

OPERATION MANUAL

MODEL: V120103-RS11

**Rotary Screw Stationary
Air Compressor**

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GENERAL INFORMATION:

This compressor is for compressing atmospheric air and is not suitable for compressing any other gas. It is designed and manufactured to give optimum performance with long life and reliability.

The manual gives the user all the information required to install and operate the compressor and carry out the regular schedules for servicing and maintenance, which ensure the maximum satisfactory service life.

LAPLANTE WARRANTY

Please refer to the attached LaPlante Compressor LTD. “**Warranty Manual**” for full details of the LPRS **Express Warranty** versus the **Extended Air End Warranty options** that are available for 3 and 5 year terms, plus **LaPlante’s lines of Proprietary Lubricants**. The Warranty Manual also provides details of the **LaPlante Oil Monitoring and Oil Sampling Program**.

The LaPlante **Extended Air End Warranty** applies to only the LPRS COMPRESSORS that are **operating exclusively with LaPlante Proprietary Lubricants**.

Note: Unauthorized disassembly or repair of LaPlante Air end in the field will **void the warranty** and adversely affect the trade-in value.

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1.0: SAFETY PRECAUTIONS

FOREWORD

This manual contains vital information for the safe use and efficient operation of this unit. It must be read carefully and understood before installing, operating or servicing. Otherwise, personnel are exposed to the risk of serious injury or death.

The operator should use common sense and good working practices while operating and maintaining this unit. Follow all codes, pipe adequately, and understand the starting and stopping sequence. Check the safety devices & following the procedures contained in this manual.

Maintenance should be done by qualified personnel, adequately equipped with proper tools. Follow the maintenance schedules as outlined in the manual to ensure problem free operation after start up.

1.1 Safety Precautions During Installation:

General Precaution:

1. The operator must employ safe working practices and observe all related local work safety requirements and regulations.
2. If any of the following statements does not comply with local legislation, the stricter of the two shall apply.
3. Installation, operation, maintenance and repair work must only be performed by authorized, trained, specialized personnel.
4. The compressor is not considered capable of producing breathing quality. For air of breathing quality, the compressed air must be adequately purified according to local legislation and standards.
5. Before any maintenance, repair work, adjustment or any other non-routine check, stop the compressor, press the emergency stop button, switch off the voltage and depressurize the compressor. In addition, the power isolating switch must be opened and locked.
6. Never play with compressed air. Do not apply the air to your skin or direct an air stream at people. Never use the air to clean dirt from your clothes. When using the air to clean equipment, do so with extreme caution and wear eye protection.



All responsibility for any damage or injury resulting from neglecting these precautions, or non-observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.

Precautions during Installation:

1. The machine must only be lifted using suitable equipment in accordance with local safety regulations. Loose or pivoting parts must be securely fastened before lifting. It is strictly forbidden to dwell or stay in the risk zone under a lifted load. Lifting acceleration and deceleration must be kept within safe limits. Wear a safety helmet when working in the area of overhead or lifting equipment.
2. Place the machine where the ambient air is as cool and clean as possible. If necessary, install a suction duct. Never obstruct the air inlet. Care must be taken to minimize the entry

- of moisture at the inlet air.
3. Any blanking flanges, plugs, caps and desiccant bags must be removed before connecting the pipe.
 4. Air hoses must be of correct size and suitable for the working pressure. Never use frayed, damaged or worn hose. Distribution pipes and connections must be of the correct size and suitable for the working pressure.
 5. The aspirated air must be free of flammable fumes, vapours and particles, e.g. paint solvents, that can lead to internal fire or explosion.
 7. Ensure that the discharge pipe from the compressor to the aftercooler or air net is free to expand under heat and that it is not in contact with or close to flammable materials.
 8. No external force may be exerted on the air outlet valve, the connected pipe must be free of strain.
 9. If remote control is installed, the machine must bear a clear sign stating: DANGER: This machine is remotely controlled and may start without warning.
The operator has to make sure that the machine is stopped and that the isolating switch is open and locked before any maintenance or repair. As a further safeguard, persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the start equipment.
 10. Air-cooled machines must be installed in such a way that an adequate flow of cooling air is available and that the exhausted air does not recirculate to the compressor air inlet or cooling air inlet.
 11. The electrical connections must correspond to the local codes. The machines must be earthed and protected against short circuits by fuses in all phases. A lockable power isolating switch must be installed near the compressor.
 12. On machines with automatic start-up system or if the automatic restart function after voltage failure is activated, a sign stating " This machine may start without warning" must be affixed near the instrument panel.
 13. In multiple compressor system, Manual valves must be installed to isolated each compressor. Non-return valves(check valves) must not be relied upon for isolating pressure system.
 14. Never remove or tamper with the safety devices, guards or insulation fitted on the machine. Every pressure vessel or auxiliary installed outside the machine to contain air above atmospheric pressure must be protected by a pressure- relieving device or device as required.
 15. Pipe work or other parts with a temperature in excess of 80 degree C (176 degree F) and which may be accidentally touched by personnel in normal operation must be guarded or isolated. Other high-temperature pipework must be clearly marked.
 16. For water-cooled machine, the cooling water system installed outside the machine has to be protected by a safety device with set pressure according to the maximum cooling water inlet pressure.
 17. If the ground is not level or can be subject to variable inclination, consult the manufacturer.

NOTICE

Also consult following safety precautions; Safety precautions during operation and safety precautions during maintenance.

These precautions apply to machinery processing or consuming air or inlet gas.

Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

Some precautions are general and cover several machine types and equipment, hence some statements may not apply to your machine.

1.2 Safety Precautions during Operation:

General Precautions:

1. The operator must employ safe working practices and observe all related local work safety requirements and regulations.
2. If any of the following statements does not comply with local legislation, the stricter of the two shall apply.
3. Installation, operation, maintenance and repair work must only be performed by authorized, trained, specialized personnel.
4. The compressor is not considered capable of producing air of breathing quality. For air of breathing quality, the compressed air must be adequately purified according to local legislation and standards.
5. Before any maintenance, repair work, adjustment or any other non-routine checks, stop the compressor, press the emergency stop button, switch off the voltage and depressurize the compressor, in addition, the power isolating switch must be opened and locked.
6. Never play with compressed air. Do not apply the air to your skin or direct an air stream at people. Never use the air to clean dirt from your clothes. When using the air to clean equipment, do so with extreme caution and wear eye protection.



All responsibility for any damage or injury resulting from neglecting these precautions, or non-observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.

PRECAUTIONS DURING OPERATION:

1. Use only the correct type and size of hose end fittings and connections. When blowing through a hose or air line, ensure that the open end is held securely. A free end will whip and may cause injury or death. Make sure that a hose is fully depressurized before disconnecting it.
2. Persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. TO this end, a suitable notice shall be affixed to the remote start equipment.
3. Never operate the machine when there is a possibility of taking in flammable or toxic fumes, vapour or particles.
4. Never operate the machine below or in excess of its limit ratings.
5. Keep all bodywork doors shut during operation. The doors may be opened for short periods only, E.G.. to carry out routine checks. Wear ear protectors when open a door.
6. People staying in environments or room s where the sound pressure level reaches or exceed 90 Db(A) shall wear ear protectors.
7. Periodically check that:
 - 1) All guards are in place and securely fastened
 - 2) All hoses and/or pipes inside the machine are in good condition, secure and not rubbing.
 - 3) There are no leaks
 - 4) All fasteners are tight
 - 5) All electrical leads are secure and in good order
 - 6) Safety valves and other pressure-relief device are not obstructed by dirt or paint.
 - 7) Air outlet valve and air net, i.e. pipe, coupling, manifolds, valves, hoses, etc. are in good repair, free of wear or abuse.
8. If warm cooling air from compressors is used in air heating system, e.g. to warm up a

workroom, take precautions against air pollution and possible contaminations of the breathing air.

9. Do not remove any of, or tamper with, the sound-damping material.
10. Never remove or tamper with the safety devices, guards or insulations fitted on the machine. Every pressure vessel or auxiliary installed outside the machine to contain air above atmospheric pressure vessel or auxiliary installed outside the machine to contain air above atmospheric pressure shall be protected by a pressure-relieving device or devices as required.

NOTICE

Also consult following safety precautions; Safety precautions during operation and safety precautions during maintenance.

These precautions apply to machinery processing or consuming air or inlet gas.

Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

Some precautions are general and cover several machine types and equipment, hence some statements may not apply to your machine.

1.3 Safety Precautions during Maintenance or Repair:

GENERAL PRECASTIONS

1. The operator must employ safe working practices and observe all related local work safety requirements and regulations.
2. If any of the following statements does not comply with local legislation, the stricter of the two shall apply.
3. Installation, operation, maintenance and repair work must only be performed by authorized, trained, specialized personnel.
4. The compressor is not considered capable of producing air other non-routing check, stop the compressor, press the emergency stop button, switch off the voltage and depressurize the compressor, in addition, the power isolating switch must be opened and locked.
5. Before any maintenance, repair work, adjustment or any other non-routine checks, stop the compressor, press the emergency stop button, switch off the voltage and depressurize the compressor. In addition, the power isolating switch must be opened and locked.
6. Never play with compressed air. Do not apply the air to your skin or direct an air stream at people. Never use the air to clean dirt from your clothes. When using the air to clean equipment, do so with extreme caution and wear eye protection.



All responsibility for any damage or injury resulting from neglecting these precautions, or non-observance of the normal caution and care required for installation, operation, maintenance and repair, even if not expressly stated, will be disclaimed by the manufacturer.

PRECAUTIONS DURING MAINTENANCE OR REPAIR

1. Always wear safety glasses.
2. Use only the correct tools for maintenance and repair work.
3. Use only genuine spare parts.
4. All maintenance work shall only be undertaken when the machine has cooled down.
5. A warning sign bearing a legend such as “ work in progress; do not start” shall be attached

- to the starting equipment.
6. Persons switching on remotely controlled machines shall take adequate precautions to ensure that there is no one checking or working on the machine. To this end, a suitable notice shall be affixed to the remote start equipment.
 7. Close the compressor air outlet valve before connecting or disconnecting a pipe.
 8. Before removing any pressurized component, effectively isolate the machine from all sources of pressure and relieve the entire system of pressure.
 9. Never use flammable solvents or carbon tetrachloride for cleaning parts. Take safety precautions against toxic vapours of cleaning liquids.
 10. Scrupulously observe cleanliness during maintenance and repair. Keep dirt away by covering the parts and exposed openings with a clean cloth, paper or tape.
 11. Never weld or perform any operation involving heat near the oil system. Oil tanks must be completely purged, e.g. by steam-cleaning, before carrying out such operations. Never weld on , or in any way modify, pressure vessels.
 12. Whenever there is an indication or any suspicion that a internal part of machine is overheated, the machine shall be stopped but no inspection covers shall be opened before sufficient cooling time has elapsed; this to avoid the risk of spontaneous ignition of the oil vapour when air is admitted.
 13. Never use a light source with open flame for inspecting the interior of a machine, pressure vessel, etc.
 14. Make sure that no tools, loose parts or rags are left in or on the machine.
 15. All regulating and safety devices shall be maintained with due care to ensure that their function properly. They may not be put out of action.
 16. Before clearing the machine for use after maintenance or overhaul, check that operating pressures, temperatures and time setting are correct. Check that all control and shut-down devices are fitted and that their function correctly. If removed, check that the coupling guard of the compressor drive shaft has been reinstalled.
 17. Every time the separator element is renewed, examine the discharge pipe and the inside of the oil separator vessel for carton deposits; if excessive, the deposits should be removed.
 18. Protect the motor, air filter, electrical and regulating components, etc. to prevent moisture from entering them, e.g. when steam-cleaning.
 19. Make sure that all sound-damping material, e.g. on the bodywork and in air inlet and outlet systems of the compressor, is in good condition. If damaged, replace it by genuine material from the manufacturer to prevent the sound pressure level from increasing.
 20. Never use caustic solvents which can damage material of the air net e.g. polycarbonate bowls.
 21. The following safety precautions are stressed when handling refrigerant:
 - 1) Never inhale refrigerant vapours. Check that the working area is adequately ventilated; if required, use breathing protection.
 - 2) Always wear special gloves. In case of refrigerant contact with the skin, rinse the skin with water. If liquid refrigerant contacts the skin through clothing until, all refrigerant is flushed away; then seek medical first aid.
 22. Protect hands to avoid injury from hot machine parts, e.g. during draining of oil.

NOTICE

Also consult following safety precautions; Safety precautions during operation and safety precautions during maintenance.

These precautions apply to machinery processing or consuming air or inlet gas.

Processing of any other gas requires additional safety precautions typical to the application which are not included herein.

Some precautions are general and cover several machine types and

equipment, hence some statements may not apply to your machine

Throughout the manual various safety concerns will be brought to your attention with boxes containing one of the following notations:

 **DANGER**

Danger is used to indicate the presence of a hazard, which will cause severe personal injury, death or substantial equipment and property damage if the warning is ignored.

 **WARNING**

Warning is used to indicate the presence of a hazard that can cause severe personal injury, death or substantial equipment and property damage if the warning is ignored.

 **CAUTION**








Caution is used to indicate the presence of a hazard that will or can cause personal injury or equipment and property damage if the warning is ignored.





NOTICE

Notice is used to notify people of installation, operation, or maintenance of information that is important but not hazard related.

1.4 Symbols and Warnings

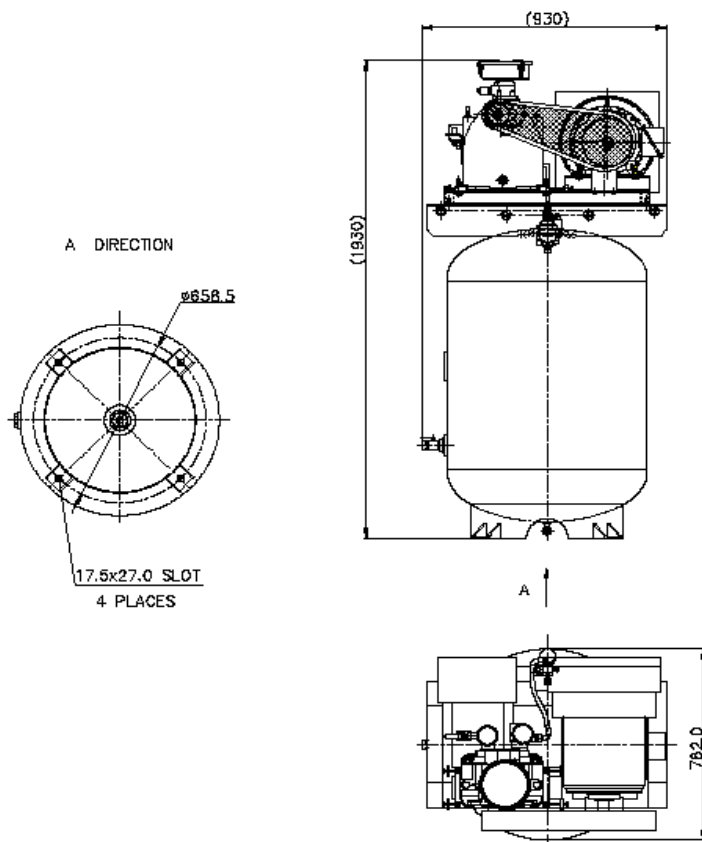
An adhesive label, visibly placed on the cover of the compressor, reports a series of symbols (pictograms) to inform anyone about risks and residual dangers contained in the compressor itself.

	Obligatory to Read Instruction Manual
	Danger: Maintenance Work(Consult Instruction Manual)
	Danger: High Voltage. Disconnect Power Source before servicing
	Forbidden TO Remove Protective Covering And Safety Devices
	Danger: Heat. Do Not Touch Hot Areas
	Danger: Hot or Noxious Gases Outlet: Unbreathable
	Danger: Relief Tank Pressure before Servicing

	Rotation In Direction Of Arrow
	Emergency Stop Switch
	Stop Switch
	Start-up Switch

2.0: INSTALLATION

2.1 Compressor Dimensions Drawing:



2.2 Mounting and Space Requirement:

The LPRS series is designed for indoor applications only. Allow at least three (3) feet clearance on all sides of the compressor to facilitate maintenance as well as free circulation of air. Unit should be located in a clear, well-lighted area that will not have an ambient air temperature below 40 degree F or exceed 105 degree F. Provisions must be made for proper ventilation so that the temperature of the room will not exceed 105 degree F.

Foundation:

Your LaPlante's rotary screw compressor does not require a special foundation. However, it is necessary that the floor is level and the frame adequately supported. Consult the "Specifications" section of this manual for the compressor weight and dimensions. We do recommend that the compressor be bolted to the floor.

Room:

The room should be of adequate size to provide full access to the machine for routine maintenance. It should have ventilation to keep the room as cool as possible. It is recommended that the air handling system be designed to permit no more than a 10 degree F rise in room temperature. Operating at elevated temperatures will cause nuisance overload, temperature shutdowns and reduces oil life. The recommended minimum room air flow is **Approx. 1500CFM**.

Air Intake:

Air supplied to the compressor should be free of contaminants such as paint spray mist and vapors, other chemical vapors as well as normally air bone dust and dirt particles.

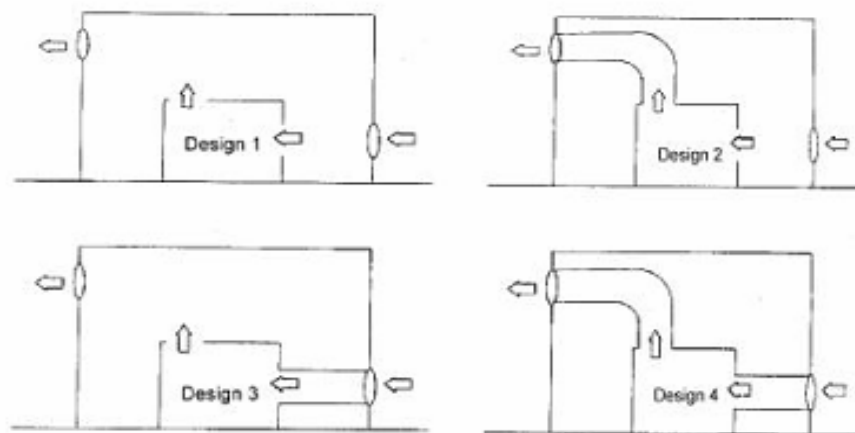
Inlet air to the unit may vary slightly in temperature without adversely affecting the performance of the compressor. However, ambient air temperature should be maintained between **32 deg. F** and **104 deg. F** to obtain desirable performance.

The air filter supplied with the compressor has an adequate flow capacity for most applications. In particular dirty locations, clean air may be ducted in from a clean air source or special air cleaners may be installed. Generally, most adverse conditions may be overcome by regular servicing of the filter furnished with the unit.

When bringing in outside air into the compressor building for cooling and/or compression, the air inlet to the compressor building should be located away from contaminants such as engines exhaust gases, steam and other harmful vapors.

Also, the opening to the building must be protected from rain, snow and other air-borne debris by cover or hood, as well as being located above the ground/roof to prevent other foreign matter pick-up. For a typical ducting arrangement refer to (figure 2-1)

Figure 2-1 Typical Ducting Arrangement



Both inlet and outlet ducts must be sized so that they are restriction free. Where ambient temperatures are below 32 deg. F (Inlet air), entering the compressor's air temperature can be raised by controlled re-circulation. This may be accomplished by using adjustable louvers (or duct dampers) to admit warm air from the outlet duct back into the inlet duct at a controlled rate.

If duct filters are used, the filters must be restriction free. Typical furnace filter material may be used.

The inlet grids and ventilation fan should be installed in such a way that any recirculation of cooling air to the compressor is avoided. **the maximum air velocity through the grids is 16.6**

ft/s .

 **DANGER**

Inlet containing reactive gases will cause the failure of the lubricant and compressor.

Insure an air supply that is well clear of any reactive gas source.

Air Supply to Compressor (Cooling and Compression):

The cooling air discharge must be restriction free. Any louvers or ducting must not exceed the allowed static head shown in the specifications. Above this booster fan will be required. Consult a local HVAC contractor for recommendations prior to installation. Excessive restriction to the cooling air discharge will cause the unit to operate at elevated temperatures that could result in high temperature shutdowns. Ducting of cooling air to the unit is not generally recommended.

 **CAUTION**

Inadequate airflow will cause the compressor to run hot, can damage the compressor, and increase the amount of oil carryover.

The room temperature should not raise motor than 10 degree F and the cooling air discharge must not be restricted.

Electrical:

A qualified electrician in compliance with standards and local codes should do all electrical wiring. Be sure to investigate the local requirements before installing the compressor.

The power supply should be adequate and free of parasitic loads that will cause an under voltage condition during the operation of the compressor, otherwise there will be nuisance electrical shutdowns. Though the unit has a disconnect, we recommend that one be installed away from the machine and insure the unit is properly grounded.

We recommend the use of time delay fuses in fusible disconnect for isolating the unit. This disconnect should be located so an operator can disconnect the unit without nearing the unit, in case of an emergency. We also recommend the use of a lockout/tag out program to help insure safety during maintenance of the compressor. Per the national Electric Code the time delay fuses should be sized at 175% if the FLA. Consult the code if you want to use another style of branch circuit protection.

 **CAUTION**

In all cases, the local, state, and national electrical codes must be strictly followed.

All control enclosure wiring has been completed at the factory. Connect the wire steps are as follow:

- A. Open the power cabinet door
- B. Check that the motor cables and wires are clamped tightly to their terminals.

- C. Check the fuses and the setting of the overload.
- D. Connect the power supply to the terminals the L1, L2, L3.
- E. Connect the earth conductor bolt.

For choice the cable please reference table 3-2 of the electrical specification sheet.

2.3 Guidelines for Compressor Air System:

- The air pressure drop between the compressor and the point of use is not recoverable.
- Pipe Size should be large enough that the pressure drop does not exceed 10% between the air receiver and the point of use. Generally keep the compressed flow at around 1500 – 2250 feet/minute velocity.

$$\text{pipe diameter} = 13.5 \times \sqrt{\frac{\text{compressed capacity}}{\text{pipe velocity}}}$$

Compressed capacity = compressor output / the compression ratio

- Arrange the air distribution pipe to avoid the following types off strains:
 1. Strains that is due to the dead weight if the pipe itself.
 2. Strains that is due to expansion or contraction of the pipe due to temperature.
 3. Strains due to internal pressure within the pipe.
- Design inlet and discharge piping for smooth airflow.
- Plan for future emergencies and establish an area of the loop to install a temporary compressor.
- Consider bypass lines around all items that may require future maintenance.
- Use loop-pipe systems if possible, both around the plant and within wore areas.
- Consider a second receiver at the end of the line or opposite side of the loop.
- Locate runs away from the main header close to the point of application. This limits the pressure drop through hose.
- Take air off the top of the header to prevent carryover of condensed moisture to tools.
- Slope pipe so that it drains toward a drop let or moisture trap away from the compressor.

2.4 Unpacking and Handling:

Occasionally damage will occur during shipping. Be sure to carefully inspect the unit before unpacking and after unpacking before you sign the receiver. If any has occurred, document it with the trucking firm immediately. Contact you LaPlante representative for assistance.

To move your compressor to its installation site, we recommend that you leave the unit on its shipping skid as long as possible. The forks should be extended the width of the compressor and padding should be placed between the compressor and the fork truck boom.

If it is necessary to lift the compressor with a crane, we recommend the use of spreader bar and chains. The spreader bar should be greater than the width of the compressor and padding placed on the edges to prevent chain damage.

Procedure for Handling Damaged Shipments:

1. The customer, at the receiving point, MUST inspect each shipment for damage.
2. If the shipment is damaged, the customer should so note it on the freight bill.
3. The customer should request an inspector from the freight company to inspect the equipment

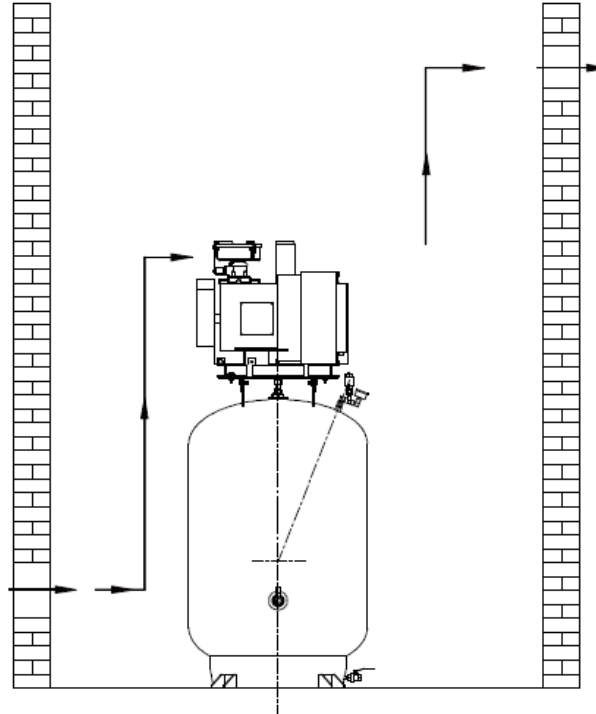
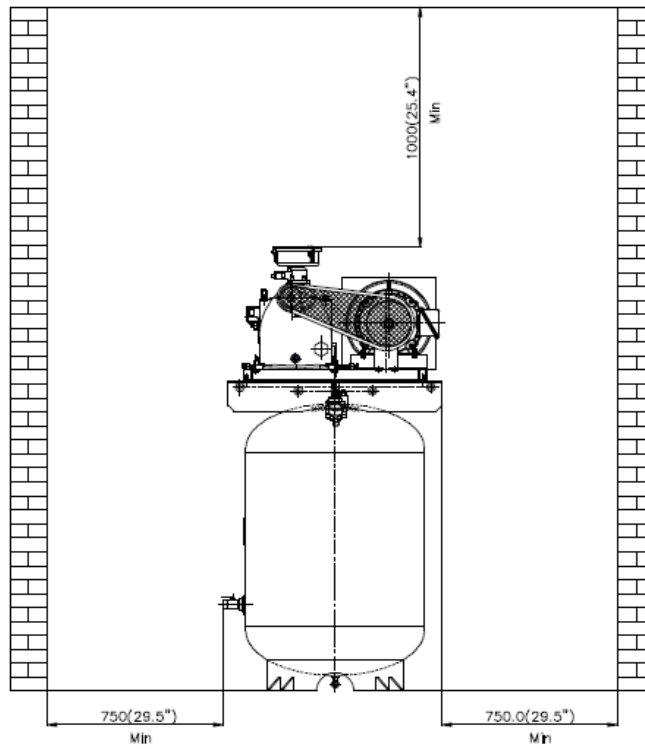


Figure 2-2 Installation Drawings

3.0: SPECIFICATION – GENERAL

3.1 Compressor Specification Sheet :

Table 3-1 compressor specification

	Item	Model	LPRS11
System	Cut-in Pressure	Psig(Bar)	135(9.3)
	Cut-out Pressure	Psig(Bar)	150(10)
	Volume Flow	CFM(m3/min)	
	Safety Valve(System) Setting	Psig	164
	Safety Valve(Network) Setting	Psig	175
	Drive Type	-	Belt
	Cooler Type	-	Air Cooled
Motor	Power	HP/(KW)	10(7.5)
	Enclosure	Type	TEFC(IP54)
	Motor Frame	-	215T
	Main Motor Speed	RPM	1750
	Power Factory	-	1.15
	Ambient Temperature °C	°F(°C)	≤104°F(40°C)
	Starter	Type	Delta
	Voltage	Volt	230/460/575, 3PH
	Frequency	HZ	60
	Insulation Class	-	F Class
Dimension	Length	In(mm)	36.6”(930)
	Width	In(mm)	30”(762)
	Height	In(mm)	76”(1930)
	Weight	Lb(Kg)	717(325)
Discharge Outlet		inch	1” NPT
Lubricating Oil Type		Synthetic Compressor Oil ISO68 SAE30	
Oil Capacity		Gal(L)	1.32(5)

NOTE:

- Control - Electro - Pneumatic
- Volume Flow (CFM) are ratings for full package performance in accordance test standard PN2CPTC2
- Package sound level based on CAGI-PNEUROP (ANSI-S51), +/- 3 dB (A)
- Maximum ambient temperature 105 degrees F
-

3.2 Lubrication Specification

The useful life of compressor oil depends on the quality of the oil, the maintenance of the Product and the condition in which the unit is operated.

Oil sampling and analysis is recommended every 200 hours of compressor operation at least until an oil/oil filter change pattern or schedule is established. The quality of the oil is left to the Oil Manufacturer. The responsibility for testing and evaluating the useful oil life is left to the Oil Manufacturer and/or Compressor End User.

It is recommended that LaPlante Propriety Synthetic Lubricant be used.

LaPlante offers several types of Synthetic Lubricant conveniently packaged from your nearest LaPlante Dealer.

If synthetic lubricants are not available contact your local lubricant supplier a lubricant that meets the specification in Table 1 below.

3.3 Electric Specification Sheet

Table 3-2 cable size, overload relay and fuses

Description	Voltage(V)	AMP (A)	SF AMP (A)	Frequency(HZ)	LPRS-11
Inlet Cable Size No.	230	23.6	27.1	60	No. 10 Wire
	460	11.8	13.6	60	No. 14 Wire
	575	10.2	11.8	60	No. 14 Wire
Main Overload Relay (A)	230	-	-	60	22~30
	460	-	-	60	12.5~18
	575	-	-	60	8.5~12.5

As a general rule take the motors full load amp(FLA) X1.25 or (25%) = to determine your breaker & wire size;

CAUTION:

All electrical work must be performed by a qualified electrician and must conform to national, state, and local electrical code in your area.

NOTE:

- The starting method is delta
- When change the voltage, the electrical component will be changed;
- Component is CSA or UL cert.

4.0: CONTROLLER

4.1 Introduction:

In general, the controller has following functions:

- I Controlling the compressor
- I Protecting the compressor
- I Monitoring components subject to service
- I Automatic restart after voltage failure

Automatic Control of the Compressor

The controller maintains the net pressure between programmable limits by automatically loading and unloading the compressor. A number of programmable setting e.g. the unloading and loading pressures, the minimum stop time and the maximum number of motor starts are taken into account.

The controller stops the compressor whenever possible to reduce the power consumption and restarts it automatically when the net pressure decreases.

Protecting the compressor

Shut-down

If the compressor outlet temperature exceeds the programmed shut-down level, the compressor will be stopped. The compressor will also be stopped in case of overload of the drive motor.

Shut-down warning

A shut-down warning level is a programmable level below the shut-down level.

If one of the measurements exceeds the programmed shut-down warning level, this will also be indicated on the display to warn the operator before the shut-down level is reached.

Service warning

If the service timer exceeds a programmed value, this will be indicated on display to warn the operator to carry out some service action.

Automatic restart after voltage failure

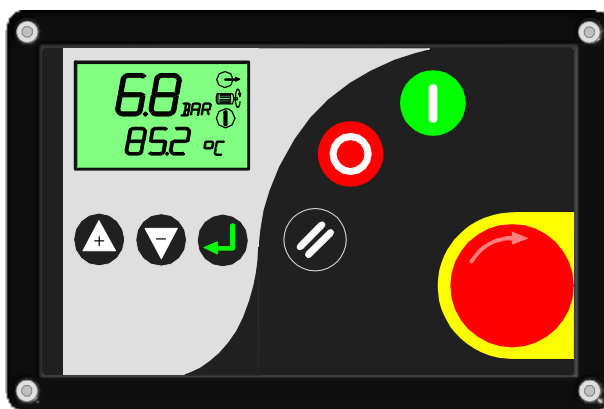
The controller has a built-in function to automatically restart the compressor when the voltage is restored after voltage failure. ***This function is deactivated in compressor leaving the factory. If desired, the function can be activated.***

4.2 Controller Panel

4.2.1 Interface








6 tactile feedback push button type keys integrated in to the front overlay design. 95 element custom backlit LCD

Figure 4-1 the Controller Surface



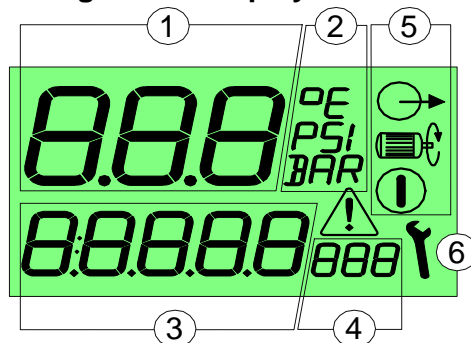
4.2.2 Keys:

Table 4-1 the Figure Name and Function

Figure	Name	Function
	Emergency Stop	Push button to stop the compressor immediately in the event of an emergency. after remedying the trouble , unlock the button by twist it out and press reset key
	Stop	Push button to stop the compressor. symbol status goes out , the compressor will stop after running in unloaded condition for about 30 seconds .
	Start	Push button to start the compressor .status symbol lighted indicate the controller is operative
	Reset	Key to reset the service timer, a shut-down condition, etc or to return to a previous display.
	Enter	Key to select or validate a parameter, to open a sub-display.
	Down or Decrement Value	Key to scroll downwards through the screens or to decrease a setting.
	Up or Increment Value	Key to scroll upwards through the screens or to increase a setting.

4.2.3 Display:

Figure 4-2 Display of the Controller



- 1: Main Display Value: 0.1 to 999
- 2: Main Display Value Units: BAR, PSI, °C, °F
- 3: User Menu Item Display Value:0.1 to 99999

4: User Menu Item Display Units: BAR, PSI, °C, °F, Hr, LHR

5: Status Symbols  Started,  Running,  Loaded

6: Service/Fault Symbols  Service,  Fault: Alarm/Warning/Trip

Symbol Meaning

7.0_{BAR} **102**_{PSI}

Main Display Value; Pressure (bar/psig menu selectable)

85.6_{°C} **186**_{°F}

Default User Menu Item; Temperature (°C/°F menu selectable)



To view alternative User Menu items press Up or Down

23456_{Hr}

Total Run Hours

16420_{LHr}

Hours Run Onload

420_{Hr} 

Hours Until Service Due (countdown timer based on total run hours)


1Add

RS485 Communication Network Address (*only show if RS485 option installed)



If a timer event occurs (run-on, stop, blowdown or auto restart time) the User item display will show the time countdown in seconds. While a countdown is being displayed normal User items can still be viewed; press Down.

The display will default back to the User Temperature item after a short period of no key activity or after a timer event has completed.

 If operating in 'Pressure Switch Mode' the main display will show the detected temperature and the default User Menu item will be total run hours. Pressure is not displayed in pressure switch mode.



Pressure Switch Mode

Status Display:

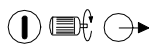
The operating status is continuously displayed using status symbols.



Standby: The compressor is in a started state but is not running. The compressor will automatically re-start and load when pressure falls to the lower pressure set point; or a remote load signal.



Running: The compressor is running offload (run-on-time active)



Loaded: The compressor is running onload

Fault Conditions:



If a Fault condition occurs the Fault triangle symbol will switch on steady (Alarm/Warning) or flash (Trip/Shutdown)

The User menu display item will show a 'Fault Code' dependant on the fault.



Fault Codes

Service Due Countdown Timer:



If the Service Due countdown timer reaches 0(zero) hours, the Service and Alarm symbols will flash and the service Alarm (Warning) code will be displayed. The alarm code can be reset but the service symbol will remain on the display until the service due timer is reset; the service hours will continue to decrement in negative hours. The service countdown timer can be reset, using the menu routine, when the required service has been carried out. Set to any value greater than 0(zero) hours before reset.

The Service Due countdown timer can be reset to any hour's value, dependant on the required service interval. The timer will countdown dependant on total run hours.

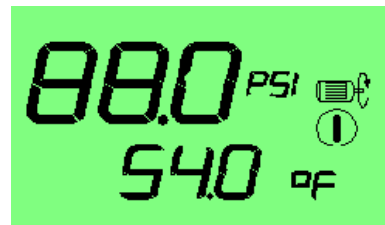
Start and Loading

Start: press the button , start the machine

Figure 4-3 Start Display



Figure 4-4 Running Display



Running: when the compressor run, the display as figure 4-4.

Loading: after the compressor start 5 seconds, the machine will automatically load and un-load as the programmed pressure parameter. The display shows as figure 4-5.

Figure 4-5 Loading Display



NOTICE

FIRST RUN THE COMPRESSOR, THE ROTATION OF THE AIREND AND FAN MOTOR

ARE MUST BEEN INSPECTED.

Stop

Manual Stop


Press the stop button  , the compressor will stop after 10 seconds, display as figure 4-6. After the machine stop, the controller display will show back to start display (figure 4-3).


Figure 4-6 Stopping Display



Un-loading Stop

If the compressor working on the un-loading condition extends to 10 seconds, the controller will stop the air end, the controller display will show as figure 4-3 .the compressor will start again when the discharge pressure below the loading parameter .the controller display shows as figure 4-4.

Emergency Stop

In the especially urgency , press the emergency stop button  , the alarm signal will flash , compressor will automatically un-load , the motor will stopped and the air end will ceased .user menu item display area will show the err code .more detail show as figure 4-7.



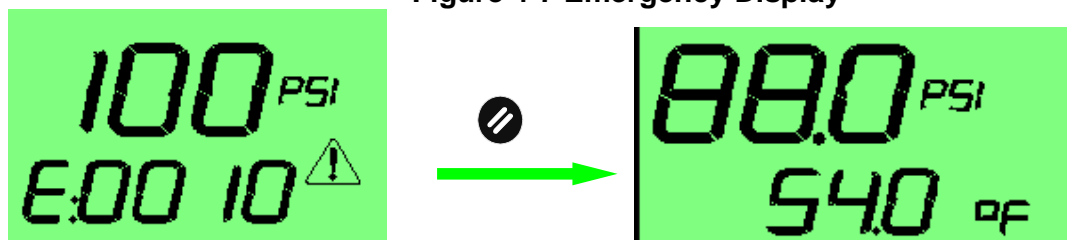
After deal with all the trouble, twist and loose the emergency stop button  , press the reset button  , the controller will back to start figure 4-3.

Figure 4-7 Emergency Display



Malfunction Stop


When there is trouble, the controller alarm signal will flash, the compressor will automatically un-loaded, the air end will stop. The more detail display show as figure 4-8. Err code show in table 4-2. Solution the malfunction follow as err code, after deal with all troubles, press the reset button  , back to the start figure 4-3.

Figure 4-8 Trouble Display

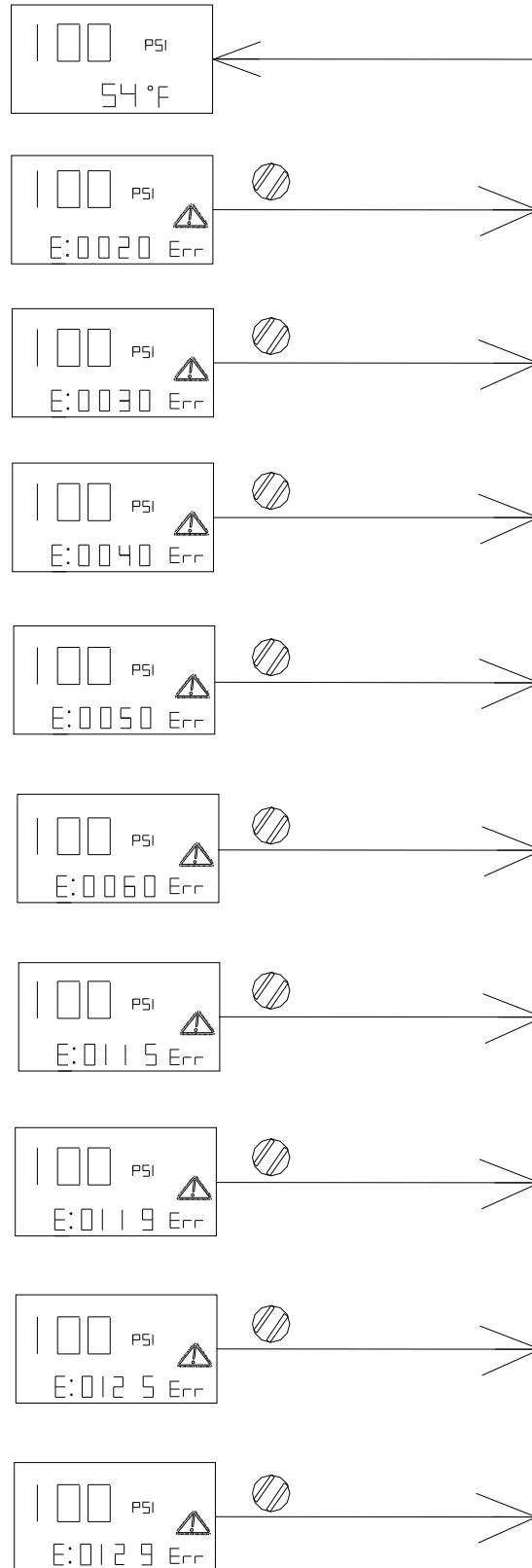


Table 4-2 Err Code

Err code	Malfunction	Cause	Solution
E: 0010	Emergency stop	The emergency button be pressed	Deal with the emergency cause, loose the emergency button, press the reset button back to start state.
E: 0020	Main motor overload relay protection	The main motor current is bigger than set-point.	Deal with the overload cause, press the relay's reset button, press the controller's reset button back to start state. If necessary, replace the relay.
E: 0030	Fan motor overload relay protection	The fan motor current is bigger than set-point.	Deal with the overload cause, press the relay's reset button, press the controller's reset button back to start state. If necessary, replace the relay.
E: 0040	Phase protection	Power lack voltage or the phase series are wrong.	Exchange any two inlet wires, and inspect the power voltage, press the controller's reset button back to start state.
E: 0050	Oil separator pressure different protection	The Oil separator pressure different value is bigger than set-point.	Replace fine separator, press the controller's reset button, the controller will back to start state. If necessary, change the pressure different switch.
E: 0060	Oil filter pressure different protection	Oil filter pressure different is bigger than set-point	Replace filter, press the controller's reset button, the controller will back to start state. If necessary, change the pressure different switch.
E: 0115	Pressure transmitter fault	Pressure transmitter malfunction: wire loose or part failure.	Inspect the transmitter's wire or replace one transmitter. Press the controller's reset button, the controller will back to start state.
E: 0119	Excess discharge pressure protection	High discharge pressure or bad transmitter	Inspect the machine's pressure or the pressure transmitter , press the controller's reset button , the controller will back to start state .
E: 0125	Temperature sensor fault	Temperature sensor malfunction: wire loose or part failure.	Inspect the sensor's wire or replace new one. Press the controller's reset button, the controller will back to start state.
E: 0129	Excess temperature protection	High discharge temperature	Resolve high discharge temperature cause (more detail see Section VIII), Press the controller's reset button, the controller will back to start state.
	Stop without indicate	Controller failure or switch malfunction	Replace controller or inspect switch

Warning


If the compressor is warning, the controller will display the signal, but the machine can still run. The more controller display show as figure 4-9, the alarm code show in table 4-3 .when deal with this alarm cause, press the reset button  , , the controller will back to initial view .

Figure 4-9 Alarming Display

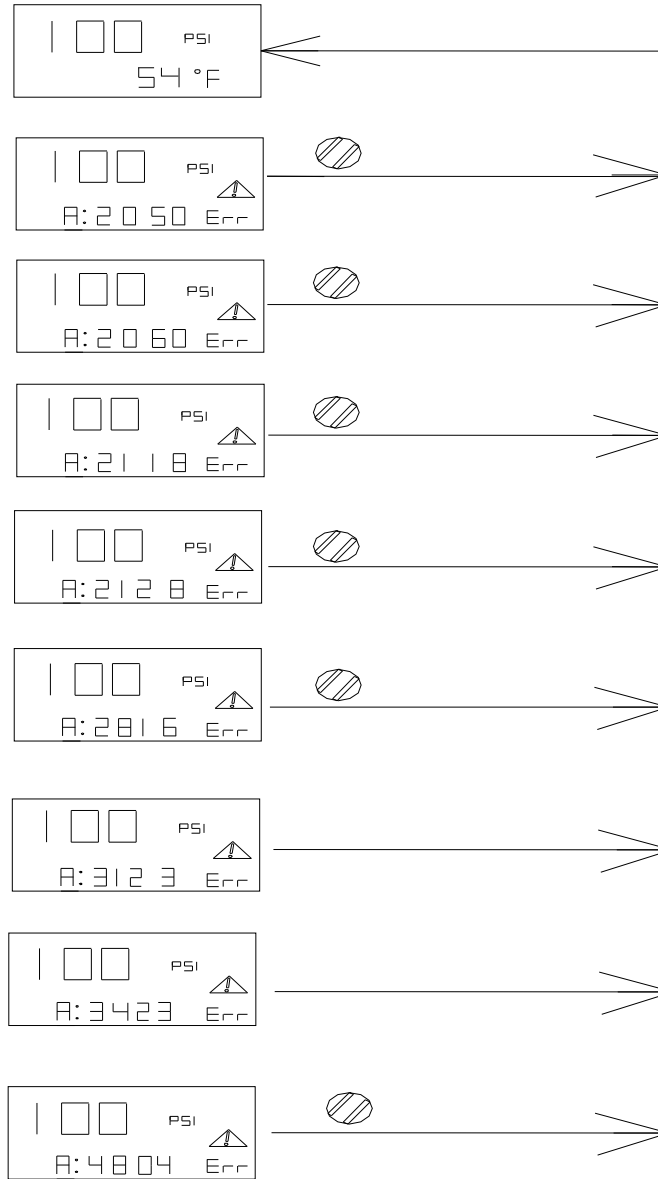


Figure 4-10 Parameter Display

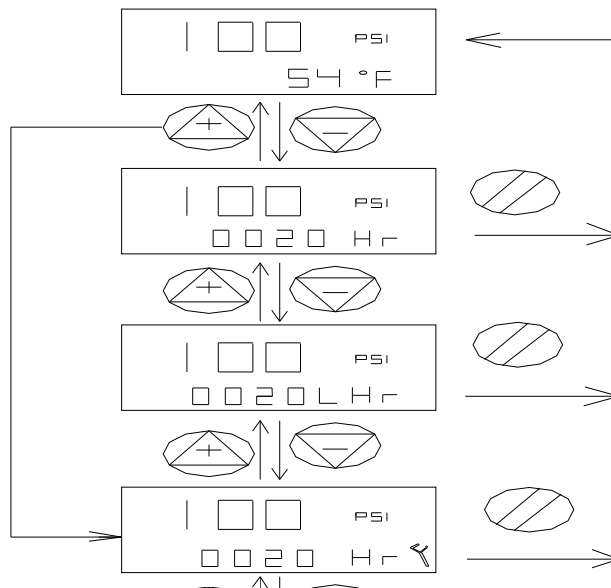


Table 4-3 Alarming Code



Alarm code	Alarm name	Cause	Action
A: 2050	Oil separator pressure different alarm	The oil separator Pressure different value is bigger than set-point	Replace fine separator, press the controller's reset button, the controller will back to initial state. If necessary, change the pressure different switch.
A: 2060	Oil filter pressure different alarm	The oil filter pressure different value is bigger than set-point	Replace filter, press the controller's reset button, the controller will back to start state. If necessary, change the pressure different switch.
A: 2118	Excess discharge pressure alarm	High discharge pressure or bad transmitter	Inspect the machine's pressure or the pressure transmitter, press the controller's reset button, the controller will back to start state.
A: 2128	Excess temperature alarm	High discharge temperature	Resolve high discharge temperature cause (more detail see Section VIII), Press the controller's reset button, the controller will back to start state.
A: 2816	Power failure alarm	low Inlet controller power or power failure	Inspect the inlet voltage, Press the controller's reset button, the controller will back to start state.
A: 3123	Rum inhibited	Temperature is below set low temperature run inhibit limit	Will self reset when temperature increases above the set temperature limit. Cannot be manually reset
A: 3423	Load inhibited	Temperature is below set low temperature load inhibit limit.	Will self reset when temperature increases above the set temperature limit, cannot be manually reset.


A: 4804	Service due	Service interval hours counter has reduced to zero.	Reset the service interval time.
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Calling up the display

The controller can display the parameter what show the compressor state when the machine is running, but this parameter cannot be edit. The view as figure 4-8

Change the Timer

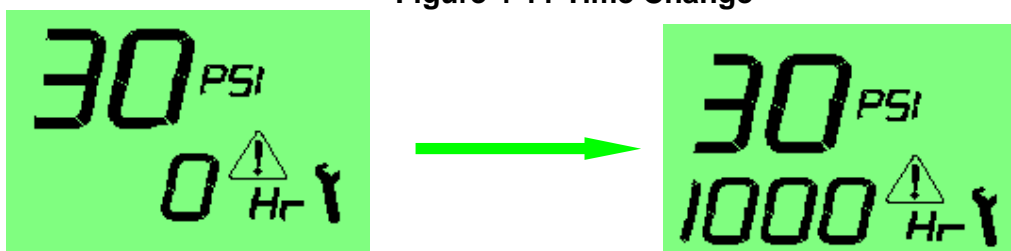
Stop the compressor first then press the Up and Down   buttons simultainiously. After several seconds the display will show four "0" characters; the first character will flash. Press Up or Down to adjust the first character to match the first character of the required

access code. Press Enter to increment to the second code character. 

When all four access code characters have been set, and the last code character is flashing, press Enter. If the access code is correct for access to the menus, the first menu item of the appropriate menu will be displayed. If the access code is incorrect the display will return to the normal operational display.

To select a menu item for adustement press Up or Down until the menu item is displayed. To adjust an item setting press Enter, the value or option will flash. Press Up or Down to adjust as required then press Enter to store in memory. Figure 4-11 shows how to change the timer.

Figure 4-11 Time Change



After change the value, press the reset button to the normal operational display.

The access code is 0009 for setting operational menu:

Table 4-4 Parameters

<u>Description</u>	<u>Code</u>	<u>Units Set</u>	<u>Minimum setting</u>	<u>Factory setting</u>	<u>Maximum setting</u>	<u>Default</u>
Service Interval	1.Sh	Hours	0		9999	-
Unloading pressure (100 psig)	1.Pu	Psig	15	100	226	-
Unloading pressure (125 psig)	1.Pu	Psig	15	125	226	-
Unloading pressure (150 psig)	1.Pu	Psig	15	150	226	-
Loading pressure (100 psig)	1.PL	Psig	12	87	223	-
Loading pressure (125 psig)	1.PL	Psig	12	110	223	-
Loading pressure (150 psig)	1.PL	Psig	12	130	223	-
Run-On-Time	1.rt	sec	0	60	600	-
Blowdown Time	1.bt	sec	0	-	120	30
Stop-Time	1.St	sec	0	-	30	10
Pressure Display Units	1.p-	Psig	-	Psig	-	-

Operation manual

Temperature Display Units	1.t-	°F	-	°F	-	-
Auto Restart Time	1.At	sec	0	0	120	-

The access code is 0121 for setting configuration menu:

Table 4-5 Parameters

<u>Description</u>	<u>Code</u>	<u>Units Set</u>	<u>Minimum setting</u>	<u>Factory setting</u>	<u>Maximum setting</u>	<u>Default</u>
Load delay time (star-delta)	2.Sd	Hours	0		9999	
Network Address (RS485 option)	2.Ad	-	1	-	12	1
Load Source	2.LS	-	0=local	-	1=RS485	0=local
Start Source	2.SS	-	0=local	-	1=RS485	0=local
High Pressure Alarm Level (100psi)	2.PA	Psig	18	110	229	-
High Pressure Alarm Level (125psig)	2.PA	Psig	18	133	229	-
High Pressure Alarm Level (150psig)	2.PA	Psig	18	154	229	-
High Pressure Trip Fault Level (100psig)	2.PF	Psig	21	116	232	-
High Pressure Trip Fault Level (125psig)	2.PF	Psig	21	140	232	-
High Pressure Trip Fault Level (150psig)	2.PF	Psig	21	160	232	-
High Temperature Alarm Level	2.tA	°F	122	230	478	-
High Temperature Trip Fault Level	2.tF	°F	126	248	482	-
Digital Input 'C2' configuration	2.d2	-	2: Eno - Shutdown Trip @ 24Vac (0Vac=OK) 3: Enc - Shutdown Trip @ 0Vac (24Vac=OK)			3
Digital Input 'C3' configuration	2.d3	-	2: Eno - Shutdown Trip @ 24Vac (0Vac=OK) 3: Enc - Shutdown Trip @ 0Vac (24Vac=OK)			3
Digital Input 'C4' configuration	2.d4	-	2: Eno - Shutdown Trip @ 24Vac (0Vac=OK) 3: Enc - Shutdown Trip @ 0Vac (24Vac=OK)			3
Digital Input 'C5' configuration	2.d5	-	0: Ano - Alarm @ 24Vac (0Vac=OK) 1: Anc - Alarm @ 0Vac (24Vac=OK) 2: Eno - Shutdown Trip @ 24Vac (0Vac=OK) 3: Enc - Shutdown Trip @ 0Vac (24Vac=OK)			0
Digital input 'C6' configuration	2.d6	-	0: Ano - Alarm @ 24Vac (0Vac=OK) 1: Anc - Alarm @ 0Vac (24Vac=OK) 2: Eno - Shutdown Trip @ 24Vac (0Vac=OK) 3: Enc - Shutdown Trip @ 0Vac (24Vac=OK) 4: rLu - Remote Load/Unload (24Vac=Load) 5: PSr - Pressure Switch Regulation (24Vac=Load)			0
Pressure sensor 'offset' calibration	2.Po	Psig	- 21.8	-	21.8	0
Pressure sensor 'range' calibration	2.Pr	Psig	0	-	1522.5	232
Low Temperature Load Inhibit	2.tL	°F	34	-	158	35.6
Low Temperature Run Inhibit	2.tr	°F	- 4	-	50	- 4

4.10 Terminology

Table 4-6 Term Explanation

<u>Term</u>	<u>Explanation</u>
-------------	--------------------

Compressor parameter outlet	The controller does not accept illogical setting, e.g. if the warning level is programmed at 203°F, the minimum limit for the shut-down level changes to 204°F. The recommended different between the warning level and shut-down level is 10°F .
Pressure Control:	The compressor will maintain pressure between the set Pu (Unload Pressure Set Point) and PL (Load Pressure Set Point. When Pressure reaches the set 'Pu' level the compressor will unload. When pressure falls to the 'PL' level the compressor will load.
Run-On-Time:	When the compressor unloads the run-on-timer is initiated. If the set run-on-time expires before the compressor loads again the main motor will stop and the compressor enter the Standby state.
Blowdown Timer:	When the main motor stops the compressor will allow a period of blowdown (the Blowdown Time) before a motor start can be re-initiated. A motor re-start is inhibited during this time period. This time is intended to allow internal pressure (or sump pressure) to be vented before a motor start sequence is permitted. Set to 0(zero) seconds if not required.
Stop Time:	When the Stop button is pressed the compressor will unload and the main motor will continue to run for the set Stop Time. This time is intended to allow internal pressure (or sump pressure) to reduce before the compression element is stopped; preventing potential oil blow-back through the compression element and air filter. The stop time is initiated from the moment the compressor is unloaded. If the compressor has been offload for a period of time prior to a stop command the time is automatically reduced accordingly. If the compressor is stopped after the compressor has been running offload for the stop time, or longer, the compressor is stopped immediately; no stop time is applied. Set to 0(zero) seconds if not required.
Power recovery time	Is the period within which the voltage must be restore to have an automatic restart .is accessible if the automatic restart is activated .to activate the automatic restart consult LaPlante.
Unloading / loading pressure	The controller does not accept illogical setting, e.g. if the unloading pressure is programmed 101 psig, the maximum limit for the loading pressure changes to 100 psig. The recommended minimum pressure difference between loading and unloading is 9 psig.

5.0: OPERATION

5.1 Before Initial Start-up

The operator must apply all relevant safety precautions, including those mentioned in this book. The operator must have a formally training for authority operation this machine.

BE ALARM!

A careful operation is the best insurance against an accident!

5.2 Initial Start-up

- 5.2.1 Check the installation proposals, dimension drawing and electric cable size.
- 5.2.2 Check the electrical connections correspond to the local codes and that all wires are clamped tight to their terminals.
- 5.2.3 Check the ground wire and an isolating switch for compressor.
- 5.2.4 Check transformer for correct connection.
- 5.2.5 Check that the motor overload relay is set for manual resetting.
- 5.2.6 Open the air outlet valve.
- 5.2.7 Connect the condensate drain outlet to a drain collector.
- 5.2.8 Check the oil level, and oil type as required.
- 5.2.9 Provide labels, warning the other operator.
- 5.2.10 Checking the main motor rotation direction
- 5.2.11 : Jog the compressor motor by Pull out the “Emergency stop” button and press the “Start” button to spot start the compressor and check the rotation. The rotation should be same to the arrow on the top face of belt guard (refer to figure 5-1). The other methods is when starting the compressor shortly, if feel the wind out by the oil cooler, that shows the rotation is correct.

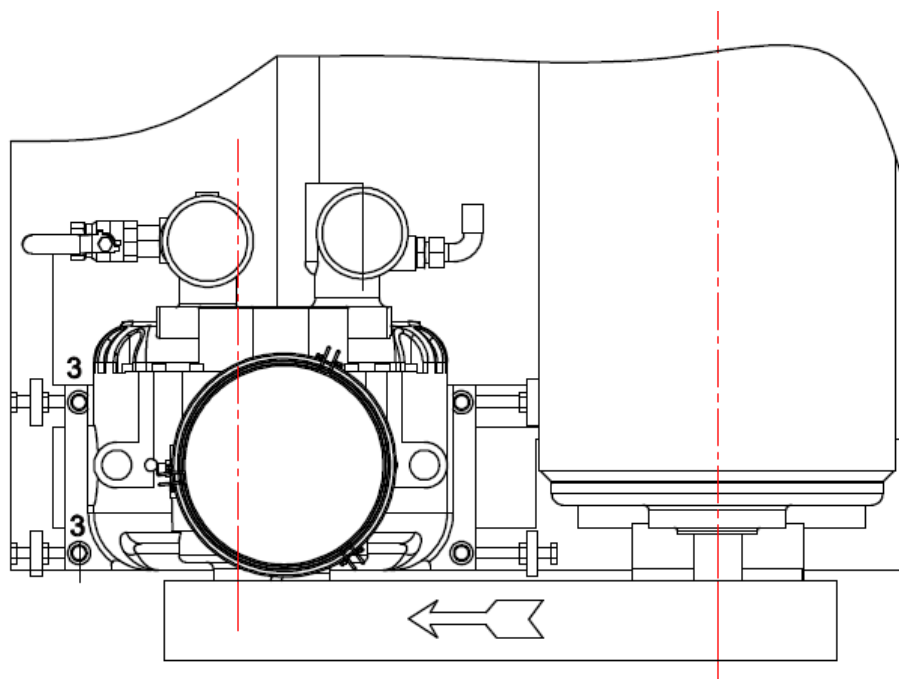


Figure 5-1 Run Direction

NOTICE

Rotation of the air end is correct when the input drive shaft turns counter clockwise when facing the air end from the driveshaft end.

If rotation is incorrect, open the line disconnect switch and rewire the power feed line at the compressor to obtain correct direction of rotation. After rewiring return to check rotation and correct as required.

5.2.12 Check the controller setting.

5.2.13 Start and run the compressor for a few minutes, check that the compressor operates normally.

5.3 Starting

5.3.1 Switch on the voltage.

5.3.2 Open the discharge valve.

5.3.3 Press the start button on the control panel, the compressor starts running.

5.4 During Operation

Press the stop button, close the air discharge ball valve and open the drain water valve

Regularly check the oil level, three minutes after stopping, sight-glass should be between 1/4 and 3/4 full. Press the emergency stop button, wait until the compressor has stopped, depressurize the oil system by unscrewing oil filler plug one turn and wait a few minutes. Remove the plug and top up oil, until the sight-glass is full. Fit and tighten the plug.

NOTICE

Observe the oil filter and element of air filter, when they have exceeded the normal replacement interval stated in this manual.

5.5 Checking the Display

Checking the display regularly: the compressor status is indicated by pictographs, remedy the trouble if the alarm pictographs light.

5.6 Stopping

5.6.1 Press stop button, the compressor stops after unloaded operation.

5.6.2 Stop the compressor in the event of an emergency, press emergency stop button, after remedying the fault, unlock the button by twist it out and press the reset key before restarting.

5.6.3 Close the discharge valve.

5.6.4 Open the drain water valve.

5.6.5 Switch off the power.

5.7 Taking Out of Operation

5.7.1 Stop the compressor and close the discharge valve.

5.7.2 Open the drain water valve.

5.7.3 Switch off the voltage and disconnect the compressor from the mains power.

- 5.7.4 Unscrew the oil filler plug one turn to permit any pressure in the system to escape.
- 5.7.5 Shut off and depressurize the part of the air net which is connected to the discharge valve. Disconnect the compressor air discharge pipe from the air net.
- 5.7.6 Drain oil.

 **WARNING**

Air escaping to atmosphere is noisy. Always wear ear protection to protect hearing against high intensity noise.

6.0: DESCRIPTION

6.1 Introduction

The LPRS11 Compressor is an electric, belt driven, single stage, oil flooded Rotary Screw Compressor complete with accessories, piped, wired and base mounted. It is available as a total self contained Air Compressor Package fully enclosed with sound reduction enclosure and designed for 32 to 105 degrees F ambient.

This compressor is one small vibration, low noise, high efficient rotor, long life and micro-processor controller machine.

LaPlante Screw Compressor Models LPRS 11

Model Code:

LPRS 11

LPRS - LaPlante Rotary Screw Compressor

11: nominal HP of the Electric Motor

Compressor system include: air system, lubricant oil system, safety protection system and warning, and control system and electric circuit.

The Standard Compressor is configured as follows:

Inlet Air filter, air intake valve

Air end, Motor and Belts/Pulley Assembly

Tank, Air/Oil Separator, and Minimum Pressure Valve

Lubrication System, Oil Cooler, oil filter and thermostatic valve

Intelligent controller and electrical Components

Safety Devices, pressure sensor, temperature sensor

Sub-base, Main Frame and solenoid valve

6.2 Airend

The compressor assembly is an oil flooded positive displacement, single stage, helical screw type unit consisting of two rotors or screws supported axially by roller bearings and enclosed in housing or stator as depicted in the sectional view figure 6-1

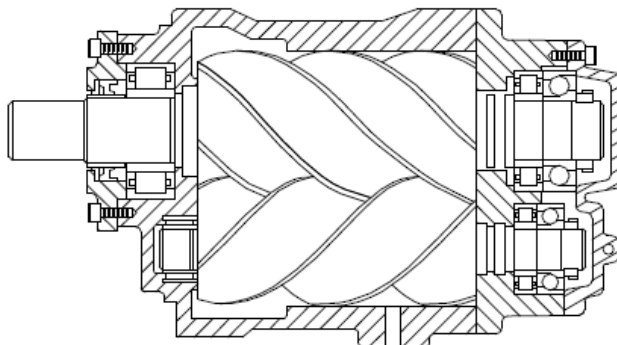


Figure 6-1

Air end Assembly

In operation as depicted below in the compressor cycle (Ref Figure 6-2), air entering the air end through the inlet port becomes trapped between the helical lobes of the main rotor and the matching grooves of the secondary rotor (A). As the rotors turn air is trapped in the cavity created by the mashing lobe and groove and reduced in volume or “compressed” . It is then pushed through the successive cavities (B) until it reaches the discharge end of

compressor (C) and is sent to the oil separator.

During the compressor cycle, oil is injected into the compressor for the purpose of dissipating the heat of compressor and to seal the internal clearances. The compressed air laden with oil gas leaves the compressor through the discharge port and enters a reservoir where the oil and air are separated. The process delivers a smooth flow of compressed air the desired pressure.

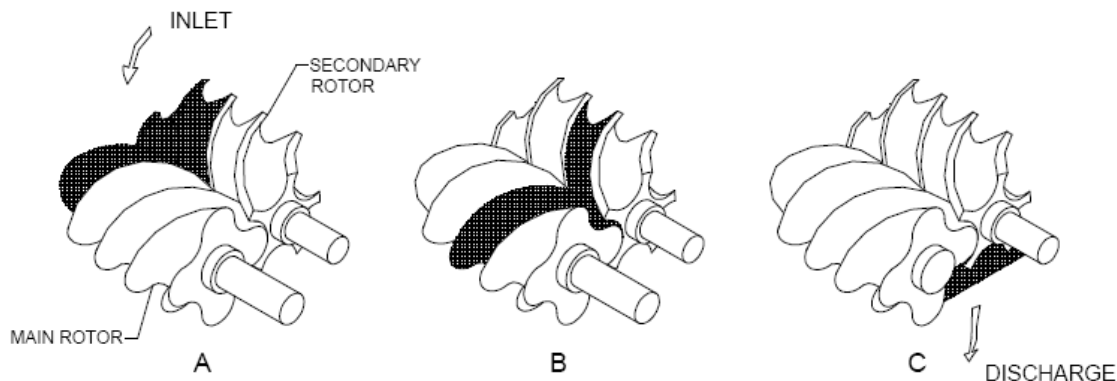


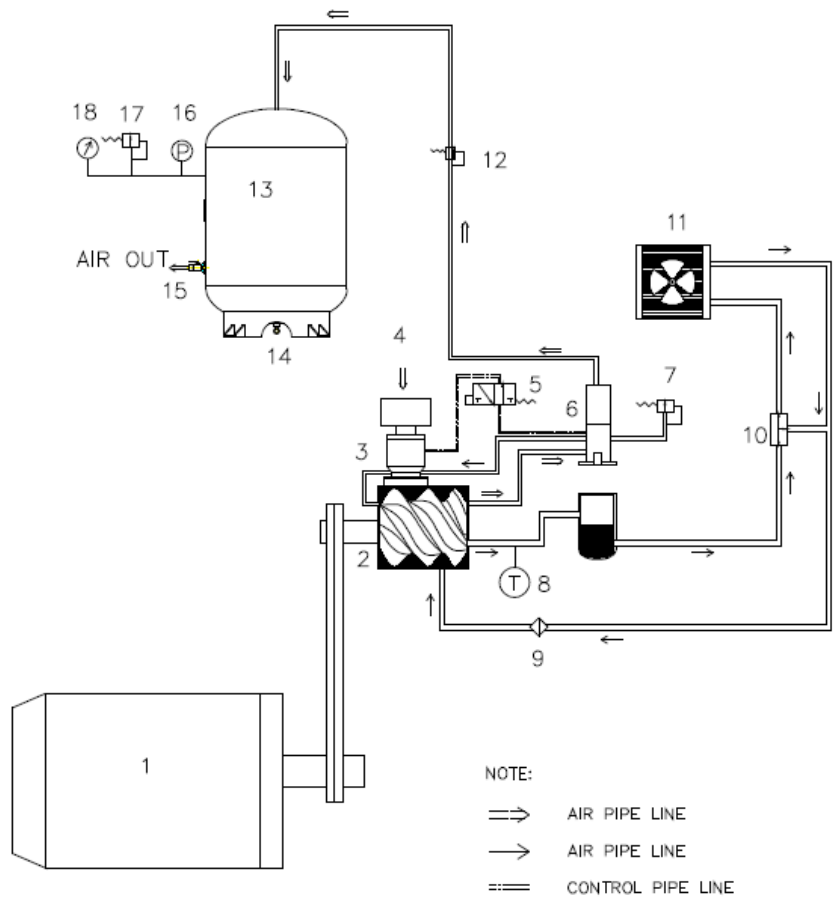
Figure 6-2

Compressor Cycle

6.3 Air flow system

Air enters the air end through the air filter and air inlet valve where it is mixed with oil. After compression the air/ oil mixture is discharged into the oil separator where its velocity is reduced causing most of the oil to drop to the bottom. The remaining oil is removed as the air passes through separator element. Oil collected at the bottom of the separator element is returned to the inlet of the air end through the copper tube. The coalesced air then passes through the minimum pressure valve set to maintain a minimum of 50 PSI in the oil separator to enter a sufficient flow of oil to the air end. The compressed air then enters the air tank and discharged to its point of usage.

COMPRESSOR FLOW SYSTEM



Item	Description	Item	Description
1	Electric Motor	10	Thermostat Valve
2	Air end	11	Oil Cooler
3	Intake Valve	12	Minimum Pressure and NON Return Valve
4	Air Filter	13	Air Tank
5	Solenoid Valve	14	Drain Water Valve
6	Air/ Oil Separator	15	Discharge Valve
7	Safety Valve (System)	16	Pressure Sensor
8	Temperature Sensor	17	Safety Valve(Network)
9	Oil Filter	18	Pressure Gauge

Figure 6-3

Compressor Flow System

6.3.1 Air Filter and Inlet Valve

The air filter is the primary protection of compressor from harmful dirt being ingested into the oil system. It needs to be looked at weekly for clogging or holes. The period for these inspections is dependent on the environment the machine is in (at least 1000 hours).

The inlet valve is pneumatically operated by a pressure regulator and functions in response to air demand.

6.3.2 Air/Oil Separator

The air/oil separator should be changed every 4000 hours, once a year, or when there is excessive oil vapor in the discharge air, or as indicated by a maintenance indicator, whichever occurs first. Higher temperature operation can cause the element to plug faster. Consistent operation in temperature over 180 degree F will require more frequent separator element changes.

6.3.3 Minimum Pressure Check Valve:

The minimum pressure valve is located on the air end to keep the pressure in separator not lower than 50~65 psig for lubricant can smoothly flow into the system. When the compressor is running unloaded or stopped the minimum pressure valve can prevent from air back flow to separator and air end.

6.4 Oil System:

In the LaPlante Screw Compressor, oil flow is driven by the pressure in the air/oil separator and flow through oil cooler and be cooled, a thermal mixing valve, the cooled oil pass oil filter to the air end where it provides cooling, sealing and lubrication. The oil mixed with compressed air is returned to separator from the air end through the discharge pipe and is separated from the compressed air by mechanical and filtration techniques in the air/oil separator.

Lubricant piping system connect air end, separator, oil cooler, oil filter and thermal mixing valve.

6.4.1 Oil Cooler:

The oil cooler is mounted on the fan shroud and is an air-cooled tube - fin type. The cooling fan is driven by main motor. The cooler has been selected for 105 degrees F ambient operating conditions.

6.4.2 Oil Filter:

If the oil with particles flows into air end, the rotors profile is damaged so decline the compressor efficiency and shorten the lifetime. The oil filter removes the particles and keeps the oil cleaning.

The oil filter ensures that oil to air end is properly filtered and is a 10 Micron rating (nominal) spin on element type. Filter is equipped with differential pressure switch. When the controller display the element requires replacing the compressor will shut down. See figure 6-4

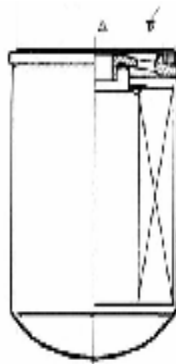


Figure 6-4 Oil Filter

6.4.3 Thermal Mixing Valve:

During start-up this valve provides for a bypassing of the heat exchanger so that oil flow is quickly established to the airen. The bypass stays start **closed from 174 degrees F** and will tightly closed bypass **at 201 degrees F**. At unload or low capacity conditions this valve will also maintain a minimum tank air/oil temperature to ensure that moisture in compressed air is not condensed (temperature maintained over pressure dew point). Under very humid operating conditions it is good maintenance practice to check receiver tank for water before start-up and drain off if present.

6.5 Electric System and Components:

The control center houses the electrical components that support the intelligent controller. All the electrical components are UL listed or CE listed. On the outside of control center are mounted controller.

Standard Motors are squirrel cage induction type to NEMA construction – TEFC horizontal foot mounted continuous full load operation at SF = 1.15 in 40 degrees C ambient. Standard Starters are full voltage (UL) listed.

6.6 Modulation System:

The modulation system consists of inlet air control valve, solenoid valve and piping. There are 3 various operation statuses.

<1> Load

When you press the “start” button the motor drives the air end through belts. The inlet air valve is opened by light vacuum. A little air is sucked into air end and pressure in separator is setup. When the pressure reaches **29 Psig** partial air is delivered into inlet valve to close it to stop air inlet feeding for start up under low back pressure. While the solenoid valve is switched on to cut off the pressured air feed to inlet valve. The inlet valve re-opens to suck air due to vacuum. When the pressure of air/oil separator reaches 51 Psig the minimum pressure valve opens for discharge. The inlet valve fully opens and the compressor operates under full load status. The compressor will fully loaded operate unless the pressure exceed 145 Psig.

<2> Unload

When pressure exceeds 145 Psig, The solenoid valve is closed and compressed air is feed into inlet valve to close it. When the compressor stops suction air the blowing off valve opens to un-load. Then the unit converses into un-loading status.

If down steam air consumption makes pressure reduced to 130 Psig the solenoid valve opens to cut off compressed air for inlet valve. While the inlet valve opens the compressor re-start suction air. At the same time the blowing off valve closes, the unit converses into

loading status again.

<3> Shut down and blow off

When the “stop” button pressed, the compressor stops. The solenoid valve closes and control air flows into inlet valve to close it. The blowing off valve opens at the same time to release the pressure in the package.

6.7 Safety System:

The safety system include the main motor overload protection, delivery temperature protection , delivery pressure protection and safety valve .

The safety valve(system) is set on the air end, the safety valve(network) is set on the air receiver. When the pressure exceeds setpoint, the safety valve will release the pressure to keep the compressor safety.

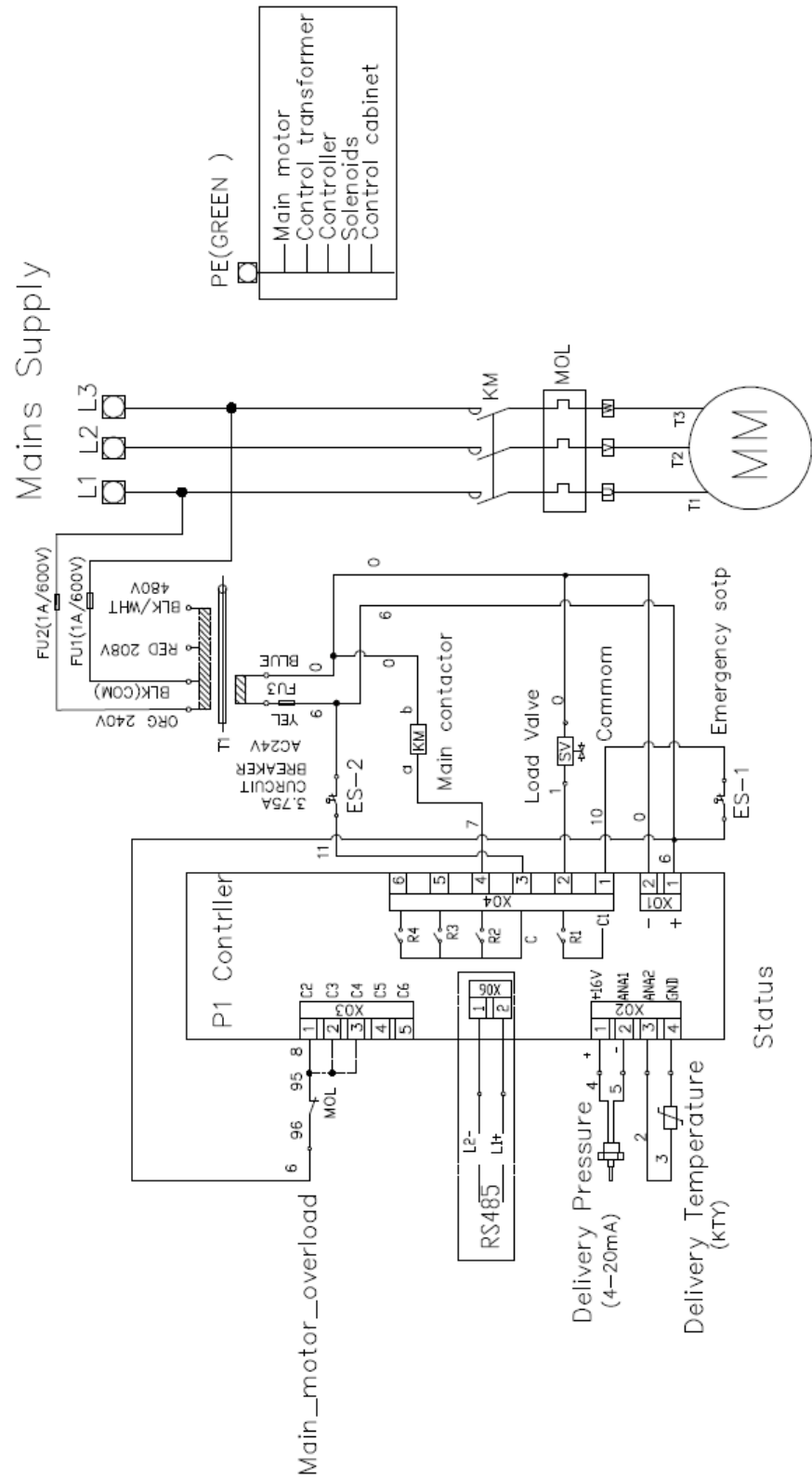
When the motor working current exceeds upper preset value a current protection device (overload protection) will automatically turn off main power and the unit is stopped immediately. Unless the device is manually reset, the unit cannot be restarted.

The wiring diagram see the figure6-5.



The safety component value has been set before delivery. Do not change it at random. Otherwise can cause serious damage to the compressor, plant and cause severe injury or death.

10HP / 3PH / 230V WIRING DIAGRAM



TERMINAL BLOCK INFORMATION

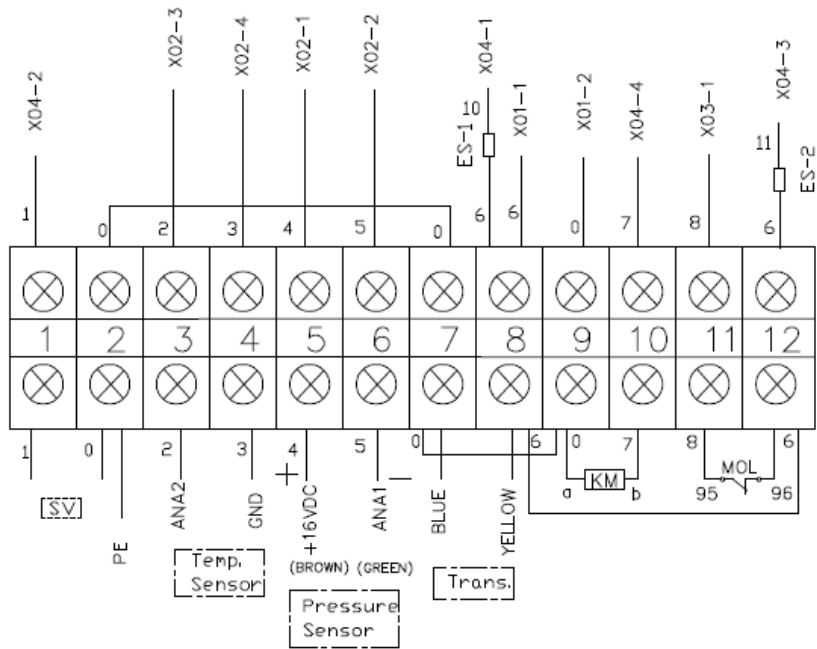
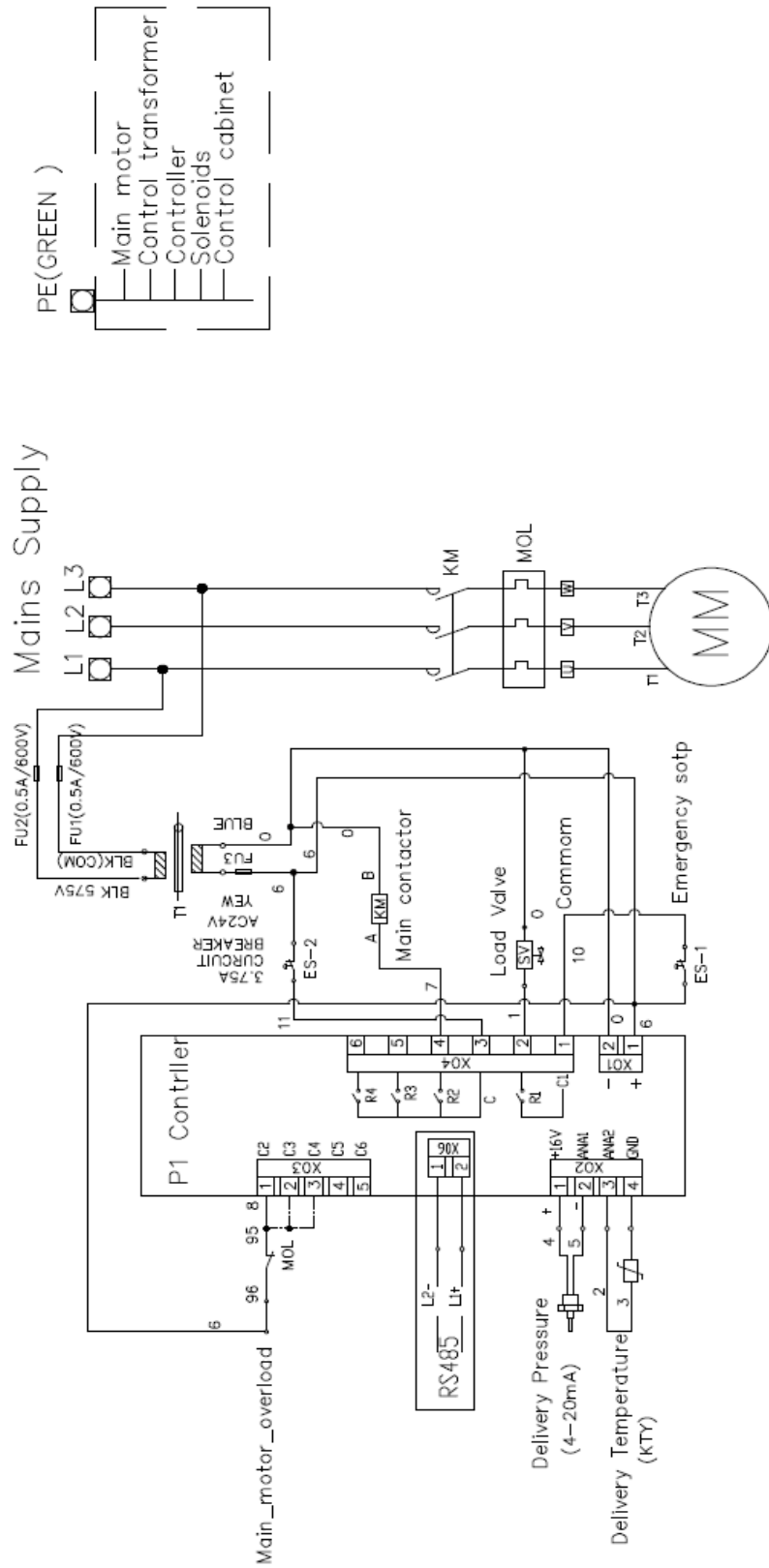


Figure 6-5-a the Electrical Drawing 230 Voltage

10HP/3PH/575V WIRING DIAGRAM



TERMINAL BLOCK INFORMATION

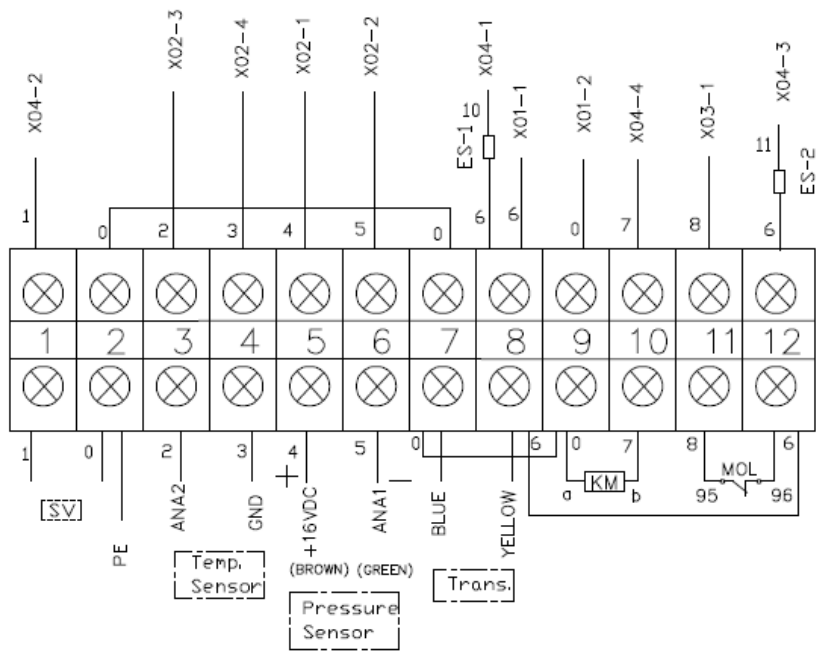


Figure 6-5-b the Electrical Drawing 575 Voltage

7.0: PREVENTATIVE MAINTENANCE

7.1 Preventative Maintenance

Satisfactory performance of a Stationary Screw Air Compressor Package requires a good preventative maintenance program.

The following information is provided as a GUIDE for such a program. The table 7-1 for the maintenance schedule, the method shall do upon the earlier time.

Table 7-1 Maintenance Schedule

Daily or Every 8 Hours	<ol style="list-style-type: none"> 1. Check the sump for the correct oil level; 2. Drain condensate from air receiver. (If available) 3. Check the pressure reading to insure proper operating point; 4. Check controls for proper operation;
Weekly	<ol style="list-style-type: none"> 1. Inspect the air filter element for clogging or holes; 2. Drain the condensate from the sump. Depending on the humidity this may be necessary daily. Prior to draining the compressor should be shutdown for two hours to allow water and oil to separate; 3. Check the pressure relief valve for operation. This valve is factory set and no attempt should be made to readjust it; 4. Check the machine for oil leakage loose fasteners, and connection; 5. Clean the external filter, if applicable; 6. Belts-first check after 50 hours for proper tension.
Initial-30days or 500 hours	<ol style="list-style-type: none"> 1. Replace oil filter element; 2. Check cooler, , clean it if necessary.
Every 6 months or 1000 hours	<ol style="list-style-type: none"> 1. Replace air filter element; 2. Check the belts for sign of wear and replace as necessary; 3. Clean motor and ventilation operation; 4. Check the temperature sensor; 5. Take oil sample if applicable. * 6. Check hoses for sign wear or deterioration. **
Every 12 months or 2000 hours	<ol style="list-style-type: none"> 1. Replace oil filter element; 2. Observe overall condition of unit – clean if necessary; 3. Check electrical connections; 4. Observe unit for proper load/unload cycle; 5. Clean oil scavenger line orifice;
Every 12 months or 4000 hours	<ol style="list-style-type: none"> 1. Replace the air/oil separator; 2. Check V-belt alignment. 3. Clean coolers.
Every 12 months or 8000 hours	<ol style="list-style-type: none"> 1. Change the compressor oil. (Synthetic oil) 2. Check pressure and temperature readings; 3. Carry out an LED/display test; 4. Check for possible air leakage; 5. Test temperature shut-down function; 6. Test safety valves;

* Oil sample required with extended life warranty program. (synthetic oil only)

** Replace as necessary or every 5 years;

NOTE:

Maintenance schedule should be reduced by half if operation at 200 degree F or above, or

in dirty ambient environment, or with frequent cold starts.

7.2 Oil Testing :

Regular testing of the compressor oil as specified in the following Maintenance Guide is intended to assist in establishing oil and oil filter change intervals.

It is possible, however, to obtain information about wear characteristics of the machine with continued oil testing. The oil test performed should include analyzing the particulate matter in the oil sample, as well as testing for oxidation inhibitors and anti-rust additives.

For example, an increase in metal particles in an oil sample may give advance warning of excessive wear. This information could possibly prevent damaging the entire unit beyond repair, without performing periodic disassembly and visual inspections.

Normally the oil analysis sheet will list the results of the oil test, in addition to recommendations of the analyzing laboratory showing what maintenance is required.

The following information is furnished as a GUIDE to the critical limits of items, which are listed in an oil analysis sheet (table 7-2).

Table 7-2 oil analysis

Viscosity increase.....	10% over new oil
Neutral number increase.....	0.5% over new oil
Total solids by weight.....	0.21%
Oxidation, by weight, oxidized material.....	11%
Sediment by volume.....	0.21%
Water, by volume.....	0.5%

7.3 Oil Change:

Only change the oil when the unit is not in operation and is depressurized! When change the oil, proceed as flows:

1. Switch off the unit, disconnect the power, and lockout and tag to prevent accidental restarting.
1. Allow one minute after stopping the compressor for settling and the pressure to relieve.
3. Carefully open oil valve and put a suitable container underneath.
2. Drain the oil from the bottom of air end. Oil will drain more quickly and completely if it is warm from operation.
4. Close all drains and replace with fresh compressor oil to the maximum level via the oil inlet and close it tightly with the wrench.
3. Switch on compressor unit and let it run for approx,
4. Three minutes. Stop the compressor few minute and wait the oil settle.
7. Depressurize the system by unscrewing filler plug just one turn to permit any pressure in the system to escape.
8. Check the oil level: If oil is missing, fill the air end with oil until the sight-glass is 1/4 to 3/4 full.
9. Reset the service timer.

Figure 7-1 oil sight glass



 **WARNING**

Use the same brand oil.

NOTICE

Collect the waste oil, do not allow it to seep into the ground! Disposal in accordance with the regulations! Do not spill oil! Check for leakage. With these compressor, the oil change intervals strongly depend on the degree of contamination of the circulating oil. It must therefore be taken care that no oil-deteriorating matter(dusts, vapours, gases) are transported through the air intake filter into the oil circuit of the compressor unit. Also the formation of condensate within the machine affect the service life of the lubricant oil so that a reduction in the oil change intervals refer to an intake air from a normal environment without a high content of foreign matter(dusts, vapours, gases) When changing the oil, the waster oil is to be drained completely, since used oil reduces the service life of the new oil fill considerably. Do not mix lubricating oils of different makes. When changing over to new oil type. The oil in oil circuit must be drained completely. For the oil change intervals, see maintenance schedule.

7.4 Oil Filter Replacement:

The oil filter in the compressor system is a full flow replaceable canister type. Initially the filter should replaced after 500 hours of operation, then every 2000 hours. This element protects the compressor bearings from grit and dirt ingress throughout the system. A dirty filter will cause an oil flow restriction that can result in high oil temperature and a unit shutdown.

 **DANGER**

Hot oil under pressure will cause severe injury, death, or property damage. Be sure the compressor is shutdown and pressure relieved before attempting to remove the oil filter, separator, oil fill, or change the oil.

Replacing the oil filter is as the followings

1. Switch off the unit, disconnect the power, and lockout and tag to prevent accidental starting;
2. Allow one minute after stopping for the system to settle and the pressure to be relieved;
3. Using a trap wrench, remove the old element and gasket;
4. Clean the gasket surface with clean rag;
5. Apply a light film oil to the new gasket;
6. Hand tighten the new element unit the new gasket is seated into the gasket groove;
7. Reconnect power and reset filter service advisory;
8. Restart the machine to check for leaks.
9. If required, fill in the oil.

The oil filter cartridge is monitored, a high pressure differential is indicated on the controller.

if the controller display need change the oil cartridge, change the oil filter cartridge as following

1. Make sure that the screw compressor unit is depressurized.
2. Unscrew the oil filter cartridge using an appropriate tool
3. Dispose of the oil filter cartridge according to the regulations
4. Oil the gasket of the new oil filter cartridge slightly
5. Screw on the new oil filter cartridge and tighten manually (take notice of the instructions on the oil filter cartridge)
6. Check for leakage
7. Check oil level
8. If required, top up oil.

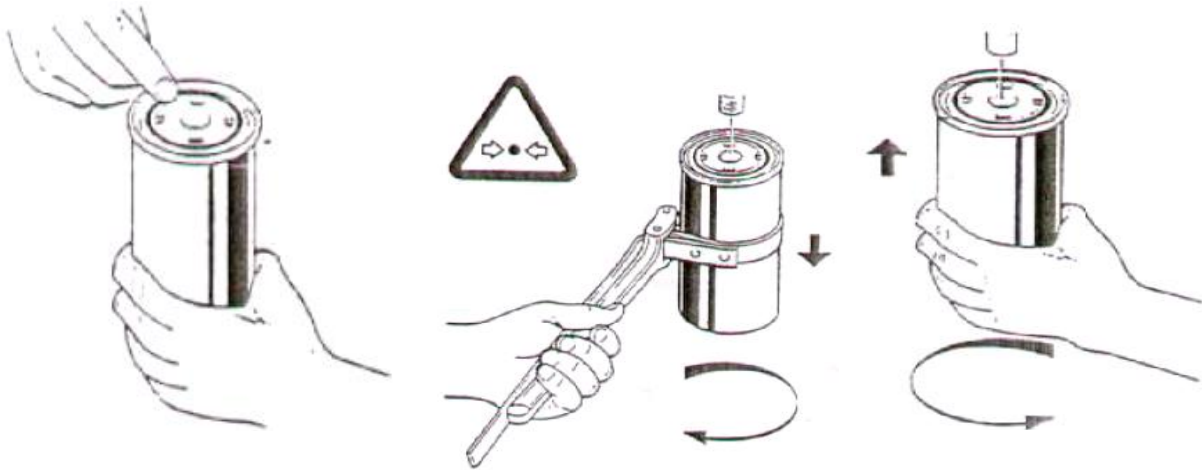


Figure 7-2 Oil Filter Replacement

7.5 Air Filter Replacement

During maintenance work, take care that no dirt enters the clean air side of the air filter. In accordance with the provisions, the exchange cartridge of the intake air filter shall be replaced after every 1000 hours of running time. If intake air is strongly polluted, an earlier exchange or cleaning of the cartridge is required whenever the optical or electronically maintenance indicator shows it.

⚠ DANGER

Only perform checks and carry out work on the screw compressor when the unit is out of operation and depressurized!

NOTICE

Never operate the screw compressor unit without the air filter (even a short operating time without this filter can result in considerable damage to the machine).

Maintenance Operations:

1. Switch off the unit, disconnect the power, and lock and tag to prevent accidental starting.
2. Allow one minute after stopping for the system to settle and the pressure to be relieved.
3. Loosen the latch that secures the element and remove the cover.

4. Loosen the latch that secures the element and remove the element
5. Place a bright light inside the element to inspect for damage or leak holes. Discard any element that shows the slightest hole.
6. Clean the housing with a damp cloth. Do not attempt to blow out dirt with compressed air.
7. Place a new element in the housing and re-secure in place with latch.
8. Reset the filter service advisory and the machine will be ready for operation.

7.6 V-belts Replacement

Routine examination of the drive system is recommended to insure maximum compressor life. The Belts need to be checked for wear and stretch.

To Check the Belts:

1. Switch off the unit, disconnect the power, and lockout and tag to prevent accidental restarting.
2. Allow one minute after stopping the compressor for setting and the pressure to relieve.
3. Remove the belt guard.
4. Inspect for any fraying or cracking of the belts. If there is any replace the belts.
5. Check the tension. The deflection should be about 1/64" per inch of span between the sheaves with about 4 – 5 pounds of force perpendicular to the belt.

To Change The Belts:

1. Switch off the unit, disconnect the power, lockout and tag circuit breaker to prevent accidental restarting.
2. Allow one minute after stopping the compressor for setting and the pressure to relieve.
3. Remove the belt guard.
4. Loosen the bolts (3) mounting the air end, see the figure 7-5.
5. Loosen the take-up bolts (1) , see the figure 7-5.
6. Remove the belts.
7. Replace with new belts.
8. Set the initial tension by using take-up bolts (1) figure 7-5. the deflection should be 1/64" per inch of span between the sheaves with about 5 – 6 pounds of downward force.
9. Check sheave alignment (See Sheave Alignment).
10. Tighten the bolts (3) mount the air end, see the figure 7-5.
11. Mounting the belt guard on.
12. Return unit to operation.

- 1) Take-Up Bolts
- 2) Take-Up Nut
- 3) Bolts for Aired
- 4) Aired Pulley
- 5) Motor Pulley
- 6) Belts

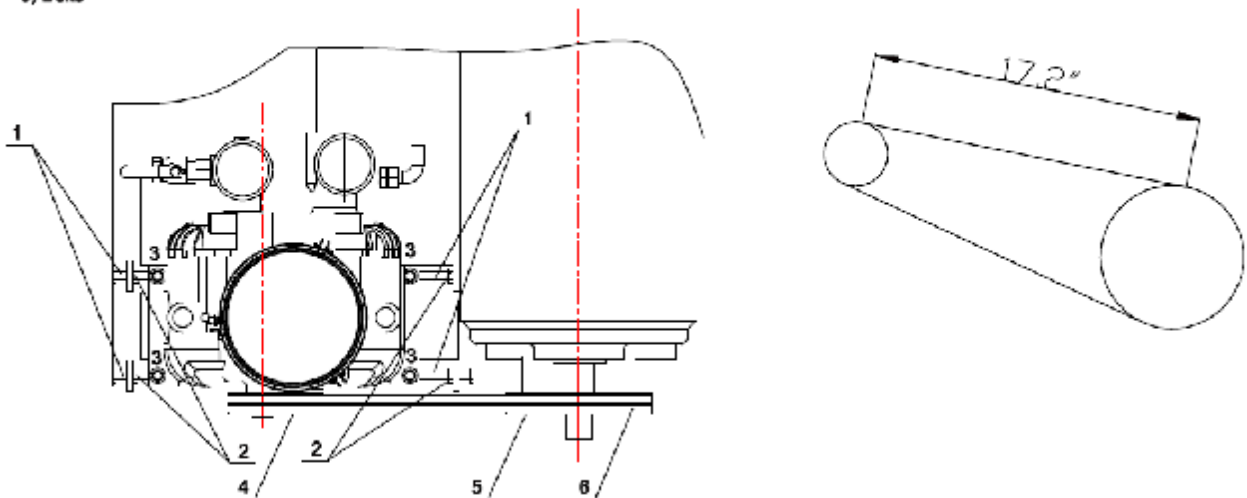


Figure 7-5 belt

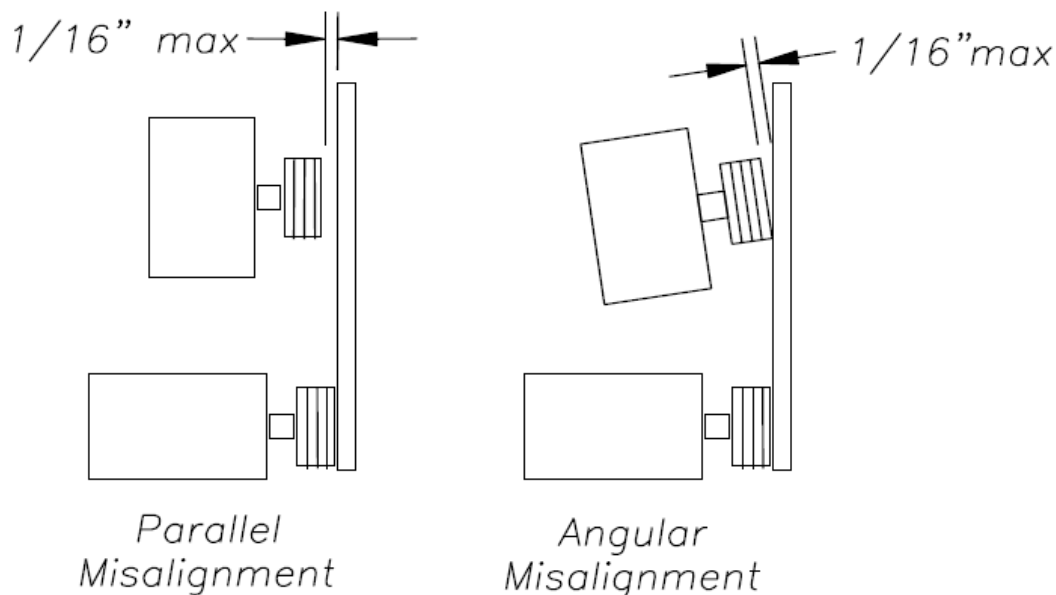
Sheave Alignment:

Any degree of sheave misalignment will result in a reduction of belt life. Misalignment whether parallel or angular should not exceed 1/16"

Parallel misalignment occurs when the shaft are parallel, but the face of sheaves is not in alignment. Angular misalignment occurs when the shafts are not parallel.

Any easy and effective method for checking the alignment in both directions is to use an accurate straight edge.

1. Switch off the unit, disconnect the power, and lockout and tag to prevent accidental restarting.
2. Allow one minute after stopping the compressor for settling and the pressure relieve.
3. Remove the belt guard.
4. Lay the straight edge across the face of the motor sheave and check the alignment with the air end sheave.
5. Then lay the straight edge across the face of the air end sheave and check the alignment with the motor sheave.
6. If the alignment gap is greater than 1/16" in either direction, loosen the belts as outlined in changing belts section and align the sheaves.
7. Reset the tension on the belts.
8. Return the unit to operation.



⚠ DANGER

Only perform checks and carry out work when the screw compressor unit is out of operation and depressurized, electrically isolated and locked off.

Any safety equipment which had to be removed for the replacement of the V-belt set must be remounted after completion of this work.

NOTICE

The replacement of a single V-belt is not permitted, always replace a complete V-belt set.

7.7 Electrical Motor

The motors on the air compressor require routine attention too. Every 1000 hours of operation or six months, whichever comes first, check that the motor is clean and ventilation openings are clear.

The second area to maintain to insure long motor life is bearing lubrication. Bearing grease will lose its lubricating ability over time, not suddenly. But for these motors, the motor use the double-sealed, deep groove ball bearing, so the electric motors are permanently lubricated.

7.8 Fan

Check the fan for cracking and bent or loose blades. Make sure that it is securely mounted on the rear shaft of the motor. If the fan is damaged, please replace it immediately.

7.9 Minimum Pressure/Check Valve

The minimum pressure/check valve may be purchased as an assembly. If required, service parts are available, however, to repair/overhaul this valve. This valve may be serviced as follows:

1. Remove the service control piping from the minimum pressure/check valve.
2. Remove the valve from the air/oil receiver cover.
3. Clamp the valve securely in a vertical position (cap end up) in a suitable fixture or bench vice.
4. With a suitable wrench remove the valve cap from the valve body.

 **WARNING**

The spring beneath the cap is under pressure. Exercise extreme care when removing cap to prevent it from flying off.

5. Remove the spring from the body.

NOTICE

Save spring shims, washers, if any for reuse.

6. Insert a suitable tool into the inlet port of the valve and push the piston and valve assembly upwards out of the body.
7. Remove the check valve piston from inside the large piston. Take care not to lose the small spring.
8. Remove the "O" seal ring from the large piston and discard the seal.
9. Thoroughly clean all remaining parts. Visually inspect all parts for damage or wear. Replace as required.

NOTICE

This check valve assembly is furnished only as a complete assembly. Check the plastic (Teflon) seat on the valve assembly carefully for damage. Replace valve assembly as required.

10. Install a new "O" ring on the larger piston.
11. Re-assemble the check valve piston with the spring in the large piston.
12. Lubricate the "O" seal ring on the piston with a silicone-based lubricant.
13. Re-install the check valve and the piston assembly in the valve body. Take care not to damage the "O" seal ring during installation.
14. Install the large spring in the valve body on top of the piston. Re-install spring shim (s).
15. Lightly coat cap thread with Loctite 271 or equivalent and install the cap (compress the springs) by threading the cap into the valve body. Torque the cap to 60 – 70 ft. lbs.
16. Re-install minimum pressure/check valve on top of the air/oil receiver cover. Use a good grade pipe thread sealer on all pipe threads. Tighten securely. Do not over-tighten.
17. Reconnect the service and control piping securely. Do not over-tighten.

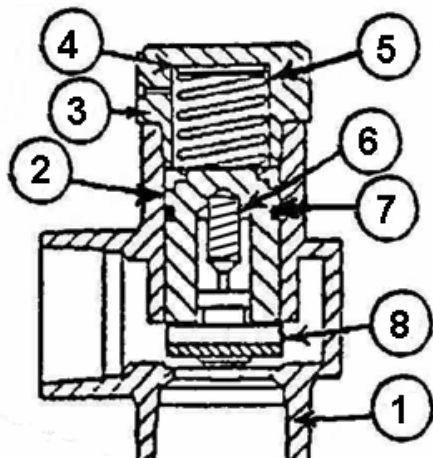


Figure 8 -4 Pressure Valve

1. Valve Body

2. Piston
3. Cap
4. Shim
5. Large Spring
6. Small Spring
7. Seal
8. Check Valve Assembly

8.0 Oil Cooler:

Cleaning:

Keep the cooler clean to maintain efficiency.

- 1) Stop the compressor, close the air outlet valve and switch off the voltage.
- 2) Cover all parts under the coolers.
- 3) Remove any dirt from the coolers with a fibre brush. Never use a wire brush or metal objects.
- 4) Then clean with an air jet in the reverse direction to normal flow.
- 5) If it is necessary to wash the coolers with a cleaning agent, consult LaPlante Compressor Ltd.

8.1 Safety Valve:

Testing the safety valve:

The valve should be tested on a separate compressed air line in accordance with local legislation.

Operate the safety valve, depending on the type of valve:

- 1) by unscrewing the cap one or two turns and retightening it;
- 2) or by pulling the valve Lifting lever.



Never operate a screw compressor system with a defective valve or without safety valve.

8.2 Connecting terminals in the switch cabinet/control transformer setting:

The connecting terminals in the switch cabinet have to be checked and, if required, re-tightened during first commissioning and later on in line with the maintenance schedule.



In the case of electric voltage:

- 1) Actuate STOP button at the operating panel***
- 2) Set the customer-fitted main power switch to “O” (OFF).***

8.3 Fittings:

The fittings of the air and oil circuits have to be checked and, if required, re-tightened according to the maintenance schedule.

8.4 General Maintenance and Cleaning:

Remove oil residues and other deposits from unit parts and from the coolers of

compressors, which are exposed to hot compressed air, according to the operating instructions.

Blow off the screw compressor unit with compressed air at the specified intervals (never aim compressed air at persons) paying particular attention to:

- Regulating elements
- Fittings
- Compressor block
- Cooler
- Electric motor

8.0: TROUBLESHOOTING TABLE

There are a lot of reasons result fault.

Information collection is important for operator to find out the causations.

Do analysis carefully before repair or change parts.

Please inspect the machine following this way.

- A. Check cable connection,
- B. Inspect piping connection,
- C. Pay attention to burning smell of electrical parts.

MALFUNCTION	POSSIBLE CAUSE	REMEDY
Motor will not run	<ol style="list-style-type: none"> 1. Blown branch circuit fuses. 2. Blown line disconnected fuse or tripped circuit breaker. 3. Blown control circuit fuse(s). 4. Magnetic starter overhaul relay tripped. 5. Loose or broken wires. (Motor or control) 6. Defective or damaged control circuit components. (Relays, temperature switches, etc.) 7. Damaged motor 	<ol style="list-style-type: none"> 1. Renew fuse(s). 2. Renew fuse(s) or reset circuit breaker. 3. Renew control circuit fuse(s). 4. Reset overload relay(s). 5. Check and repair or replace broken wire(s) and connection(s). 6. Check components. Renew as required. 7. Repair or replace motor.
Air end will not rotate	<ol style="list-style-type: none"> 1. Defective or damaged air end 	<ol style="list-style-type: none"> 1. Replace air end
Motor will not rotate	<ol style="list-style-type: none"> 1. Defective or damaged motor 	<ol style="list-style-type: none"> 1. Replace or repair motor
Air end/motor will not come up to full speed before starter overload trips.	<ol style="list-style-type: none"> 1. Low line voltage or inadequate power supply 2. Starting against pressure. Unit receiver not blown down 	<ol style="list-style-type: none"> 1. Have qualified electrician check and correct power supply. 2. Check and correct cause of unit receiver not blowing down. (Blow down valve; controls)
Compressor fails to pump (load) or is slow to load after running unloaded	<ol style="list-style-type: none"> 1. Control bleed orifice plugged. 2. Sticky intake valve operating parts. 	<ol style="list-style-type: none"> 1. Clean control bleed orifice. 2. Disassemble, clean or replace faulty intake valve parts as required.
Compressor stops but air receiver/oil reservoir does not blow down	<ol style="list-style-type: none"> 1. Faulty blow down valve. 	<ol style="list-style-type: none"> 1. Renew blow down valve.

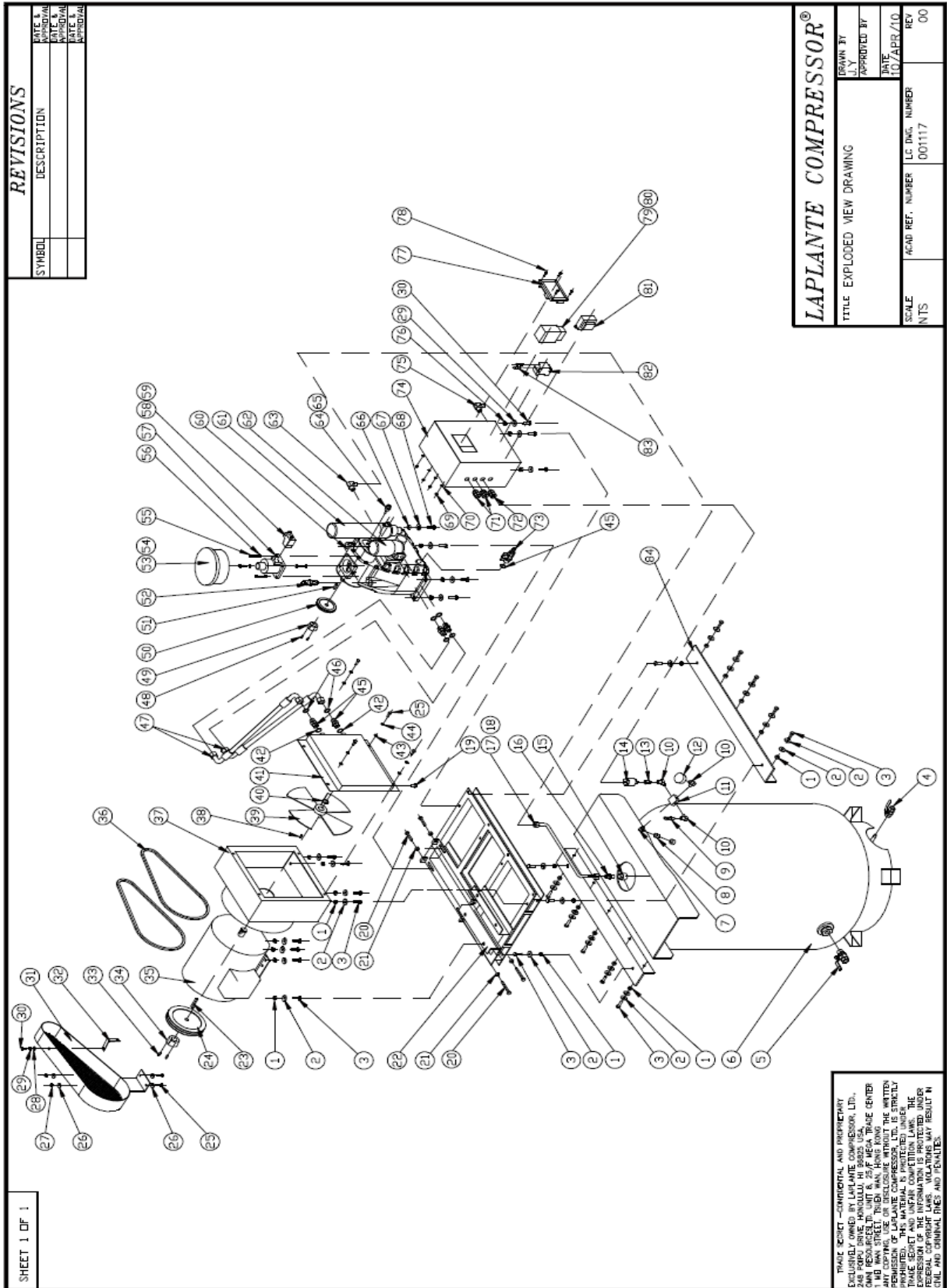
<p>Compressor fails to provide sufficient air for demands</p>	<ol style="list-style-type: none"> 1. Clogged or restricted air filter element 2. Excessive distribution system leakage 3. Air demand exceeds compressor capacity 4. Motor not running up to speed. 5. Drive belts loose and slipping. 6. Damaged or excessively worn intake valve. 7. Air supply to compressor room or enclosure inadequate. 	<ol style="list-style-type: none"> 1. Clean or renew air filter element. 2. Correct air leak as required. 3. Reduce air demand. Install additional compressors. 4. Check power supply to motor and correct as required. 5. Replace and/or retention drive belts. 6. Repair or replace intake valve. 7. Properly ventilate compressor room or enclosure.
<p>Safety valve release after loading</p>	<ol style="list-style-type: none"> 1. Safety valve fault. 2. Minimum pressure valve fault 	<ol style="list-style-type: none"> 1. Change safety valve. 2. Inspect minimum pressure valve.
<p>Excessive compressor oil consumption</p>	<ol style="list-style-type: none"> 1. Clogged or restricted separator drain line or filter. 2. External oil leaks. 3. Incorrect oil installed in compressor. 4. Oil reservoir over filled. 5. Low-pressure operation. 6. Defective separator element. 	<ol style="list-style-type: none"> 1. Clean or replace line and/or filler. 2. Inspect for and correct all external oil leaks. 3. Refer to oil specifications. Drain unit and install correct oil. 4. Drain to correct oil level. 5. Operate at correct pressure (80 psi minimum) 6. Renew separator element.
<p>Oil blows out blow down valve when blow down valve actuates</p>	<ol style="list-style-type: none"> 1. Clogged or restricted separator drain line or filter. 2. Defective blow down valve. 3. Defective separator element. 	<ol style="list-style-type: none"> 1. Clean or replace line and/or filter. 2. Replace blow down valve. 3. Replace separator element.
<p>Air receiver-oil reservoir pressure relief valve actuates</p>	<ol style="list-style-type: none"> 1. Incorrect or insufficient control pressure due to: <ol style="list-style-type: none"> a. Clogged or restricted control pressure regulator valve supply and control air lines b. Incorrect adjusted control pressure regulator c. Dirty, clogged, or damaged control pressure regulator valve 2. Worn or damage intake valve 3. Incorrect pressure relief valve installed. 4. Damaged or worn pressure relief valve 5. Restricted separator element. 	<ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. Clean replace supply or control lines b. Adjust control c. Clean, repair or replace regulator valve 2. Disassemble, inspect, clean and repair valve. 3. Install correct pressure relief valve. 4. Renew pressure relief valve 5. Renew separator element.

<p>Unit shut down caused by air end discharge or separator out high temperature</p>	<ol style="list-style-type: none"> 1. Air end discharge temperature too high due to: <ol style="list-style-type: none"> a. Insufficient oil in oil reservoir b. Compressor operating above maximum recommended pressure c. Dirty or clogged oil cooler inside or out 2. Faulty high temperature shut down switch 3. Low compressor oil flow 4. Solenoid valve fault 5. Separator element blocked 6. Minimum pressure valve fault 	<ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. Fill reservoir to correct level with recommended oil. b. Adjust to correct pressure. c. Clean or replace oil cooler. 2. Renew high temperature shut down switch. 3. <ol style="list-style-type: none"> a. Check for restricted oil filter. Change element as required. b. Check for and correct cause of restriction in oil system including hoses, fitting tubes, etc. 4. Inspect solenoid valve 5. Replace the element 6. Repair minimum pressure valve .
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9.0 PARTS LIST

9.1 LPRS11-230V, the P/N of LaPlante is 001117:

001117 Exploded Drawing



001117 Parts List

001117 Parts List

Item	P/N	Description	Qty	Item	P/N	Description	Qty
1	120109	Nut Nyloc M10	22	57	450000	Solenoid Valve 6014D 1.5 AC24V Coil Volts	1
2	130104	Washer Flat 10mm Large	32	58	290101	Solenoid Valve Cable 3xAWG14 L=950mm	1
3	110288	Headhead Bolt M10X35 8.8G	24	59	071000	Gasket, Intake valve	1
4	690009	Ball Valve 1/4F, 1/4F	1	60	900001	GCU11 Airend	1
5	690015	Ball Valve 1M, 1F	1	61	900002	Oil Separater	1
6	330027	120G VERT ASME 200 PSI Tank	1	62	900003	Oil Filter	1
7	640058	Bushing 1/4M 1/4F	1	63	640046	Elbow 90 Deg 1/2M 3/4" -16UNF	1
8	640043	Elbow 90 Deg 1/4M 1/4M	1	64	451002	KTY Temperature Sensor	1
9	690006	Safety Valve 1/4"M 175PSI ASME	1	65	130123	Copper Washer M14	1
10	640021	Elbow 90Deg 1/4F 1/4M	3	66	120110	Nut Nyloc M12	4
11	640030	Block Four-way 4-1/4F	1	67	130102	Washer Flat 12mm Large	4
12	350016	Gauge, Air; 300 PSI 2" 1/4M Centre Back oil	1	68	110265	Hexhead Bolt M12X60 8.8G	4
13	640063	Fitting 1/4M G1/4F	1	69	120116	Nut Nyloc M4	4
14	451001	Y04CM29.00 Pressor Sensor M14X1.5	1	70	130117	Washer Flat 4mm	4
15	640065	Bushing 1M 1/2F	1	71	290038	HSK-M22G-H/ Cable Clamp	2
16	640036	Fitting 1/2M 3/4" -16UNF	1	72	290037	HSK-M20G/ Cable Clamp	1
17	320045	Copper Tube 12.7 O.D.X0.8X500	1	73	690040	Ball Valve G1/2M w/12mm tube fitting	1
18	120117	Compressor Nut 3/4" -16UNF	2	74	410007	Enclosure	1
19	140100	Hex Plug 1/4M	1	75	290042	WQW-M22G/AD21.2/ Elbow Connector	1
20	110260	Hexhead Bolt M10X80 8.8G	2	76	130107	Wahser Lock 8mm	4
21	120120	Nut M10	4	77	451000	AirMaster P1 Controller	1
22	081000	Key 7.9 X 7.9 X 60.5, Motor Shaft	1	78	110286	Screw Hex Socket head M4X20 8.8G	4
23	430001	Baseplate Assy	1	79	340128	Main Contactor CU-23 AC24V 60HZ	1
24	713300	Motor Pulley SPZ190-2	1	80	340051	Overload relay RHN-10/30M(22-30A) 60HZ	1
25	110281	Headhead Bolt M8X25	6	81	340124	75VA 208/240/480V to 24VAC 60HZ	1
26	130103	Washer Flat 8mm Large	4	82	340132	CHM2D Fuseholder	2
27	120108	Nut Nyloc M8	2	83	340131	KTK-R-1 Fuse	2
28	130118	Washer Flat 6mm Large	4	84	390007	Plate of Screw compressor	2
29	130105	Wahser Lock 6mm	1				
30	110275	Headhead Bolt M6x20 8.8G	4				
31	520036	Belt Assy	1				
32	524017	Top Bracket	1				
33	713301	Bushing for Motor Pulley (2012-1 3/8")	1				
34	110301	Set Screw 7/16" X 7/8"	2				
35	240007	Motor, 10HP 215T 3PH 208-230/460V TEFC 4P	1				
36	420055	Belt XPZ 1312 Lp	2				
37	440002	Cooler Shroud	1				
38	081001	Key 8 X 7 X 15, Motor Rear shaft	1				
39	540001	Fan	1				
40	200113	Snap Ring 25.9 I.D	1				
41	440001	Oil Cooler	1				
42	130124	Copper Washer M22	5				
43	130100	Washer Flat 8mm	8				
44	130107	Wahser Lock 8mm	4				
45	640062	Nipple 2-M22X1.5	4				
46	060194	O-Ring 12.5x1.8	4				
47	320042	Oil Intake/Out Tube O.D13X550	1				
48	110300	Set Screw 3/8" X 5/8"	2				
49	713302	Bushing for Airend Pulley (1610-28)	1				
50	713296	Airend Pulley SPZ85-2	1				
51	081002	Key 8 X 8 X20, Airend shaft	1				
52	690039	Safety Valve G1/2" 188.5 PSI For Airend	1				
53	280000	Air Filter Complete	1				
54	280001	Element	1				
55	110302	Bolt Hex Scket Head M8X20	4				
56	690038	Intake Control Valve	1				

Electrical Main Parts List

REVISIONS

SYMBOL	DESCRIPTION	DATE & APPROVAL

Item	Part #	Qty.	Description
14	451000	1	Airmaster P1 Controller
13	290089	25	YF2-4 Wire Terminal
12	290088	6	YF1.25-4S Wire Terminal
11			AWG 18 Control Wire L=11M
10			Rails KTB2-CHB(35MM) L=700mm
9	410003	1	Side Cover KTB2-25
8	410003	4	Fishholder KTB2-STC
7	410002	12	Removable Plugboard KTB2-025
6	410007	1	Enclosure
5	340124	1	Transformer 75VA 208/240/480V To 24VAC 60HZ
4	340132	1	CHM2D Fuseholder
3	340131	2	KTK-R-1 Fuse
2	340051	1	Overload Relay RHN-10/30M(22~30A)
1	340128	1	Mth Contactor CU-23 AC24V Coll 60HZ

LAPLANTE COMPRESSOR®

TITLE Control System Schematic Diagram
10HP/3PH/230/460V/4P/TEFC/GCU1

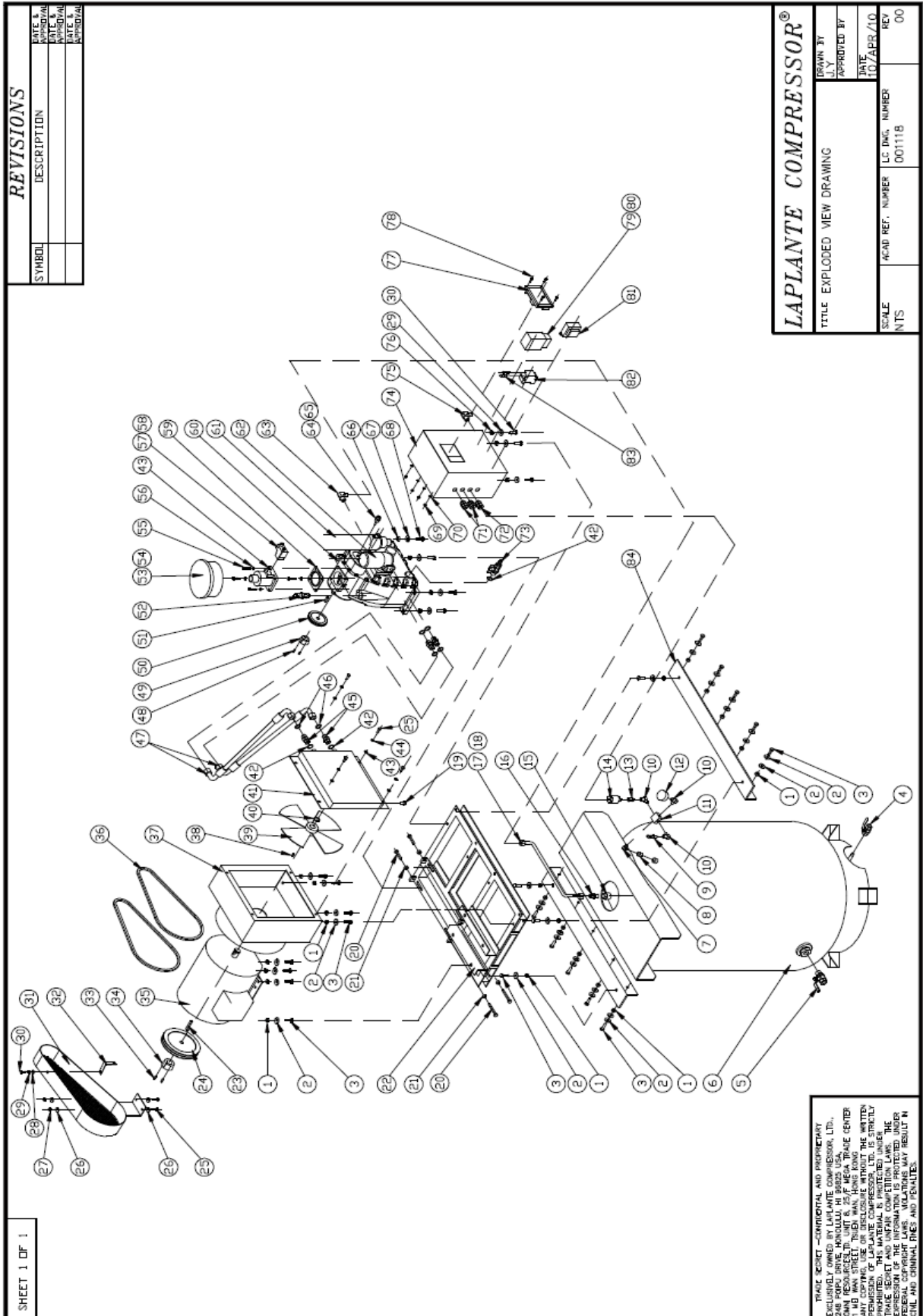
DRAWN BY	APPROVED BY	DATE

SCALE	ACAD REF. NUMBER	LC DWG. NUMBER
NTS		

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SHEET 1 OF 1

9.2 LPRS11-575V, the P/N of LaPlante is 001118:
001118 Exploded Drawing



REVISIONS

SYMBOL	DESCRIPTION	DATE & APPROVED BY	DATE & APPROVED BY

LAPLANTE COMPRESSOR®	
TITLE EXPLODED VIEW DRAWING	
DRAWN BY	APPROVED BY
DATE 10/APR/10	
SCALE NTS	ACAD REF. NUMBER 001118
REV 00	

SHEET 1 OF 1

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001118 Parts List

001118 Parts List							
Item	P/N	Description	Qty	Item	P/N	Description	Qty
1	120109	Nut Nyloc M10	22	57	450000	Solenoid Valve 6014D 1.5 AC24V Coil Volts	1
2	130104	Washer Flat 10mm Large	32	58	290101	Solenoid Valve Cable 3xAWG14 L=950mm	1
3	110288	Headhead Bolt M10X35 8.8G	24	59	071000	Gasket, Intake valve	1
4	690009	Ball Valve 1/4F, 1/4F	1	60	900001	GCU11 Airend	1
5	690015	Ball Valve 1M, 1F	1	61	900002	Oil Separator	1
6	330027	120G VERT ASME 200 PSI Tank	1	62	900003	Oil Filter	1
7	640058	Bushing 1/4M 1/4F	1	63	640046	Elbow 90 Deg 1/2M 3/4" -16UNF	1
8	640043	Elbow 90 Deg 1/4M 1/4M	1	64	451002	KTY Temperature Sensor	1
9	690006	Safety Valve 1/4"M 175PSI ASME	1	65	130123	Copper Washer M14	1
10	640021	Elbow 90Deg 1/4F 1/4M	3	66	120110	Nut Nyloc M12	4
11	640030	Block Four-way 4-1/4F	1	67	130102	Washer Flat 12mm Large	4
12	350016	Gauge, Air, 300 PSI 2" 1/4M Centre Back oil	1	68	110265	Hexhead Bolt M12X60 8.8G	4
13	640063	Fitting 1/4M G1/4F	1	69	120116	Nut Nyloc M4	4
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15	640065	Bushing 1M 1/2F	1	71	290038	HSK-M22G-H/ Cable Clamp	2
16	640036	Fitting 1/2M 3/4" -16UNF	1	72	290037	HSK-M20G/ Cable Clamp	1
17	320045	Copper Tube 12.7 O.D.X0.8X500	1	73	690040	Ball Valve G1/2M w/12mm tube fitting	1
18	120117	Compressor Nut 3/4" -16UNF	2	74	410007	Enclosure	1
19	140100	Hex Plug 1/4M	1	75	290042	WQW-M22G/AD21.2/ Elbow Connector	1
20	110260	Hexhead Bolt M10X80 8.8G	2	76	130107	Wahser Lock 8mm	4
21	120120	Nut M10	4	77	451000	AirMaster P1 Controller	1
22	081000	Key 7.9 X 7.9 X 60.5, Motor Shaft	1	78	110286	Screw Hex Socket head M4X20 8.8G	4
23	430001	Baseplate Assy	1	79	340129	Main Contactor CU-18 AC24V 60HZ	1
24	713300	Motor Pulley SPZ190-2	1	80	340045	Overload relay RHN-10/12.5M(8.5-12.5) 60HZ	1
25	110281	Headhead Bolt M8X25	6	81	340125	75VA 575V to 24VAC 60HZ	1
26	130103	Washer Flat 8mm Large	4	82	340132	CHM2D Fuseholder	2
27	120108	Nut Nyloc M8	2	83	340130	KTK-R-0.5 Fuse	2
28	130118	Washer Flat 6mm Large	4	84	390007	Plate of Screw compressor	2
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33	713301	Bushing for Motor Pulley (2012-1 3/8")	1				
34	110301	Set Screw 7/16" X 7/8"	2				
35	240028	Motor, 10HP 215T 3PH 575V TEFC 4P	1				
36	420055	Belt XPZ 1312 Lp	2				
37	440002	Cooler Shroud	1				
38	081001	Key 8 X 7 X 15, Motor Rear shaft	1				
39	540001	Fan	1				
40	200113	Snap Ring 25.9 I.D	1				
41	440001	Oil Cooler	1				
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45	640062	Nipple 2-M22X1.5	4				
46	060194	O-Ring 12.5x1.8	4				
47	320042	Oil Intake/Out Tube O.D13X550	1				
48	110300	Set Screw 3/8" X 5/8"	2				
49	713302	Bushing for Airend Pulley (1610-28)	1				
50	713296	Airend Pulley SPZ85-2	1				
51	081002	Key 8 X 8 X20, Airend shaft	1				
52	690039	Safety Valve G1/2" 188.5 PSI For Airend	1				
53	280000	Air Filter Complete	1				
54	280001	Element	1				
55	110302	Bolt Hex Scket Head M8X20	4				
56	690038	Intake Control Valve	1				

Electrical Main Parts List

REVISIONS

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9	410003	1	Side Cover KTB2-25
8	410003	4	Fixholder KTB2-STC
7	410002	12	Removable Plugboard KTB2-025
6	410007	1	Enclosure
5	340125	1	Transformer 75VA 575V To 24VAC 60HZ
4	340132	1	CHM2D Fuseholder
3	340130	2	KTK-R-0.5 Fuse
2	340045	1	Overload Relay RHN-10/12.5M(8.5~12.5A)
1	340129	1	Main Contactor CU-18 AC24V Coil 60HZ

LAPLANTE COMPRESSOR®

TITLE Control System Schematic Diagram
10HP/3PH/575V/4P/TEFC/GCU11

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SCALE NTS

ACAP REF. NUMBER

LC DWG. NUMBER

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10.0 Main Wearable Parts List

Item	LP P/N	Description	Qty
36	420055	Belt XPZ1312Lp	2
54	280001	Element of Air Filter	1
59	071000	Gasket, Intake Valve	1
61	900002	Oil/Air Separator	1
62	900003	Oil Filter	1