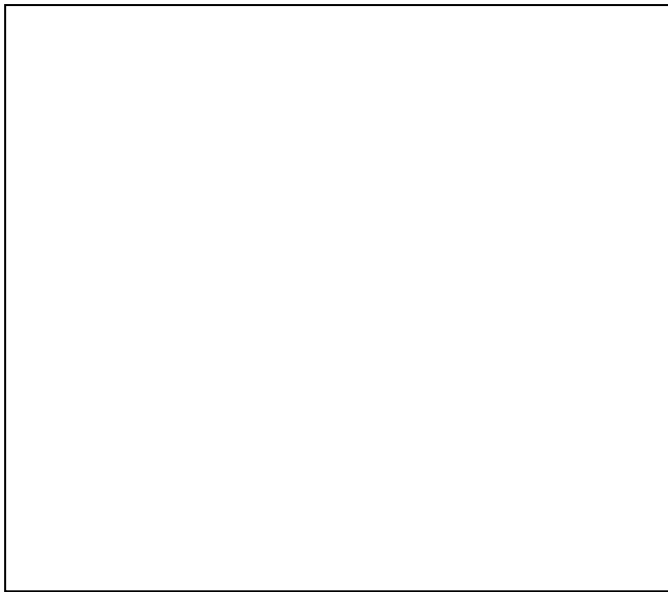


GB	MULTIPURPOSE SERVICE UNIT
	INSTALLATION, USE AND MAINTENANCE MANUAL



WARNING: Read this manual carefully and in full before using the compressor.

IMPORTANT INFORMATION

Read all the operational instructions, safety recommendations and all warnings provided in the instruction manual.

Most accidents encountered when using the compressor are merely due to the failed observance of basic safety standards.

Accidents are prevented by foreseeing potentially hazardous situations and observing the appropriate safety standards.

The fundamental safety standards are listed in the "SAFETY" section of this manual and also in the section involving the use and maintenance of the compressor.

Hazardous situations to be avoided in order to prevent serious personal injuries and machine damages are listed in the "WARNINGS" section of the instruction manual or are actually printed on the machine.

Never use the compressor improperly but only as recommended by the Manufacturer.

The Manufacturer reserves the right to up-date the technical information given in this manual without notice.

All information contained herein is based on data available at the time of printing.

The manufacturer reserves the right to make changes to the products at any time without notice and without incurring any penalty.

It is always advisable to check for updates.

The responsible use of the unit must ensure that all country use safety rules should be applied, ensuring that it's used in accordance with the purpose for which it is builded for, and avoid any dangerous situation for users.

**READ THE INSTRUCTION MANUAL**

Read the use and maintenance manual carefully before installing and starting the compressor.

KEEP THESE USE AND MAINTENANCE INSTRUCTIONS CAREFULLY AND GIVE THEM TO PERSONNEL WISHING TO USE THE UNIT!

**RISK OF SCALDING**

Warning: be careful when touching the compressor as some parts of it could be very hot.

**RISK OF ELECTRIC SHOCK**

Carefully before carrying out any work on the unit is required shut off the main power of the machine.

**WARNING**

IT IS FORBIDDEN TO TRANSPORT THE UNIT IN CONDITION OF PRESSURIZED AIR IN THE TANK

**WARNING**

IT IS FORBIDDEN TO MODIFY AND / OR TAMPERING THE MACHINE AND SAFETY PROTECTIONS

**WARNING**

IT IS FORBIDDEN TO SMOKE AND / OR USING FLAMES NEAR THE MACHINE

**WARNING**

IT IS FORBIDDEN TO OPEN THE PANELS DURING THE MACHINE WORKING

**WARNING**

IT IS FORBIDDEN TO MAKE REFUELING AND / OR OIL FILLING DURING THE MACHINE WORKING

**WARNING**

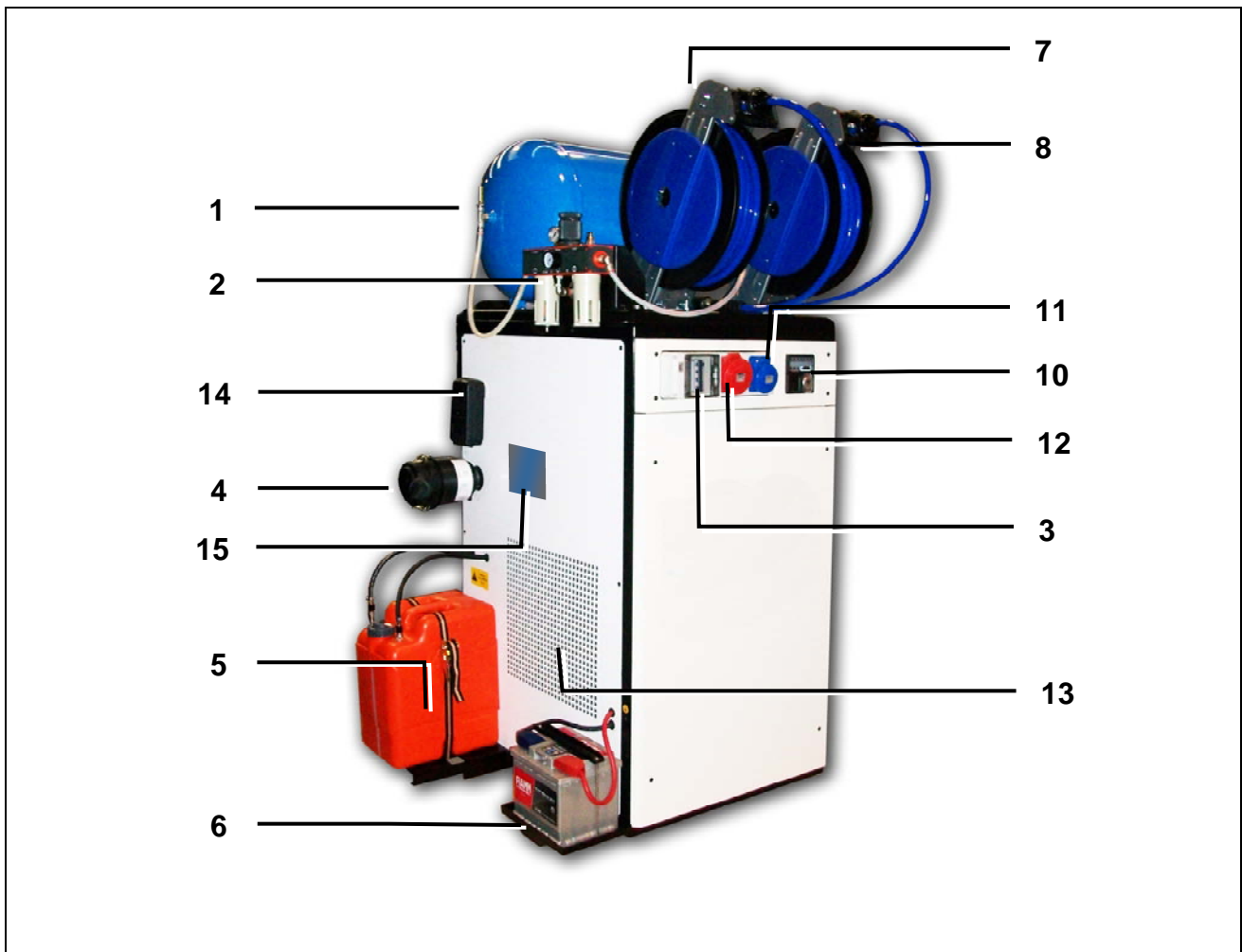
IT IS FORBIDDEN TO USE THE MACHINE IN CLOSED ENVIRONMENT
THE EXHAUST GAS ALWAYS MUST BE ISSUED IN OPEN ENVIRONMENT.

**CAUTION**

ALWAYS WEARING SUITABLE PROTECTIONS

Chap	Index
1	General information
1.1	Security
1.2	Identification data of the manufacturer and the compressor
1.3	Technical data
1.4	Information on machine tecnica/maintenance service
2	Trasport.Handling, Storage
2.1	Trasporting and handling the pace machine
2.2	Packing and unpacking
2.3	Storing the pace and unpacked multipurpose service unit
3	Installation
3.1	Admitted surrounding conditions
3.2	Space required for use and maintenance
3.2.1	Installing the compressor on the ground
3.2.2	Installing on the mobile workshops
4	Using the multipurpose service unit
4.1	Preparing to use the mutipurpose service unit
4.1.1	Operational principle
4.2	Motor
4.2.1	General terms of use
4.2.2	Refueling
4.2.3	Exhaust hose clamp
4.3	Pistons air compressor pump unit
4.3.1	Recommended lubricants
4.4	Connecting the compressor to the sources of energy and relative inspections
4.4.1	Istructions for grounding
4.5	Commissioning
4.5.1	Preliminary checks
4.5.2	Start
4.5.3	Pressure adjustment
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5	Compressor maintenance
5.1	Spare parts
5.2	Maintenance schedule
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5.2.4	Replacing the belt
5.2.5	Draining the condensate
5.2.6	Cleaning the air/oil radiator
5.2.7	Grease the battery poles
5.2.8	Topping up engine coolant
5.3	Pneumatic circuit
5.4	Diagnosing the alarm status/inconveniences-faults
6	Wiring diagrams

MAIN FEATURES



Nr	Description
1	Safety valve
2	Lubricator filters unit
3	Electrical cabinet
4	External filter for diesel engines
5	22 liters fuel tank
6	Engine battery
7	Hose reel
8	Hose reel
9	Operational indicators
10	Start engine's key
11	Electrical socket single-phase 230V
12	Electrical socket three-phase 400V
13	Cooling fan grid
14	Compressor air filter
15	Pump unit oil level indicator

1 General information

The MSU range is composed of double-stage piston compressors with gas engine generator. The internal combustion engine running with diesel fuel is connected to the air compressor pump unit and generator via belt transmission.

IMPORTANT INFORMATION

Read and understand all of the operating instructions, safety precautions and warnings in the Instruction Manual before operating or maintaining this compressor.

Most accidents that result from compressor operation and maintenance are caused by the failure to observe basic safety rules or precautions.

An accident can often be avoided by recognizing a potentially hazardous situation before it occurs, and by observing appropriate safety procedures.

Basic safety precautions are outlined in the "SAFETY" section of this Instruction Manual and in the sections which contain the operation and maintenance instructions.

Hazards that must be avoided to prevent bodily injury or machine damage are identified by WARNINGS on the compressor and in this Instruction Manual.

Never use this compressor in a manner that has not been specifically recommended by manufacturer, unless you first confirm that the planned use will be safe for you and others.

MEANING OF SIGNAL WORDS

WARNING	indicates a potentially hazardous situations which, if ignored, could result in serious personal injury.
CAUTION	indicates a hazardous situations which, if ignored, could result moderate personal injury, or could cause machine damage.
NOTE	emphasizes essential information

1.1 Safety

IMPORTANT SAFETY INSTRUCTIONS FOR USE OF THE COMPRESSOR.



DEATH OR SERIOUS BODILY INJURY COULD RESULT FROM IMPROPER OR UNSAFE USE OF MULTIPURPOSE UNIT. TO AVOID THESE RISKS, FOLLOW THESE BASIC SAFETY INSTRUCTIONS.

READ ALL INSTRUCTIONS

- 1 **NEVER TOUCH MOVING PARTS**
Never place your hands, fingers or other body parts near the multipurpose unit moving parts.
- 2 **NEVER OPERATE WITHOUT ALL GUARDS IN PLACE**
Never operate this multipurpose unit without all guards or safety features in place and in proper working order. If maintenance or servicing requires the removal of a guard or safety features, be sure to replace the guards or safety feature before resuming operation of the compressor.
- 3 **ALWAYS WEAR EYE PROTECTION**
Always wear safety goggles or equivalent eye protection.
Compressed air must never be aimed at anyone or any part of the body.
- 4 **TURN OFF THE ENGINE**
Always turn off the engine to prevent risks of accidental starts. Always remove the compressed air from the air tank before servicing, inspecting, maintaining, cleaning, replacing or checking any parts.
- 5 **STORE MULTIPURPOSE UNIT PROPERLY**
When not in use, the compressor should be stored in dry place.
Keep out of reach of children. Lock-out the storage area.
- 6 **KEEP WORK AREA CLEAN**
Cluttered areas invite injuries. Clear all work areas of unnecessary tools, debris, furniture etc...
Keep the work area well ventilated. Do not use the generator in the presence of flammable liquids or gases. The generator can produce sparks during operation. Do not use the generator in situations where you can find paints, gasoline, chemicals, adhesives and any other flammable or explosive material.
- 7 **CONSIDER WORK AREA ENVIRONMENT.**
Don't expose compressor to rain. Don't use compressor in damp or wet locations. Keep work area well lit and well ventilated. Operate this compressor at a stable place all the time. Risk of fire or explosion. Do not carry and operate the compressor or any other electrical device near the spray area. Do not use compressor in the presence of flammable liquids or gases. Restricting any of the compressor ventilation openings will cause serious

overheating and could cause fire. Never place objects against or on top of compressor. Gasoline engines produce carbon monoxide; a poisonous odorless gas which may cause death. Do not start or operate this compressor in an enclosed area or in presence of obstructions. Operate compressor in an open area at least 4 feet away from any wall or obstruction that would restrict the flow of fresh air to the ventilation openings. Compressor produces sparks during operation. Never use compressor in sites containing lacquer, paint, benzine, thinner, gasoline, gases, adhesive agents, and other materials which are combustible or explosive. This compressor contains some components parts that tend to produce arcs or sparks, and therefore, when located in a garage, it should be in a room or enclosure provided for this purpose, and should be 18 inches (457 mm) or more above the floor. A spark arrester must be added to the muffler of this engine if it is to be used on any forest covered, brush covered or grass covered unimproved land. The arrester must be maintained in effective working condition by the operator. In order to avoid damaging this compressor, do not allow the unit to be tilted more than 10° when operating.

8 INSTALLATION ON A MOBILE WORKSHOPS (AIR COMPRESSOR WITH GAS ENGINE GENERATOR)

Do not expose the multipurpose unit to the weather. **Do not start and use the multipurpose unit if the vehicle is not perfectly stable on slopes more than 10%.** Do not start and use the multipurpose unit if the car doors (rear or side) are closed. It is forbidden presence of people or animals in the car during operation of the multipurpose unit (risk of choking). Before starting work check the air vents are not obstructed. Do not use the multipurpose unit with open panels. Do not use the multipurpose unit when the car is in motion/movement. When the car is in motion/movement of the air tank must be discharged (not in pressure). Discharge the air pressure from the tank before any starting up / moving the car. At each start of the multipurpose unit, make sure that the pressure gauge indicate zero. It is forbidden to use the multipurpose unit in not expressly conditions intended in this manual. The manufacturer don't have responsibility for any damage due to incorrect use.

9 KEEP CHILDREN AWAY

All visitors should be kept safely away from work area.

10 DRESS PROPERLY

Do not wear loose clothing or jewelry. They can be caught in moving parts. Wear protective hair covering to contain long hair.

11 MAINTAIN THE MULTIPURPOSE UNIT WITH CARE

Follow instructions for lubricating.

12 STAY ALERT

Watch what you are doing. Use common sense. Do not operate compressor when you are tired. Compressor should never be used by you if you are under the influence of alcohol, drugs or medication that makes you drowsy.

13 CHECK DAMAGED PARTS AND AIR LEAK

Before further use of the multipurpose unit, a guard or other part is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, air leak, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated elsewhere in this Instruction Manual.

NEVER USE THE MULTIPURPOSE UNIT IF THE PILOT VALVE IS DAMAGE

NEVER USE COMPRESSOR FOR APPLICATIONS OTHER THAN THOSE SPECIFIED.

Never use multipurpose unit for applications other than those specified in the Instruction Manual. Never use compressed air for breathing or respiration.

14 HANDLE MULTIPURPOSE UNIT CORRECTLY

Operate the multipurpose unit according to the instructions provided herein. Never allow the multipurpose unit to be operated by children, individuals unfamiliar with its operation or unauthorized personnel. Carrying the multipurpose unit if tilted may result in fuel spillage.

15 KEEP ALL SCREWS, BOLTS AND COVERS TIGHTLY IN PLACE

Keep all screws, bolts, and plates tightly mounted. Check their conditions periodically.

16 NEVER USE THE MULTIPURPOSE UNIT WHICH IS DEFECTIVE OR OPERATING ABNORMALLY

If the multipurpose unit appears to be operating unusually, making strange noises, or otherwise appears defective, stop using it immediately and arrange for repairs by a authorized service center.

17 DO NOT WIPE PLASTIC PARTS WITH SOLVENT

Solvents such as thinner, benzine, carbon tetrachloride, and alcohol may damage and crack plastic parts. Do not wipe them with such solvents. Wipe plastic parts with a soft cloth lightly dampened with soapy water and dry thoroughly.

18 USE ONLY GENUINE REPLACEMENT PARTS

Replacement parts not original may void your warranty and can lead to malfunction and resulting injuries. Genuine parts are available from your dealer.

19 DO NOT MODIFY THE COMPRESSOR

Do not modify the multipurpose unit. Always contact the authorized service center any repairs. Unauthorized modification may not only impair the compressor performance but may also result in accident or injury to repair personnel who do not have the required knowledge and technical expertise to perform the repair operations correctly.

20 TURN OFF THE SWITCH WHEN THE MULTIPURPOSE UNIT IS NOT USED

When the multipurpose unit is not used, turn off switch and discharge the compressed air from the air tank.

21 NEVER TOUCH HOT SURFACE

To reduce the risk of burns, do not touch tubes, heads, cylinder and muffler. Never allow any part of your body or other materials to contact with any exposed metal parts on this multipurpose unit. Never allow any part of your

body to contact the muffler or adjacent areas. These areas can remain hot for least 45 minutes after this compressor is shutdown. Cool down before servicing.

22 DO NOT DIRECT AIR STREAM AT BODY

Risk of injury, do not direct air stream at persons or animals.

23 DRAIN TANK

Risk of bursting. Water will condense in the air tank. If not drained, water will corrode and weaken the air tank causing a risk of air tank rupture. The compressor is equipped with automatic drain valve. Check and maintain the valve efficient.

24 MAKE SURE THE COMPRESSOR OUTLET PRESSURE IS SET LOWER THAN THE MAXIMUM OPERATING PRESSURE OF THE TOOL.

Too much air pressure causes a hazardous risk of bursting. Check the manufacturer's maximum pressure rating for air tools and accessories. The regulator outlet pressure must never exceed the maximum pressure rating.

25 THE SAFETY VALVE MUST WORK PROPERLY

Risk of bursting. Before starting the compressor pull the ring on the safety valve to make sure the valve moves freely. If the safety valve does not work properly, over-pressurization may occur, causing air tank rupture or an explosion.

26 REFUELING APPROPRIATELY

Follow all fueling instructions in operator's manual. Gasoline is extremely flammable, and gasoline vapor can explode. Do not refuel tank while this compressor is running or hot. Never smoke near gasoline, and keep other flames and sparks away. Do not refuel indoors or in a poorly ventilated area. Do not fill fuel tank to point of overflowing. Always refuel slowly to avoid the possibility of spilled fuel which may cause a fire. Do not operate this compressor if gasoline is spilled. Wipe this compressor clean and move it away from the spill. Avoid creating any ignition until the gasoline has evaporated. Allow approximately 3/4" of tank space for fuel expansion. Always store fuel away from this compressor while it is running or hot. Always store gasoline in an approved container.

27 BE CAREFUL NOT TO TRIP OVER OR DROP THE COMPRESSOR DURING TRANSPORT.

Exercise utmost caution when you carry this compressor. If you trip over something and drop it, there is a fear that unexpected injury may result. If you drop this compressor or bump it against any objects, air tank or any component parts can cause serious deformation, damage, severe scratches and breakdown on this compressor. If operated under such conditions, it can result in any accidents or bodily injuries by explosion of the air tank or explosion of those damaged component parts. Furthermore, gasoline which spilled out by those damages, may have a great risk of a fire. When there is any deformation and damage on the handle, it may drop during transport, resulting in an accident of injury. Before carrying this compressor, switch off the engine and discharge the drain inside the air tank. Be cautious enough to make sure that there are no obstacles, inflammable articles, and unauthorized people around this compressor.

28 USE PLUGS AND CABLES OF A CORRECT SIZE..

For correct use of plug+socket, the three and single-phase size of the plugs must be the same of compressors sockets; the outlet cables size must be upper than 1.5 mm.

1.2 Identification data of the manufacturer and the compressor

IDENTIFICATION DATA OF THE MANUFACTURER AND THE COMPRESSOR (Example)



CE	
TIPO	N.SERIE
TYPE	SERIAL N.
ANNO DI PRODUZIONE	PRESSIONE MAX.
YEAR OF PRODUCTION	MAX. PRESSURE bar
ARIA RESA	POTENZA ASSORBITA
F.A.D. l/min	INPUT POWER kW
VOLT/Hz/PH	LIVELLO SONORO
	NOISE LEVEL dB(A)
	PESO Kg/lbs
	RPM min-1

1.3 Technical data

MOTOR 2 cilindri (4 tempi)	Model	LDW 702 FOCS PLUS
	Power	17/12,5 Hp/kW
	Fuel	Diesel
	Start	Electric
COMPRESSOR Lubried piston unit	Stage	2
	Pressure	12 bar
	Air delivery	35 m ³ /h
CURRENT GENERATOR	Current Voltage	230 V single-phase+T (1 socket) 400 V trifase+N+T (1 presa)
	Protection	Thermal breaker 10 A Differential circuit breaker (30mA)
Noise level @ 4 mt	82 dB(A)	
Ambient temperature range	+5° - +35°	
Dimensions	810x860x1690H	
Weight	381 kg	

1.4 Information on machine technical/maintenance service

We remind you that our technical service department is at your complete disposal to help you resolve any problems that may possibly be encountered, or to provide you with any other information necessary.

In the case of need contact:

CUSTOMER TECHNICAL SERVICE department or your local dealer.

The constant and efficient performance of the compressor is ensured only if original spare parts are used.

We recommend therefore that you strictly observe the indications provided in the MAINTENANCE section and to use **EXCLUSIVELY** original spare parts.

The use of NON ORIGINAL spare parts automatically annuls the guarantee.

2 Transport, Handling, Storage



In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

2.1 Transporting and handling the packed machine



The packed compressor must be transported by qualified personnel using a forklift truck.

Before moving the machine ensure that the load-bearing capacity of the forklift truck is sufficient to take the weight to be lifted. Position the forks exclusively as illustrated below. Once the forks have been positioned in the points indicated, lift slowly without jerking.



Never stand near the area where the compressor is being handled and never stand on the crate while it is being moved.

2.2 Packing and unpacking

To avoid damages and to protect the compressor during transport it is usually placed on a wooden pallet, to which it is secured by screws and covered with cardboard.

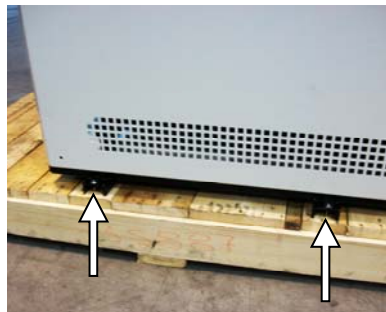
All the shipping and handling information and symbols are printed on the compressor packing. Upon consignment remove the top part of the packing and check if any damages have been encountered during transport. If any damages are found, caused during transport, immediately make a written claim, backed up with photos of the damaged parts if possible and forward everything to your insurance company, with copy to the **Manufacturer** and transporter.

Using a forklift truck take the compressor as near as possible to the place where it is to be installed then carefully remove the protective packing without damaging it, following the instructions below:

- Remove the packing 1, by sliding it away upwards.



- Unscrew the blocking screws at the base.



Note! The compressor can be left on the packing pallet to make it easier to move.

Carefully ensure that the contents correspond with all written in the consignment documents.
Dispose of the packing in compliance with current standards in force in the country of installation.

Note! The machine must be unpacked by qualified personnel using appropriate tools and equipment.

2.3 Storing the packed and unpacked multipurpose service unit

For the whole time that the compressor is not used before unpacking it, store it in a dry place at a temperature between +5°C and + 40°C and sheltered away from weather.

For the whole time that the compressor is not used after unpacking it, while waiting to start it up or due to production stoppages, place sheets over it to protect it from dust, which may settle on the components.

The oil is to be replaced and the operational efficiency of the compressor is to be checked if it is not used for long periods.

3 Installation



In order to use the compressor in complete safety read the safety standards given in section 1.3. before reading this section.

3.1 Admitted surrounding conditions

Position the machine as established when the order was placed. Failing this the **Manufacturer** is not liable for any inconveniences that may possibly arise. Unless pointed out otherwise when placing the order, the compressor must work regularly in the surrounding conditions indicated below.

ROOM TEMPERATURE

For a good work, the room temperature must not be lower than 5°C or higher than 35°C.

If the compressor works at a room temperature lower than the minimum value, the condensate could be separated within the circuit and therefore the water would mix with the oil, thus deteriorating the quality of the latter, failing to guarantee the even formation of the lubricating film between the moving parts with the possibility of seizure.

If the compressor works at a room temperature higher than maximum value, the compressor would take in air that is too hot, which would prevent the heat exchanger from adequately cooling the oil in the circuit, raising the working temperature of the machine, thus causing the thermal safety device to trip, which stops the compressor due to an excessive temperature of the air/oil mixture at the screw outlet.

LIGHTING

The machine has been designed in compliance with legal prescriptions and in the attempt to minimise shadow zones to facilitate the operator's job.

The lighting system of the factory is to be considered as crucial for the operator's safety.

The compressor's placement must not have shadow zones, dazzling lights or stroboscopic effects due to the lighting.

ATMOSPHERE WITH RISK OF EXPLOSION AND/OR FIRE

The standard compressor is not pre-arranged or designed to work in rooms subject to the risk of explosion or fire.

The performance of the compressor may decrease at the maximum permitted ambient temperature, with relative humidity higher than 80% and at an altitude of more than 1,000 mt.

3.2 Space required for maintenance

The machine must be installed in a large room that is well-aired, dust-free and sheltered away from rain and frost.

The machine takes in a large amount of air that is required to ventilate it internally. A dusty atmosphere would in time cause damages and inefficient performance.

Part of the dust once inside is taken in by the air filter causing it to clog rapidly and another part of dust will settle on the components and will be blown against the cooling radiator, consequently compromising the efficiency of the heat exchanger. It is therefore obvious that the cleanliness of the area in which the compressor is installed is crucial for the correct efficiency of the machine, avoiding excessive running and maintenance costs. To facilitate maintenance jobs and to create a favourable circulation of air, the compressor must have a sufficient free space all around it (see following pictures).

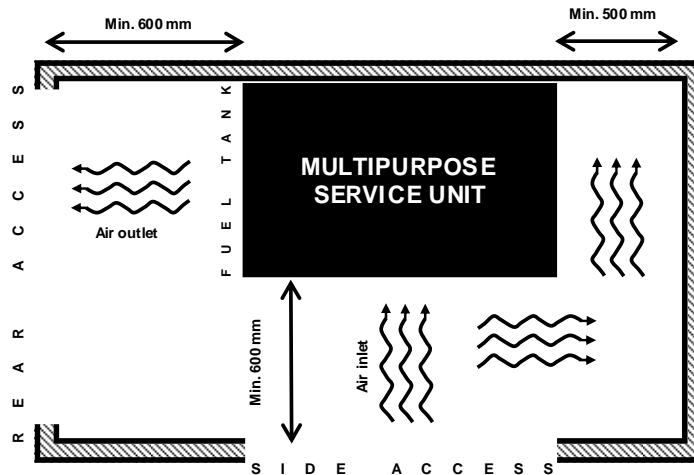
3.2.1 Installing on the ground



In order to use the compressor in complete safety read the safety standards given in section 1.1 before reading this section.



Place the compressor on a flat surface (max inclination: 10 °), in a ventilated place, protected from weather and in not explosive environments. The fuel tank side and inspection / maintenance vents must have placed in accessible side. It is the responsibility of the operator to control and deny access to the area of persons and / or animals, keep it free from objects that may obstruct airflow and flammable objects. Connect the screw placed on the chassis with the surrounding soil using appropriate “ground picket” via cable of minimum section 10 mm². (see chap. 4.4.1)

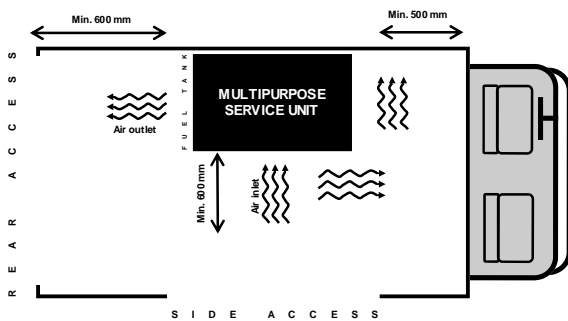


3.2.2 Installing on the mobile workshops

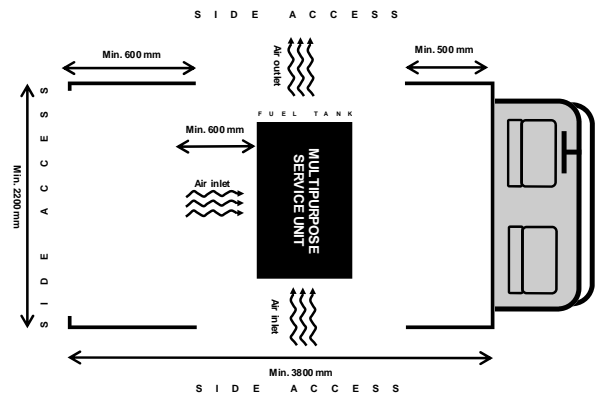


NOTE: Before proceeding with the installation in the vehicle, follow the rules in force concerning workplace safety and vehicle manufacturer indications. Check the total of vehicle mass is equal to or more than the compressor weight and the tools fitted. The fuel tank side and inspection / maintenance vents must have placed in accessible side. It is the responsibility of the operator to control and deny access to the work area to people and / or animals, keep it free from objects that may obstruct airflow and flammable objects. Connect the screw placed on the chassis with the surrounding soil using appropriate “ground picket” via cable of minimum section 10 mm². (see chap. 4.4.1)

Type 1



Type 2



4 Using the multipurpose service unit

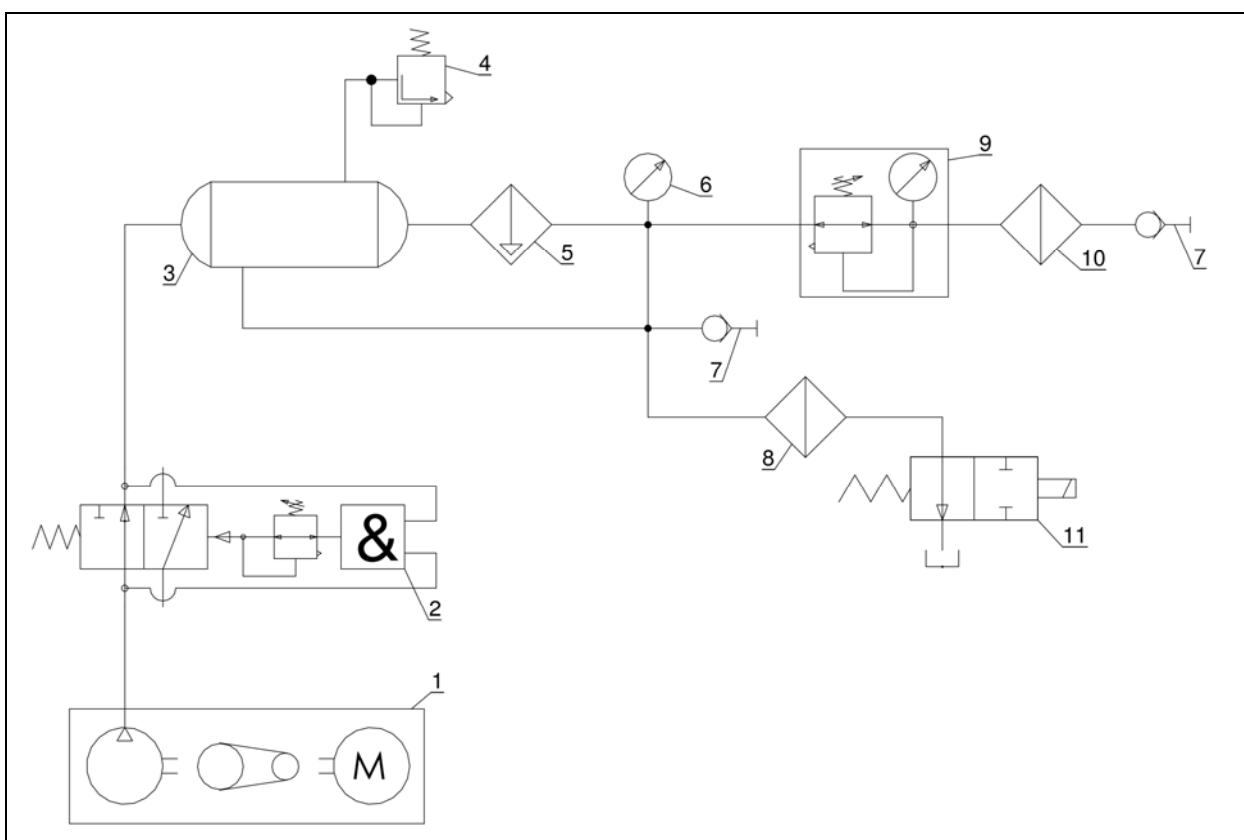


In order to use the compressor in complete safety read the safety standards given in section 1.1 before reading this section.

4.1	Preparing to use the multipurpose service unit
4.1.1	Operational principle

The multipurpose service unit allows the production of compressed air and single and three-phase alternating current through the combined work of a two-stage lubricated piston pump unit and a power generator connected by belt to the diesel engine combustion.

The application range of this multipurpose service unit includes use in a mobile workshops and maintenance equipped vehicles.



1	Pump unit	7	Air exit
2	Automatic unloading valve	8	Discharger air filter
3	Tank	9	Pressure regulator
4	Safety valve	10	Air filter
5	Air filter separator	11	Solenoid discharge valve
6	Pressure gauge		

4.2 Motor

Note! The information in this manual are intended to assist the operator during use and maintenance operation of the compressor.
Some images contained in this manual may be different from your model.

Take care to transport the compressor correctly, do not overturn it or lift it with hooks or ropes.

4.2.1 General terms of use



Do not allow the engine or muffler to come in contact with flammable vapors, combustible dust, gases or other combustible materials. A spark may cause a fire. Do not place this compressor in an area where flammable gas vapors may be present.

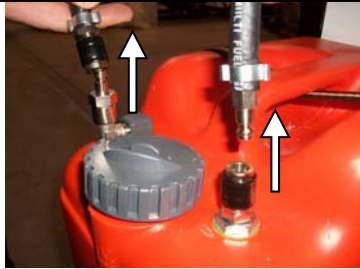


- Read the engine manual accompanying this compressor for correct engine start-up maintenance procedures.
- Read and understand the safety labels located on this compressor.
- A minimum of 85 octane fuel is recommended for use with this compressor. Do not mix oil with gasoline.
- Use of clean, fresh, lead free gasoline should be used. Do not use gasoline containing methanol or alcohol.
- Check the engine oil level before starting (See engine manual).
- Fill the fuel tank according to the engine manual instructions.

4.2.2 Refueling



WARNING!

- Refer to the engine manual for all necessary maintenance and adjustments.
- Follow all fueling instructions in operator’s manual.
- Gasoline is extremely flammable, and gasoline vapor can explode.
- Do not refuel fuel tank while this compressor is running or hot.
- Never smoke near gasoline, and keep other flames and sparks away.
- Allow this compressor and engine to cool down before refueling.
- Do not refuel indoors or in a poorly ventilated area.
- Do not fill fuel tank to point of overflowing.
- Always refuel slowly to avoid the possibility of spilled fuel which may cause a fire.
- Do not operate this compressor if gasoline is spilled.
- Wipe this compressor clean and move it away from the spill.
- Avoid creating any ignition until the gasoline has evaporated.
- Allow approximately 1/4” of tank space for fuel expansion.
- Always store fuel away from this compressor while it is running or hot.
- Always store gasoline in an approved container.

		
1 Disconnect fuel hoses.	2 Remove the security belt.	3 Remove the fuel tank.



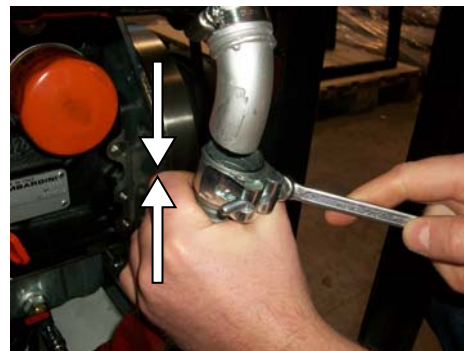
Refer to the Engine Manual to correct maintenance operation.

4.2.3 Exhaust hose clamp

**WARNING!**

Do not operate this compressor in an enclosed area. Use this compressor only in well ventilated areas. The exhaust from the engine contains carbon monoxide, a poisonous, odorless and invisible gas. Breathing the gas can cause serious injury, illness and possible death. Avoid inhalation of exhaust gas. Never run the engine in a closed garage or confined area.

- Place the exhaust hose between the outside and the compressor following the shortest path.
- Connect the hose to the exhaust outlet using the included clamp.
- Check the tightness of the clamp.

**WARNING!**

The exhaust hose can reach high temperatures during compressors operation. Provide to wrap the exhaust hose with fireproof material of adequate insulation. Keep away from compressor moving parts and flammable parts (example: wooden pallets).

4.3 Pistons air compressor pump unit

4.3.1 Recommended lubricants

The compressed air is generated by a lubricated piston two-stage pump unit. Before the first start fill the supplied oil up to the indicated level. Always use 5W-40 oil and a pour point of -10°C . The flame point must be greater than $+200^{\circ}\text{C}$. Daily check the oil level and add oil if necessary.

Recommended oils:

Oil for piston compressors	FIAC HIGH-PERFORMANCE
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Overfilling with oil will cause premature compressor failure. Do not overfill.

4.4 Connecting the compressor to the sources of energy and relative inspections

4.4.1 Instruction for grounding



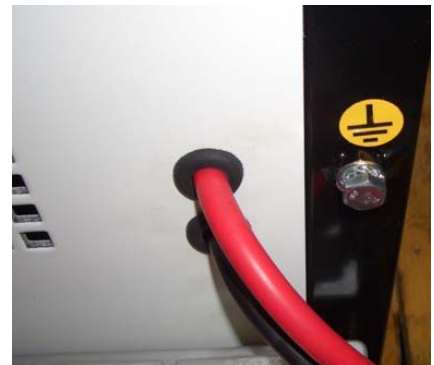
All electrical maintenance must be performed by specialized technician.



NOTE FOR MOBILE WORKSHOPS USE:

Before connecting the ground, secure the compressor to the vehicle chassis by appropriate holder.

- To protect the operator from electric shock this compressor must be grounded when in use.
- Do not disassemble the compressor and do not make any other connections.
- Any repair must be performed only by authorized service centers FIAC.
- REMEMBER: the grounding conductor to the earth is green or yellow / green.
- Never connect the grounding conductor to a line terminal.



4.5 Commissioning

4.5.1 Preliminary checks



In order to use the compressor in complete safety read the safety standards given in section 1.1 before reading this section.

Once placed, check the following compressor's parts:

PRELIMINARY CHECKS

→ ELECTRICAL BATTERY CONNECTION (optional supply)

- Place the battery on proper support and secure it by the 2 supplied screws.
- Connect the RED wire to the terminal marked "+" and tighten it. Connect the BLACK wire to the terminal marked "-" and tighten it.



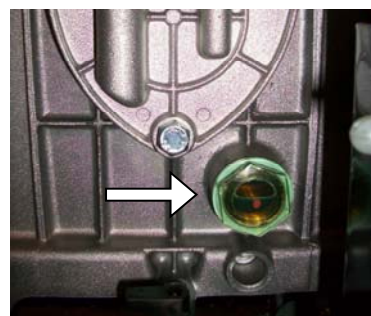
→ CHECK PNEUMATIC CIRCUIT

- Check the internal pressure gauge is point out zero.
- Check that the external pneumatic hoses is not damaged or bent.
- Check that the condensate is discharged by automatic discharge valve.



→ CHECK PUMP UNIT OIL LEVEL

- Check (see the oil sight glass) the oil level and add oil if necessary.



→ CHECK MOTOR ENGINE

- Check (see motor oil dipstick) the oil level and add if necessary.
- Check the coolant level and add it if necessary.
- Check the tank fuel level and add it if necessary.



4.5.2 Start



In order to use the compressor in complete safety read the safety standards given in section 1.1 before reading this section.



Before start:

- Ensure all guards and panels are securely in place and well fastened.
- Ensure that the exhaust hose is placed in a open area.
- Ensure that the air supply is sufficient.



- Note for mobile workshops: ensure that all tailgates or doors are open.

Make sure the breather valve placed on the fuel tank, is OPEN (fig.1).

NOTE: at first start and in any case the fuel tank is totally empty, before starting the motor: remove the right side panel and pump some fuel into the motor by mean of the lever placed on the motor itself (fig.2).

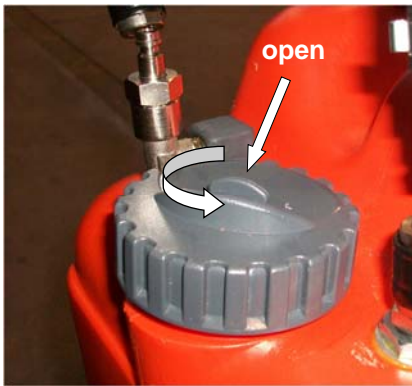


Fig.1

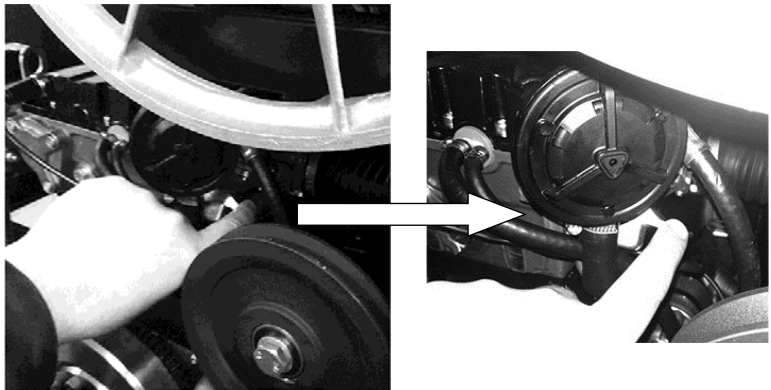


Fig.2

NOTE: DO NOT START THE COMPRESSOR WITH GUARDS OR PANELS OPEN!
Start and use of compressor is reserved only by specialised personnel.



1		Turn the key in READY position.
2		Wait for the warning lights off.
3		Turn the key on START position.
4		After engine start, release the key on READY position.



Do not hold the key in START position for longer than 5-10 seconds, if the engine does not start, repeat in multiple attempts to avoid burning the starter.



- When the engine is running, ensure that all warning lights are off.
- For models with starting panel: ensure that only the engine protection light is



4.5.3 Pressure adjustment

You do not have to use the maximum operating pressure at all times. On the contrary, the pneumatic tool being used often requires less pressure.

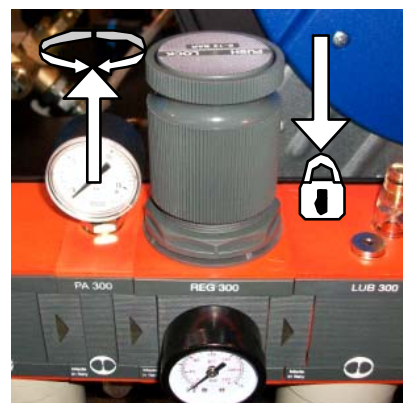
To adjust the working pressure:

- • Unlock the regulator by pulling it upwards.
- • Turn to adjust
- • Push down to lock














Check the manufacturer's maximum pressure rating for tools connected to the compressor and accessories.

Compressor outlet pressure must be regulated so as to never exceed the maximum pressure rating for tools connected to the compressor.



	Max working pressure	Max using pressure
MSU	12 bar	12 bar

4.6 Safety and control indicators

Symbol	Color	Description
	GREEN	Engine protection indicator Indicates the correct engine running. In case of fault it shut off.
		*The fuel solenoid valve, in case of fault, stops the fuel supply, and the engine shutdown.
	YELLOW	Battery charger indicator. When this indicator light up, the battery fail to charge. After 3 min the engine stops.*
		OUT OF ORDER
	YELLOW	Glow plug pre-heat indicator Indicates the glow plug pre-heat time (depending on the ambient temperature). Models without tachometer: it flashing indicates a glow plugs voltage absence Models equipped with tachometer: the engine protection indicators become green when a glow plugs fault occurs.
	YELLOW	Air filter indicator Indicates the air filter clogging. NOTE: this indicator may have differents functions depending the models.
	RED	Oil pressure indicator. Indicate the oil pressure too low. After 3 min the engine stops.*
	RED	Engine head oil temperature. Indicates the cooland temperature is too hight. After 3 min the engine stops.*
	RED	Warning indicator This indicator may have differents functions depending the models. After 3 min the engine stops.*
	RED	Warning indicator This indicator may have differents functions depending the models. After 3 min the engine stops.*
	RED	Battery indicator Indicates the battery voltage absence. The machine fail to start.
		Hours meter Indicates the hours of duty (hours and hours tenths).

This compressor operate automatically.

The pilot valve control the tank load status, putting in idle running the compressor in case of tank full charge (max pressure reached) and restarts it in case of air consumption (pressure drop).



WARNING!
IN CASE OF UNUSUAL NOISE OR VIBRATION STOPS THE COMPRESSOR IMMEDIATELY!

**WARNING!**

Always wear ears protection. Some work conditions and prolonged exposure to noise may cause hearing loss and diseases.

Sound level measured in a free range at a distance of 4 m: $\pm 3\text{dB(A)}$ at the maximum working pressure.

MOD.	HP/CV	dB (A)
MSU	18.5	82

The level of acoustic pressure can increase from 1 to 10 Db(A) according to the place in which the compressor is installed.

4.7 General safety warnings



This compressor is not intended for outdoor use or open environment. Do not expose to wheather conditions.



NOTE: The head/cylinder/delivery tube unit can reach high temperatures. Take care when working near these parts, and do not touch them to avoid possible burns



Do not disconnect any part when the tank is pressurized. Discharge the pressure tank before any maintenance.

- Do not drill holes, weld or purposely deform the compressed air tank.
- Do not do any jobs on the compressor unless it is off.
- Temperature in operating ambient: $0^{\circ}\text{C} + 35^{\circ}\text{C}$.
- Do not aim jets of water or inflammable liquids on the compressor.
- Do not place inflammable objects near the compressor.
- Never aim the air jet at people or animals
- Do not transport the compressor while the tank is pressurised.
- Be careful with regard to some parts of the compressor such as the head and delivery tubes, as they can reach high temperatures. Do not touch these parts to avoid burns.
- Transport the compressor, lifting or pulling it with the appropriate grips or handles.
- Keep children and animals well away from the machine operating area.
- If using the compressor for painting:
 - a. Do not work in closed environments or near to naked flames
 - b. Make sure there is adequate exchange of air at the place of work
 - c. Protect your nose and mouth with an appropriate mask. (fig. 14)
- Do not put objects or your hands inside the protective grilles to avoid injury to yourself or damaging the compressor.
- Do not use the compressor as a blunt object toward things or animals, to avoid serious damage.
- When you have finished using the compressor, always switch it off.




4.8 Use of electrical sockets



Avoid all risks of electrical shocks. Never use the compressor with damaged electrical cables or extension cables. Regularly check the electrical cables. Never use the compressor in or near water or near a hazardous area where electrical shocks may be encountered

The machine generates electricity at 230V single phase (1 socket) and three-phase 400V (1 socket). Check the tools absorption connected to the sockets is NOT equal and higher than the data plate rates.

4.9 Shut down

	<p>1</p>		<p>Turn the key in STOP position.</p>
<p> EMERGENCY STOP</p>			
<p>In case of disfunctions or faults, immediately shut off the machine by turning the key anticlockwise. Disconnect the battery and discharge the compressed air tank.</p>			



Risk of bursting.

When the tank gets corroded, there is a risk of breakdown.
Water will condense in the air tank. If not drained, water will corrode and weaken the air tank causing a risk of air tank rupture.
The drain contains moisture in the air, abrasion particles, rust, etc.
Keep face and eyes away from drain cock.
Allow the compressor to cool down
Wipe this compressor clean and store in a safe, non-freezing area.

5 Compressor maintenance



The compressors can be equipped with hourmeter for proper maintenance planning and tachometer for an adequate check of the engine efficiency. A performance engine decrease of 150-200rpm, indicates that the compressor needs maintenance and / or adjustment by an authorized service center.



Discharge the compressed air from the tank before performing any machine maintenance. Allow the compressor to cool before performing the maintenance operations. Always stop engine.

WARNING:

Read the instruction manual before performing maintenance.

The following procedures must be performed when stopping the compressor for maintenance or service.

- Shut off the compressor
- Open the discharge tap.
- Allow the compressor to cool before performing the maintenance operations.

5.1 Spare parts

When servicing use only original spare parts.

Repairs should be performed only by authorized service center.

5.2 Maintenance schedule

Maintenance performance	daily	weekly	250 hours	500 hours	1000 hours
Check the automatic discharge valve	X				
Check oil level (diesel engine)	X				
Check oil level (compressor pump)	X				
Check Air filter and clean if necessary.		X			
Check the battery fluid		X			
Check the engine coolant		X			
Check vibrations and/or noise	X				
Check air leaks	X				
Check the electrical connections		X			
Check the belts tension			X		
Check the security valve			X		
Clean the radiator			X		
Replace compressor pump air filter			X		
Replace diesel engine air filter			X		
Change compressor pump oil *			X		
Change diesel engine oil **			X		
Change oil and fuel filters (diesel engine)			X		
Replace trasmission belts				X	
General check by authorised service center					X
Can be performed by the user		Must be performed by authorized service center			
* AGIP SINT 2000 5W40 - API SJ / CF 4 - ACEA A3-96 B3-96 - MIL-L-46152 D/E					
** REPSOL COMP 540 DIN 51506 VDL					

5.2.1 Pump unit changing the oil

Change the oil following the initial **100 hours** of use and then every **250 hours** and in event once a year. In case of not frequently use (few hours of duty per day) you should change the oil every **3 months**.



Before changing the oil, provide a container to collect the exhaust oil.

<p>1 Open the left side panel, remove the oil plug and then open the pump unit oil purge tap.</p>	<p>2 Collect the exhaust oil in a container</p>	<p>3 Close the oil purge tap.</p>	<p>4 Add oil until half of the oil sight glass. Screw the oil plug and close the compressor.</p>

Once the oil has been changed leave the compressor run for roughly 5 minutes then turn it off and check the oil level again and if necessary add oil. Check the oil level once a month.

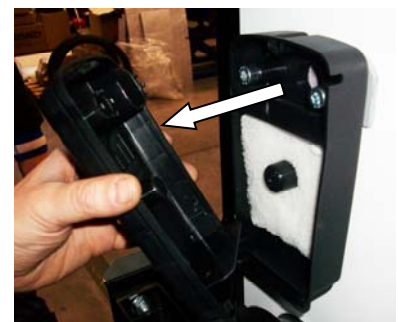


Never mix different types of oil, therefore always ensure that the circuit is completely empty before filling-up with oil. Each time the oil is changed the filter is also to be replaced.

5.2.2 Air cartridge replacement

Remove the plastic cover by the clamp.

Replace the air filter cartridge and close firmly.



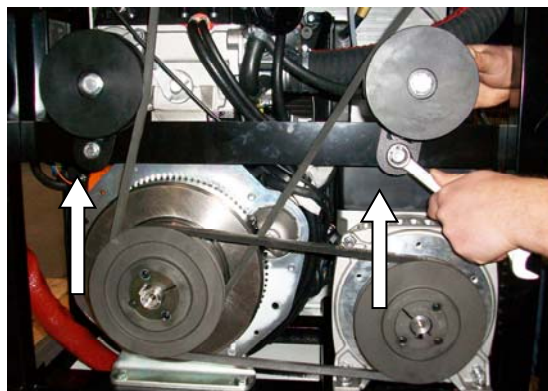
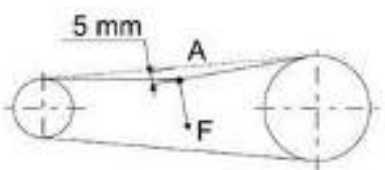
5.2.3 Tightening the belt

PUMP UNIT

Check and maybe tighten the belt if necessary.

Using a dynamometer apply a perpendicular force in point **A** of between 25N and 35N, the belt must give by roughly 5mm.

- Open the front panel to gain access inside the machine.
- Loosen the pump unit fixing screws (not remove).
- Turn the nuts to tighten the belt.
- Tighten the pump unit fixing screws.



ALTERNATOR

- Open the side panel to gain access inside the machine.
- Turn the nut to tighten the belt.



5.2.4 Replacing the belt

Loosen the pump unit fixing screws (not remove).
Turn the nut to loosen or replace the belts.



5.2.5 Draining the condensate

The compressor is equipped with automatic drain valve.

Check and maintain the valve efficient.
Clean the valve periodically.



The condensate drained is considered as polluting mix that must not be thrown away outdoors. It is advisable to use special water/oil separators for its disposal in accordance with applicable laws.

5.2.6 Cleaning the air/oil radiator

It is advisable to clean the radiator **1** on a weekly basis to remove impurities, blowing it with an air gun from inside.

Blow compressed air through the radiator, from inside outwards, making sure that no dirt settles inside the compressor.



5.2.7 Grease the battery poles



CAUTION: The battery contains corrosive, toxic and explosive fluids, be very careful during maintenance, always wear goggles and face masks.

Periodically grease the battery poles, using specified grease.



5.2.8 Topping up engine coolant

Open the filler cap and fill the coolant to the point out level.
Use only the recommended engine coolant (see engine coolant).



5.3 Pneumatic circuit

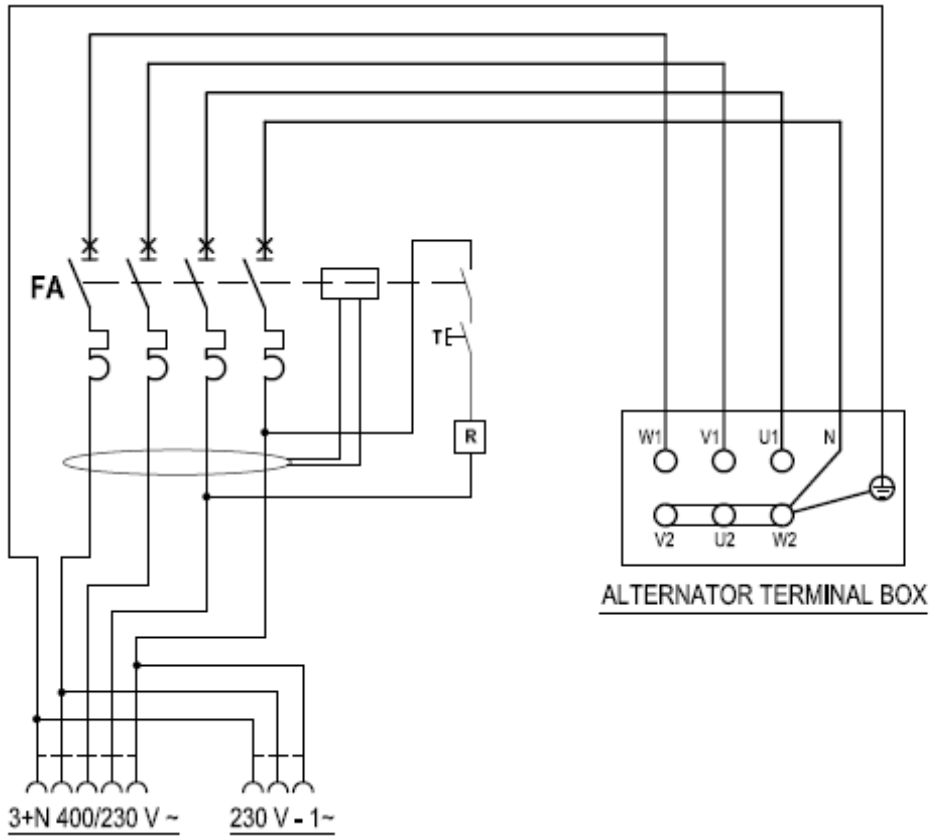
Always use pneumatic hoses for compressed air with the maximum pressure characteristics and cross section suitable for those of the compressor. Do not try to repair a faulty hose.

5.4 Diagnosing the alarm status/inconveniences-faults

COMPRESSOR		
System not in pressure or non continuously pressure	Air filter clogged	Check and eventually replace the air filter by an Authorised Service Centre.
	Pump unit head gasket damaged	Replace the head gasket by an Authorised Service Centre
	Connections air leaks and/or pneumatic hoses or damaged head valves.	Replace the defective elements
	Hoses clogged	Pulire o sostituire le parti difettose c/o Centro Assistenza Autorizzato.
	Defective segments. Oil flow through the segments. (Oil presence in condensate drain hose)	Sostituire i segmenti
	Loose or break belt	Tighten or replace the belt by an Authorised Service Centre.
	Defective discharge valve	Replace the discharge valve by an Authorised Service Centre.
Noisiness from the tank.	Defective security valve or pressure too high.	Replace the security valve by an Authorised Service Centre.
Abnormal consumption of oil	Damaged mechanics elements.	Check and replace the damaged mechanics elements by an Authorised Service Centre.
Metallic noise	Loose or damaged mechanic element	
The compressor run but not load.	Damaged valve plate or air leaks.	Check the correct pressure switch setting, fuses and electrical connections. If the problem persist contact an Authorised Service Centre.
ENGINE		
Engine failure	Refer to the engine manual.	Repair to an Authorised Service Centre.
Engine stops	Oil temperature too high.	Check the oil level, clean the radiator and check if the fan in-take grid is clean or obstructed (paper, leaves, rags). Restart the compressor. If the problem persist contact an Authorised Service Centre.
GENERATOR		
No voltage to electrical sockets	The magneto thermal circuit breaker switch on.	Disconnect the power tools from the sockets and reset the magneto thermal switch.
	Loose or damaged belt	Tighten or replace the trasmission belt.
	Wrong rotation speed of thermal engine.	Please, contact an Authorised Service Centre.
	Generator failure	Please, contact an Authorised Service Centre.

6 Wiring diagrams

400V/3 ~ 230V/1 ~ 50/60Hz



Note: we reserve to makes changes to this manual without notice.

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