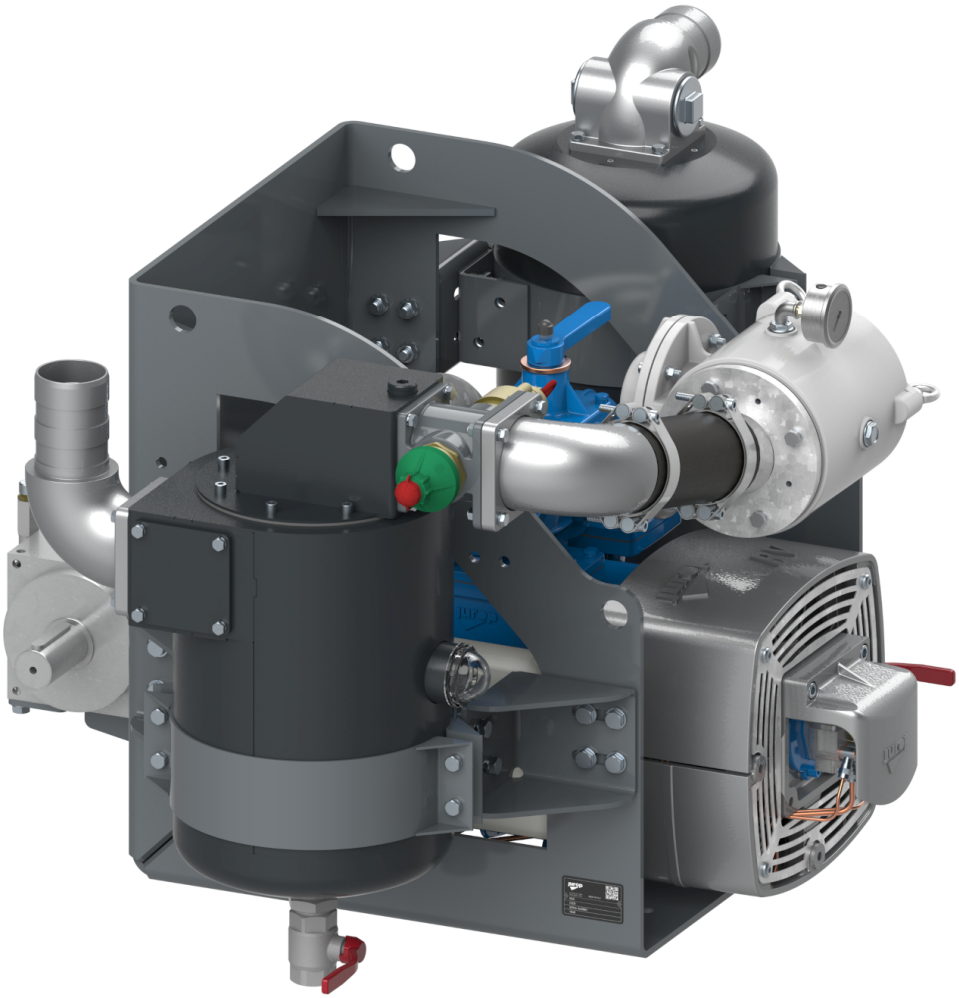
EN

RV SYSTEM

TRANSLATION OF ORIGINAL INSTRUCTIONS



SUPPLEMENT TO THE INSTALLATION, USE AND MAINTENANCE MANUAL

jurop

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 9001

COMPANY WITH ENVIRONMENTAL SYSTEM CERTIFIED BY DNV ISO 14001

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV ISO 3834-2

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Contents

1. General warnings

1.1. Introduction

This manual provides indications regarding the use and maintenance of the RV SYSTEM unit, as well as some warnings for the operator regarding basic safety regulations.

Knowing the information below is essential to use the unit properly.

Following the instructions below contributes to limiting unit repair expenses by extending its duration, as well as preventing hazardous situations, thereby increasing its reliability.

In case the hydraulic motor is present, refer to the specific manufacturer's manual.

It is essential to:

- Read and apply the instructions before starting up the unit.
- Keep the manual in a place known to all users.

Below is a brief description of the symbols used in this manual.

	Safety regulations, non-compliance with which may result in injuries to operators and significant damage to the unit or system
	Safety regulations, non-compliance with which may damage the unit or system
	Suggestions for using the unit respecting the environment
	Useful advice to simplify the use and maintenance of the unit

The graphic representations and photographs contained in this manual are there to illustrate the product in the parts that make it up and in specific operating phases. Though the model shown in the manual may differ from the one purchased, the operating principle at the base of the illustrated operating phase is the same.

Each RV SYSTEM unit has an identification plate, in which the following are detectable: code, model, serial number (the same as the vacuum/pressure pump) and year of construction.

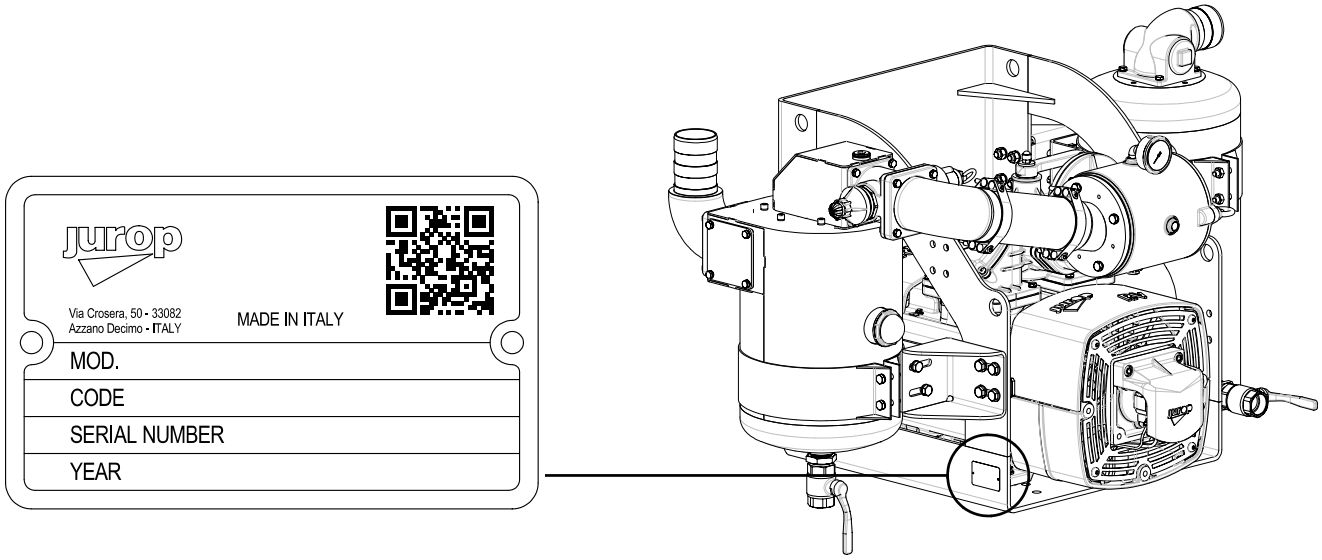


Fig. 1.1

Each RV vacuum/pressure pump can only be installed if it has an identification plate.

1.2. Request for spare parts

Use only genuine spare parts for maintenance and repairs.
To order spare parts, provide the following details.

a) Unit type	RV 360 SYSTEM
b) Serial number (see plate):	J90001
c) Name (see list of spare parts):	CYCLONE PURIFIER
d) Quantity (see spare parts list):	1
e) Code (see list of spare parts):	14450 071 E0

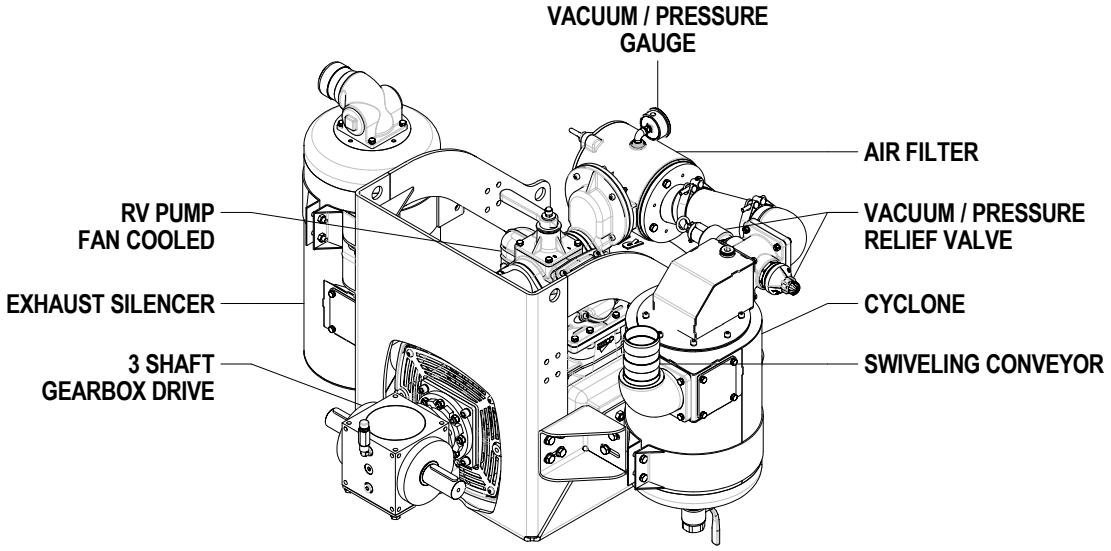
1.3. Warranty terms and conditions

Compliance with the installation, use and maintenance instructions provided by this manual is a requirement for recognition of the warranty on defective parts.

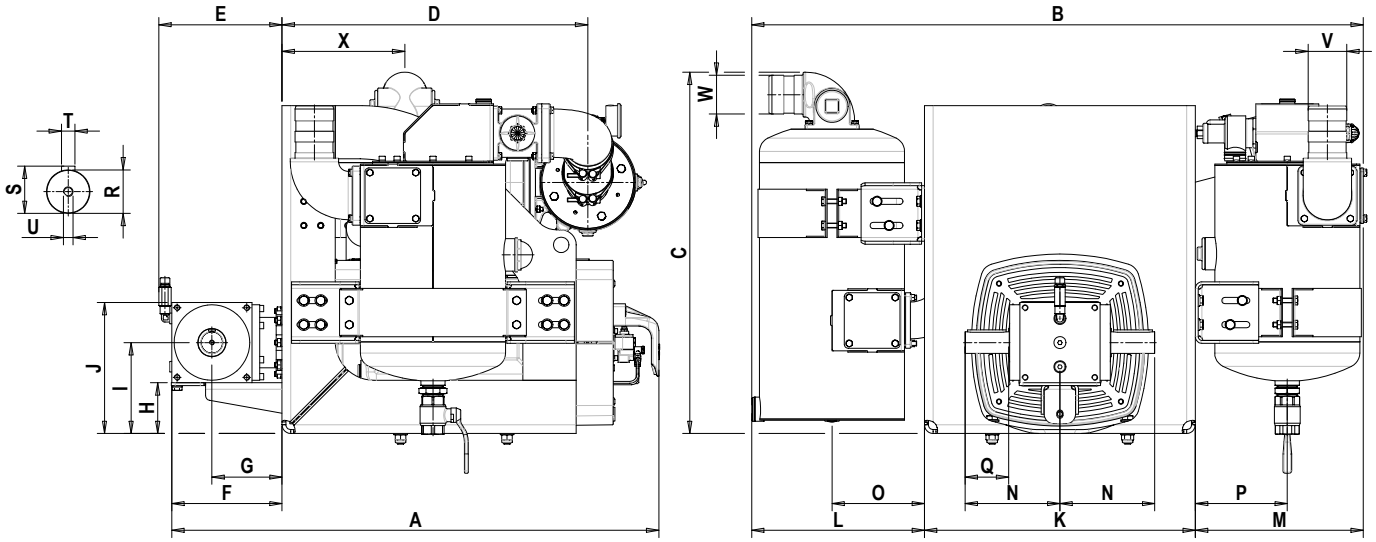
2. Technical data

RV SYSTEM is a module consisting of a vacuum/pressure pump with a three-axis gearbox to be connected to the power transmission of the equipment on which it is mounted. The version with hydraulic motor has no gearbox.

RV SYSTEM is equipped with: gearbox or hydraulic motor, Direct drive - NO coupling, Vacuum gauge, cyclone purifier, discharge silencers, Air filter, swiveling conveyors.



2.1. Dimensions RV SYSTEM



		A	B	C	D	E	F	G	H	I	J	K	L
RV 360 SYSTEM	in	39.6	49.8	29.4	24.9	10	9	5.7	4.1	7.4	10.7	22	14
	mm	1007	1264	747	632	255	228	145	105	188	271	560	357
RV 520 SYSTEM	in	44.2	50.7	28.4	24.9	13.5	12.4	9.1	4.1	7.4	10.7	22	15
	mm	1123.5	1289	723	632	342.5	316	233	105	188	271	560	382

		M	N	O	P	Q	R	S	T	U	V	W	X
RV 360 SYSTEM	in	13.7	7.7	7.5	7.5	3.5	Ø 1.8	1.9	0.6	0.4	Ø 3.1	Ø 3.1	10
	mm	347	196	191	190	90	Ø 45	48.8	14	M10	Ø 80	Ø 80	254
RV 520 SYSTEM	in	13.7	7.7	8.5	7.5	3.5	Ø 1.8	1.9	0.6	0.4	Ø 3.1	Ø 3.1	9.4
	mm	347	196	216	190	90	Ø 45	48.8	14	M10	Ø 80	Ø 80	238.5

2.2. RV SYSTEM performance

Performance	RV 360 SYSTEM		RV 520 SYSTEM	
Max. Rotation speed (with gearbox)	1300 rpm		1300 rpm	
Air flow under free air condition (at rpm max)	360 cfm	10200 l/min	520 cfm	14700 l/min
Max. Vacuum	28,5 Hg	95 %	28,5 Hg	95 %
Max. Pressure	15 psig	1 bar	15 psig	1 bar
Power required at free ports	19 HP	14 kW	25,5 HP	19 kW
Power required at max. vacuum	15 HP	11 kW	21,5 HP	16 kW
Power required at max. pressure	29,5 HP	22 kW	40,2 HP	30 kW
Weight	787 lb	357 kg	915 lb	415 kg
Weight without cyclone	705 lb	320 kg	938 lb	380 kg

REFERENCE CONDITIONS - The data shown in the table are subject to a tolerance of +/- 5%.		
Conveyed gas: air	Reference temperature: 20°C (68°F)	Vacuum operation: atmospheric discharge
	Reference absolute pressure: 1013mbar (14.7psi)	Pressure operation: atmospheric intake

2.3. Usage limitations

Model	**Rotation speed (rpm)**			**P_2 (bar ABS)**	**T_2 (°C)**	**$T_2 - T_1$ (°C)**	**Room Temperature**
	Minimum	**Operating**	**Maximum**				
RV 360 SYSTEM	800 rpm	1100 rpm	1300 rpm	2,0 bar	180°C	150°C	-20 / +40°C
RV 520 SYSTEM	800 rpm	1100 rpm	1300 rpm	2,0 bar	180°C	150°C	-20 / +40°C

P_1: absolute pressure during suction	P_2: absolute pressure during delivery	T_1: temperature during suction	T_2: temperature during delivery

2.4. Noise

The sound pressure and sound power values of the pump are given inside the RV manual.

The noise value in Db varies according to the system realised, and the supply and suction pipes. Please remember to use Personal Protective Equipment (headphones) to reduce the effect of noise.

Sound power verification cannot be performed without completion of the vacuum line system. This verification is the responsibility of the final installer.

3. Safety and accident prevention

Apply these prescriptions carefully.

3.1. General recommendations

When transporting the unit, fasten appropriately. Rest the unit on stable points.

Installation and maintenance must be done with the unit stopped, power transmission disengaged and by skilled personnel.

Work on the unit dressed appropriately (avoid ties, wide sleeves, necklaces, etc.) and using suitable protective equipment (gloves, goggles, shoes, etc.).

Before any maintenance operations, stop the unit and bring the system back to atmospheric pressure.

To intervene on the unit, all the components of the unit must be stopped and cold.

To prevent errors and hazardous situations, establish what each operator is responsible for in the different maintenance operations.

Final manufacturer must make the transmission inaccessible by means of a fixed guard or interlocked movable guard. Do not start the unit up without the safety devices required for the transmission parts. Replace damaged protections.

Operators working in the vicinity must avoid prolonged exposure to the noise emitted by the suction equipment if they are not equipped with suitable protection (PPE recommended: ear protectors).

The components can reach very high temperatures (over 90°C) during operation. Use all means necessary to avoid contact.

During vacuum operation, avoid accidental intake of solids: they can be projected at high speed through the discharge manifold, damaging the silencer.

Safety valves: direct the air flow away from operators.

Do not use the unit beyond its limits of use: risk of breakage with consequences for the operators.

Do not exceed the rotation speed and maximum pressure given in the technical table in paragraph 2.2.

Based on the final use of the unit, the insertion in the housing machine and the typology of the same, the designer of the housing machine must apply safety signals (pictograms) to warn the operator on the risk still present. These pictograms essentially refer to three categories:

- signals prescribing the use of Individual Protection Devices (IPDs) such as, in this case, the use of gloves and ear protectors;
- signals indicating to pay particular attention to the dangers related to the machine's components, such as: risk of dragging in the transmission equipment and contact with hot surfaces;
- signals indicating specific parts of the machine for an easier identification, such as: greasing points, oil tanks, etc.

3.2. Intended use

RV SYSTEM units are intended to be used for loading and unloading liquid material. The units are used for liquid waste transport, septic tank cleaning and other industrial applications. The installer shall use all possible means to prevent foreign objects and liquids from entering the vacuum/pressure pump.

The entry of foreign objects or liquids may damage the vacuum/pressure pump.

Avoid suctioning of toxic materials and flammable or explosive gases as the internal components can reach high temperatures.

Avoid suctioning of toxic materials and flammable or explosive gases as the internal components can reach high temperatures.

Do not use the unit beyond its intended operating limits (see paragraph. 2.3): risk of breakage and possible transmission damage.

4. Installation

4.1. Inspection on receipt

When goods arrive, make sure all items are intact: they may have been damaged during transport.

Remove the packaging by removing material that may become hazardous if vacuumed.

Make sure that the RV vacuum/pressure pump has the identification plate. Pumps with no plate are considered anonymous and potentially dangerous: they must, therefore, not be used, otherwise the manufacturer cannot be held liable for any event.

4.2. Warehouse storage

If the unit is not expected to be used for a long time or in the case of intermediate storage of a non-new unit, observe the following:

- Perform thorough cleaning of the unit before storage.
- Store in a closed and dry place.
- During storage, rotate the input shaft three or four turns every two weeks to keep the internal gears lubricated.

4.3. Handling

Verify before each move that lifting equipment is suitable for the capacity. Check the weight of the unit given within this manual.

Harness the machine with suitable straps / chains near the main body, paying attention to the position of the mass center of gravity to ensure the load stability.

The unit is equipped with hooking devices: four sheet metal eye rings (fig. 4.1).

The hooking devices are screwed into the frame of the unit, at a position equidistant (approximately) from the center of gravity of the masses of the unit, to ensure stability during handling.

The unit has no components or accessories that are potentially dangerous, or that can move during lifting, handling or tilting.

When moving, do not lift the packaging or the machine more than 50 cm from the ground. Proceed with the final lifting only near the installation point.

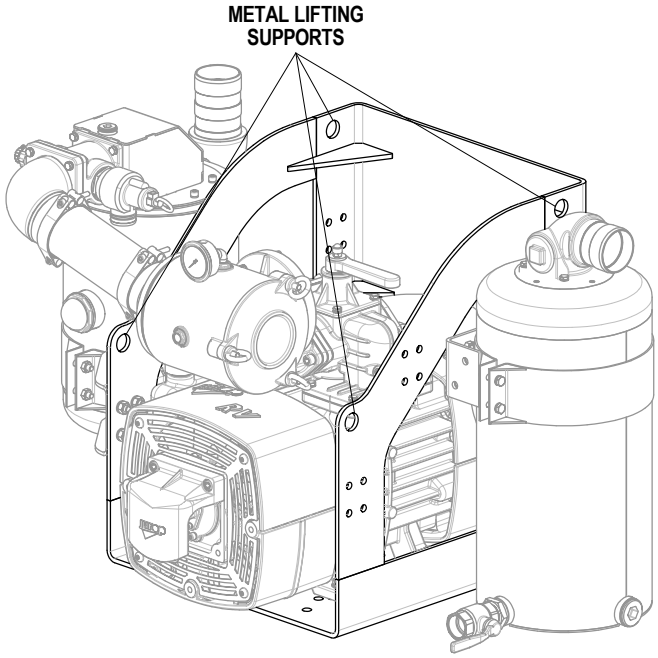


Fig. 4.1

Check that there is space in height to handle the module, once lifted.

Before lifting the module completely, make sure that transport stability is guaranteed.

Do not stand under the machine when it is lifted during the installation.

Before placing the module on the ground, check that:

- It is level, or with a maximum permissible inclination of 3° (degrees), with respect to the horizontal surface.
- There is enough space for people or any vehicles to pass, or to conduct other activities.
- It is not too close to heat sources or open flames, is not on walkways.
- It is stably balanced and accessible from all sides for the activities required for its operation.

4.4. Example of unit installation on vehicle

The frame of the unit lacks the drilling for vehicle installation.

Drill holes in the frame of the unit.

The unit must be connected to the frame by at least 8 M16 class 8.8 bolts, distributed over the entire area. Arrange bolts on a 4x2 matrix; when possible, increase the number of bolts.

Use frame bolts, fine pitch screws and flanged nuts.

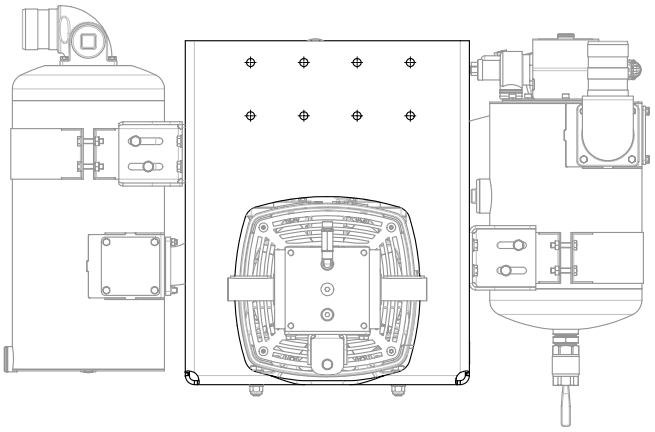


Fig. 4.2

4.5. Assembly - Power transmission

For RV SYSTEM units, the permissible power transmissions are:

- Direct transmission (e.g.: from agricultural cardan shaft)
- Oil hydraulic transmission (for versions with hydraulic motor).

Protect with a fixed or interlocked guard and signal with pictograms the power transmission chosen and applied by the final installer, if there is the possibility that the operator will come into contact during handling.

CARDAN TRANSMISSION

Use telescopic cardan shafts.

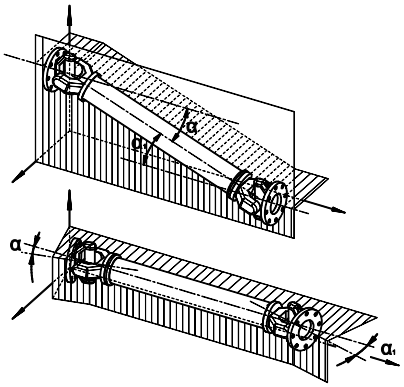


Fig. 4.3

In order to achieve uniform motion of the driven axis, the following conditions must be met (see Fig. 4.3):

- Equal joint angles α and α1 of the two joints;
- The inner forks of the joints must be coplanar;
- Driven shaft and coplanar conductors.

It is also advisable to work with small joint angles (max 15° at 1000 rpm and max 11° at 1100 rpm) and to stop the transmission during maneuvers in which the joints work at large angles (steering or lifting).

Respect the direction of rotation of the unit. Comply with the cardan shaft manufacturer's directions.

It is the responsibility of the final installer to provide for suitable guards, in presence of transmission shafts exposed during normal operation.

In any case, the installation, by the final installer, must meet current accident prevention regulations.

OIL HYDRAULIC TRANSMISSION

The unit can be supplied with a hydraulic motor instead of a gearbox. Performance data are given below.

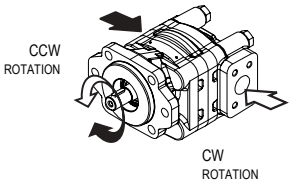
	RV 360		RV 520	
	Max. Vacuum	0,5 bar rel	Max. Vacuum	0,5 bar rel
Displacement	61 cc/rev		72 cc/rev	
Operating pressure	130 bar	160 bar	150 bar	185 bar
Flow	83 l/min (1300rpm)		99 l/min (1300rpm)	
Max pressure draining line	5 bar		5 bar	
Max. pressure motor exhaust	5 bar		5 bar	
Max. pressure	180 bar		250 bar	

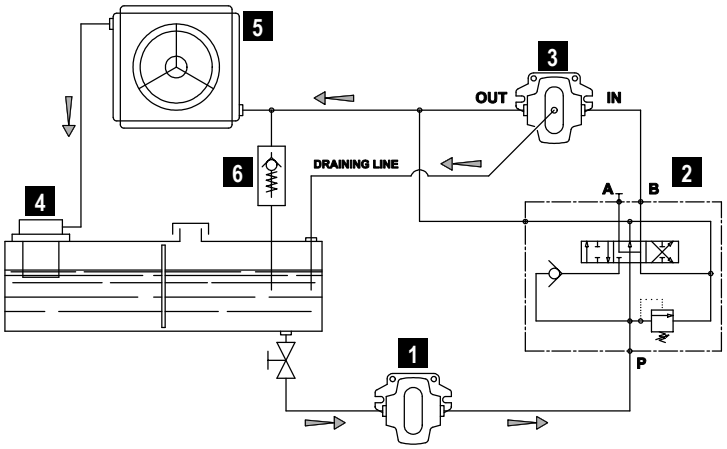
Fluid: mineral oil for hydraulic systems in compliance with ISO/DIN.

Temperature	Optimum viscosity	Max. viscosity allowed
-20 / +80 °C	12 – 100 cSt	750 cSt

Filtration: class 19/16 contamination according to ISO 4406 to be obtained with a ßx = 75 filter.

Check circuit connections: they must be applied in the same rotation direction as that indicated by the arrow on the pump front conveyor protection.





1	HDR pump	4	Oil filter
2	Distributor	5	Heat exchanger (optional)
3	HYD motor	6	Safety valve (optional)

Fig. 4.4

Draining: connect directly to the tank above the maximum oil level. Operating without draining line may damage the motor.

Distributor: open-centre distributor in central idle position (vacuum pump off). It must be equipped with an adjustable overpressure safety valve.

Motor pipeline: outlet pipe must not be of a smaller diameter than that of the inlet port. Inlet pipes always have a diameter smaller than outlet pipes. Choose preferably flexible pipes to avoid vibration transmission.

Tank: with suction pipe and return separated by baffles. If necessary, use a heat exchanger to avoid oil heating above 70-80°C and protect it from extreme pressure with a pressure relief valve. Minimum approximate capacity: as twice as the circulation flow.

Starting-up: be sure that the system is well cleaned and pour oil into the tank and into the motor housing (necessary to lubricate the internal bearings).

Vent the circuit and adjust the overpressure safety valve to the lowest possible value.

Check the oil tank level.

Increase pressure and rotation speed until operating values are reached.

The design of the pipes is the responsibility of the machine / plant manufacturer.

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4.6. Start-up and preventive checks

It is necessary to check some items before placing the unit on motor vehicles:

- Sufficient size of opening through which to pass the module.
- Stability of the vehicle before and after placing the module. The assembled unit must be accessible for maintenance (longitudinal and transverse tilt max 3°).
- Verification of the total center of gravity (after placing the module on-board).
- Any leaks or refill points for liquids and/or lubricants are reachable for activities necessary for operation.

Before using the unit for the first time, or when using it again after periods of inactivity, check that:

- All components, especially the guards, are present.
- All components are firmly attached.
- Lubricant oil does not leak from the unit.
- If the module is placed on-board a vehicle, it is appropriately fixed and not free.
- The hydraulic pump, if any, is properly fed. Dry operation may damage it (risk of seizure).
- There are no obstructions along the suction hose.

Evidence of any unsuitable conditions for operation involves machine shutdown, or non start-up or a precautionary start-up in safe conditions.

Misuse, negligence, attempted repairs or modification by unauthorized personnel, will void the warranty conditions and terms.

4.7. Overheating alarm (optional)

Vacuum/pressure operation: refer to the performance table (see paragraph 2.2).

Do not make the vacuum pump overheat. Maximum air temperature on exhaust (or delivery) side: 160- 180°C.

If maximum temperature allowed is reached, in order to prevent damages to the internal parts, it is recommended:

- To reduce the vacuum rate or the working pressure by opening the venting port;
- To reduce the pump speed according to list at paragraph 2.3.
- To start running the pump again only when temperature at exhaust is below acceptable values.

If during vacuum operation, the pump temperature reaches and/or exceeds 180°C, stop the vacuum pump.

The RV vacuum/pressure pump can be equipped, on request, with a safety thermostat located on the pump manifold. The overheat alarm thermostat checks at 150°C.

Overheating alarm is strongly recommended in the following cases:

- Operations close to the use limits.
- Under pressure operations.
- Not well defined or monitored operation conditions.

The alarm (available upon request) is composed of a blinking light and a warning buzzer that have to be connected to the thermostat (sensor). It is available at 12V or 24V.

Consider the thermostat characteristics.

- Voltage from 6V to 24V with CC, from 6V to 12V with AC.

– Maximum power: 3W.

When threshold temperature is reached the alarm system is enabled and a gate valve (along vacuum line) is opened.

It has to be mounted in a protected position in order to keep it free from water and other damaging media. Prepare the necessary connections for the electrical feeding.

If the box supplied as an accessory is not used, make a check circuit as illustrated in Fig. 4.5.

Overheating can seize the vacuum pump, causing a damage also in the drive line. Stop the pump for cooling or drive it at free ports conditions (with the suction valves fully opened) to let it cool down properly. The pump can be again operated only when the alarm is turned off after cooling.

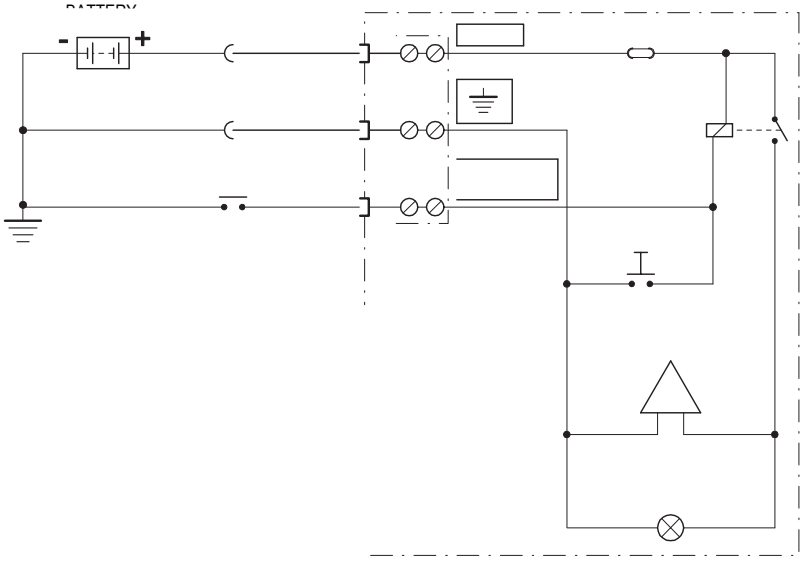

Fig. 4.5

If the temperature exceeds 180°C during pressure operation, check the filter. A dirty filter will not allow air to pass to the pump.

5. Maintenance and operation tips

To ensure optimal working condition of the RV SYSTEM unit, regular maintenance of the unit is recommended.
The following table summarizes the main checks to be performed and the frequency of intervention.

Status	Intervention area	Check	8 h	50 h	500 h	2000 h
Unit in operation	Vacuum / pressure line	Checking the efficiency of safety valves (check valve)	•			
		Operating pressure	•			
	Transmission / pump	Rotation speed	•			
		Noise	•			
		Temperature	•			
Unit stationary	Silencer	Drain the oil gathered in the exhaust separator	•			
	Cyclone	Cyclone purifier discharge	•			
	Air filter	Air filter cleaning		•		
	Pump	Side mounted tank oil level check	•			
		Clean fan protections	•			
		4-way changeover valve: check and lubricate		•		
		Check vanes wear			•	
		Pump's inner washing		•		
	Gearbox	Lubricant replacement				•

Use the necessary personal protective equipment before checking the performance of the unit (checks with the unit running). The noise level can exceed 90 dB.

Any maintenance interventions must be performed when the machine is cold, stopped and switched off.

Wear the required PPE (e.g. gloves, etc.) during maintenance.

All disassembly and reassembly operations must be done exclusively by qualified, trained personnel.

JUROP S.p.A. provides technical support for any information.

Maintenance operations that require complete disassembly of the RV vacuum/pressure pump should be performed at an authorized JUROP service center.

5.1. RV vacuum / pressure pump

For more information on routine and extraordinary maintenance of the RV vacuum / pressure pump, follow the instructions contained in the specific manual.

Lubricant replacement

Check oil in the side tank with the machine cold, stopped and turned off. Oil level must not drop below the minimum: risk of rapid wear of internal components.

If the pump is running without lubrication, the internal components may quickly damaged due to overheating. Stop the vacuum pump and check the oil level and the lubricating pump.

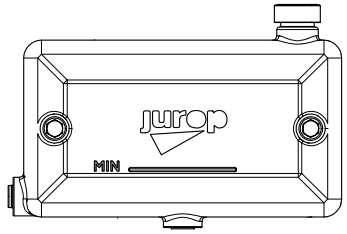

Fig. 5.1

Slowly pour the required amount of oil into the side tank. Tank capacity: 4l.

Resorting to a funnel and hose can make refilling easier.

Top up with the same type of oil; mixing different lubricants is prohibited.
Recommended oils: Mineral oil anti-wear.

Viscosity ISO VG 46 -15°C ÷ +5°C	Q8	SCHUBERT 46	ESSO	NUTO 46	TOTAL	DROSERA MS 46	BP	BARTRAN HV 46
	ENI	ACER 46	SHELL	MORLINA S2 B 46	MOBIL	NUTO H 46	TEXACO	RANDO HD 46

Viscosity ISO VG 150 0°C ÷ +40°C	Q8	SCHUBERT 150	ESSO	NUTO 150	TOTAL	DROSERA MS 150	BP	BARTRAN HV 150
	ENI	ACER 150	SHELL	MORLINA S2 B 150	MOBIL	NUTO H 150	TEXACO	RANDO HD 150

Recommended lubricating grease (for temperatures between -20°C and +40°C):

Viscosity NLGI 2	Q8	REMBRANDT EP 2	ESSO	GP GREASE NLGI2	TOTAL	MULTIS EP 2	BP	GREASE LTX EP 2
	ENI	GR MU EP 2	SHELL	ALVANIA G. EP 2	MOBIL	MOBILUX EP 2	TENNEX	UNI. GREASE EP 2

During the oil replacement, also replace the discharge plug washer.

Dispose of waste oil as required by current regulations.

Operation with insufficient lubrication can cause the internal drive transmission and retaining parts to wear rapidly and/or the vacuum pump / compressor to lock, also damaging the transmission.

Inspection and maintenance of vacuum-pressure line components (filters, safety valve, gaskets, etc.), transmission components (belts, hydraulic drive, etc.) and control and regulation components (rev counter, sensors, etc.), should follow the instructions of the fitter.

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Checking the vanes wear

Unscrew the vanes wear check-plug on the front flange.

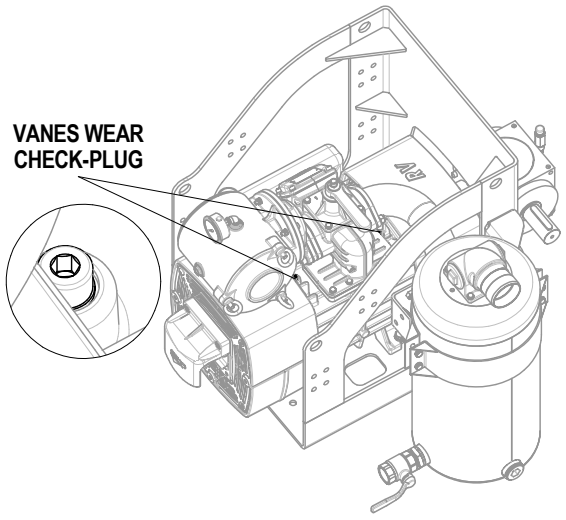


Fig. 5.2

Turn the gearbox shaft by hand until vanes appearance.

Vanes usually slip on seat bottom due to gravity. Check their right entry in the seat.

Insert a Ø 5 mm stick until it touches the rotor and then mark.

Turn the rotor slowly until the stick touches the vane in idle position in its seat. The vanes slide to the bottom of the seat due to gravity: check they really do and mark again on the stick.

Repeat the same procedure for all the vanes. If wear exceeds 10 mm: replace the vanes as soon as possible.

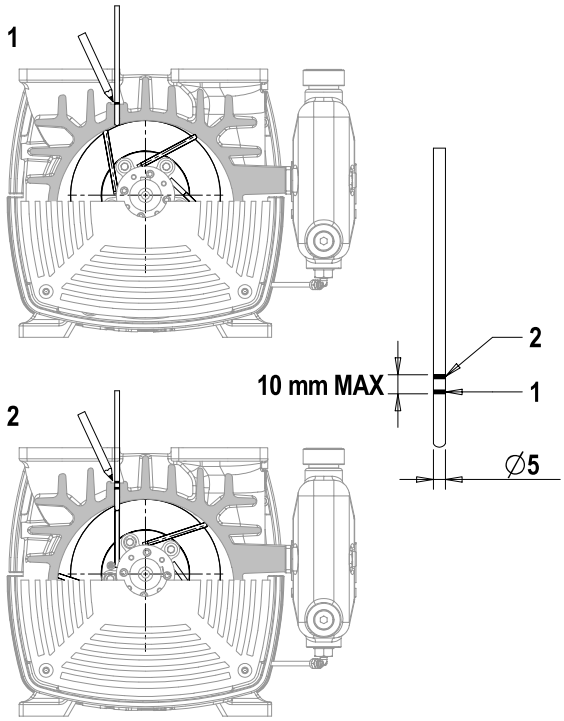


Fig. 5.3

Maximum acceptable wear: 12 mm. Immediately replace: vanes are likely to break down.

Replace all the pump vanes at the same time.

Replace the vanes when their wear exceeds 12 mm (L – L min): they may break. Replace all vanes at the same time.

Replace the cap after the measurement.

5.2. Silencers

The silencer is installed at the discharge of the RV vacuum/pressure pump in order to ensure that the noise produced by it is reduced.

Besides reducing the noise produced by the air flow along the vacuum line, the silencer also traps the oil vapour at the outlet due to decompressor lubrication. Under ordinary use conditions, we recommend discharging the silencer on a daily basis.

Recover the drained material and dispose of it in compliance with the standards in force.

The oil must be drained through the drain valve.

Every time the silencer is drained, it is important to ensure that the volume of drained material does not exceed the volume of the silencer tank. If so, reduce the maintenance intervals.

The discharge silencer (when assailed by pump discharge airflows) is subjected to the passage of high-temperature air that may cause overheating (over 90°C).

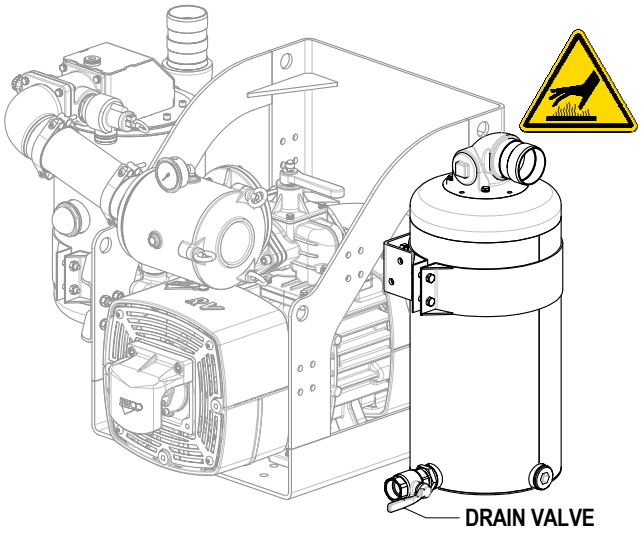


Fig. 5.4

Use all means necessary to avoid contact.

5.3. Air filter

The air-filter prevents foreign bodies (over a certain size) from entering the pumping system.

Maximum operating pressure	-1 / +0,5 bar
Calculation pressure	-1 / +4 bar
Maximum air flow rate	1300 m³/h
Degree of filtration	mesh 55, con maglia foro ø 0.30 mm (a 300 µm)

The table shows the main operating parameters concerning maximum operating pressures (relative), calculation pressure (relative), air and water flow rate, degree of filtration and weight.

Moreover, the drain must also be easily accessible to drain the liquid inside the filter (used as air filter, lower valve) and vent the filter (used as water valve, upper valve).

Should any valves be installed, these must ensure the tightness of the device. During the winter season, the liquid contained in the filter must be drained during downtime.

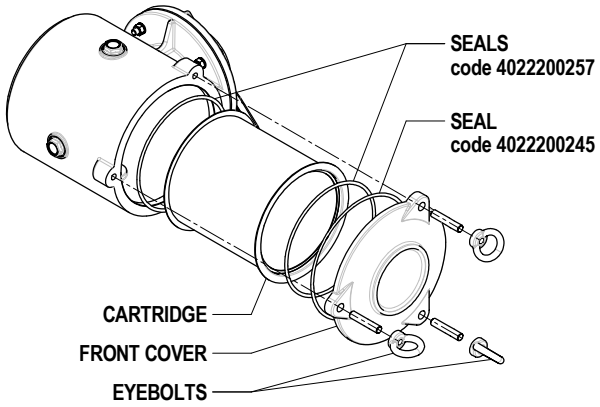


Fig. 5.5

Under ordinary use conditions, we recommend cleaning the filter on a weekly basis. In the event of heavy duty conditions, clean (or replace) the cartridge every time the line performance appears to be compromised. The filter must be cold cleaned.

For routine maintenance proceed as follows.

- Unscrew the eyebolts and remove/open the cover.
- Remove the filtering cartridge and the relevant sealing gaskets, wash with detergent and blow with compressed air until clean.
- Dry the cartridge and the entire filter thoroughly.
- Reinstall the previously removed components taking care to place the gaskets correctly.

The figure 5.5 shows a schematic diagram of the maintenance procedure.

We recommend using non-flammable detergents with passivating and protective properties.

Recover the liquid detergent and dispose of it in compliance with the regulations in force.

5.4. Cyclone purifier

The purifier prevents foreign bodies (liquids or solids) from entering inside the RV vacuum/pressure pump by blocking the intake line with a metal floating ball.

The cyclone consists of a vertical cylinder, which tangentially receives the flow to be purified at high speed. As a result of centrifugal force, the various elements contained inside the fluid are separated according to their density. The purified fluid is freed through the upper axial outlet, whereas the material to be recovered is collected in the lower part and continuously discharged.

The following table shows the main operating parameters concerning maximum flow rate, design pressure and weight of the cyclone purifier.

Maximum air flow rate	882 m³/h
Design pressure	-1/+4 bar

Under ordinary use conditions, we recommend discharging the purifier on a daily basis. In the event of heavy duty conditions (e.g., intake of high and particularly volatile substances), drain every time the level indicator warns that the cyclone purifier is full.

The material is discharged through the ball valve installed on the lower side.

Recover the liquid detergent and dispose of it in compliance with the regulations in force.

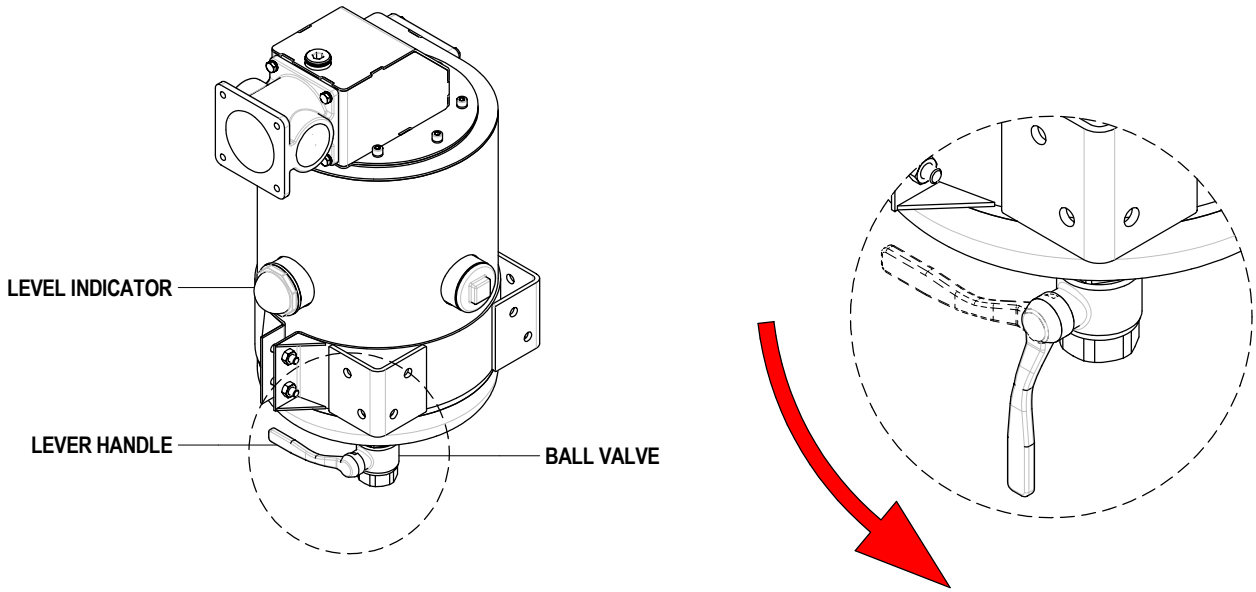


Fig. 5.6

We recommend verifying the operation of the overflow valve periodically, ensuring that the floating ball can move freely.

Remove cover and basket, checking seals and gaskets for wear. Replace if necessary. Clean and reinstall the previously removed components.

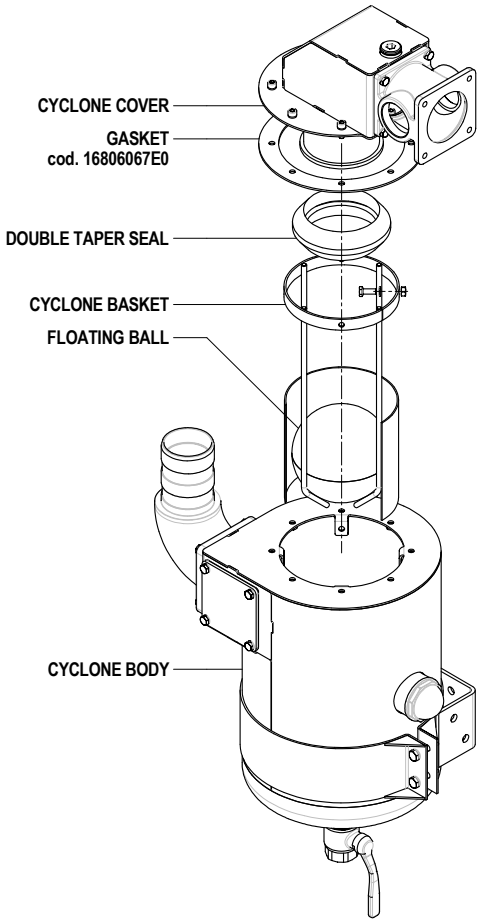


Fig. 5.7

The unit comes with two safety valves: a pressure relief valve (1" ½) and a vacuum relief valve (1" ½), attached to the cyclone.
Safety valves are supplied uncalibrated.
The function of the pressure relief valve is to prevent the pressure inside the tank from exceeding the predetermined limit. Therefore, an air discharge occurs through the valve.

When operating the pressure relief valves, pay attention to the outflow of air.

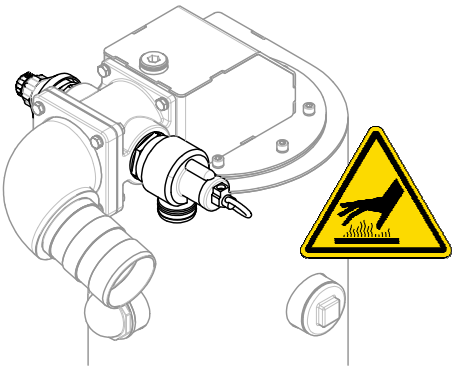


Fig. 5.8

For the valve in question to operate properly, you must periodically wash the internal parts. Before performing any maintenance and/or disassembly activities on the valve, make sure that there is no pressure inside the tank.
The final manufacturer should provide the necessary space for maintenance activities on the pressure relief valves.

Maintenance and calibration of relief valves should be carried out by trained personnel. Incorrect calibration can damage the machine.

5.5. Gearbox

The gearbox is supplied with lubricant.

Check the oil level with the machine cold, stopped and turned off. Oil level must not drop below the minimum: risk of rapid wear of internal components.

Top up as needed with the same type of oil: mixing different lubricants is prohibited. Recommended lubricant: Q8 El Greco 150 synthetic gear oil.

GEARBOX	Oil quantity
QB SERIES 166 code 4025766121	1,0 kg

The gearbox can reach very high temperatures (over 90°C).

Use all means necessary to avoid contact.

The procedure for reversing the direction of rotation of the right angle drive input is described below. The figure shows a RV vacuum/pressure pump (CW).

Any maintenance interventions must be performed when the machine is cold, stopped and switched off.

- Disconnect the 3/8" expansion tank fitting, from the gearbox refill port.
- Remove the gearbox after unscrewing the screws connecting it to the adapter flange and to the support.
- Rotate the gearbox by 90°.
- Now move the plug from the drain hole (A) to the filler hole (B) to prevent the gearbox lubrication oil from leaking.
- Rotate the gearbox of a further 90°.
- Fasten the gearbox to the adapter flange and to the support with the screws provided.
- Connect the 3/8" fitting to the gearbox refill port.

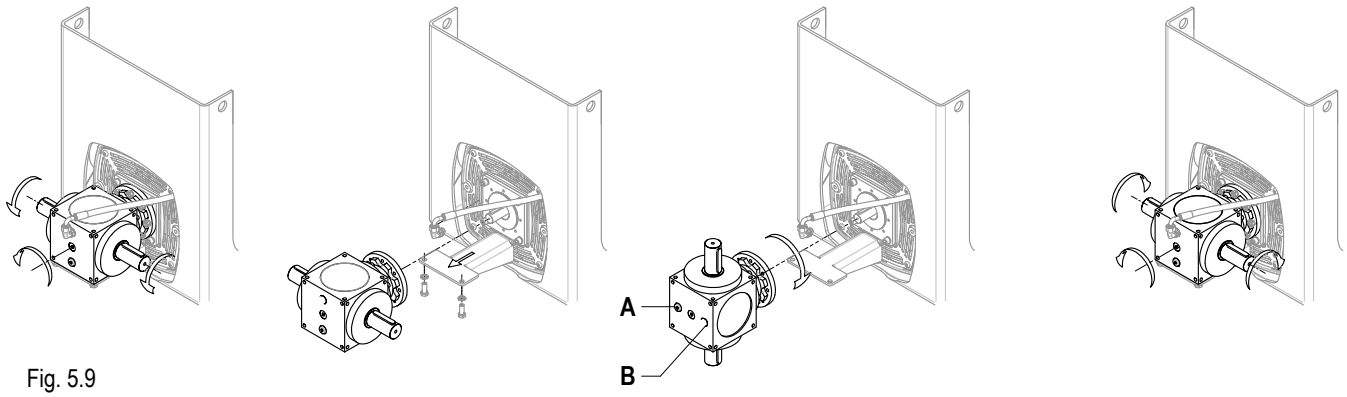


Fig. 5.9

5.6. Vacuum gauge

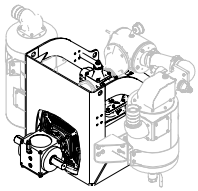
The unit is equipped with a pressure gauge.

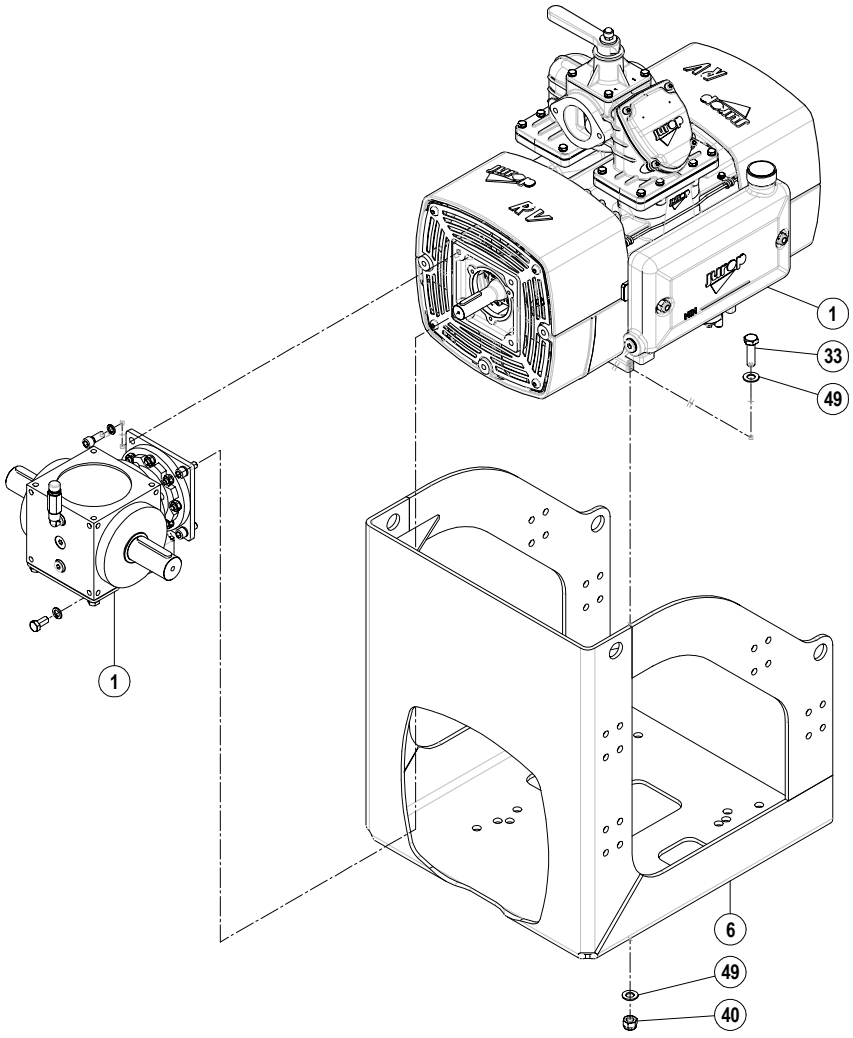
The pressure gauge measures the pressure of the conveyed gas (in this case air) and is connected to the air filter.

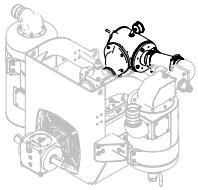
When removing or disassembling the unit, pay attention to the vacuum gauge hose.

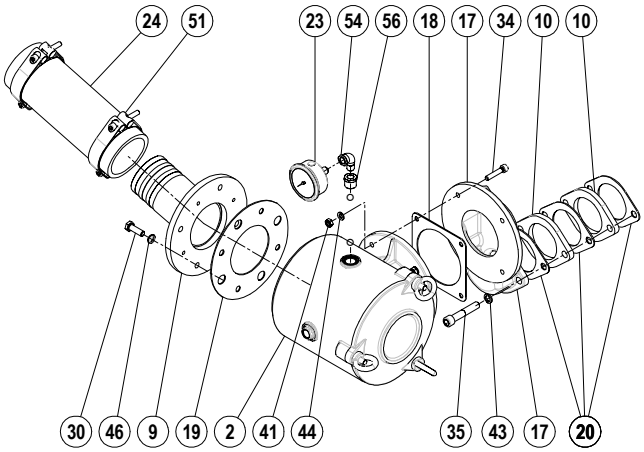
RV 360 SYSTEM

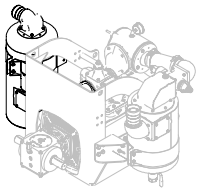
IN FIGURE
RV 360 SYSTEM CODE 18140094E0

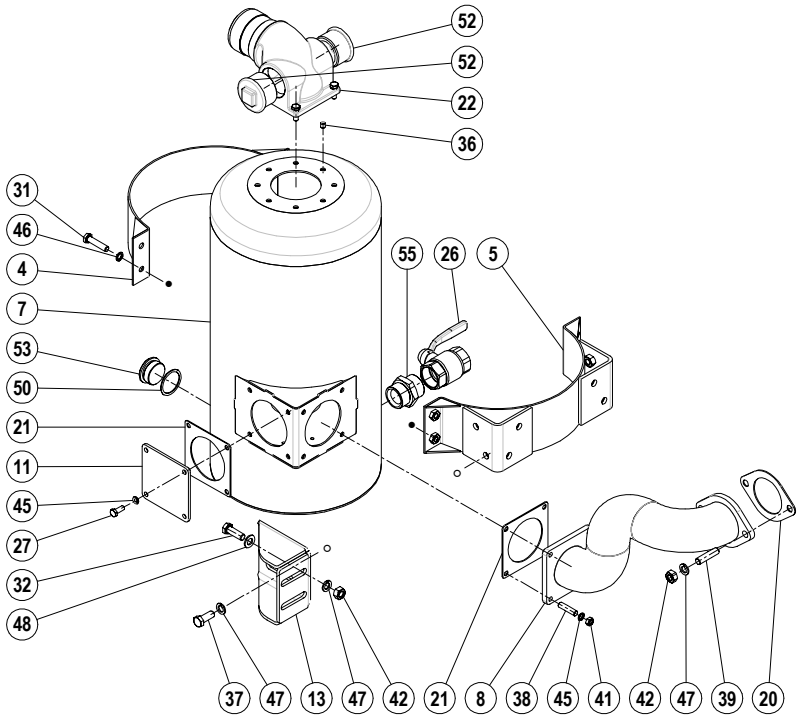








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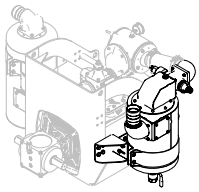

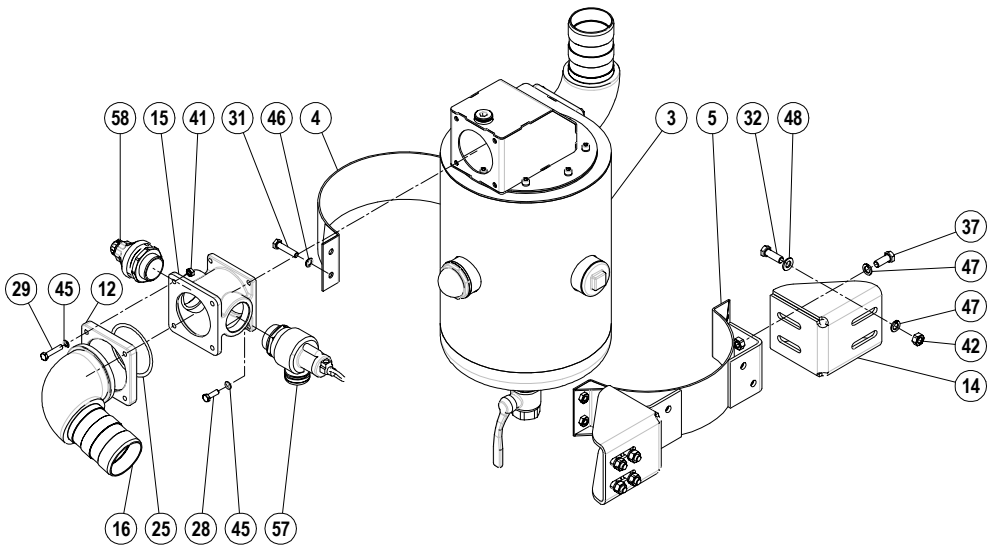
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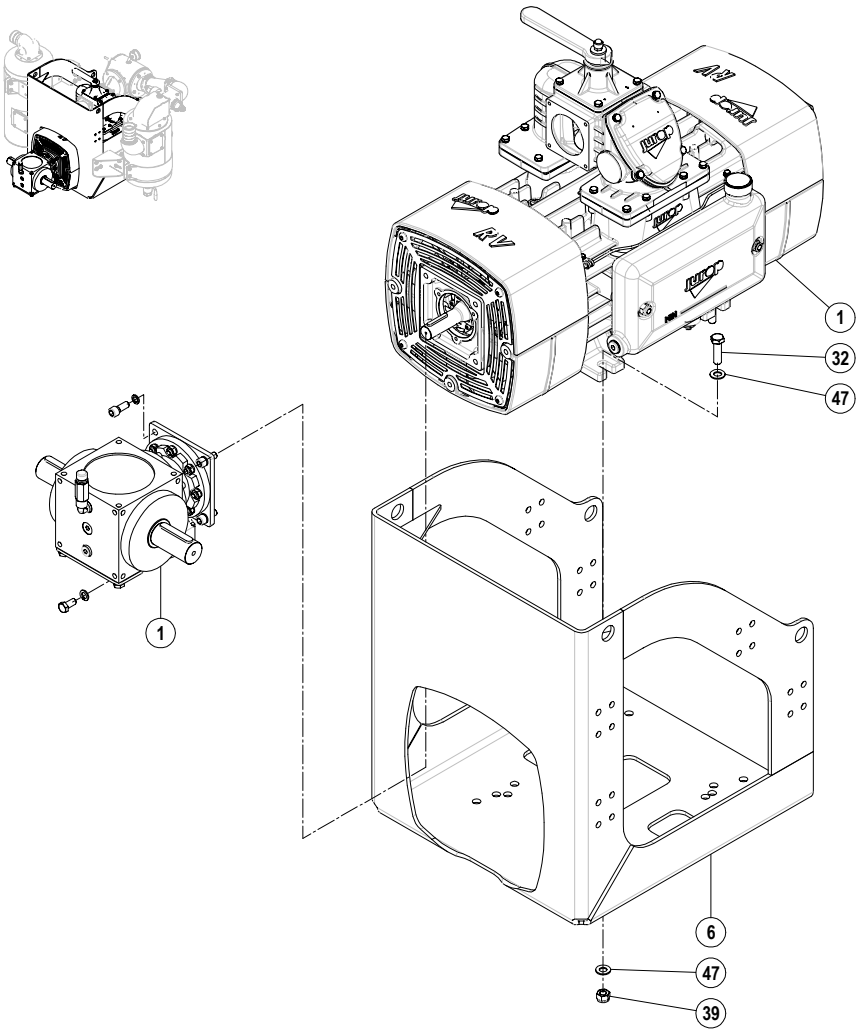
RV 360 SYSTEM

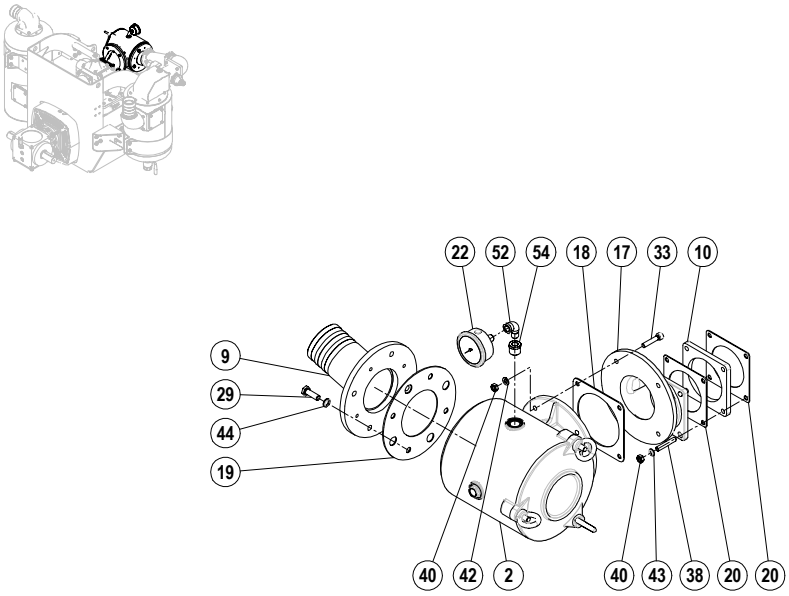
Pos.	Code	Description	Qty
1	13630071E0	RV360 PUMP	1
2	1445002900	AIR / WATER FILTER	1
3	14450071E0	CYCLONE PURIFIER	1
4	1513003IB0	CYCLONE CLAMP	2
5	15130081F0	SILENCER / CYCLONE CLAMP	2
6	15150170G0	FRAME	1
7	15470032E0	SILENCER	1
8	15630875E0	SILENCER HOSE	1
9	15630878E0	CYCLONE FIXED CONVEYOR	1
10	1610003500	FLANGE	2
11	16100823E0	SILENCER / CYCLONE FLANGE	1
12	1610101100	CONVEYOR FLANGE	1
13	16120142P0	SILENCER BRACKET	1
14	16120143P0	CYCLONE BRACKET	2
15	1627102500	SAFETY VALVE SUPPORT	1
16	1627102700	CONVEYOR D.80	1
17	1627104500	FILTER MANIFOLD	1
18	1680609100	BALL VALVE GASKET	1
19	1680609200	GASKET	1
20	1680614500	GASKET	4
21	1680709900	GASKET	2
22	1852103400	CONVEYOR D.80 (SUCTION)	1
23	4020100008	VACUUM GAUGE D.63 (-1+3 BAR)	1
24	4021102504	HOSE D.80X97	1
25	4022200310	O-RING 6362 VITON	2
26	4024405005	BALL VALVE 1"1/4	1
27	4026102806	GALV. HEX HEAD SCREW 8.8 M8X20	4
28	4026102807	GALV. HEX HEAD SCREW 8.8 M8X25	4
29	4026102810	GALV. HEX HEAD SCREW 8.8 M8X40	4
30	4026102908	GALV. HEX HEAD SCREW 8.8 M10X30	4
31	4026102911	GALV. HEX HEAD SCREW 8.8 M10X45	8
32	4026103003	GALV. HEX HEAD SCREW 8.8 M12X35	12
33	4026103142	GALV. HEX HEAD SCREW 8.8 M14X50	4
34	4026121409	GALV. SCREW TCEI* 8.8 M8X40 ZINC.	4
35	4026121716	GALV. SCREW TCEI* 8.8 M12X65 ZINC.	2
36	4026135405	GALV. HEADLESS SCREW 14.9 M8X10	4
37	4026143100	GALV. HEX HEAD SCREW 10.9 M12X30	6
38	4026171106	GALV. STUD BOLT 8.8 M10X25 5911	4
39	4026171201	GALV. STUD BOLT 8.8 M12X30 5911	2
40	4026305511	SELF-LOCKING NUT M14	4
41	4026308005	GALV. HEX NUT M8	12
42	4026308007	GALV. HEX NUT M12	14
43	4026350508	GALV. GROWER WASHER 12	2
44	4026350606	GROWER WASHER 8	4
45	4026350706	GALV. FLAT SECT. GROWER WASHER 8	20
46	4026350708	GALV. FLAT SECT. GROWER WASHER 10	12
47	4026350709	GALV. FLAT SECT. GROWER WASHER 12	20
48	4026357007	GALV. FLAT WASHER M12	12
49	4026357008	GALV. FLAT WASHER M14	8
50	4026359002	ALU. WASHER 42X50X1,5	1
51	4026425120	DOUBLE BOLT CLAMP	2
52	4026700912	CAP 2"	2
53	4026701606	GALV. CAP 1"1/4	1
54	4026704001	ELBOW FITTING 90° 1/4"	1
55	4026740006	NIPPLE JUNCTION 1"1/4	1
56	4026741804	REDUCTION 1/2X1/4	1
57	4027400201	PRESSURE RELIEF VALVE 1" ½	1
58	4027400600	VACUUM VALVE 1" ½	1

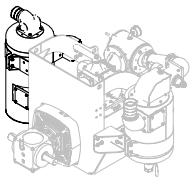
* HEXAGON SOCKET HEAD CAP SCREW

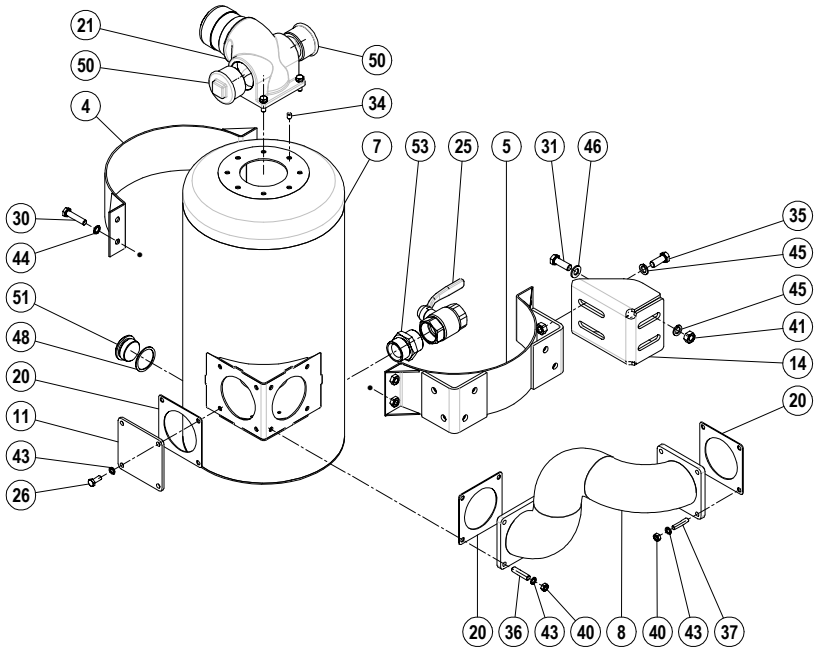
RV 520 SYSTEM

IN FIGURE
RV 520 SYSTEM CODE 18140095E0





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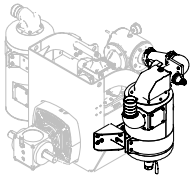

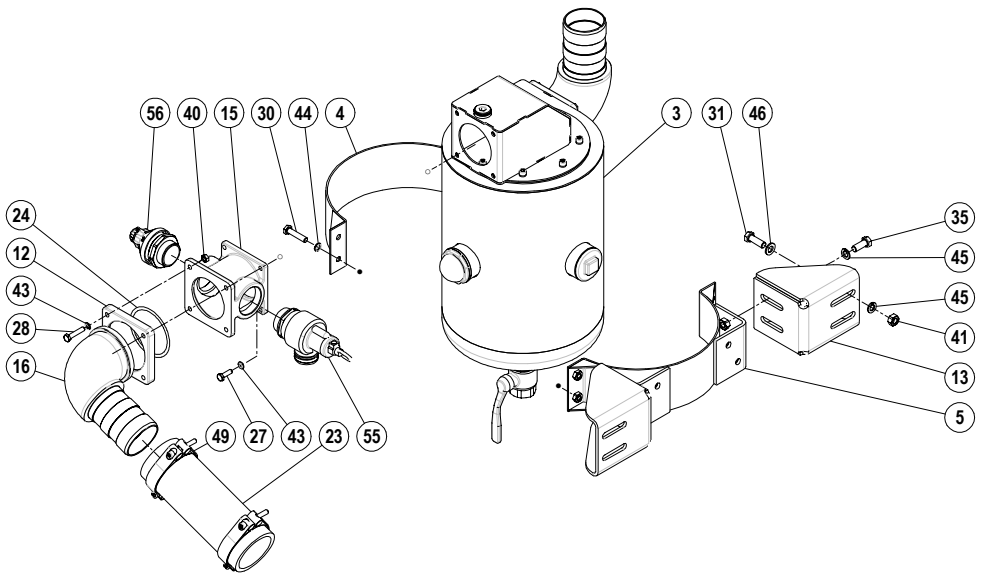
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RV 520 SYSTEM

Pos.	Code	Description	Qty
1	13630072E0	RV520 PUMP	1
2	1445002900	AIR / WATER FILTER	1
3	14450071E0	CYCLONE PURIFIER	1
4	1513003IB0	CYCLONE CLAMP	2
5	15130081F0	SILENCER / CYCLONE CLAMP	2
6	15150170G0	FRAME	1
7	15470032E0	SILENCER	1
8	15630876E0	SILENCER HOSE	1
9	15630878E0	CYCLONE FIXED CONVEYOR	1
10	16100070E0	FLANGE	1
11	16100823E0	SILENCER / CYCLONE FLANGE	1
12	1610101100	CONVEYOR FLANGE	1
13	16120143P0	CYCLONE BRACKET	2
14	16120144P0	SILENCER BRACKET	1
15	1627102500	SAFETY VALVE SUPPORT	1
16	1627102700	CONVEYOR D.80	1
17	1627104400	FILTER MANIFOLD	1
18	1680609100	BALL VALVE GASKET	1
19	1680609200	GASKET	1
20	1680709900	GASKET	5
21	1852103400	CONVEYOR D.80 (SUCTION)	1
22	4020100008	VACUUM GAUGE D.63 (-1+3 BAR)	1
23	4021102504	HOSE D.80X97	1
24	4022200310	O-RING 6362 VITON	2
25	4024405005	BALL VALVE 1”1/4	1
26	4026102806	GALV. HEX HEAD SCREW 8.8 M8X20	4
27	4026102807	GALV. HEX HEAD SCREW 8.8 M8X25	4
28	4026102810	GALV. HEX HEAD SCREW 8.8 M8X40	4
29	4026102908	GALV. HEX HEAD SCREW 8.8 M10X30	4
30	4026102911	GALV. HEX HEAD SCREW 8.8 M10X45	8
31	4026103003	GALV. HEX HEAD SCREW 8.8 M12X35	12
32	4026103142	GALV. HEX HEAD SCREW 8.8 M14X50	4
33	4026121409	GALV. SCREW TCEI* 8.8 M8X40	4
34	4026135405	GALV. HEADLESS SCREW 14.9 M8X10	4
35	4026143100	GALV. HEX HEAD SCREW 10.9 M12X30	6
36	4026171106	GALV. STUD BOLT 8.8 M10X25	4
37	4026171602	GALV. STUD BOLT 8.8 M8X25	4
38	4026171604	GALV. STUD BOLT 8.8 M8X35	4
39	4026305511	SELF-LOCKING NUT M14	4
40	4026308005	GALV. HEX NUT M8	20
41	4026308007	GALV. HEX NUT M12	12
42	4026350606	GROWER WASHER 8	4
43	4026350706	GALV. FLAT SECT. GROWER WASHER 8	28
44	4026350708	GALV. FLAT SECT. GROWER WASHER 10	12
45	4026350709	GALV. FLAT SECT. GROWER WASHER 12	18
46	4026357007	GALV. FLAT WASHER M12	12
47	4026357008	GALV. FLAT WASHER M14	8
48	4026359002	ALU. WASHER 42X50X1,5	1
49	4026425120	DOUBLE BOLT CLAMP	2
50	4026700912	CAP 2”	2
51	4026701606	GALV. CAP 1”1/4	1
52	4026704001	ELBOW FITTING 90° ¼”	1
53	4026740006	NIPPLE JUNCTION 1”1/4	1
54	4026741804	REDUCTION 1/2X1/4	1
55	4027400201	PRESSURE RELIEF VALVE 1” ½	1
56	4027400600	VACUUM VALVE 1” ½	1

Model	Issue date	Revision No.	Revision date	Drawn up by	Viewed by
RV SYSTEM	19-01-2024	00	-	U.T.	A.T.

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