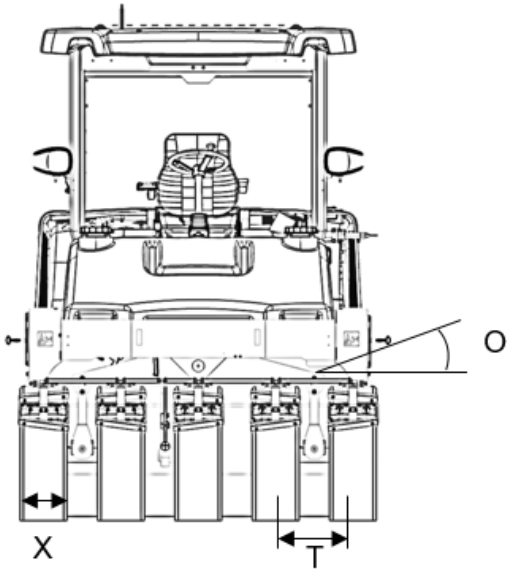
Technical specifications -Dimensions





Dimensions	mm	inches
A – Between axles	2760	108,66
B – Total width (CP1200)	2057	80,98
B – Total width (CP1200 with cab)	2250	88,58
Bw – Total width (CP1200W)	2083	82,01
Bw – Total width (CP1200W with cab)	2260	88,98
H1 – Total height	2935	115,55
H2 – Total height (Platform)	2208	86,93
K – Height from the ground	268	10,55
L – Total length	3690	145,28





CP1200

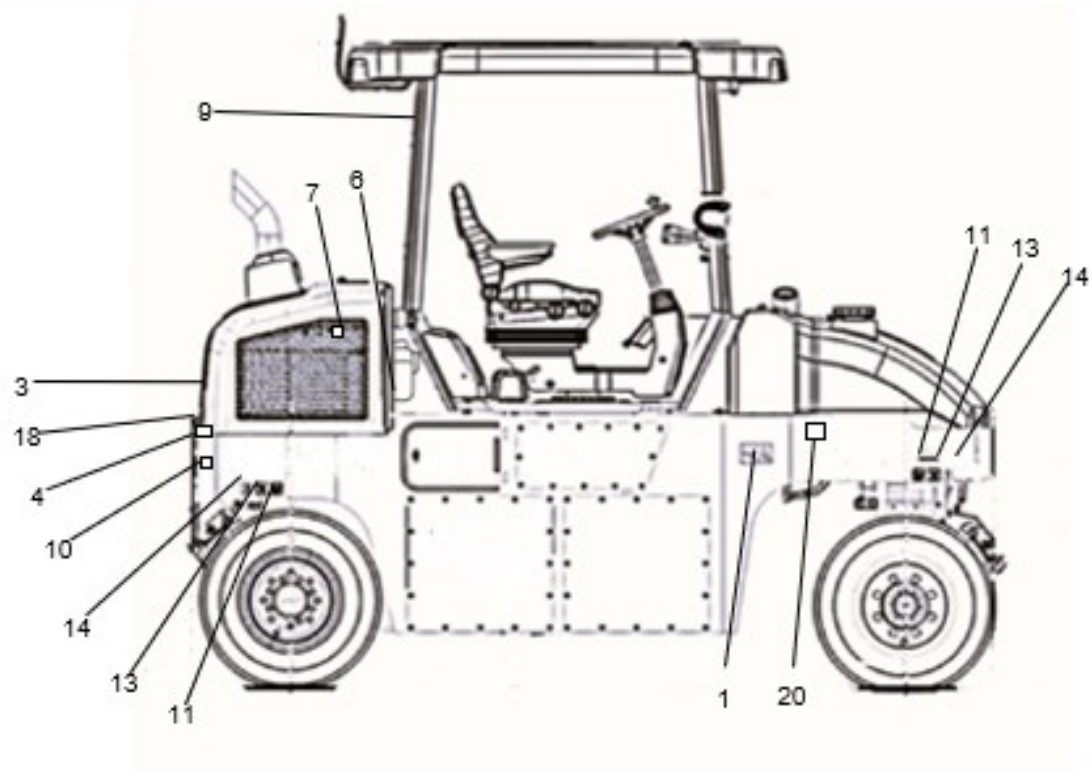
Dimensions	mm	inches
R – Outer radius	7090	279,13
r – Inner radius	4390	172,83
X – Tire width	217	8,54
T – Tire overlap	24	0,94

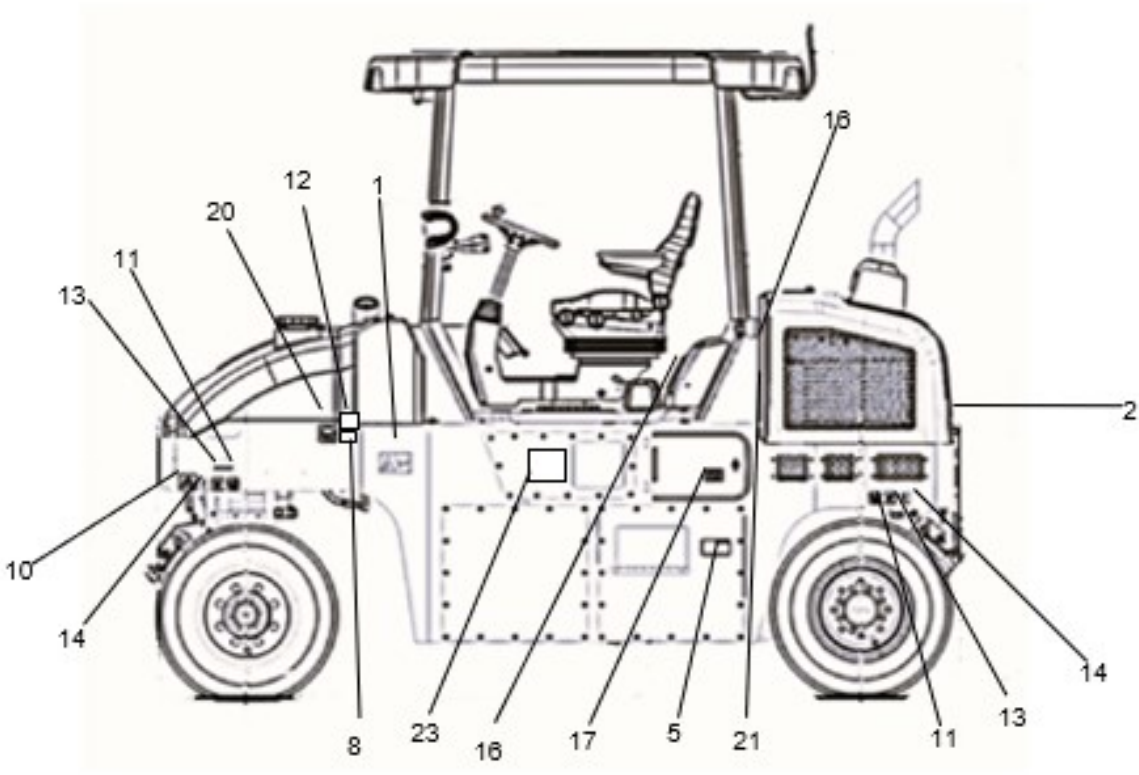
CP1200W

Dimensions	mm	inches
R – Outer radius	7090	279,13
r – Inner radius	4390	172,83
X – Tire width	275	10,83
T – Tire overlap	50	1,97

Dimensions	Degree
O – Vertical oscilation	3,5
D – Direction angle	28

Safety decals - description and location





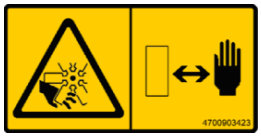
Safety decals - Description and location (cont.)

Always make sure that all the safety decals are completely legible and remove the dirt or request for new ones if they are illegible. Use the part number indicated on each decal.

1

WARNING:
Crush zone, wheel.
Keep a safe distance from the crush zone.

2



WARNING:
Rotating engine components, be careful!
Keep your hands off the danger zone.

3

WARNING:
Hot surface!
Keep your hands off the surface.

4

WARNING:
Read carefully the towing chapter before releasing the brakes. Crushing injury danger.

5

WARNING:
The operator must read the Safety and Engine Manuals, as well as the Operation and Maintenance instructions.

6

WARNING:
High pressure fluid.
Make sure to release the pressure from the accumulators before opening the hydraulic system.

7

WARNING:
Gas shall not be used to start the machine.

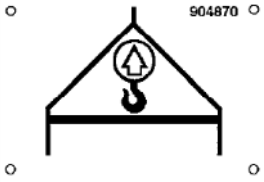
8

WARNING:
Ultra low sulfur fuel only.
Tier IV

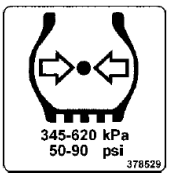
Safety decals - Description and location (cont.)

9 

Emergency exit - Cab.

10 

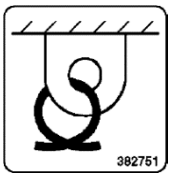
Hoisting plate

11 

Tire pressure

12 

Diesel oil

13 

Securing point

14 

Lifting point

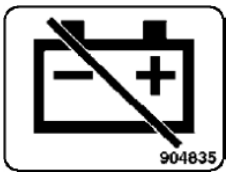
15 

Hydraulic oil

Safety decals - Description and location (cont.)

16 

Handbook compartment

17 

Battery switch

18 

Battery voltage

19 

Sound power level

20 

Water tank

21 

Hydraulic oil level

22 

Do not spray with water

23 

Dyn@Link

Identification plates

Machine plate

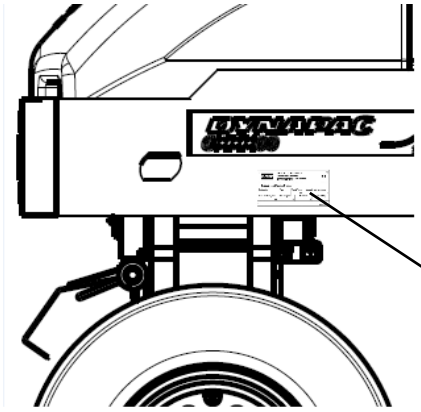


Fig. – Frame
1. Machine plate

The machine plate (1) is on the front, on the left side of the operator's platform.

It specifies the manufacturer's name, the type of the machine, the serial number, the service weight, the engine power and the manufacturing year (machines delivered outside EU do not present CE marking and in some cases they also do not present the manufacturing year).

Product Identification Number	>XXXXXXXXXXXXXXXXX<			
Designation	Type	Rated Power	Max axle load front / rear	
XXXXXX	XXXXXX	XXX kW	XXXX/XXXX	kg
Gross machinery mass		Operating mass	Max ballast	Date of Mfg
XXXX kg		XXXX kg	XXXX kg	XX/XXXX

NOTE: State the machine plate's serial number when ordering spare parts.

PIN (Product Identification Number) at the frame

The PIN - product identification number (1) is punched on the right side of the right frame. It is the same number of the machine plate (serial number).

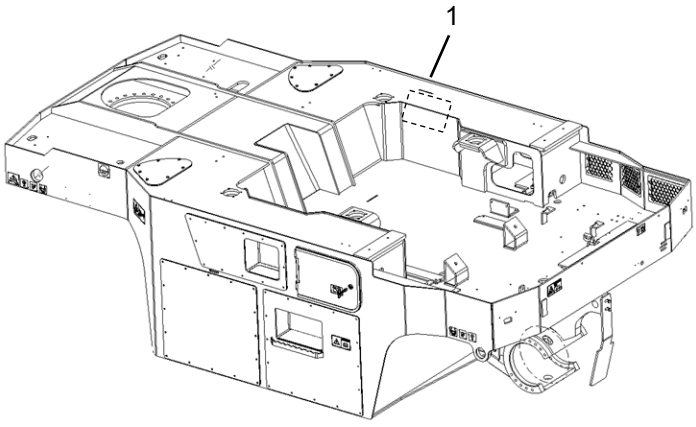


Fig. – Frame
1. PIN

100	00123	V	E	B	123456
A	**B**	**C**	**D**	**E**	**F**

Explanation of the 17PIN (Product Identification Number)

A - Manufacturer's code (100 = Dynapac)
B - Family/model code (00500 = CP1200 Tier 3)
(00510 = CP1200 Tier 4)
C - Check code
D - Year of manufacturing (E=2014, F=2015...)
E - Production's unit code (B = Sorocaba, Brazil)
F - Serial number (de 000001 to 999999)

Engine plate

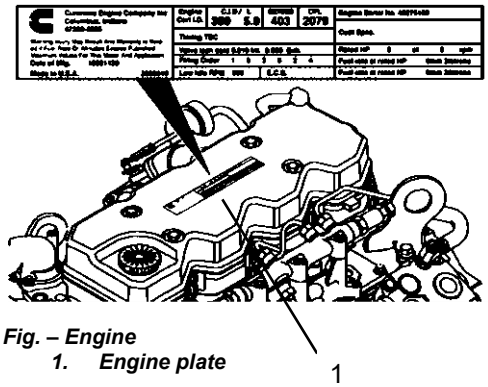


Fig. – Engine
1. Engine plate

The engine plate (1) is on the cylinder head cover (1), and it can be accessible when the hood is open.

The plate is also on the top step of the operator's platform.

It contains information like the serial number and the engine specifications.

NOTE: State the engine plate's serial number when ordering spare parts.

Instruments/controls

Control panel, side panel and command keyboard

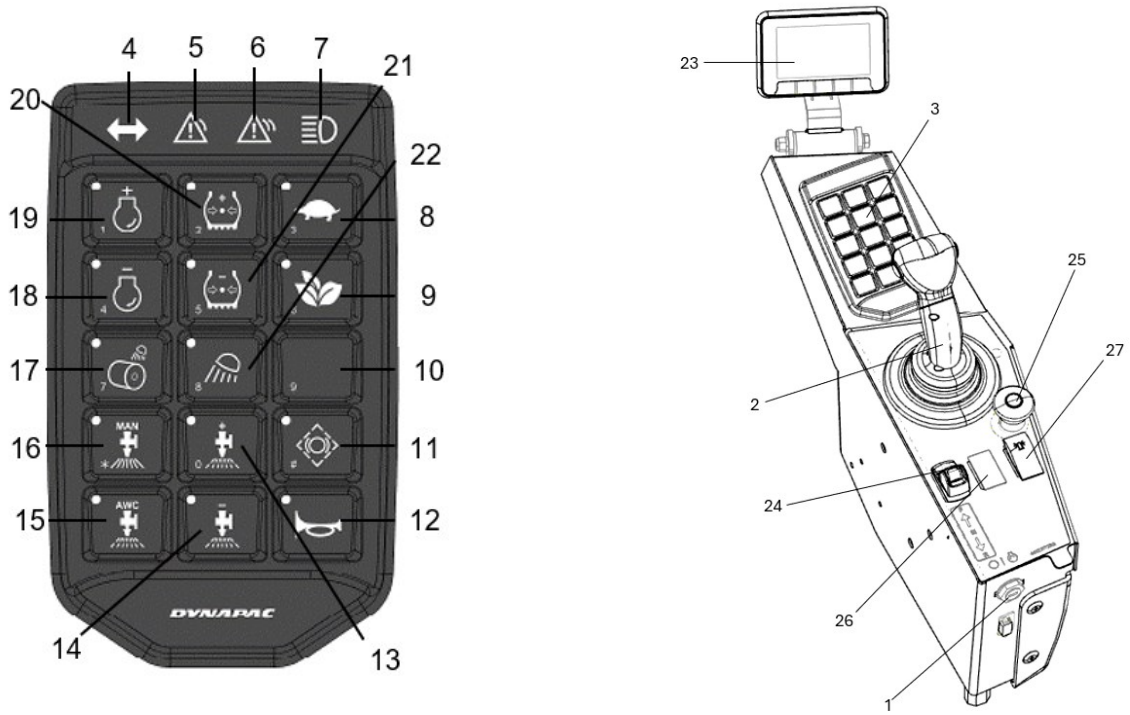
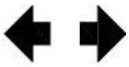
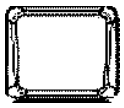
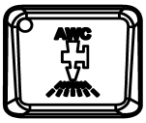
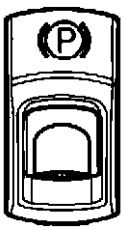


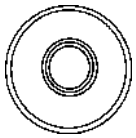
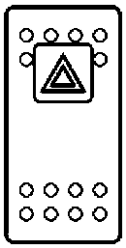
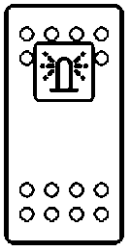
Fig. – Control panel, side panel and command keyboard.

1. *Ignition key*
2. *Forward/reverse lever*
3. *Command keyboard*
4. *Direction lights (OPTION)*
5. *Attention lights*
6. *Warning lights*
7. *High beam lights (OPTION)*
8. *High/low speed*
9. *Empty*
10. *Emulsion Tank*
11. *Brake test*
12. *Horn*
13. *"+" increase of the sprinkler interval (timer)*
14. *"-" decrease of the sprinkler interval (timer)*
15. *"AWC" automatic sprinkler*
16. *"MAN" manual sprinkler*
17. *Night working lights (OPTION)*
18. *Decrease engine rotation*
19. *Increase engine rotation*
20. *"+" increase in the tire pressure (OPTION)*
21. *"-" decrease in the tire pressure (OPTION)*
22. *Working lights (OPTION)*
23. *Display*
24. *Parking brake*
25. *Emergency stop button*
26. *Warning light switch*
27. *Rotate beacon lights*

Instrument/Controls - Description and Function

Nº	DESIGNATION	SYMBOL	FUNCTION
			The electric circuit is off.
1	Ignition key		All instruments and electric controls are on.
			The starter is activated.
2	Forward/reverse lever	-	To turn on the machine, the lever must be in "Neutral ". The direction of travel and the machine speed is regulated with the forward - reverse lever. If is moved forward, the roller moves forward, backward moves back. The roller speed is proportional to the distance between the lever and the neutral position. The further away from neutral, the higher the speed.
3	Command keyboard	-	
4	Direction lights		It shows that the direction lights are activated (activation via switch at the steering column).
5	Attention lights		Indicates that there are general problems in the machine. See the multifunction screen for the description.
6	Warning lights		Indicates that there are flaws in the machine. See the multifunction screen for the description.
7	High beam lights		It shows that the high beam lights are on
8	High/low speed		The roller starts always in the **high speed** mode. The **low speed** mode is obtained when activated.
10	Emulsion tank		Keep press the button for activate the secondary sprinkler and spray the agent over the tires.
11	Brake test button		Press to test the brake drive mechanism
12	Horn		Press to play an alert sound.

№	DESIGNATION	SYMBOL	FUNCTION
13	"+" increase of the sprinkler interval (timer)		The sprinkling frequency increases each time the water volume on the wheels is also increased.
14	"-" decrease of the sprinkler interval (timer)		The sprinkling frequency decreases each time the water volume on the wheels is also decreased.
15	Automatic sprinkler		When activated, sprinkling is automatically turned on / off when the forward/reverse lever is in the "neutral" position.
16	Manual sprinkler		When activated, the sprinkler is turned on / off.
17	Night work lights		Press to turn on/off the night work lights, if equipped.
18	Engine speed reduction (-)		Press to decrease engine speed (three stages)
19	Increase engine speed (+)		Press to increase the engine speed (three stages)
20	"+" increase in the tire pressure		When activated, it increases the tires pressure.
21	"-" decrease in the tire pressure		When activated, it decreases the tires pressure.
22	Working lights		Press to turn on/off all the working lights.
23	Display	-	It shows the engine and transmission functions. Refer to the Section: "Before Starting".
24	Parking brake		When it is pressed, the parking brake is activated. To turn it off, slide the red part backwards (towards you) and change the switch position. **NOTE:** to start the machine, the parking brake shall be activated.

Nº	DENOMINATION	SYMBOL	FUNCTION
25	Emergency stop button		Press it to turn off the machine and the engine. All the power supply is also turned off.
26	Hazard warning lights		Press the switch to activate the hazard warning lights.
27	Rotating beacon		Press the switch to activate the rotating beacon.

Control panel – General Description

Fig. – Splash screen

When the ignition key is in the position "I", the start screen is visible on the display. It remains activated for a few seconds (1.5 seconds) then it switches to the status screen.

Fig. – Status screen

The status screen provides information about the fuel level, the sprinkler tank water level, the working hours and the voltage level. The water and fuel levels are specified in percentage (%).

The screen remains visible until the Diesel engine is turned on or if one of the function buttons below the screen is pressed.

Fig. – Main working screen

If the engine starts before you choose the screen, it will switch to the main screen.

This screen provides an overview and it remains on during the operation:

- The speed is shown in the middle of the screen.

- The high/low speed mode is shown with a symbol in the middle of the screen.

- The engine rpm, the asphalt temperature (option) and the tires pressure (option) are shown in the upper left corner and in the lower left corner, respectively.

Control panel – General Description (cont.)

Fig. – Main working screen with the menu selection buttons

A menu field is shown by pressing one of the selection buttons. It is visible for a short time, then it fades out if no selection is made. A menu field appears again by pressing one of the selection buttons (1).

Example:

	Scroll/selection buttons to choose the available functions.
	Alarm log button to show the alarms of the engine and machine.
	Settings/menu selection button, which opens the main menu. Settings can be changed in the main menu.
	Exit/return button returns 1 step at once. Pressing the button for approximately 2 seconds displays the main menu again.

Fig. – Temperature screen

The temperature screen shows the engine oil (top of the screen) and hydraulic oil temperature (bottom of the screen). The values are shown in Celsius or Fahrenheit, according to the choice of unit system.

Control panel – Alarms

Fig. – Error screen

When an engine motor alarm is activated, it is shown in the screen. The alarm is sent from the engine's ECM, which tracks its functions.

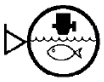
The message displays SPN and FMI codes and can be read via the engine supplier error code list. To erase the message, press "OK".

Fig. – Warning screen

When a machine's alarm is activated, it is shown in the screen with a warning text describing it.

To erase the message, press "OK".

Control panel – Alarms (cont.)

SYMBOL	DESCRIPTION	FUNCTION
	Warning symbol, hydraulic oil filter.	If the symbol appears with the engine in maximum rpm, it shall be necessary to replace the hydraulic oil.
	Warning symbol, air filter.	If the symbol appears with the engine in maximum rpm, it shall be necessary to clean or replace the air filter.
	Warning symbol, battery charging.	If the symbol appears with the engine running, the alternator is not charging. Stop the engine and find the fault.
	Warning symbol, engine temperature.	If this symbol appears, the engine is too hot. Stop immediately the engine and find the fault. Refer also to the engine manual.
	Warning symbol, hydraulic oil temperature.	This symbol appears when the hydraulic oil is too hot. Do not drive the roller, put the engine on idle, wait until the oil cools down and find the fault.
	Warning symbol, low fuel level.	This symbol appears when the fuel level is 10%.
	Warning symbol, low sprinkler water level.	This symbol appears when the sprinkler water level is 10% in the main tank.
	Warning symbol, low braking capacity.	This symbol appears when the oil level and/or pressure for the brakes are low. If this alarm appears and remains with the machine working, stop it immediately and contact **DYNAPAC**.

H1-AC Alarm

DESCRIPTION	FUNCTION	DISPLAYED MESSAGE	LIMITED MODE	SAFE MODE	YELLOW ALARM	RED ALARM	BUZZER
Engine Overspeed	Engine Speed is greater than 3000 RPM	Overspeed	X		X		
CAN J1939 Fault	No response from ECM (Tier 4/Stage V) or Actuator (Tier 3) for more than 5 seconds (Comunnication has been lost)	J1939	X		X		
Machine Direction	Machine is moving in the opposite direction of the joystick	Machine Direction	X		X		
Hydraulic Motor Overspeed	Speed sensor frequency is greater than 8000 hz	Motor RPM	X		X		
Forward Valve Fault	Open Circuit, Short Circuit or value out of range	Forward Valve	X		X		
Reverse Valve Fault	Open Circuit, Short Circuit or value out of range	Reverse Valve	X		X		
Machine Power Supply	Main Control Unit power supply is greater than 16V or less than 9V	Power Supply	X		X		
Machine Power Supply	Main Control Unit power supply is greater than 18V or less than 4,5V	Power Supply		X		X	X
Sensor Power Supply Fault	Sensor Power Supply is out of range (5000mV ± 125mV)	Sensor Supply		X		X	X
Joystick Fault	Short Circuit between signals or lost of signal	Joystick		X		X	X
Brake Test Fault	Speed is greater than 1km/h during the brake test (Dynamic or Parking Brakes)	Brake Test		X		X	X
Brake Press Low	Dynamic brake pressure is less or equal than 70 bar	Brakes Low			X		
Oil Pressure Low	Oil Pressure is less than 69 kPa	Oil Pressure			X		X
Water In Fuel	Sensor has detected water in fuel	Water in Filter			X		
Hydraulic Oil Filter Clogged	Hydraulic Oil Filter has been clogged	Hydraulic Filter			X		
Air Filter Clogged	Air Filter has been clogged	Air Filter			X		
No Charging	Alternator is not charging the battery	No Charging			X		
Fuel Level Alarm	Fuel Level is less than 10%	Low Fuel			X		
Water Level Alarm	Water Level is less than 10%	Low Spr. Water			X		
Engine Coolant Temperature Alarm	Engine Coolant Temperature is greater than 103°C.	Engine Temp			X		X

Engine Coolant Temperature Alarm	Engine Coolant Temperature is greater than 107°C.	Engine Temp				X	X
Hydraulic Oil Temperature	Hydraulic Oil Temperature is greater than 90°C.	Hydraulic Temp			X		X

LIMITED Mode

Limits the speed to 50%.
This mode is active as long as the fault remains.

SAFE Mode

The machine stops and cannot be used before the fault is corrected.

Control panel – Alarms (cont.)

Alarms received are stored/logged and can be seen by selecting Display Alarms 

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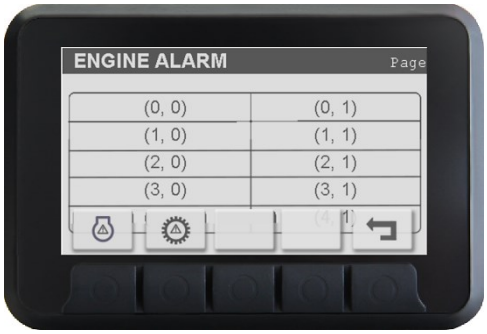


Fig. – Engine alarm screen

"ENGINE ALARM"

Stored/logged engine alarms.

Fig. – Machine alarm screen

"MACHINE ALARM"

Stored/logged machine alarms. They come from other systems on the machine.

“USER SETTINGS”

Users can change lighting settings, choose between Metric or Imperial system and set warning sounds on/off.

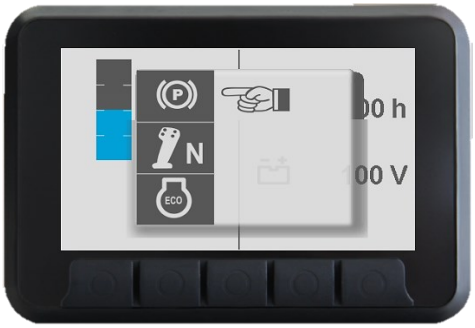
Unit system will be changed from METRIC to IMPERIAL, or IMPERIAL to METRIC. All the temperature values in the display should change between degrees Celsius and Fahrenheit, the speed value in the display should change between km/h to mph, and the AOR pressure value in the display should change between kPa and PSI.

Adjustment of light and contrast settings on the display, including brightness of the panel light.

- The brightness of the display and the bar filled should be lowered if they are not at minimum.

- The brightness of the display and the bar filled should be increased if they are not at maximum.

Operators help when starting



When trying to turn on the machine without having set up to three necessary conditions to do so, the missing ones are shown in the display. The missing conditions must be set before turning on the machine.

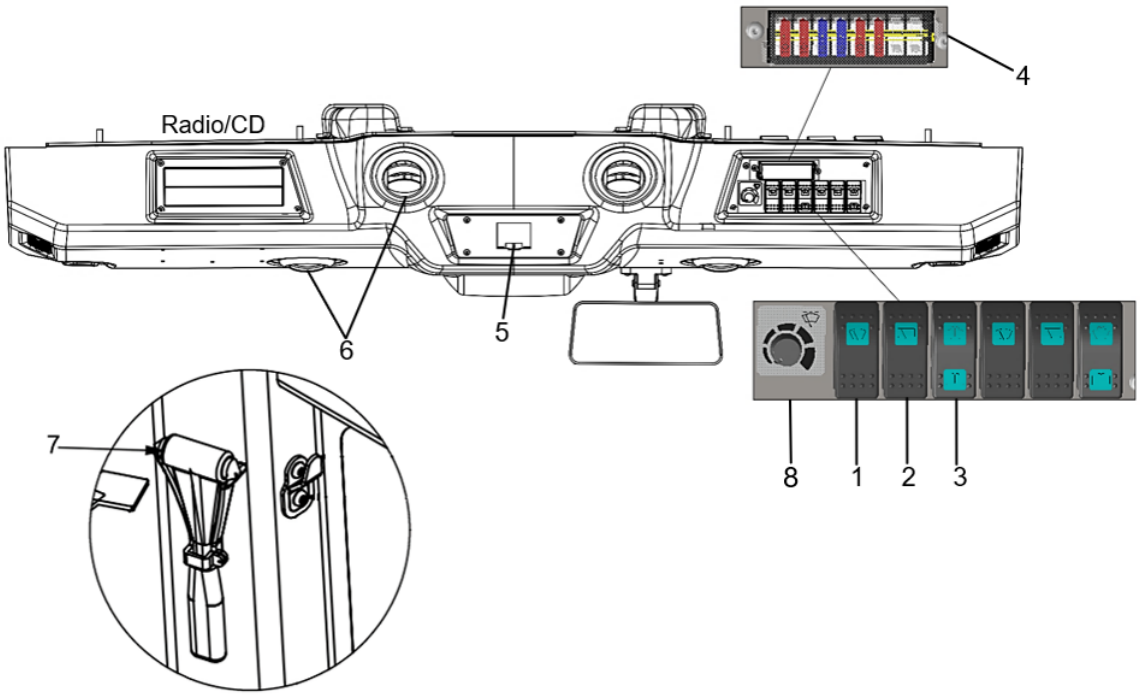
Conditions that must be set:

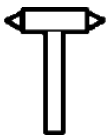
- The parking brake shall be activated.

- The forward/reverse lever shall be in the neutral position.

- The Diesel engine rpm shall be in the low speed (low = slow speed) (not all the models, refer to the manual to know if your model fits in this condition).

A/C System Operation - Cab



No.	DESIGNATION	SYMBOL	FUNCTION
1	Front wiper switch		Press to operate the front windshield wiper.
2	Rear wiper switch		Press to operate the rear windshield wiper.
3	Front and rear windshield washers switch		Press the top to activate the front washers. Press the bottom to activate the rear washers.
4	Fuse box		Contains fuses from the electric system in the cab.
5	Automatic Climate Control	-	Air conditioning automatic control.
6	Air outlets	-	Direct the air outlets to obtain better ventilation.
7	Emergency exit hammer		If it is necessary to leave the cab during an emergency, release the hammer and break the right-side windows.
8	Potentiometer with knob		Adjust to operate the front windshield wiper.

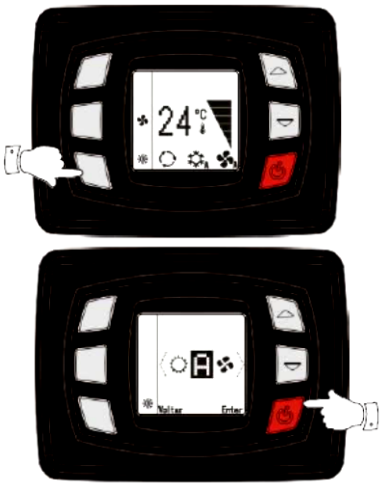
A/C – System operation

Power/Enter
By feeding the panel with 12VDC, the screen will be on, indicating that the product is in standby mode.
Press to turn on the A/C, it will show the software version and then the temperature. To return to standby mode you must press the button for 3s.

Set point Up/Down

Set point is the desired temperature inside the vehicle. To set it up press or . The set point temperature will flash on the display; press until reaches desired temperature.

Display
The display shows set point value, bar graph evaporator speed, active function and other information. It also serves to allow the operator to view the coil and return temperature, as well as the parameters. It also serves to alert when there is some system flaws.



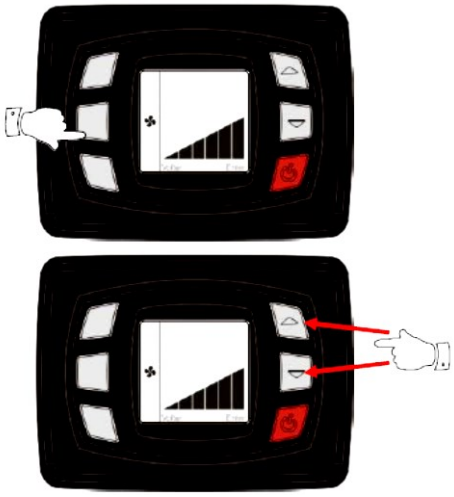
Operation Mode

To change the operation mode, press the button (operation mode), select the desired mode:

The controller has 4 operation modes that are:

- Only ventilation
- Only cooling
- Only heating
- Automatic mode

Press the button Power/Enter to confirm or wait a few seconds to cancel.



Ventilation
The controller has two ventilation modes: manual and automatic ventilation.

Manual ventilation
The manual ventilation has three speeds. When some function (cooling, heating or automatic mode) is active, the ventilation function is always on. To change the fan speed, press the key  (Ventilation mode) and after set the desired speed with the keys or  . After press the key  to confirm or wait a few seconds and the speed will be saved.

Operation - Before starting

Daily maintenance

Before starting your work shift and operating the equipment, make sure the daily maintenance was carried out. For further information, refer to the maintenance section in this manual.

Battery switch

Check if the Battery switch is on. The Battery switch is located in the electric device compartment (1) on the left side of the machine.

After the daily use of the roller, the Battery switch shall be turned off. It prevents the machine to be turned on accidentally and protects the electronic devices.

If the main battery switch is closed, the engine hood shall be opened during the operation to make it possible to reach in an emergency.

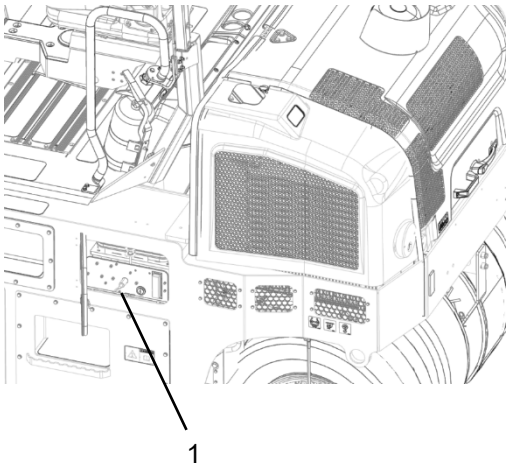


Fig. – Engine compartmenty.
1. Battery disconnect switch

The control and operation unit

The control and operation unit has three adjustment options: transverse travel, rotation and steering column angle.

For transverse travel, raise the inner lever (1). The transverse travel brake will be released.

For rotation, raise the outer lever (2). Make sure the control unit is in the correct position before operating the machine.

For steering column angle, release the locking lever (3). Fix it again in the new position.

To adjust the operator's seat, refer to the next section.

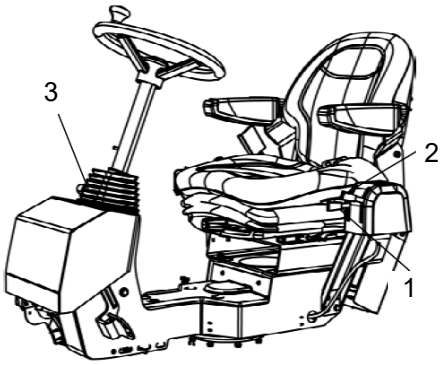


Fig. – The control and operation unit
1. Locking lever - transverse travel
2. Locking lever - rotation
3. Locking lever - steering column angle

Perform all the control and operation unit adjustments when the machine is stationary.

Before starting your work shift and operating the machine, make sure the seat and the steering column are locked and never release the side travel if you are on a slope.

Standard operator's seat

Fig. Operator's seat
1. Longitudinal adjustment

Operator's seat (standard) - Adjustment

Adjust the operator's seat so that the position is comfortable and so that the controls are within easy reach.

There is a scale (50-130 Kg) that can be changed according to the weight of the operator. The seat can be adjusted longitudinally (1) only from top to bottom, to return to the initial position, just move the selector until the end of the weight scale.

Comfort operator's seat (option) - Adjustment

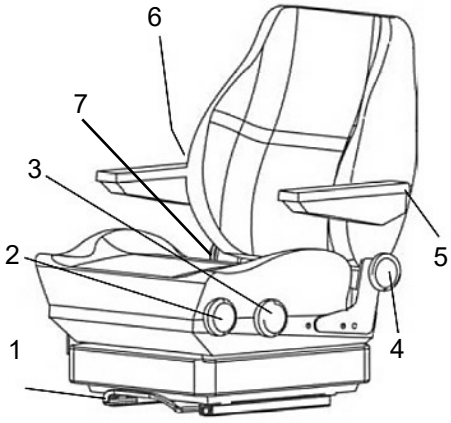


Fig. – Operator's seat (option adjustment)

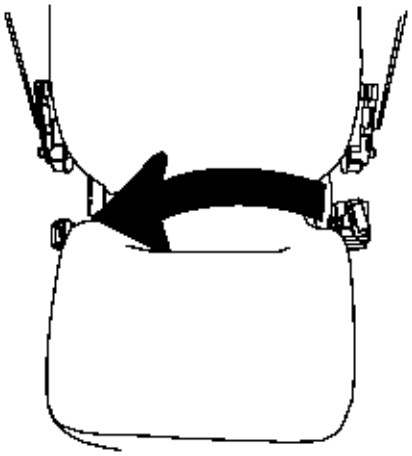
Adjust the operator's seat so all the controls are within easy reach and the machine operation is comfortable.

(1) Length adjustment.
(2) Height adjustment.
(3) Seat-cushion inclination.
(4) Back support inclination.
(5) Armrest inclination.
(6) Lumbar support adjustment.
(7) Seat belt.

Always make sure that the seat is secure before beginning operation.

Always use the seat belt.

Sub-abdominal seat belt



If the machine has a cab, the operator must wear a seat belt. To tighten the belt, pull it out of the retraction mechanism in an even motion, making sure it fits snugly around your waist. The belt will lock if it is pulled sharply, or if the machine is stopped on a slope.

Insert the buckle of the belt until you hear a characteristic "click". Otherwise, the seat belt will not be locked.

To release the belt, press the red button on the clasp. Then allow the belt to be retracted completely.

View

Before starting the machine, make sure that the view forwards and backwards is unobstructed.

All cab windows should be clean and the rear view mirrors should be correctly adjusted.

Operator position

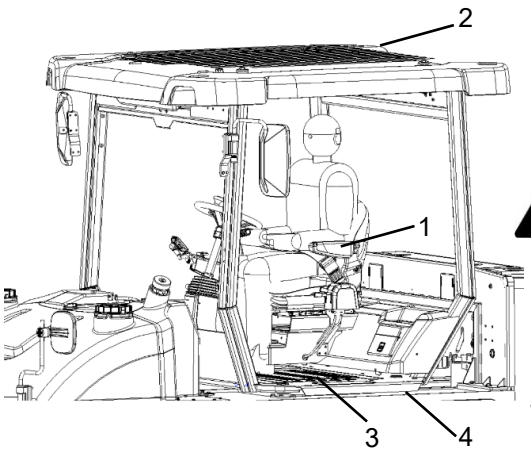


Fig. – Operator position

1. *Seat belt*
2. *Rops*
3. *Rubber element*
4. *Anti-slip protections*

If a ROPS (2) (Roll Over Protective Structure) or a cab is fitted to the roller, always wear the seat belt (1) provided and wear a protective helmet.

If the ROPS (Roll-Over Protective Structure) is affected by plastic deformations or fractures resulting from physical factors (rollover, tip-over, object impact, etc.), it must be replaced in accordance with the manufacturer's specifications.

Replace the seat belt (1) if it shows signs of wear or has been subjected to high levels of tension.

Check if the rubber elements (3) on the platform are in good condition. Worn elements will impair the comfort.

Make sure that the anti-slip protections (4) on the platform are in good condition. Replace where anti-slip friction is poor.

If the machine is fitted with a cab, make sure that the door is closed.

Interlock

The roller is equipped with an interlocking system.

The engine switches off from 4 to 7 seconds after the operator rises from the seat with the forward/reserve lever still engaged (not in the neutral position).

The engine does not switch off when the parking brake is engaged.

Always keep seated for all operations!

Starting

Screen - Control

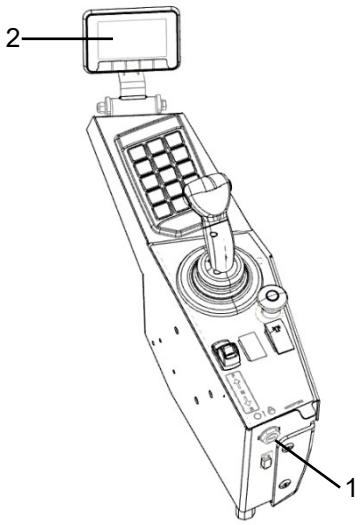


Fig.- Side panel
1. *Ignition key*
2. *Control Panel*

Sit down for all operations.

Turn the ignition key (1) to the position I and the initial screen is shown in the Control panel (2).

Starting the engine

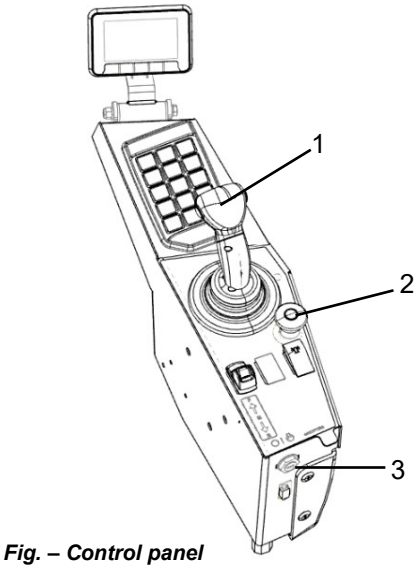


Fig. – Control panel
1. *Forward/reverse lever*
2. *Emergency stop button*
3. *Ignition key*

Make sure the emergency stop system (2) is off (upper position) and the parking brake is on.

The forward/reverse lever (1) shall be in the neutral position. The Diesel engine cannot be started if the lever is not in this position.

When sitting on the operator's seat, turn the ignition key (3) to the right (the first position I) and then to the start position. Release the switch as soon as the engine starts.

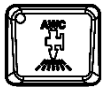
Do not try to run the start engine for too long (max. 30 seconds). If it does not work, wait 60 seconds to try again.

Let the engine idle for a few minutes or more if the environment temperature is below 50 F (10º C).

When the engine is running indoors, make sure if there is proper ventilation to extract the exhaust gases.

Display and button set

= The parking brake symbol is shown when the parking brake is activated.



= Automatic water control (AWC). The sprinkling is activated when the forward/backward lever is in the neutral position.

= Tire pressure displayed in position 3.

= Displayed in position 4.

= High/low speed mode (in the center of the screen).

= Alarm display, see the table below for information.

Alarm descriptions

SYMBOL	DESCRIPTION	FUNCTION
	Warning lamp, hydraulic oil filter	If the lamp is lit with the engine in maximum rpm, it shall be necessary to replace the hydraulic oil filter.
	Warning lamp, air filter	If the lamp is lit with the engine in maximum rpm, it shall be necessary to clean or replace the air filter.
	Warning lamp, battery charging	If the lamp is lit with the engine running, the alternator is not charging. Stop the engine and find the fault.
	Warning lamp, engine temperature	If the lamp is lit it means the engine is too hot. Stop **IMMEDIATELY** the engine and find the fault. Refer to the engine manual.
	Warning lamp, hydraulic oil temperature	If the lamp is lit it means the hydraulic oil is too hot. Do not operate the roller. Cool the oil making the engine run in idle and locate the fault.

Operating the roller

Under no circumstances the machine shall be operated away from the ground. The operator shall be seated inside the machine during the operation.

Make sure the areas at the front and behind the machine are free.

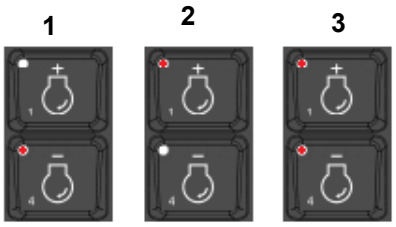


Fig. – RPM Selection
1. *Idle - 900RPM*
2. *Low - 1400RPM*
3. *High - 2250RPM*

- Place the desired engine RPM by pressing buttons 1 and 4 (+ and -) the lights will indicate the selected RPM.

Auto idling is the function that slow the engine RPM whenever the joystick is in neutral position for 10 seconds, designed to reduce fuel consumption and noise. Whenever you change joystick position it goes back to the previous selected RPM automatically.

- Place the desired work speed (Turtle/Rabbit) (6).
- Make sure the steering is working normally by turning the steering wheel to the left and to the right once with the roller stationary.
- When compacting asphalts, do not forget to activate the sprinkler system
- Gently push the lever Front / Back (5) to either direction, depending on which one you want to go.

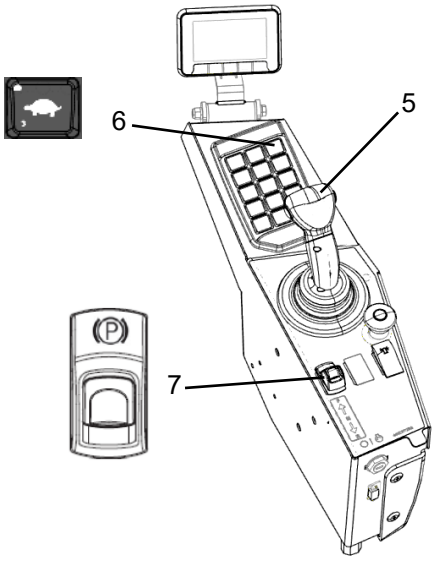


Fig. – Side panel
5. Forward/reverse lever
6. Low speed
7. Parking brake

Release the parking brake button (7) by sliding the red lock on the button backwards and changing the lever position. Remember that the machine can roll if you are on a slope.

Make sure the parking brake (7) is working correctly by activating it and moving the forward/backward lever (5) to the F or R position. Keep the brake test button pressed. This way, when you throttle the machine, it will not move.

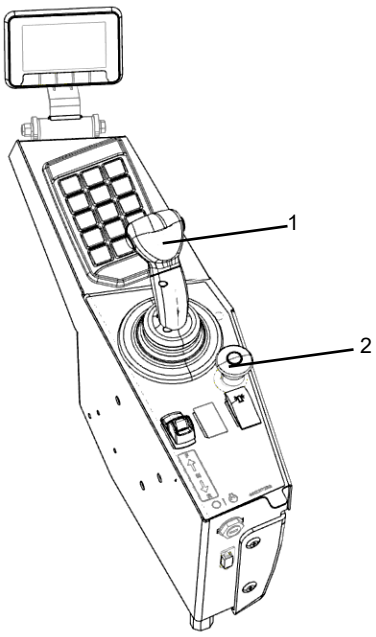


Fig. – Side panel
1. Forward/reverse Joystick
2. Emergency button

Moving and setting the machine to the correct speed.

Select the machine RPM. Remain in turtle mode and begin moving the joystick slowly until the desired speed is reached.

Reverse the direction of the machine.

To reverse the direction, move the joystick fully and smoothly from the selected position to the opposite direction.

Stop the machine.

To stop the machine smoothly (hydrostatic), move the joystick slowly to the neutral position.

Emergency brake (dynamic brake).

Move the joystick fully to the reverse position, then immediately return it to the neutral position to activate the dynamic brake.

Emergency stop button.

Push the red button to turn-off the engine and activate all brakes of the machine.

In emergency situations where a sudden stop is required, return the movement lever to the Neutral (N) position or activate the emergency button immediately.

In asphalt paving operations, it is important to note that abrupt halts can lead to the formation of marks and imperfections on the finished surface. Careful management of stopping procedures is essential to maintain the quality and integrity of the asphalt.

Selecting the maximum Speed.

The Dynapac CP 1200 and CP 1200W equipment are capable of reaching maximum speed when ECO/turtle mode is disabled.

To make your selection, press the button with the turtle symbol on the membrane panel. When you select this button, the image on the main panel will change, as illustrated in the accompanying image

When using the CP 1200 / 1200 W, be aware that selecting the maximum speed can potentially damage your application. It is essential to verify whether high speeds are recommended for your specific needs before proceeding.

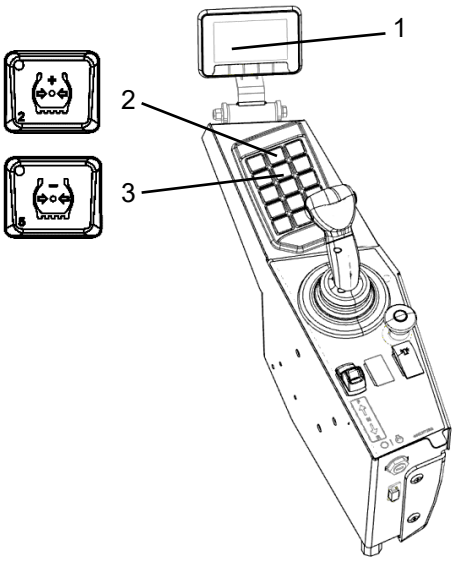


Fig. – Side panel
1. *Display*
2. *Increase in the tire pressure*
3. *Decrease in the tire pressure*

Tire pressure adjustment (option)

The operator can vary the pressure during the operation with the tire air pressure control. It can be variable adjusted with the keys (2) and (3) on the keypad, within the interval from 240 kPa to 620 kPa (35 to 90 PSI) and can be reduced with the key (3). The tire pressure level is shown in the lower left corner, on the Display (1).

When the tire pressure is at the maximum level (620 kPa) or at the minimum level (240 kPa), it will not be possible to increase/decrease the pressure.

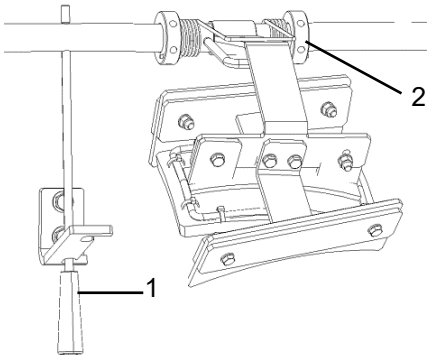


Fig. – Scrapers adjustment
1. *Handle*
2. *Snap ring*

Scrapers adjustment

There are two models of scrapers, with and without cocoa mat. The adjustment of the scrapers on the wheels is done by the handle (1) of the support of the scrapers.
There are two positions of work and rest .

Adjust the snap rings (2) of the scrapers to control the pressure applied to the wheels.

Rotating Beacon Light (Optional)

The rotating beacon must always be lowered before transport where the total height of the trailer is less than three meters.

Before starting work, make sure that the rotating beacon light is undamaged and in good working conditions. Otherwise, replace immediately.

Use a portable ladder to access the cabin work lights and the rotating warning beacon.

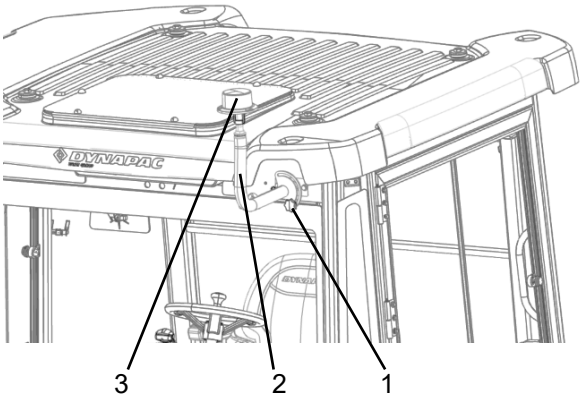


Fig. - Rotating beacon
1. Handle
2. Lamp holder
3.Warning light (Giroflex)

Release the handle (1) and fold the lamp holder (2) downwards.

Unscrew and remove the warning light (8) from the lamp holder.

To raise the rotating beacon lamp, follow the procedure described above in reverse sequence.

Backup alarm check

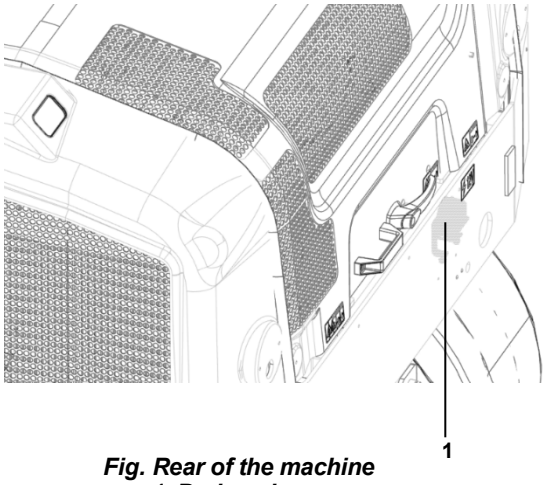


Fig. Rear of the machine
1. Backup alarm

Before operating the machine, perform a backup alarm check.

Turn the key to activate the electrical system.

With the parking brake engaged, move the lever backward and check whether the device emits an audible alarm.

If no audible alarm is detected, shut down the machine and contact technical assistance to perform the necessary repairs.

Ballast box

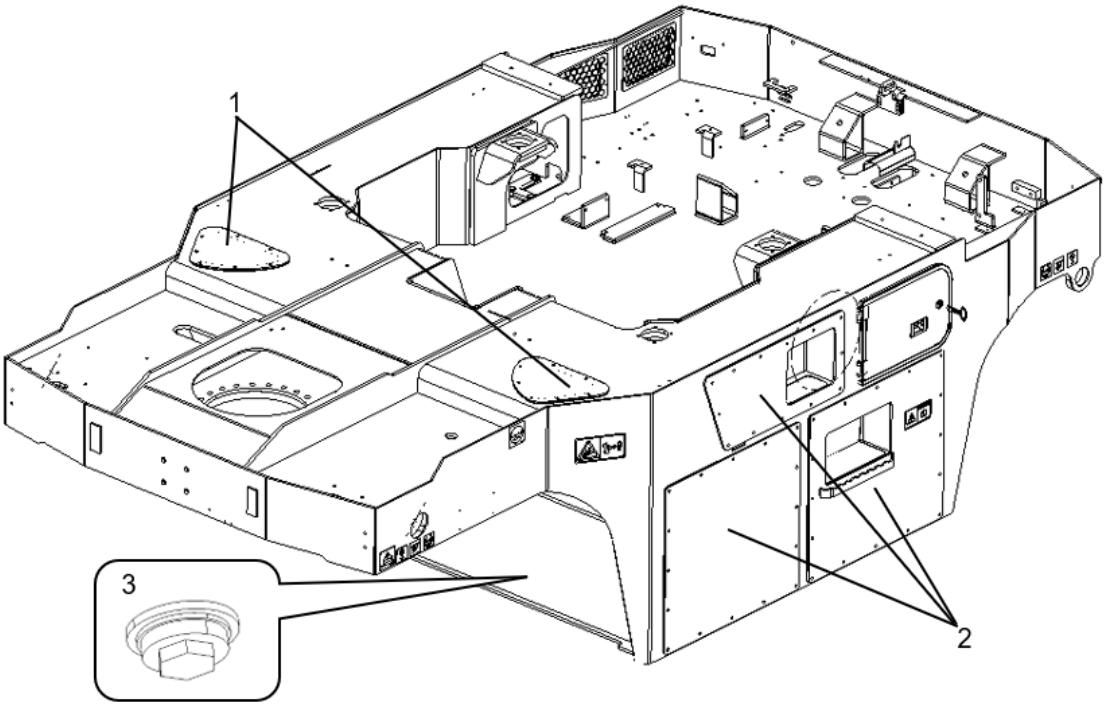


Fig. – Ballast box cover

1. *Top forward covers*
2. *Side covers*
3. *Draining plugs*

Water and wet sand ballast

Remove the top covers (1) and fill with water and sand through this opening.

Keep the side covers (2) closed during the water filling.

Do not remove the draining plugs (3) because the water may leak when the ballast is filled with it.

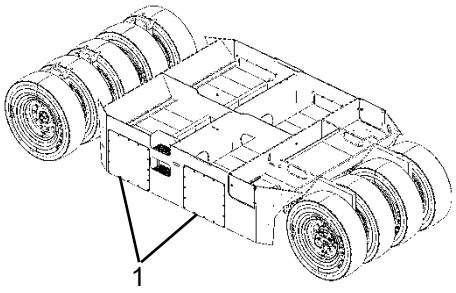
Fill the ballast box, when necessary, with gravel, sand and steel.

The water shall be added when it is filled with sand, so it can fill all the spaces between the ballast.

When using the roller with mixed ballast, start using the steel objects available, and then add the requisite amount of sand and water

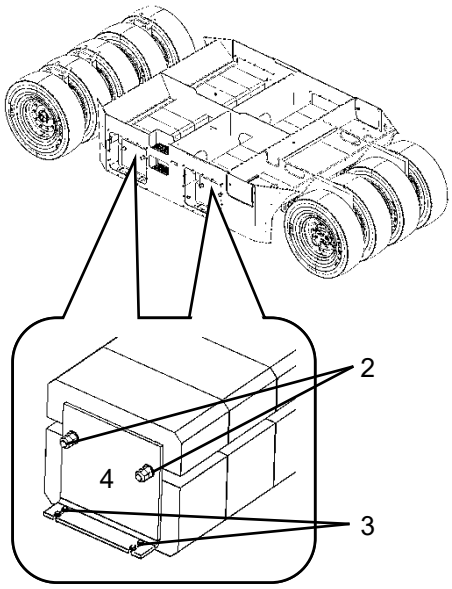
Distribute the ballast evenly.

Removable steel ballasts

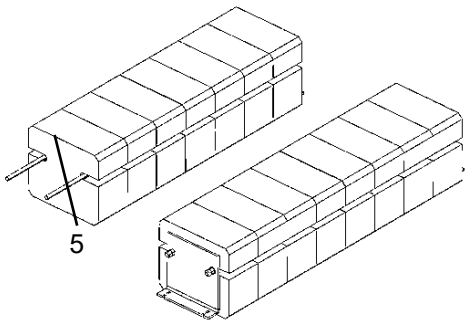


The CP1200 roller uses an innovative and patented system of steel ballasts, which can be removed and installed easily and quickly:

1. With the ballast box drained (without water and/or sand), remove four side covers (1) from the ballast box.



2. Unscrew the nuts and counternuts (2) and four lower bolts (3) of the bedplate in the steel ballasts. Remove the bedplate (4) off the ballasts assembly.



3. Install or remove the ballasts, according to the necessity, using the forks from a standard forklift. The ballasts grooves (5) were projected so the forklift forks fit perfectly and to easy their removal, installation and transport.

Fig. – Removable steel ballasts
1. Side covers
2. Nut and counternut
3. Bolts
4. Bedplate
5. Ballast grooves

4. After installing or removing the ballasts in the box, mount the bedplate, performing the reversal steps used to remove them.

Distribute the steel ballast evenly in the box.

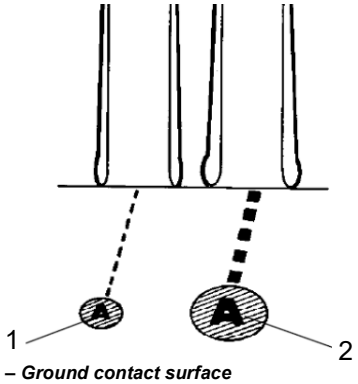


Fig. – Ground contact surface
1. Contact surface with the tire (high pressure)
2. Contact surface with the tire (low pressure)

Ground pressure (driving)

The tire contact surface can be changed by means of tire pressure.

The high pressure on the tires provides a smaller contact surface (1) and the low pressure on the tire provides a larger contact surface (2).

The contact surface with the ground is very important for the compaction result. The total weight divided by the quantity of tires provides the correct pressure for the wheel, according to the following table:

Fig. Low ground pressure, larger area

Low tire pressure - 350 kPa (50.7 psi).

The lower the tire pressure, the lower the pressure on the contact surface due to larger contact surface.
Is used on lots of loose material

Fig. Normal ground pressure

Normal tire pressure - 480 kPa (69.6 psi)

Used for degradation session

Fig. High ground pressure, smaller area

High tire pressure - 620 kPa (90 psi).

The higher the tire pressure, the greater the pressure on the contact surface due to smaller contact surface.
Used for thick layers and finishing sessions

Ground pressure

CP1200

7.50-15	Tire Inflation Pressure (kPa)		
	350	480	620
Wheel load (kg)	Ground Contact Pressure (kPa)		
450	330	360	410
905	380	410	420
1130	400	440	460
1360	430	460	480

7.50-15	Tire Inflation Pressure (psi)		
	50	70	90
Wheel load (kg)	Ground Contact Pressure (kPa)		
450	48	52	59
905	55	59	61
1130	58	64	67
1360	62	67	70

CP1200W

10.5/80-16	Tire Inflation Pressure (kPa)		
	350	480	620
Wheel load (kg)	Ground Contact Pressure (kPa)		
600	286	325	366
750	301	342	388
900	320	363	407
1000	327	372	422
1150	342	378	438
1300	346	404	454

10.5/80-16	Tire Inflation Pressure (psi)		
	50	70	90
Wheel load (kg)	Ground Contact Pressure (psi)		
600	41	47	53
750	44	50	56
900	46	53	59
1000	47	54	61
1150	50	55	64
1300	50	59	66

Interlock/Emergency Stop/Parking Brake

The interlock, emergency stop and parking brake shall be checked daily before starting the machine. To check if the emergency stop and interlock are working correctly, it is necessary to turn on and off the machine.

To check if the Interlock works correctly, the operator shall rise from the seat with the roller moving forwards and backwards (perform the test in both ways). The operator must hold the steering wheel firmly and be ready for a sudden stop. The alarm will be activated and after 4 seconds the engine will turn off and the brakes will be activated.

To check if the emergency stop works correctly, the operator shall press the corresponding button with the roller moving forwards and backwards (perform the test in both ways). Next, the operator must hold the steering wheel firmly and be ready for a sudden stop. The engine will be turned off and the brakes will be activated.

To check if the parking brake works correctly, it shall be activated with the roller moving forwards and backwards (perform the test in both ways). The operator shall hold the steering wheel and be ready for a sudden stop when it is activated. The engine does not turn off.

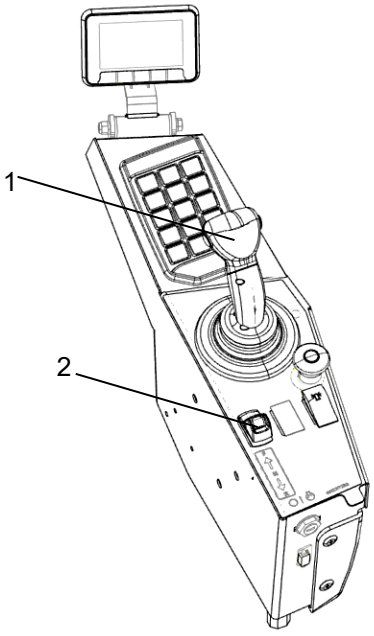


Fig. – Braking
1.Forward and reverse control
2. Parking brake

Normal braking

Stop de compactor, putting the forward and reverse control (1) in neutral.

Always enable the parking brake (2), before leaving the operator platform.

When starting a cold engine and drive, which implies cold hydraulic oil; braking distances are greater than when the oil has reached its normal working temperature.

When the forward and reverse control is pushed rapidly to neutral, or away from it, the system goes into rapid braking mode, and the machine stops.

Activate the normal mode by placing the forward and reverse control in neutral.

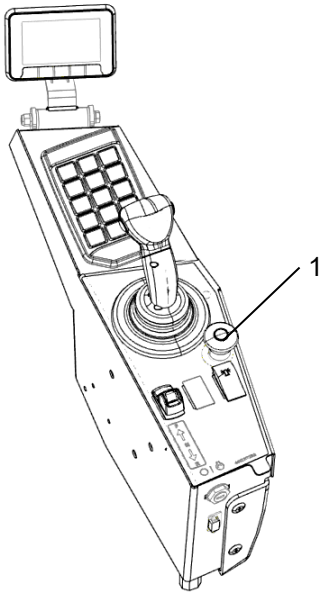


Fig. – Side panel
1. Emergency stop

Emergency braking

For emergency braking, press the emergency stop button (1), hold the steering wheel and be ready for a sudden stop. The engine stops.

The diesel engine is turned off and must be turned on again if necessary.

When starting the engine after an emergency stop, the forward/backward lever shall be in the neutral position and the parking brake shall be on.

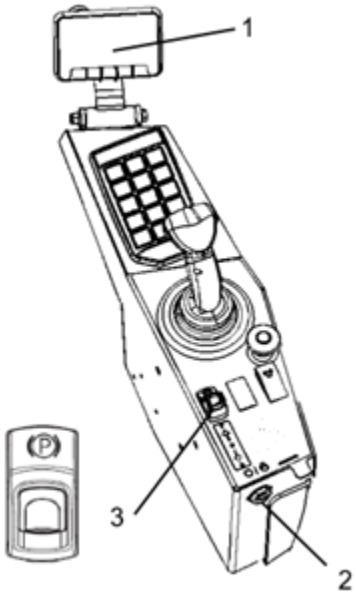


Fig. – Side panel
1. Display
2. Ignition key
3. Parking brake

Turning off the engine

Allow the engine to cool down in low idle for a few minutes.

Check if the Display (1) shows any indication of faults. Turn off all the lights and other electric functions.

Press the parking brake switch (3).

Turn the ignition key (2) to the left to turn it off.

Fit and fix the cover of the instruments panel over the screen and the upper part of the control box (on rollers without cab).

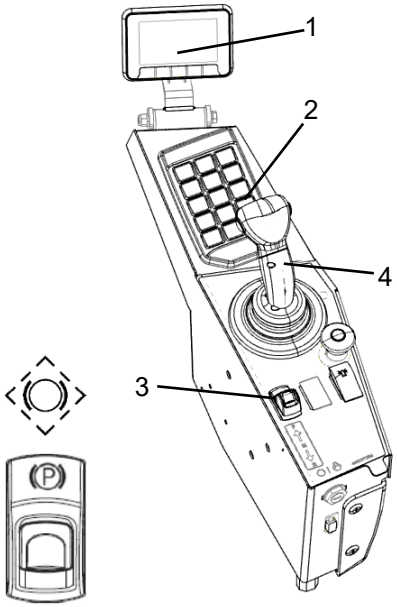


Fig. – Side panel

1. *Display*
2. *Brake test button*
3. *Parking brake*
4. *Forward and reverse control*

Dynamic Brake Test

The dynamic brake test must be done with parking brake switch button (3) released. Press the brake test button (2) the accumulators will start to fill and a sound effect will activate on the machine and the test button light will begin to flash (the sound effect and flash in test button occurs until the accumulator reaches 90 bars - 1305 Psi). After that, the led from the test button will stay on and the alarm will stop. Move the joystick (4) slowly to the maximum position forward or reverse. The engine goes to maximum rpm by itself.

During the test, the system automatically will change to transport mode. See in Display (1).

After the test, enable the parking brake or press again the brake test button to end the Dynamic Brake test mode. When the test ends, the system will reduce engine rpm automatically and change to previous selected mode (work or transport).

NOTE: Make sure to perform the test in an open place away from physical barriers, as in case of any unforeseen event and the machine move, no accident will occur.

In case the machine speed goes higher than 1km/h within 3 seconds while executing the dynamic or parking brake test, the roller will automatically enter “Safe Mode”.

The machine should be stopped and the representative must be called immediately.

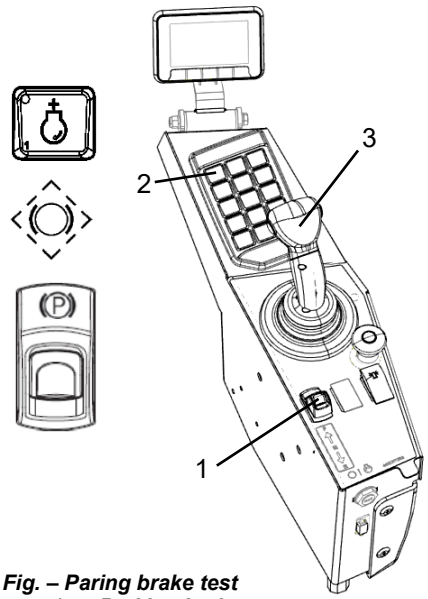


Fig. – Paring brake test

1. *Parking brake*
2. *Engine speed button*
3. *Forward and reverse control*

Parking Brake Test

1-) The parking brake test must be done with the parking brake switch button (1) engaged.
2-) Increase the engine to maximum rpm manually (2);
3-) Press and hold the Brake Test Button (3) and move the joystick slowly to the maximum position forward or reverse and verify if the equipment moves.

In case the machine speed goes higher than 1km/h within 3 seconds while executing the dynamic or parking brake test, the roller will automatically enter “Safe Mode”

The machine should be stopped and the representative must be called immediately.

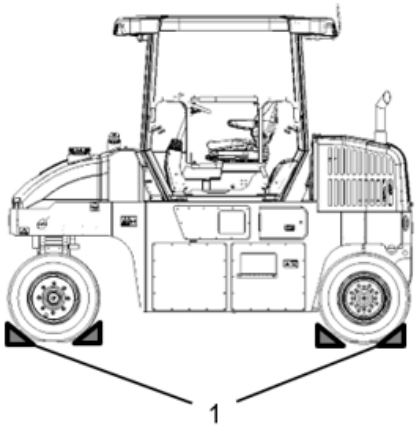


Fig. – Choking the wheels
1. Chocks

Chocking the wheels

Never leave the roller and let it with the engine running unless the parking brake is activated.

Ensure that the machine is parked in a safe, traffic-free area. Chock the wheels when parking on slopes.

In extremely cold weather, some components may freeze. Drain the water tanks and pipings.

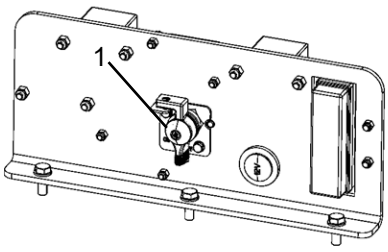


Fig. – Engine compartment
1. Battery switch

Battery switch

At the end of the working shift, turn off the battery switch (1) and remove the handle.

This will prevent the battery discharging and will also make it difficult to start and drive the machine if unauthorized people try to use it. Close and lock the maintenance covers and doors.

Long-term storage

For long-term storage (more than a month) follow the instructions below:

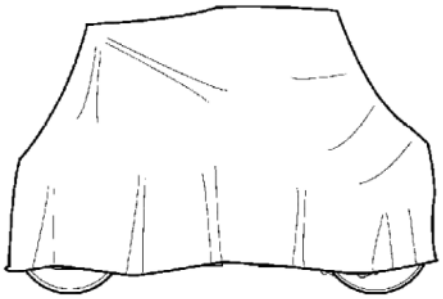


Fig. – Roller weather protection

These measures are valid for storage for a period of up to 6 months.

Before starting the machine again, the points stated below shall be performed before parking and store the roller.

Wash the machine and touch up the painting finishing to prevent rusting. Use anti-rust agents on the exposed parts and lubricate carefully the machine, besides applying grease to unpainted surfaces.

Engine

Refer to the manufacturer information in the engine instruction manual supplied with the roller.

Battery

Remove the batteries from the roller, clean their outside parts and recharge them once a month.

Air cleaner, exhaust pipe

Close the air tube or the respective intake opening with plastic or tape. Also cover the exhaust pipe opening with sealing material to avoid moisture entering in the engine.

Water distribution system

Drain all the water in the water tank and all the hoses. Also drain the filter housing and the water pump and remove all the sprinkler nozzles.

Refer to the Maintenance section to obtain further information about water draining.

Fuel tank

Fill the fuel tank completely to prevent condensation.

Hydraulic oil reservoir

Fill the hydraulic reservoir until the uppermost level.

Tires

Make sure the tires pressure is at least 345kPa (50 PSI).

Jack up the frame, so that the tires do not take any load.

Steering cylinder, hinges, etc.

Grease the steering cylinder plunger spindle to preserve it.

Also lubricate the hinges on the engine compartment and cab doors.

Hoods, tarpaulin

Lower the instruments hood/covering over the instrument panel.

Cover the entire roller with a tarpaulin. It shall have a gap between it and the ground.

If possible, store the machine indoors and preferably in a place with regular temperature.

When stopping and parking the equipment, always apply the parking brake.

As a precaution measure, chock the roller tires when parking on slopes and turn off the engine.

To prevent accidents, when parking on slopes, stop transversally to the road towards the slope.

Never leave the roller with the engine running. Before leaving it, apply the emergency/parking brake.

Make sure the roller is parked in a safe place and that it is not obstructing the traffic.

Lifting

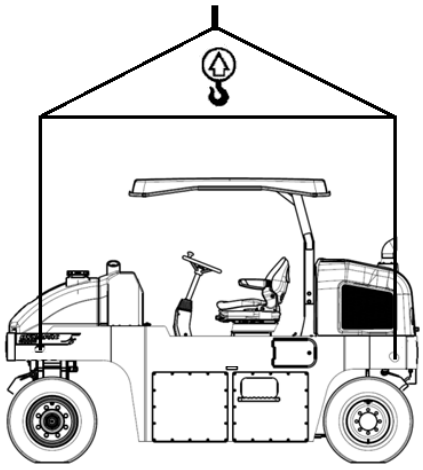


Fig. – Roller prepared for lifting.

Lifting the roller

Make sure the front wheels are parallel with the frame before lifting the roller.

Make sure the hooks are safely placed in the lifting eyes. The equipment shall only be lifted by the proper lifting eyes.

Always use cables and steel chains according to the safety norms and make sure there are no worn components and that parts are not damaged during the lifting.

The machine's gross weight is specified in the hoisting plate (1). Refer also to the Technical Specifications.

Do not go under or next to the machine when it is being lifted.

Make sure the lifting hooks are safely connected to the machine. Check the machine gross weight and the compatibility of the lifting equipment.

Lifting the roller with a jack

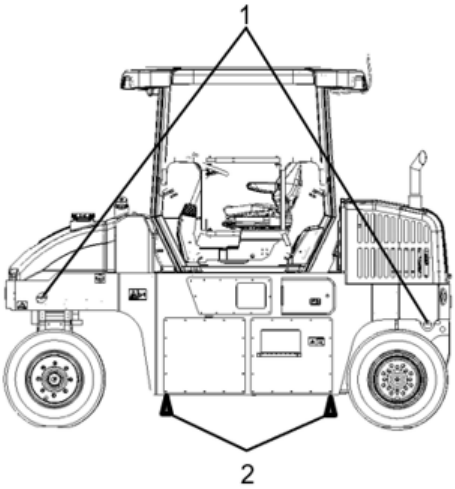


Fig. – Roller lifted with the jack
1. Hoisting plate
2. Jack

The machine's gross weight is specified in the hoisting plate (1). Refer also to the Technical Specifications.

Lifting devices such as a jack (2) or equivalents must be dimensioned according to the safety regulations for lifting devices.

Do not go under or next to the machine when it is being lifted. Also check if the lifting device is fixed and secure in its position, and at a steady level and surface.

The roller shall only be lifted with a jack or similar if it is correctly fitted in the lifting eyes. The frame is reinforced in these points to support the tension. Lifting at any other place can result in damage to the machine or personal injury to the operator.

Towing

Short distance towing with the engine running

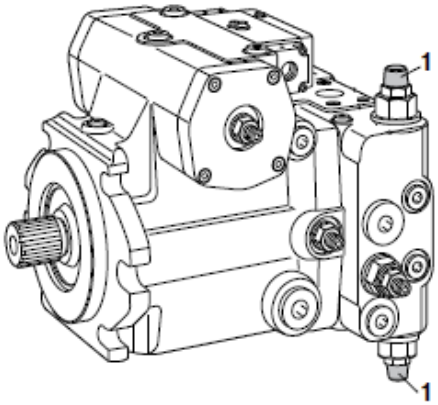


Fig. – Transmission pump
1. By-pass valves

The roller can be moved up to 984 feet (300 meters), according to the following instructions:

To tow the machine, use the same lifting points.

1. Park the roller on a flat and safe place. If necessary, chock the tires.
2. Open the hood and check if the propulsion pump is accessible.
3. On the pump, there are two by-pass valves (1) (allen 5) which should be turned two turns anticlockwise to put the whole system in the by-pass mode, which means that the A and B sides of the pump are freely connected to the pressure side. This function allows the machine to be moved without the drive shaft rotating.
4. Start the Diesel engine and run it in idle.
5. Move the forward/backward lever in one of the two positions. If it is in a neutral position, the hydraulic engine brakes are activated.
6. The roller can be towed and even steered now, if the steering system is working.
7. To leave the by-pass mode, turn both valves (1) two times to the right.
8.

The machine must not be moved in a speed higher than 5 km/h and over 984 feet (300 meters). If it happens, there are risks of damage in the transmission system. Make sure the towing valves are reseted (turning them two times to the right) after the towing.

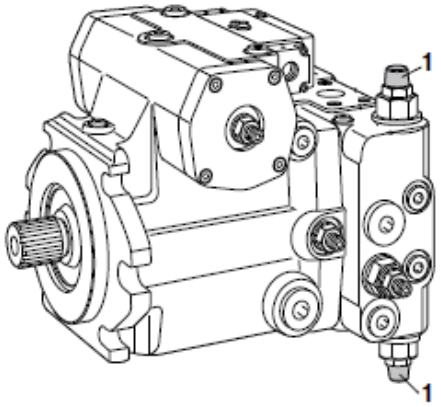


Fig. - Transmission pump
1. By-pass valves

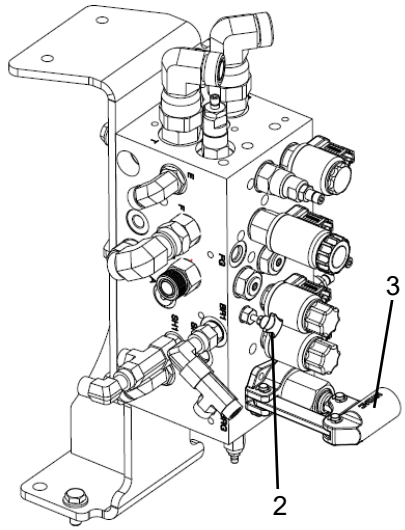


Fig. - Brake release valve
2. Valve
3. Pump arm

Short distance towing with the engine inoperative

As a safety measure, chock the wheels to prevent the machine to move when the brakes are hydraulically disengaged.

The roller can be moved up to 984 feet (300 meters), according to the following instructions:

1. Park the roller on a flat and safe place.
2. Open the hood and check if the propulsion pump is accessible.
3. On the pump, there are two by-pass valves (1) (allen 5) which should be turned two turns anticlockwise to put the whole system in the by-pass mode, which means that the A and B sides of the pump are freely connected to the pressure side. This function allows the machine to be moved without the drive shaft rotating.
4. The brake release pump is at the right side of the engine compartment.
5. Close the valve (2) by tightening clockwise with the knob to enable the manual brake release.

   After towing release the knob anticlockwise, to enable machine control.

6. Pump with the arm (3) until the brakes are released.

   The pump arm is located in a bracket attached to the frame in front of the block.

7. So the brake release pressure is quickly drained, turn on the start engine for a few seconds.
8. To disconnect the by-pass mode, loose the hexagon bolts turning them two times to the right.
9. This way the roller can be towed.

   The machine must not be moved in a speed higher than 5 km/h and over 984 feet (300 meters). If it happens, there are risks of damage in the transmission system. Make sure the towing valves are reseted (turning them two times to the right) after the towing.

Towing

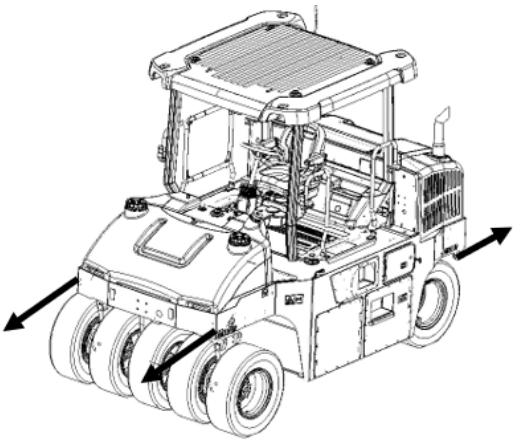


Fig. – Towing direction

When towing, the roller shall be braked by the towing vehicle. Always use a towing bar, because the machine cannot brake.

The roller must be towed slowly and must not be moved in a speed higher than 5 km/h and over 984 feet (300 meters).

During the roller towing, its devices shall be connected in both lifting holes.

The pulling forces shall act to the machine's longitudinal axis, as illustrated in the figure. Refer to the table below to know the maximum pulling force allowed for this machine model:

MODEL	kN	Lbf
CP1200	180	40.465

Transport

Preparing the roller for transport

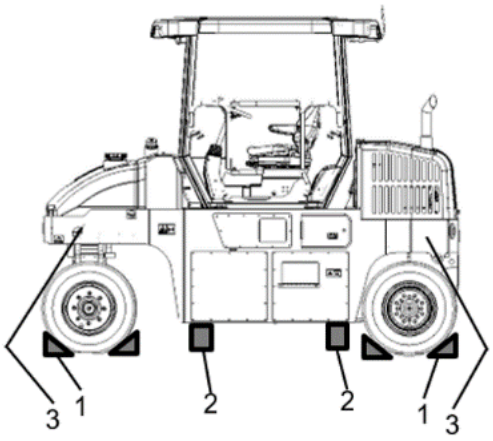


Fig. – Positioning
1. Chocks
2. Supports
3. Straps

First, ensure that the entire contact area of the machine is free from any slippery material (oil, ice, snow, etc.). If present, remove it to allow safer transportation of the machine.

Apply the parking brake and make sure the machine is in the neutral position, that is, that the tires are pointing forwards.

Chock (1) the tires in an angle of 37º and at a minimum height of 9,9 inches (25 cm). They should be chocked both forwards and backwards.

Chock under the frame (2) to ensure that the chains remain tensioned if the air goes out of the tires. Block up the machine according to the figure.

Secure the roller with chains in all four corners. The attachment points are shown in the safety decals. Put the chains in symmetrical pairs, crossing each other.

Make sure the chains, supports and attachments of the transport vehicle are approved and have the proper tension to perform the fitting and locking. Check regularly if the chains are not slack.

Operation instructions - Overview

Follow the safety instructions specified in the Safety Manual.

- Make sure all the MAINTENANCE INSTRUCTIONS were carried out. For further information, refer to the Maintenance section in this manual.
- Turn on the battery switch.
- Move the forward/backward lever to the "P" position.
- Apply the emergency stop. The roller will always start in the **High** speed.
- Keep the ignition key in the "O" position.
- Start the engine and warm it.

Always check the brakes. Before starting the working shift, carry out a test in the system, and remember that if the hydraulic oil is cold, the brake distance will be longer.

When operating the roller, use carefully the forward/backward lever.

- Make sure the tires are well sprinkled, when necessary.

In an emergency, apply the emergency stop, hold well the steering wheel and be ready for a sudden stop.

- When parking: stop the engine, apply the parking brake and chock the roller tires.
- When towing: refer to the towing instructions in this manual.
- When lifting: refer to the lifting instructions in this manual.
- When transporting: refer to the transport instructions in this manual.

Preventive Maintenance

Introduction

It is necessary to carry out a complete maintenance so the machine can work satisfactorily and at the lowest possible costs.

The Maintenance section includes the periodic maintenance that shall be carried out on the machine.

The recommended maintenance intervals assume that the machine is being used in a normal environment and working conditions.

Delivery

The machine is tested and adjusted before leaving the plant.

The inspection shall happen in the moment it arrives to the client, following the list in the warranty document.

Any transport damage shall be immediately reported to the carrier company.

Warranty

The warranty is only valid if the inspections were carried out at the time of the delivery, as well as the maintenance inspections according to the warranty.

The warranty is not valid if there are damages due improper assistance, misuse of the machine, use of lubricants and hydraulic oils not specified in the manual or if other adjustments were made without the proper authorization.

Warning symbols

WARNING! Damage to the machine or its parts.

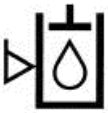
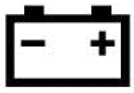
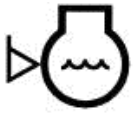
CAUTION! Risk of death or injures.

Preventive maintenance - Symbols and lubricants

Always use high quality lubricants and in the amounts required.
Too much grease or lubricant oil can cause overheating and premature wear.

ENGINE OIL	Air temperature -15°C +50°C (5°F-122°F)	**Dynapac Engine oil 200**	P/N **4812161855** (5L) P/N **4812161856** (20L)
HYDRAULIC OIL	Air temperature -15°C +40°C (5°F-122°F) Temperatura ambiente superior a +40°C (104°F)	**Dynapac Hydraulic 300** **Shell Tellus T68 ou equivalente.**	P/N **4812161867** (5L) P/N **4812161868** (20L)
BYOLOGICAL HYDRAULIC OIL	When leaving the plant, the machine may be filled with biologically degradable oil. When replacing or filling with oil, use the same type of oil used previously.	**PANOLIN HLO Synth 46 (www.panolin.com)**	
GREASE		**Dynagrease**	P/N **4812030096** (0.4Kg)
FUEL	Refer to the engine manual instructions.		
COOLANT	Antifreeze protection effective down to -34.6 F (-37°C). 50/50 mixed (clean water coolant additive).	**Dynapac Collant 100**	P/N **4812161854** (20L)

For room temperatures extremely high or low, other lubricants shall be applied.
Refer to the chapter "Special Instructions" or contact ***DYNAPAC.***

	Engine, oil level
	Engine, oil filter
	Hydraulic fluid, level
	Air filter
	Hydraulic fluid, filter
	Fuel filter
	Battery
	Coolant level

	Lubricating oil
	Air pressure
	Sprinkler
	Sprinkler water
	Recycling

Specifications

WEIGHTS	Cab		ROPS	
Shipping Mass	5535 kg	12203 lbs	5265 kg	11607 lbs
Operating: Empty	5825 kg	12842 lbs	5555 kg	12247 lbs
Operating: 8 ballasts	9395 kg	20712 lbs	9125 kg	20117 lbs
Operating: 8 ballasts + Water	10905 kg	24041 lbs	10635 kg	23446 lbs
Operating: 8 ballasts + Sand	12205 kg	26907 lbs	11935 kg	26312 lbs
Operating: 12 ballasts	11275 kg	24857 lbs	11005 kg	24262 lbs
Operating: Wet Sand	9405 kg	20734 lbs	9135 kg	20139 lbs
Operating: Water	7805 kg	17207 lbs	7535 kg	16612 lbs

FILLING VOLUMES	
Hydraulic oil reservoir	70 L (18.49 gal.)
Hydraulic oil system	30 L (7.92 gal.)
Diesel engine lubricating oil	8,2 L (2.1 gal.)
Diesel engine coolant without cab	17 L (4,49 gal.)
Diesel engine coolant with cab	18 L (4,75 gal.)
Fuel tank	215 L (56,79 gal.)
Water tank	410 L (108,3 gal.)
Sand ballast box volume (total)	2,24 m³

ELECTRICAL SYSTEM	
Battery	1 x 12 V / 74 Ah
Alternator	12 V 120A
Fuses	Refer to "Fuses" in the "Electrical System" section”

COMPACTION DATA	
Load on the tires:	
- Without ballast	459 kg
- With wet sand ballast	991 kg
- With steel ballast.	1216 kg
- With the ballast at its max.	1333 kg

Torque

Torque for oiled bolts tightened with a torque wrench.

METRIC COARSE SCREW THREAD, BRIGHT GALVANIZED (fzb)	STRENGTH CLASS					
	8.8, oiled	8.8 dry	10.9, oiled	10.9 dry	12.9, oiled	12.9 dry
M6	8.4 N.m (6.2 lb.ft)	9.4 N.m (6.9 lb.ft)	12 N.m (8.8 lb.ft)	13.4 N.m (9.9 lb.ft)	14.6 N.m (10.7 lb.ft)	16.3 N.m (12.02lb.ft)
M8	21 N.m (15.5 lb.ft)	23 N.m (16.9 lb.ft)	28 N.m (20.6 lb.ft)	32 N.m (23.6 lb.ft)	34 N.m (25.07 lb.ft)	38 N.m (28.02lb.ft)
M10	40 N.m (29.5 lb.ft)	45 N.m (33.1 lb.ft)	56 N.m (41.3 lb.ft)	62 N.m (45.7 lb.ft)	68 N.m (50.1 lb.ft)	76 N.m (56.05 lb.ft)
M12	70 N.m (51.6 lb.ft)	78 N.m (57.5 lb.ft)	98 N.m (72.2 lb.ft)	110 N.m (81.1 lb.ft)	117 N.m (86.3 lb.ft)	131 N.m (96.6 lb.ft)
M14	110 N.m (81.1 lb.ft)	123 N.m (90.7 lb.ft)	156 N.m (115 lb.ft)	174 N.m (128.3 lb.ft)	187 N.m (138 lb.ft)	208 N.m (153.4 lb.ft)
M16	169 N.m (124.6 lb.ft)	190 N.m (140.1 lb.ft)	240 N.m (177 lb.ft)	270 N.m (200 lb.ft)	290 N.m (213.9 lb.ft)	320 N.m (236.01 lb.ft)
M20	330 N.m (243.4 lb.ft)	370 N.m (272.9 lb.ft)	470 N.m (346.6 lb.ft)	520 N.m (383.5 lb.ft)	560 N.m (413.03 lb.ft)	620 N.m (457.28 lb.ft)
M22	446 N.m (329 lb.ft)	497 N.m (366.5 lb.ft)	626 N.m (461.7 lb.ft)	699 N.m (515.5 lb.ft)	752 N.m (554.6 lb.ft)	839 N.m (618.8 lb.ft)
M24	570 N.m (420.4 lb.ft)	640 N.m (472 lb.ft)	800 N.m (590 lb.ft)	900 N.m (663.8 lb.ft)	960 N.m (708.05 lb.ft)	1,080 N.m (796.5 lb.ft)
M30	1,130 N.m (833.5 lb.ft)	1,260 N.m (929.3 lb.ft)	1,580 N.m (1,165.3 lb.ft)	1,770 N.m (1,305.5 lb.ft)	1,900 N.m (1,401.3 lb.ft)	2,100 N.m (1548.8 lb.ft)

Torque (cont.)

METRIC COARSE THREAD, ZINC-TREATED (Dacromet/GEOMET)	STRENGTH CLASS			
	10.9 oiled	10.9 dry	12.9 oiled	12.9 dry
M6	12 N.m (8.8 lb.ft)	15 N.m (11.06 lb.ft)	14.6 N.m (10.7 lb.ft)	18.3 N.m (13.4 lb.ft)
M8	28 N.m (20.6 lb.ft)	36 N.m (26.5 lb.ft)	34 N.m (25.07 lb.ft)	43 N.m (31.7 lb.ft)
M10	56 N.m (41.3 lb.ft)	70 N.m (51.6 lb.ft)	68 N.m (50.1 lb.ft)	86 N.m (63.4 lb.ft)
M12	98 N.m (72.2 lb.ft)	124 N.m (91.4 lb.ft)	117 N.m (86.3 lb.ft)	147 N.m (108.4 lb.ft)
M14	156 N.m (115 lb.ft)	196 N.m (144.5 lb.ft)	187 N.m (138 lb.ft)	234 N.m (172.5 lb.ft)
M16	240 N.m (177 lb.ft)	304 N.m (224.2 lb.ft)	290 N.m (213.9 lb.ft)	360 N.m (265.5 lb.ft)
M20	470 N.m (346.6 lb.ft)	585 N.m (431.4 lb.ft)	560 N.m (413.03 lb.ft)	698 N.m (514.8 lb.ft)
M22	626 N.m (461.7 lb.ft)	786 N.m (579.7 lb.ft)	752 N.m (554.6 lb.ft)	944 N.m (696.2 lb.ft)
M24	800 N.m (590 lb.ft)	1,010 N.m (744.9 lb.ft)	960 N.m (708.05 lb.ft)	1,215 N.m (896.1 lb.ft)
M30	1,580 N.m (1,165.3 lb.ft)	1,990 N.m (1,467, 7 lb.ft)	1,900 N.m (1,401.3 lb.ft)	2,360 N.m (1,740.6 lb.ft)

Wheel bolts

Bolt dimensions	M20 (PN 4700792683)
Strength class	10.9
Torque front wheel	Lubrificado: 494 N.m (364,5 lb.ft)
Torque rear wheel (Hydraulic motor with brake)	Lubrificado: 550 N.m (405,66 lb.ft)
Torque rear wheel (Hydraulic motor w/ brake)	Lubrificado: 770 N.m (567,92 lb.ft)

Hydraulic system

OPENING PRESSURE		
Steering system	170 BAR	2.466 PSI
Transmission system	430 BAR	6.237 PSI
Brake release	25 BAR	363 PSI

Specifications (cont.)

Air conditioning (option)

The system described in this manual is the ACC (Automatic Climate Control), that is, a system which maintains the set temperature in the cab provided that all the windows and doors are kept closed.

Coolant designation: HFC-R134:A

Coolant weight when full: 1,350 g (2.98 lbs).

Engines

ENGINE	
Manufacturer and model	Cummins QSF 2.8 TIER 3
Power (SAE J1995)	72 HP (54 kW) @ 2.400 rpm

ENGINE	
Manufacturer and model	Cummins QSF 2.8 TIER 4
Power (SAE J1995)	74 HP (55 kW) @ 2.500 rpm

Maintenance and lubrication points

Read carefully this manual section before carrying out any maintenance or lubrication on the machine.

Always check the areas around and under the equipment. It is an easy way to detect earlier leakages and possible damages.

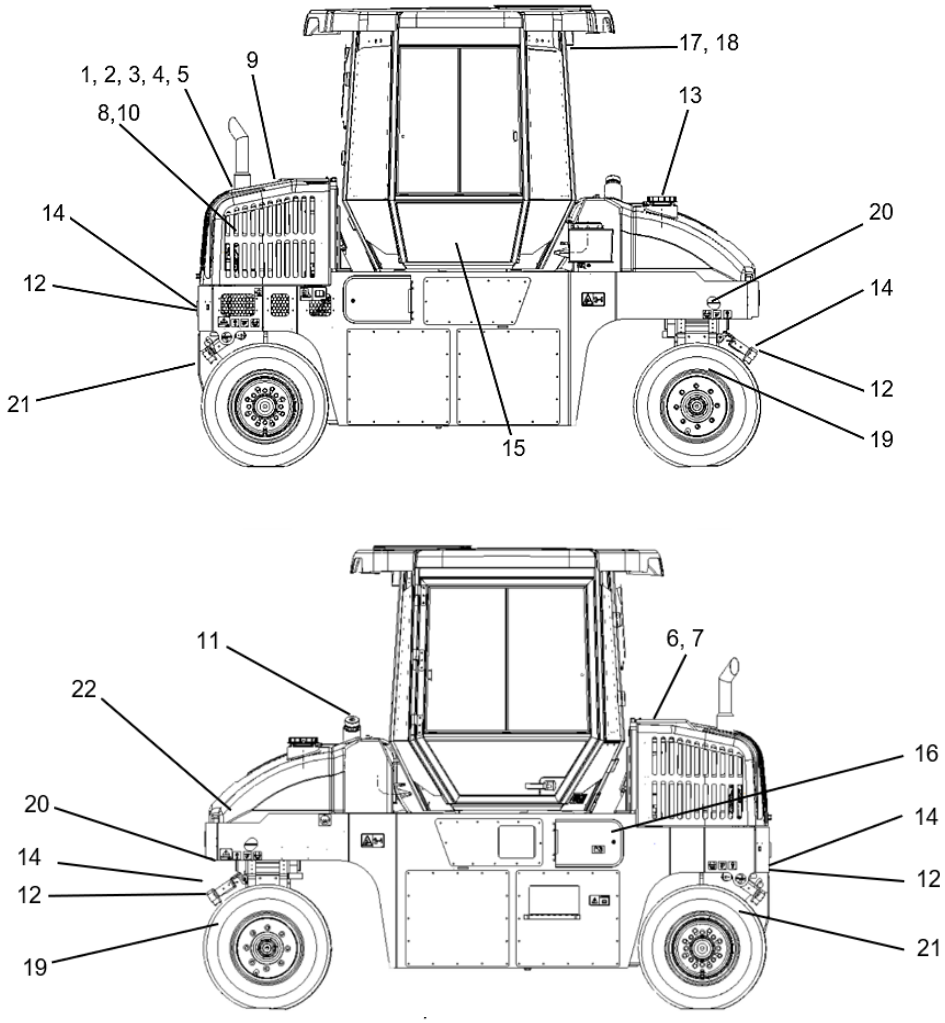


Fig. – Service and lubrication points.

1. Engine oil
2. Oil filter
3. Fuel filter
4. Hydraulic oil filter
5. Hydraulic oil level
6. Hydraulic oil supply
7. Hydraulic oil reservoir
8. Radiator
9. Coolant
10. Engine air filter
11. Fuel supply
12. Scrapers
13. Water supply system
14. Sprinkling system
15. Seat bearing
16. Battery
17. Cab air filter
18. Cab air conditioning
19. Lower pivot bearing
20. Upper pivot bearing
21. Hydraulic motor

Scheduled maintenance and lubrication

The maintenance and lubrication shall be carried out first based on the working hours. When they cannot be considered, use the periods, like daily, weekly, etc.

Always clean around the covers, plugs, grease nipples or hoods before open or apply grease to them.

Respect and follow the engine manufacturer instructions. For further information, refer to the Engine Manual.

Park the roller on a level surface.

When checking and adjusting the machine, always turn off the engine and make sure the forward/backward lever is in the neutral position.

When the engine is on in enclosed places, make sure there is a good ventilation, to prevent carbon monoxide poisoning.

Scheduled maintenance

DYNAPAC FAYAT GROUP

Scheduled maintenance

o Check • Replace

Pos.	Action	p.	10 hours (daily)	First 50 hours	50 hours (Weekly)	250 hours (Monthly)	500 hours (quarterly)	1000 hours (Semi-annually)	1500 hours	2000 hours (Annually)	3000 hours	Notes
-	Check operation of the emergency brake	73	o									
1	Check the engine oil level	73	o									Refer to the engine manual
9	Check the level of engine coolant	73	o									
5	Check the hydraulic oil level	74	o									
13	Fill the water tanks	74	o									
14	Check the sprinkler system	74	o									
12	Check the scrapers adjustments	75	o									
3	Perform the fuel filter drain	75	o									Refer to the engine manual
11	Fill the fuel tank	76	o									
-	Clean the dust ejection valve	76	o									Refer to the engine manual
-	Replace the hydraulic oil filters	77		•			•		•			
-	Check the air tire pressure	77			o							
-	Check the tightness of the wheel nuts	78			o							
10	Check and clean the engine air filter elements	78			o		•		•			
19,20	Grease the upper and lower articuled bearings	79			o							
8	Check and clean the radiator	79				o						
1,2	Replace the oil and filter of the engine	79				•	•	•	•			Refer to the engine manual
3	Replace the fuel filter and prefilter	80				•	•	•	•			Refer to the engine manual
6	Check the hydraulic oil tank cover	81				o		o				
15	Lubricate the bearing seat	81				o		o				
17	Replace the cabina ir filter	82					•		•			
-	Check belt and alternator	82					o		o			
9	Change the engine coolant	82							•			Refer to the engine manual
11	Empty and clean the fuel tank	83							o			
13	Empty and clean the water tank	83							o			

Refer to the hour meter to determine which type of maintenance required.

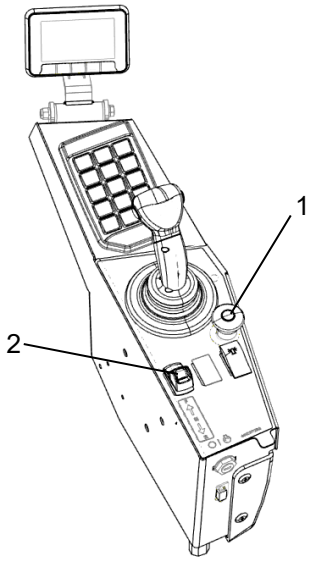


Fig.– Emergency brake
1. Emergency brake
2. Parking brake

Check operation of the emergency brake

Make the machine move slowly. Hold the steering wheel and brace yourself for a sudden stop.

Press the emergency brake button (1). The roller will stop abruptly and the engine will shut down.

After testing the brakes, put the lever forward / reverse to neutral and activate the parking brake (2).

Pull the emergency brake button out. Start the engine

The roller is now ready to work.

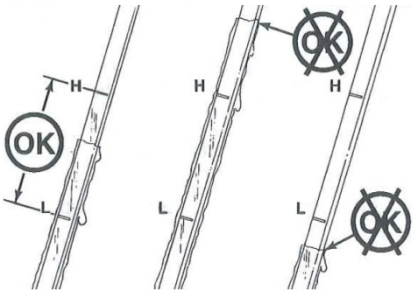


Fig. – Engine oil level

Check the engine oil level

The oil dipstick is located under the oil filler plug on the left side of the engine.

Never operate the machine with the oil level below the L mark and above the mark H. Low performance or engine damage may occur.

Place the machine on a flat surface, wait at least 15 minutes after switching off the machine, and make sure the level is between the marks H (high) and L (low).

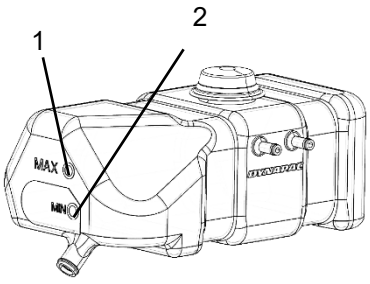


Fig. – Expansion tank
1. Maximum
2. Minimum

Check the level of engine coolant

The expansion tank is located in the upper left corner of the engine access.

Make sure the cooling liquid level is between the MAX and MIN marks the expansion tank. If necessary, remove the tank lid and complete the level.

NEVER open the lid of the expansion tank when the engine is hot and always wear gloves and goggles.

When filling the cooling liquid, always use a compound with 50% water and 50 % additive. See the specifications of lubricants in this manual.

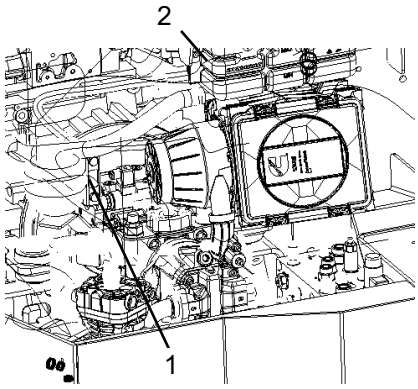


Fig.: Hydraulic oil reservoir
1- Oil sight glass
2- Filling plug

Check the hydraulic oil level

1. Park the roller on a level ground and turn off the engine

2. Check the hydraulic oil reservoir sight glass (1) located on the right side of the machine.

3. If the oil level is 2 cm below the glass upper line, fill with the recommended hydraulic oil.

Use only hydraulic oil recommended by ***DYNAPAC.***

Fig. - Hydraulic oil reservoir
1. Oil sight glass
2. Filling plug

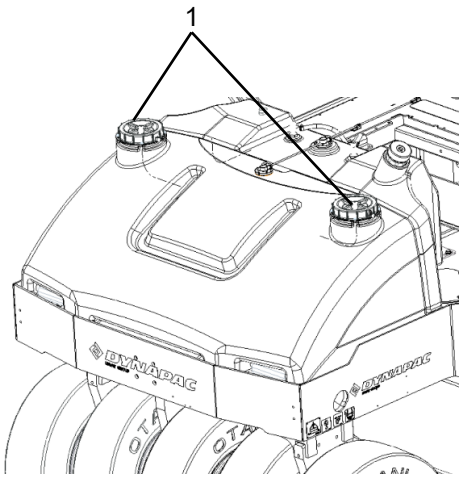


Fig.– Water tank supply
1. Covers

Fill the water tanks

There are two filling caps above the water tank (1).

Loosen and remove the tank lid and fill with a mixture of water and non-stick in the ratio 9: 1. Do not remove the filter.

Fill the reservoir with a capacity of 410 liters.

Use as nonstick tire DYNA GUARD. In addition to protecting the tire is biodegradable.

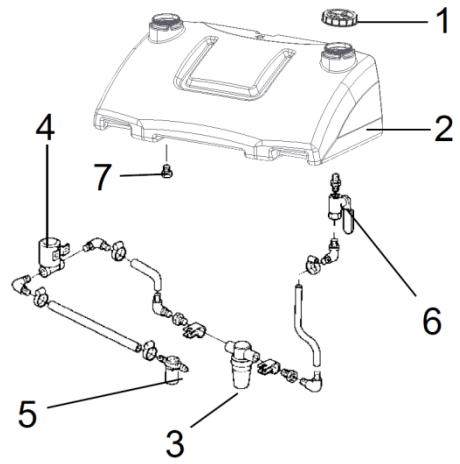


Fig. – Sprinkler system
1. Cover
2. Tank
3. Filter
4. Pump
5. Magnetic valve
6. Cutting valve
7. Drain plug

Check the sprinkler system

Make sure the sprinkler system runs smoothly. The solenoid valves (5) shall issue a noise to show they are working.

Operate the system and check for clogged nozzles. If necessary, clean them.

To clean the filter (3) empty the tank (2) and remove the strainer. Empty the strainer and rinse with water.

Check that the pump (4) is running, listening to their voice or touching a hand on her.

If there is shut-off valve (6) you will not have to empty the tank to clean the filter.

Nozzle - Disassembly / Cleaning

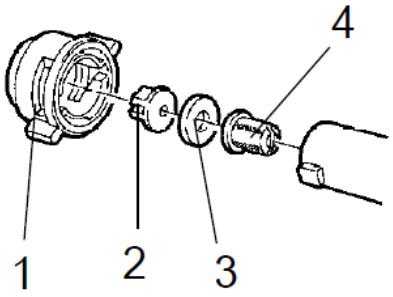


Fig. – Nozzle
1. *Sleeve*
2. *Nozzle*
3. *Union*
4. *Fine filter*

Remove manually the clogged nozzle.

Apply the nozzle (2) and fine filter (4) a compressed air jet. Alternatively, install replacement parts and clean the clogged later.

After checking and cleaning possible, turn on the system and check its operation.

Wear protective goggles when working with compressed air.

Check the scrapers adjustments

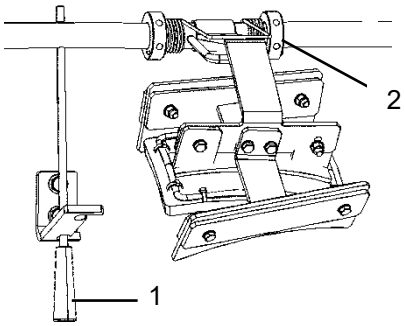


Fig. – Adjustment of scrapers
1. *Handle*
2. *Pressure ring*

Adjustment of the scrapers on the wheels is done by the handle (1) supporting the scraper.
There are two positions: of work and rest.
Adjust the snap rings (2) of the scrapers to control the pressure applied on wheels.

Replace water separator filter

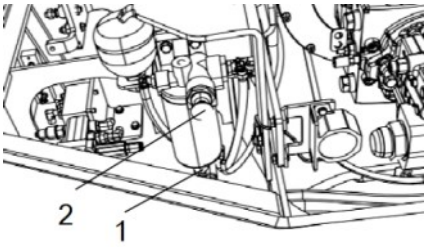


Fig. – Water separator filter
1. Drain plug
2. Manual pump

To drain the fuel filter, follow the instructions below:

1. Loosen the drain plug (1) located at the bottom of the filter.
2. Using the manual auxiliary pump (2), make sure to remove all sediment. If in doubt, refer to the engine instruction manual.
3. When only clean fuel flows from the filter, close the drain plug.

PROTECT THE ENVIRONMENT: All used oil must be properly collected and stored for subsequent recycling. Do not dispose of oil on the ground, in the sewage system, or in any location that may harm the environment.

Fill the fuel tank

Never fill the engine when it is working. Do not smoke and avoid spilling fuel.

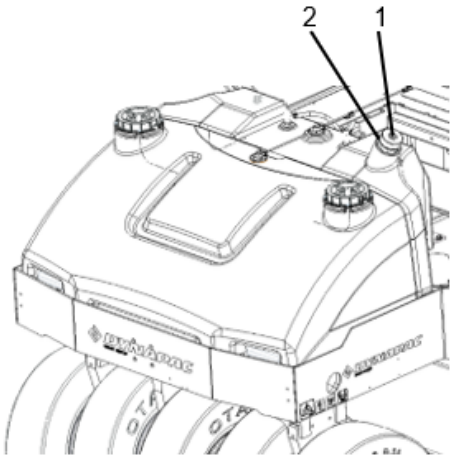


Fig. – Fuel tank
1. Tank cover
2. Filling pipe

The supply nozzle and the reservoir cap are located in front of the operator platform on the left side of the machine.

Check the fuel tank every day before starting work, or fill the tank when the work is completed.

Loosen and remove the fuel cap (1) and make the check to the oil fill.

The tank has a capacity of 215 liters of fuel. For more information about the quality of fuel, see engine manual.

When refueling, stop the machine on a level and secure, turn off the engine and ground the supply nozzle placing it in contact with the chassis not isolated spot, before the start filling.

While refueling, hold the pump nozzle in contact with the oil fill tube. Always fill with fuel recommended by Dynapac.

The use of adulterated fuel, contaminated, dirty or poor quality, damages the components of the injection and engine system. Repairs under this condition are NOT covered under warranty.

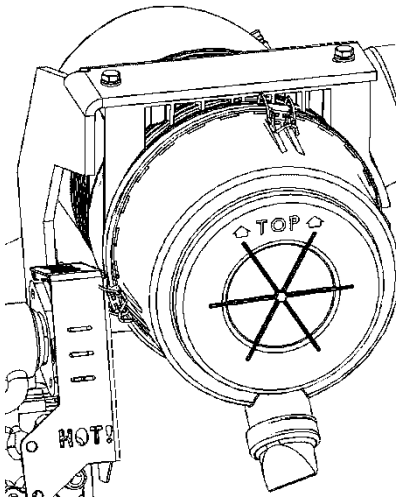


Fig. – Dust ejection valve

Clean the dust ejection valve (Tier IV)

Clean the valve eject dust filter air daily after working hours , pressing the valve and letting the dust out while open.

After leaving all the dust, release the valve.

Refer to the Engine Operation Manual and maintenance for more information.

Replace the hydraulic oil filters

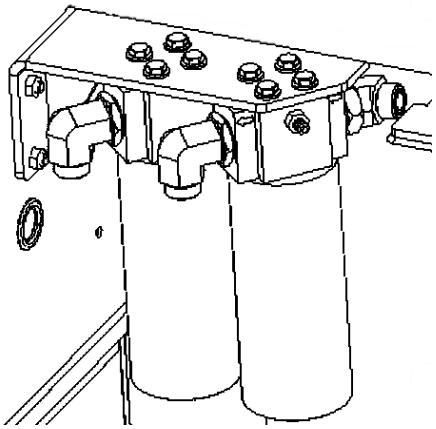


Fig. – Filters

Hydraulic filters are located on the right side of the engine compartment.

TAKE CARE OF THE ENVIRONMENT: All the used oil shall be properly stored for subsequent disposal. Do not dispose of oil on the ground, sewage system or other place which can harm the environment. The filter is disposable and cannot be cleaned.

1. Open the hydraulic oil tank cap.
2. Clean carefully the sealed surface on the filter holder.
3. Apply a thin layer of clean hydraulic oil on the rubber gasket of the new filter.
4. Fit manually the filter, first until the filter gasket manages to reach the holder. Next, tighten it with one more turn.
5. Check the hydraulic oil level on the sight glass (2) and adjust, if necessary.
6. Turn on the engine and check if the filter is well sealed.

Check the tires air pressure

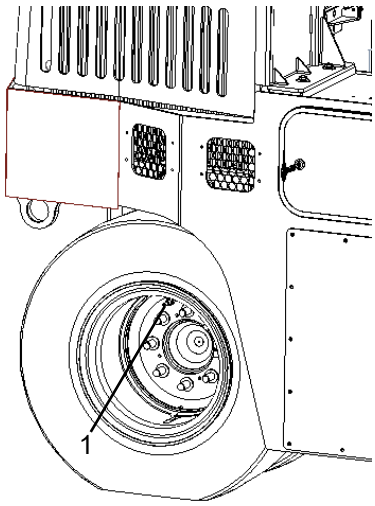


Fig. – Wheel
1. Air valve

To check the pressure, use an air pressure gauge. The pressure in all the tires must be the same.

To know the recommended pressure values, refer to the "Technical Specifications" section.

When replacing the tires, it is important that all of them have the same original diameter and width; otherwise they can slide into the wheel or make their installation impossible.

The machine can be equipped optionally with the tire pressure adjustment system (Air on the Run).

NOTE: For machines with the Air on The Run system, the tires should be emptied at the end of the operation for 3 - 5 seconds, so that an auxiliary blow-off of the dryer filter is carried out.

Check the tightness of the wheel nuts

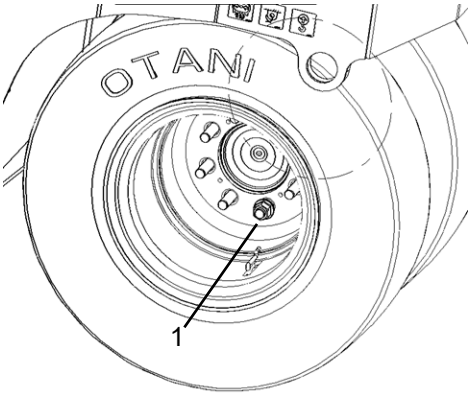


Fig. – Wheel
1. Nuts

Confirm the tightening torque of the REAR wheel nuts (1) with 770 Nm (78kpm) / 550 Nm (56 kpm) and FRONT wheel with 494 Nm (50 kpm):

Check all wheels and all nuts (this information is valid only for new machines or newly installed wheels).

Check and clean the engine air filter elements

Replace the main filter element when the corresponding warning light is illuminated on the instrument panel when the engine is at full speed.

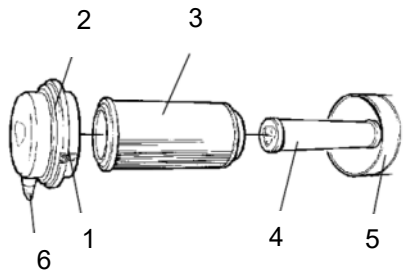


Fig. – Air filter
1. Clamps
2. Cover
3. Main filter
4. Safety filter
5. Filter case
6. Dust valve

1. Loosen the clamps (1); remove cover (2) and the main filter (3). Do not remove the safety filter (4).
2. Clean the air filter, if necessary, following the instructions on this page.
3. When replacing the main filter (3), insert a new one in its place and fit the air filter components in the reverse order.
4. Verify that the anti -dust valve (6) is in good condition and replace if necessary.
5. When attaching the cover, make sure that the anti -dust valve is facing down.

Replace the secondary air filter every five main air filter uses.

To carry out the air filter cleaning, follow the instructions below:

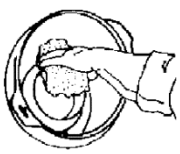
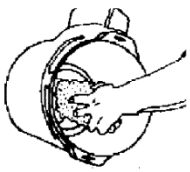


Fig.
Inside of the Outlet tube



Outside of the Outlet tube

1. Clean the inside of the cover and filter housing.
2. Also clean the surfaces of the outlet tube, as shown in the picture.

Check that the hose clamps between the filter housing and the intake hose are tight and that the hoses are intact. Check all hoses system until the engine.

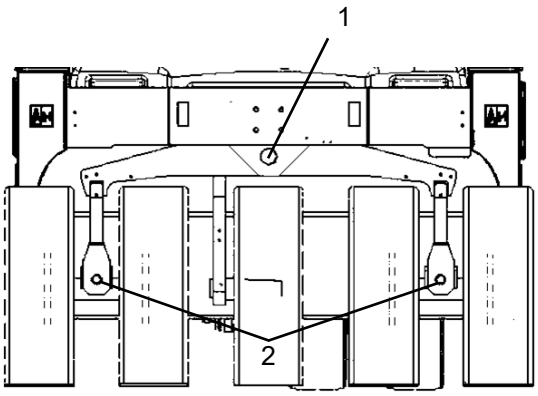


Fig. – Articulated bearings
1. Upper pivot bearing grease
2. Lower pivot bearing grease

Grease the lower and upper articulated bearings

1. Lubricate the fitting of the upper pivot bearing (1) and the lower pivot bearing (2) with five applications of the manual pump.

2. Use the grease in accordance with the recommended lubricant specifications for Dynapac.

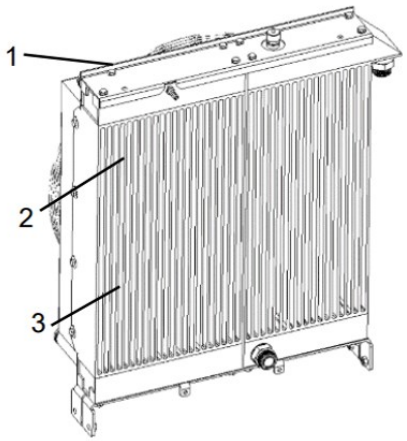


Fig. – Radiators
1. Charge air cooler
2. Hydraulic oil cooler
3. Water cooler

Check and clean the radiators

Make sure that the air flow is passing freely through the radiators without obstruction. If the hives are dirty, wash them under running water (the engine is cold) and clean them with compressed air jets.

When using compressed air, use safety glasses.

Where possible, clean the hives in the opposite direction to the fan airflow. Every time you flush the hive, cover the electrical and electronic components.

Change the diesel engine oil

The engine oil drain plug is located at the rear of the machine on the lef side. The hose is near the radiators.
Perform the drainage of the oil while the engine is still warm, place a container with a minimum capacity of 14 liters below the plug.

Have full caution when performing the oil drain. Wear gloves and goggles, as hot oil can cause burns if in contact with skin.

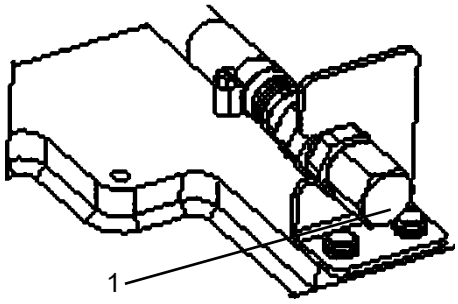


Fig.: Drain plug
1- Drain plug

Loosen the hex nut, pull the hose out and release the oil drain plug.

1. Let all the oil drain into the container and finish the operation attach the drain plug back and attach the hose.

2. Then tighten the hex nut.

TAKE CARE OF THE ENVIRONMENT: All the used oil shall be properly stored for subsequent disposal. Do not dispose of oil on the ground, sewage system or other place which can harm the environment.

Always fill with new oil. For correct grade oil information, refer to the Lubricant specifications or the Engine Manual Instructions. Fill according to the oil volume necessary to the engine. Check the dipstick to know if the volume is correct and before carrying out the operation, let the engine in idle for a few minutes and turn it off.

Change the engine oil filter Diesel

Never perform any maintenance work under the machine while the engine is still operating. Always park the roller on a flat and safe place and chock the tires.

The oil filter (1) is located close to the radiators.

Refer to the Engine Instructions Manual to obtain information about the oil filter replacement.

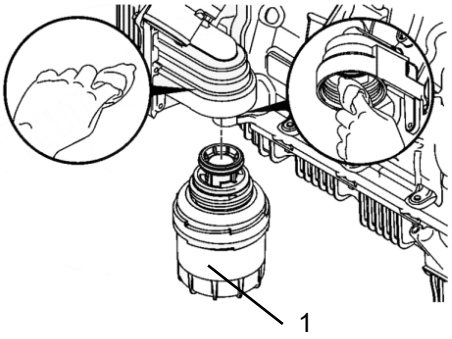


Fig. – Engine compartment
1. Oil filter

Replace the filter and pre fuel filter

Never perform any maintenance work under the machine while the engine is still operating. Always park the roller on a flat and safe place and chock the tires.

The fuel filter (1) is located right side of the engine.

Refer to the engine manual for information on replacement fuel filters.

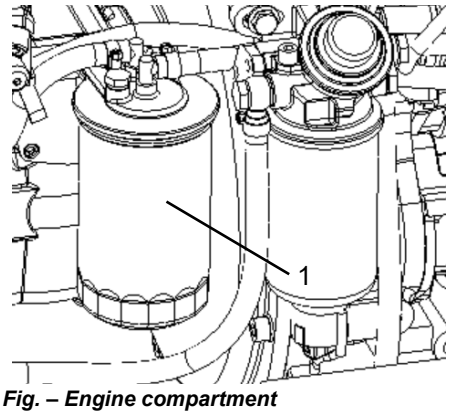


Fig. – Engine compartment
1. Fuel filter

Check the hydraulic oil tank cover

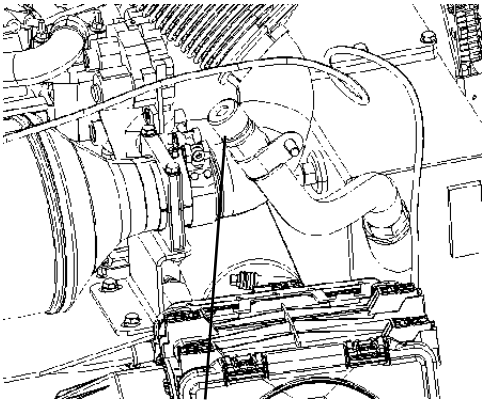


Fig. – Right side of the frame
1. Tank cap

To check the hydraulic oil tank cap:

1. Unscrew the tank cap and check if it's obstructed. The air must flow freely throughout the cap in both ways.

2. If one way is obstructed, wash the filter with a small portion of Diesel oil and use compressed air until the obstruction is eliminated or replace the cap for a new one.

Always use protective goggles when working with compressed air.

Lubricate the seat bearing

Keep in mind that the chain is a vital part of the steering mechanism.

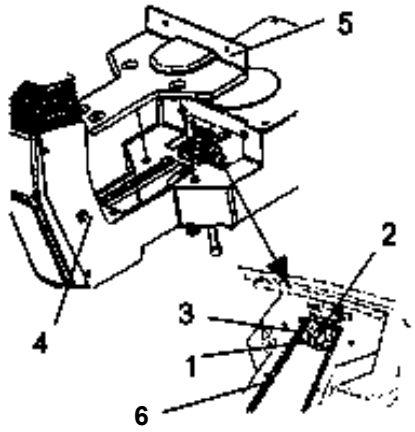


Fig. – Seat bearing
1. *Grease fitting*
2. *Sprocket wheel*
3. *Steering column chain*
4. *Adjusting bolt*
5. *Cover*
6. *Marking*

To lubricate the seat bearing:

1. Remove the cap (5) to access the grease fitting (1). Lubricate the operator's seat rotation bearing with three strokes of a hand-operated grease gun.

2. Clean and lubricate the chain (3) with grease, between the seat and the steering column.

3. If the chain gap is next to the sprocket wheel (2), loose the bolts (4) and move the steering column forward. Tighten the bolts and check if the chain is with the proper gap.

4. Do not tension the chain too tightly. It should be possible to move the chain about 0.4 inches (10 mm) to the side with a forefinger/thumb at the marking (7) in the seat frame. Fit the chain lock at the bottom.

If it is hard to move the seat, lubricate it more frequently than the instructions specified in this manual.

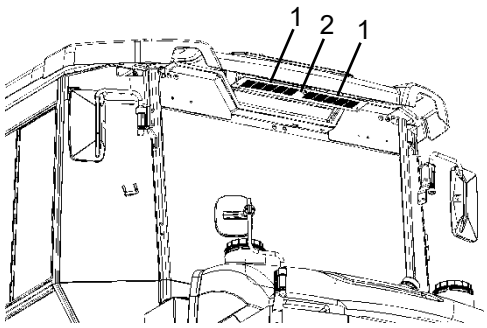


Fig. Cab
1. *Filters (2x)*
2. *Bolts (3x)*

Replace the cab air filter

Use a step ladder to reach the filter (1). The filter can also be accessed by the window at the right side of the cab.

The filter is located at the front of the cab.
Remove three bolts and the protective plastic.
Remove the filters and replace them with new ones.
It may be necessary to replace them more frequently if the machine is working in a dusty environment.

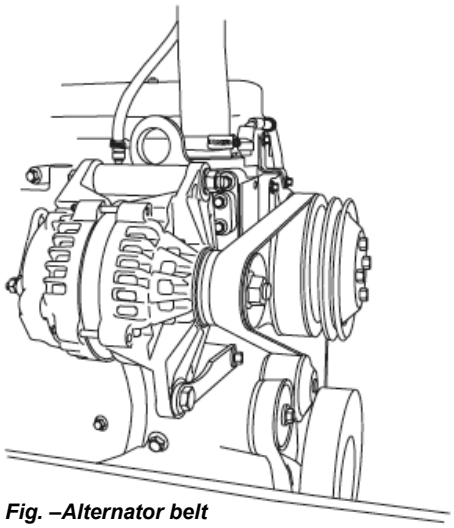


Fig. –Alternator belt

Check the alternator belt

With the machine stopped, check for cracks in the belt tensioner arm.

Check the belt on the pulley location, it must be centered.

Inspect the belt daily, search for cracks, if any, replace it immediately.

For more detailed information on inspection and replacement belts refer to the engine manual.

Change the engine coolant

Caution! Risk of severe burns!
Wait until the engine temperature cools down to 122 F (50°C) before removing the coolant tank cap or draining the coolant system.

1. Open the expansion tank cap.

NEVER open the coolant tank cap when the engine is hot.

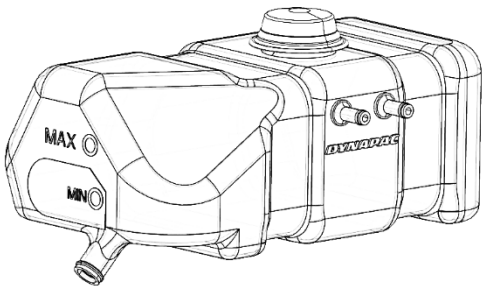


Fig. – Expansion tank

2. Drain the engine coolant system through the cooler valve drain.

3. Use a proper container to collect the coolant (with 3.69 gal or 14 liters of capacity).

Be careful when draining the product. Use gloves and protective goggles.

TAKE CARE OF THE ENVIRONMENT: All used coolant shall be properly collected and store for subsequent recycling. Do not dispose of the coolant on the ground, sewage system or other place which can harm the environment.

4. Unscrew the hexagon nut, remove the hose and unscrew the drain plug. Drain all the fluid to the container.

5. After the replacement, tighten the drain plug and fit back the hose and the hexagon nut.

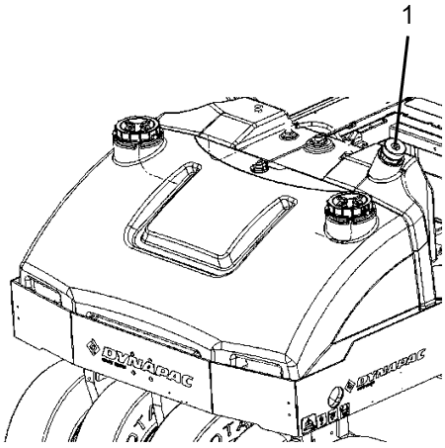


Fig. – Fuel tank
1. Filling cap

Empty and clean the fuel tank

NEVER perform maintenance work under the machine when the engine is working. Always park the roller on a flat and safe place and chock the tires.

The fastest and simple way to clean the tank is when it is empty:

1. Open the filling cap (1) of fuel tank.

2. Place two proper containers under the drain plug of the fuel tank (2).

The drain plug of the fuel tank is on the right side of the machine, in a proper compartment.

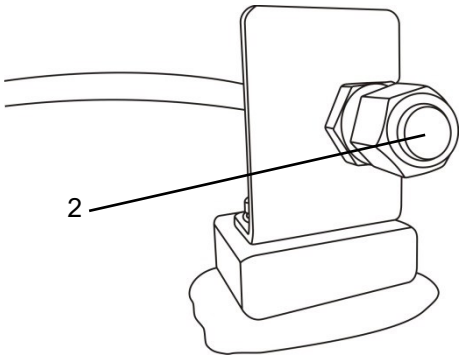


Fig. – Fuel tank draining
2. Plug

3. Unscrew the drain plug (2) and drain the remaining fuel inside the tank.

4. Refit the drain plug and tighten it.

Using adulterated, contaminated, dirty or bad quality fuel damages the injection system and engine components. The repairs due the conditions above are NOT covered by the warranty.

TAKE CARE OF THE ENVIRONMENT: All the used waste shall be properly stored for subsequent recycling. Do not dispose of any waste on the ground, sewage system or other place which can harm the environment.

Be extremely careful when handling fuel. There is risk of fire.

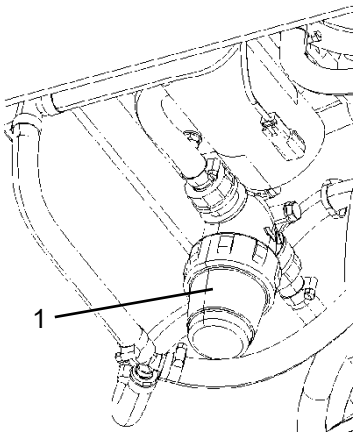


Fig. - Water tank
1. Water filter

Empty and clean the water tank

Wash the water tank adding a small quantity of a suitable detergent for plastic surfaces.

Remove the water filter to empty the tank.

The water tank is made of plastic (polyethylene) and can be recycled.

Electrical system

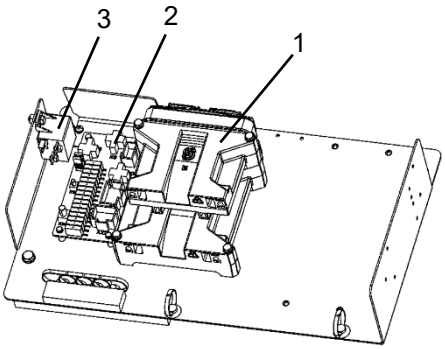


Fig. - Main control box
1. ECU
2. Fuses
3. Main relay

The machine's main control box (1) is located on the rear of the operator platform. There is a plastic cap over it and the fuses.

A 12V jack is available in the plastic cap.

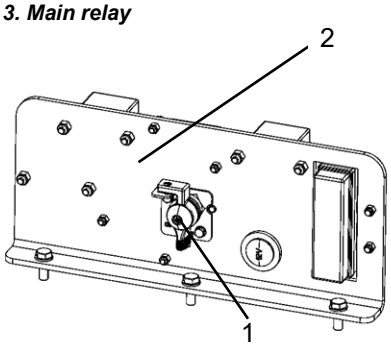


Fig. - Battery compartment
1. Master switch
2. Main fuses panel

The fuses inside the engine compartment are located alongside the battery master switch.

The roller is equipped with a 12V electrical system, supplied by an AC alternator.

Connect the batteries to the correct polarities (negative posts to the mass). NEVER disconnect the cable between the battery and the alternator when the engine is operating.

Fuses

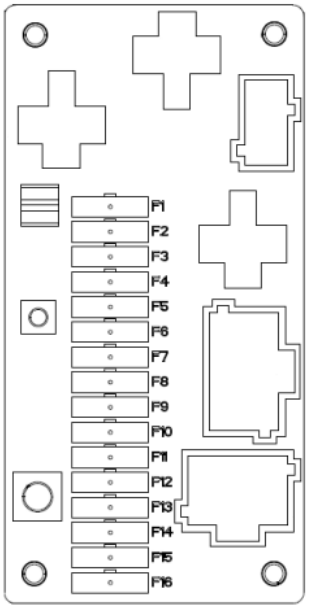


Fig. - F1 fuse box

Fuse box

1. Ignition key, main relay (5A)
2. Main ECU, hydraulic traction motor feed rotation sensor (5A)
3. Main ECU, PWR 1 (10A)
4. Main ECU, PWR 2 (10A)
5. Main ECU, PWR 3 (20A)
6. Main ECU, PWR 4 (20A)
7. Control Box (display , joystick , presence sensor , keyboard, parking brake, reading light, rotate beacon. (5A)
8. 12V socket - Engine compartment (10A)
9. 12V socket - Cab(10A)
10. Expansion module (PWR1) (10A)
11. Expansion module (PWR2) – Spinkler pump relay (10A)
12. Expansion module (PWR3) – Air on the run sensor (5A)
13. Radio (5A)
14. Empty
15. Driving lights relay (K9) (5A)
16. Headlight relay (K8) (10A)

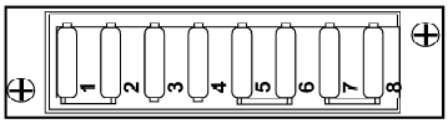


Fig. - Cab fuse box

Cab fuse box

1. Indoors lighting (10A)
2. Windscreen wiper/washers, front/rear (10A)
3. Heating (15A)
4. Empty
5. Empty
6. Empty
7. Empty
8. Empty

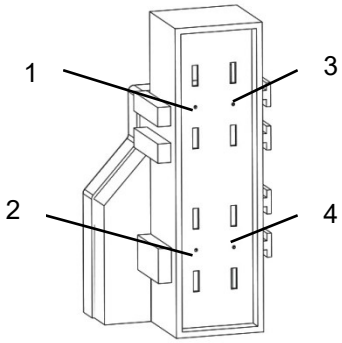


Fig. – Main fuse box

Main fuse box

9. Main fuse (50A)
10. Empty
11. Cab (50A)
12. Engine (30A)

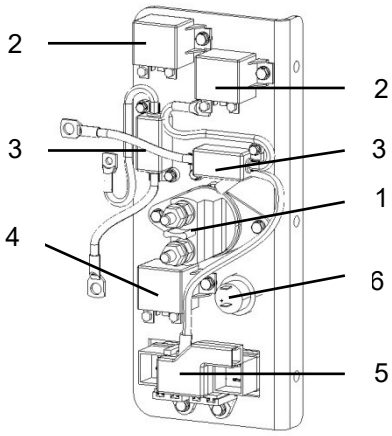


Fig. – Main fuses panel

Main fuses panel

The main fuses panel is near the radiators, on the left side of the machine.

1. Main switch
2. Pre-heating relay (75A x2)
3. FuseF20 (pre-heating 120A x2)
4. Starting relay (75A)
5. Main fuses
6. 12V socket.

Revision

DATE	VERSION	MODIFICATION
01/01/2023	0	General.
02/11/2023	1	Change of hydraulic system pressure.
06/09/2020	2	Change of width with cab CP1200 and 1200W
06/10/2020	3	Update the PN of lubrication oils for roller
01/08/2023	4	General update, added decal 8 in the Safety Decals section.
01/03/2025	5	Update to the safety Decals Section – Location and description and addition decal 23.
03/05/2025	6	Changed recommendation to Shell Tellus T68 hydraulic oil or equivalent. Section “Maintenance - Symbols and lubricants”.
07/18/2025	7	General revision and addition of section “Environment – General information”

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