



User Manual

Nuvair Compact 270/300 Compressor



270 LPM (9.5 CFM)
SKU 8033.x-N

300 LPM (10.6 CFM)
SKU 8033.x-PL-N

Notes

If you have any questions about this equipment, please contact Technical Support at:

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1600 Beacon Place
Oxnard, CA 93033 USA

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Hours: Monday through Friday
8:00 AM to 5:00 PM Pacific Time



WARNING

This User Manual contains important safety information and should always be available to those personnel operating this equipment. Read, understand, and retain all instructions before operating this equipment to prevent injury or equipment damage.

Every effort was made to ensure the accuracy of the information contained within. Nuvair, however, retains the right to modify its contents without notice.

Under Nuvair's system of continuous improvement, certain components may be updated or changed as higher quality or more efficient parts and assemblies become available.

Nuvair will make every effort to update manuals as parts and functional aspects change. However, the look or location of components on your product may differ from those in this manual if improvements have been made that do not affect functionality or operational procedures.

Units pictured may also be equipped with different options than those on your product. In this case, the basic operational and maintenance guidelines will still apply.

If you have problems or questions after reading the manual, stop and call Nuvair at +1.805.815.4044 for information.

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Separate Manuals Included:

Compact 270/300 Compressor Block User and Parts Manual

1.0 Introduction

This manual will assist you in the proper set-up, operation, and maintenance of the Nuvair Compact 270/300 electric compressor packages. Be sure to read the entire manual.

This manual uses certain words and symbols to call your attention to conditions, practices or techniques that may directly affect your safety. Pay particular attention to information introduced by the following symbols or words:

SYMBOL	MEANING	DESCRIPTION
	DANGER	Indicates an imminently hazardous situation, which if not avoided, will result in serious personal injury or death.
	CAUTION	Indicates a potentially hazardous situation, which if not avoided, could result in serious personal injury or death.
	WARNING	Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
	NOTICE	Notifies people of installation, operation or maintenance information which is important but not hazard related.

1.1 Required Operator Training

This manual must be read carefully and its entirety.

- All compressor operators / maintenance personnel must read this entire manual with due care and attention and observe the instructions/information contained herein.
- Company owners ensure that the operator has the required training for the operation of the compressor and that he/she has read the manual.

1.2 System Description

The **Nuvair Compact 270** and **Compact 300** are continuous-duty, commercial grade, high-pressure compressors. The compressor block and power unit—a three-phase 7.5 hp (5.6 kW) electric motor—are mounted in a fully enclosed and quieted cabinet.

The splash lubricated **Compact 270** delivers 270 L/min (9.5 CFM), and the pressure lubricated **Compact 300** charging rate is 300 L/min (10.6 CFM).

1.3 Important Information for the User

The information/instructions for compressor use contained in this manual concern the **Nuvair** compressor: **Compact 270/300**.

The instruction manual must be read and used as follows:

- Read this manual carefully; treat it as an essential part of the compressor.
- The instruction manual must be kept where it can readily be consulted by compressor operators and maintenance staff.
- Keep the manual for the working life of the compressor.
- Make sure updates are incorporated in the manual.
- Make sure the manual is given to other users or subsequent owners in the event of resale.
- Keep the manual in good condition and ensure its contents remain undamaged.
- Do not remove, tear or re-write any part of the manual for any reason.
- Keep the manual protected from damp and heat.
- If the manual is lost or partially damaged and its contents cannot be read it is advisable to request a copy from the manufacturer.

1.4 Foreword

The regulations/instructions for use contained in this manual constitute an essential component of the supplied compressor.

These regulations/instructions are intended for an operator who has already been trained to use this type of compressor. The contained information is necessary and essential to efficient and proper use of the compressor.

Hurried or careless preparation leads to improvisation, which is the cause of accidents.

Before beginning work, read the following suggestions carefully:

- 1) Before using the compressor, gain familiarity with the tasks to be completed and the admissible working position.
- 2) The operator must always have the instruction manual to hand.
- 3) Plan all work with due care and attention.
- 4) You must have a detailed understanding of where and how the compressor is to be used.
- 5) Before starting work make sure that safety devices are working properly and that their use is understood; in the event of any doubts do not use the compressor.
- 6) Observe the warnings given in this manual with due care and attention.
- 7) Constant and careful preventive maintenance will always ensure a high level of safety when using the compressor. Never postpone repairs and have them carried out by specialized personnel only; use only original spare parts.

1.5 Assistance

Nuvair technicians are at your disposal for all routine/unscheduled maintenance work. Please forward your request for assistance to **Nuvair** by sending a fax or e-mail to:

Phone: +1.805.815.4044 Fax: +1.805.486.0900 Email: info@nuvair.com

1.6 Responsibility

Nuvair considers itself exonerated from any responsibility or obligation regarding injury or damage caused by:

- Failure to observe the instructions contained in this manual that concern the running, use and maintenance of the compressor.
- Violent actions or incorrect maneuvers during use or maintenance of the compressor.
- Modifications made to the compressor without prior written authorization from **Nuvair**.
- Incidents beyond the scope of routine, proper use of the compressor.



WARNING

Maintenance and repairs must only be carried out using original spare parts and qualified technicians. Nuvair cannot be held liable for any damages caused by failure to observe this rule. The compressor is guaranteed as per the contractual agreements made at the time of sale. Failure to observe the regulations and instructions for use contained in this manual shall render the warranty null and void.

1.7 Purpose of the Machine

The high-pressure compressor model **Compact 270/300** has been designed and built for the purpose of producing breathing air by drawing it from the surrounding environment. The surrounding environment's air must be free from any harmful fumes or contaminates. The air is passed through an intake air filter, compressed and run through breathing air filtration before it is stored in bottles constructed to contain air at high pressure.

Any other use is inappropriate: the manufacturer cannot be held liable for any personal injury or damage to objects / the machine itself caused by improper use.



DANGER

Use only tested, certified storage tanks: do not exceed the working pressure indicated on them.

- Use the compressor in areas free from dust, risk of explosion, corrosion, and fire.
- Improper use could have serious consequences for the user.
- Do not disconnect the hose from the fittings or the clamp when under pressure.
- Change the air purification filters regularly as described herein.
- Drain the condensate regularly as described herein.
- The power must be disconnected and locked out before carrying out any cleaning or maintenance tasks.
- Never pull a plug out by tugging the cord. Make sure the cord is not bent at a sharp angle and that it does not rub against any sharp edges. Use of extensions is not recommended.
- Never operate the compressor when the power cord is damaged, or the power supply covers/guards are removed.

- All routine and unscheduled maintenance tasks must be carried out with the compressor at a standstill with all lines depressurized.
- After switching off the compressor and disconnecting from power, wait about 30 minutes before carrying out any maintenance tasks to prevent burns.
- The high-pressure flex hose that connects to external components must be in good condition, especially in the areas near the fittings.
 - The plastic sheath that covers the pipe must not show any signs of abrasion otherwise damp could get in, corrode the steel braid and weaken it.
 - The hose must be changed periodically (yearly) or when it shows signs of wear.
 - Failure to observe this rule could seriously endanger the users' safety.
 - Make sure the minimum bending radius of the hose is no less than 250 mm (9.8 inches).

To ensure maximum working efficiency, Nuvair has constructed the compressor with carefully selected components and materials. The compressor is tested prior to delivery. Continued compressor efficiency over time will also depend on proper use and maintenance as per the instructions contained in this manual.

All the components, connections and controls used in its construction have been designed and built to a high degree of safety to resist abnormal strain or in any case a strain greater than that indicated in the manual. Materials are of the finest quality; their introduction and storage in the company and their utilization in the workshop are controlled constantly to prevent any damage, deterioration, or malfunction.



DANGER

Before carrying out any work on the compressor each operator must have a perfect understanding of how the compressor works, know how to use the controls, and have read the technical information contained in this manual.

- It is forbidden to use the compressor under conditions or for purposes other than those indicated in this manual and Nuvair cannot be held liable for breakdowns, problems or accidents caused by failure to observe this rule.
- Check that the fittings provide a proper seal by wetting them with soapy water: Stop the compressor and eliminate any leaks immediately when detected.
- Do not attempt to repair high pressure tubes by welding them or while the compressor is running.
- Do not empty storage tanks completely, not even for long term storage, as this practice allows damp air to get in and eventually corrode the tank.
- It is forbidden to tamper with, alter or modify, even partially, the systems and equipment described in this instruction manual, especially as safety guards and safety symbols are concerned.
- It is also forbidden to carry out work in any way other than that described or to neglect the illustrated safety tasks.

- The safety information and the general information given in this manual are very important.

1.8 Where the Compressor May be Used

The compressor must only be used in environments having the characteristics described in the following table:

Area of Machine Use: Essential Data Table	
Temperature Ambient	Minimum: +14°F (+10°C); Maximum: +104°F (+40°C)
Air Humidity	Maximum: 80%
Tolerated Weather Conditions	rain hail snow
Maximum Tilt Angle (bank)	None
	5%

Check that the area in which the compressor is to be positioned is adequately ventilated: good air exchange (more than one window) with no dust and no risk of explosion, corrosion or fire. If ambient temperatures exceed 113°F (45°C) air conditioning will be required. Make sure that lighting in the area is sufficient to identify every detail (such as the writing on the info plates/stickers); use artificial lighting where daylight on its own is insufficient.

1.9 Running and Testing the Compressor

Each compressor is carefully run and tested prior to delivery. A new compressor must nevertheless be used with caution during the first 5 working hours so as to complete proper break-in of its components. If the compressor is subject to an excessive workload during initial use, its potential efficiency will be prematurely compromised and functionality soon reduced. During the breaking in period proceed as follows:

- After starting up the compressor, let the compressor run unloaded for 5-6 minutes.

After the first 50 hours:

- Change the compressor oil (and filter on Compact 300)
- Check and adjust nuts and bolts
- Check Drive Belt Tension



WARNING

When changing the oil and filter, inspect for any metal debris; if present track down the cause before restarting the compressor.

2.0 Safety Warnings

Nuvair has taken extreme care in providing you with the information you will need to operate this system. However, it is up to you to carefully read this manual and make the appropriate decisions about system safety.



WARNING

This equipment is used to provide breathing Air for the purpose of life support. Read this manual in its entirety. Failure to heed the warnings and cautions contained in this document may result in severe injury or death.



WARNING

The equipment you will be using to compress air will expose you to both low and high-pressure gas. Gas, even under moderate pressures, can cause extreme bodily harm. Never allow any gas stream to be directed at any part of your body.



WARNING

Any pressurized hose can cause extreme harm if it comes loose or separates from its restraint or connection while under pressure and strikes any part of your body. Use appropriate care in making and handling all air connections.



WARNING

Do not use any form of mineral oil or synthetic lubricant not rated for the compressor in this system. Use only the recommended compressor lubricant. Never mix the Compressor Lubricant with other lubricants. The use of improper lubricants can lead to fire or explosions, which may cause serious personal injury or death.

3.0 Safety And Operation Precautions

Because a compressor is a piece of machinery with moving and rotating parts, the same precautions should be observed as with any piece of machinery of this type where carelessness in operations or maintenance is hazardous to personnel. In addition to the many obvious safety precautions, those listed below must also be observed:

- 1) Read all instructions completely before operating any compressor or Nitrox System.
- 2) For installation, follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Administration (OSHA) standards.
- 3) Electric motors must be securely and adequately grounded. This can be accomplished by wiring with a grounded, metal-clad raceway system to the compressor starter; by using a separate ground wire connected to the bare metal of the motor frame; or other suitable means.
- 4) Protect all power cables from coming in contact with sharp objects. Do not kink power cables and never allow the cables to come in contact with oil, grease, hot surfaces, or chemicals.
- 5) Make certain that power source conforms to the requirements of your equipment.
- 6) Pull main electrical disconnect switch and disconnect any separate control lines, if used, before attempting to work or perform maintenance. "Tag Out" or "Lock Out" all power sources.
- 7) Do not attempt to remove any parts without first relieving the entire system of pressure.
- 8) Do not attempt to service any part while system is in an operational mode.
- 9) Do not operate the System at pressures in excess of its rating.
- 10) Do not operate compressor at speeds in excess of its rating.
- 11) Periodically check all safety devices for proper operation. Do not change pressure setting or restrict operation in any way.
- 12) Be sure no tools, rags or loose parts are left on the Compressor System.
- 13) Do not use flammable solvents for cleaning the Air Inlet Filters or elements and other parts.
- 14) Exercise cleanliness during maintenance and when making repairs. Keep dirt away from parts by covering parts and exposed openings with clean cloth or Kraft paper.
- 15) Do not operate the compressor without guards, shields, and screens in place.
- 16) Do not install a shut-off valve in the compressor discharge line, unless a pressure relief valve, of proper design and size, is installed in the line between the compressor unit and shut-off valve.
- 17) Do not operate in areas where there is a possibility of inhaling carbon monoxide, carbon dioxide, nitrogen, or flammable or toxic fumes.
- 18) Be careful when touching the exterior of a recently run electric, gasoline, or diesel motor - it may be hot enough to be painful or cause injury. With modern motors this condition is normal if operated at rated load - modern motors are built to operate at higher temperatures.
- 19) Inspect unit daily to observe and correct any unsafe operating conditions found.
- 20) Do not "play around" with compressed air or direct air stream at body, this can cause injuries.
- 21) Compressed air from this machine absolutely must not be used for food processing or breathing air without adequate downstream filters, purifiers and controls and periodic air quality testing.

- 22) Always use an air pressure-regulating device at the point of use, and do not use air pressure greater than marked maximum pressure.
- 23) Check hoses for weak or worn conditions before each use and make certain that all connections are secure.

The user of any compressor or Nitrox System manufactured by Nuvair is hereby warned that failure to follow the preceding Safety and Operation Precautions can result in injuries or equipment damage.

However, Nuvair does not state as fact or does not mean to imply that the preceding list of Safety and Operation Precautions is all-inclusive, and further that the observance of this list will prevent all injuries or equipment damage.

4.0 System Components

Standard Features

- Conveniently located main control panel
- Magnetic starter with thermal overload protection
- Automatic condensate drains with collector
- Dial-a-Pressure final pressure switch and gauge allow for quick, fingertip pressure setting and automatic shutoff
- Two (2) high-pressure SCUBA filling hoses with bleeds and on/off valves
- Emergency shutdown button
- Hour meter
- Blue powder-coated cabinet for quiet, stationary operation
- External oil level sight glass and oil drain
- 5000 psi (345 bar) maximum pressure
- Internally mounted single CAN-15 filter canister
 - Grade E tri-chem breathing air purification system with activated carbon, molecular sieve, and hopcalite
 - Rated to supply 15,000 cu ft Grade E air between filter changes
- Interstage pressure gauges
- Pressure relief valves at all stages
- Pressure maintaining valve
- Final pressure gauge 0~7500 psi
- Digital cabinet temperature gauge
- High temperature shutdown
- Low oil alert and shutdown
- One-year warranty

Optional Equipment

- Carbon Monoxide (Pro CO) Analyzer
- Visual CO/Moisture Indicator
- Pro H₂O Analyzer (Moisture)
- Industrial air filtration package
- Alternative fill whip valve types (SCBA, DIN, Paintball/PCP)
- Filtration upgrade
 - CAN-25 filter canister
 - CAN-35 filter canister (must be externally mounted)

5.0 Compressor Specifications

Model	Nuvair 270 LPM Compact	Nuvair 300 LPM Compact
SKU	8033.6-N	8033.6-PL-N
CFM Charging Rate	9.5 CFM (270 L/min)	10.6 CFM (300 L/min)
Motor	Three-phase 7.5 hp (5.6 kW)	Three-phase 7.5 hp (5.6 kW)
208–230V / 60 Hz	SKU 8033.2-N	SKU 8033.2-PL-N
440–480V / 60 Hz	SKU 8033.3-N	SKU 8033.3-PL-N
208–230V / 50Hz	SKU 8033.5-N	SKU 8033.5-PL-N
380–415V / 50Hz	7.9–10A SKU 8033.6-N	7.9–10A SKU 8033.6-PL-N
Max. Operating Pressure	5000 psi (345 bar)	6000 psi (414 bar)
Pump Block	Nardi Pacific 27	Nardi Pacific 30
Number of Stages	3	3
Number of Fill Hoses	2	2
Condensate Drain	Automatic	Automatic
Fill Pressure Stop	Automatic	Automatic
Sound Level @ 3 Meters	81 dB	81 dB
Dimensions (L × W × H)	41.5 × 28 × 32.1 in (105 × 71.1 x 81.5 cm)	41.5 × 28 × 32.1 in (105 × 71.1 x 81.5 cm)



CAUTION

Ambient room temperature should never exceed 113°F (45°C) during operation of the Compressor System. Operation at higher temperatures may lead to system damage and malfunction.

6.0 Unpacking and Installing

- 1) Please read all information supplied before physically installing the Compressor System.
- 2) Unpack the system and remove from the pallet. Visually inspect the system to make sure there has been no damage during shipping. If damaged, please call Nuvair to file a damage report. Please take photos and supply detailed information about the damage.
- 3) Place the system in a permanent location allowing a minimum spacing of 36" from adjacent walls. Select a location where ambient room temperature is a minimum of +41°F to a maximum +113°F (°C Min. +5° - Max. +45°).
- 4) Make sure the installation space is well ventilated.

6.1 Electrical Connection

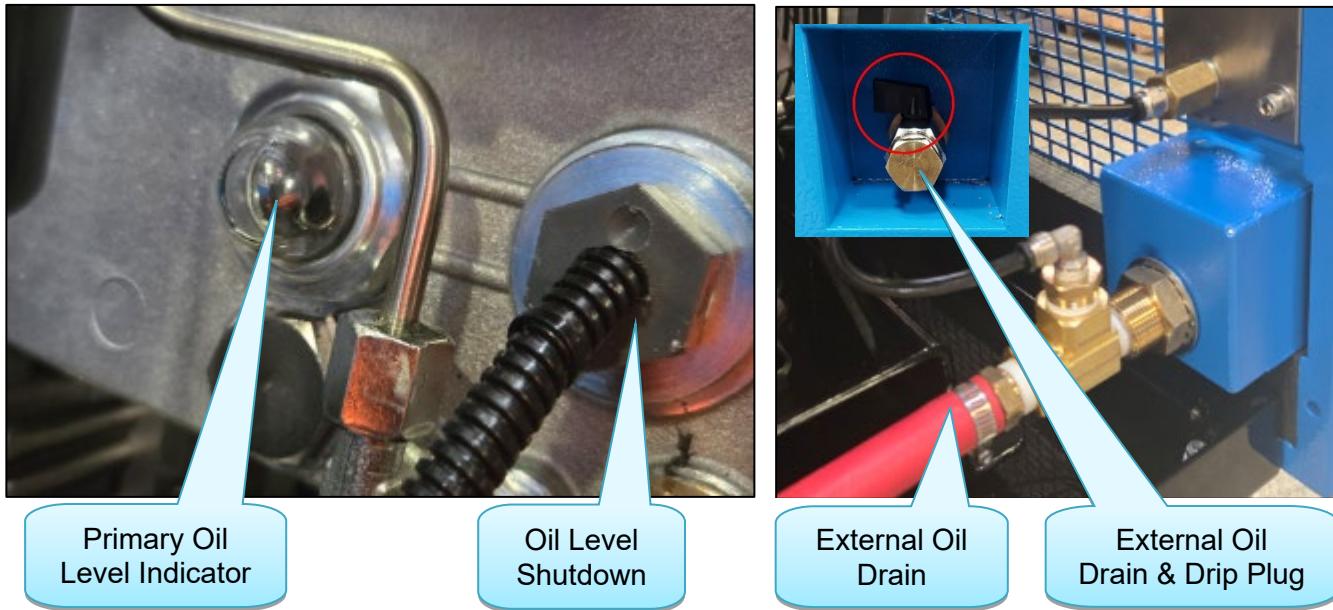
- Please read all information supplied before Connecting Electricity to the Compressor System.
- You should hire a **licensed electrician** to install any electric compressors purchased from Nuvair.
- The compressor is delivered with raw leads ready to be installed into a junction box.
- In the event a plug is needed, Nuvair recommends that the licensed electrician doing the install determines the plug necessary.
- Make sure your electrician follows approved and compliant standards for your location.

7.0 Daily Checks

- Inspect the exterior of the compressor (couplings, pipes, pneumatic components, etc.)
- Check for any oil leaks.
- Replace parts where necessary or contact Nuvair.

7.1 Lubricating Oil Level Check

Check that the level of lubricating oil is within acceptable limits (i.e., between min. and max.). Note that an excessive quantity of oil can leave deposits on the valves while too low a level prevents proper lubrication and could cause engine seizure. If the oil level is not within the minimum and maximum limits, top up or drain as described on page 27-3 of the Compact 270 User & Maintenance Manual and page 30-2 of the Compact 300 User & Maintenance Manual.



7.2 Check that Fill Hoses are in good condition

Inspect the refill hoses and make sure there are no cuts, holes, abrasions, leaks etc. If necessary, replace with new hoses.

8.0 Storing Technical Documentation

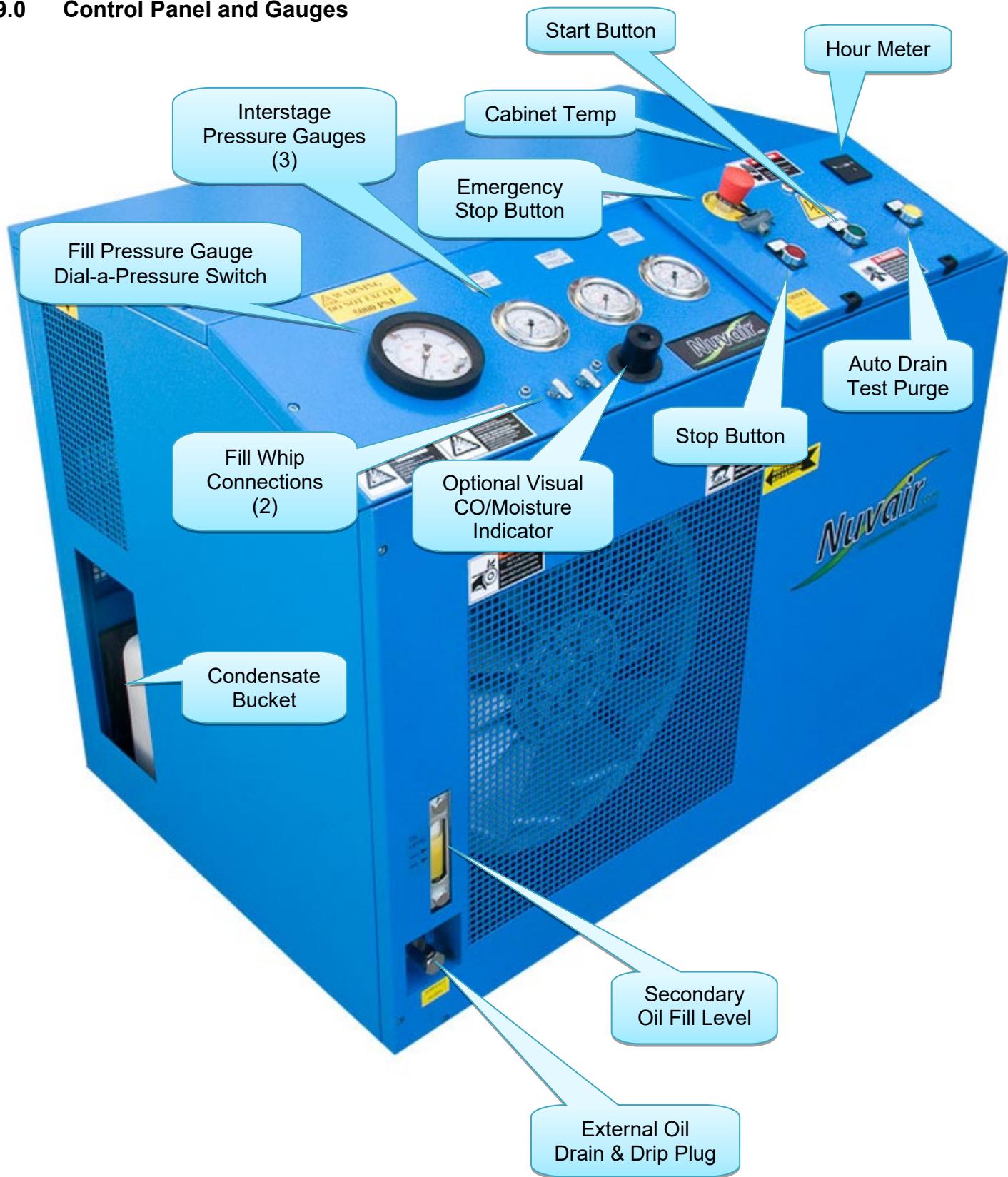
The use and maintenance manual and its appendices must be stored carefully and must always be kept where they can be accessed easily for immediate review.



WARNING

This User Manual contains important safety information and should always be available to those personnel operating this equipment. Read, understand and retain all instructions before operating this equipment to prevent injury or equipment damage.

9.0 Control Panel and Gauges



10.0 Safety Valve Checks

Check that safety valves are working properly by starting the compressor with the end taps closed: this will raise circuit pressure fast and trip the valves when their pressure setting is reached. The valves are pre-adjusted at the factory. For additional information, please see the Compact 270/300 User and Parts Manual.

Note: This check will not be possible if you have a factory set pressure switch installed.



CAUTION

Tampering with the safety valve to increase the pressure setting is strictly forbidden. Tampering with the safety valve can seriously damage the compressor, cause serious injury to personnel and renders the warranty null and void.

11.0 Tank Refill Procedure



NOTICE

During refill, the operator must be in the work area. During the tank refill phase, it is advisable to submerge tanks in cold water to reduce the drop in pressure that accompanies tank cooling.



WARNING

During tank refill, those not involved in the refill procedure must maintain a safety distance of at least 9 feet (3 meters). Also, it is forbidden to disconnect the hoses from the fittings or the high-pressure out connection while the machine is under pressure. If an emergency occurs during refill, shut down the compressor immediately.



DANGER

Should tanks show evident signs of internal or external corrosion, do not refill them even if they have been tested.



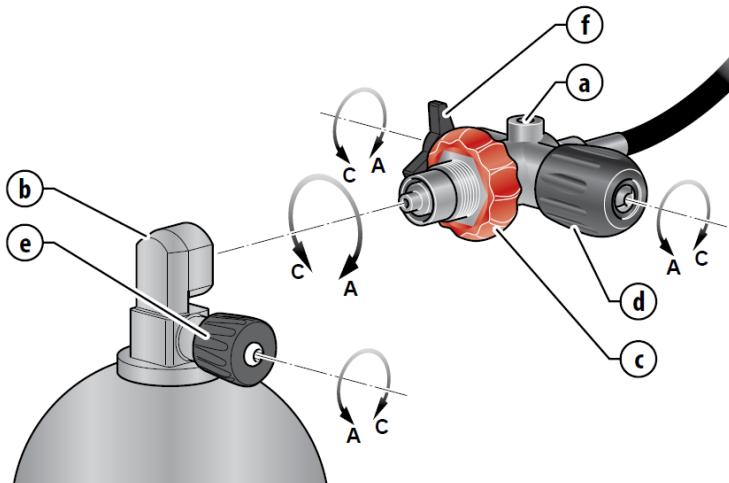
WARNING

Use only tested tanks (as proven by a test stamp and/or certificate). The working and tank refill pressures are stamped on the tanks themselves. It is forbidden to refill them at a pressure greater than that indicated.

Different fill valves are available at the time of purchase. Variations include INT (Yoke), DIN232, DIN300, and SCBA. To refill tanks, follow procedures described and illustrated, below.

1. Check oil levels and filters.
2. Check that tanks to be refilled are in good condition.
 - a. Tanks must be inspected as required by local law and have evidence (stamped or label) attesting to said certification or inspection.
 - b. Conduct a visual inspection of the tank/s exterior.
3. Check that fill whips and associated fittings are in good condition.
4. Fit the fill whip hose connector (a) to the tank fill valve (b).
5. For DIN valves, screw in the fill valve knob (c) until it is tightened.

- a. For INT (Yoke) tank valves, tighten yoke.
6. Check that the fill whip bleed valve (f) is closed by rotating it clockwise.
7. Open the tank valve (d) by rotating it counterclockwise.
8. Start the compressor by pressing the green START button.
9. With the compressor running, set Dial-a-Pressure switch to desired pressure setting.
10. Open the tank valve (e) by rotating it counterclockwise.
11. Once refilling has been completed wait for automatic shutdown of the compressor with the pressure switch.
12. Close fill whip valve (d) and tank valve (e) by rotating clockwise.
13. Open the bleed valve (f) by rotating it counterclockwise until all the residual air in the fill whip has been expelled.
14. Unscrew the DIN fill valve knob (c) or INT valve yoke by rotating it counterclockwise.
15. Disconnect the tank fill valve.
16. Press the red STOP button to turn off the compressor.
17. In case of an emergency, press the red mushroom-shaped button labeled EMERGENCY STOP.



Never drain a tank completely, not even for seasonal storage or long periods of inactivity. Pressure prevents internal damage caused by moisture intrusion.



12.0 Maintenance

12.1 Foreword

To obtain the best possible performance from the compressor and ensure a long working life for all its parts it is essential that personnel follow the use and maintenance instructions with extreme diligence. It is thus advisable to read the information below and consult the manual every time an inconvenience arises. For further information please contact Nuvair

Nuvair

Phone: +1.805.815.4044
Email: Info@nuvair.com

Address:

1600 Beacon Place
Oxnard, California 93033 USA

12.2 General

- Proper preservation of the compressor requires thorough cleaning.
- This type of refill station, designed and built according to the most advanced technological criteria, requires only minimum preventive and routine maintenance.
- Before carrying out any maintenance tasks, run checks and/or controls on the compressor, switch off the compressor, remove the plug from the mains socket.
- The residual pressure present in the compressor and all lines must be released.
- During disassembly and reassembly of the compressor, always use suitable wrenches/tools so as not to damage the relevant components.
- Loosen stiff parts with a copper or plastic mallet.
- When refitting parts make sure they are clean and lubricated sufficiently.
- Compressor maintenance tasks must only be carried out by authorized personnel and recorded on the Maintenance Log.

12.3 Unscheduled Work

Involves repairs and/or replacement of the mechanical parts of one or more compressor components, this work normally needs to be done after some years of use. If substantial modifications are made, the manufacturer cannot be held liable for any dangers that might arise. This work must be carried out by a "Nuvair" qualified mechanic.

12.4 Scheduled Maintenance Table

Maintenance	Every 5 hours	Every Day	Every Year	250 (hours)	500 (hours)	1000 (hours)	3000 (hours)
Lubricating Oil Check		○					
Automatic Shutdown Check		○					
Condensate Container discharge	○	○					
Belt wear and tension			○		●		
Air intake filter			●	●			
Fitting / hose leak check			○		○		
Oil (and filter) change			●	●			
Separator filter element cleaning			○			○	
1 st – 2 nd – 3 rd stage Valve replacement				○	●		
Water & HP oil separator replacement							●
HP filter body replacement							●

○ Checking and cleaning ● Change

12.5 Estimating Filter Life Hours

To maintain proper air filter performance, filters must be changed at regular intervals based upon hours of use. To calculate Filter Life Hours (FLH) formula is:

$$\text{Filter/s Cubic Feet (CF) Rating} \div \text{Compressor Cubic Feet per Minute (CFM)} \div 60 = \text{FLH}$$

The table below shows various filter sizes, configurations, and provides estimated filter life hours. Your filters may have shorter or longer life hours due to local ambient temperatures, compressor operating temperatures, ambient humidity, optional compressor equipment (refrigerated air dryer, extra filter towers, etc.), and quality of intake air. These estimated calculations are based upon filter temperature of 80°F (26.7°C).

Filter Tower Size	Filter/s CFM Rating	Compressor	Estimated Filter Life
CAN-15	15,000	Compact 270	26 hours
CAN-15	15,000	Compact 300	23 hours
CAN-25	24,000	Compact 270	42 hours
CAN-25	24,000	Compact 300	37 hours
Dual CAN-25	48,000	Compact 270	84 hours
Dual CAN-25	48,000	Compact 300	75 hours
CAN-35	30,000	Compact 270	52 hours
CAN-35	30,000	Compact 300	47 hours
Dual CAN-35	60,000	Compact 270	105 hours
Dual CAN-35	60,000	Compact 300	94 hours

13.0 Troubleshooting

Problem	Cause	Solution
-The electric motor does not start	• Phase missing	• Check fuses or capacitor
-Rotation speed and flow rate decrease	• Motor power too low • The belt slips	• Check the motor and the line • Restore drive belt tension
-The flow rate diminishes without rpm decreasing	• Valves not working • Final stage piston worn • Fittings loose / leaking seals • Intake filter clogged • Intake extension kinked • Piston or piston rings worn	• Contact technical support • Contact technical support • Check for leaks with soapy water and eliminate them • Replace filter • Straighten, use stiffer pipe • Contact technical support
-Air smells of oil	• Cartridge filter exhausted • Piston rings worn • Condensate not being drained	• Replace filter • Contact technical assistance • Check Auto Drains & manually drain more often
-Compressor overheats	• Direction of rotation wrong • Cooling tubes dirty • Incomplete valve closure (causing overload of another stage) • Poor Ventilation	• Check direction of rotation • Clean Cooling Tubes • Contact technical support • Contact technical support

14.0 Checking and Changing the Lubricating Oil (and Filter on Compact 300)

During the compressor's initial break-in period the original oil (and filter) must be changed after the **first 50 hours**. After the initial change, the oil (and filter) must be changed every 250 hours of use or annually, whichever comes first.

HP Compressor Lubricant: Only use lubricants rated for use with Breathing Air such as Nuvair 455 Synthetic Food Grade Lubricant or Nuvair 751. **Never mix compressor lubricants.**

Nuvair Compressors are shipped with Nuvair 455 Synthetic Food Grade Lubricant or Nuvair 751 in the compressor. For additional information, please refer to page 27-3 of the Compact 270 User & Maintenance Manual and page 30-2 of the Compact 300 User & Maintenance Manual..



WARNING

Use only the specified Nuvair Lubricants in this system. The use of incompatible lubricants presents a risk of fire and/or explosion, and may result in system damage. This can lead to severe personal injury and death.



DANGER

Do not carry out these tasks if the compressor has only just shut down; wait for the compressor to cool. Pressure must be drained before opening LP Fill Plug.

Any oil spilt during the oil/filter change could cause personnel to slip; wear protective garments and anti-slip footwear and remove traces of oil immediately.

Both oil and filter are classified as special wastes and must therefore be disposed of in compliance with the anti-pollution laws in force.

All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the main socket.



NOTICE

The compressor must be placed on a solid surface with a tilt of no more than 5°.

14.1 Checking the Oil Level



CAUTION

After running the compressor, the lubricant will be very hot. Take care when removing the drain plug and draining the lubricant to avoid burns.



NOTICE

Recommended Breathing Air Compressor Lubricant is changed when the first 50 hours of use is reached, then change lubricant in 250-hour cycles or annually.



CAUTION

Wear gloves when handling compressor lubricant. If contact with skin is made, wash the skin surface with soap and water.



CAUTION

Always wear goggles when handling compressor lubricant. These materials can cause eye irritation. If you accidentally get lubricant into your eyes, flush with fresh water for 15 minutes and contact a physician if irritation develops.



CAUTION

Compressor lubricant should be incinerated after use in a licensed facility in accordance with Federal, State and local regulations.

14.2 Changing the Oil

Please refer to page 27-3 of the Compact 270 User & Maintenance Manual and page 30-2 of the Compact 300 User & Maintenance Manual.

14.3 Tightening Torque Values

Please refer to page 27-6 of the Compact 270 User & Maintenance Manual and page 30-6 of the Compact 300 User & Maintenance Manual.

14.4 Optional Visual CO / Moisture Monitor

This element contains a CO indicating button and a humidity element in the form of a strip about 1/4" wide and 3/4" long. These items need to be installed per the manufacturer's instructions provided in the sealed foil packaging. When doing routine maintenance it is highly recommended these indicators are checked for damage and functionality or be replaced.

14.5 Changing the Air Intake Filter

Please refer to page 27-4 of the Compact 270 User & Maintenance Manual and page 30-4 of the Compact 300 User & Maintenance Manual.



DANGER

Do not carry out these tasks if the compressor has just shut down and is hot; wait for the compressor to cool down. All maintenance work must be carried out with the compressor OFF and the power supply lead unplugged from the wall socket.



NOTICE

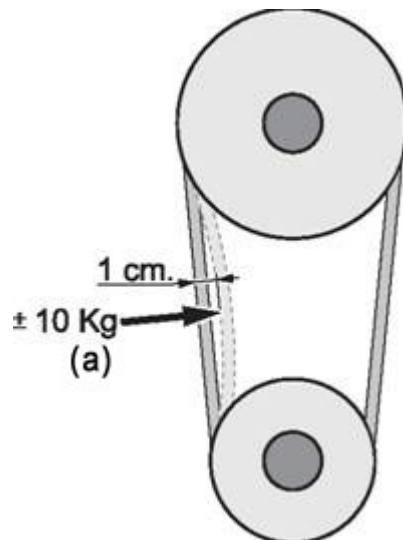
If the compressor is used in a dusty environment the intake filter change interval should be reduced to every 100 hours.

15.0 Transmission Belt

Belt tension must be checked monthly. The transmission belts must be replaced every 500 working hours of the compressor.

15.1 Checking the Transmission Belt

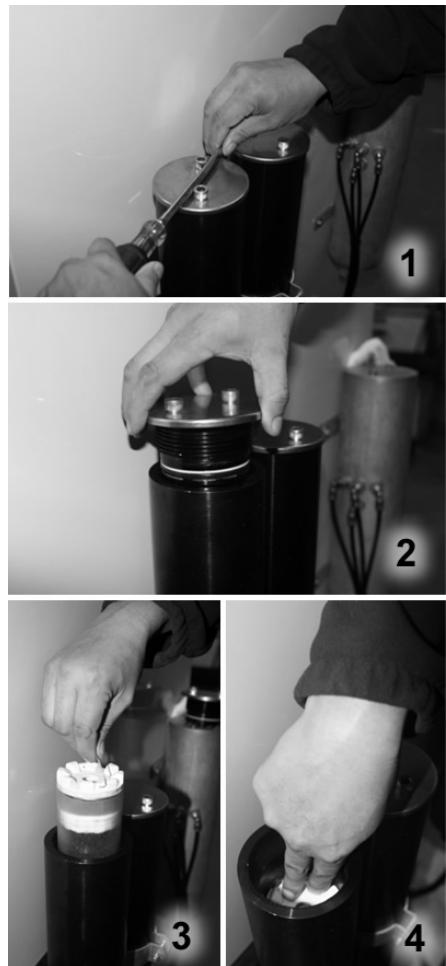
To check for proper transmission belt tension (a) exert a pressure of approximately 22lbs. (10 Kg) on the belts; check that the belts do not flex by more than 1 cm with respect to their original position. Should they flex more than this the belts must be replaced.



16.0 HP Compressor Filtration - Active Carbon Filter / Molecular Sieve

The high-pressure compressor comes standard with tri-chem filtration, utilizing a single filter element. Do NOT use any substitute. Change filter element per the replacement frequency charts. If the compressor system is operated in high humidity and/or high temperature, filter elements must be changed more often. See charts for details on filter element life factors.

1. Shut down the compressor system.
2. Open and leave open the drain valve/s to vent all pressure from the circuit.
3. Use the wrench (pictured below) to apply leverage on the screw heads of the plug and rotate counterclockwise. If the filter wrench (SKU TL-033) is not available, a large screwdriver can be used to unscrew the filter plug (image 1).
4. Remove the filter plug (image 2).
5. Remove the first cartridge (image 3) and the second cartridge; replace both with new cartridge elements. Place pressure on each cartridge (image 4) to seat the element fully into the canister.
6. Replace the filter canister plug O-ring every time the filter is changed.
7. Reinstall cap to canister by rotating clockwise and tightening with screwdriver or cap wrench.



WARNING

Be sure that all pressure has been relieved from the system prior to opening any filtration canister. Failure to vent pressure from the system prior to opening the canister can lead to serious personal injury or death. Difficulty turning the filter cap may indicate there still is pressure in the filter canister.



CAUTION

If the compressor is located in an area where there is high humidity and high heat, the life of all Filtration Elements may be as little as 35% of rated operating capacity. Check the Compressor manual and Appendix for details on Filter Element Life Factors.



WARNING

The active carbon filters are classified as special waste once the compressor has been used to make air: they must be disposed of in compliance with the anti-pollution standards in force.

**NOTICE**

The Condensate tank must be drained at the end of every working day or every 2 to 3 hours of operation. The Compressor Condensate must be drained every 5-10 minutes of operation.

16.1 Condensate Discharge

An outflow of condensate water with lubricating oil is normal during refills: the quantity will depend on the level of humidity in the air. The condensate must be disposed of as per your local waste disposal rules. The timer is factory set, however it may need to be adjusted to maximize efficiency.

To drain the condensate tank open the manual bleed valve and drain into a portable container for disposal.

The condensate tank must be drained daily or every 6 working hours. You may run a hose from the condensate tank into a larger receiver and leave the ball valve in the open position.

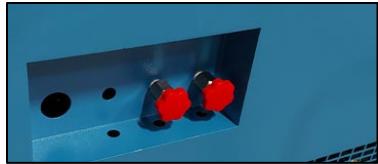
- Manually open auto drain valves each day to check for condensate and that the auto drains are functioning properly.
- If auto drains malfunction the discharge drain valves must be opened manually every 5-10 minutes.

Timer product page link:

<https://nuvair.com/3800.html>

User Manual:

<https://nuvair.com/manuals/3800.pdf>

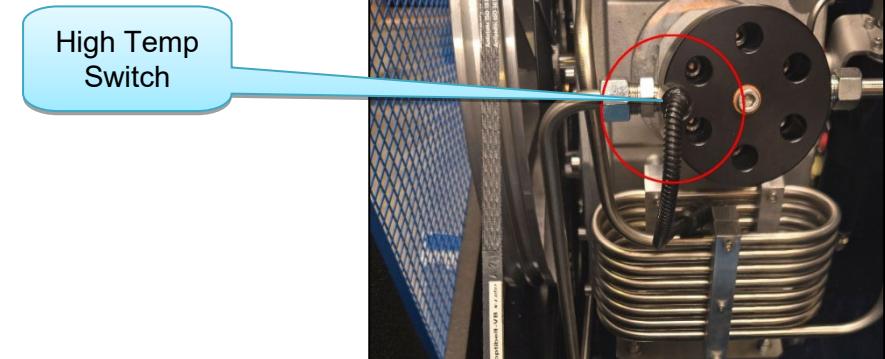


Auto Drain Valves with Manual Bleed Valves

Pressure Bleed Valve

16.2 High Temperature Shutdown Switch

The cabinet temperature shutdown switch location is indicated in the image, right.



17.0 Electrical Power Connection



WARNING

Never use extension cords to provide power to your Compressor System. The system must be properly wired according to national and local electrical codes by a qualified electrician. Improper wiring may lead to fires, which can cause serious personal injury or death.

Electrical wiring and connections should be made by a **certified electrician** in accordance with all national and local electrical codes. Check all System Specifications provided in this manual. When working on the Compressor System the main breaker at the power source must be “locked out” in the Off position.

Amperage Load for System

380-415V / 50 Hz
7.9–10A

Compressor Rotation Check

Always turn on (bump) starter and run motor very briefly to check for proper direction of rotation.
(See arrow on electric motor and flywheel belt guard)



NOTICE

Operation in reverse direction for more than a few seconds will cause a Reciprocating Compressor to run hot and perform poorly and may cause permanent damage.

The Motor Starter includes electrical protection for the compressor.

18.0 Storage

Should the compressor not be used, it must be stored in a dry sheltered area at an ambient temperature of between 32°F and 104°F (0°C and 40°C). Store the compressor away from sources of heat, flames or explosive.

18.1 Stopping the Machine for a Brief Period

If you do not intend to use the compressor for a brief period proceed with general cleaning. Once the compressor has cooled down you should wipe off dirt, dust and moisture on the compressor and the surrounding area.

18.2 Stopping the Machine for an Extended Period

If you do not intend to use the compressor for a long period, extract the active carbon filter cartridge. Run the compressor for a few minutes without actually filling bottles so as to flush out all the residual condensate. Stop the compressor, disassemble the intake filter, restart the compressor and spray a few drops of oil into the air intake hole so that a light film of lubricant is aspirated and penetrates the interior of the compressor. Stop the compressor and refit the air intake filter. Clean the external parts: eliminate any moisture, salt or oil deposits. Protect the compressor from dust and water by storing it in a clean, dry place. Switch off the machine via the main switch and remove the plug from the mains power socket. Proceed with a thorough general clean of all machine parts. During machine downtimes it is advisable to run the compressor for 20 minutes every 15 days.

19.0 Dismantling and Putting the Compressor Out of Service

Should you decide not to use the compressor or any of its parts any longer you must precede with its dismantling and putting it out of service. These tasks must be carried out in compliance with the standards in force.



WARNING

Should the compressor, or a part of it, be out of service its parts must be rendered harmless so they do not cause any danger.



WARNING

Bear in mind that oil, filters or any other compressor part subject to differentiated waste collection must be disposed of in compliance with the standards in force.

19.1 Waste Disposal

Use of the compressor generates **waste** that is classified as **special**. Bear in mind that residues from industrial, agricultural, crafts, commercial and service activities not classified by quality or quantity as urban waste must be treated as special waste. Deteriorated or obsolete machines are also classified as special waste. Special attention must be paid to active carbon filters as they cannot be included in urban waste: observe the waste disposal laws in force where the compressor is used. Bear in mind that it is compulsory to record loading/unloading of exhausted oils, special wastes and toxic-harmful wastes that derive from heavy/light industry processes. Exhausted oils, special waste and toxic-harmful waste must be collected by authorized companies. It is especially important that exhausted oils be disposed of in compliance with the laws in the country of use.



NOTICE

Disassembly and demolition must only be carried out by qualified personnel.

19.2 Dismantling the Compressor

Dismantle the compressor in accordance with all the precautions imposed by the laws in force in the country of use. Before demolishing request an inspection by the relevant authorities and relative report. Disconnect the compressor from the electrical system. Eliminate any interfaces the compressor may have with other machines, making sure that interfaces between remaining machines are unaffected. Empty the tank containing the lubricating oil and store in compliance with the laws in force. Proceed with disassembly of the individual compressor components and group them together according to the materials they are made of. The compressor mainly consists of steel, stainless steel, cast iron, aluminum and plastic parts. Then scrap the machine in compliance with the laws in force in the country of use.



NOTICE

At every stage of demolition observe the safety regulations contained in this manual carefully.

20.0 In Case of Fire

- In the event of fire use a CO₂ extinguisher in compliance with the relevant standards in force.
- Contact the fire department.

21.0 Maintenance Register

21.1 Customer Service

Customers continue to receive assistance after the purchase of a compressor. To this end Nuvair has created a customer service network covering the entire country.



NOTICE

Our qualified technicians are at your disposal at any time to carry out maintenance work or repairs; we use only original manufacturer's parts to ensure quality and reliability.

21.2 Scheduled Maintenance

The scheduled maintenance program is designed to keep your compressor in perfect working order. Some simple tasks, described in this manual, can be carried out directly by the customer; others, instead, require that the work be carried out by trained personnel. For the latter we recommend you always contact our office. This section provides a simple tool with which to request assistance and register completed scheduled maintenance work. Start-up and maintenance checks/tasks, once completed by our qualified technician, are registered in this maintenance chapter by way of an official stamp, signature and inspection date; the number of working hours is also registered. The maintenance schedules/coupons easily let you know when our assistance service should be contacted to carry out work.

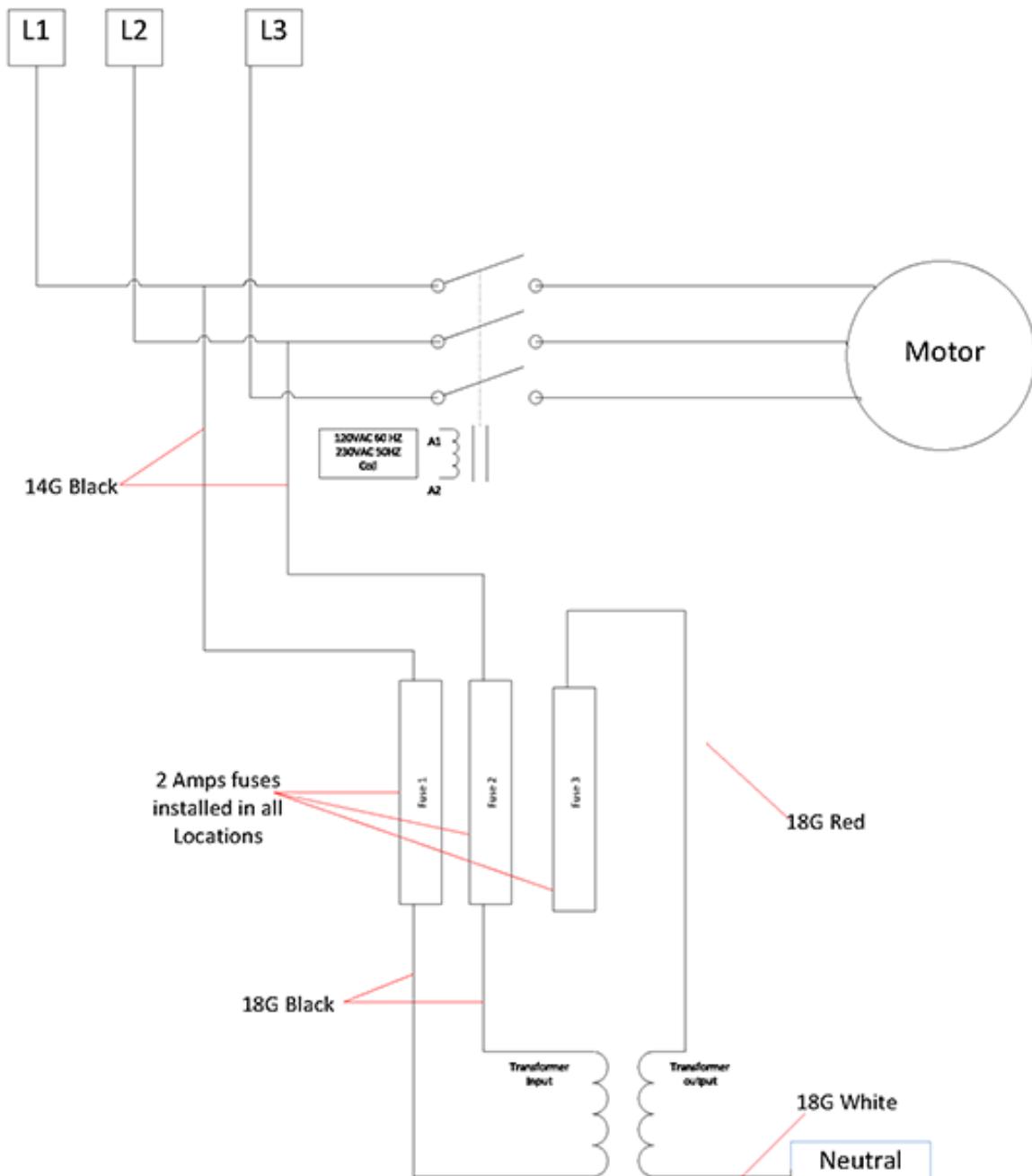
21.3 Using the compressor under heavy duty conditions

Where compressors are used in particularly difficult conditions (high levels of pollution, presence of solid particulate in suspension etc.), scheduled maintenance tasks must be carried out more frequently as per the advice given by our assistance network.

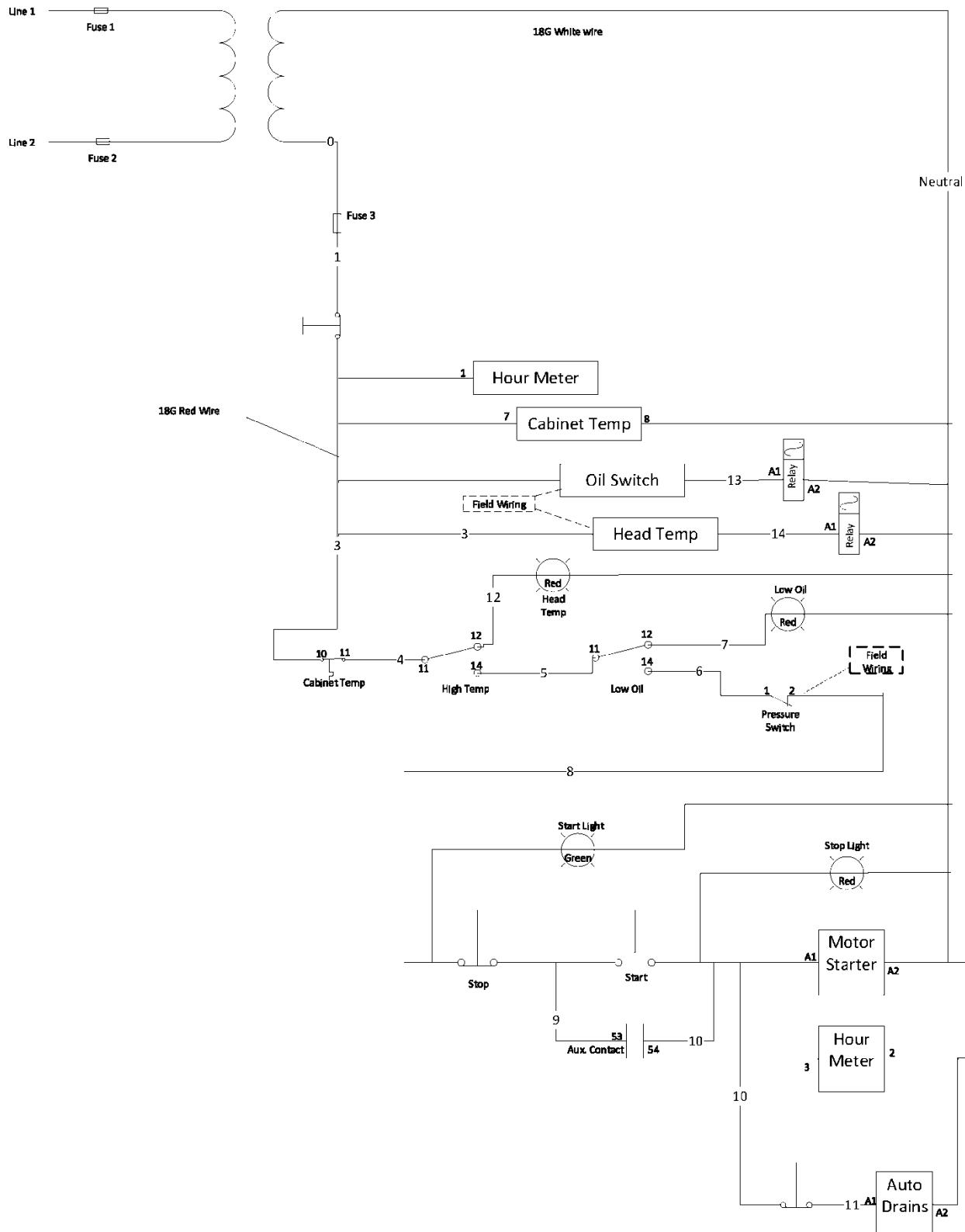
21.4 Nuvair Customer Care Contact

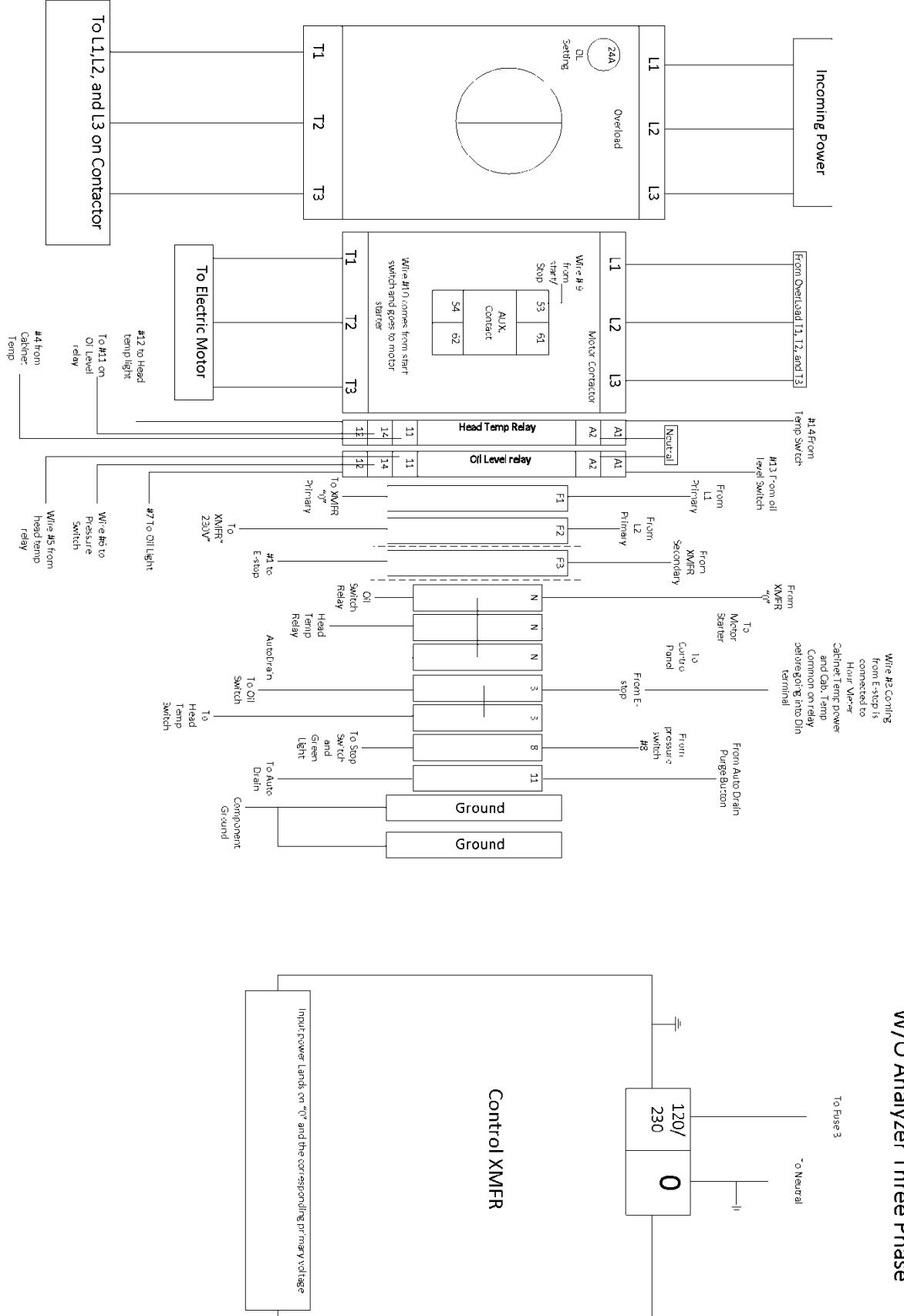
Telephone: +1.805.815.4044 | Fax: +1.805.486.0900
info@nuvair.com
<https://nuvair.com/downloads/user-manuals>

22.0 Wiring Diagrams

Nuvair 3 Phase 7.5HP
Motor Starter Primary
Wiring

Compact Non Restart





Nuvair Compact Terminal Layout Evo W/O Analyzer Three Phase

23.0 Replacement Parts

See the separate Parts Manual for compressor parts

Compressor System Components	Type	Part Number
Reciprocating Compressor Lubricant Food Grade, Nitrox Compatible	Nuvair 455, 1 Gallon (Other Sizes Available)	9406
Industrial Reciprocating Compressor Lubricant, Nitrox Compatible	Nuvair 751, 1 Gallon (Other Sizes Available)	9403
Standard CAN-15 Tower Filter	Absorbent Filter	NUV65670-M-B
15,000 CF @ 80°F	Tri-Chem Breathing Air Filter	NUV65240-MHC-B
Upgraded CAN-25 Tower Filter	Absorbent Filter	NUV543-M-B
	Tri-Chem Breathing Air Filter	NUV543-MHC-B
(1) CAN-25: 24,000 CF @ 80°F		
(2) CAN-25: 48,000 CF @ 80°F		
Upgraded CAN-35 Tower Filter	Absorbent Filter	NUV65677-M-B
(1) CAN-35: 30,000 CF @ 80°F	Tri-Chem Breathing Air Filter	NUV65247-MHC-B
(2) CAN-35: 60,000 CF @ 80°F		
Air Intake Filter Element	Cartridge	PA002-191
Change at 100-250 hours		
Compact 300 Oil Filter	Cartridge	PA001-145
Change at 250 hours		
Service Kits		
500-hour	Kit	PA001-300-03-0500
1000-hour	Kit	PA001-300-03-1000

24.0 Appendix

Supply and Breathing Air Specifications

All supply and breathing air must meet the following requirements of CGA G-7.1-1997. Supply air delivered to the Membrane System must be purified to meet Grade D or E quality, and periodic air quality testing to assure compliance is recommended. All breathing air for diving produced by the downstream compressor must be purified to meet Grade E quality, and periodic air quality testing to assure compliance is mandatory.

Item	Grade D	Grade E
Oxygen	19.5-23.5%	20-22%
Carbon Dioxide (maximum)	1000 PPM	1000 PPM
Carbon Monoxide (maximum)	10 PPM	10 PPM
Hydrocarbons (maximum)	Not specified	25 PPM
Water Vapor (maximum)	Not specified	Not specified
Dew Point (maximum) (1)	Not specified	Not specified
Oil & Particles (maximum) (2)	5 mg/m ³	5 mg/m ³
Odor	None	None

Notes:

- 1) Dew Point of supply air must be >10°F (6°C) colder than coldest ambient air expected
- 2) Supply air delivered to the Membrane System must contain <0.003 PPM Oil Vapor

All breathing Nitrox produced for diving must be purified to meet these same requirements, except for oxygen content. Nitrox oxygen content must measure within +/- 1% O₂ of the specified value of the mixture using a properly calibrated Oxygen Analyzer (i.e. Nitrox produced with a target content of 32% O₂ must measure in the range of 31-33% O₂). Periodic air quality testing to assure compliance is mandatory.

Filter Element Life Factors

Breathing air filter element life is typically rated by manufacturer based on an air temperature of 80°F at the filter inlet. Under normal operation this temperature is 12°F (5°C) warmer than the ambient air, resulting in an equivalent ambient temperature rating at 68°F (20°C).

To determine element life at a different ambient temperature, multiply the rated life by the life factor listed below:

Filter Temperature	Ambient Temperature	Filter Element Life Factor
53°F (12°C)	41°F (5°C)	2.6 x Life
62°F (17°C)	50°F (10°C)	1.8 x Life
71°F (23°C)	59°F (16°C)	1.35 x Life
80°F (27°C)	68°F (20°C)	1 x Life
89°F (32°C)	77°F (25°C)	0.8 x Life
96°F (36°C)	84°F (29°C)	0.55 x Life
105°F (41°C)	93°F (34°C)	0.45 x Life
114°F (46°C)	102°F (39°C)	0.35 x Life

25.0 Nuvair Compressor System Warranty

Nuvair extends a limited warranty, which warrants the compressor System to be free from defects in materials and workmanship under normal use and service for a limited period. All other Original Equipment Manufacturer (OEM) components used in the system are warranted only to the extent of the OEM's warranty to Nuvair. Nuvair makes no warranty with respect to these OEM components and only warrants the workmanship that Nuvair has employed in the installation or use of any OEM component. This warranty is not transferable.

Nuvair will, at its discretion and according to the terms as set forth within, replace or repair any materials which fail under normal use and service and do not exhibit any signs of improper maintenance, misuse, accident, alteration, weather damage, tampering, or use for any other than the intended purpose. Determination of failure is the responsibility of Nuvair, which will work together with the customer to adequately address warranty issues. When any materials are repaired or replaced during the warranty period, they are warranted only for the remainder of the original warranty period. This warranty shall be void and Nuvair shall have no responsibility to repair or replace damaged materials resulting directly or indirectly from the use of repair or replacement parts not approved by Nuvair.

Maintenance Items

Any materials which are consumed or otherwise rendered not warrantable due to processes applied to them, are considered expendable and are not covered under the terms of this policy. This includes maintenance and consumable items listed as part of a suggested maintenance program included with system documentation.

Return Policy

Application for warranty service can be made by contacting Nuvair during regular business hours and requesting a Return Material Authorization number. Materials that are found to be defective must be shipped, freight pre-paid, to the Nuvair office in Oxnard, California. Upon inspection and determination of failure, Nuvair shall exercise its options under the terms of this policy. Warranty serviced materials will be returned to the customer via Nuvair's preferred shipping method, at Nuvair's expense. Any expedited return shipping arrangements to be made at the customer's expense must be specified in advance.

Limitation of Warranty and Liability

Repair, replacement or refund in the manner and within the time provided shall constitute Nuvair's sole liability and the Purchaser's exclusive remedy resulting from any nonconformity or defect. Nuvair shall not in any event be liable for any damages, whether based on contract, warranty, negligence, strict liability or otherwise, including without limitation any consequential, incidental or special damages, arising with respect to the equipment or its failure to operate, even if Nuvair has been advised of the possibility thereof. Nuvair makes no other warranty or representation of any kind, except that of title, and all other warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, are hereby expressly disclaimed. No salesman or other representative of Nuvair has authority to make any warranties.

26.0 Service Log

27.0 Additional Record of Changes

It is the responsibility of the owner of this product to register their ownership with Nuvair by sending the warranty card provided to Nuvair. This card is to establish registration for any necessary warranty work and as a means of communication that allows Nuvair to contact the user regarding this product.

The user must notify Nuvair of any change of address by the user or sale of the product. All changes or revisions to this manual must be recorded in this document to ensure that the manual is up to date.

Change Date	Description of Change

Notes



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