ALKIN
COMPRESSORS

W32
SERIES

BREATHING AIR COMPRESSOR

Instructions Manual and Parts List

ALKIN COMPRESSORS

High Pressure Breathing Air Compressor

© ALKIN KOMPRESOR San. ve Tic. Ltd. Sti.
Cuneytbey Mh. Tabas Yolu Kume Evleri No 3
Menderes,İzmir
Tel: +90 232 782 2290 • Fax: +90 232 782 22 89
www.alkin-compressors.com

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FOREWORD

Your new ALKIN air compressor will provide you with the solid and reliable performance that you should expect from a heavy-duty industrial air compressor.

Please read this manual carefully before you operate your compressor. This will enable you to start-up your compressor in the proper manner, as well as maintain it using the simple instructions in the maintenance section of this manual. This way your air compressor will always be in top operating condition, giving you years long trouble free service.

ALKIN air compressors are well known for their faultless design and unique features combined with the best materials and workmanship. Some of the most important features are centrifugal unloading regulators, overhung crankshaft design, solid end connecting rods, high efficiency valves, which all add to the superior and lasting performance of the ALKIN compressors.

Your compressor is backed up with worldwide sales and service organization, ready to accommodate your everyday needs for parts & service.

Service and parts supply anywhere in the world can be done by an ALKIN Dealer. For any questions, please feel free to call our Menderes plant, in İzmir-Turkey. Here are the contact details:

Address: **ALKIN Kompresor San. ve Tic. Ltd.Sti**
Cuneytbey Mh. Tabas Yolu Kume Evleri N.3, Menderes
35470 Izmir, TURKEY
Telephone: **+90 – 232 – 78 222 90 (10 Lines)**
Fax : **+90 – 232 – 78 222 89**
E-mail: **alkin@alkin-compressors.com**

In all correspondences, please provide serial number and a copy of invoice.

Additionally, replacement parts not manufactured or approved by ALKIN can damage your compressor, creating risks of accidents and injuries.

ALKIN has the right to change information without any prior notice.

Users are expected to safely operate and maintain the compressor, observe the rules and instructions, as well as the local safety codes, to minimize the risk of accidents and injuries.

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1.0 GENERAL INFORMATION

1.1 General

1.1.1 General Safety

All ALKIN air compressors are designed and manufactured with equipment and components that allow safe operation of the compressors. However, it is the user's responsibility to safely operate and maintain the compressor, observe the rules and instructions, as well as the local safety codes, to minimize the risk of accidents and injuries. The following safety precautions are offered only as a guideline, and it is recommended to follow them along with the local safety codes and regulations.

This compressor should only be operated by those who have been trained to do so, and who have read and understood the contents of this manual. Failure to do so will increase the risks of accidents and bodily injuries. Please read also the manual of the equipment (electric, etc.) delivered together with the compressor and perform the instructions.

Never start this compressor unless it is safe to do so. Do not operate it with known unsafe condition. Tag the compressor and render it inoperative by disconnecting the power supply, so that others who may not know of the unsafe condition will not attempt to operate it until the unsafe condition is corrected.

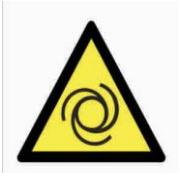
Install, use and operate this air compressor only in full compliance with all pertinent requirements and all relevant federal, state and local codes and regulations.

Do not modify this compressor and do not use beyond the specified limits (pressure, etc.) and speeds except with prior written approval of ALKIN.

1.1.2 Safety Tags

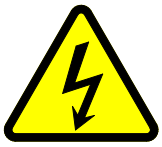
Earthing

Hot Surface-Do Not Touch



Can Start Automatically

Caution: Moving Parts



Electrical Hazards

1.1.3 Pressure Release

Run the compressor to see if the safety valves are operating properly or not. See and ensure, safety valves are discharging the pressure on their adjusted pressure values. Do not open the oil filling plug or any other connection, tube, hose, fitting, valve etc. when the compressor is running or when it is standing by (in only automatic start/stop compressors waiting for the pressure switch signal to re-start). Switch off the main electrical switch, shut off the discharge valve and discharge all pressurized sections before attempting to dismantle such components.

Keep all persons away from the discharge opening of hoses, tools and accessories during discharge. Do not use air pressure above 7 Bars (101 Psi) for blow cleaning purposes, without use of proper protective equipment. Do not let the hoses move free or don't play games with the filling hoses as they may cause accidents and injuries.

Drain daily the condensate from the purifier, as it may accelerate the internal rusting and corrosion of the purifier.

1.1.4 Fire and Explosion

Clean up oil spills immediately, if and when it occurs. Shut off the air compressor and allow it to cool. Keep sparks, flame and other sources of ignition away and do not allow smoking in the vicinity when checking and draining or adding oil. Do not permit liquids such as airline anti-icer system anti-freeze compound, or oil film or any other combustible substance to accumulate on any external or internal surfaces of the compressor. Wipe down with aqueous industrial cleaner or steam to clean as required. Do not use flammable solvents for cleaning purposes.

Disconnect the power supply prior to attempting any repair or cleaning. Tag the power supply to avoid unexpected start by someone else.

Keep electrical wiring, including terminals, in good condition. Replace any wiring that has cracked, cut, abraded or otherwise degraded insulation or terminals that are worn, discolored and corroded. Keep all terminals clean and tight.

Keep grounded conductive objects such as tools, away from exposed live electrical parts such as terminals, to avoid arcing which might serve as a source of ignition.

Keep a suitable BC or ABC fire extinguisher(s) nearby while servicing and operating the compressor. Keep oil rags, trash, leaves litter and other combustibles away from the compressor.

Do not spray volatile materials into the compressor intake, as serious damage to the compressor and personal injury or death may result.

1.1.5 Moving Parts

Keep hands, arms and other parts of the body and clothing away from the belts, pulleys and other moving parts. Do not attempt to operate the compressor with the canopy cover removed at flywheel side.

Wear snug fitting clothing and confine long hair when working around the compressor, especially when exposed to hot and/or moving parts. Make sure all persons are clear of the compressor prior to attempting to operate it.

Make adjustments only when the compressor is shut off. When necessary, make adjustments, then start the compressor to check if the adjustment is correct or not. If incorrect, shut the compressor, blow down the air, re-adjust, than re-start to check the adjustment.

Keep hands, feet, floors, controls and walking surfaces clean and free from oil, water, anti-freeze or other liquids to minimize the possibility of slips, falls and shock hazard.

1.1.6 Hot Surfaces, Sharp Edges and Corners

Avoid physical contact with hot oil, hot surfaces, sharp edges and corners. Keep all parts of the body away from all points of air discharge and away from hot cylinder heads, discharge pipes and intercooler surface. Wear personal protective equipment, including gloves and protective hat when working on or around the compressor.

Keep a first aid kit handy. Call for medical assistance promptly in case of injury. Don't ignore small cuts and burns as they may lead to infections.

1.1.7 Toxic and Irritating Substances

Do not use air from this compressor for breathing unless it is equipped with proper purification equipment .

Make sure that Purifier Cartridge is installed inside the Purifier Housing.

Operate the compressor only in well ventilated areas. Lubricants used in this compressor are typical synthetic oil. Accidental ingestion and skin contact should be avoided. Wash with soap and water after skin contact. If swallowed, call for medical treatment promptly

1.1.8 Electrical Shock

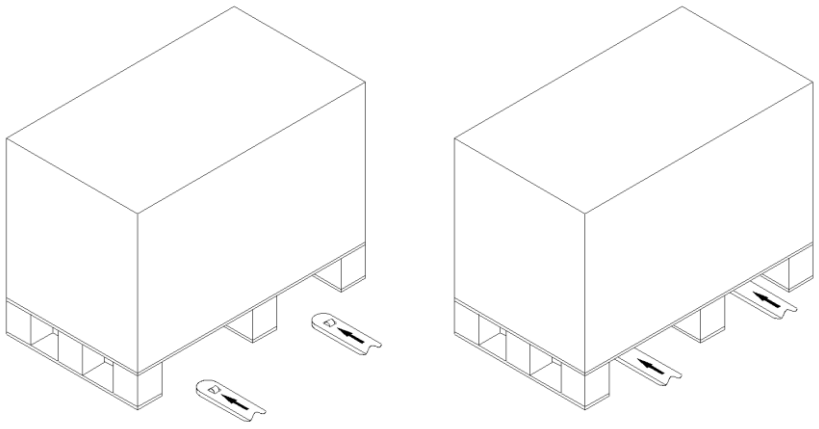
Keep the compressor, hoses, tools and personnel at least 3 meters (10 ft.) away from power lines, panel and underground cables.

Keep all parts of the body and any hand held tools or other conductive objects away from exposed live parts of the electrical system. Maintain dry footing, stand on insulating surfaces, and do not contact any other portion of the compressor when making adjustments or repairs to exposed parts of the electrical system.

1.1.9 Lifting and Carrying

If you must lift the compressor, lift in full compliance with codes and regulations. Make sure entire lifting, rigging and supporting structure has been inspected, is in good condition and has a rated capacity of at least the net weight of the compressor. If you are unsure of the weight, check before lifting.

The distance between forklift's forks should be sufficient for lifting if the compressor will be carried and lifted with the forklift. Moreover, the forklift must have a rated capacity of at least the net weight of the compressor. The forks of the F/L should be positioned under the compressor just like shown in the figure below. The height of the compressor from the ground must be max. 10 cm. during carriage.



Do not distract the forklift operator while carriage.

Verify the lifting hook has a safety clamp, and ensure a robust fastening with tough ropes or chain. Avoid the compressor swinging while suspended, by using guide ropes. Keep all persons clear from under and away from the compressor when it is suspended. Lift the compressor not higher than necessary. Keep lift operator in constant attendance whenever the compressor is suspended.

Set the compressor down on level surfaces, capable of carrying its full weight.

Note

Do not run the compressor on wooden pallet where the unit is mounted for transportation purposes.

1.1.10 Tags

Symbol	Meaning
	CAUTION: MOVING PARTS
	CAN START AUTOMATICALLY
	HOT SURFACES-DO NOT TOUCH
	EARTHING
	ELECTRICAL HAZARDS

1.2 Major Parts-Compressor

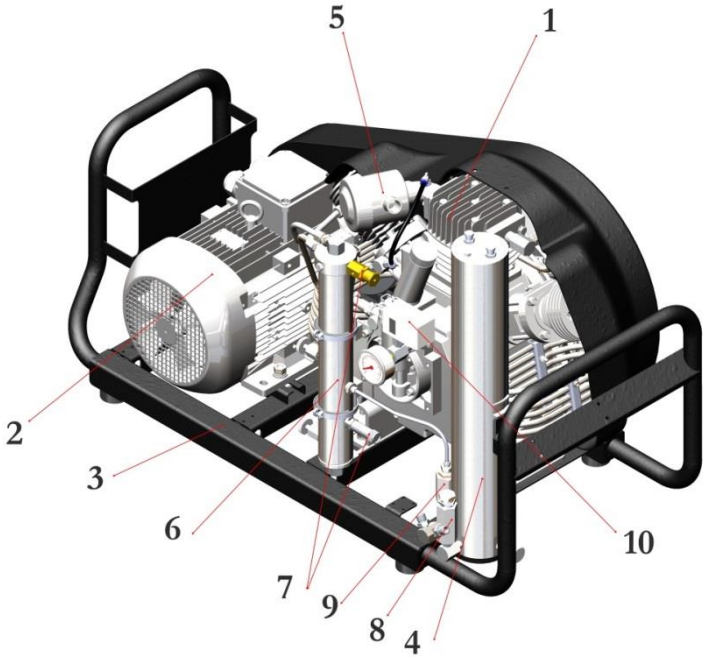


Figure 1 - W32 Mariner (Electric Driven)

Compressor is consist of the following major assemblies.

FOR W32 MARINER DRIVEN BY ELECTRIC MOTOR (4kW, 5.5kW, 7.5kW)

1. Compressor Unit
2. Drive ELECTRIC MOTOR
3. Subbase
4. Purifier
5. Intake Filter
6. Water Separator.
7. Safety Valve
8. Priority Valve
9. Check Valve
10. Oil Pressure Switch
11. 2 Filling Hoses (Number of filling hoses could be increased if requested.)

Not

Automatic Drain System and Automatic Start-Stop can be installed on the compressor if requested by the customer

FOR W32 MARINER DRIVEN BY PETROL ENGINE (6HP, 9HP, 13HP)

1. Compressor Unit
2. Drive PETROL ENGINE
3. Subbase
4. Purifier
5. Intake Filter
6. 2nd & 3rd Stage Water Separator
7. Safety Valve after Each Stage
8. Priority valve
9. Check valve
10. 2 Filling Hoses (Number of filling hoses could be increased if requested.)

Not

Automatic Drain System and Automatic Start-Stop is applicable upon request to compressors driven by petrol or diesel engine.

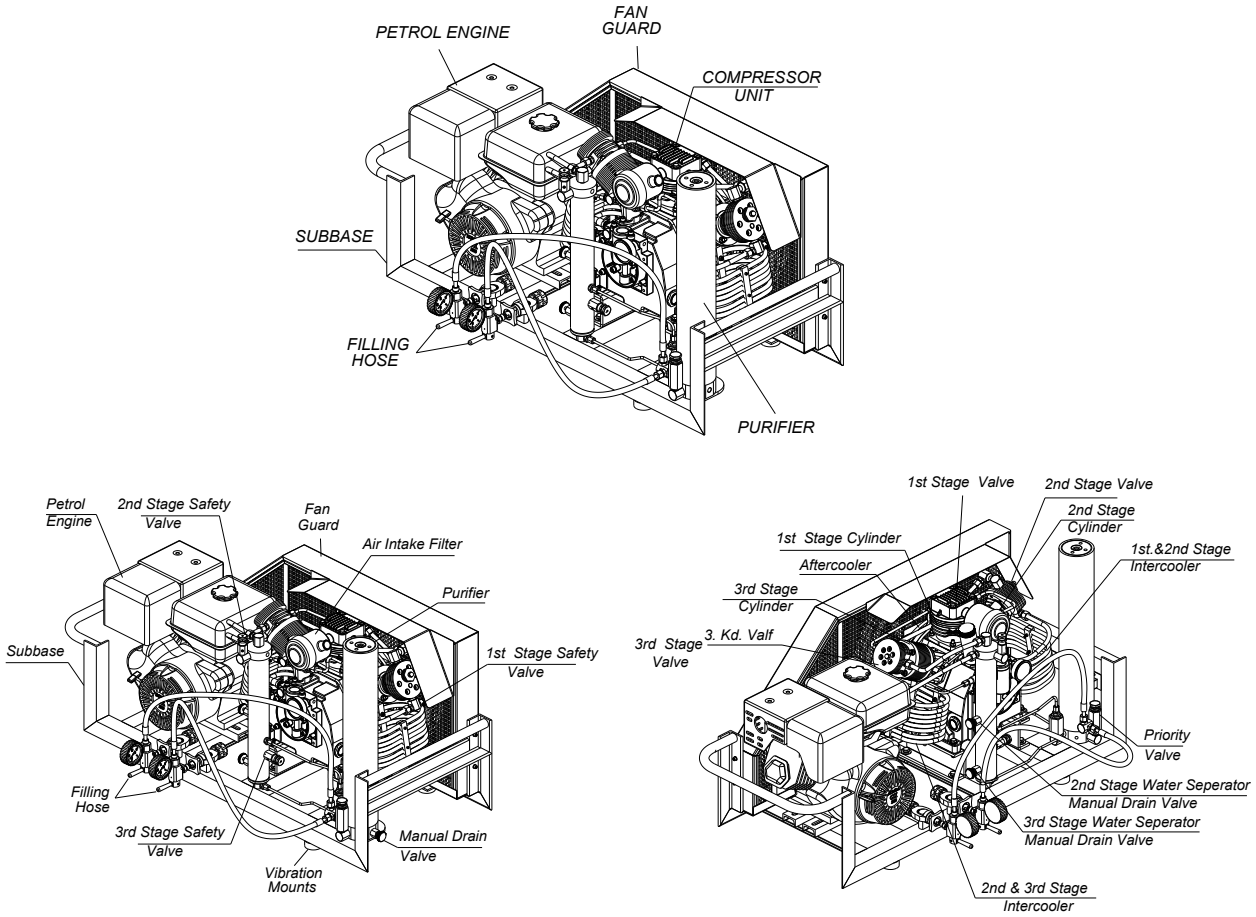
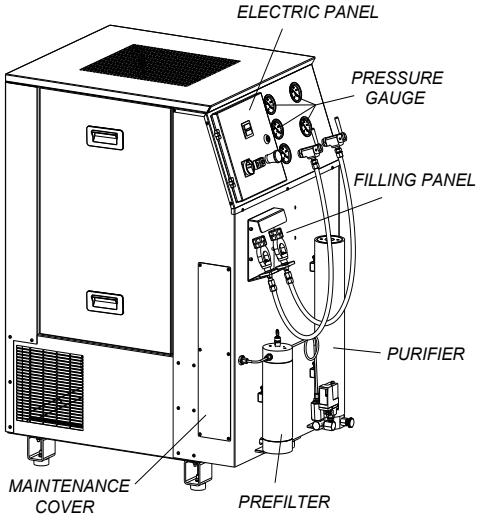


Figure 2 - W32 Mariner (Petrol)

1. Compressor Unit
2. Drive ELECTRIC MOTOR
3. Sub frame
4. Canopy
5. Purifier
6. Prefilter
7. Intake Filter
8. Silencer
9. 2nd stage Water Seperator
10. Oil Pressure Switch
11. Automatic Drain System
12. Pressure Switch for Automatic Start/Stop
13. Instrument Panel
14. Pressure Gauges for All Stages
15. Safety Valve after Each Stage
16. Priority valve
17. Check Valve
18. 2 Filling Hoses (Number of filling hoses could be increased if requested.)



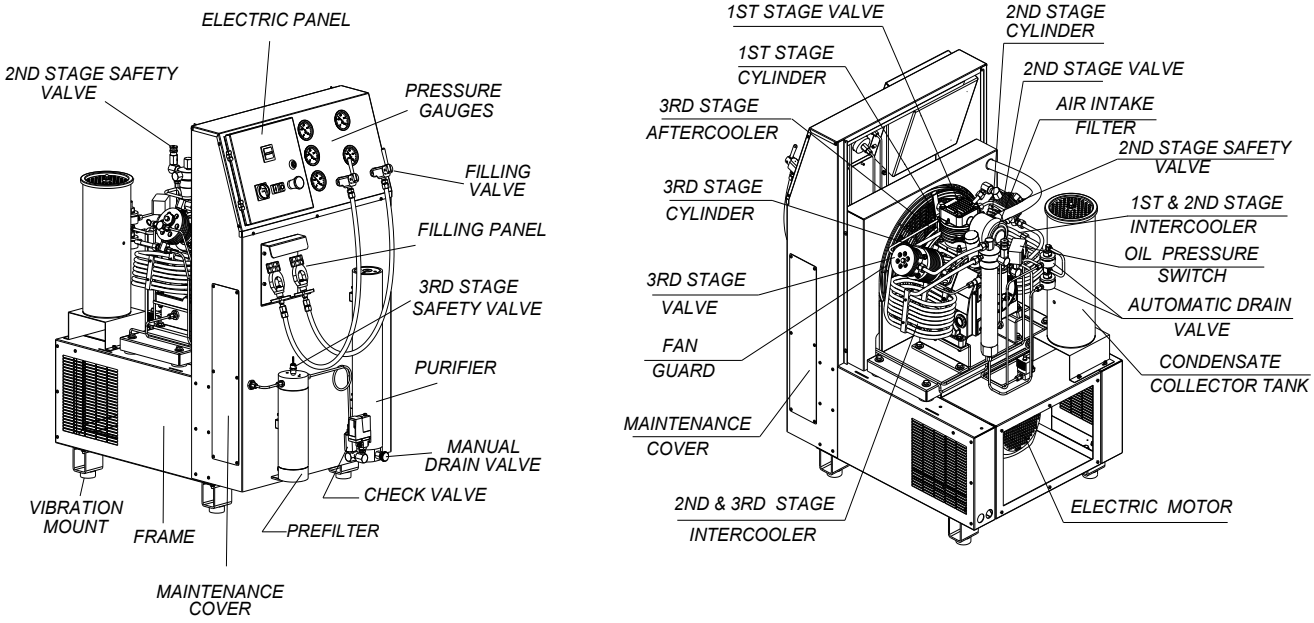


Figure 3 - W32 Canopy

1. Compressor Unit
2. Drive ELECTRIC MOTOR
3. Subbase
4. Canopy
5. Purifier
6. Hourmeter on electric control box
7. Intake Filter
8. 2nd & 3rd stage Water Seperator
9. Oil Pressure Switch
10. Automatic Drain System
11. Pressure Switch for Automatic Start/Stop
12. Safety Valve after Each Stage
13. Priority valve
14. Check valve
15. 2 Filling Hoses (Number of filling hoses could be increased if requested.)

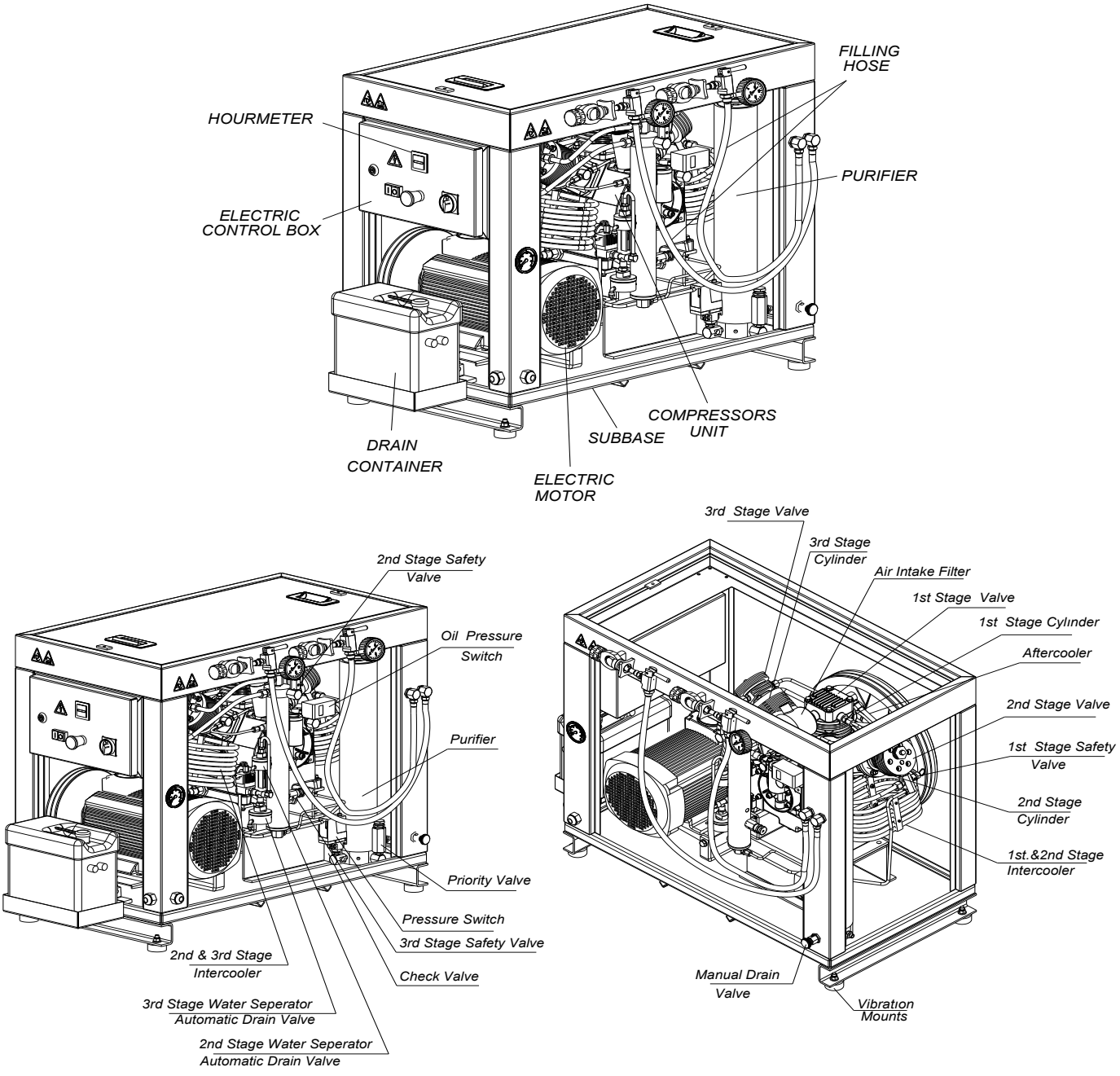
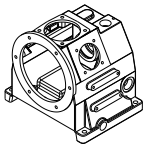


Figure 4 - W32 Enclosed

1.2 Major Parts-Compressor Unit

Crankcase:



This is the body of the compressor that holds all the parts on it. It contains the oil that lubricates the system. The cylinders are mounted on it. There's no maintenance or repair works that need to be done on this part. It needs to be cleaned inside when the oil is changed. However, have the crankcase tested with proper testing equipment in general

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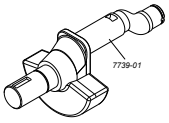
Crankshaft:



It is overhung type; that means the bearings are on one side, and the crank pin (where connecting rods are mounted) are on the other side. This unique feature allows usage of single piece connecting rods which are far more accurate and safer than split con rods. Large bearings in conjunction with low speeds, allow very long crankshaft life. Replace this part when life of bearings is over. However, have the crankshaft tested with proper testing equipment in general overhaul periods and replace it if exceeding the tolerance limits mentioned in the parts.

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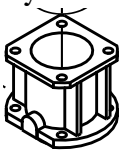
Connecting Rods:

There are three connecting rods which are exactly same for the 1st, 2nd and the 3rd stages on W32 model. They have bearings mounted on both crankshaft and pistons ends. This allows for much longer service. However, have the connecting rods tested with proper testing equipment within general overhaul periods and replace it if exceeding the tolerance limits mentioned in the parts book.

Not

IN CASE OF CRANKSHAFT REPLACEMENT THE CONNECTING RODS WILL ALSO BE REPLACED AS THE CRANKSHAFT COMES WITH THE CONNECTING RODS INSTALLED ON IT. CONSULT THE NEAREST ALKIN DEALER OR ALKIN FOR REPLACEMENT OR MAINTENANCE

Cylinders:



They are casted separately and are made of high grade casting materials, machined & honed to fined tolerances for long service life. When worn, they will need replacement. However, have the cylinders tested with proper testing equipment within general overhaul periods and replace them if exceeding the tolerance limits mentioned in parts list.

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Oil Pressure Switch:

This switch is installed on the crankcase. When the oil pressure drops under 4 Bar, the switch stops the electric motor and protects the compressor against the damages may arise due to lack of lubrication. This equipment is standard on all W32 Mariner Electric and W32 Canopy models.

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Valve Complete:

Valve Complete consists of valve, valve head and top covers and is located on the cylinders. Valve complete should be periodically maintained and replaced if required. You can find the replacement times for the valves on the maintenance table. This replacement times should be strictly followed to keep the compressors running without any trouble and at its best performance.

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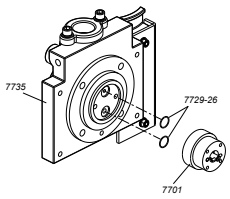
Oil Pump:



Compressor Lubrication is enabled by a low speed oil pump connected and driven by the crankshaft. The oil pump takes the oil from crankcase and lubricates the 2nd and 3rd stages by pumping the oil to pass through the regulating valve and oil pump filter. Regulating valve promises the oil goes to the stages at required pressure. Oil pressure can be observed from the oil pressure gauge Oil pressure should be 4 to 10 Bar. On W32 Mariner Electric and W32 Canopy models oil pressure switch promises the electric motor stop automatically when the oil pressure drops. W32 Petrol driven mariner models do not have this feature. So for W32 Mariner Petrol engine driven models oil pressure should be checked daily from the oil pressure gauge. It's very important for the compressor life.

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Breather:

All piston type compressors have some compression leak through the rings into the crankcase. To prevent the pressure built up in the crankcase, a breather system is installed to allow the crankcase to "breathe". For the air compressors the crankcase is connected via tubing to the inlet from where the breathing is possible, or a breather device is installed on the crankcase to vent the pressure from inside the crankcase.

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Pistons:

1st , 2nd and 3rd stage pistons are connected to the crankshaft via connecting rods. Pistons move up & down and compress the air inside the cylinders with the motion supplied by crankshaft . Have the pistons tested with proper testing equipment in general overhaul periods and replace it if exceeding the tolerance limits mentioned in the parts book.

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Safety Valves:

Safety valves are installed onto the discharge line of each stage. All the safety valves are pressure tested and set accordingly. If there is any unestimated pressure increase in the system safety valves open to vent the over pressure and eliminate any possible damage may arise from the unestimated pressure increase. Safety Valves are set and sealed by the manufacturer. Do not attempt to break the seal and change the settings of the safety valves. Otherwise you may cause serious injuries or accidents may result in death.

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Intake Filter:

Intake Filter is used to filter the particles in the air going into the compressor' s first stage. Inner element of the intake filter should be replaced periodically according to the MAINTENANCE TABLE.

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1.3 Major Parts-Compressor System

Subbase:

Subbase carrying motor and compressor is supported with 4 vibration mounts. *CONSULT THE NEAREST ALKIN DEALER OR ALKIN FOR REPLACEMENT OR MAINTENANCE*

Filling Hoses:

There are 2 Filling hoses resistant to high pressure on the compressor after the final filter. They have necessary equipments like Filling Valve, Yoke, Pressure Gauge , DIN Adapter on the hoses which is required to connect and fill the SCBA cylinders. W32 Series Compressors are designed to fill 2 cylinders at a time. Number of the Filling Hoses can be increased upon special request.

Electric Motor/ Petrol Engine:

W32 Series of compressors can be driven by electric motor or petrol engine. They are belt-driven. They have an hourmeter which shows the working hours of the unit on the electric motor on W32 Mariner Electric models and on the control panel on W32 Canopy models. There is no hourmeter on the petrol engine driven units.

Not

SEE THE INSTRUCTION MANUAL FOR THE ELECTRIC MOTORS OR PETROL ENGINES SUPPLIED ALONG WITH THE COMPRESSOR.

Pressure Switch (Available on W32 Canopy and Automatic Start/Stop Controlled Mariner Models):

Pressure Switch enables the compressor stop and restart automatically between the adjusted upper and lower pressure limits. SEE THE ADJUSTMENTS PART FOR THE PRESSURE SWITCH ADJUSTMENTS.

Automatic Drain Valve: (Available on W32 Canopy and Automatic Drain Controlled Mariner Models):

Springs inside the drain valves are on the top in high pressure drain valves while they are at the bottom in low pressure drain valves. Thus, surface where low pressure acts on is larger than the surface where the high pressure effectively acts on the piston. Therefore force on the top is larger and causes the piston to sit and seal the high pressure vent port. Automatic drain valves take their control air from a solenoid. It takes compressed air from the inlet to the 2nd stage valve and sends it onto 2 drain valves forcing them to close. When the solenoid is deenergised, it does not let the air goes on the top of the drain valve pistons, allows the high pressure acting from the bottom of the pistons, to open and perform drain operation.

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Inter Coolers and After Cooler:

These are the cooling tubes cooling the warm air compressed in stages which are located interstages and at the discharge of the final stage of the compressor.

INTERCOOLERS AND AFTER COOLER ARE NOT NECESSARILY REPLACED UNLESS A WEARING, CRACKING OR BREAKING OCCURS.

Water Separators:

Condensate in the compressed air occured in stages during the compression is removed from air by water seperators.

Not

REPLACE WATER SEPARATOR FILTERS PERIODICALLY AS MENTIONED IN THE MAINTENANCE TABLE.

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Purifier:

This is the filtration system that purifies the compressed air to produce breathing air comply with breathing air quality standards. Air compressed in the compressor stages finally enters the purifier. A refillable cartridge which contains the consumables performing the filtration is placed in the purifier housing. Refillable cartridges are more cost effective and environtment friendly compared to replacable cartridges. Consumables inside the cartridge removes the oil, odour and water condensate from the compressed air. After that clean air leaves the purifier to be given to the hoses or system. The purifier has a check valve at its inlet and a priority valve at the discharge. Consumables inside the Purifier Cartridge should be replaced periodically to have clean air comply with Breathing Air Standards at the discharge. Condensate collected inside the Purifier Housing should be drained manually twice a day or after each filling process.

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Priorty valve:

Priority Valve does not let the air go unless the inlet pressure of the purifier reaches a certain value (Approximately 150 Bar-2175 Psi). At this pressure the filtration is much more efficient than any pressure.

Not

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Check valve:

It does not let the compressed air inside the purifier goes back to the stages and protects the compressor to run under back pressure.

Not

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1.4 General Features

W32 series compressors are three stage, reciprocating type, air-cooled and forced lubricated compressors.

Working Pressure of these compressors varies from 150 Bar (2175 psi) to 350 Bar (5000 psi) depending on the cooling system and valve heads installed.

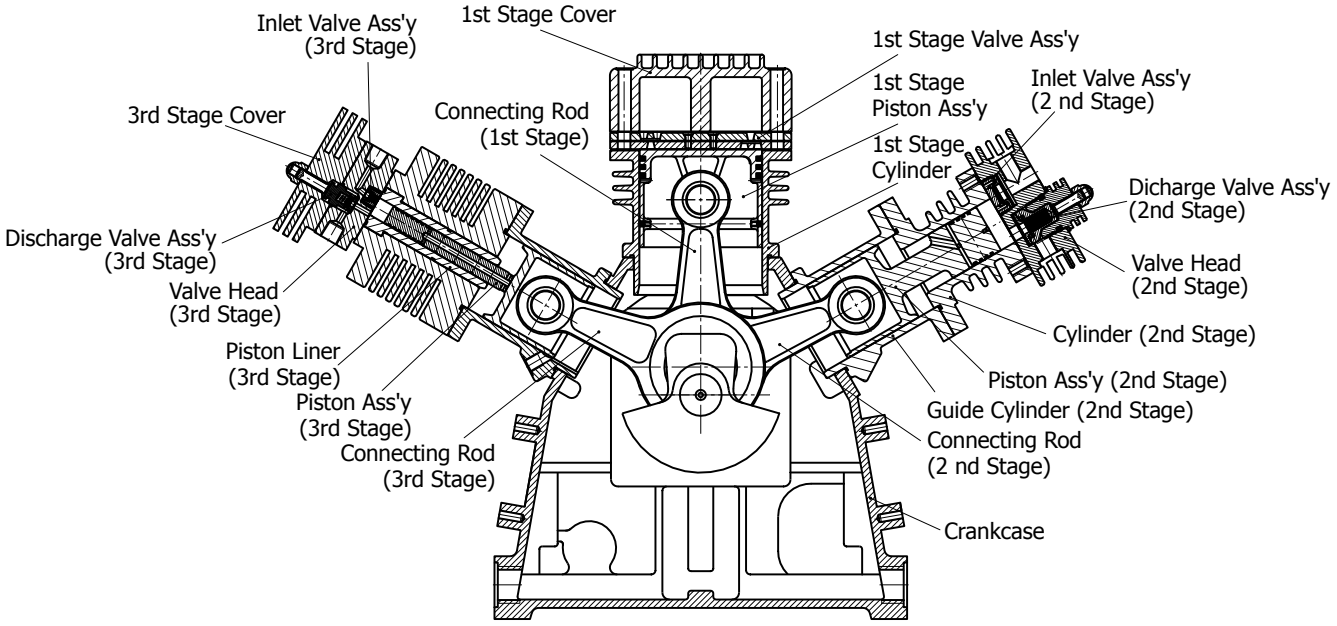
Important!

Do not attempt to modify a compressor to operate at a higher-pressure without written approval of ALKIN.

Failure to do so may result in a serious damage to the equipment, injury or death.

This compressor is built with oversize intercoolers and an aftercooler to allow superior performance, longer life, lower operating and discharge temperatures.

W32 Compressor block is of a three stage and three cylinders design. The cylinders are assembled in a "W" form where 1st stage is in the center, 2nd stage on right and 3rd stage on left side looking from the purifier side.



Crankshaft is equipped with 2 roller bearings. Both crankshaft and piston ends of the connecting rods have bearings. This allows a much longer service life. All valves have free access for time saving and ease of maintenance.

W32 Series compressors are built with the necessary intercoolers and aftercooler to allow superior performance, longer service life and lower servicing costs. W32 Series Compressors are equipped with 2 intercoolers between the 1st & 2nd , 2nd & 3rd stage cylinders and an aftercooler after the 3rd stage cylinder. There are oil & water separators installed after the 2nd and 3rd stages. Water condensate and oil collected in these water separators should be manually drained every 7 minutes by opening the manual drain valves at the bottom unless the compressor has an automatic drain system. Purifier should be drained daily after the filling process is completed for both Manual and Automatic Drain Controlled models.

Note

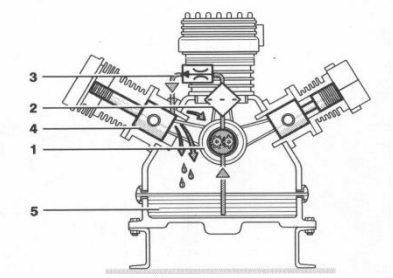
On Automatic Drain Controlled Compressors the purifier should be manually drained daily after the filling process is completed by opening the manual drain valves at the bottom. On automatic drain controlled mariner and canopy compressors the water condensate in the water separators and prefilter is drained automatically by the automatic drain valves. Opening intervals and duration is set by a time relay attached to the system (see the controls section). This time relay can be adjusted for both functions. According to the factory settings of the timer it is set to open for 6 seconds in every 7 minutes.

To protect the system against an unexpected pressure rise due to a malfunctioning valve or component, safety valves are installed after each stage and the final stage. These safety valves must be inspected periodically to insure proper operation and pressure setting verification.

W32 series compressors have valves on all stages. They are designed to have an unobstructed passage of air with no pressure loss; they are easy to maintain and replace. **Particular attention** must be paid to maintenance of the valves as these valves are one of the most critical parts for proper operation of the compressor. **Do not** use oils other than the recommended oils in this manuel for keeping the valves clean and free of carbon collecion. Inappropriate oils may cause carbonization which will occur on the valve discs and springs, resulting in improper sealing of valves. This will increase the operating temperatures which will cause the oil to deterioarite in a shorter time and effect the operation of the valves negatively.

1.5 Lubrication System

Lubrication is performed by an oil pump. Oil pump takes the oil in the crankcase, lubricates the 2nd and 3rd stage after enabling the oil pass through oil filter and regulating valve. Pressure rise arises inside the regulating valve. It reads on the oil pressure gauge on all W32 Series and controlled by oil pressure switch on all W32 Electric Mariner and W32 Canopy models. Oil Pressure Switch lets the electric motor and compressor stop when the oil pressure goes under 4 Bar against any possible damages may arise due to lack of lubrication. For W32 Petrol Engine Driven Mariner models which has only oil pressure gauge but no oil pressure switch, oil pressure should be controlled visually by the operator from the oil pressure gauge and the unit should be immediately stopped manually when the pressure reads lower than 4 Bar.



1.Oil Pump
2.Oil Filter
3.Oil Regulating Valve
4.Guide Piston
5.Oil

Dikkat

Oil pump will work and enable lubrication in correct sense of rotation, only. Please make sure of the compressor rotation direction. Otherwise, no oil pressure will be built up and the compressor block will be seriosly damaged.

1.6 P&I Process and Instrumentation Diagram

The following process and instrument diagrams are prepared according to the physical appearance of the parts and equipments rather than pneumatic symbols, in order to facilitate the better understanding of the system by the users who are not specifically trained to understand pneumatic symbols.

This compressor is designed to operate at a "single pressure" or "dual pressure". This is, when the compressed air is used to fill all the cylinders to that single pressure or dual pressure.

You can have the necessary information about the general layout of the system and operation process from the process and instrument diagrams.

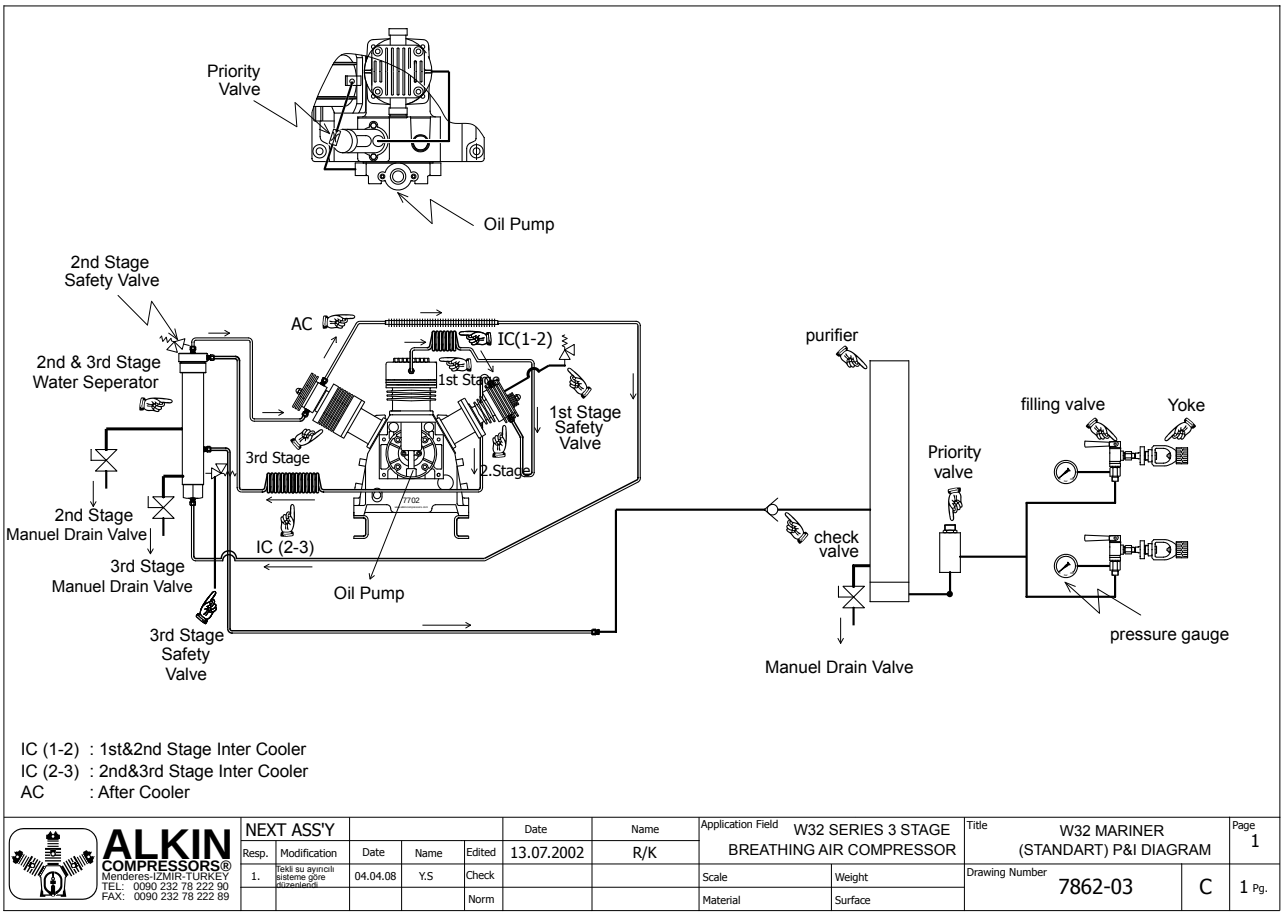


Figure 5 - Standard

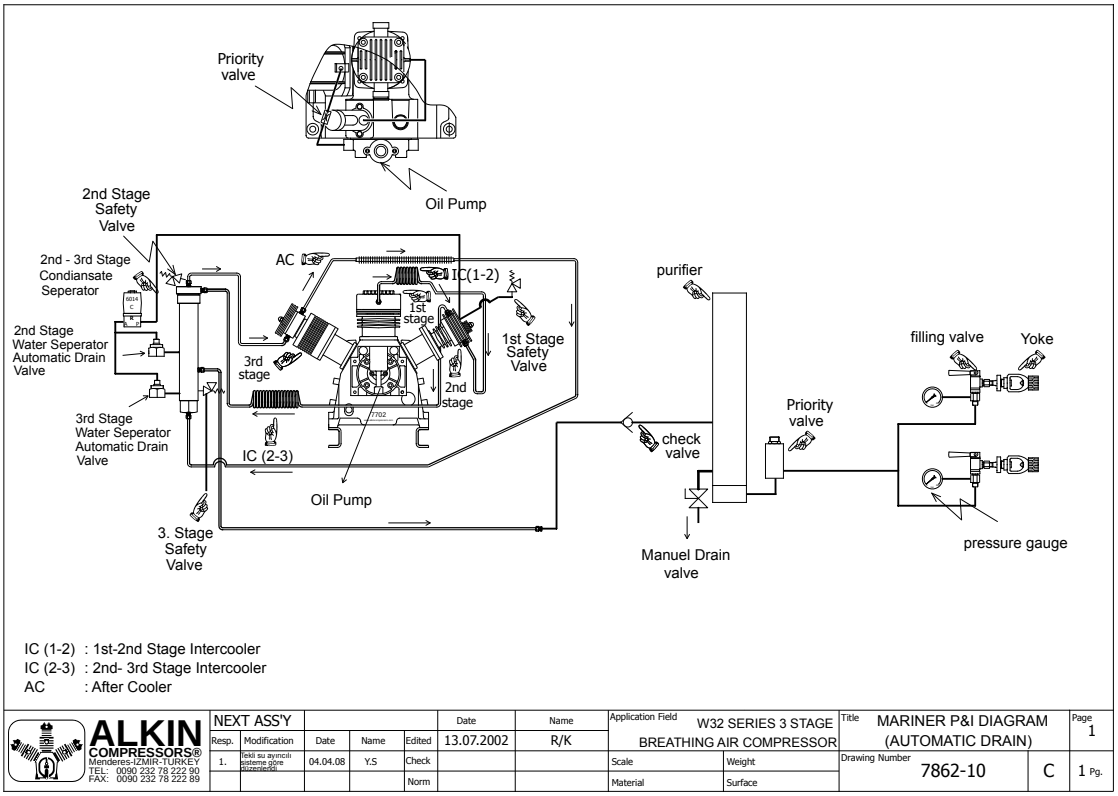


Figure 6 – Auto Drain

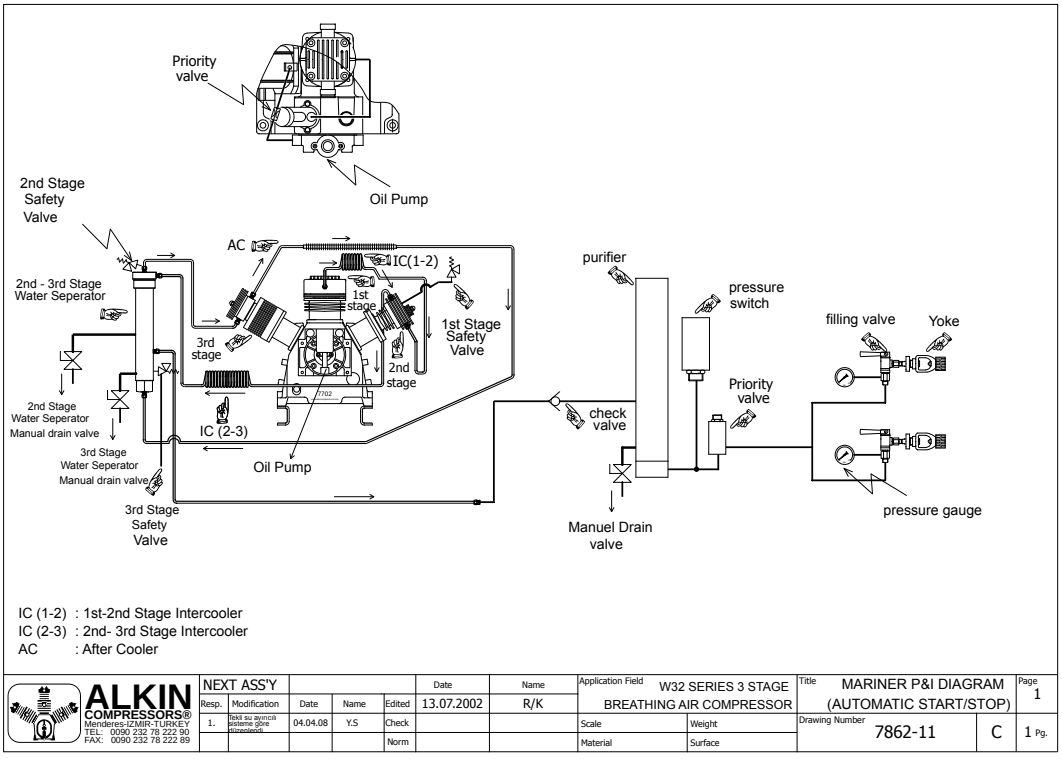


Figure 7 – Auto Start/Stop

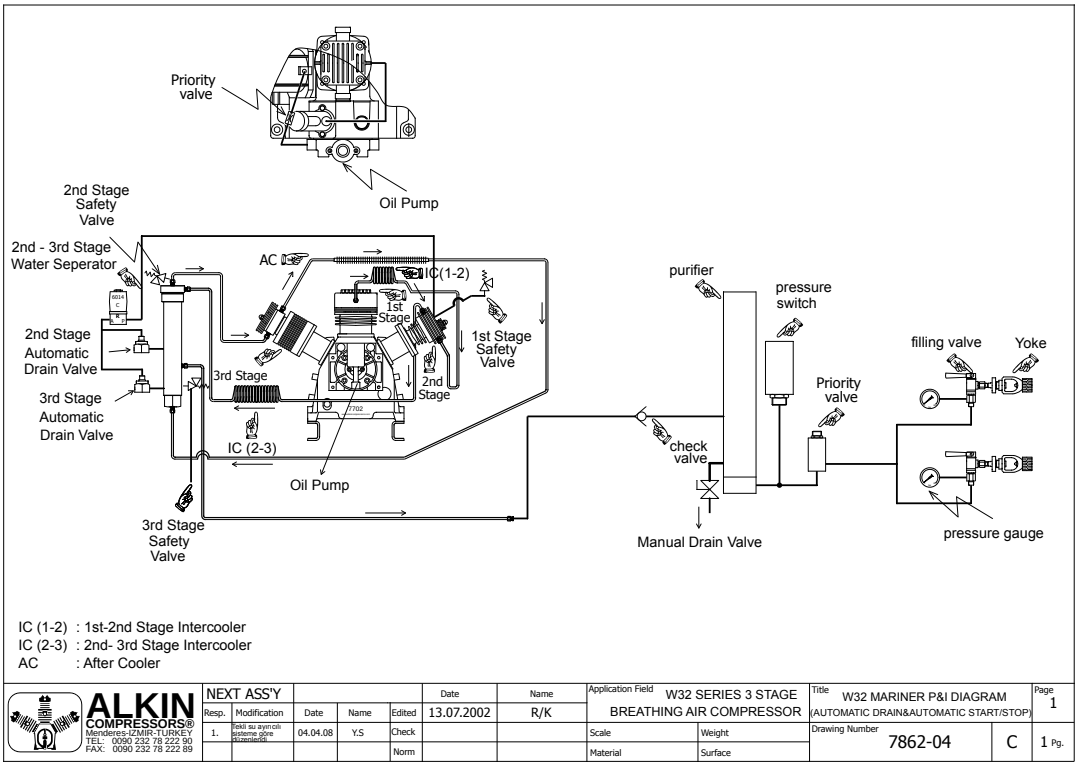


Figure 83 – Auto Drain & Auto Start / Stop

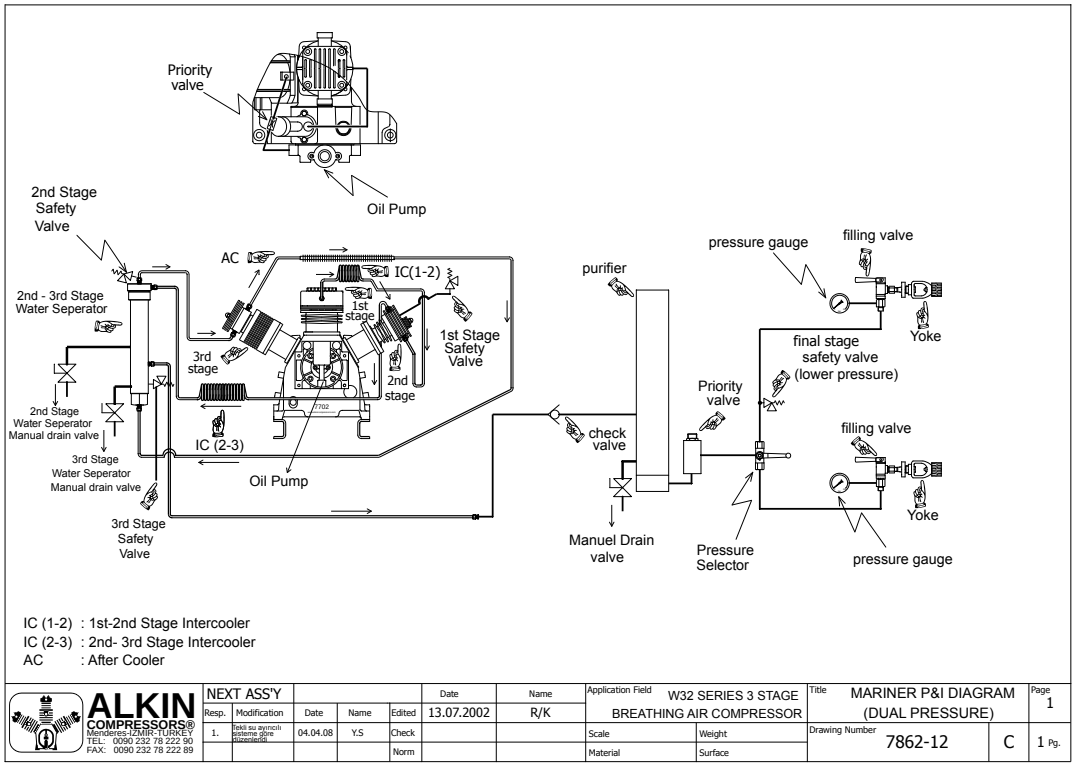


Figure 9 – **Dual Pressure**

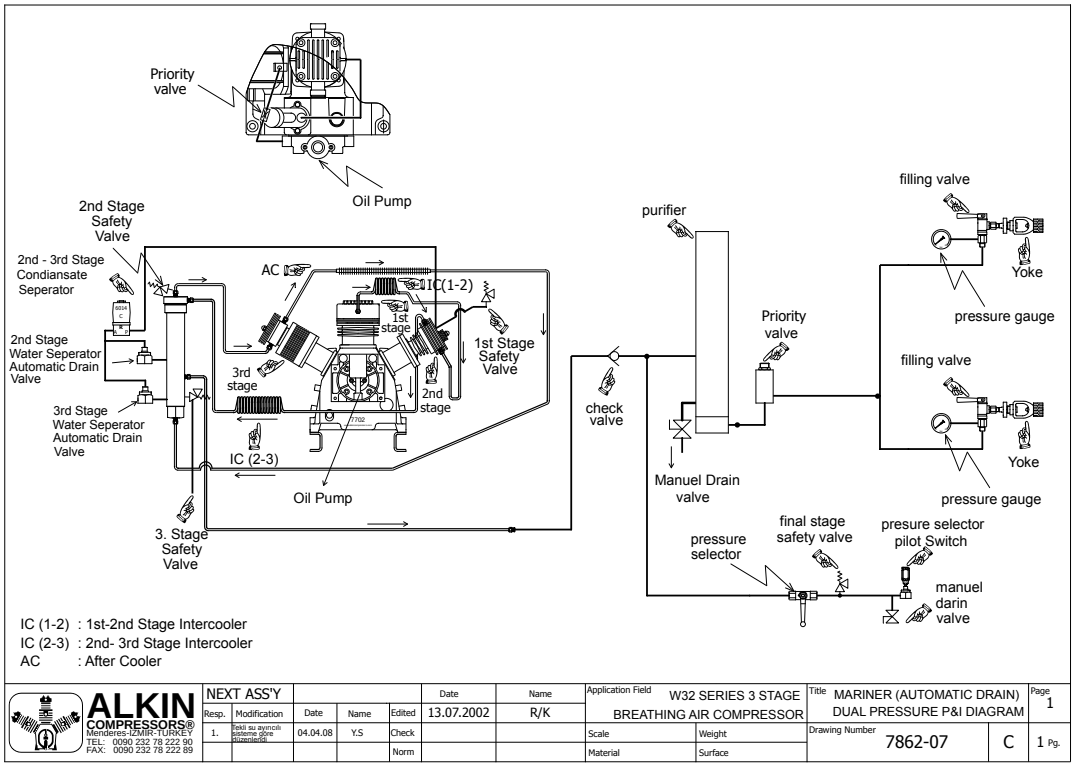


Figure 10 – Automatic Drain & Dual Pressure

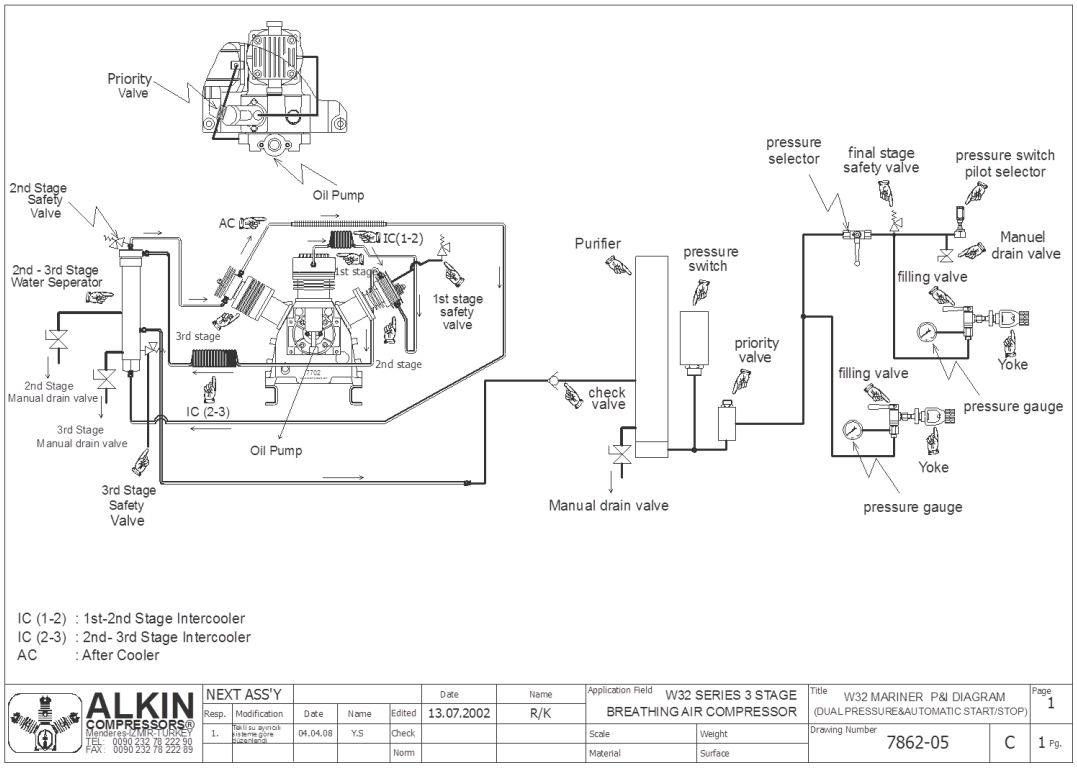
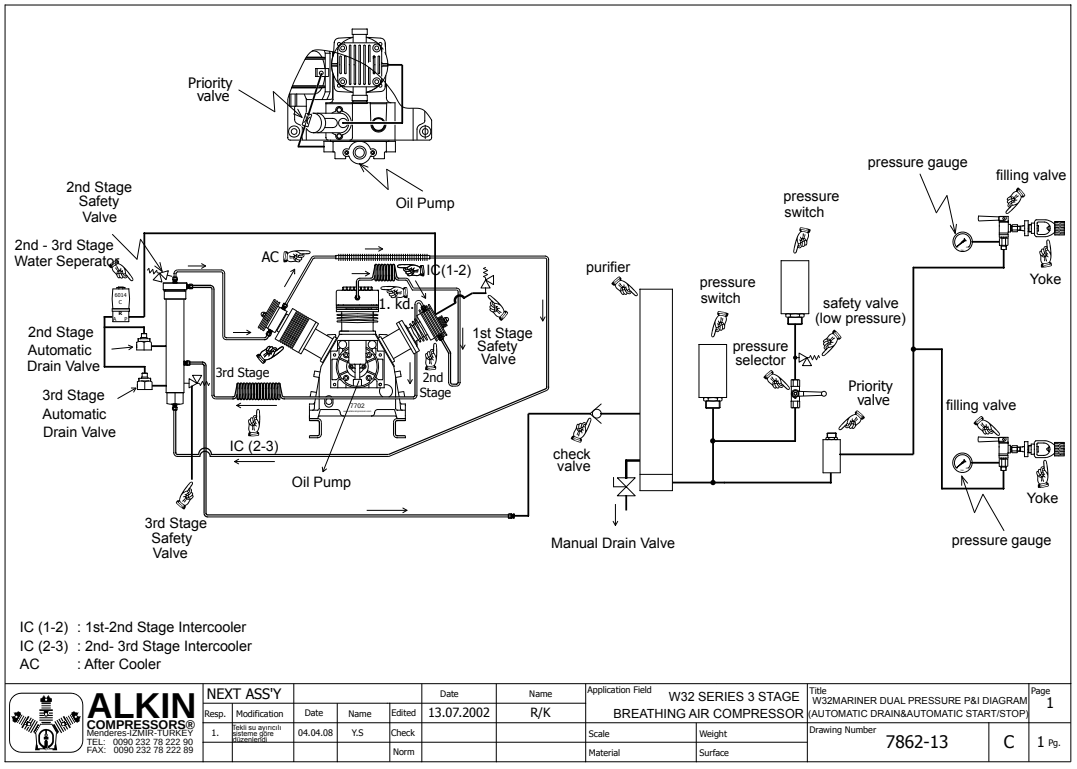


Figure 11 – Dual Pressure & Automatic Start/Stop



28 Figure 12 – Dual Pressure & Automatic Drain & Automatic Start/Stop

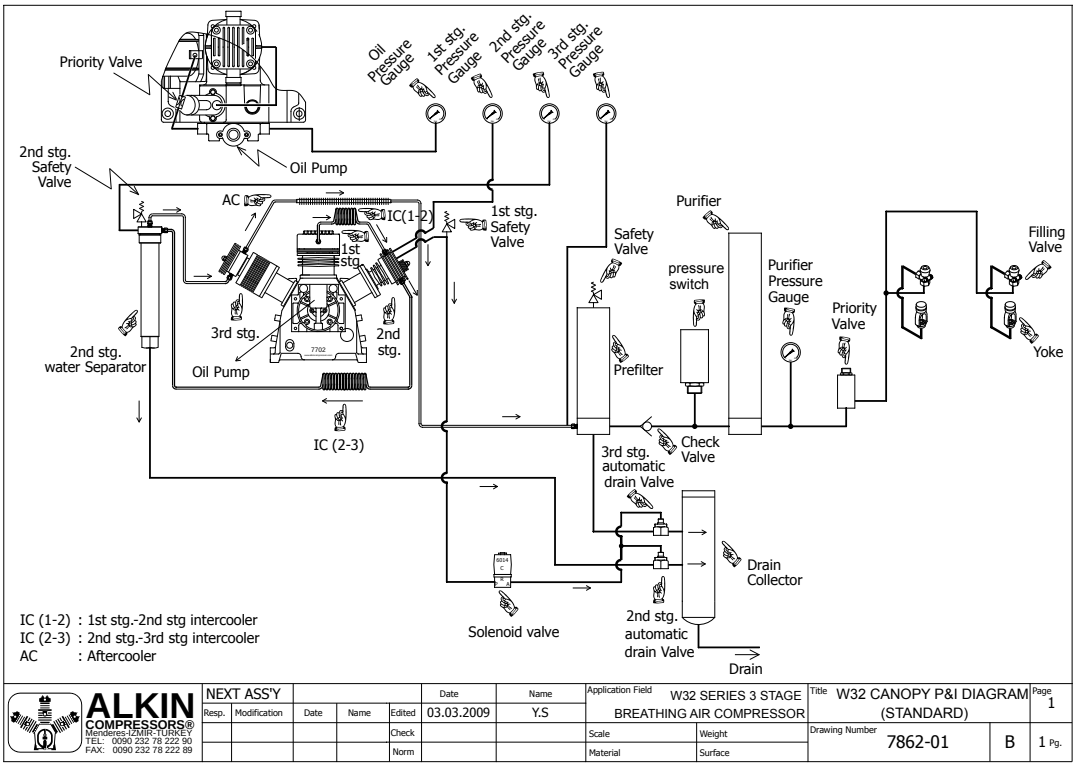


Figure 13 – Canopy Standard

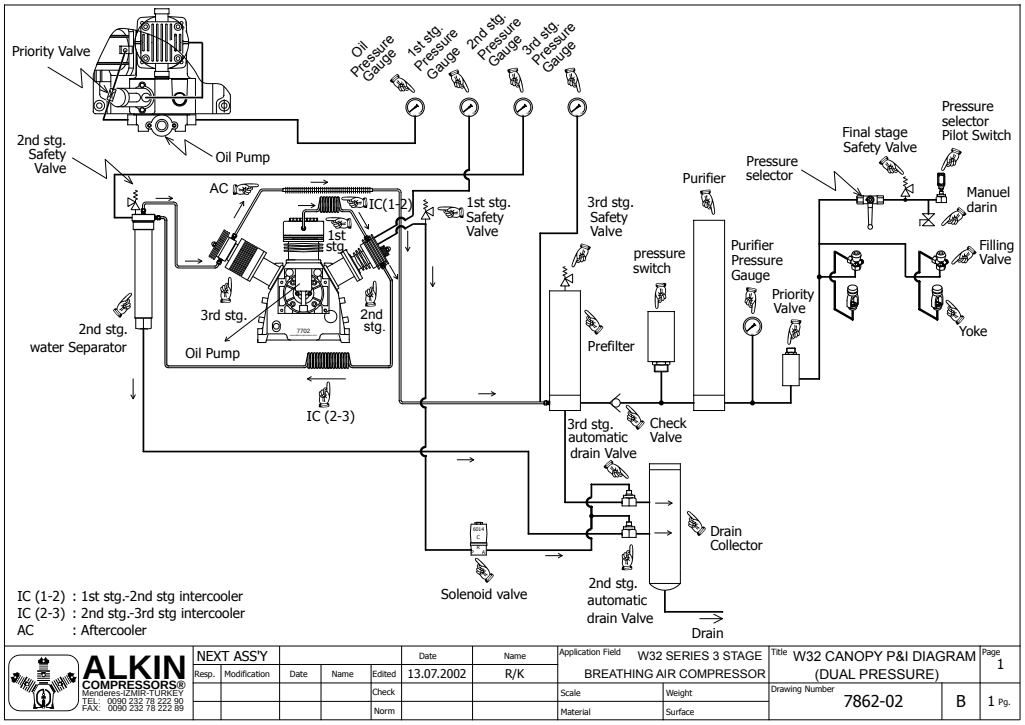


Figure 14 – Canopy Dual Pressure

1.7 Operation Principle

P&I diagram have to be reviewed carefully to understand the principle of the operation.

Air at atmospheric pressure is drawn through the inlet filter into the 1st stage cylinder on the up-stroke of the piston. The up-stroke motion of the piston will cause compression and the air will be forced out of the cylinder through 1st stage discharge valve. Air will then pass through the intercooler tubes between the 1st and 2nd stages and goes into the 2nd stage compression chamber. Here, the air is compressed to the 2nd stage compression level and forced through the 2 nd stage valves + 2nd stage intercooler + 2nd stage water separator + 3rd stage inlet valve into the 3rd stage cylinder. Here, the air is compressed to the final pressure level and forced out to the aftercooler then passing through a check valve enters the purifier chamber, where it is purified and prepared to be used for breathing purposes. For W32 Canopy models it enters first to the prefilter and then goes to purifier through a check valve.

A priority (or minimum pressure valve) is installed downstream the purifier; this valve prevents the air to exit the purifier until the pressure builds to approximately 150 bars (2175 psi), a pressure level where the purification process is more efficient than at lower or higher pressures. Air is then ready to be directed to a filling hose and with proper connections to the cylinders to be filled. Intercoolers and aftercoolers are designed to dissipate the heat generated from the previous compression cycle, reducing the air temperatures, allowing the water vapors to condensate and settle in the bottom sections of the moisture separators. Water separators on W32 Mariner models are equipped with a manual drain valve at the bottom. They should be drained by opening the manual drain valve every 7 minutes. Purifier should be drained after the filling process is completed for both Manual and Automatic Drain Controlled models. On Automatic Drain Controlled Compressors purifier should be also manually drained by opening the manual drain valves at the bottom after the filling process is completed.

On automatic drain controlled mariner and canopy compressors water condensate in water separators and prefilter is drained automatically by automatic drain valves. Time Period and duration for openning these drain valves are set by a timer. This timer allows to make dual time adjustments for both functions. Factory setting is to open every 7 minutes for 6 seconds.

Draining the condensate inside the purifier manually after each filling process is extremely important for getting good quality of breathing air and the life of the consumables inside the purifier cartrdige.

W32 Mariner Compressors are manually operated by its start/stop switches on the electric motor.

W32 Mariner with Automatic Start/Stop and W32 Canopy models have a pressure switch which promises the compressor stops and restarts between the lower and upper pressure limits.

Compressor oil level could be seen from the oil level sight glasses placed on both sides of the crankcase. As W32 Series are forced lubircated compressors oil pressure could be checked also from the Oil Pressure Gauge. Oil pressure should be from 4 to 10 Bar.

1.8 Descriptions of Controls

1.8.1 Start/Stop Controls

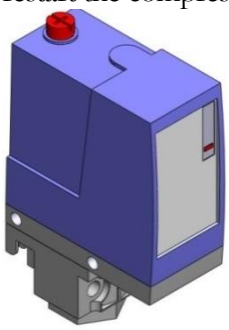
W32 Series compressors can be operated by 2 different controls.

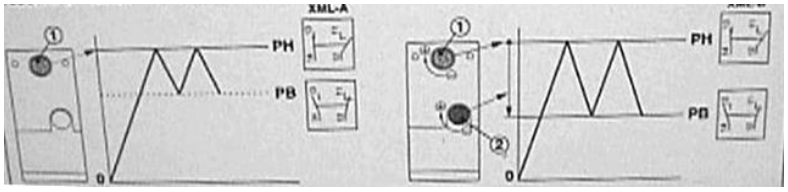
I. Manual Start/Stop

W32 Series compressors can be manually controlled by pressing the start/stop switches on the electric motor.

II. Automatic Start/Stop

W32 Series compressors can be controlled by a pressure switch to automatically stop and restart at the upper and lower pressure limits. Pressure switches cuts off the electric motor control when the compressor reaches the adjusted upper pressure. When the presssure drops to the adjusted lower pressure the pressure switch cuts in to restart the compressor.





Not

Automatic Start/Stop is standard on all W32 Canopy models. It could be adapted to W32 Mariner Electric models as an optional feature while it is not applicable to W32 Mariner compressors driven by petrol engine.

1.8.2 Drain Controls

W32 Series compressor can be drained by 2 different drain controls.

I. Manual Drain

W32 Mariner models are manually drained by openning the manual drain valves periodically (every 7 minutes) located at the bottom of the water seperators, and the purifier on the compressor. Water Condensate and oil

collected inside the water seperators and purifier is removed by this way. It is the standard drain control on all W32 Mariner compressors if otherwise mentionned.

II. Automatic Drain

W32 Series compressors can be automatically drained by automatic drain valves. These drain valves are controlled by 3 way Solenoid Valve which is normally closed. This solenoid valve supplies or cuts the control air on the drain valves, thus letting them to open or close. The solenoid valve itself is controlled by a timer installed in the electrical panel. The dual time adjustment on this timer allows to adjust the time period (t1~7 min) which the solenoid will remain energised (=the drain valve will remain closed), and the duration(t2 ~ 6 seconds) during which the solenoid will be de-energised (=the drain valve will open and perform the drain function). Drain timers where the period and duration of automatic drain is adjusted shown below:

Note

Automatic Drain is standard on all W32 Canopy models. It could be adapted to W32 Mariner Electric models as an optional feature while it is not applicable to W32 Mariner compressors driven by petrol engine.

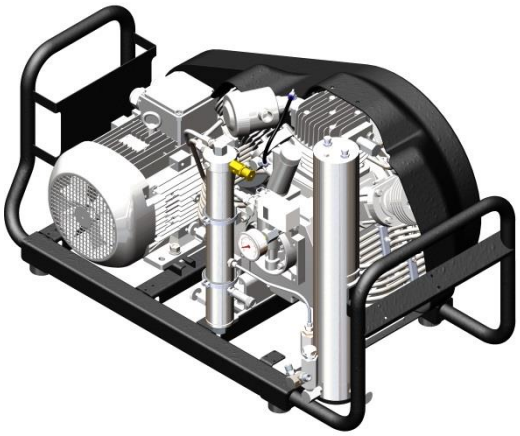
Important !

Do not change the factory settings of the drain times and durations. Consult the factory if you need to change the settings.

1.9 Technical Specifications and User Records

PLEASE COMPLETE MISSING INFORMATION ON THE TABLES BELOW ACCORDING TO THE LABELS AND TECHNICAL SPECIFICATIONS OF THE UNIT YOU OWN AND KEEP THE TABLES FOR FUTURE REFERANCE.

1.9.1 W32 Mariner Electric Technical Datas



Model	Power	Medium	Inlet Pressure	Max. Working Pressure	Purifier
W32 Mariner	4 kw 5,5 kw 7,5 kw	Air	Atmospheric	350 Bar	P41

Performance Information

Model	Working Pressure		Capacity		Motor Power		Compressor Speed	Cylinder Bore	Stage
	BAR	PSI	l/min	Cfm	HP	kW		Stroke	
W32 Mariner	200 300	2900 4350	170		5,5	4	1300 RPM	95x38x14 40.1	3
			240		7,5	5,5	1500 RPM		
			320		10	7,5	1700 RPM		

Intermediate Pressure

Capacity	1st stg. Pressure (bar)		2nd stg. Pressure (Bar)		3rd stg. Pressure(Bar)	
	@ 225	@ 310	@ 225	@ 310	@ 225	@ 310
170 l/min	5,5-6	5,5-6	38-40	44	200	300
240 l/min						
320 l/min	6-6,5	6-6,5	43-44	48		

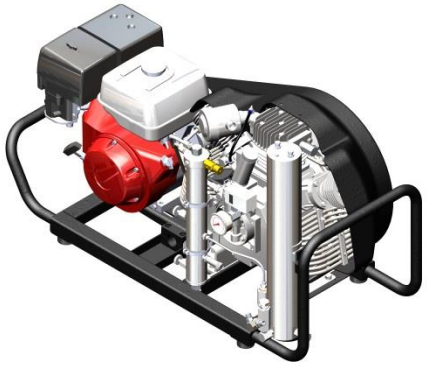
Intermediate Air Temperature

Capacity	1st stg. Temp. (°C)		2nd stg. Temp. (°C)		3rd stg. Temp. (°C)	
	@ 225	@ 310	@ 225	@ 310	@ 225	@ 310
170 l/min	120	130	127	148	144	107
240 l/min	150	158	155	170	140	148
320 l/min	155	160	148	169	145	153

Other Information

Capacity	Comp. pulley diamenter	Motor pulley diamenter	Belt diamenter	Weight (kg)	Compressor sizes WxLxH
170 l/min	Ø450	Ø200		133	56x112x57cm
240 l/min		Ø225		162	
320 lt/dk		Ø260		180	

1.9.2 W32 Mariner Petrol Technical Datas



Model	Power	Medium	Inlet Pressure	Max. Working Pressure	Purifier
W32 Mariner-Petrol	4 kw 5,5 kw 7,5 kw	Air	Atmospheric	350 Bar	P41

Performance Information

Model	Working Pressure		Capacity		Motor Power	Compressor Speed RPM	Cylinder Bore	Stage
	BAR	PSI	l/min	Cfm	HP		Stroke	
W32 Mariner-Petrol	200 300	2900 4350	170		6	1300	95x38x14 40.1	3
			240		9	1500		
			320		13	1700		

Intermediate Pressure

Capacity	1st stg. Presure (bar)		2nd stg. Pressure (Bar)		3rd stg. Pressure (Bar)	
	@ 225	@ 310	@ 225	@ 310	@ 225	@ 310
170 l/min	5,5-6	5,5-6	38-40	44	200	300
240 l/min						
320 l/min	6-6,5	6-6,5	43-44	48		

Intermediate Air Temperature

Capacity	1st stg. Temp. (°C)		2nd stg. Temp. (°C)		3rd stg. Temp. (°C)	
	@ 225	@ 310	@ 225	@ 310	@ 225	@ 310
170 l/min	120	130	127	148	144	107
240 l/min	150	158	155	170	140	148
320 l/min	155	160	148	169	145	153

Other Information

Capacity	Comp. pulley diamenter	Motor pulley diamenter	Belt diamenter	Weight (kg)	Compressor sizes WxLxH
170 l/min	Ø450			137	56x118x67cm
240 l/min				172	
320 l/min				200	

1.9.3 W32 Canopy Technical Datas

Model	Power	Medium	Inlet Pressure	Max. Working Pressure	Purifier
W32 Canopy	4 kw 5,5 kw 7,5 kw	Air	Atmospheric	350 Bar	P41

Performance Information

Model	Working Pressure		Capacity		Motor Power		Compressor Speed	Cylinder Bore	Stage
	BAR	PSI	l/min	Cfm	HP	kW		Stroke	
W32 Canopy	200 300	2900 4350	170		5,5	4	1300 RPM	95x38x14 40.1	3
			240		7,5	5,5	1500 RPM		
			320		10	7,5	1700 RPM		

Intermediate Pressure

Capacity	1st stg. Presure (bar)		2nd stg. Pressure (Bar)		3rd stg. Pressure (Bar)	
	@ 225	@ 310	@ 225	@ 310	@ 225	@ 310
170 l/min	5,5-6	5,5-6	38-40	44	200	300
240 l/min						
320 l/min	6-6,5	6-6,5	43-44	48		

Intermediate Air Temperature

Capacity	1st stg. Temp. (°C)		2nd stg. Temp. (°C)		3rd stg. Temp. (°C)	
	@ 225	@ 310	@ 225	@ 310	@ 225	@ 310
170 l/min	120	130	127	148	144	107
240 l/min	150	158	155	170	140	148
320 l/min	155	160	148	169	145	153

Other Information

Capacity	Comp. pulley diamenter	Motor pulley diamenter	Belt diamenter	Weight (kg)	Compressor sizes WxLxH
170 l/min	Ø450	Ø200		295	70x88x121cm
240 l/min		Ø225		300	
320 l/min		Ø260		310	

1.10 Installation

1.10.1 Inspection

The compressor should be inspected and checked for the following when received:

1. Check if any damage exists during shipping, handling, etc.
2. Check the compressor nameplate to verify the equipment is comply with the working conditions,
3. Check the electrical motor nameplate to verify the compliance with the available power and electrical supply. (for electric driven models)
4. Check the compressor if it is loaded with oil or not.
5. Check the purifier if the cartridge is installed or not.
6. Check if the intake filter is installed.

1.10.2 Location

Important

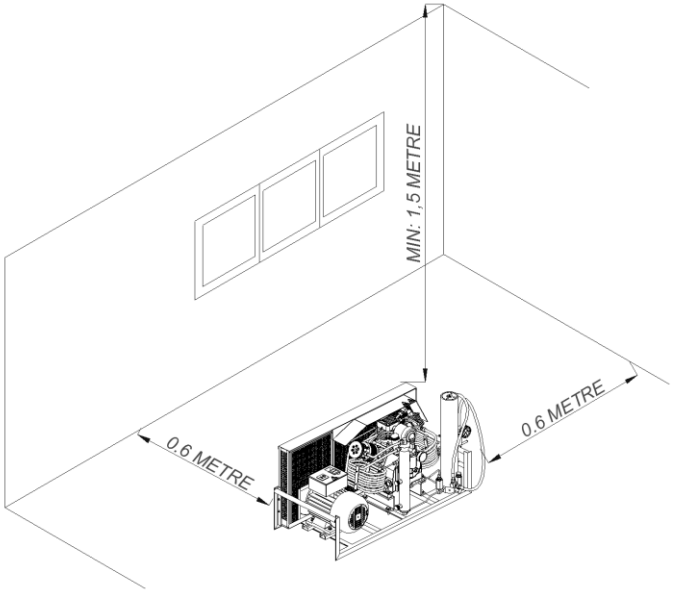
READ CAREFULLY AND FOLLOW THE INSTRUCTIONS BELOW.

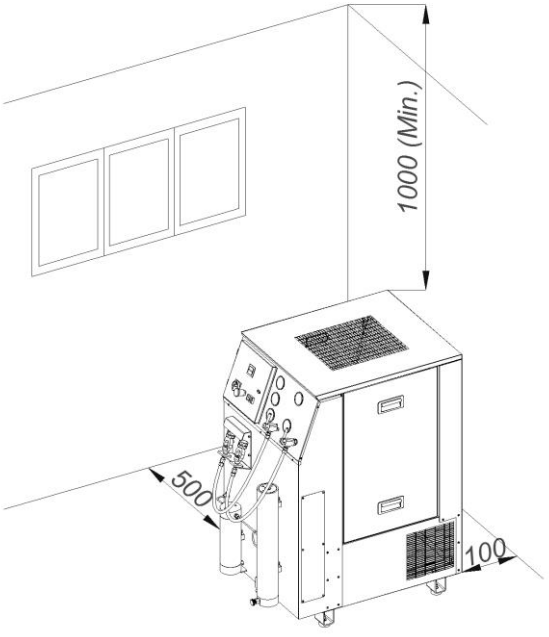
The location where the compressor is installed determines to a considerable extent the overall performance and service life of the unit.

The compressor should be located in an area that is dry and sheltered, well ventilated, not exposed to high ambient temperatures and air borne contaminants such as dust,fumes, lint, vapor, steam, gases, engine exhaus, etc.

Install the compressor with a minimum of advised clearance between adjacent surfaces, to insure adequate cooling and access for service. You can find the necessary information about the clearances on the pictures below.

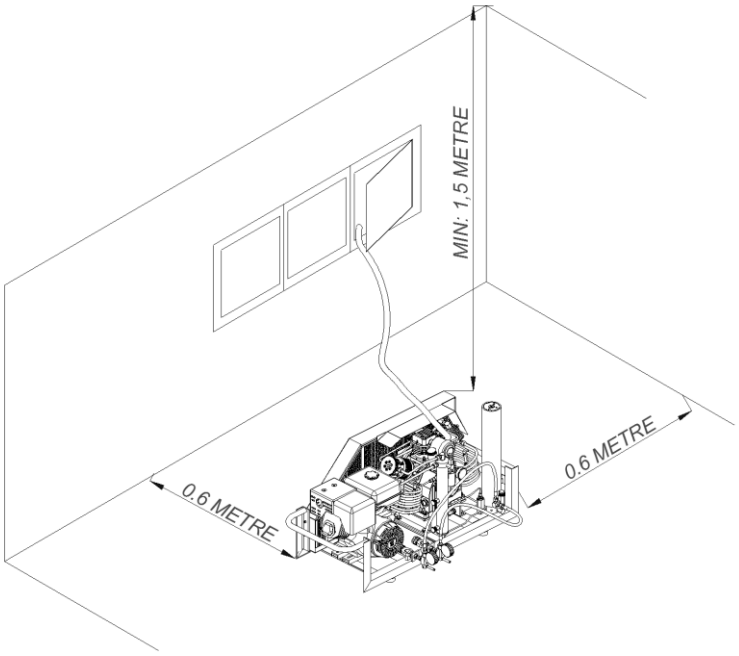
Locate the compressor on a smooth surface of sufficient strength to support the static weight of the equipment, as well as the dynamic forces resulting from its operation (preferably on 6" (150 mm) thick concrete floor)





Not

IF YOUR COMPRESSOR IS A PETROL ENGINE DRIVEN MODEL PLEASE PUT AN INTAKE HOSE WITH INTAKE FILTER AT ITS INLET WHICH IS SUPPLIED BY "ALKIN" AS THE INLET OF THE HOSE CAN TAKE FRESH AND CLEAN AIR. IT IS IMPORTANT FOR THE QUALITY OF THE BREATHING AIR PRODUCED BY YOUR COMPRESSOR.



1.10.3 Piping

Inlet Piping:

If it is necessary to carry the intake air filter to a clean air source, due to excessive dirt, heat, dampness, or toxic fumes in the ambient where the compressor is located, it is suggested to use a 1¼" diameter good quality flexible hose at the intake of the compressor. The length of the hose should not exceed 3 meters (10 ft). If the intake filter will be somewhere outdoors, protect it with a proper hood against possible environmental effects like rain, fume, etc.

Note

THIS IS MANDATORY FOR PETROL ENGINE DRIVEN COMPRESSORS. ALL PETROL ENGINE DRIVEN UNITS SUPPLIED BY ALKIN ARE EQUIPPED WITH INTAKE HOSE.

Discharge Piping:

If piping is required between the compressor and the filling panel or fill station, depending on the length between the compressor and the filling panel properly selected stainless steel pipes must be used. The piping should be installed in full compliance with all Federal, State and local codes, standards and regulations. If required, consult the manufacturer for further information.

1.10.4 Electrical Controls

Important

Although all electrical instructions addressed to the reader directly, the actual inspection, wiring, installation, maintenance, repair, etc. must be carried out by licensed and certified electricians only.

Make electrical connections to the compressor in accordance with the wiring diagrams and in full compliance with all applicable federal, state and local standards, codes and regulations, including those dealing with the earthing requirements. A few electrical checks should be made to insure that the first start up will be trouble free. Make the following checks before attempting any start up:

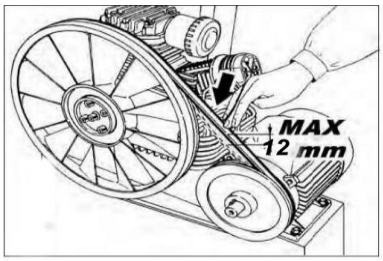
1. Check line voltage. Verify that the compressor motor corresponds with these specifications.
2. Check starter and max. load for conformity with the motor power and current data.
3. Check tightness of all electrical connections including those in the electrical panel of the compressor.
4. At start up, check the direction of rotation to insure that flywheel rotates to the direction of the arrow on it.
5. Although a few minutes of operation in the wrong direction of rotation will not seriously damage the compressor, it will cause serious damages on the compressor if it runs in this position for a long time as the cooling air flow will be reversed, the compressor cylinders can not be cooled down and the oil pump will not pump oil, the compressors will run without lubrication

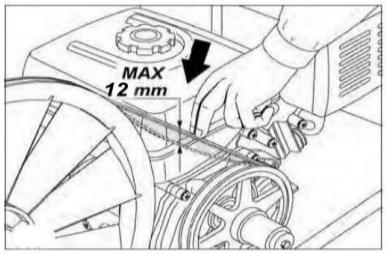
1.10.5 Wiring

It is important to select the right size and capacity wire and fuses. Install an isolation switch with magnetic protection and a capacity of three times bigger than the motor full load current on the wall.

1.10.6 Sheave and V-Belt Alignment

Check the V-belt tension. Proper tension should be adjusted to give about 12 mm. (1/2") deflection with a 1 kg. (2 pounds) weight applied at the center of each belt check the condition of the belts periodically (see the maintenance table for details)





Not

W32 CANOPY MODELS HAVE AUTOMATIC BELT TIGHTENING SYSTEM WHICH DOES NOT REQUIRE PERIODICAL CONTROLS OF BELT TIGHTNESS. PLEASE CHECK ONLY IF THE BELT(S) ARE IN GOOD CONDITION.

1.11 Storage

If compressor will not be working for a long time for any reason and will be stored during this time, it is suggested to do the following steps before putting it out of reach in order to keep it in good condition:

1. Start the compressor and run it for app. 15 minutes.
2. Check if there is any leak on the fittings, hoses, tubes, filters and valves.
3. Open the filling valves and run it for app. 2 minutes at the min. pressure (the pressure which the priority valve is set at).
4. Open the drain valves and release the pressure inside the compressor.
5. After the unit is completely depressurised stop the compressor. Close the filling valves and drain.
6. Take out the refillable cartridge inside the purifier housing.
7. Remove the intake filter and disconnect all other connections on the valve heads.
8. Restart the compressor as soon as it cools down. Spray some compressor oil to the valve intakes and run the compressor for 2-3 minutes in this position.
9. Stop the unit before it gets too warm.
10. Connect the lines to the valve heads which are previously disconnected.
11. Close all the valves and put a cap onto the intake port against the dust and fumes may enter.
12. Cover the unit with a plastic cover as there will not be any condensation under it. Check the status of the unit periodically if you can and clean it if it's necessary.
13. The compressor should be stored in a dry, safe and sheltered indoor place.

Note I

IF THE COMPRESSOR WILL NOT BE WORKING BUT STORED FOR A LONG TIME AND YOU CAN NOT DO PRECAUTIONS MENTIONED ABOVE, YOU NEED TO OPERATE THE COMPRESSOR AT LEAST TWICE A MONTH FOR 1 HOUR TO LUBRICATE INNER PARTS. IN FAILURE TO DO SO, THE OXIDIZATION MAY ARISE ON THE INNER PARTS AND CAUSE TROUBLE FOR THE OPERATOR AND COMPRESSOR DURING NEXT START.

Note II

IF THE COMPRESSOR WILL NOT BE WORKING BUT STORED FOR A LONG TIME; PURIFIER CARTRIDGE WHICH IS TAKEN OUT SHOULD BE COMPLETELY EMPTIED, INNER SURFACE SHOULD BE CLEANED AND DRIED BY BLOWING AIR. IN FAILURE TO DO SO, MAY CAUSE THE PURIFIER CARTRIDGE GET PARTIALLY CONSUMED AND EVEN WASTED.

If the compressor will be started-up after a long time of storage, it is suggested to do the following steps before start filling bottles.

1. Clean the compressor with a clean cloth.
2. Install a new intake filter.
3. Install the purifier cartrdige which is just refilled with new chemicals inside the housing.
4. Open the intakes which have been closed while stored against dust, fume, etc. may enter the compressor.
5. Check if there is any leakage and sweating on the gaskets or connections.

6. Check if there is any leakage on the connections, fittings and safety valves.
7. Load new oil and check the oil level.
8. Run the compressor till it gets warm while the filling valves and all the drain valves are open. Make sure that there is no leakage.
9. You can run the compressor after completing all the steps mentionned above.

1.12 Operation

1.12.1 Initial Start-up Procedure

Follow up the following procedures when making the initial start-up of the compressor.

1. Make sure that you have read this manual carefully, and understand it. If you have any questions, contact us.
2. Make sure that all the preparations described in the installation section of this manual have been made.
3. Check the oil level in the crankcase.
4. Check the pressure switch and make sure that the pressure adjustments are set at the proper start-stop pressures. (If it is Automatic Start/Stop Controlled.)
5. Rotate the compressor flywheel several times by hand to see that it is free and working properly.
6. Keep all objects such as tools, rugs, etc. away from the compressor.
7. Check the direction of rotation. Rotation must be in the direction of the arrow marked on the fanguard and flywheel.
8. Check the Purifier if the cartridge is installed or not.
9. Press the start button to start the machine.
10. After start it up check the oil pressure at the oil pressure gaguge if the oil pressure is consistent with the given values.
11. Let the compressor run without producing pressure while the purifier drain valve is open for 10 minutes to observe if any abnormalities in the operation of the compressor exists.
12. Check the interstage pressures from the pressure gauges on the control panel (only for W32 Canopy models.)
13. Check the possible leaks in piping. If there is any leak stop the compressor and let it cool down.
14. At the end of 10 minutes running the compressor free, close the purifier drain valve allowing the pressure to rise. Check the last stage safety valve if operating proper or not. The safety valve must open and leak at the pressure stated on it. If the safety valve does not open, stop the compressor without waiting for the pressure to rise up.
15. Fill in the commissioning report and technical data forms. Return a copy to the manufacturer for tracking record.

1.12.2 Oil Recommendation

The oil level should be checked before each start up. Top up to the overfill point when required **3 liters** of oil should be loaded during each replacement.

RECOMMENDED OILS

OIL TRADEMARK	Typ	Quantity
Anderol 750	Synthetic	3 liter
Anderol 555	Synthetic	3 liter

- Do not use another type of oil without prior written approval of the compressor manufacturer.
- Do not mix different brand and type of oils.

- If you will change the oil you use with another approved brand of oil, load the new oil after you make sure that you drain the old oil completely in the crankcase.
- Refill the oil every 6 months unless you reach the replacement time of the oil stated in the maintenence table.
- Initial oil replacement must be performed at 300 hours. After the initial replacement oil should be replaced every 1000 hours of operation.

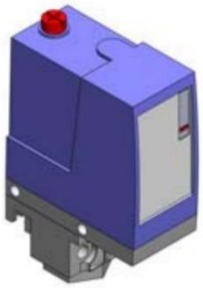
1.12.3 Extremely Cold Ambient Temperatures

Operating conditions out of the stated conditions must be reported to the compressor manufacturer to make the necessary changes to adopt the compressor to the current conditions. For instance if the compressor needs to work in an extremely cold ambient temperature below freezing temperatures a crankcase heater is attached to the crankcase of the compressor to prevent the negative effect of the cold ambient temparatures.

1.12.4 Motor Lubrication

Electric motors on W32 Series compressors are supplied with greased and sealed bearings. They do not no need further maintenance. See the users manual of electric motors or petrol engines before operating your compressor and follow the instructions while using your compressor.

1.12.5 Adjustments



Pressure Switch Adjustment (Only available on Automatic Start/Stop Controlled W32 Canopy and Mariner Models

Pressure adjustment on Automatic Start/Stop Controlled W32 Mariner Compressors is made according to the following steps: You can adjust PH1 pressure switch to the required upper pressure (working pressure) by turning the screw on the pressure switch clockwise or anti-clockwise. Turn the screw clockwise to increase the upper pressure. In this case you may also need to change the safety valve as it is set to open when it reaches the upper pressure. Turn the screw anticlockwise to decrease the upper pressure. Compressor is already set in the factory upon the customers working pressure needs. You can adjust the working pressure if you need a higher or lower working pressure than the factory settings. Compressor will stop when it reaches the adjusted upper pressure.

Standard Pressure Switches used on Alkin Automatic Start/Stop controlled W32 Mariner units have standard differential of 20 Bar. In other words lower pressure is set automatically at 20 Bar below the upper pressure limit which is set. Compressor will restart when the final pressure decreases to a pressure 20 Bar below the upper pressure.

CAUTION

You also have to change the safety valves on the compressor in case you change the working pressure of the.

Sequential Drain Timers

These are the drain timers on which the draining times and duration adjustments are made for automatic drain function. On this timers you will find two dials to make the time adjustments.

Upwards dial controls the duration of the automatic drain which the drain valve remains

open (drains the condensate) It is adjustable between 0 to 10 seconds. The dial does not have figures showing the times on it; it needs to be proportionally adjusted. The full scale shows 10 seconds while half of the scale indicates 5 seconds. The downwards dial is used to adjust the time period of the automatic drain during which the drain valve will remain closed. Draining time periods and duration are adjusted as 6 seconds for every 7 minutes. Factory settings should not be changed for trouble free operation.

Safety Valves

CAUTION!

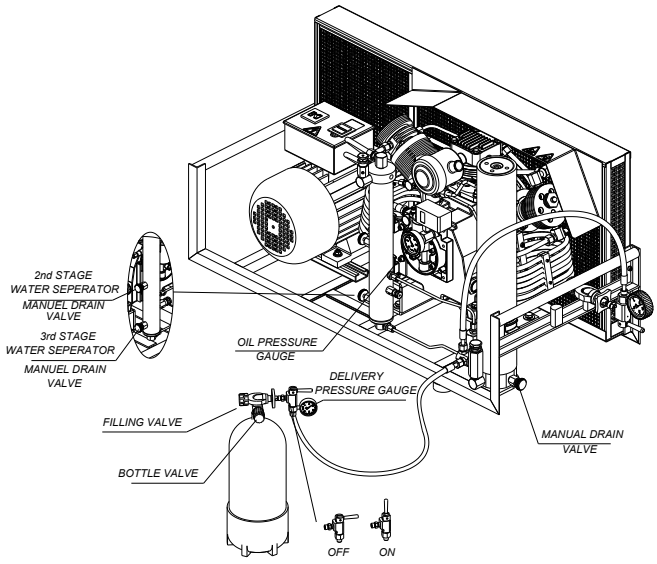
• Do not adjust the Safety Valves and do not alter their original settings. Only certified service technicians are authorised to make such adjustments. If required, replace and return the old one for reconditioning to the factory or to a nearest dealer to you.

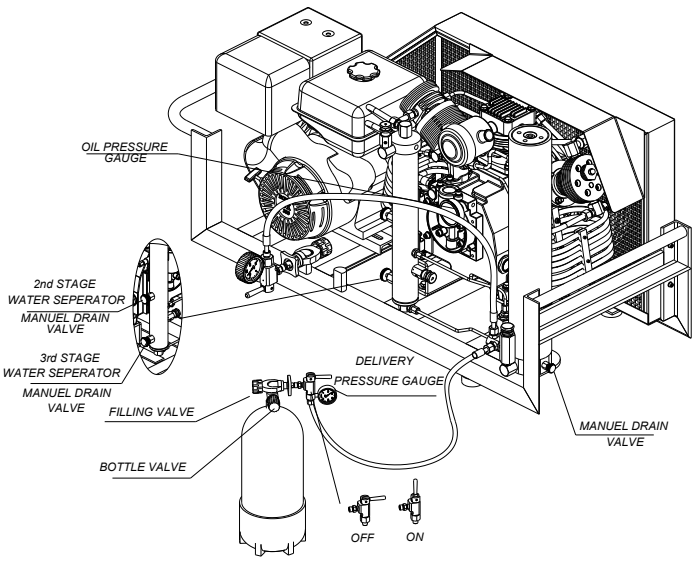
• Do not remove the leaking safety valves and do not replace it with a plug. THIS MAY BE EXTREMELY DANGEROUS. If safety valve leaking, replace it with the new part

1.12.6 Bottle Filling

W32 Mariner Models

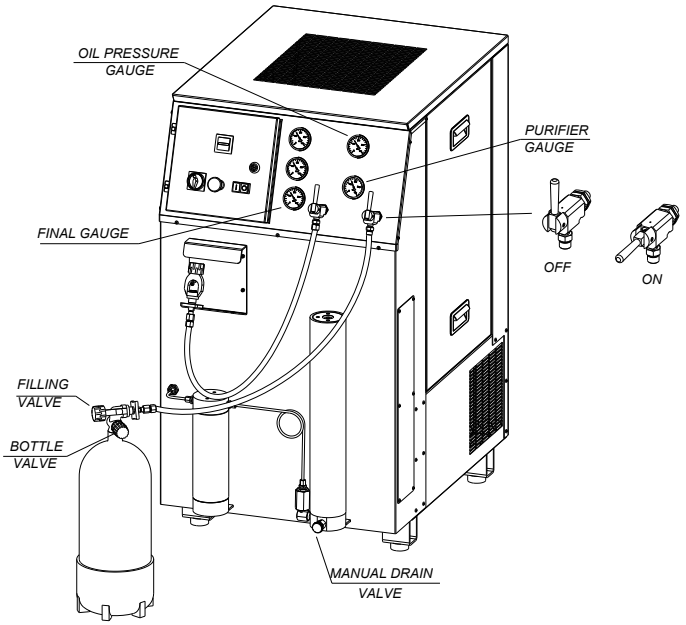
- Start the compressor.
- Close the manual drain valves on the 2nd and 3rd stage water seperators (do not necessarily do it if the unit is automatic drain controlled.)
- Read the oil pressure on the oil pressure gauge and make sure that the oil pressure goes upto 4 to 10 Bar.
- Close the Purifier Manual Drain Valve.
- Connect and fix the Filling Hose to the bottle as the filling valve is in closed position.
- Open the filling valve on the filling hose and then the bottle valve when the pressure reaches 150-200 Bar on the pressure gauge on the filling hose.
- Close the bottle valve first and then the filling valve when the bottle pressure reaches the desired pressure (max. working pressure.)
- Air inside the filling hose is automatically released by the filling valve when the filling valve is closed.
- Disconnect the filling hose connected to the bottle and stop the compressor when you finish the filling process.
- Compressor will automatically stop if it's automatic start/stop controlled.
- Drain the condensate collected inside the 2nd and 3rd stage water seperators every 7 minutes manually and at the end of the filling process.
- It would be drained automatically if the unit has automatic drain control.





W32 Canopy Models

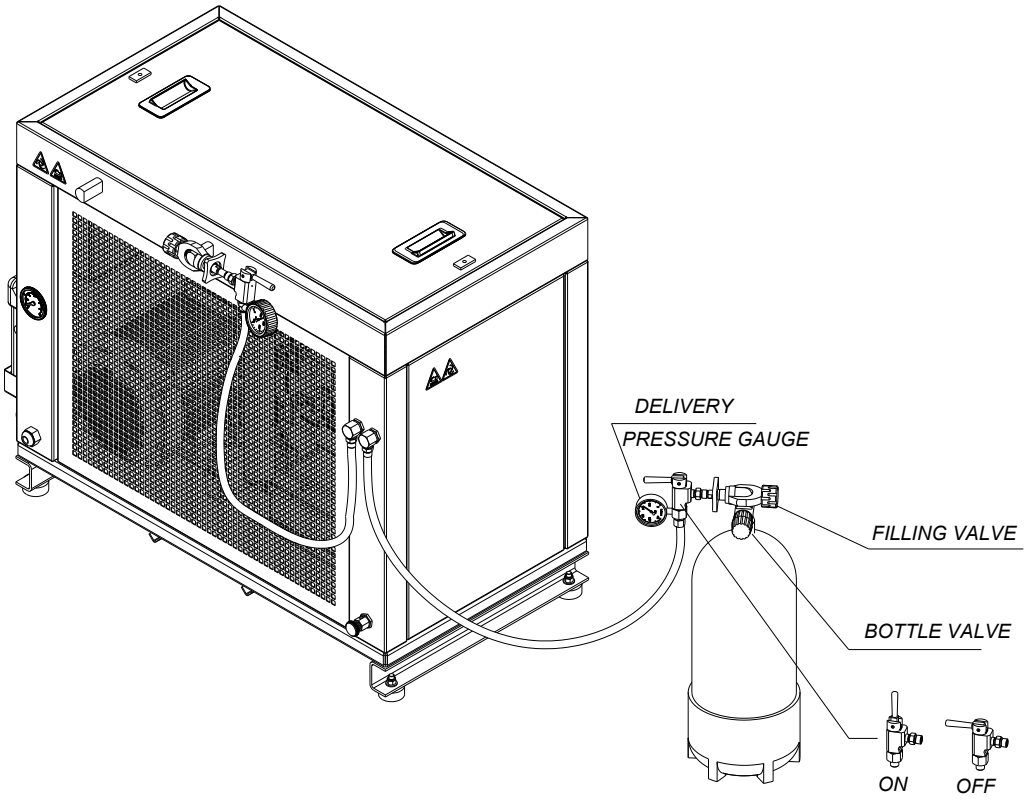
- Start the compressor.
- Read the oil pressure on the oil pressure gauge and make sure that the oil pressure goes upto 4 to 10 Bar.
- Close the Purifier Manual Drain Valve.
- Connect and fix the Filling Hose to the bottle as the filling valve is in closed position.
- Wait till the final pressure reads the working presure on the final stage pressure gauge on the control panel.
- Open the filling valve on the filling hose and then the bottle valve when the pressure reaches 150-200 Bar on the pressure gauge on the filling hose.
- Close the bottle valve first and then the filling valve when the bottle pressure reaches the desired pressure (max. working pressure)
- Air inside the filling hose is automatically released by the filling valve when the filling valve is closed.
- Disconnect the filling hose connected to the bottle when you finish the filling process.
- Compressor will automatically stop since it's automatic start/stop controlled.
- It would be drained automatically since the unit has automatic drain control.



W32 Enclosed Models

- Start the compressor.
- Read the oil pressure on the oil pressure gauge and make sure that the oil pressure goes upto 4 to 10 Bar.
- Close the Purifier Manual Drain Valve.
- Connect and fix the Filling Hose to the bottle as the filling valve is in closed position.
- Wait till the final pressure reads the working presure on the final stage pressure gauge on the control panel.
- Open the filling valve on the filling hose and then the bottle valve when the pressure reaches 150-200 Bar on the pressure gauge on the filling hose.

- Close the bottle valve first and then the filling valve when the bottle pressure reaches the desired pressure (max. working pressure)
- Air inside the filling hose is automatically released by the filling valve when the filling valve is closed.
- Disconnect the filling hose connected to the bottle when you finish the filling process.
- Compressor will automatically stop since it's automatic start/stop controlled.
- It would be drained automatically since the unit has automatic drain control.



2.0 MAINTENANCE

2.1 General

As you proceed through this section, it will be easy to see how simple to maintain the compressor. By following these recommendations, you will get long and trouble free operation from your air compressor.The following are general guidelines for periodical maintenance; specific details will be mentioned in the following chapters. Use the Maintenance Table for maintenance and keeping records.

WARNING!

Before attempting any maintenance or service work, isolate the compressor by switching off the power and blowing down the pressure inside all equipments like the filters, purifiers, pipings, etc. If a bank system exists, isolate by closing the appropriate valves.

CAUTION!

Ambient temperature where the compressor is located must be between + 5◦ C and + 45◦ C.

2.3 Maintenance Tables

2.3.1 W32 Mariner Compressors Maintenance – Parts Control Table

Check	Description	Instruction nr.
Daily	Oil level	01
	Leaks	02
	Pressure and pressure gauges.	-
	Open the manual drain valves and drain the condensate collected inside the purifier after each filling procedure. Check if automatic drain valves work properly if it's automatic drain adapted unit.	
	Drain the condensate collected inside the water seperators manually every 7 minutes while the unit is running	
Weekly	Intake Filter.	03
	V-Belt tension (See the V-belt replacement instruction)	04
	Tightness of fastening parts.	05
	Cleaning of cylinder fins, intercoolers and after cooler, flywheel.	06
	Electrical current.	07
	Cable connection and wiring.	-
Every 500 hours	Safety valves Note: Check the safety valves every 500 operating hours and replace them if needed.	08 08-01
Every 1000 hours	Regulating valve Note: Check the regulating valve every 1000 operating hours and replace or maintain it if needed.	09 09-01
	Check valve Note: Check the check valve every 1000 operating hours and replace or maintain it if needed.	10 10-01
	Priority valve Note: check the priority valve every 1000 operating hours and replace or maintain it if needed.	11 11-01
	V-belts Note: Check the V-belts every 1000 operating hours and replace them if needed.	12
	Oil seal Note: Check the oil seal every 1000 operating hours and replace them if needed	13
Annually	Purifier Note: Have the purifier on your unit pressure tested to the authorized body according to the pressurized equipment test regulations.	

2.3.2 W32 Mariner Compressors Maintenance – Parts Replacement Table

Replace	Item nr.	Description	Qty.	Instruction nr.
Every 50 Hours	1	Purifier (P21) cartridge refilling kit for 4kw electric and 6hp petrol w32 mariner models change the purifier cartridge refilling kit every 50 hours. Note: Refilling time of the cartridge may vary according to the ambient temperature and humidity.	1 Piece	15
Every 80 Hours	1	Purifier (P41) cartridge refilling kit for 5,5kw-7,5 kw electric and 9hp-13hp petrol w32 mariner models change the purifier cartridge refilling kit every 80 hours. Note: Refilling time of the cartridge may vary according to the ambient temperature and humidity.	1 Piece	15-01
Every 500 Hours	1	Intake filter element	1 Piece	16
	2	Automatic drain valves (if it's automatic drain controlled) Note: Maintaine or replace every 500 operating hours.	1 Set	17
Every 1000 Hours	1	Oil Note: Replace the oil within 300 operating hours after the first start-up. next replacements will be at every 1000 operating hours. Important: If replacement time for the oil can not be reached within 6 months after the last change reload the oil after cleaning inside the crankcase.	3 lt	18
	2	Oil filter element Note: Replace the oil filter within 300 operating hours after the first start-up. next replacements will be at every 1000 operating hours.	1 Piece	19
	3	Piston rings	1 Set	20
	4	Compressor valves	1 Set	21
	5	Water separator filter element	1 Piece	22
	6	Vibration mounts	1 Set	23
	7	Gasket Set	1 Set	
	8	O-ring Set	1 Set	
Annually	1	V-belts Note: Replace the v-belts annually	1 Set	12
	2	Filling hoses Note: Replace the filling hoses annually.	1 Set	

Note

Compressor parts which are made of casting should be measured and inspected with the suitable measurement tools during general service or maintenance. The parts which measured out of the tolerance rates stated in the parts book need to be replaced with the new parts.

Important

Please be advised that compressors which are not maintained according to ALKIN maintenance tables above would be out of warranty.

2.3.4 W32 Canopy Compressors Maintenance – Parts Control Table

Check	Description	Instruction nr.
Daily	Oil level	01
	Leaks	02
	Pressure and pressure gauges.	-
	Automatic drain valves Note: Check daily if automatic drain valves work properly and replace or maintain them if needed.	
	Drain the condensate collected inside the purifier manually after each bottle filling or at least daily.	
Weekly	Intake Filter.	03
	V-Belt tension (See the V-belt replacement instruction)	04
	Tightness of fastening parts.	05
	Cleaning of cylinder fins, intercoolers and after cooler, flywheel.	06
	Electrical current.	07
	Cable connection and wiring.	-
Every 500 hours	Safety valves Note: Check the safety valves every 500 operating hours and replace them if needed.	08 08-01
Every 1000 hours	Regulating valve Note: Check the regulating valve every 1000 operating hours and replace or maintain it if needed.	09 09-01
	Check valve Note: Check the check valve every 1000 operating hours and replace or maintain it if needed.	10 10-01
	Priority valve Note: check the priority valve every 1000 operating hours and replace or maintain it if needed.	11 11-01
	V-belts Note: Check the V-belts every 1000 operating hours and replace them if needed.	12
	Oil seal Note: Check the oil seal every 1000 operating hours and replace them if needed	13
Annually	Purifier Note: Have the purifier on your unit pressure tested to the authorized body according to the pressurized equipment test regulations.	

2.3.5 W32 Mariner Compressors Maintenance – Parts Replacement Table

Replace	Item nr.	Description	Qty.	Instruction nr.
Every 80 Hours	1	Purifier (P41) cartridge refilling kit for 5,5kw-7,5 kw electric and 9hp-13hp petrol w32 mariner models change the purifier cartridge refilling kit every 80 hours. Note: Refilling time of the cartridge may vary according to the ambient temperature and humidity.	1 Piece	15
Every 500 Hours	1	Intake filter element	1 Piece	16
	2	Automatic drain valves (if it's automatic drain controlled) Note: Maintaine or replace every 500 operating hours.	1 Set	17
Every 1000 Hours	1	Oil Note: Replace the oil within 300 operating hours after the first start-up. next replacements will be at every 1000 operating hours. Important: If replacement time for the oil can not be reached within 6 months after the last change reload the oil after cleaning inside the crankcase.	3 lt	18
	2	Oil filter element Note: Replace the oil filter within 300 operating hours after the first start-up. next replacements will be at every 1000 operating hours.	1 Piece	19
	3	Piston rings	1 Set	20
	4	Compressor valves	1 Set	21
	5	Gasket Set	1 Set	-
	6	O-ring Set	1 Set	-
	7	2nd stage water separator filter element	1 Piece	22
	8	Vibration mounts	1 Set	23
	9	Silencer filter	1 Piece	24
	10	Prefilter filter element	1 Piece	14
Annually	1	V-belts Note: Replace the v-belts annually	1 Set	12
	2	Filling hoses Note: Replace the filling hoses annually.	1 Set	

Important

Compressor parts which are made of casting should be measured and inspected with the suitable measurement tools during general service or maintenance. The parts which measured out of the tolerance rates stated in the parts book need to be replaced with the new parts.

Caution!

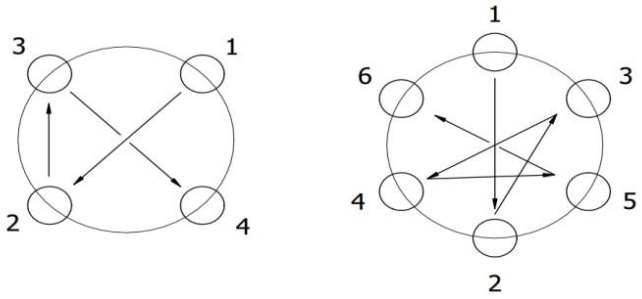
Please be advised that compressors which are not maintained according to ALKIN maintenance tables above would be out of warranty.

2.4 Torque values

The following table indicates the torque values to which a torque wrench should be set for tightening the various size attaching bolts & nuts. Use these values to set a torque wrench to tighten these fastners at intervals indicated in the MAINTENANCE TABLE.

TORQUE VALUE TABLES

Cıvata veya vida	Diş	Maksimum tork
Bolt&screw	M6	10 Nm (7 ft.lbs)
Bolt&screw	M8	25 Nm (18 ft.lbs)
Bolt&screw	M10	45 Nm (32 ft.lbs)
Bolt&screw	M12	75 Nm (53 ft.lbs)
Bolt&screw	M14	75 Nm (53 ft.lbs)
Bolt&screw	M16	200 Nm (141 ft.lbs)



Torque sequene

2.5 Maintenance Instuctions

2.5.1 General

This section covers the operations which the general users may not be too familiar. It is expected that the user would have the average technical training & knowledge and experience that will permit to perform the common maintenance functions without the need of detailed instructions.

2.5.2 Servicing 1st stage valve

The valves must be in good and clean condition at all times for proper operation of the system. The valves must be checked periodically and maintained.

1. Disconnect tube connected to the cylinder.
2. Remove bolts.
3. Remove the valve assembly from the cover. Replace the new valve assembly.

2.5.3 Servicing 2nd stage valve

2nd stage valves are concentric ring type and are similar in construction. To inspect and clean the 2nd stage valve, observe the following step-by-step procedure:

1. Loosen the valve acorn nuts.
2. Remove the valve assembly from the covers. Note the manner in which the valve parts are assembled in order to replace them in the same order and position after cleaning or installing new parts.
3. The valve parts can be cleaned by light scraping or stiff brushing (do not use a wire brush!). If necessary, use a non-flammable safety solvent to loosen dirt, oil or carbon deposits.
4. Discard the worn, scrateched or broken valve discs and springs. Re-assemble the cleaned (or replaced) valve parts in their place in the reverse sequence of dismantling and in proper position as shown in the parts manual. Make absolutely sure that the stop plate is centred properly on its guide; otherwise, the valve will be damaged when it is pulled up tight in the airhead. Replace the beleville washer on the valve bolt and tighten the nuts to the torque values recommended.
5. Before replacing the valve in the air head (the two halves of the top cover), scrape the old shellac off the valve bolt steel washer and coat it with new shellac to prevent air from leaking under the washer. Replace the acorn nut and tighten it to the lower limit of the torque value, recommended. Do not over tighten this nut, since this will distort the springs and plates, causing the valve to leak. After the valve has been replaced in the airhead. Make certain that the valve operates freely by lifting at its edges with a knife blade.
6. Replace the cover gasket between the two cover valves, and between the head and the cylinders; then replace the air head asembly. Tighten the air head cap screws to the torque values recommended.

IMPORTANT!

Handle the valve parts with care. Do not nick, scratch or bend them.

2.5.4 Servicing 3rd stage valve

The 3rd stage valve is plate type valve, made of stainless steel for longer service life and relaible operation. These stages are under particular stress caused by temperatures and high-pressure rates. They should be periodically checked and maintained as instructed in the Maintenance Table. Refer to illustration on figure. To disassemble the remove the 3rd stage valve, observe the following step by step procedures:

1. Remove the airhead from the cylinder and pull the valve out of the head. If the valve assembly is covered with hard carbon, soak the valve in a suitable carbon solvent overnight to permit easier disassembly.
2. Remove the snap ring from the valve by prying under its tapered edge with a penknife. Withdraw the internal parts of the valve and place them on a clean surface in the correct relationship so that the valve can be properly reassembled.
3. After disassembly, inspect the condition of all the parts. If theres are no signs of wear, clean the parts or replace them with new original.
4. To clean the valve parts use a light brush to brush and scrape. When cleaning valve parts use extreme care to prevent damaging the parts.

Use new o-rings and gaskets. When reassembling the valve, make sure all parts are replaced exactly as removed and that new gaskets and "O" rings are used. It is important to install original Alkin "O" rings as these are made of special high temperature resistant material and ordinary o-rings will be promptly damaged causing failures

2.5.5 Cylinder&piston removal and replacement

To Remove Cylinders and Pistons Proceed as follows:

1. Disconnect all tubing connected to the cylinders and drain the oil from the crankcase.
2. Remove the bolts attaching the 2nd and 3rd stage cylinders to the crosshead cylinders, and pull the compression cylinder off the piston. Next, take out the attaching screws connecting the crosshead cylinder to the crankcase and pull the crosshead cylinder off the piston. Pull the end of the connecting rod off the end of the crankshaft and withdraw the rod and piston. If the piston is to be removed from the connecting rod, follow the procedure outlined under piston removal & replacement on this page.
3. To remove the 1 st stage piston, first take out the attaching screws between the 1st stage cylinders, and and the crankcase. Then pull the 1 st stage cylinder off the top of the piston. Pull the end of the connecting rod off the end of the crankshaft and lift the cylinder -with the piston inside- off the crankcase. The piston can now be pushed out of the cylinder. To remove the piston from the connecting rod, follow the procedure outlined under "Piston Pin Removal and Replacement" on this page.

To Replace Piston and Cylinders –Proceed as follows:

4. To replace the 1st stage piston, lubricate cylinder bore and insert the connecting rod. Use an appropriate piston ring compressor method to prevent damage to the rings when inserting, and push the piston into the cylinder as far as possible. Next, replace the crankcase-to-cylinder gasket, after which, the cylinder, piston and connecting rod may be replaced as a unit by inserting the connecting rod (with its oil dipper pointing down) into the crankcase. Lubricate the piston rings and slide the 1st stage cylinder over the piston using an appropriate piston ring compressor method to prevent damage to the rings. If the airheads have been removed from the cylinders they must be replaced according to the procedure outlined under "air head replacement"
5. To replace the 2nd and 3rd stage pistons lubricate the bore of the crosshead cylinder and insert the connecting rod and piston into it. Next replace the cylinder to frame gasket, after which the cylinder, piston and connecting rod may be replaced as a unit by inserting the connecting rod. Next, replace the gasket between the crosshead and compression cylinder. Lubricate the piston rings and slide the compression cylinder over the piston using an appropriate piston ring compressor method to prevent damage to the rings. With the compression cylinder replaced, bolt it to the crosshead cylinder. If the airhead was removed, it is essential that it be replaced in the manner described under "air head replacement"
6. Replace the crankcase cover and all tubing and fittings that were removed.
7. Fill the crankcase to the overflow point with Anderol 750 oil.

2.5.6 Piston ring replacement

The high-pressure stage rings (3rd) wear faster than the other stages. You may need to replace the 3rd stage piston rings earlier than the other stages. If this will be the case, it is recommended that all piston rings on a specific piston be replaced at the same time. To remove and replace rings observe the following procedure:

1. To replace piston rings on the 1st stage piston, both the cylinder and piston are to be removed from the compressor.
2. To replace piston rings on the 3 rd stage steeple piston only the compression cylinder need be removed. Remove the cylinders in the manner outlined in "Cylinder replacement" section.
3. Remove the old piston rings off the 1st and 2nd stage piston.
4. Remove the rings from the 3rd stage piston in the same manner as on the 1st and 2nd stages.
5. With the rings removed, thoroughly clean the pistons by brushing or scraping lightly. Pay particular attention to cleaning the piston ring grooves, oil return holes and gasket seating surfaces on the cylinder.

6. Inspect the cylinder bore for scoring or scuffing. If the cylinder bore shows signs of being scored or worn (as indicated by a visible ridging at the end of ring travel.) it must be replaced to establish effective oil control.
7. Inspect the piston for signs of excessive scoring or cracking. Particularly check the condition of the ring grooves for wear on the sides of the ring lands. If any of these conditions are observed, the piston(s) should be replaced.

8. To replace the rings of the 1 st and 2 nd pistons, or 3 rd stage steeple piston, lubricate the ring grooves and replace the rings with a piston ring expander to avoid breakage and distortion. Pay particular attention to install the rings with the marks facing the appropriate direction into the proper grooves.

9. Work from bottom compression ring up on the top end of the piston and from the compression ring down on the lower end. Observe this drawing to see the manner, which the tapers are to be positioned. The word "top", a white dot or similar marking must face the compression chamber. Caution then must be exercised in placement of the rings labeled on the second stage piston. The three bottoms rings on the leftmost figure shows the 2nd stage compression rings, which will have its "top" mark facing the crankcase. On the second figure from left, the ring marking will face away from the crankcase.

   The oil rings on the first and second stages are four piece oil wiper rings with an expanderseparator and two steel rails. See second figure from left (above). Place the expander and make certain that these ends do not overlap accidently when installing the other ring segments. Next, install one of the steel rails in the bottom of the groove; this will hold the expander in place.

   Now install the separator on top of the steel rails and over the expander. Make certain the butt ends of the expander and the end gap of the separator are 180º apart. The second steel rail may now be installed in the top of the ring groove over the separator. With all rings installed, stagger the end gaps

10. When new piston rings are to be installed in the original cylinder of the 1 st or 2 nd stage, the cylinder bore must be "deglazed" to provide a proper seating surface for the rings. Use a 80 grit abrasive cloth and go over the cylinder bore using a rotating, reciprocating motion. Do not overdo "deglazing"; dulling the glaze is usually sufficient and can be accomplished with light pressure.

Caution!

Do not attempt to deglaze the cylinder bore with a harsh abrasive agent. The use of such abrasive agents usually results in oil carryover and faulty compressor.

After deglazing, the cylinder walls should be thoroughly cleaned by scrubbing the bore with a stiff bristle (do not use wire brushes); brush using ordinary soap or a detergent and hot water. Rinse thoroughly with hot water and then check the cleanliness of the cylinder bore by wiping it with a soft white cloth.

11. The cylinders may now be replaced. Replace the cylinders in the manner outlined under "cylinder removal & replacement".

12. After the new piston rings have been installed, the compressor should be operated for at least 10 hours at full load before checking for proper air delivery or oil consumption.

2.5.7 Intake filter replacement

The filter cartridge must be cleaned or changed at regular intervals. The intervals depent on the air taken in by the compressor. In hevy dust conditions monthly or even weekly servicing can be necessary.

Remove cover and spring, take out micronic filter cartridge and control if it is dirty. Clean filter housing inside with a damp cloth. Take care to prevent dust from entering intake pipe. Replace O-ring if necessary. When changing cartridge make sure spring on top cover is installed properly.

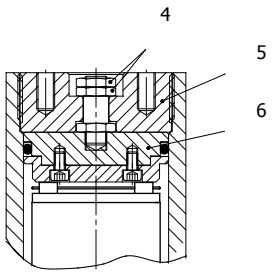
2.5.8 Sintered filter element replacement

Remove piping connected to filter head. Screw off union nut. Remove filter head along with sintered filter element. Remove center screw, and separate sintered filter element, baffle and vortex plate from the filter head. Install the new filter and screw on tightly. Replace the o-rings on water separator with new ones and put back on the top head. Reconnect all piping.

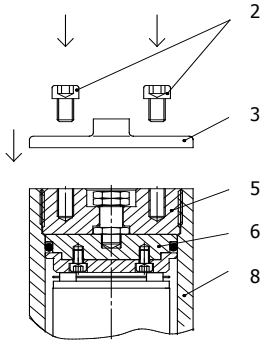
2.5.9 Prufier cartridge replacement

The purifier housing as well is made of stainless steel and it contains in it a refillable cartridge. Follow the refilling instruction that is supplied with the refilling kits for this procedure. The procedure to remove and replace a purifier cartridge is as follows:

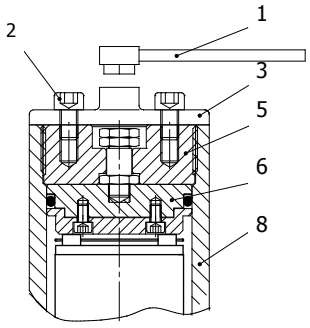
1. Loosen the nuts (4) that is located in the center of the top cover.



2. Install the adapter tool (3) which is supplied with the compressor, onto the cover (5), using the two bolts (2), that come with the adapter.

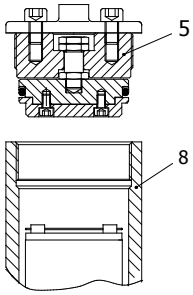


3. Use a ratchet tool (1) to loosen the cover (5).

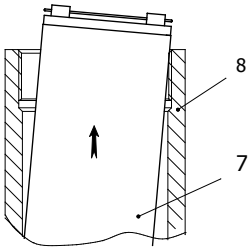


Turn the cover four turns and then remove the two bolts (2) and the adapter tool (3) from the cover.

4. Put the two bolts (2) in place to turn the cover (5) by hand. Turn the cover (5) and remove the whole assembly from the purifier chamber.



5. Pull the cartridge (7) out of the purifier chamber(8).



6. Open the flat end of the cartridge; remove its contents. Clean the inside of the cartridge by rinsing, adn throughly drying. by rinsing, adn throughly drying.

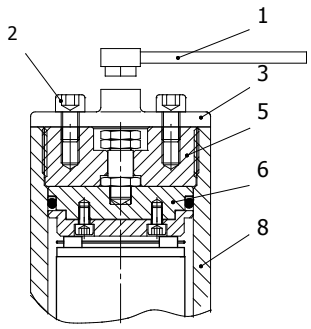
7. Use the instrcutions supplied with the cartridge refilling kit to refill the cartridge. Always replace the chemicals, felt pads and the o-rings with new materials and parts.

8. Inspect and clean –if necessary- the inside of the purifier chamber.

9. Insert the cartridge back into the purifier chamber. Do not drop. Make sure the cartridge sits in place properly.

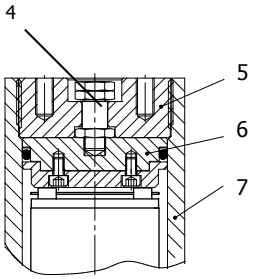
10. Inspect –and replace if necessary- the o ring and / or the backing ring on the seal housing.

11. Insert the whole cover in to the purifier chamber. Install the mountny adapter (3) in place, using the same bolts (2). Tighten the cover until it is flat with the purifier chamber top surface.



The tool (1) is designed not to let go to tighten beyond this point but we have seen custumers who lost the tool, used a makeshift tool that allaws further tightening, wich may result in over pressing and crushing cartridge.

12. Remove the tool (1) and the adapter (3); the installation of the cartridge is completed.



For filters, use similar procedures, except for the cartridge which is not refillable and it needs to be replaced periodically. See the instruction manual for details.

2.5.10 Oil Filter replacement

1. Screw off the bolts on oil filter head.
2. Remove the oil filter head
3. Remove the used oil filter element
4. Install the new oil filter element.
5. Check the o-rings on oil filter head. Replace if necessary. Put back on the oil filter head.
6. Tighten the bolts & screws.
7. Run the compressor. In the first 10 seconds, oil pressure should rise. Check the oil pressure gauge. If, however, the oil pressure do not rise in the first minute, check the troubleshooting section on oil pressure.

3.0 TROUBLE SHOOTING

3.1 COMPRESSOR WILL NOT OPERATE	
• Motor starter overload tripped	Re-start and check if it trips again. If it does, check if the automatic drain works properly, do not let the compressor run under load.
• Low oil level inside the crankcase	Check oil level and add oil if required, push the "Reset" button and re-start it.
• Pressure switch (Available on Automatic Start/Stop Controlled W32 Mariner and W32 Canopy models only) not making contact	Check all the terminals and wires. If pressure switch is defective, replace it.

3.2 EXCESSIVE NOISE DURING OPERATION	
• Loose sheave, flywheel, belt, belt-guard, intercooler, bolts or accessories	Detect and tighten
• Faulty vibration mounts	Check if the mounts are in good condition; if damaged, replace. (damaged vibration mounts can cause the baseplate to hit the base of canopy.)
• Lack of oil in the crankcase	a. Check for possible damage to bearings. b. Fill oil and check if the noise persists
• Piston hitting the valve plate	Remove the compressor cylinder head; replace the gasket with the brandnew gasket and reassemble
• Deflected crankshaft or crankshaft bearing failure	Replace the crankshaft.
• Excessive dirt or carbon on piston(s)	Remove the compressor air heads; clean pistons and valve(s) , or replace if worn; reassemble.

3.3 COMPRESSOR KNOCKS	
• Crankshaft bearing failure	Replace bearings or crankshaft assembly
• Connecting rod journal bearings worn	Replace the connecting rods; if worn, replace the crank pin bush as well.
• Wrist pins and journals are worn	Replace complete pin and rod assembly.

3.4 MILKY OIL IN RECERVOIR	
• High moisture and dirt content in the ambient air	a. Pipe air intake from less humid source. b. Change oil more frequently

3.5 EXCESSIVE OIL CONSUMPTION	
• Restricted air intake	Replace intake filter element
• Oil leaks	Tighten bolts and fittings; replace gaskets
• Worn piston rings	Replace piston rings
• Low oil viscosity	Drain oil; refill with oil of proper viscosity
• Piston rings misassembled	If piston rings are upside down, install in proper position.
• Compressor tilted too much	Level compressor
• Scored or worn cylinder(s)	Replace cylinders

3.6 OIL IN DISCHARGE AIR	
• Restricted air intake	Replace intake filter element, check for other restrictions at the inlet.
• Worn piston rings	Replace piston rings.
• Excessive oil in the crankcase	Drain to the overflow level.
• Low oil viscosity	Drain oil; refill with oil of proper viscosity
• Piston rings misassembled	If piston rings are upside down, install in proper position.
• Consumed purifier cartridge filling kit	Replace the Purifier cartridge refilling kit.
• Restricted prefilter filter element (Available on W32 Canopy models only.)	Replace the prefilter filter element

3.7 COMPRESSOR VIBRATES	
• Mounting bolts are loose	Tighten the mounting bolts
• Compressor not properly mounted	Level the compressor so that all feet touch the floor
• Motor belt and the flywheel misaligned	Align

3.8 AIR BLOWING OUT OF INTAKE	
• Broken 1st stage inlet valve	Replace its spring and disc

3.9 INSUFFICIENT AIR AT THE POINT OF USE	
• Leaks or restrictions	Check for leaks and restrictions in the piping and hoses
• Restricted air intake	Replace the intake filter element
• Slipping belts	Tighten the belts
• Excessive air consumption	a. Limit the air consumption to the capacity of the compressor. b. Increase your air capacity with an additional compressor unit
• Abnormal Interstage Pressures	Check the interstage pressures and replace the valve where the pressure is abnormal
• Worn piston rings	Replace the piston rings

3.10 PRESS. VESSELS DON'T HOLD THE PRESS. WHEN THE COMP. IS UNLOADED	
• Check valve leaks	Relieve the pressure vessels and replace the check valve
• Excessive leaks in the plant piping	Check the pipings, repair the leaks.

Caution!

Do not service tank, valves, piping, etc. while compressed air exists in the system. Drain the air inside before attempting any repair.

3.11 EXCESSIVE BELT WEAR	
• Sheaves misaligned	Realign the motor sheave and the flywheel
• Belts too tight	Adjust tension – the compressor has automatic tightening slides; consult factory.
• Belts too loose	Adjust tension – the compressor has automatic tightening slides; consult factory.
• Sheave or crankshaft wobble	Check for worn or bent crankshaft, keyway or sheave bore

3.12 EXCESSIVE DISCHARGE AIR TEMPERATURE	
• Dirty valves / carbon on valves	Remove the valves; clean or replace
• Dirty intercoolers and/or cooling surfaces	Clean cooling surfaces of the cylinders, intercoolers and the aftercooler.
• Poor ventilation and air circulation	Relocate the compressor, improve ventilation.
• Blown head gasket	Replace the head gasket.
• Worn valves	Repair or replace the valves.
• Compressor rotating in the wrong direction	Correct the direction of rotation

3.13 AIR LEAKING FROM THE INTERSTAGE SAFETY VALVE	
• Safety valve faulty	Replace the safety valve.
• Inlet valve of the next stage leaks	Remove the valves; clean or replace
• Inlet valve of the next stage is broken	Remove the valves; replace
• Blockage in the 2nd stage water seperator filter	Replace the water seperator filter

3.14 CYLINDER PRESSURE BUILDS UP SLOWLY	
• Dirty air filter	Replace the intake filter element
• Blown cylinder gasket	Install a new gasket
• Worn or broken valves	Replace the valves
• Air leaks in the system	Search for leaks; fix the problem
• Loose belts	Adjust tension – the compressor has automatic tightening slides; consult factory
• Low compressor Speed	Check the compressor speed

3.15 RECEIVER PRESSURE BUILDS UP TOO FAST	
• Water in the system	Install an automatic drain or drain the system more often
• High compressor speed	Check the compressor speed

3.16 FUSES BLOWN REPEATEDLY	
• Wrong fuse rating	Replace the fuses with proper rating
• Loose wiring, terminals or connections	Tighten all electrical connections

3.17 COMPRESSOR DOESN'T UNLOAD WHEN STOPPED (AVAILABLE ON AUTOMATIC START/STOP CONTROLLED W32 MARINER AND W32 CANOPY MODELS ONLY)	
• Automatic drain valves blocked	Check, disassemble and clean the drain valves; install new o-ring and seat if necessary
• Solenoid Valve faulty	Check the Solenoid Valve

3.18 AUTOMATIC DRAIN VALVES DO NOT DRAIN (AVAILABLE ON AUTOMATIC START/STOP CONTROLLED W32 MARINER AND W32 CANOPY MODELS ONLY)	
• Automatic drain valves blocked	Check, disassemble and clean the drain valves; replace the spring and o-rings if necessary
• Solenoid Valve faulty	Replace the Solenoid Valve

3.19 AUTOMATIC DRAIN VALVE(S) REMAIN(S) OPEN ALL THE TIME (AVAILABLE ON AUTOMATIC START/STOP CONTROLLED W32 MARINER AND W32 CANOPY MODELS ONLY)	
• Low 1st stage control air pressure	Check the interstage pressures
• Solenoid Valve faulty	Replace the solenoid valve
• Blocked drain valve(s)	Clean the drain valve(s)

3.20 COMPRESSOR WILL NOT COME UP TO NOMINAL OPERATING SPEED	
• Low voltage	Check the line voltage
• Motor and control panel connectors loosen	Check it, tighten if needed
• Poor power regulation (unbalanced phases)	Notify the power company.
• Pressure inside the purifer higher than the lower pressure set on the pressure switch	Release the air inside the purifier.

3.21 UNUSUAL PISTON, RING OR CYLINDER WEAR	
• Improper oil	Replace with the proper oil
• Low oil level	Check the oil level; oil pressure and fix the problem, load oil.
• Extremely dirty ambient conditions and insufficient ventilation.	Pipe the intake filter to a cleaner location if possible; alternatively use a heavy duty two stage filter.(consult the factory).

4.0 PARTS LIST

Parts List

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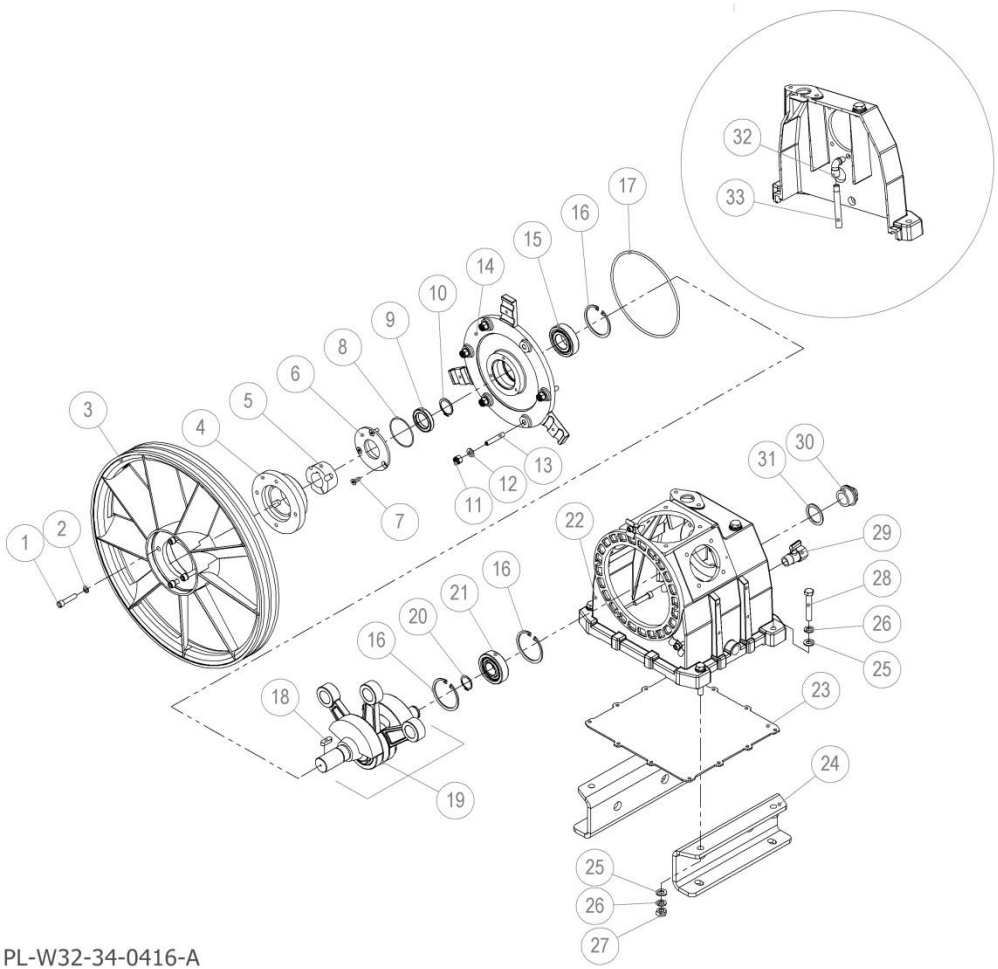
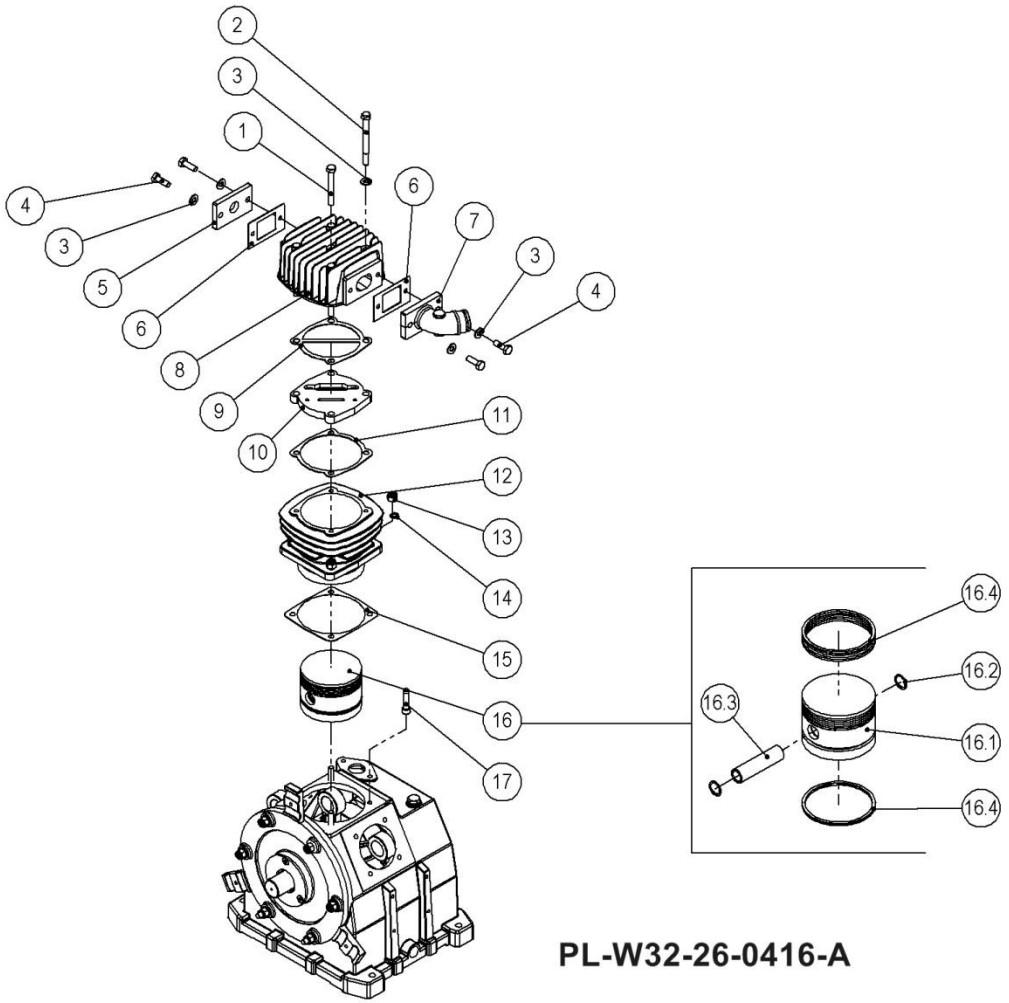
4.1 Crankcase



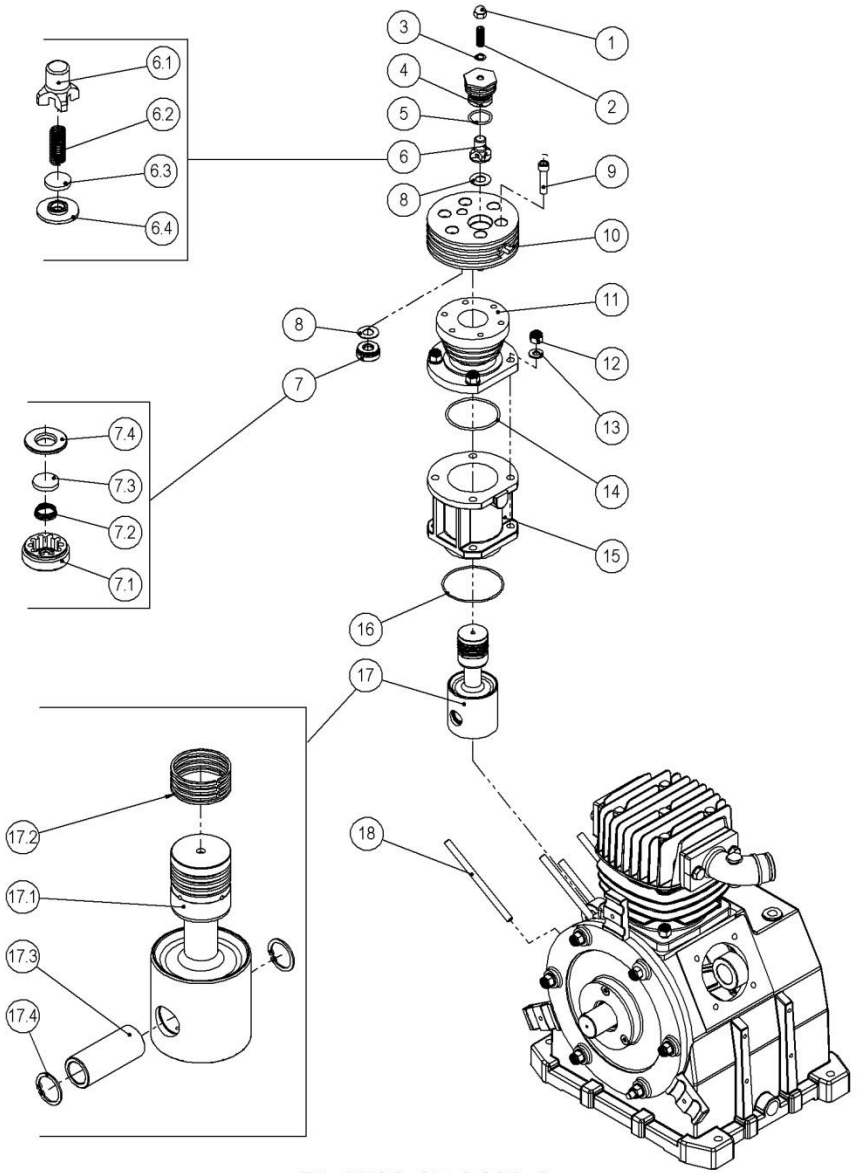
Nr.	Part Nr.	Description	Qty.
1	6882-02	Bolt M8x35	4
2	7091-32	Lock Washer M8	4
3	7716-02	Flywheel	1
4	7724-03	Bushing	1
5	7724-02	Taper Lock Bushing	1
6	7725	Oil Seal Cover	1
7	7934-05	Bolt M6x15	3
8	7729-01	O-ring Ø56,87xØ1,78	1
9	7726	Oil Seal 30x47x8	1
10	7869-03	Circlip M25 DIN471	1
11	6884-29	Nut M8	6
12	7091-31	Washer M8	6
13	7868-94	Bolt	4
14	7727-02	Crankcase Cover	1
15	7870-12	Bearing NUP 206 ECP	4
16	7869-01	Circlip DIN472 /Ø62	3
17	7729-02	O-ring Ø170xØ4	1
18	7792	Key 8x7x25	1
19	7871-01	Crank Ass'y	3
20	7869-01	Circlip DIN472 /Ø62	1
21	7869-02	Circlip M31 DIN 471	1
22	7702-09	Crankcase	1
23	7702-07	Crankcase Sub-plate	1
24	7757-19	Support	2
25	7091-33	Washer M10	8
26	7091-35	Lock Washer M10	8
27	6884-18	Nut M10	4
28	7867-84	Bolt M10x60	4
29	7879-02	Ball Valve ½ TDS	1
30	AYD-63	Oil Level Gauge	1
31	7776-01	Gasket	1
32	7080-01	Elbow 1/8"	1
33	3009-68	Pipe	1

4.2 First Stage



Nr.	Part Nr.	Description	Qty.
1	7868-40	Bolt M8x65	1
2	7868-75	Bolt M8x90	4
3	7091-31	Washer-M8	8
4	7867-62	Bolt M8x25	4
5	3002-41	Flange	1
6	Ayd-228	Gasket	2
7	3002-48	Elbow	1
8	Ayd-173	Cylinder Cover	1
9	3001-25	Gasket	1
10	7788-01	Valve	1
11	3001-26	Gasket	1
12	6622-28	Cylinder Ø95	1
13	6884-29	Nut M8	4
14	7091-32	Lock Washer M8	4
15	7781-03	Gasket	1
16	7805-05	Piston Ass'y	1
16.1	6622-32	* Piston	1
16.2	7003-05	* Circlip M20 DIN 472	2
16.3	7713-00	* Wrist Pin	1
16.4	3001-28	* Ring Set	1
17	7867-59	Bolt M8x35	4

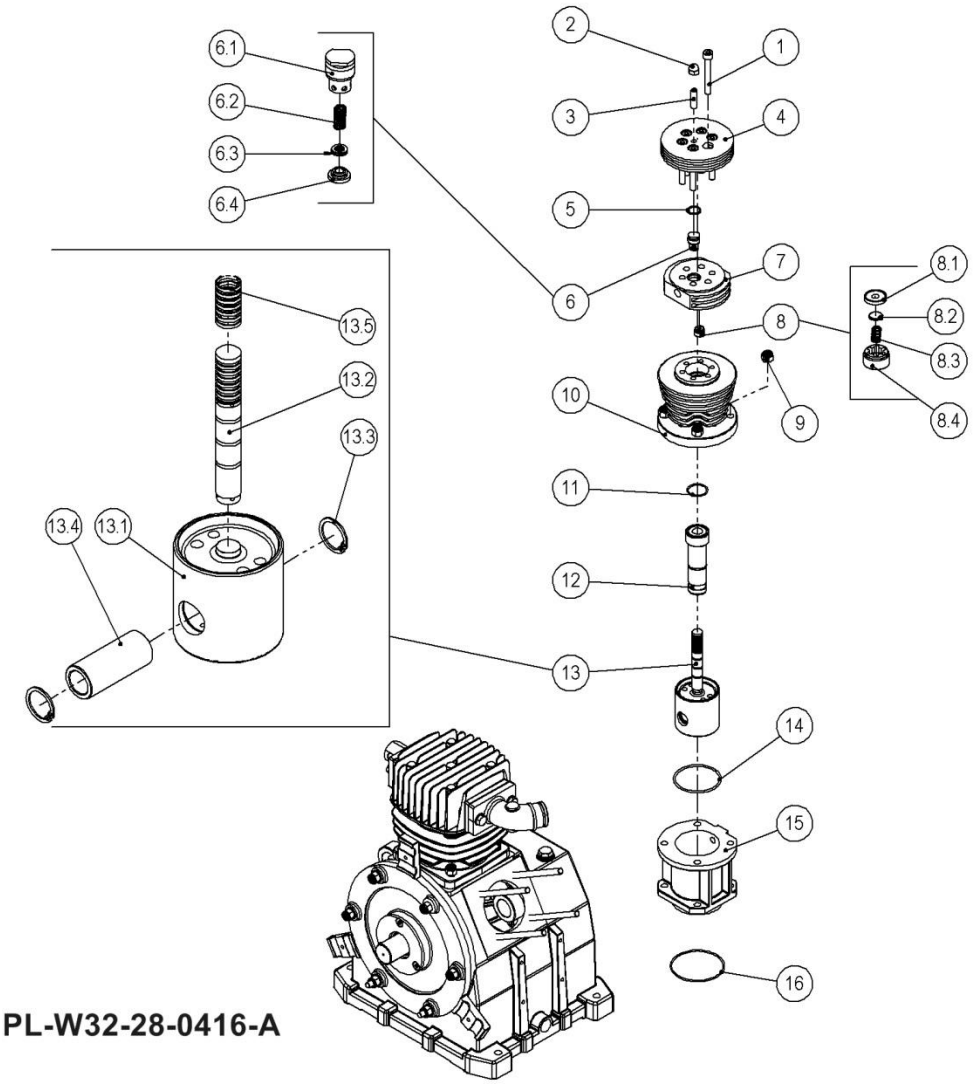
4.3 Second Stage



PL-W32-27-0416-A

Nr.	Part Nr.	Description	Qty.
1	6883-02	Acorn Nut M8	1
2	7867-33	Setscrew M8x25	1
3	6894-03	Washer	1
4	6888-01	Valve Head	1
5	6893-01	O-ring	1
6	6888-00	Discharge Valv	1
6.1	6888-02	• Valve Body	1
6.2	6888-03	• Spring	1
6.3	6203-03	• Disc	1
6.4	6888-04	• Valve Seat	1
7	6887-11	Suction Valve	1
7.1	6887-01	• Valve Body	1
7.2	6887-02	• Spring	1
7.3	6203-03	• Disc	1
7.4	6887-04	• Valve Seat	1
8	6894-01	Washer	2
9	7867-59	Bolt M8x35	6
10	6835-01	Valve Cover	1
11	7710-01	Cylinder	1
12	6884-29	Nut M8	4
13	7091-31	Washer M8	4
14	7729-17	O-ring Ø60xØ2,62	1
15	7736	Guide Cylinder	1
16	7729-03	O-ring Ø70xØ2	1
17	7807-00	Piston Ass'y	1
17.1	7709-06	• Piston	1
17.2	7009-00	• Ring Set	1
17.3	7707-00	• Wrist Pin	1
17.4	7003-05	• Circlip M20 DIN 472	1
18	7780-02	Stud	4

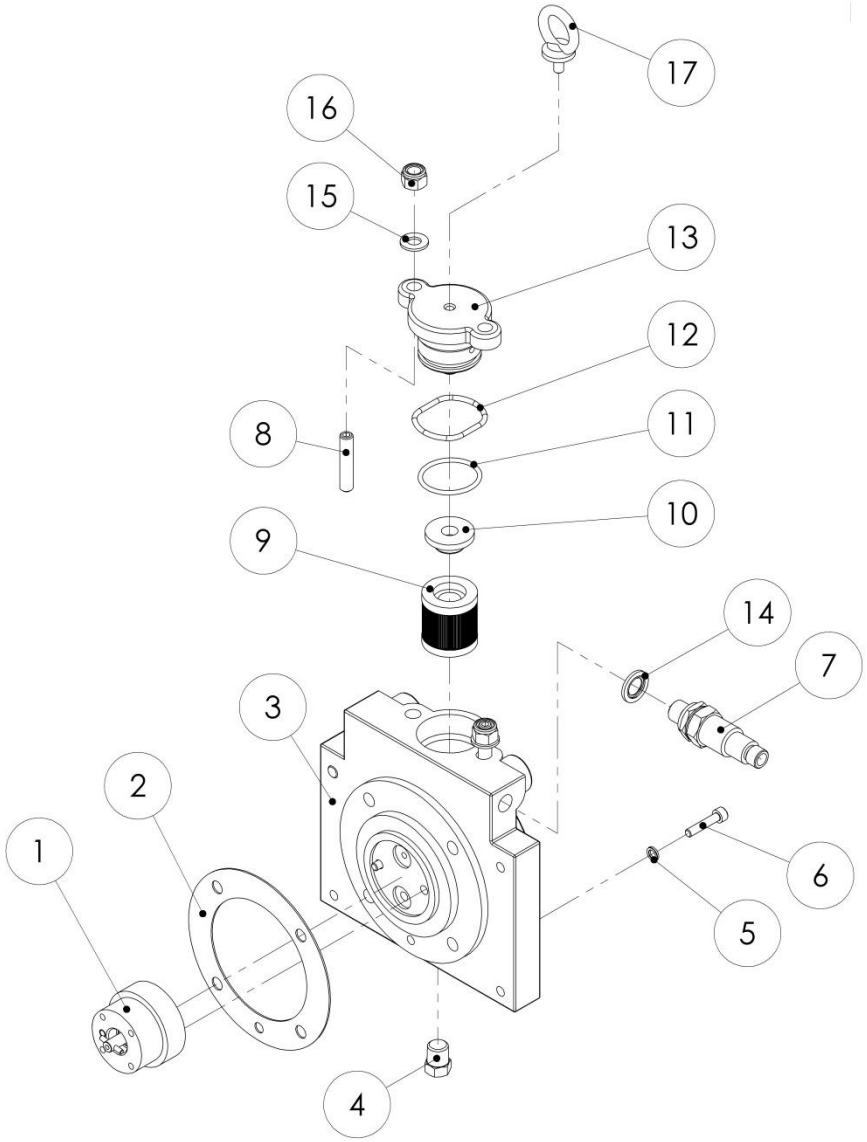
4.4 Third Stage



PL-W32-28-0416-A

Nr.	Part Nr.	Description	Qty.
1	7867-58	Bolt M8x60	6
2	6883-04	Acorn Nut-M8	1
3	7867-82	Setscrew-M8x30	1
4	6844-01	Valve Head Cover	1
5	6893-09	O-ring	1
6	6814-00	Discharge Valve	1
6.1	6814-01	• Valve Body	1
6.2	6814-04	• Spring	1
6.3	6814-02	• Disc	1
6.4	6814-03	• Valve Seat	1
7	6843-01	Valve Head	1
8	6815-10	Suction Valve	1
8.1	6815-07	• Valve Seat	1
8.2	6815-06	• Disc	1
8.3	6815-09	• Spring	1
8.4	6815-08	• Valve Body	1
9	6884-29	Nut-M8	4
10	7719-01	Cylinder	1
11	7729-21	O-ring-25,12x1,78	1
12	7718	Cylinder Liner	1
13	7808-00	Piston Ass'y	1
13.1	7706-00	• Guide Piston	1
13.2	7720-02	• Piston	1
13.3	7003-05	• Circlip M20 DIN 472	2
13.4	7707-00	• Wrist pin	1
13.5	7808-01	• Ring Set	1
14	7729-17	O-ring Ø60xØ2,62	1
15	7704	Guide Cylinder	1
16	7729-03	O-ring Ø70xØ2	1

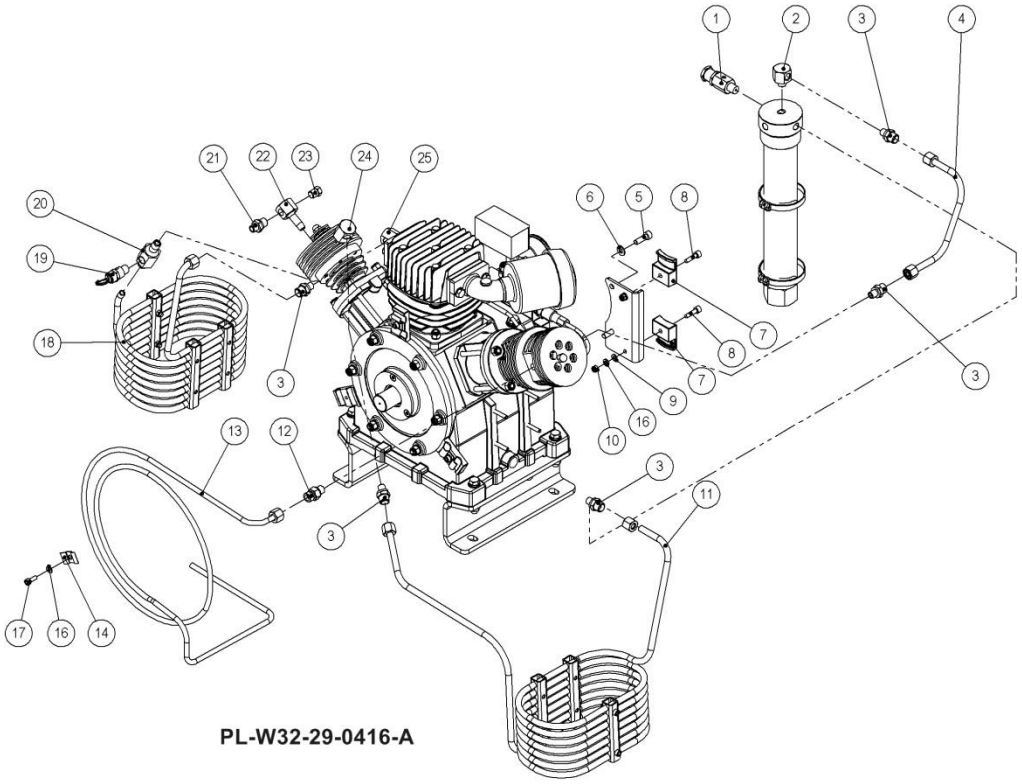
4.5 Oil Pump



PL-W32-05-0315 - A

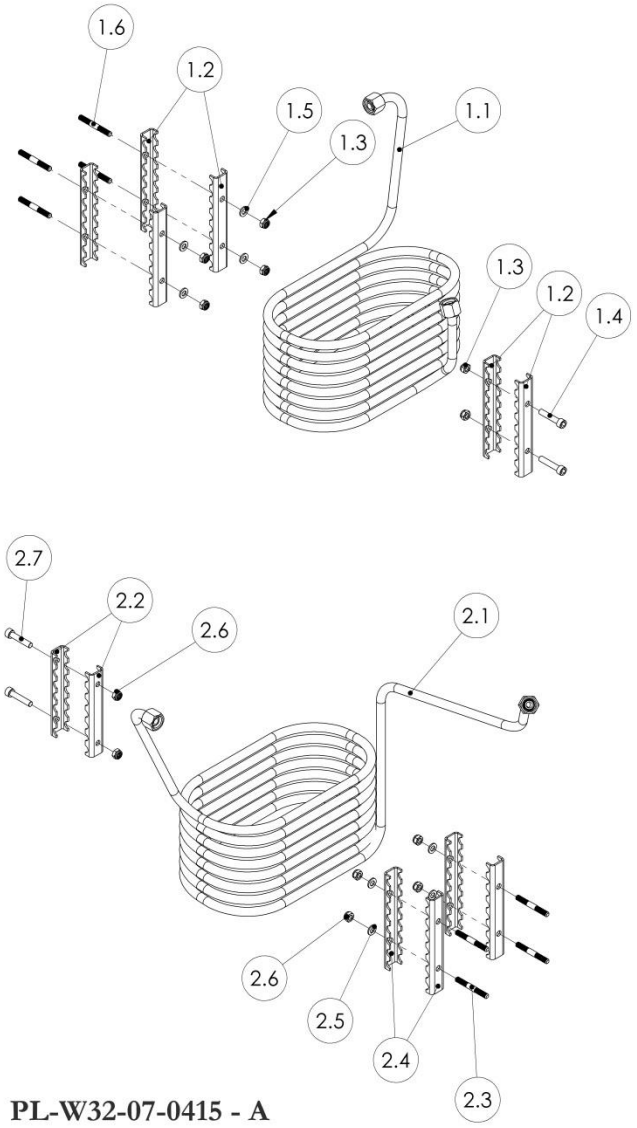
Nr.	Part Nr.	Description	Qty.
1	7701-00	Oil Pump	1
2	7781-01	Gasket	1
3	7735-03	Oil Pump Cap	1
4	7083-02	Blind Tap	1
5	7091-25	Washer	1
6	7096-20	Allen Screw	1
7	7825-01	Check Valve	1
8	7868-80	Bolt	2
9	7789-01	Oil Filter Element	1
10	7789-03	Oil Filter Retainer	1
11	7729-24	O-Ring	1
12	AYD-91	O-Ring Ø40x3 Viton	1
13	7789-02	Oil Filter Cover	1
14	6821-08	Bonded seal-1/4"	1
15	7091-31	Washer-M8	2
16	6884-29	Nut-M8	2
17	7789-04	Eye Bolt	1

4.6 Tubing



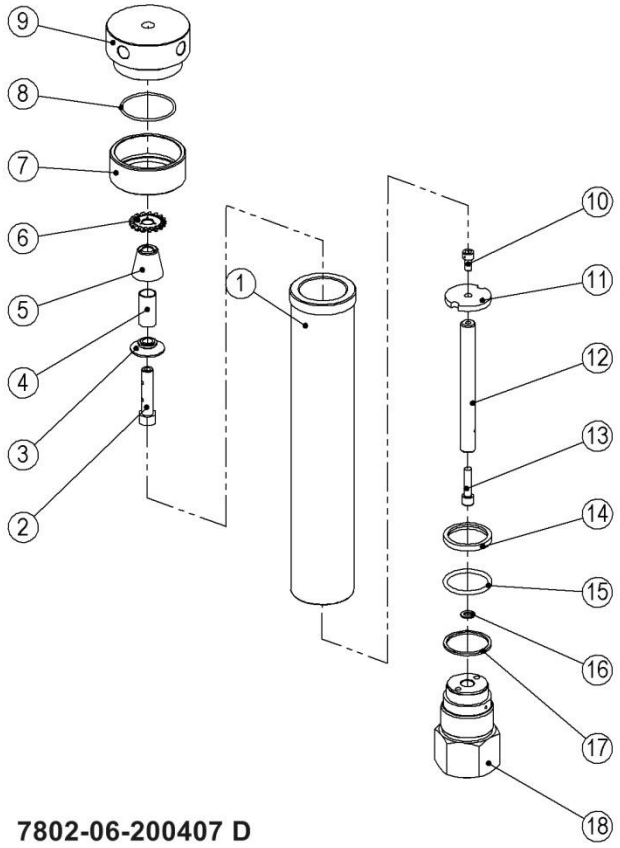
Nr.	Part Nr.	Description	Qty.
1	7933-13	Safety Valve - 55 BAR	1
2	7672-12	Elbow 1/4"x1/4"	1
3	7425-01	Fitting 1/4" x Ø10	5
4	2000-05	Tube Ø10	1
5	7867-56	Bolt M8x55	2
6	7091-31	Washer M8	2
7	7877-01	Support	2
8	7867-09	Allen Screw M6x20	2
9	7091-17	Washer M6	2
10	6884-04	Fibered Nut M6	2
11	2000-04	Intercooler	1
12	7816-01	Fitting-1/4”xØ8	1
13	7796-01	Aftercooler	1
14	7794	Clamp	3
16	7091-08	Washer M6 DIN 126	5
17	6882-18	Allen Screw M6x16	3
18	2000-02	Intercooler	1
19	5063	Safety Valve	1
20	7876-58	Manifold	1
21	7422-01	Fitting 1/4" NPT x Ø6	1
22	7084-08	Tee	1
23	7083-02	Nipple – 1/4”	1
24	7084-02	Elbow 1/4"x1/4"	1
25	7084-26	Elbow	1

4.7 Intercoolers



Nr.	Part Nr.	Description	Qty.
1	2000-02	Intercooler	
1.1	2000-01	Tube	1
1.2	7798-00	Clamp	6
1.3	6884-04	Nut-M6	6
1.4	7867-60	Bolt-M6x30	2
1.5	7091-17	Washer-M6	4
1.6	7880-04	Stud	4
2	2000-04	Intercooler	
2.1	2000-03	Tube	1
2.2	7798-02	Clamp	2
2.3	7880-04	Stud	4
2.4	7798-00	Clamp	4
2.5	7091-17	Washer-M6	4
2.6	6884-04	Nut-M6	6
2.7	7867-60	Bolt-M6x30	2

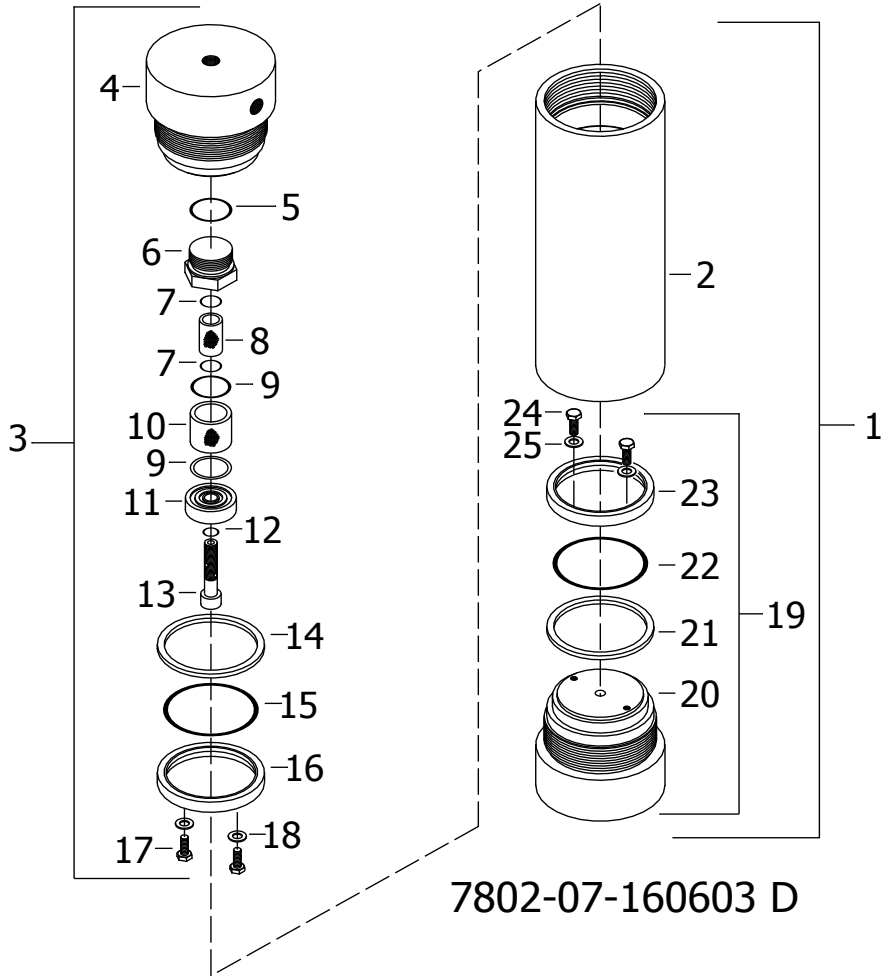
4.8 Water-Oil Separator Assembly



7802-06-200407 D

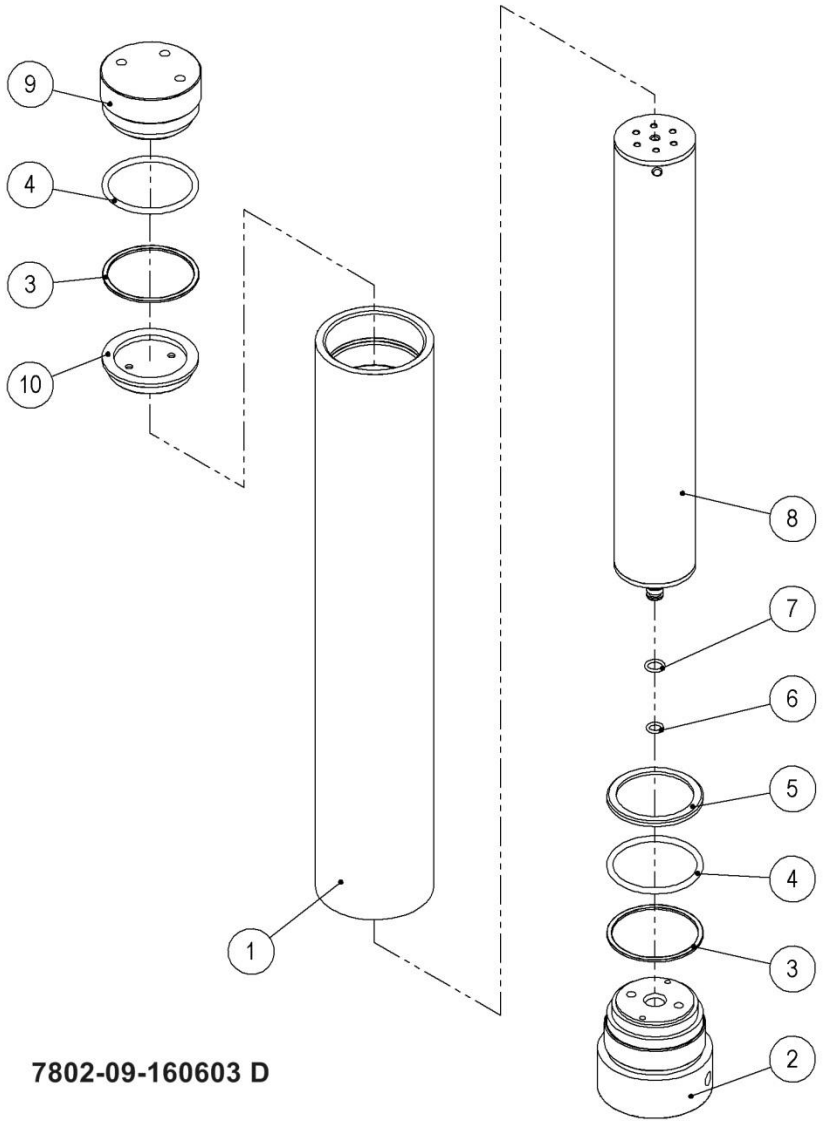
Nr.	Part Nr.	Description	Qty.
	7036	Water&Oil Separator	
1	7836-01	Body	1
2	7836-11	Bolt	1
3	7836-10	Seat	1
4	7765-06	Sintered Filter	1
5	7765-07	Baffle	1
6	7765-04	Vortex Plate	1
7	7836-04	Spacer	1
8	7729-13	O-ring	1
9	7836-02	Top Cap	1
10	7867-03	Bolt	1
11	7836-06	Plate	1
12	7836-05	Tube	1
13	7867-68	Bolt M6x10	1
14	7836-08	Collar	1
15	7836-09	O-ring	1
16	7091-10	Washer	1
17	7836-07	Teflon	1
18	7836-03	Bottom Cap	1

4.9 Prefilter Assembly



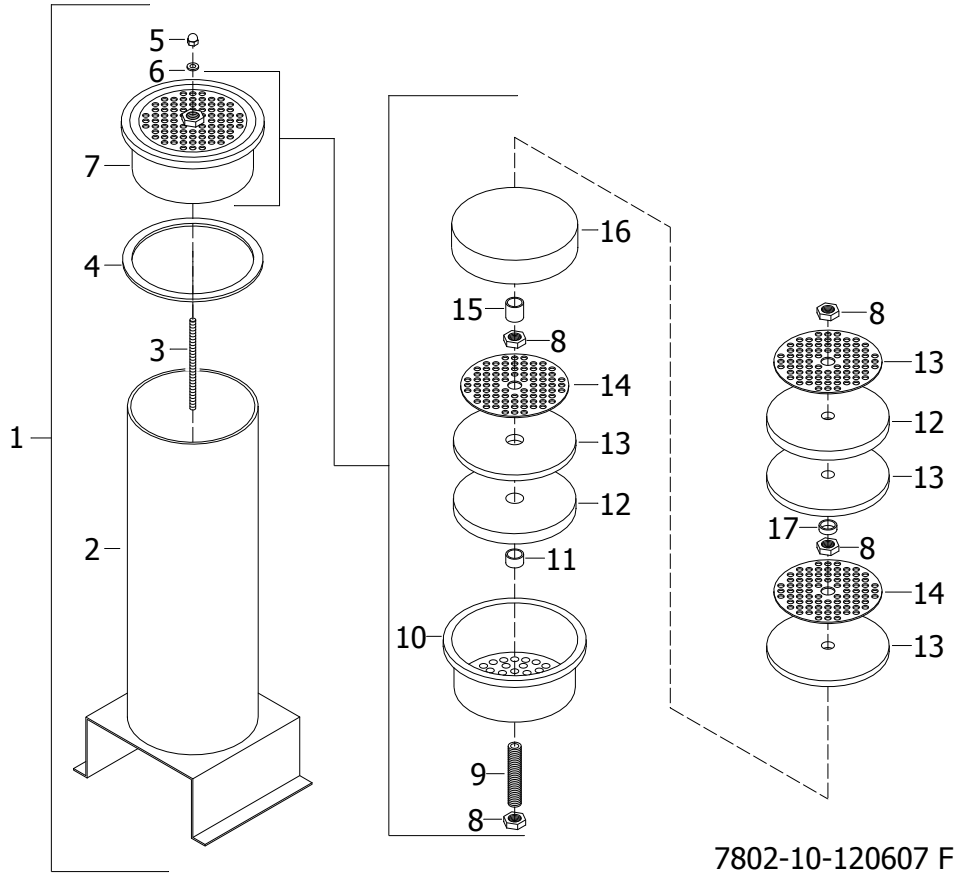
Nr.	Part Nr.	Description	Qty.
1	**7837-00**	**Prefilter Ass'y**	**1**
2	7837-01	•Body	1
3	7837-04	•Top Cap Ass'y	1
4	7837-02	••Top Cap	1
5	7729-10	••O-ring	1
6	7763-04	••Hex Bushing	1
7	7729-08	••O-ring	2
8	7763-07	••Filter Cardridge	1
9	7729-09	••O-ring	2
10	7763-06	••Filter Cardridge	1
11	7763-08	••Backup Ring	1
12	7729-11	••O-ring	1
13	7763-05	••Bolt	1
14	7168-24	••Backup Ring	1
15	7168-25	••O-ring	1
16	7168-28	••Collar	1
17	7837-04	••Bolt	2
18	7091-25	••Washer	2
19	7837-05	• Bottom Cap Ass'y	1
20	7837-03	••Bottom Cap	1
21	7168-24	••Backup Ring	1
22	7168-25	••O-ring	1
23	7168-28	••Collar	1
24	7867-03	••Bolt	2
25	7091-17	••Washer	2

4.10 Purifier Assembly



Nr.	Part Nr.	Description	Qty.
	7857-02	**Purifier Assembly**	
1	7857-01	Body	1
2	7168-48	Bottom Cap Assembly	1
3	7168-24	Collar	2
4	7168-25	O-Ring-72,4x5,33	2
5	7168-28	Collar	1
6	7047-14	O-ring Ø9.92xØ2.62 NBR	1
7	7047-13	O-ring Ø12,37xØ2,62	1
8	7293-00	Purifier Cartridge	1
8.1	7814-03	• Cartridge Refill Kit	1
9	7168-32	Top Cap	1
10	7168-23	End Cap	1

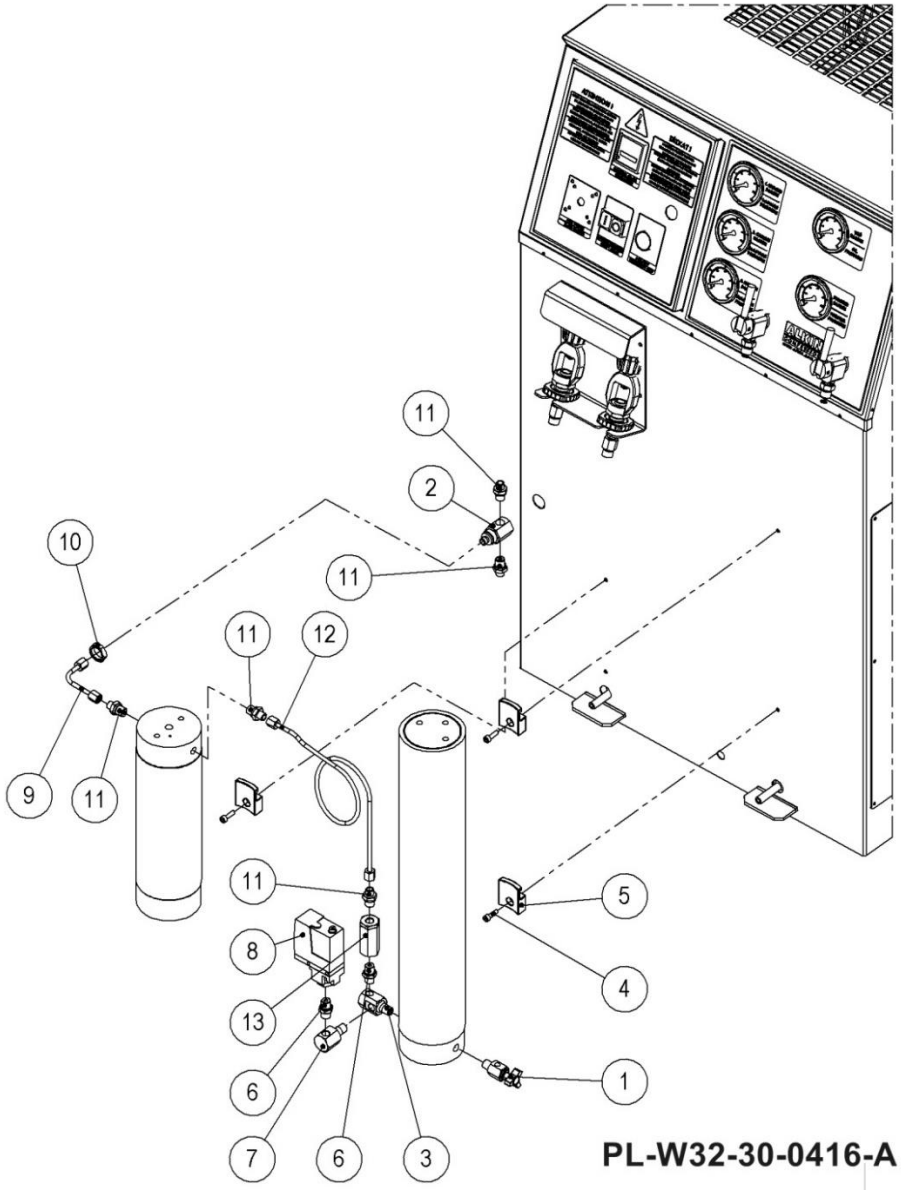
4.11 Muffler



7802-10-120607 F

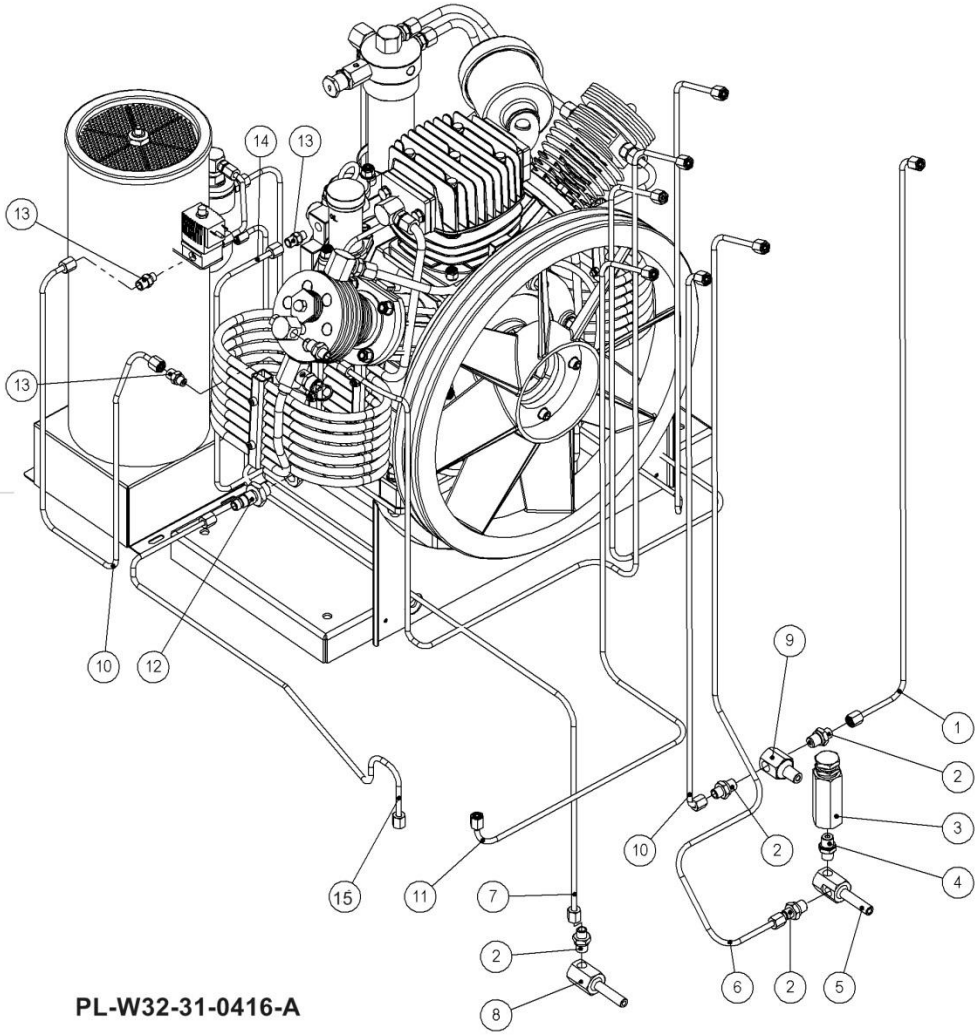
Nr.	Part Nr.	Description	Qty.
1	**7752-10**	**Muffler Ass'y**	**1**
2	7752-01	Body	1
3	7752-11	Stud	1
4	7894-09	Gasket	1
5	6883-02	Acorn Nut	1
6	7091-09	Washer	1
7	**7894-01**	**Filter Ass'y**	**1**
8	7894-05	•Nut	4
9	7894-04	•Stud	1
10	7894-02	•Filter Housing	1
11	7894-06	•Spacer	1
12	7894-11	•Filter Mat	2
13	7894-12	•Filter Mat	3
14	7894-03	•Perforated Sheet	3
15	7894-07	•Spacer	1
16		•Activated Carbon	250 g
17	7894-08	•Spacer	1

4.12 Exterior Tubing



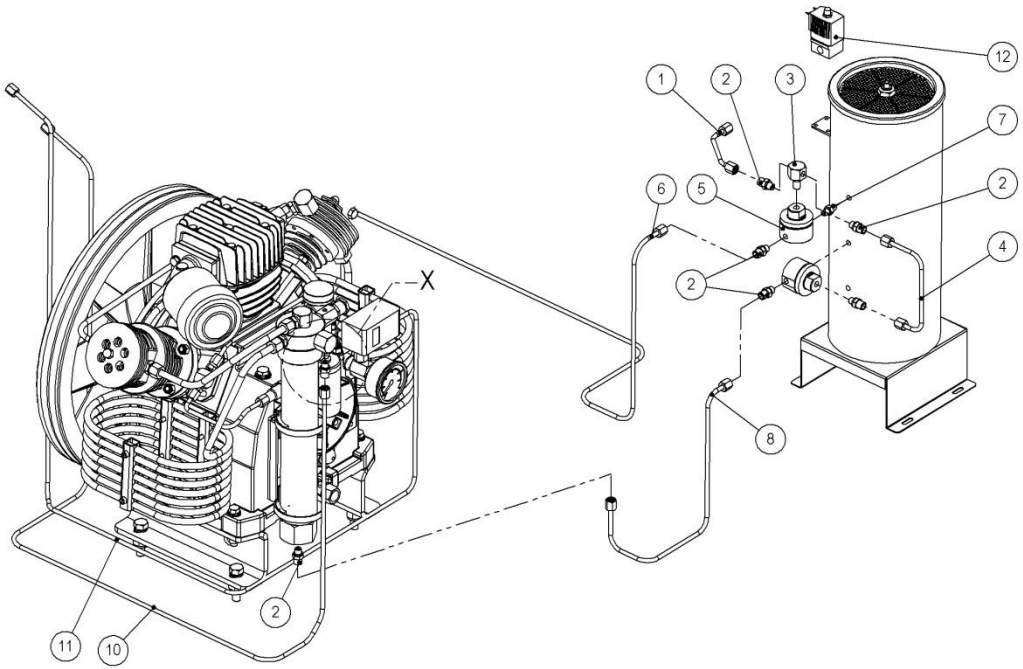
Nr.	Part Nr.	Description	Qty.
1	7020-00	Drain Valve	1
2	7742-03	Hex Tee	1
3	7084-03	Elbow	1
4	6882-10	Allen Screw M6X20	3
5	7877-01	Support	5
6	7078-41	Nipple-1/4"NPT x 1/4" NPT	3
7	7084-02	Elbow 1/4"x1/4"	2
8	80071-00	Pressure Switch	1
9		Tube Ø6	1
10	7145-02	Nut	1
11	7422-01	Fitting 1/4" NPT x Ø6	5
12		Tube Ø6	1
13	7140-00	Check Valve	1

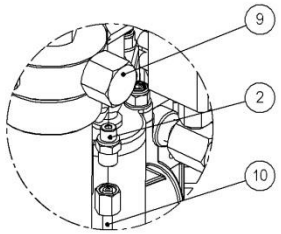
4.13 Interior Tubing



Nr.	Part Nr.	Description	Qty.
1		Tube-Ø6	1
2	7422-01	Fitting-1/4" NPTxØ6	4
3	6460-00	Priorty Valve	1
4	7078-41	Nipple-1/4"NPTx1/4" NPT	1
5	7084-05	Manifold	1
6		Tube-Ø6	1
7		Tube-Ø6	1
8	7084-09	Manifold	1
9	7084-01	Tee-1/4"x1/4"	1
10		Tube-Ø6	1
11		Tube Ø6	1
12	7902-01	Fitting Ø8x6	1
13	7423-01	Fitting-1/8"xø6	3
14		Tube Ø6	1
15		Tube Ø6	1

4.14 Drain Line





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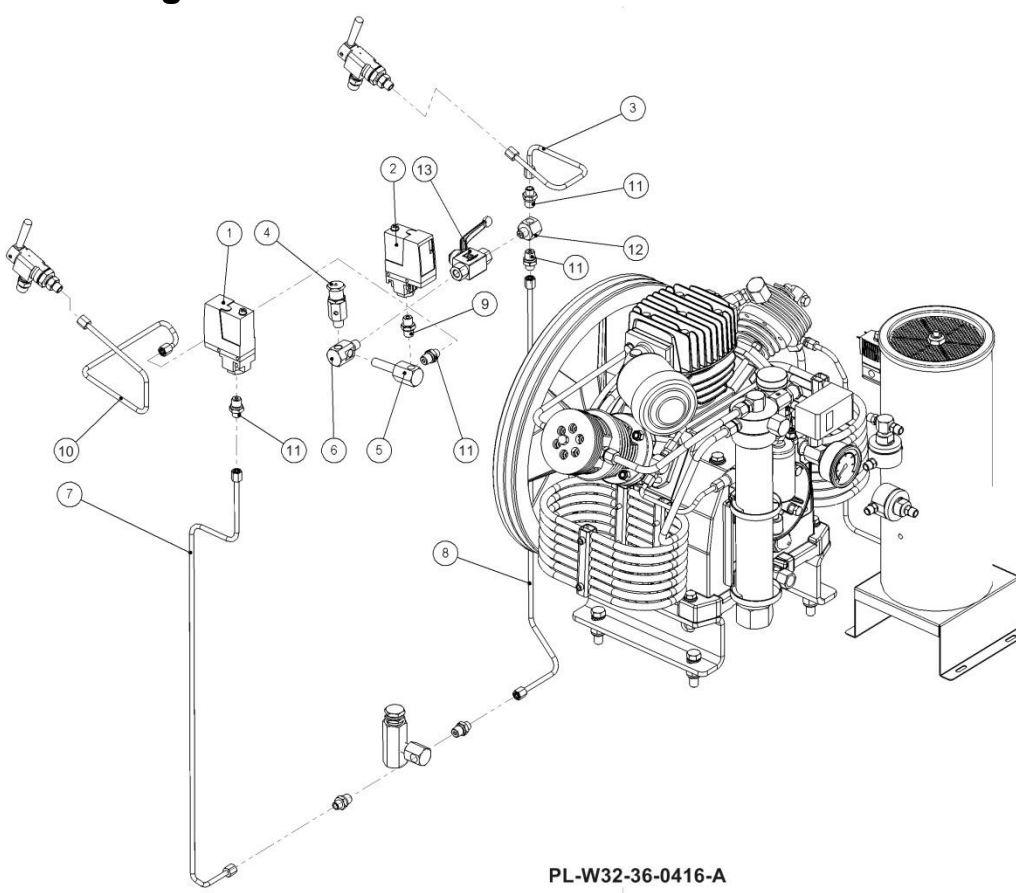
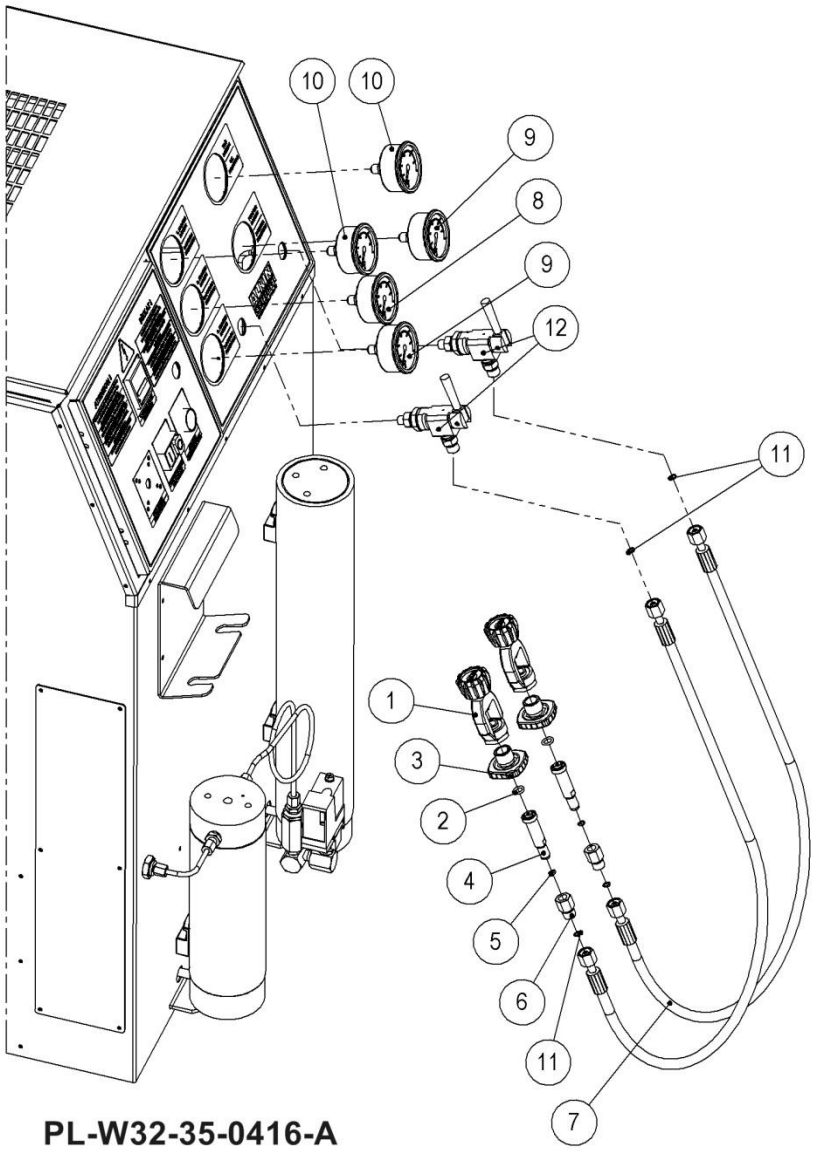
Nr.	Part Nr.	Description	Qty.
1		Tube-Ø6	1
2	7423-01	Fitting-1/8"xØ6	7
3	7079-14	Tee-1/8" NPT	1
4		Tube-Ø6	1
5	6436-01	Pneumatic Drain Valve-HP	1
6		Tube-Ø6	1
7	7078-07	Nipple-1/8"x1/8" NPT	1
8		Tube-Ø6	1
9	7672-06	Elbow 1/4"x1/4"	1
10		Tube Ø6	1
11		TubeØ6	1
12	6398-23	Solenoid Valve	1

4.15 Tubing – Double Pressure



No.	Part No.	Description	Qty.
1	80071-01	Pressure Switch	1
2	80071-00	Pressure Switch	1
3		Tube Ø6	1
4	7933-08	Safety Valve 240 BAR	1
5	7084-05	Manifold	1
6	7084-03	Elbow	1
7		Tube Ø6	1
8		Tube Ø6	1
9	7078-41	Nipple 1/4" BSP x 1/4" NPT	1
10		Tube Ø6	1
11	7422-01	Fitting 1/4"xØ6	4
12	7672-07	Tee 1/4" x 1/4"	1
13	7956-07	Ball Valve	1

4.16 Filling Line – 200 bar



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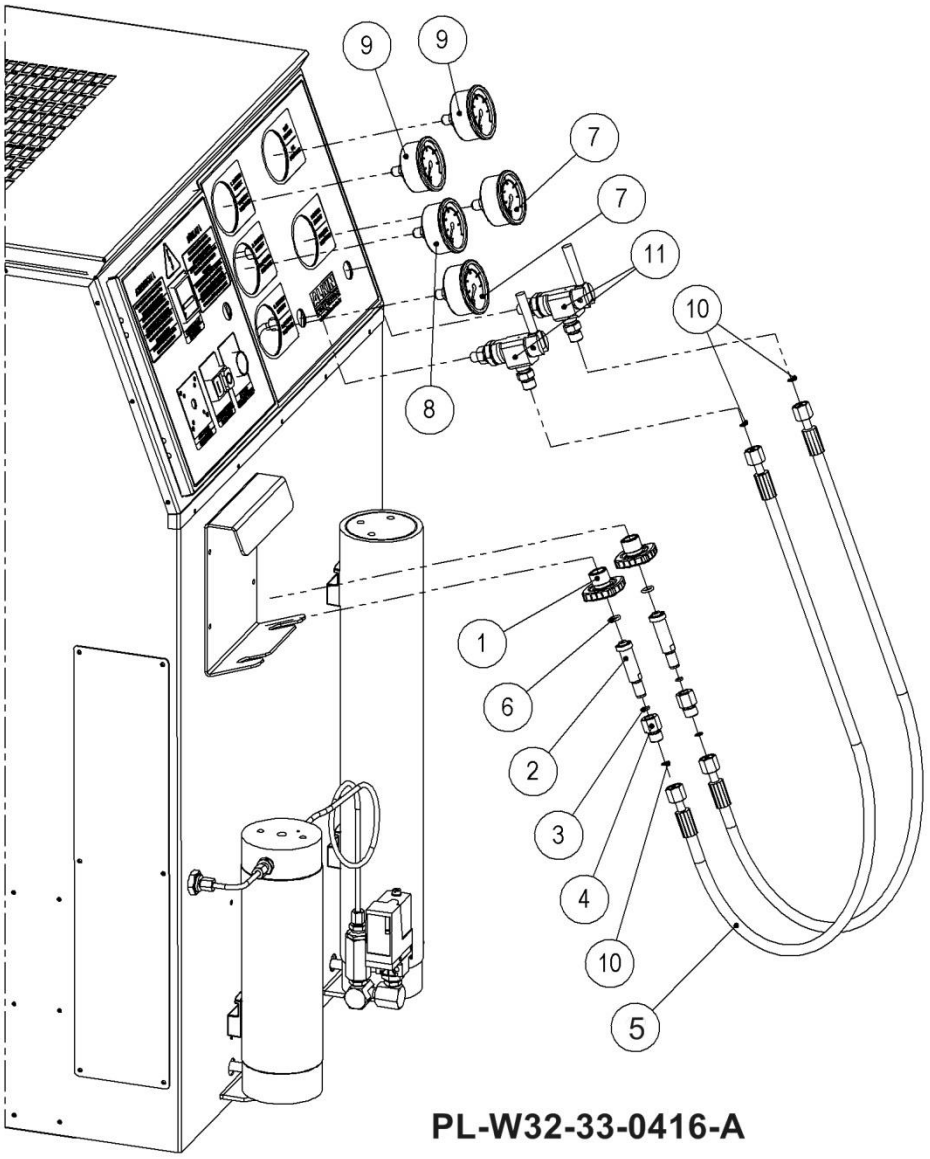
No.	Part No.	Description	Qty.
1	7429-00	Yoke	2
2	7880-06	O-ring Ø10,8xØ2,62	2
3	7880-03	Handgrip	2
4	7880-04	DIN Connector	2
5	7829-04	O-ring Ø6,07xØ1,78	2
6	7891-04	Fitting	2
7	7912-12	Filling House	2
8	7235-04	Pressure Gauge 60 Bar	1
9	7235-07	Pressure Gauge 400 Bar	2
10	7235-01	Pressure Gauge 10 Bar	2
11	7670-13	O-ring Ø7xØ1.5	4
12	7866-01	Filling Valve	2

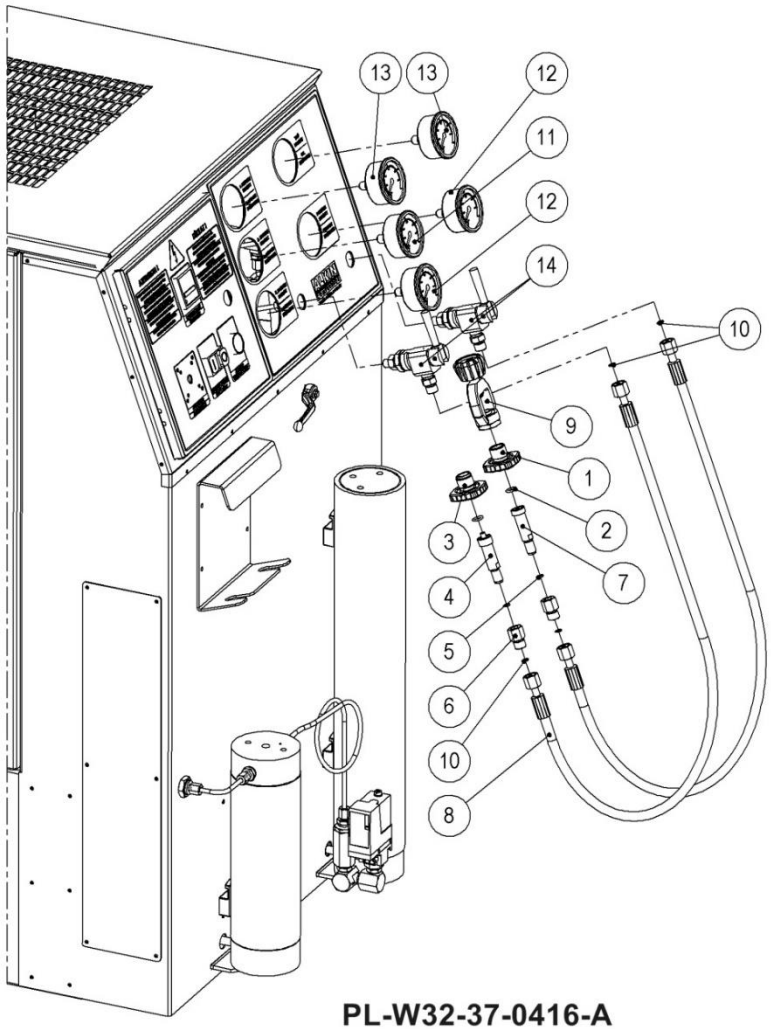
4.17 Filling Line - 300 bar



PL-W32-33-0416-A

No.	Part No.	Description	Qty.
1	7880-19	Handgrip	2
2	7880-15	DIN Connector	2
3	7829-04	O-ring Ø6,07xØ1,78	2
4	7891-04	Fitting	2
5	7912-12	Filling Hose	2
6	7880-06	O-ring Ø10,8 x Ø2,62	2
7	7235-07	Pressure Gauge 400 Bar	2
8	7235-04	Pressure Gauge 60 Bar	1
9	7235-01	Pressure Gauge 10 Bar	2
10	7670-13	O-ring Ø7xØ1.5	4
11	7866-01	Filling Valve	2

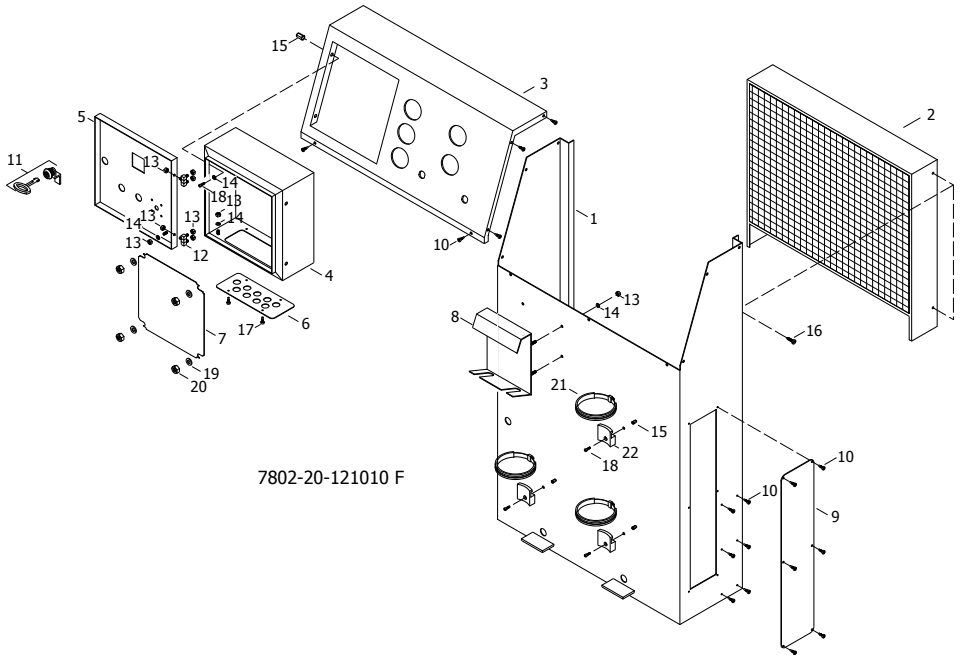
4.18 Filling Line – Double Pressure



PL-W32-37-0416-A

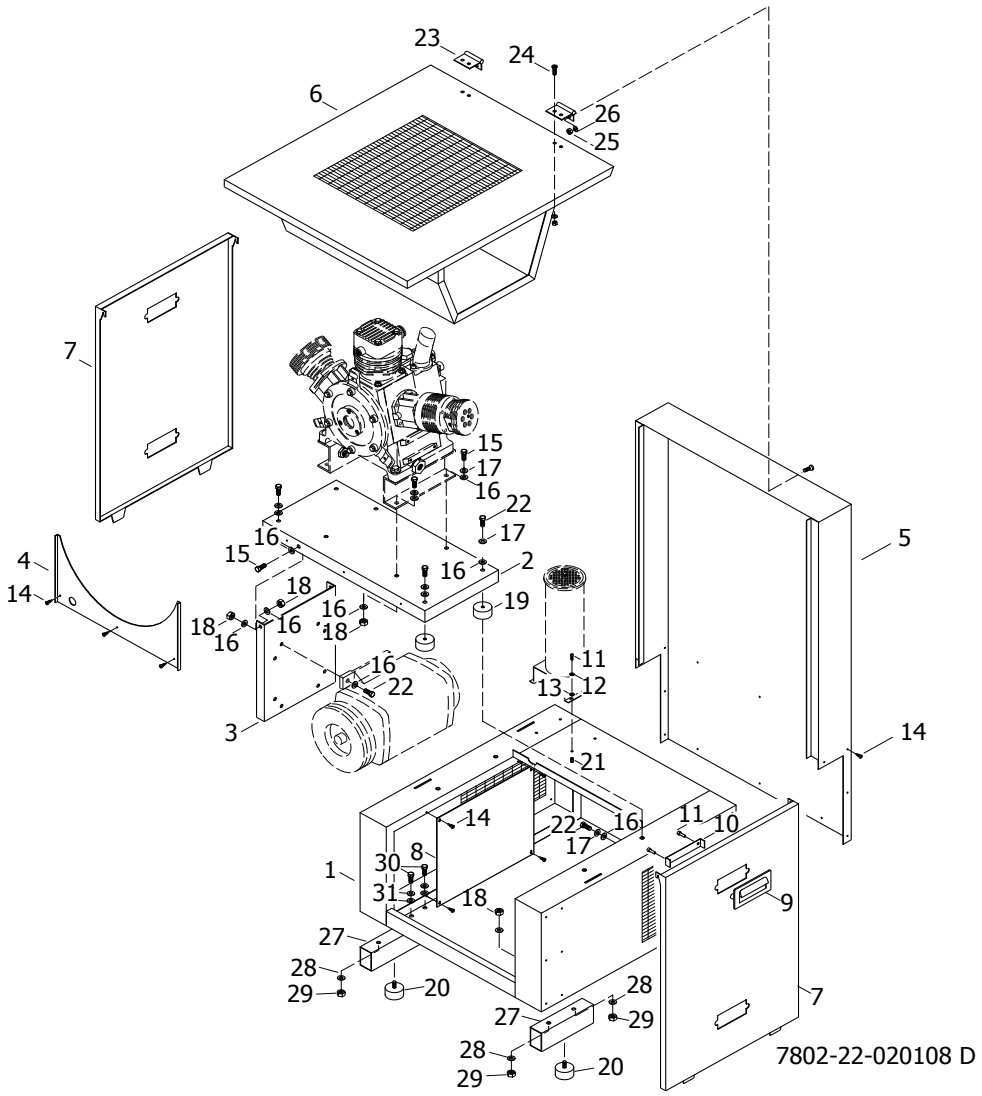
No.	Part No.	Description	Qty.
1	7880-03	Handgrip	1
2	7880-06	O-ring Ø10,8 x Ø2,62	2
3	7880-19	Handgrip	1
4	7880-15	DIN Connector HP	1
5	7829-04	O-ring Ø6,07 x Ø1,78	2
6	7891-04	Fitting	2
7	7880-04	DIN Connector LP	1
8	7912-12	Filling Hose	2
9	7429-00	Yoke	1
10	7670-13	O-ring Ø7 x Ø1.5	4
11	7293-06	Pressure Gauge 60 BAR	1
12	7235-07	Pressure Gauge 400 BAR	2
13	7235-01	Pressure Gauge 10 BAR	3
14	7866-01	Filling Valve	2

4.19 Front Panel Layout



No.	Part No.	Description	Qty.
1	7757-33	Front Panel	1
2	7757-35	Safeguard	1
3	7757-08	Instrument Panel	1
4	7757-21	Control Panel	1
5	7757-22	Cover	1
6	7757-25	Cable Access Plate	1
7	7757-30	Plate	1
8	7757-17	Yoke Holder	1
9	7757-16	Maintenance Cover	2
10	7867-04	Bolt	33
11	7881-05	Panel Lock	1
12	80110-01	Hinge	2
13	6884-02	Nut	7
14	7091-08	Washer	11
15	7823-03	Rivet	4
16	80054-02	Bolt	4
17	80054-09	Bolt	4
18	6882-10	Allen Screw	7
19	7091-09	Washer	4
20	6884-13	Nut	4
21	7877-02	Clamp	3
22	7877-01	Support	3

4.20 Canopy Layout



No.	Part No.	Description	Qty.
1	7757-32	Subbase	1
2	7757-13	Mounting Sheet	1
3	7757-20	Motor Mounting Sheet	1
4	7757-26	Safeguard Sheet	1
5	7757-07	Rear Panel	1
6	7757-34	Top Panel	1
7	7757-11	Side Door	2
8	7757-05	Sheet	2
9	7881-02	Handle	4
10	6387-13	Bracket	4
11	6882-11	Allen Screw	12
12	7091-14	Lock Washer	4
13	7091-08	Washer	4
14	7867-04	Bolt	21
15	7867-71	Bolt	10
16	7091-12	Washer	32
17	7091-13	Lock Washer	12
18	6884-08	Fibered Nut	18
19	7819-02	Shock Mount	4
20	6953-01	Shock Mount	4
21	7823-03	Rivet	4
22	7867-22	Bolt	10
23	7181-04	Hinge	2
24	7934-05	Countersunk Bolt	8
25	6884-09	Fibered Nut	8
26	7091-08	Washer	8
27	7757-53	Support	4
28	7091-35	Lock Washer	8
29	6884-18	Nut	8
30	7867-62	Bolt	8
31	7091-33	Washer	16