



TRANSMAT 27.45



**INSTRUCTIONS FOR USE AND MAINTENANCE,
COMPREHENSIVE CATALOGUE & SPARE PARTS**

CT. 200.368

Serial number

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USE AND MAINTENANCE

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IMPORTANT

Read and carefully follow the instructions contained in this booklet. By doing so, you will thus help prevent accidents, be fully covered by the manufacturer's warranty and have always available an equipment that is perfectly efficient and ready for use.

Operation and maintenance of this equipment must be performed only by skilled personnel who are well aware of the dangers inherent to the machinery itself.

All standards aimed at the prevention of work accidents must be rigorously observed, as must all regulations covering safety on the jobsite.

The manufacturer shall not be liable in any manner whatsoever for injury or damage to persons or things resulting from unauthorized changes in or modification of this equipment.

SCREED MIXING AND PUMPING MACHINE

TM 27.45

The equipment's serial number:

							/		
--	--	--	--	--	--	--	---	--	--

You are strongly advised to enter your machine's serial number in the space above which must always be referred in order to facilitate the work of the personnel in charge, and it must likewise be mentioned when requesting service assistance or spare parts.

We reserve the right to make any technical modification whatsoever in the interests of improving this machinery, even if such eventual modifications are not referred to in this booklet.

Written authorization from Turbosol Produzione SpA must be obtained for any and all reprinting or reproduction, even in part, of the information contained in this booklet.

SYMBOL KEY

DESCRIPTION



It is compulsory to read this maintenance booklet prior to operating the machine



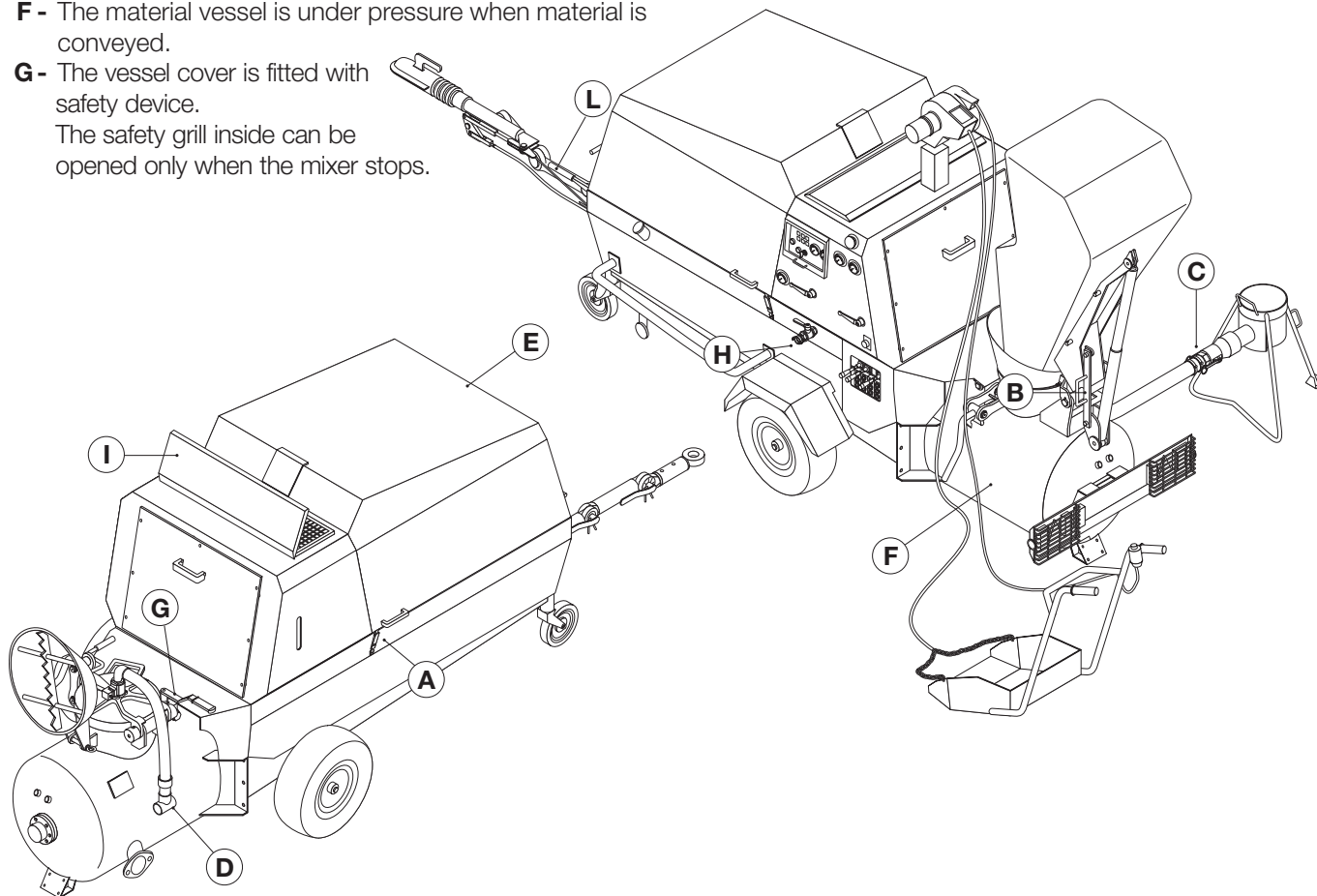
It is compulsory to ready this maintenance booklet for what regards ordinary and general maintenance.



Danger:
electrical shock hazard.

BE CAREFUL:

- A** - Work when the canopy is closed.
- B** - Lock the bucket with the safety device during the transport
- C** - The machine must not work if not connected to the discharge hopper.
- D** - Check that no one is standing too close to the pressure discharge hose
- E** - Moving parts, hot parts and battery acids are present inside the canopy.
- F** - The material vessel is under pressure when material is conveyed.
- G** - The vessel cover is fitted with safety device.
The safety grill inside can be opened only when the mixer stops.
- H** - Do not stand too close to the auxiliary air cock under pressure
- I** - Do not put anything upon the ventilation flap (when the machine runs, it rises automatically to let the air flow out).
- L** - Pull the hand brake during work.
Hook up the safety cable which operates the brake in the event that the machine breaks away from the towing vehicle.



1 - GENERAL INFORMATION

1.1 - INTRODUCTION

In order to meet differing requirements, the TRANSMAT 27.45 mixing and pumping machine for screeds can be supplied with various set-ups. As a result, some of the component parts and accessories described in this booklet may not come with your machine.

We have taken special care to clearly illustrate the different variations in order to make it easier for you to distinguish the use and maintenance instructions applicable to your own machine.

Please read these instructions carefully prior to turning on your equipment and follow the instructions carefully.

For whatever other information you might require, TURBOSOL PRODUZIONE S.P.A.'s customer service is at your complete service.

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1.2 - GENERAL INFORMATION

TURBOSOL Machinery

This machinery is the product of our lengthy experience and continuous development. The know-how thus acquired, together with our stringent requirements for high quality, constitutes the basic guarantee for manufacturing low-wearing machinery which offers total reliability at low servicing costs.


Precautions to take when the machine is operating

Maintenance or repair work must be carried out only when the machine is turned off. Whatever safety devices that have been removed in order to complete such work must be mounted again after maintenance has been carried out.

Care and maintenance


Care and maintenance are vitally important in making it possible for the machinery to operate as expected. It is therefore essential that all maintenance be performed on schedule and that all required maintenance be carried out with extreme care.

Safety

 This symbol marks every reference to safety in this booklet, and it must be scrupulously observed.

The personnel in charge must be fully informed about all safety regulations. Safety and accident-prevention regulations currently in effect in your area or country must likewise be observed.

Training

 This symbol indicates that the personnel operating this machinery must have received special training in regard to the correct manner in which such operation must take place.


TURBOSOL SERVICE

For any problem related to trouble with this machinery or when you need spare parts, contact your local TURBOSOL dealer.

2 - DESCRIPTION OF THE MACHINE

2.1 - TYPE OF MACHINE

Manufacturer's registration plate

				
TURBOSOL				
TURBOSOL PRODUZIONE S.P.A.				
VIA MARCHE, 50 - 31030 PERO DI BREDA - TV - ITALIA				
TEL. 0039.0422.90251 - FAX 0039.0422.904408				
E-mail: info@turbosol.it - http://www.turbosol.com/				
SERIE	MODELLO	MATRICOLA N°	ANNO	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
KG	KW	V	A	Hz
			(A)	(B)

The type of machine **(A)**, the serial number **(B)**, and information on the machine's operating power are printed on the manufacturer's registration plate. The following is the meaning of the letters and numbers used:

(A) = Type of machine : **TM 27.45 DC (B) (P) (T)**

TM 27.45 = *Screed mixing and pumping machine*

DC = *Diesel version with built-in compressor*

B = *With loading bucket (optional)*

P = *With scraping shovel (optional)*

T = *With approved road-towing (optional)*

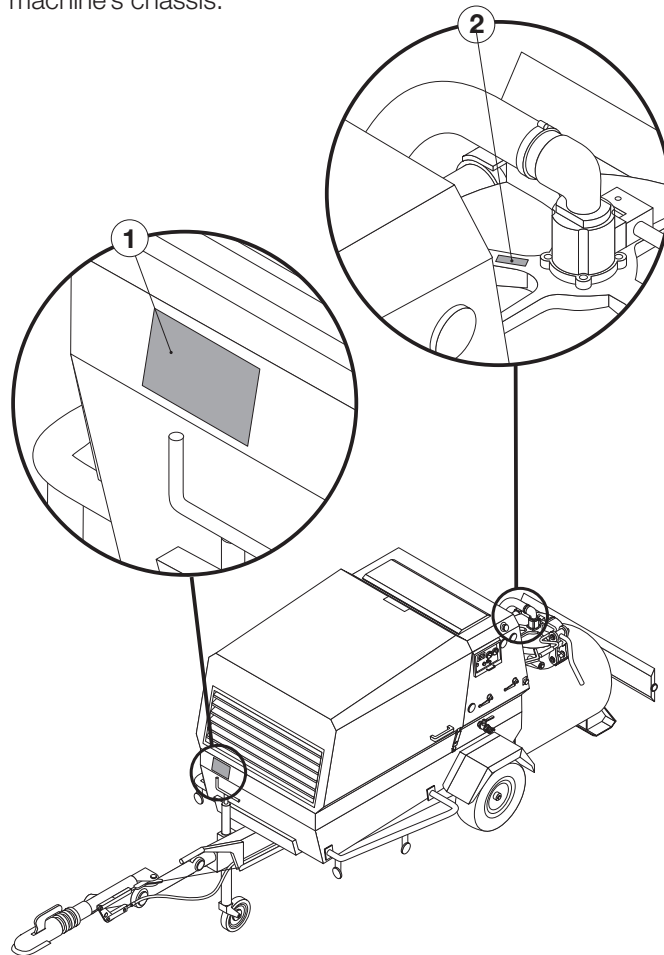
(B) = The machine's serial number: **NNNNN/AA**

NNNNN = *The machine's serial number*

/AA = *The year of manufacture*

Location of the Manufacturer's registration plate

The manufacturer's registration plate **(1)** is attached to the machine's chassis.

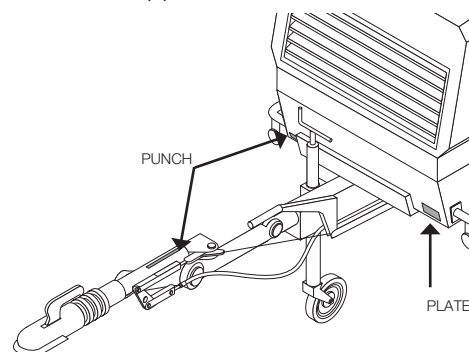


Location of the machine's serial number

The machine's serial number **(2)** is printed on the chassis as well as on the manufacturer's registration plate.

On-road towing

In on-road towing versions, two punches and a plate report the identification and approval data.



2.2 - DESCRIPTION OF THE MACHINE

The machine is standard fitted with:

- Protection frame for mechanical parts.
- Sound proofing 104 dB(A).
- Towing on road with brakes and light bar (*version /T*).
- Screw type compressor.
- 4 cylinders diesel engine, liquid freezed.
- Approved pressure vessel.
- Mixer with paddles.
- Delivery collector dia. 65 with Perrot couplings.
- Control board.
- Pneumatic system which operates all the parts.
- Loading bucket and scraping shovel (*DCB - DCBP versions*).
- 40 meters (20 + 10 + 10) rubber hoses dia. 65 with Perrot couplings.
- Steel elbow clamp.
- Discharge hopper.
- Accessory box and hose clamp.
- Technical literature and conformity certificate.

Accessories upon request:

- Automatic lubrication system;
- High pressure water pump.

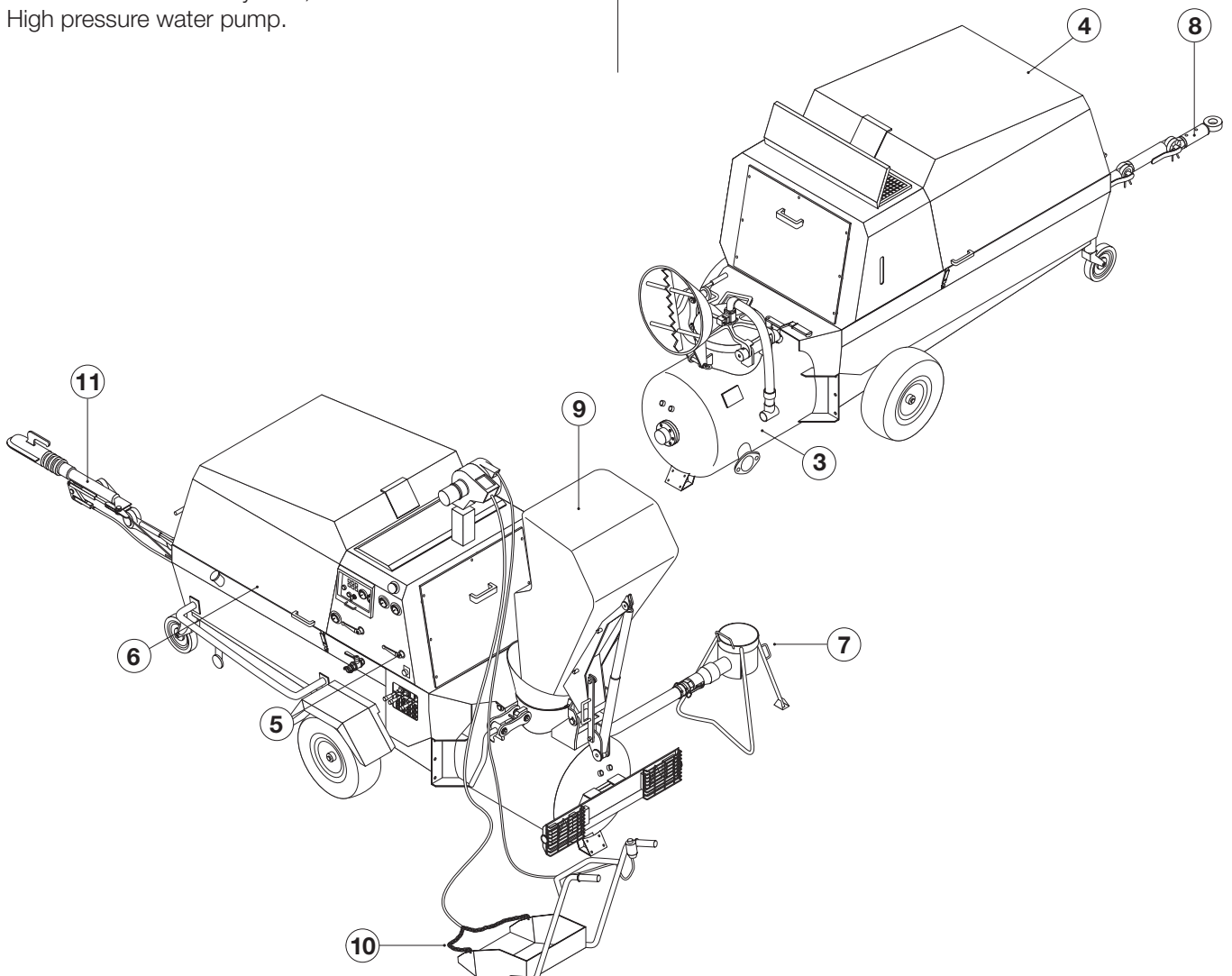
Main components:

The machine is made up basically of:
material pressurized vessel **(3)**,
a compressor **(4)**,
a pneumatic system **(5)**,
a control board **(6)**,
a discharge hopper **(7)**,
a towing system **(8)**;

and for the version TM 27.45 DCB:
a loading bucket **(9)**,

and for the version TM 27.45 DCBP:
a scraping shovel **(10)**,

and for the version TM 27.45 DC.../T:
a road towing axle **(11)**.



2.3 - SIZES OF THE MACHINE

Here are the machine's sizes and their gross weights (ready for use).

Version TM 27.45 DC

LENGTH	WIDTH	HEIGHT	WEIGHT**
3.500 mm	1.440 mm	1.480 mm	1.450 kg

Version TM 27.45 DCB

LENGTH*	WIDTH	HEIGHT ^o	WEIGHT**
4.650 mm	1.440 mm	2.200 mm	1.580 kg

* In working position with lowered loading bucket.

^o with lifted loading bucket.

** In the road towing versions, the weight increases by 150 kg.

2.4 - TECHNICAL DATA

Operating pressure	6 bar	
Air output ISO 1217	4.500 l/m'	
Maximum compressor pressure	7 bar	
Maximum tank valve pressure	7,2 bar	
Compressor cooling	oil injection	
Diesel engine power	38 kW	
Revolutions per minute	minimum	2.300 RPM
	maximum	3.000 RPM
Electrical system	12 V	
Engine cooling with cooling mixture/water	anti-freeze	Powerpart
Gasoil tank capacity	60 l	
Max. hydraulic system pressure	240 bar	
Bucket hydraulic system pressure	180 bar	
Scraping shovel hydraulic system pressure	140 bar	
Engine oil change (TOTAL RUBIA TIR 7400)	every 250 hours	
Compressor oil change (Agip DICREA 46)	every 1.000 hours	
Hydraulic oil change (ELF OLNA DS 46)	every 1.000 hours	
Gear-box oil change (Agip BLASIA 320, IP MELLANA OIL)	every 1.000 hours	
Material vessel capacity	270 l	
Average output per cycle (approximate)	200 - 220 l	
Pumping distance (approximate)	140 ÷ 150* m	
Pumping height (approximate)	100 ÷ 120* m	
Material conveying rubber hose**	Ø 60 x 82 mm	
	Ø 65 x 84 mm	
	Ø 90 x 112 mm	
Pumpable granulometry	Ø 60 x 82 mm - Ø 65 x 84 mm	0 ÷ 15 mm
	Ø 90 x 112 mm	0 ÷ 25 mm
Work space temperature	from - 5° to + 35° C	
LwA warrantied (90% confidence level, law 2000/14/CE), tested by ISET, Notified Body n° 0865	104 dB(A)#	

Note: * Maximum distance and height can not be achieved simultaneously.

These data are not absolute but they depend on the quality of the materials to be pumped, their consistency, the pumps output, the diameter of the hoses used.

Delivery heights and distances cannot be added.

** Use only specific hoses for this machine.

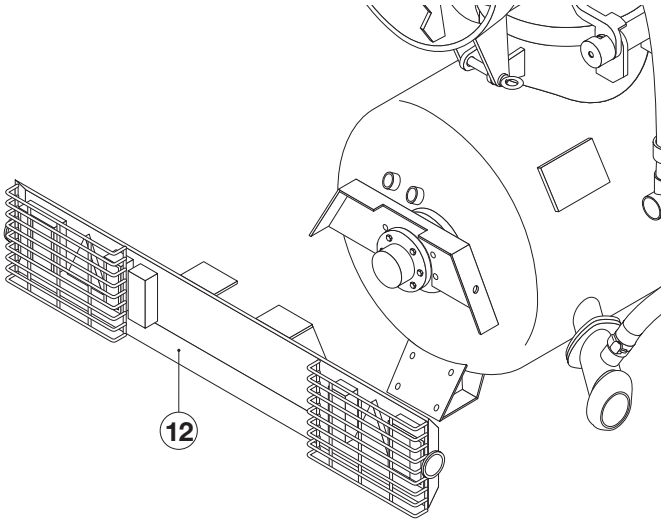
The operator must wear acoustic protection earplugs which guarantee a reduction of at least 20 dB(A).

3 - TRANSPORTING

3.1 - TOWING ON ROAD

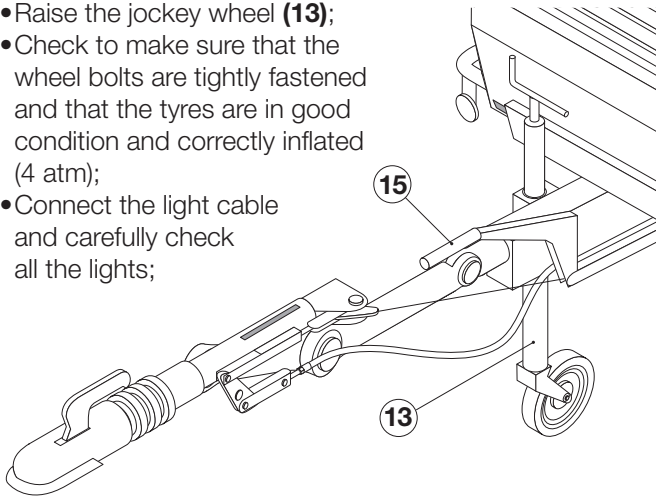
Before towing the machine:

- Attach the tow-light bar **(12)** in tow position:

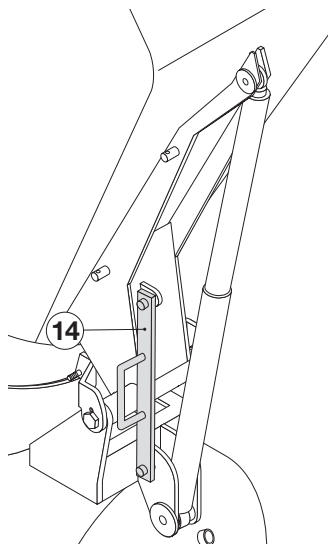


- Carefully check the tow-bar, the towing vehicle's hook apparatus and the tow-ring;

- Raise the jockey wheel **(13)**;
- Check to make sure that the wheel bolts are tightly fastened and that the tyres are in good condition and correctly inflated (4 atm);
- Connect the light cable and carefully check all the lights;



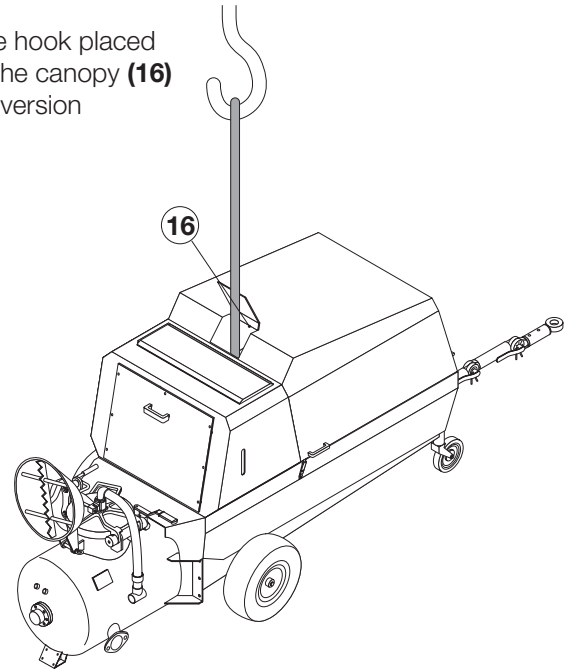
- Hook up the safety cable which operates the brake in the event that the machine breaks away from the towing vehicle;
- Use the safety device **(14)** to lock the bucket in place;
- Release the parking brakes **(15)**.



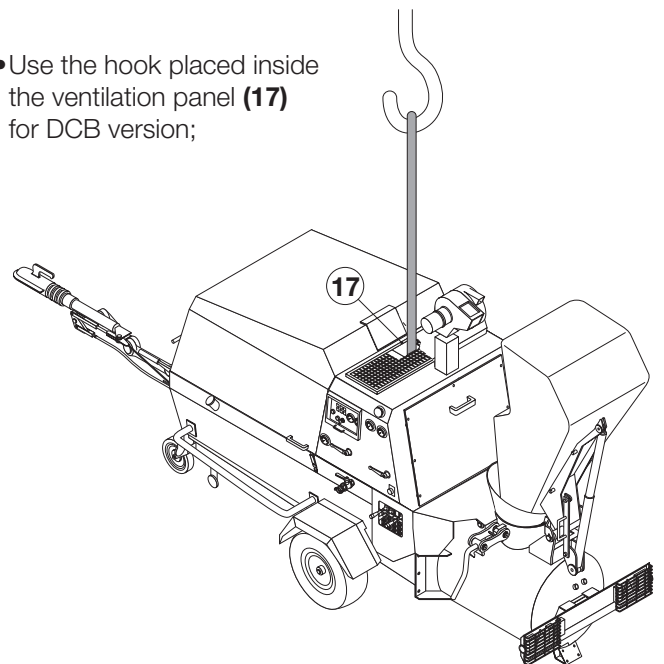
3.2 - TRANSPORTING

Connect the cable to the lifting eye upon the machine:


- Use the hook placed inside the canopy **(16)** for DC version



- Use the hook placed inside the ventilation panel **(17)** for DCB version;



 Use:
a hook tested and approved for lifting 2000 kg.
a cable tested and approved for lifting 2000 kg.

 Before lifting up the machine, make sure that no one is standing too close to it.

4 - USING THE MACHINE

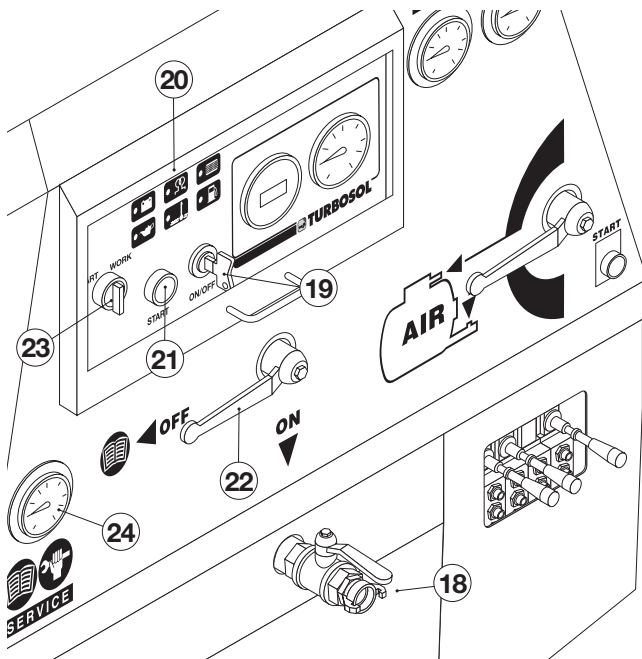
4.1 - DIFFERENT USES

Compressor

Screw type compressor, coupled to the engine, which supplies 4.500 liters air/min. at 6 bar that are required for the conveying of material or for the use of pneumatic tools such as jack hammers, drill hammers etc.

The machine may **only** be used as a compressor:

- connect the tool to be used to the air control valve (18).
- Start the machine by turning the key switch (19) to the ON position, wait for the LED of the glow plugs (20) to go out and then start the engine by pressing the green button (21) START.



- Open the air control valve (18) and put the work/utilities valve (22) to the OFF position, as shown in the figure.

- Put the selector (23) to the MAN position.

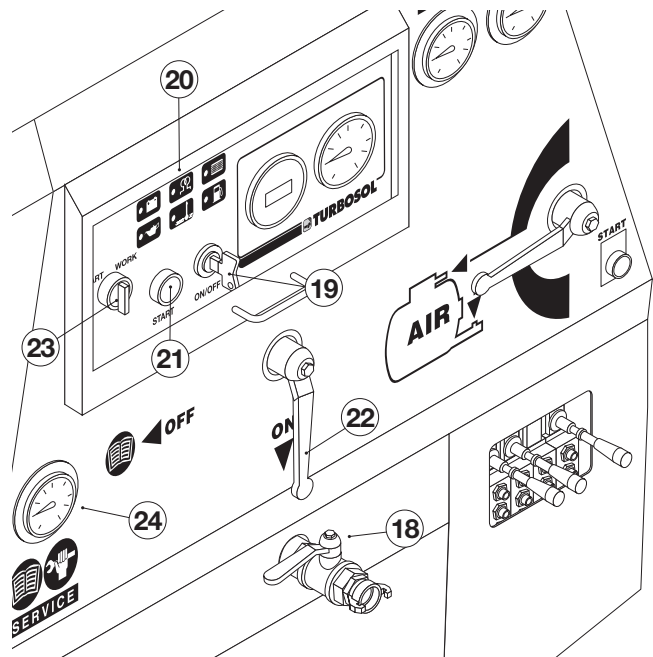
The pressure gauge (24) indicates the pressure of the air delivered to the control valve.

Before turning off the motor, put the selector (23) to the AUTO position.

As a mixing and pumping machine

To use the machine as a mixing and pumping machine the service control valve (18) must be closed and the work/utilities valve (22) put to ON as shown in the drawing below,

Start the machine by turning the key switch (19) to the ON position, wait for the LED of the glow plugs (20) to go out and then start the engine by pressing the green button (21) START.

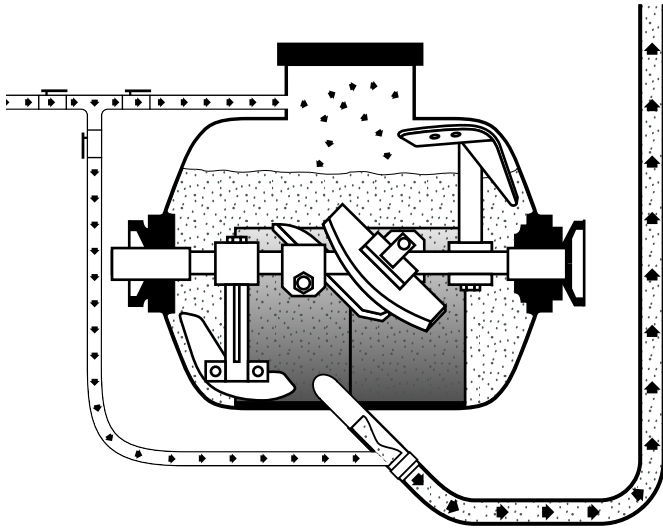


The selector (23) must be on AUTO in order to start a pumping cycle.



4.2 - OPERATING PRINCIPLES

The TRANSMAT 27.45 consists basically of a vessel that has the dual role of mixer and pressurised tank to convey the material. The vessel, lined on the inside with replaceable wear-resistant plates, is to be filled to three-quarters (3/4) height with material (sand, a binder and water) all of which is then evenly stirred by the mixer paddles. Close the hatchway and the pumping begins.



The vessel itself is pressurised through a compressor and the material, pushed through the hose by the paddles towards the outlet collector, is conveyed to its point of use.

Air is blown into the outlet collector to create "air plugs" and thus facilitate delivery of the material.

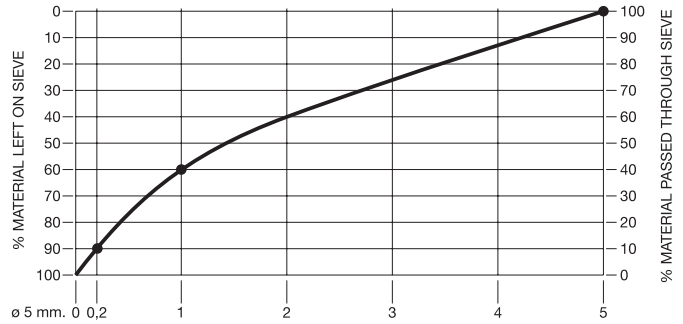
The work cycle stops and starts: a loading phase is followed by a delivery phase.

The use of the bucket, filled by the operator during the conveying phase, allows for a significant reduction in the time needed for loading.

4.3 - PUMPABLE MATERIALS

These are some basic suggestions on how to prepare the mixes to convey with TRANSMAT 27.45:

- Sand has to be in granulometric curve:



Use, for instance, sand with granulometry: 1/3 from 0 to 1 mm;
1/3 from 1 to 4 mm;
1/3 from 4 to 8 mm.

- **The sand must be washed:**

the fine-grain portion, with a granulometry less than 0,25 mm, must not be greater than 10%; for a batch of 200 l., one normally uses 25 kg. (half bag) of cement.

- The water/cement ratio must not be greater than 0,4-0,5: this means using 8 - 12 l. of water for each batch, according to the quantity of cement and the dampness of the sand.

Applications

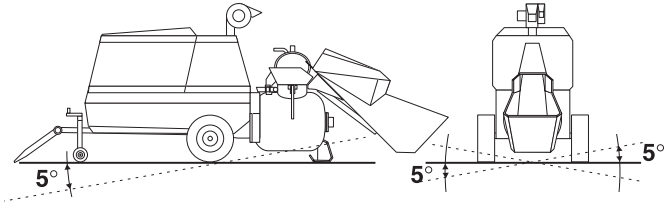
TRANSMAT 27.45 is suitable to work with many types of materials:

- Mixing and pumping of floor screeds
- Mixing and pumping of any type of sands, pebbles, etc. in granulometric curve, directly to the jobsite
- Mixing and pumping of insulated floor screeds with a base of expanded clay, polystyrene, perlite, vermiculite, cork, etc.
- Mixing and pumping of brick layer mortar and concrete with granulometry up to 25 mm in accordance with the diameter of the connected hoses.

4.4 - FIRST OPERATIONS

Placing the machine

Place the machine in the most horizontal possible position: the maximum gradient allowed is 5° both lengthwise and sidewise.

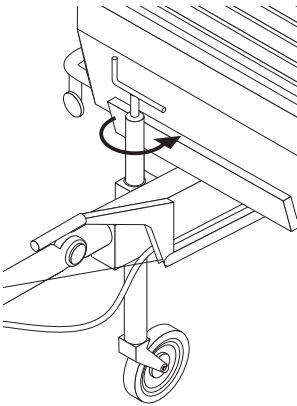



The machine must be placed at that point on the jobsite where you can take best advantage of the hoses' operating range.

Let the machine lay on the square under the vessel through the tow-wheel

Pull the brake and lock the wheels.

Prepare the necessary material for the cleaning of the machine (water hose, washing sponges, a.s.o.)



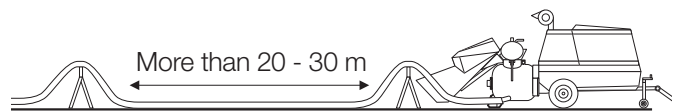
 Leave at least 80 cm. of clear space around the machine and set up a working area free of holes and dangerously protruding edges.


Hoses

Lay the hoses down and limit their extended length as much as possible (thereby shortening transportation and wear time) and check at the same time that they are in good conditions.

If the initial stretch is horizontal, lift that section of the hose closest to the machine (e.g., by making use of a tripod) so as to prevent deposits and air from flowing out freely.

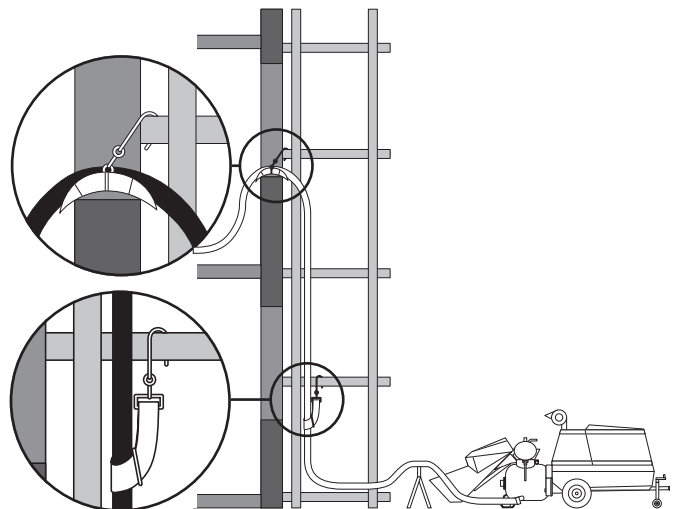
It is recommended to use a second tripod in case of long hoses (more than 20 ÷ 30 m)



 Use only those hoses and coupling devices originally supplied with the machine.
The hose couplings must be mounted by TURBOSOL PRODUZIONE S.P.A. or by firms explicitly authorized by TURBOSOL.
In no case whatsoever shall TURBOSOL PRODUZIONE S.P.A. be held liable for injury or damage to persons or things resulting from the use of non-original hoses or coupling devices.

Anchoring the hoses

The hose line must be properly anchored: use the hose-belt to anchor the vertical portions and the appropriate hose-elbow at the floor.

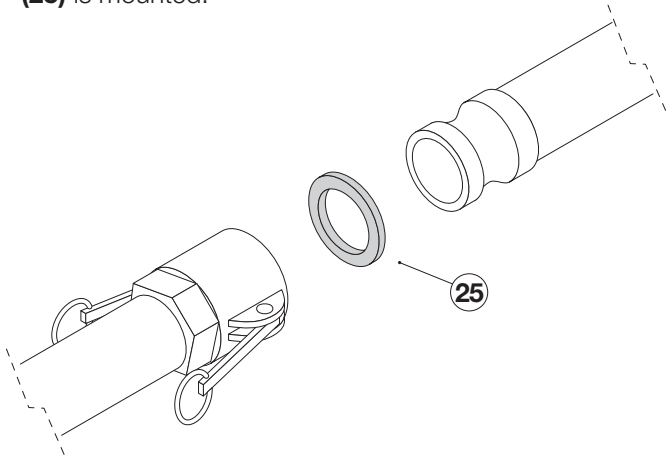


Coupling Devices

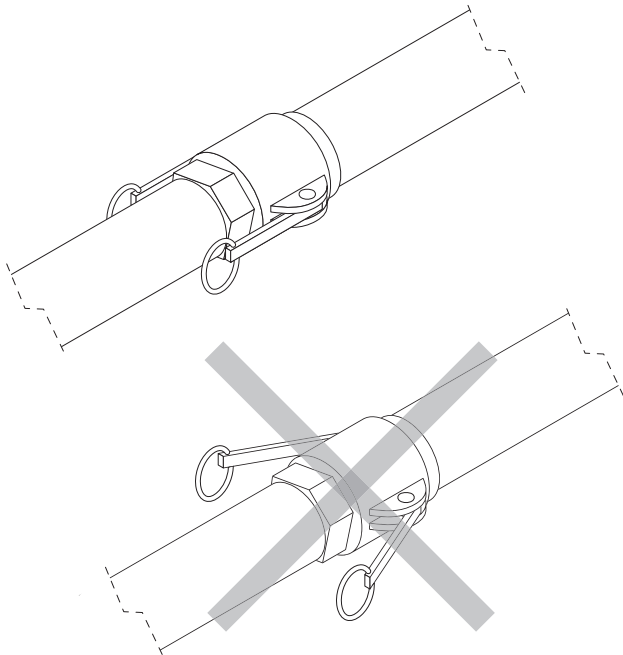
Check to be certain that the coupling devices are clean and in good working order.

•Cam-lock couplings DN60

When you connect the hoses, check that the rubber ring (25) is mounted.



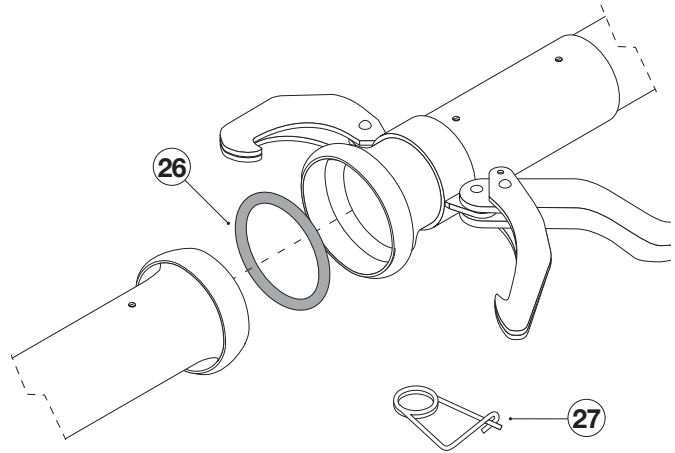
lock the levers tightly.



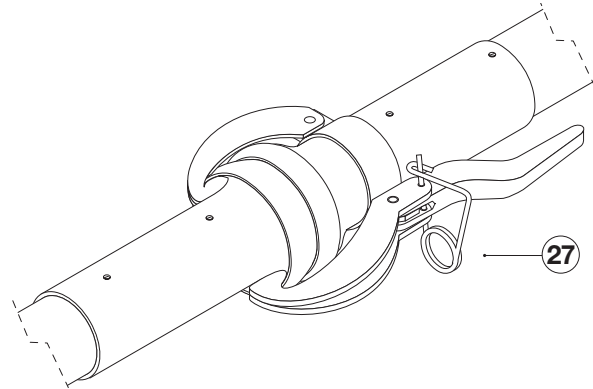
Hoses \varnothing 60 x 82 - length of 10 or 20 meters
for max. pumpable granulometry of 0 - 15 mm.

•Perrot couplings

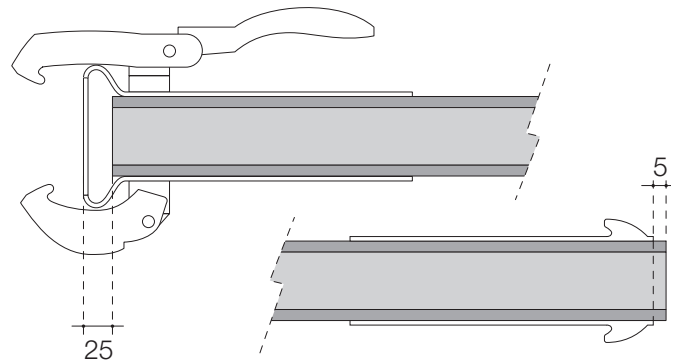
When you connect the hoses, check that the rubber ring (26) is mounted.



lock the levers tightly with the safety pin (27).



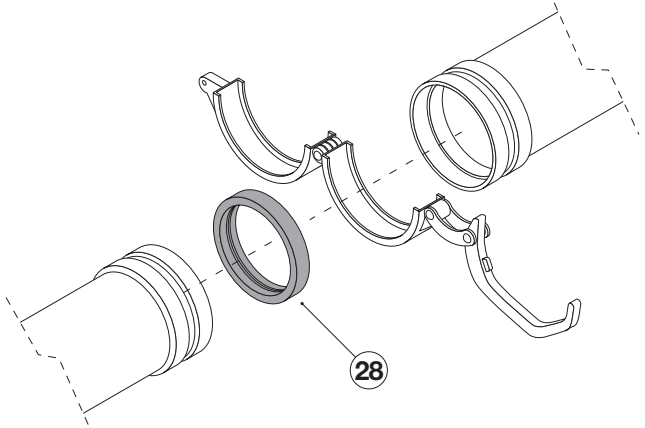
If you have to replace the rubber hoses, connect the new ones abiding by the measures given on the drawing underbelow.



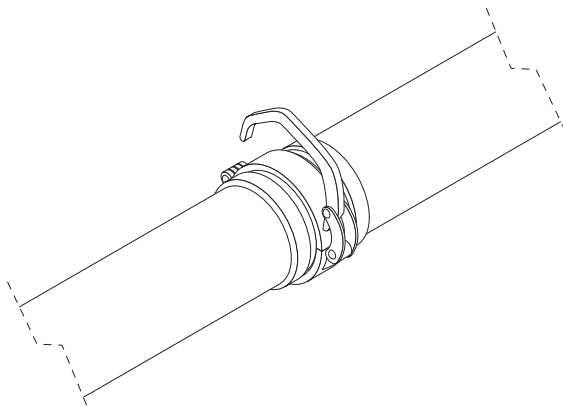
Hoses \varnothing 65 x 84 - length of 10 or 20 meters
for max. pumpable granulometry of 0 - 15 mm.

• **Victaulic couplings**

When you connect the hoses, check that the rubber gasket **(28)** is mounted.




lock the lever tightly.



**Hoses dia. 90 x 114 - length of 10 meters
for max. pumpable granulometry of 0 - 25 mm.**

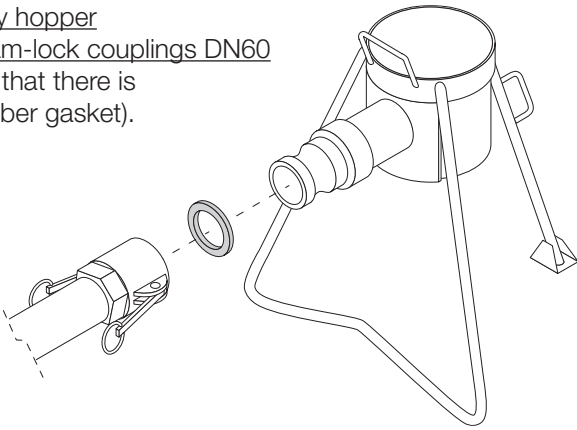
Connections

 **The machine must not run if the delivery hopper is not connected.**
When pumping without delivery hopper, the hoses movement is uncontrollable and highly dangerous.

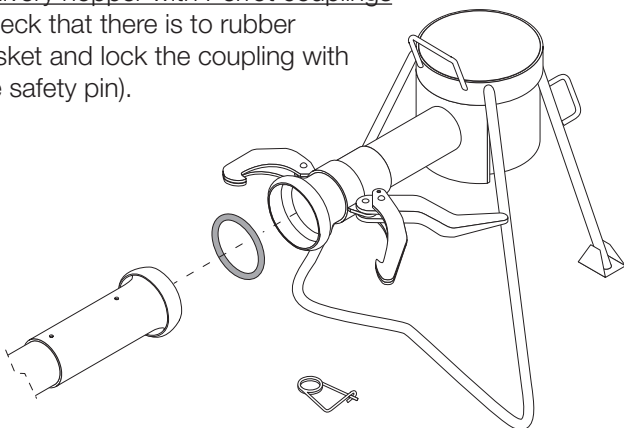
Connect the first part of hose to the delivery collector on the vessel

Connect the delivery hopper to the final part of the hose and place it at the arrival point of the material.

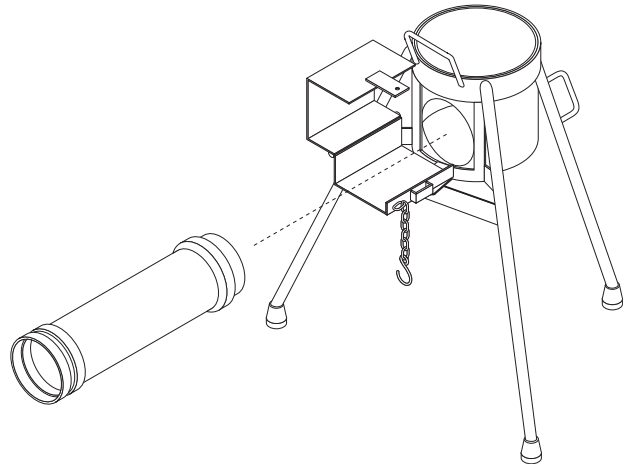
Delivery hopper with cam-lock couplings DN60
(check that there is the rubber gasket).



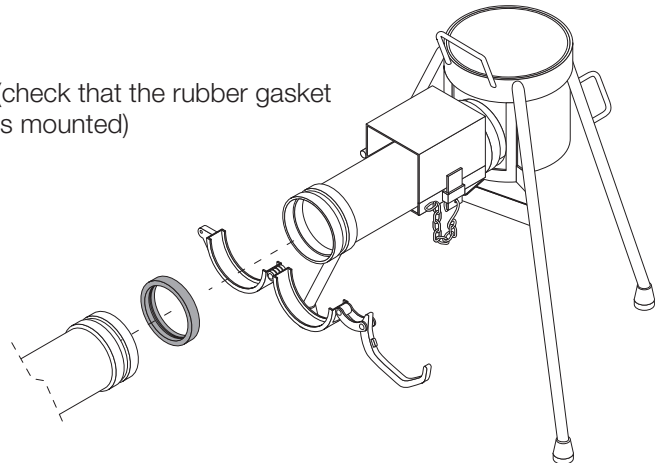
Delivery hopper with Perrot couplings
(check that there is to rubber gasket and lock the coupling with the safety pin).



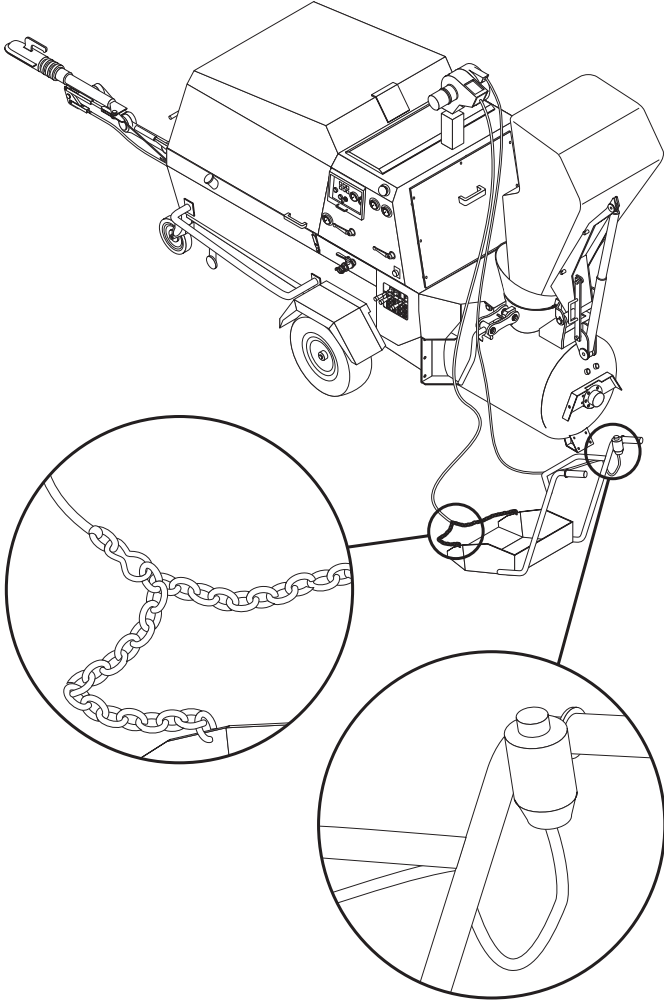
Delivery hoppe with Victaulic couplings



(check that the rubber gasket is mounted)



On the DCB/P version, connect the scraper cable to the shovel.

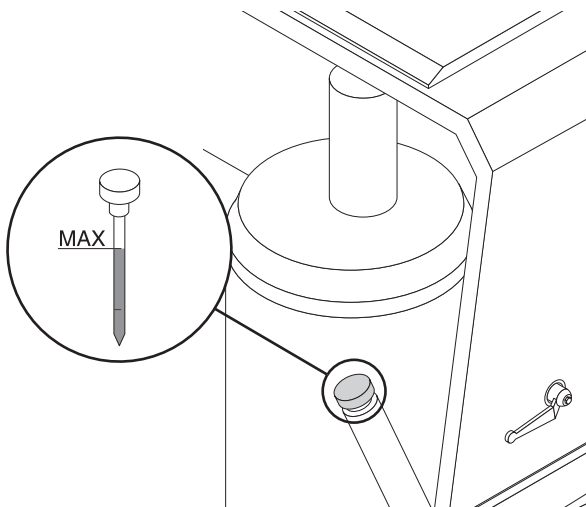


4.5 - OPERATING THE MACHINE

Preventive checks

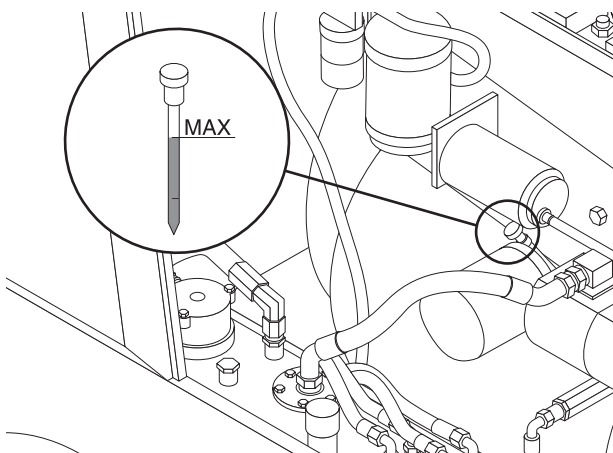
Check as follows:

- Check the oil level of the compressor:
Before unscrewing the cap where the graduated rod is mounted, check that there is no more pressure in the equipment (the pressure indicated in the manometer display must be 0 bar)
The level must be between the two notch of the rod.



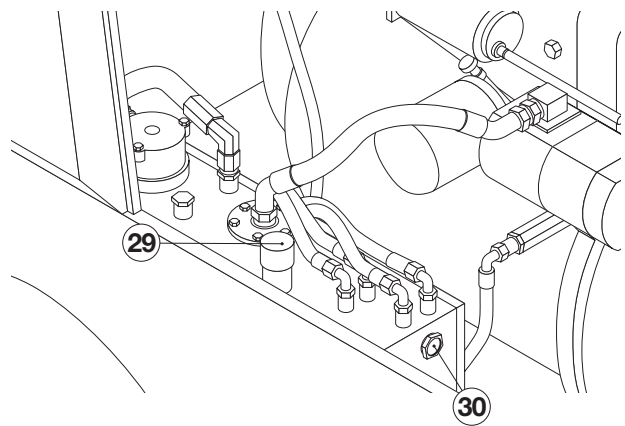
Refill eventually with **Agip DICREA 46**.
The level must never be over the notch of max. level.


- Check the oil level of the engine
It has to be nearly to the max.
Refill eventually with **TOTAL RUBIA TIR 7400**.



- Check the cooling liquid level of the radiator.

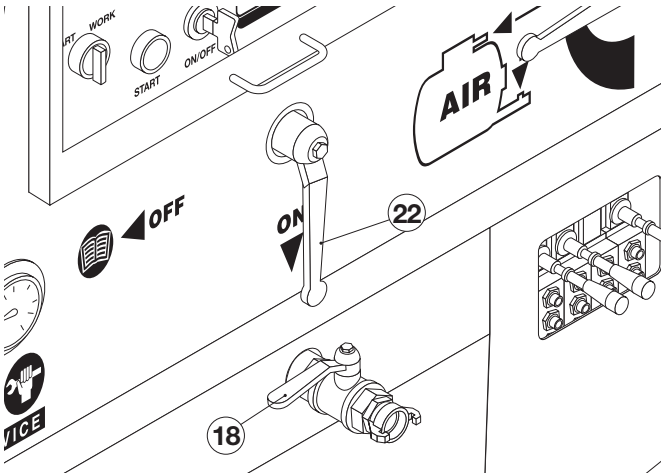
- Check the oil level of the hydraulic system (29).
Refill eventually (30) with: **ELF OLNA DS46**



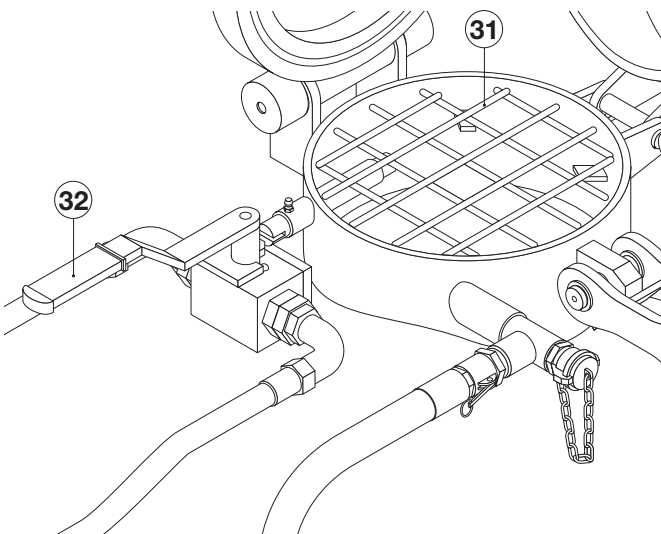
 Check oil level and eventually fill up with loading bucket in low position.

- Gasoline level
It is advisable to refill the tank at the end of the work to avoid condensation problems inside the tank.


- Check that the service cock **(18)** is closed.
- Check that the work/service cock **(22)** is set to use the machine as mixer and conveyor




- Check that the protection grill **(31)** of the hatchway on the material vessel is well mounted and locked.



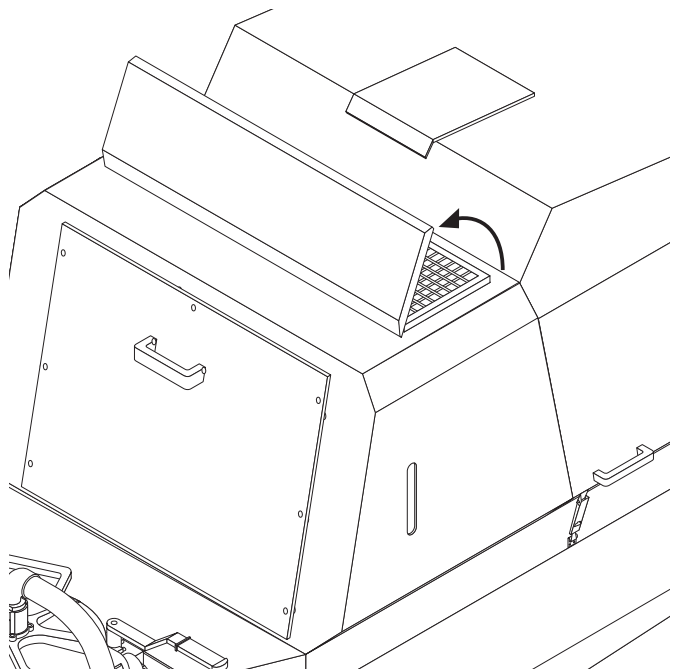
- Check that the lever of the by-pass valve **(32)**, locked with the grill, is totally closed; Otherwise, you cannot have the mixer shaft rotation.


 *Make sure the lever of the by-pass valve is locked; otherwise, it would be quickly damaged by the oil pressure.*

 *After completing maintenance or repair work, make sure that all the safety devices (shield, motor belts, shield mounted on the discharge hose, belts shield, fan grill) have been put back in place and that no tools have been left inside the canopy or the material vessel.*

Tools or rags forgotten inside the motor canopy can cause, among other problems, a breakdown of the cooling fan.

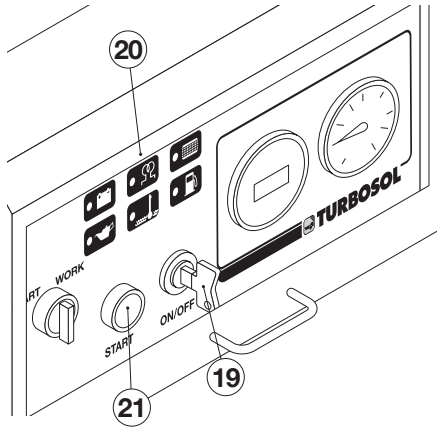
- Check that the canopy is well closed and that nothing stands upon the ventilation flap (when the machine runs, it lifts automatically to let the air flow out).



 *Before turning the machine on, make certain that no one is standing too close to it i.e., everyone should be at least one (1) meter away or out of the bucket's or loading paddle's operating range.*

Starting the machine


Start the machine by turning the key switch **(19)** to the **ON** position, wait for the LED of the glow plugs **(20)** to go out and then start the engine by pressing the green button **(21)** **START**.

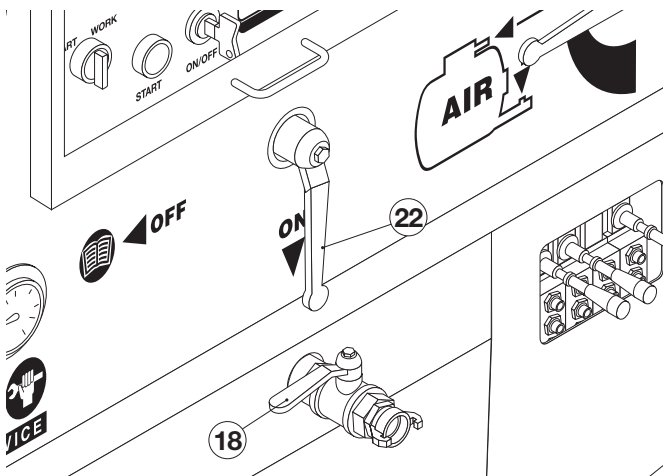


 Avoid insisting and repeating starting operations.


After 5 ÷ 6 seconds the engine has started, all the warning lamps have to turn off; if this does not happen, stop the machine immediately and check where is the problem.


When the engine has started and the LEDs have gone out, let the engine idle for a few moments in order to warm up. (Also refer to the engine-driven compressor instruction booklet).

 Check that the service cock **(18)** is closed and that the work/service cock **(22)** is on working position (ON).



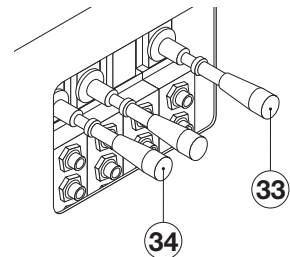
Loading of the material

 The safety grill must be well mounted and locked.

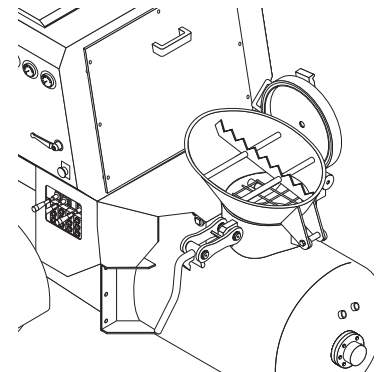
 Use nitrile gloves for protection against cuts and scratches, preferably gloves having CE 94 0072 certification.

The mix must be semi-dry
Prepare the mix as follows:

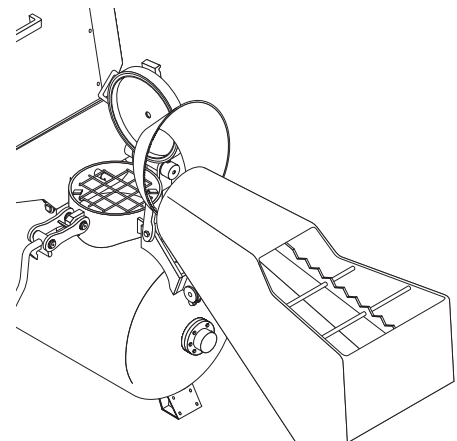
- Start the mixer by using the distributor lever **(33)**;



- Tilt the manual-loading funnel on the hatchway (DC version)



- Put the bucket in the material loading position (version DCB) using the bucket control lever **(34)**;

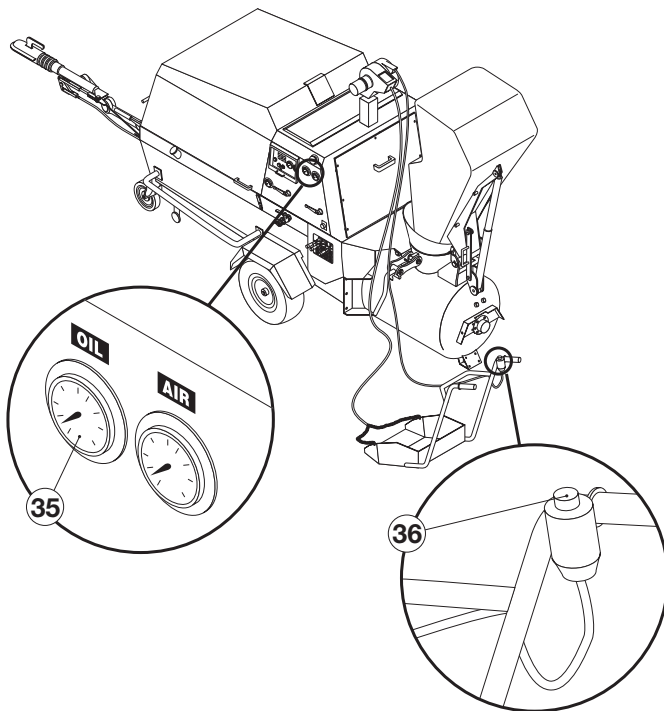


- Load 50% of the sand, than 100% of the binder (cement), then all the water and finally the remaining 50% of sand.

For the version with loading bucket (*DCB version*), the material is loaded into the loading bucket; then trough the lever for the loading bucket control **(34)**, start to unload the material into the vessel.

Upon lifting the bucket as far as it will go, the pressure gauge **(35)** should show a pressure of 140 bar.

When the bucket is half loaded, put all the water directly into the vessel, then finish to load the material and lower the bucket (the funnel lifts automatically).



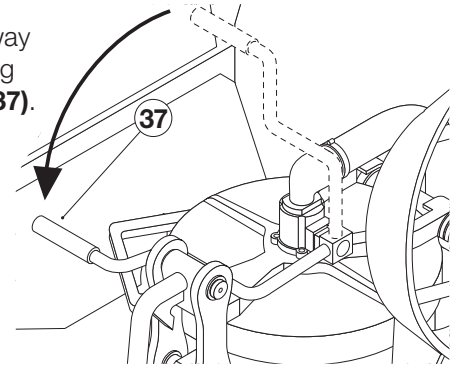
In the version with scraping shovel (*version DCB/P*), the shovel is used to load the bucket by pressing the relative button **(36)** located on the right handle.

 To get a better and quicker mix, fill the tank to 3/4 (200 l).

- Lift the hopper for the manual loading (*DC version*).

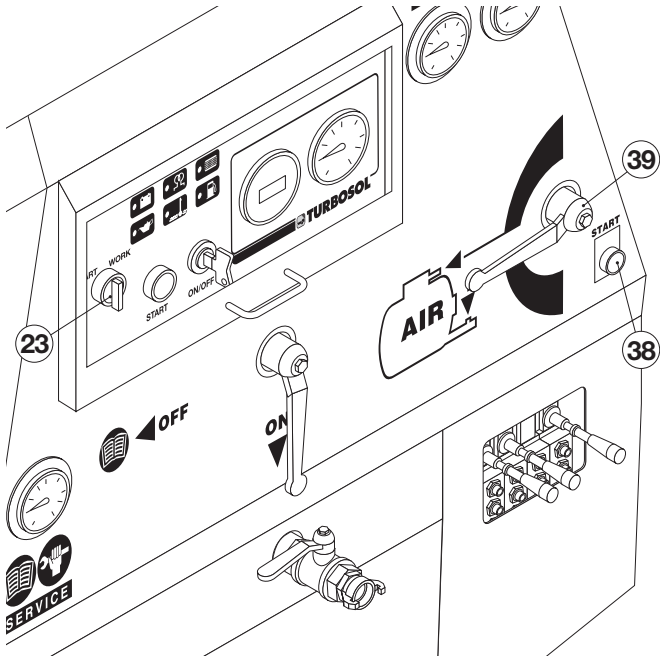
- Clean the edge of the hatchway in order to make sure that the seal will not leak.

- Close the hatchway and cock by using the safety lever **(37)**.



Pumping cycles

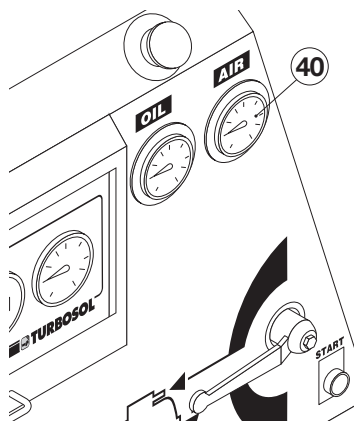
Start the pumping cycle by putting the selector (23) to the AUTO position and pressing the button (38).




During the first pumping cycles, it is necessary to find the correct position of the cock (39) which regulates the flow of air to the material vessel and to the material outlet collector:


It is advisable to start with more air in the delivery collector than into the vessel so set the cock consequently.

In order to get the best output on the machine, gradually open the air cock to the vessel until you reach the best working pressure. Check that the gauge (40) displays a working pressure that goes from a minimum of 3,5 to a maximum of 5,5 bar.



Once the correct setting has been found, it is usually no longer necessary to regulate the cock because you will simply use the control button (38).

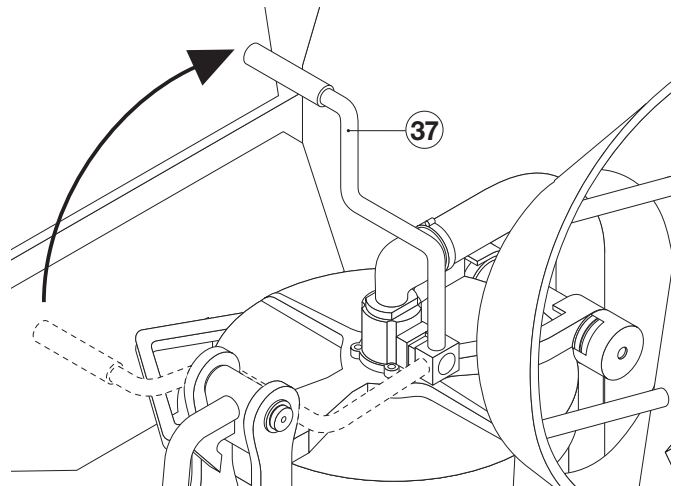
 **GENERAL RULE:** If the working pressure increases, gradually open the cock (39) that regulates the flow of air in the material vessel and to the material outlet collector towards the collector position and vice versa if the pressure goes down.


 With mixes as concrete, mortar etc, it is compulsory to give more air in the vessel than in the delivery collector hose.

The conveying of the material is finished when the air pressure shown on the gauge (40) in the material vessel drops below one 1 bar. The air pumping of the compressor stops automatically and the motor runs at the minimum during the cycle.

At this point:

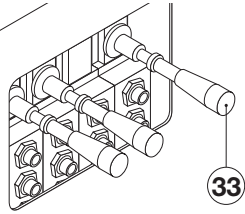
- Wait for the pressure to drop below 0.3 bar;
- Use the safety lever (37) to open the lid;



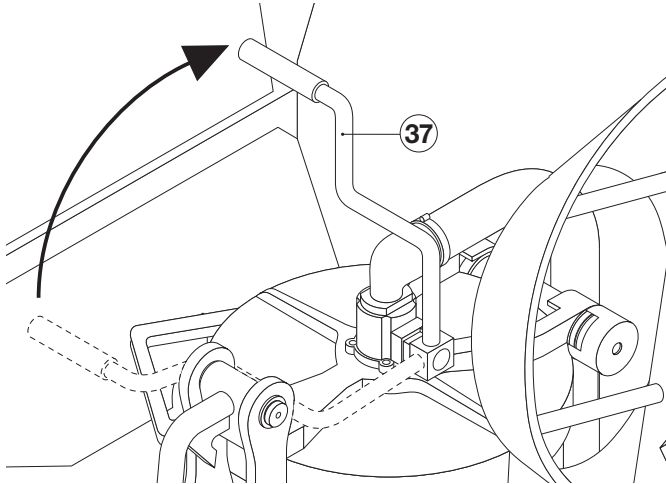
-
- 
-
- Wait for the pressure to drop to 0 bar;
 - Open the hatchway.
 - Begin a new loading cycle.

4.6 - WASHING AND STOPPING THE MACHINE

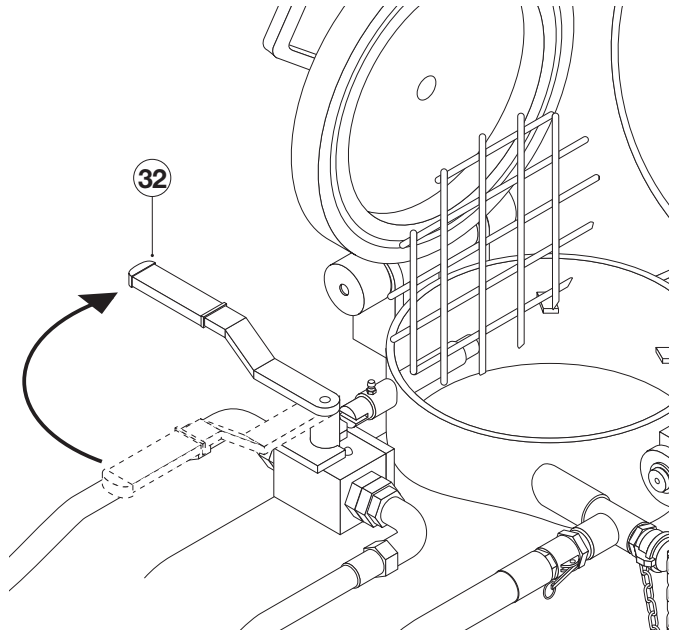
Once the last batch has been pumped, stop the mixer by turning the distributor lever (33) to position 0.



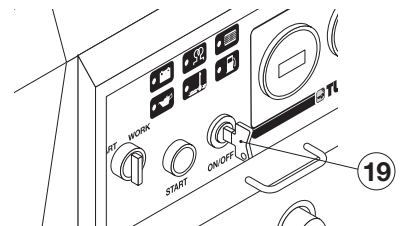
- Open the cock with the safety lever (37);



- Unlock the safety grill by turning the lever of the by-pass valve (32) up to the end in order to open the grill. The **safety device provided** is such that **the grill opens only when the mixer has completely stopped**.

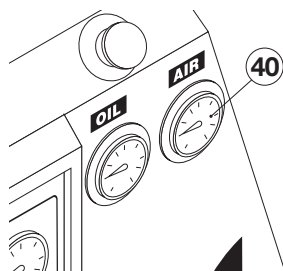


Before loosening any joint on the material delivery hose, ensure that the key switch (19) is in the **OFF** position, that the valve with the safety lever is open, that the material tank pressure gauge shows 0 (zero) bar pressure and that there is no residual pressure in the hoses.



The operator must be carefully trained before doing this operation. Before the opening of a coupling, check that there is no pressure inside the hoses and that no one stands too close to the hoses. This operation, that could be dangerous, must be carefully carried on by qualified personnel.

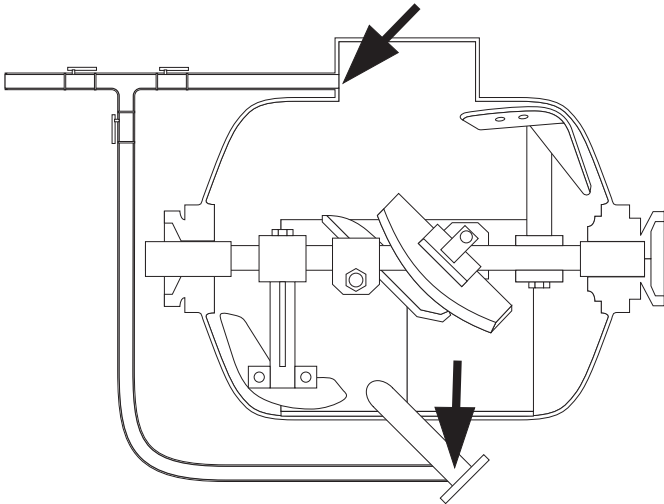
- Wait for the pressure to drop to 0 bar (40);



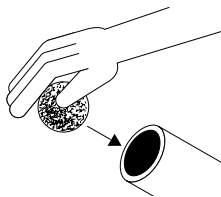
- Open the hatchway.

- Disconnect the material delivery hose and wash the machine with water inside and outside.
- Let the water flow out from the discharge collector.

- With a steady jet of water or better with an high pressure pump, wash the vessel internally and **wash the hatchway as well the air delivery collector outlet.**



- Insert a suitable washing sponge into the material delivery hose and connect the hose to the machine.



- Pour two or three buckets full of water into the material vessel and then pump that water out as you would in a normal pumping cycle. To start the mixer again, you have to: Close the grill, close the lever of the by-pass valve **(32)**, close the hatchway and the cock with the safety lever **(37)**.

Repeat this operation until you are certain that the hoses are completely clean.

The machine can be fitted (*optional*) with a high pressure pump.

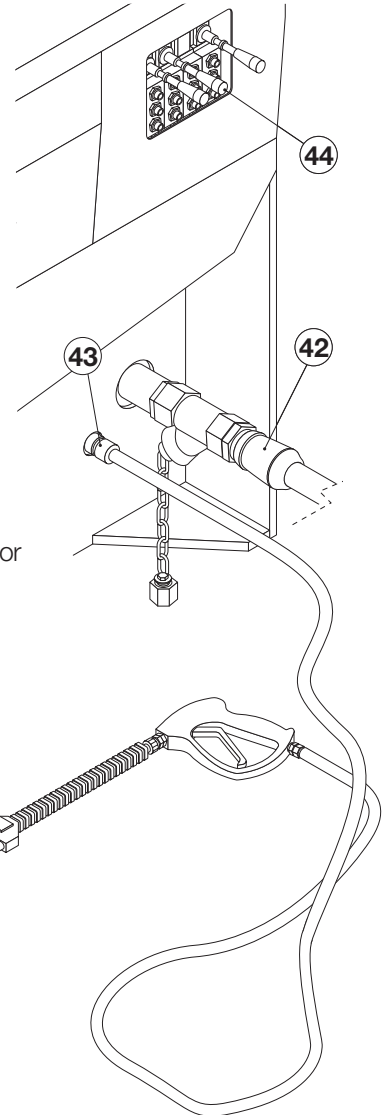
In this case, for using it:

- Connect a water hose to the machine coupling **(42)**; the line must be able to deliver at least 10 l/min.

If the water is taken from a barrel, check that:


- the water is clean
- the barrel is at least 50 cm above the coupling **(42)**
- start the pump before

- Connect the spray - gun and the delivery hose to the coupling **(43)**. The spray gun can be used either long or short (short for washing inside the vessel). It is fitted with a normal nozzle and a turbo nozzle (very useful for cleaning the surfaces)




- Turn the lever **(44)** on the distributor


- Wash


 *The operator must never direct the spray gun towards other persons*

 *Wear appropriate protections on hands and eyes*

 *The operator must never direct the spray gun towards electric components.*

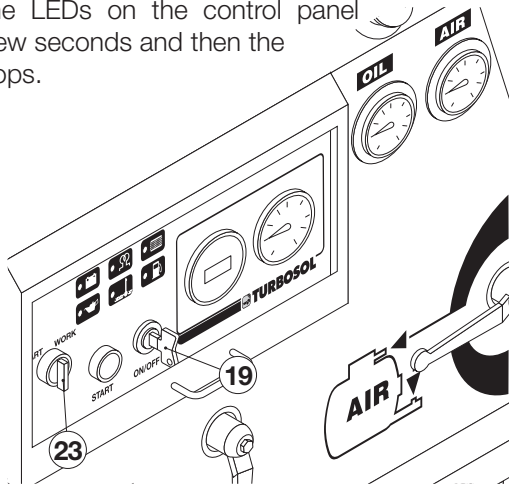
4.7 - IMPORTANT POINTS

 Never disconnect the delivery hopper until washing of the material delivery hoses has been completed.

 Never place your hand or a tool inside the delivery collector unless the diesel engine is turned off.

To stop the machine put the selector (23) to the WORK position.

- Turn the key switch (19) counter clockwise to the OFF position; the LEDs on the control panel blink for a few seconds and then the machine stops.



Disconnect the air delivery hose from the material delivery collector and check to see that it is clean.

Check that the vessel inlet is clean.


Using the material


Use only material that has been sieved. The safety hatch has a mesh that blocks only larger-sized pieces (and for practical reasons, a smaller mesh cannot be used); as a result, large-grain sand and pebbles might pass into the mix and cause obstruction at the vessel's outlet .


If hard pellets 1 or 2 cm. in diameter come out of the discharge hopper, it means that less water must be used with the material.

Never interrupt a delivery cycle halfway.

Connections

 Before loosening any joint on the material delivery hose, ensure that the key switch (19) is in the OFF position, that the valve with the safety lever is open, that the material tank pressure gauge shows 0 (zero) bar pressure and that there is no residual pressure in the hoses.

 Before disconnecting the delivery hopper, ensure that the key switch (19) is in the OFF position, that the cock with a safety lever is open, that the pressure gauge in the material vessel shows a pressure of zero (0) bar and that there is no pressure inside the hoses.

 The operator must be carefully trained before doing this operation.


Before the opening of a coupling, check that there is no pressure inside the hoses and that no one stands too close to the hoses.

This operation, that could be dangerous, must be carefully carried on by qualified personnel.



5 - MAINTENANCE OF THE MACHINE

5.1 - OPERATIONS FOR WHICH THE OPERATOR IS RESPONSIBLE

 Listed here below is the essential information needed for proper maintenance of this machine. More information about the diesel engine and the compressor will be found in their own maintenance booklet. The machine's operator must read those data before beginning to operate the machine.

Operations to be carried out daily

At the beginning of the work

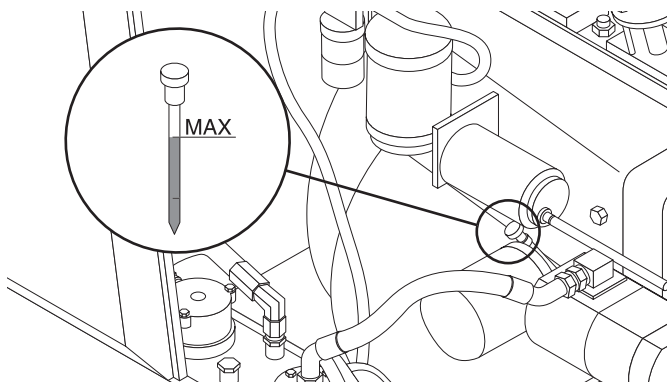
•Check the cooling liquid

Check the engine cooling liquid and eventually refill.

•Check engine oil

Check the level through the level rod; the oil level must be at the max. but never exceeds it.

To refill use **TOTAL RUBIA TIR 7400**



•Check engine air filter

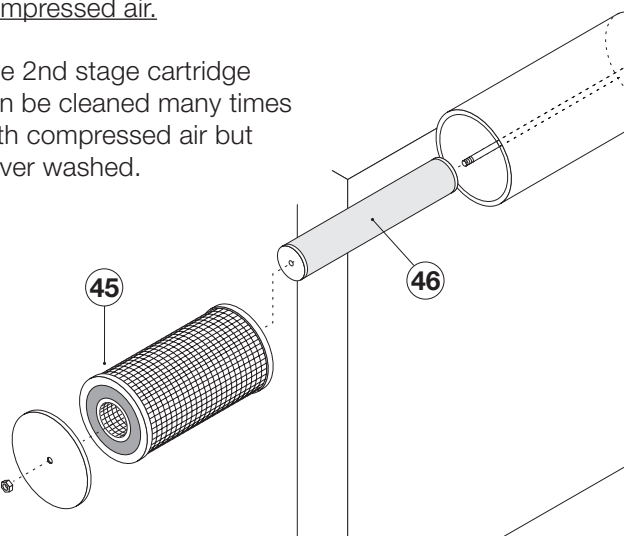
This filter is composed of two cartridges (1st and 2nd stage). Unscrew the bolt to check them and take off the cartridge **(45)** of the 1st stage.

In case of dust on the 2nd stage cartridge **(46)**, take it off too by unscrewing the bolt.

Beat lightly and repeatedly the 1st stage element on a hard surface to take off the dirt.

Do not clean the filtering element of paper with compressed air.

The 2nd stage cartridge can be cleaned many times with compressed air but never washed.



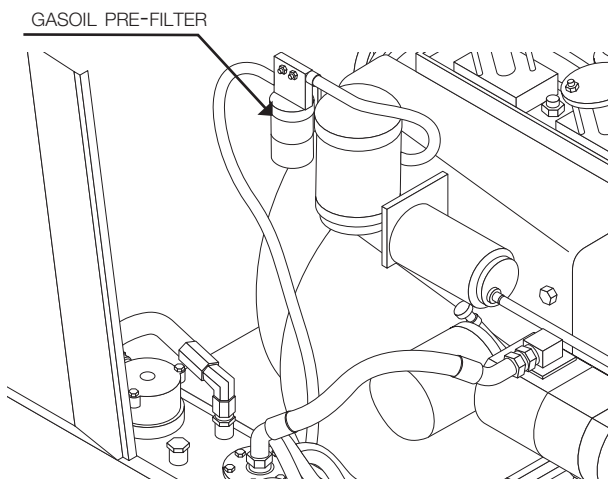
Clean the lid and the filter support.

•Check gasoil level

Check the gasoil level.

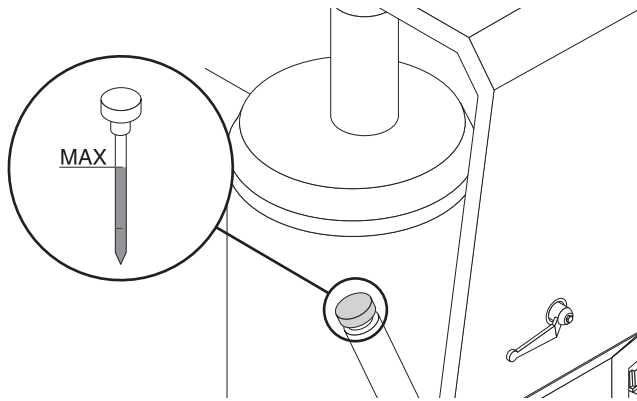
It is advisable to refill the tank at the end of the work to avoid condensing problems inside the tank.

•Water flow from the gasoil pre-filter.



•**Check compressor oil level**

Check the oil compressor level: unscrew the plug of the tube where the graduated rod is fixed ; the right level must be between the two notches on the rod.



Refill eventually with **Agip DICREA 46**.
The level must never be over the max. notch.

•**Check the air compressor filter**

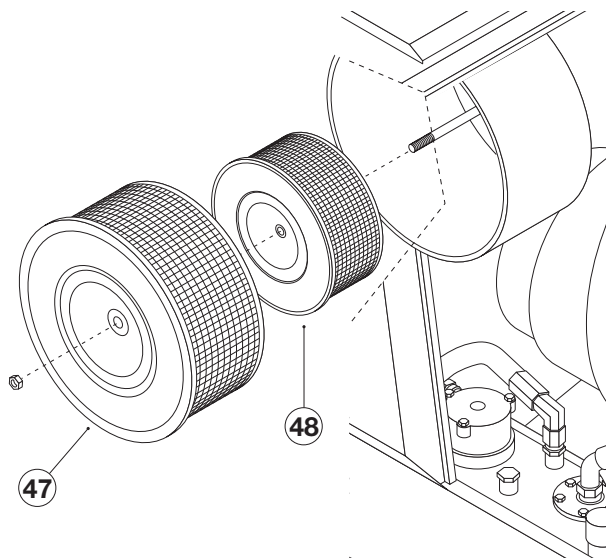
If the machine works in very dusty places.

The compressor air filter is composed of two cartridges (1st and 2nd stage): to check them, unscrew the bolt and take off the 1st stage cartridge (47).

In case of dust on the 2nd stage cartridge (48), take it off too by unscrewing the bolt.

The cartridges can be cleaned many times with compressed air but never washed.

However, they have to be always replaced after 250 working hours.

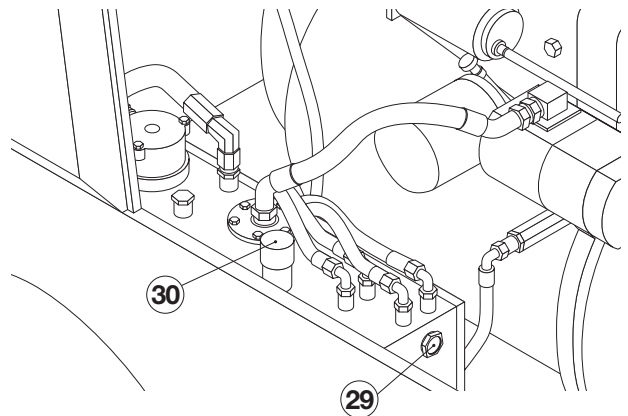



•**Check the hydraulic oil level (DCB version)**

Check the oil level in the tank of the hydraulic circuit (29): if there is any change in the oil level, check where the leak is and correct it.

Have only qualified personnel perform such repair work.

To refill (30) use oil **ELF OLNA DS46**.



 Oil level must be check and eventually refill with loading bucket in low position.

At the end of the work

Preventive care

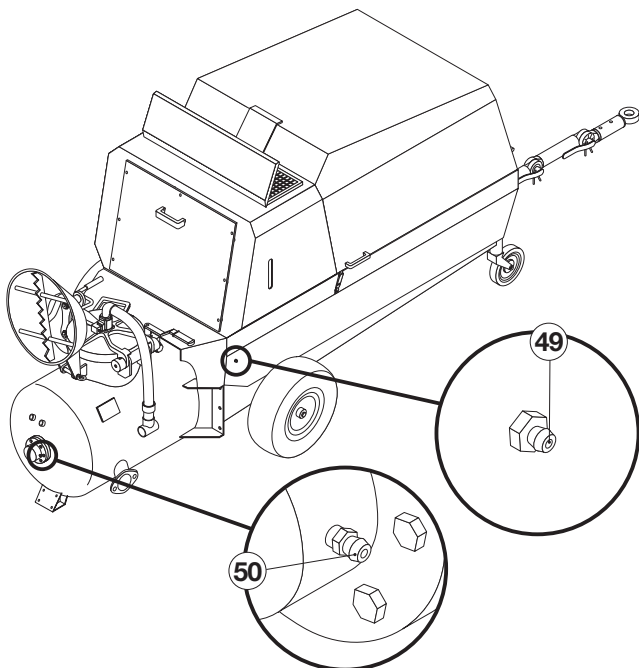
Once work has finished, it is advisable to spray demoulding liquid on the machine.


Grease

•Mixer

With the machine running, lubricate the mixer supports **(49)** and **(50)** by using the grease pump provided.

To make sure this operation has been carried out correctly, check to be sure that grease has flown inside the material vessel.



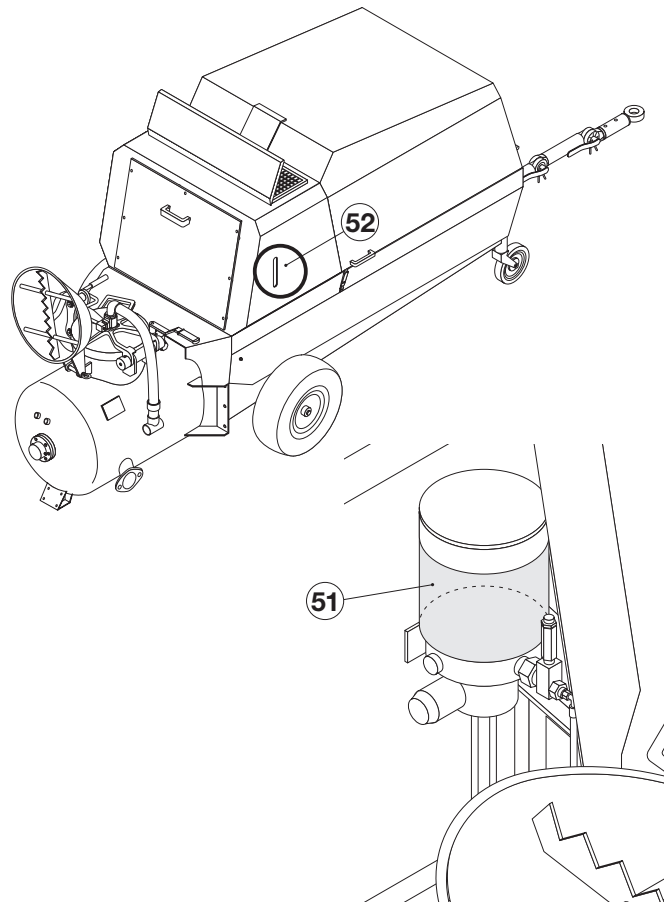
 If you forget to perform this maintenance, the seals and supports will wear out in a few days' time (and you will note an outflow of slurry mixed with air). At this point, you must immediately replace worn-out seals and supports, or else the chrome coating on the mixer shaft will be damaged.

The machine can be supplied (*optional*) with an **automatic grease system (51)** for the mixer shaft supports.

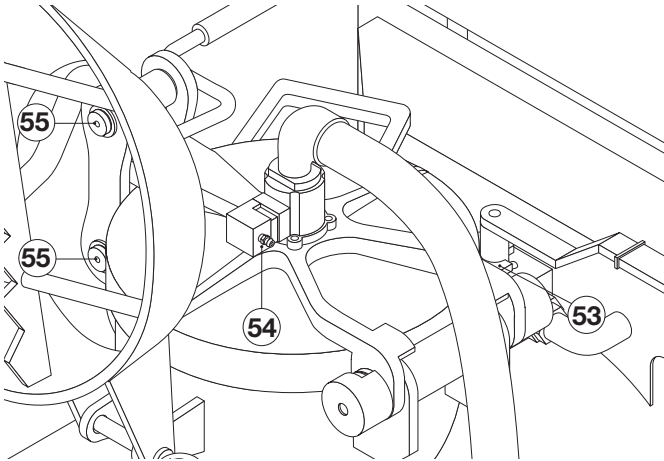
With this system, the grease levels in the tank **(52)** must be checked **weekly** and eventually refill with clean grease:

ELF TRANSLUBE LI grease EP1

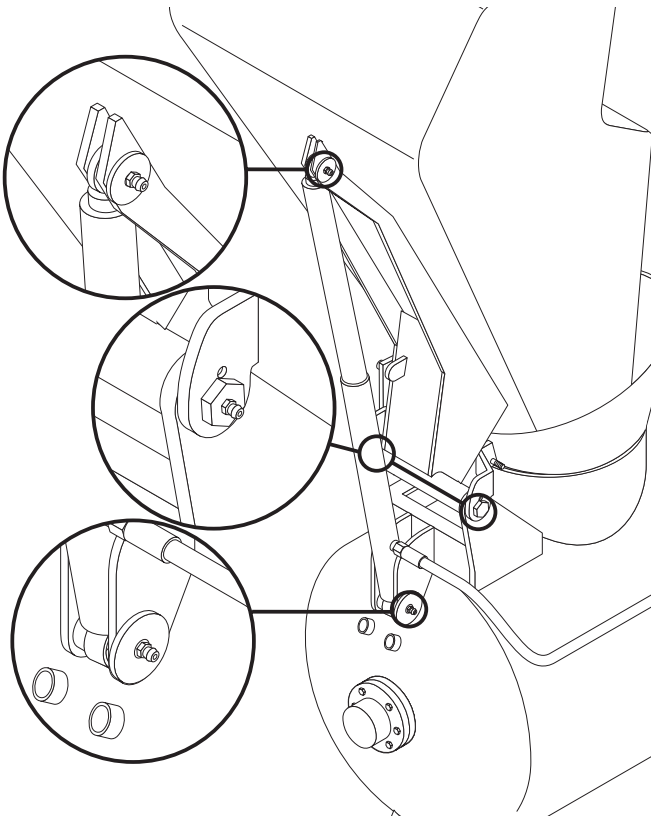
For refilling you may use the grease gun and nozzle supplied **(49)** with the machine.



- Hinge of the safety grill (53)
- Cock of the safety lever (54)
- Pins of the connection plates (55)



- Loading bucket (DCB version)
Grease the 4 loading bucket greasing nozzles.



5.2 - MAINTENANCE WORK TO BE PERFORMED BY QUALIFIED PERSONNEL

OPERATIONS TO BE PERFORMED AFTER 50 HOURS

After 50 hours, it is compulsory to have a first check on the machine.

SEE THE INSTRUCTIONS AND MAINTENANCE BOOKLETS FOR THE ENGINE AND THE COMPRESSOR TOO.

- Check the cooling liquid.
- Check the V belts and, if necessary, tighten them.
- Let the water of the gasoil pre-filter flow out.
- Be sure that the minimum running speed has been checked and set.
- Change engine oil:
refill with **total rubia tir 7400**
- Change the cartridge of the engine oil filter.
- Change the cartridge and the mesh of the gasoil pre-filter.
- Clean the engine air filter.
- Check the valves and adjust them eventually.
- Check the engine supports and tighten them eventually.
- Check the tightness of the stop-action protective probes.
- Check the engine seal (eventual leaks).
- Change the compressor oil:
use **Agip DICREA 46**
- Change the compressor oil filter.
- Check that the couplings of the hydraulic hoses are well screwed.
- Set the brakes for the version with patented on-road tow.

Operations to be performed MONTHLY or after 125 hours

• Check and clean the gasoil pre-filter.

• Check the battery

Check the clamps tightness, the electrolyte level and density (see engine instructions booklet)



The gas that go out from the battery are explosive. Avoid the sparks near the battery and avoid the electrolyte comes into contact with skin and suits.

• Check the radiator

Check and clean, if necessary, the cooling radiator.

The radiating surface of the radiators must be cleaned with compressed air or washed with a high pressure pump; however, take care of the fins that could bend with the water flow.

• Check the belts

Check the tightness of the alternator belt.

Operations to be performed every 250 hours

•Mixer paddles

Check the wear-and-tear on the mixer paddles: if necessary, fine-tune their position so that the paddles are no more than 15 mm from the pressure vessel inner walls. If the paddles are worn down, replace them.

•Wear plates

Check the wear-and-tear on the material vessel's wear plates. If you find deep nicks or cuts so deep as to compromise the plates functional efficiency, have them replaced immediately.

In any case, the plates must be changed before they wear out excessively.



If the material vessel's wear plates are not replaced in due time and the vessel's lower wall becomes deeply nicked or scored (with holes in the plating), the material vessel will no longer be fit for use and will have to be replaced.

•Delivery collector

Check the wear-and tear on the material delivery collector and, if necessary, change it.

•Change the engine oil

to refill use **TOTAL RUBIA TIR 7400**

•Change the cartridge of the engine oil filter.

•Change the fuel filter.

•Change the cartridges of the engine air filter.

•Check the cooling circuit muffs

and eventually replace the worn ones.

•Check the density of the cooling liquid.

Operations to be performed every 6 months or 500 hours

- Check that the vessel pressure gauge is working properly and eventually replace it.
- Check the cock for setting of the air output to the material vessel, the cock with the safety lever, the non-return valves.
- Change the cartridge of the fuel filter and the mesh.
- Check the glow-plugs.
- Change the cartridge of the compressor oil filter.
- Change the cartridges of the compressor air filter.



The compressor air filter can be changed more often depending on the quantity of dust in the working place.

- Clean and set the injectors.

Operations to be performed every year or 1.000 hours

- Change the gear-box oil: 1,25 litre
To refill use mineral oil **EP 90 (AGIP BLASIA 320, IP MELLANA OIL)**
- Change the oil of the hydraulic circuit.
- Change the filters of the oil tank on the hydraulic circuit.
- Change the compressor oil.
- Check the valves and adjust them eventually.
- Check all the pipes and the couplings.
- Remove and clean the components and the pipe of the vent motor.
- Check the alternator, the starter, a.s.o.
- Check the wiring system.

Operations to be performed every two years or 2.500 hours

- Change the discharge motor.
- Change the disoiling element.

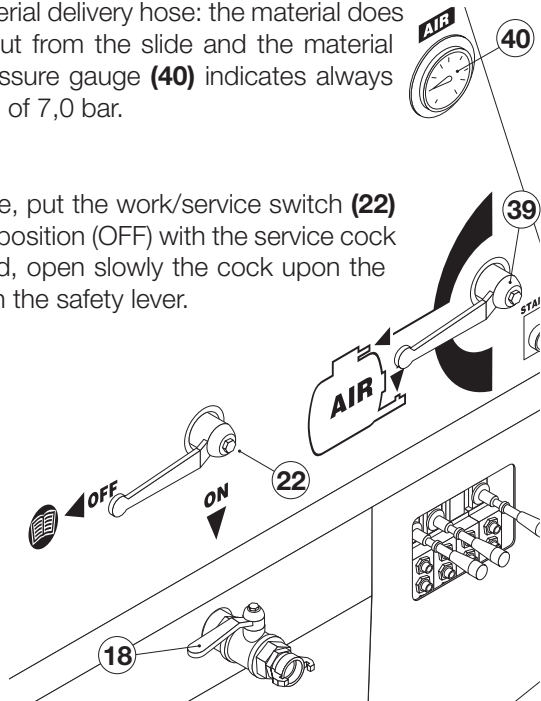
6 - TROUBLE SHOOTING

6.1 - FAULTY MIX

Faulty mix

A faulty mix (see page 12) or mistakes on the setting of the cock (39) during the first part may cause a blockage of the material delivery hose: the material does not flow out from the slide and the material vessel pressure gauge (40) indicates always a pressure of 7,0 bar.


In this case, put the work/service switch (22) to service position (OFF) with the service cock (18) closed, open slowly the cock upon the vessel with the safety lever.




The material vessel pressure lows quickly to zero.

Once you have discovered just where the blockage is taking place (and this part of the hose will be especially hard and stiff) shake the hose and maybe even hit it with a hammer until the stiffness disappears, a sign that the obstruction has been resolved.



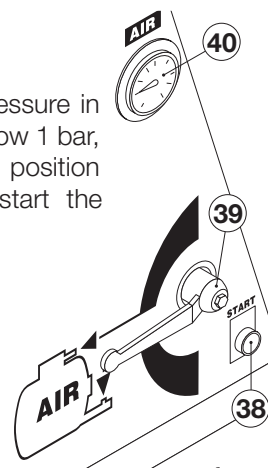
 Never disconnect hoses or delivery hopper, unless you are not completely sure that there is no pressure (0 bar) in hoses and vessel.


 The operator must be carefully trained before doing this operation.

Before the opening of a coupling, check that there is no pressure inside the hoses and that no one stands too close to the hoses.

This operation, that could be dangerous, must be carefully carried on by qualified personnel.


Let the material flow until the pressure in the material vessel (40) drops below 1 bar, turn the cock (39) at the original position and push the button (38) to start the pumping cycle.




 Never try to unblock the hoses disconnecting one of them or the delivery hopper.

If you keep having blockages, modify the air setting increasing the air to the delivery collector (39).

If you keep having blockages, modify the mix (see page 12).

 Before loosening any joint on the material delivery hose, ensure that the key switch (19) is in the OFF position, that the valve with the safety lever is open, that the material tank pressure gauge shows 0 (zero) bar pressure and that there is no residual pressure in the hoses.

 Before disconnecting the delivery hopper, ensure that the key switch (19) is in the OFF position, that the cock with a safety lever is open, that the pressure gauge in the material vessel shows a pressure of zero (0) bar and that there is no pressure inside the hoses.

Never interrupt a conveying cycle halfway.

6.2 - WORK TO BE PERFORMED BY THE OPERATOR

PROBLEMS	CAUSES	REMEDIES
The engine does not stop	Incorrect position of the selector (23)	<ul style="list-style-type: none"> •Put the selector (23) to <u>WORK</u>.
Mixer shaft blocked with the material vessel empty.	No grease in the supports.	<ul style="list-style-type: none"> •Grease the mixer supports
	No oil in the hydraulic circuit	<ul style="list-style-type: none"> •Check the oil level
	By-pass valve open	<ul style="list-style-type: none"> •Close the by-pass valve
The loading bucket cannot be raised.		<ul style="list-style-type: none"> •Ask for the authorized personnel
Mixer shaft blocked with the material vessel not completely full	No oil in the hydraulic circuit	<ul style="list-style-type: none"> •Check the oil level
	Oil overheating in the hydraulic circuit	<ul style="list-style-type: none"> •Clean the oil radiator If the problems remains, ask for the authorized personnel

6.3 - WORK TO BE PERFORMED BY THE QUALIFIED PERSONNEL

For other problems, please contact the qualified after-sales service.

7 - RESPONSIBILITY OF THE OPERATOR

The **PERSON IN CHARGE** of the machinery is responsible for assuring that whoever operates such machinery is well aware of the instructions contained in this use and maintenance manual, and in particular that said operator has received special training in the proper execution of those operations marked in the manual by the following symbol:



The warranty offered by the manufacturer becomes null and void if this machinery is not used in accordance with the instructions in this manual. In addition, this manual must always accompany the machine.

The machine's operator must be thoroughly taught and trained in regard to the operation and use of the machine itself and must sign this use and maintenance manual on the line reading "read and approved". If this procedure is not complied with, the operator is prohibited from using this machine.

Signature of the **PERSON IN CHARGE**

read and approved _____

read and approved _____

read and approved _____

Signature of the **OPERATOR**

read and approved _____

read and approved _____

read and approved _____