

Operation Manual

Nuvair Champion LP

Diesel/Electric

rev. 050112

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

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Hours: Monday through Friday
8:00 AM to 5:00 PM PST USA

⚠ Warning

This Operation 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. 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:

Champion R15 or R30 Compressor Operation & Maintenance Instructions
Yanmar or Kohler Diesel Manual
WEG or Baldor Electric Motor Manual

1.0 Introduction

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.

This manual will assist you in the proper set-up, operation and maintenance of the Nuvair Champion LP Breathing Air Compressor System. Be sure to read this entire manual and the included Champion manual and engine or electric motor manuals included.

Throughout this manual we will use certain words to call your attention to conditions, practices or techniques that may directly affect your safety. Pay particular attention to information introduced by the following signal words:

⚠ Danger

Indicates an imminently hazardous situation, which if not avoided, will result in serious personal injury or death.

⚠ Warning

Indicates a potentially hazardous situation, which if not avoided, could result in serious personal injury or death.

⚠ Caution

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.

2.0 Safety Warnings

⚠ Warning

This equipment is used to provide breathing gas for the purpose of underwater 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 manufacture 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 termination) while under pressure and strikes any part of your body. Use appropriate care in making and handling all gas connections.



⚠ Warning

Never mix the Compressor Lubricant with other lubricants. If unsure of compressor lubricant remove all existing lubricant and replace with the proper breathing air compressor lubricant prior to use. The use of improper lubricants can lead to un-safe air quality, which may cause serious personal injury or death.

Warnings Graphics Defined:



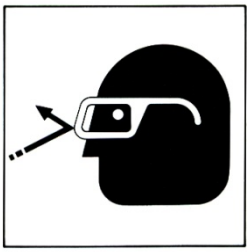
Moving belts



Electrocution



Fire



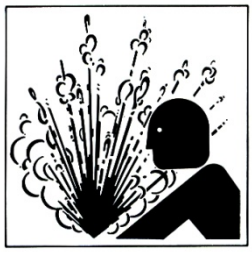
Eye protection



Gas inhalation



Skin damage



Explosion



Explosion



Electrocution



Machinery

Abbreviations commonly used in this manual:

P.S.I.	Pounds Per Square Inch	C.F.M.	Cubic Feet Per Minute
R.P.M.	Rotations Per Minute	L.P.	Low Pressure
L/min	Liters Per Minute	CO	Carbon Monoxide
CO2	Carbon Dioxide		

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.
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 the properly maintained downstream filters, purifiers, 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 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 Legal Precautions

It is highly recommended that a Dive log be maintained when using an Air Compressor on a job site to document the following information. This log must be of permanent binding style with no loose pages.

- Date and time of day
- Job Name & Number
- Supplier's check of air quality plus signature and date
- MOD (Maximum Operating Depth) in user's handwriting

Proper air analysis tested on a quarterly basis and comprehensive maintenance is the best way to assure proper, safe, and economical air production.

⚠ Notice

While Nuvair manufactures LP compressors for commercial diving use, Nuvair does not determine the regulations and or standards governing the use of "Air Compressor Systems". Operators of Nuvair compressors should consult your local and or national government and or managing bodies to determine the regulation obligations necessary to operate a Nuvair Compressor for divers and breathing air use.

In the U.S. and Canada regulators include, but are not limited to:
OSHA
US Coast Guard
US Military- Army, Navy, Marines, Air Force
CSA International
ANSI
ACDE
ADCI
USACE
ACDE
AAUS
NFPA

Some of the regulations in print pertain to the actual compressor equipment and others pertain to the Contractors and Dive Team.

You should be clear of any regulations, standards and requirements that are present for your use of a Nuvair Compressor before operating the compressor.

Nuvair can manufacture your Compressor package to meet any regulatory standards. Please provide us with the standards you operate under and we can provide you with the proper equipment to meet those standards or regulations.

5.0 System Overview

The Nuvair Champion LP Breathing Air Compressor system is designed to be open with good access to components, yet good moving part protection while it is running. This package is for use to supply low pressure surface supplied air direct to divers.
The operator should be able to produce Air with a minimum of start-up hassles.

Champion R15:

- Air Supply and Regulated Air Input Gauges
- 1 Air Intake Filters
- Hankison Series 20 LP Filtration to .003 PPM Oil Vapor for divers
- NUVAIR 455 FDA Approved Food Grade Compressor Lubricant in R15 block
- Open design 60 gallon tank mount standard
- Option: Heavy Duty Marine Grade Aluminum Frame with wheels, handles, lifting eye, and fork lift slots
- Vibration Isolation Mounts
- 1 x Low-pressure Two Stage Compressor
- Option: 1 x 1 Gallon ASME LP Surge Tank with ½" delivery ball valve
  Yanmar or Kohler 10 HP diesel engine with electric start.
  or
- WEG or Baldor Electric Motor 5hp

Air Compressor Technical Data:

- LP Compressor 5 or 10 HP 20.7cfm@175psi

Maximum Block Output Pressure:	200 PSI (13.75 BAR)
Final System Discharge Pressure:	200 PSI (13.75 BAR)
Dual Control Head Unloaders	
Number of Stages:	2
Number of Cylinders:	2
Package Free Air Delivered Max:	20.7 CFM (586 L/Min)
Lubricant:	NUVAIR 455
Condensate Drain	Manual

Suggested Maintenance Intervals:

Replace Nuvair 455 Lubricant: in R15	200 Hours or yearly
LP Filtration Elements	100 Hours or yearly

(Nuvair recommends checking filter elements for moisture and proper operation daily.)

Typical Specification For Grade-D Air:

- O2 Percentage: 20-22
- CO2: 1000 PPM
- CO: 10 PPM
- Hydrocarbons: 25 PPM
- Odor: None

Champion R30:

- Air Supply and Regulated Air Input Gauges
- 1 Air Intake Filters
- Hankison Series 24 LP Filtration to .003 PPM Oil Vapor for divers
- NUVAIR 455 FDA Approved Food Grade Compressor Lubricant in R15 block
- Open design 120 gallon tank mount standard
- Option: Heavy Duty Marine Grade Aluminum Frame with wheels, handles, lifting eye, and fork lift slots
- Vibration Isolation Mounts
- 1 x Low-pressure Two Stage Compressor
- Option: 1 x 1 Gallon ASME LP Surge Tank with ½" delivery ball valve
- Kohler 25HP diesel or Kohler 23 HP Gas engine with electric start.
  or
- WEG or Baldor Electric Motor 15hp or20hp

Air Compressor Technical Data:

- LP Compressor 39-59 cfm@175psi

Maximum Block Output Pressure:	200 PSI (13.75 BAR)
Final System Discharge Pressure:	200 PSI (13.75 BAR)
Dual Control Head Unloaders	
Number of Stages:	2
Number of Cylinders:	2
Package Free Air Delivered Max:	39-59 CFM (1104-1670 L/Min)
Lubricant:	NUVAIR 455
Condensate Drain	Manual

Suggested Maintenance Intervals:

Replace Nuvair 455 Lubricant: in R30	200 Hours or yearly
LP Filtration Elements	100 Hours or yearly

(Nuvair recommends checking filter elements for moisture and proper operation daily.)

Typical Specification For Grade-D Air:

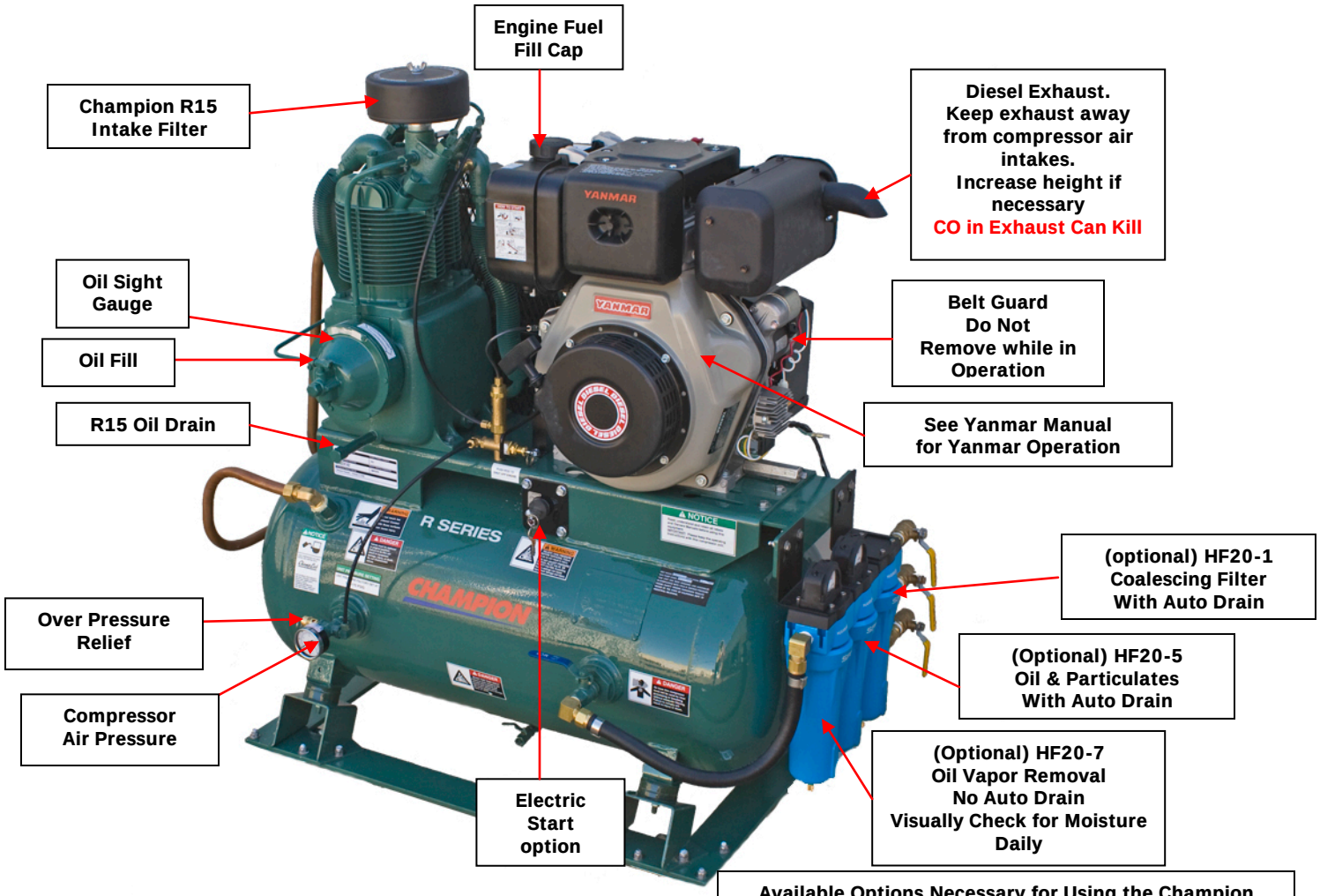
• O2 Percentage:	20-22
• CO2:	1000 PPM
• CO:	10 PPM
• Hydrocarbons:	25 PPM
• Odor:	None

6.0 System Component Identification:

The **Champion R15** system is a self-contained, portable, low pressure delivery package capable of supplying Air for the divers use.

The system utilizes a Champion R15 low-pressure compressor that is mounted together with 10hp Yanmar or Kohler Diesel Engine or 5hp WEG or Baldor electric Motor in a rigid, aluminum frame or on a volume tank. The system components include: Marine Grade Frame, Compressor and motor. All of the component assemblies and parts are mounted to facilitate easy set-up, operation, and transport.

Champion R15 Diesel Compressor System Components

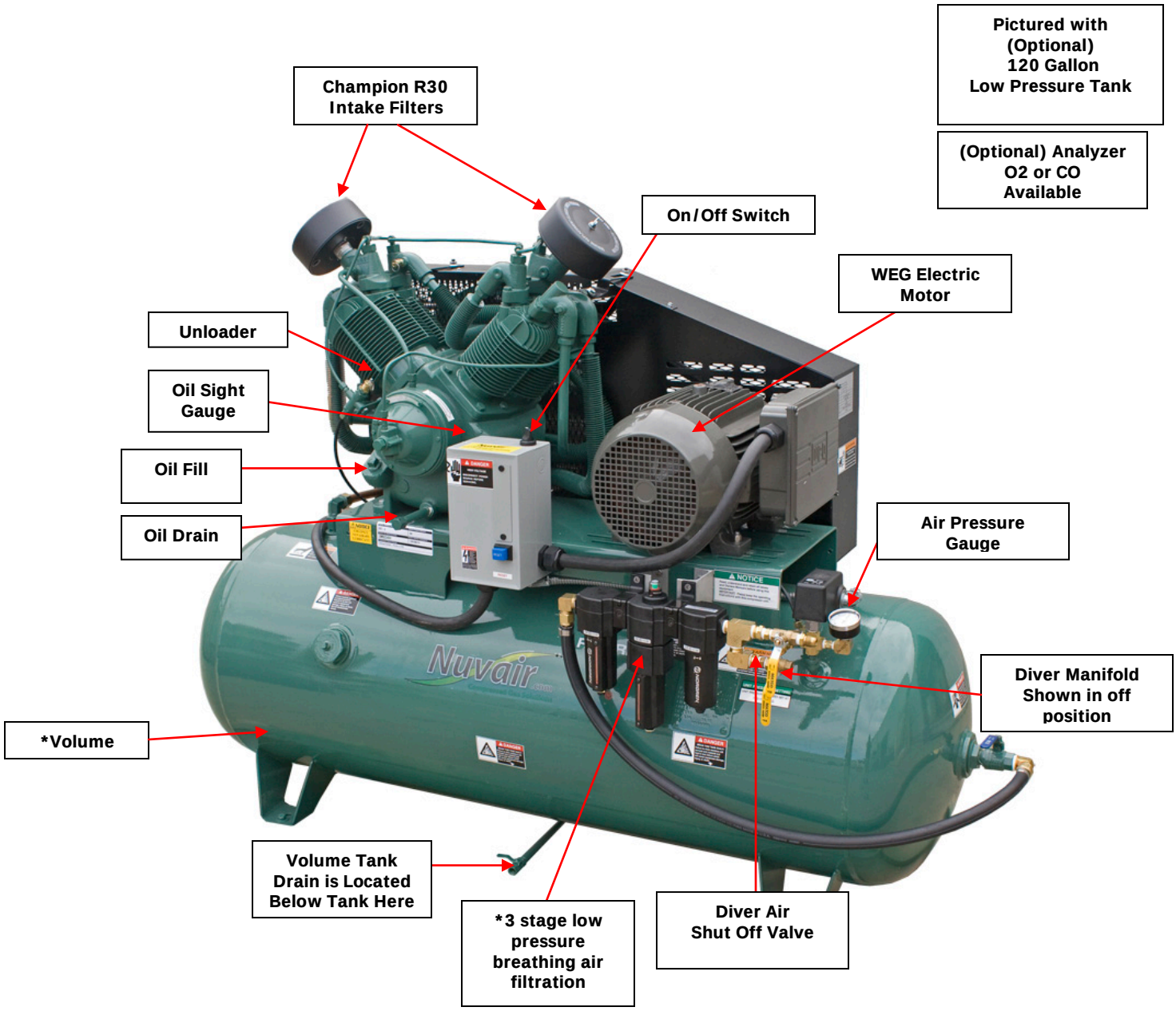


Available Options Necessary for Using the Champion Compressors for Diving

LP Diver Air Filtration
Volume Tank
High Temp Sensor for Compressor Block
CO Analyzer- Shutdown, lights, Alarm
Regulator
Low Pressure Switch
Low Oil Level Switch
Low Pressure Switch

Be sure to check with your local agency for standards that require options to be in place before using the Champion Compressors for working divers.

7.0 Champion R30e Compressor System Component Identification with Options



Available Options to consider:

*Volume Tank- With pressure gauge, pressure relief valve, on/off valve and drain
*LP Diver Filtration- 3 stage filtration or 4 stage filtration
**High Temp Sensor- To warn if compressor is running hot
**CO Analyzer- Will monitor CO levels of air supply being delivered to the diver manifold

** These items are required to use the compressor package for "Diver Breathing Air"*
***Required to be compliant with some Diving standards*

⚠ Notice

If any information in this manual conflicts with any of the other manuals call Nuvair before proceeding.

8.0 Theory of Operation:

Before Starting the Nuvair Champion LP system:

9.0 Assembly Preparation:

1. First familiarize yourself with the components of the system in the first section of the manual.
2. Please read and follow instructions for compressor and motor provided in additional manuals.
3. Unpack the System and remove from the pallet.
4. Visually inspect the system to make sure there has been no damage* during shipping.
5. Follow the remaining step by step instructions for initial set up and operation.

*If damaged, please call Nuvair to file a damage report. Please take photos and supply detailed information about the damage.

10.0 Set-up and Assembly

10.1 Power Connection:

This package comes with a 12 volt battery for the Diesel electric start to function properly**.**
Red Is Positive! Connecting the wrong leads may damage circuitry.

Electric Option:

A WEG 5hp electric motor is supplied with the current and voltage specified at time of purchase.



⚠ Warning

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.

10.2 Proper Rotation:

When the Weg electric motor is used to drive the system it is important that the power supply is properly connected to prevent improper motor rotation. Running the compressor in the wrong direction will damage the compressor and void warranty.

A. Yanmar or Kohler Engine Operation:
See engine Manual

B. WEG or Baldor Motor Operation:
See WEG Motor Manual and Electrical Schematic on page 30 of this manual.

11.0 Operation

Once you have read through this manual, the compressor manuals, the diesel manual, the CO analyzer manual, made the necessary set-up connections, and you understand how the system functions; follow the steps below to operate the system:

1. Always check fluid levels before starting compressor and engine.
2. Open Diver tank on/off valve and Volume Tank valves for Air
3. Start diesel as per instructions or electric motor
4. Turn off diver Air Valves
5. Warm for a few minutes (Diesel engine)
6. Adjust throttle to run position (Diesel engine)

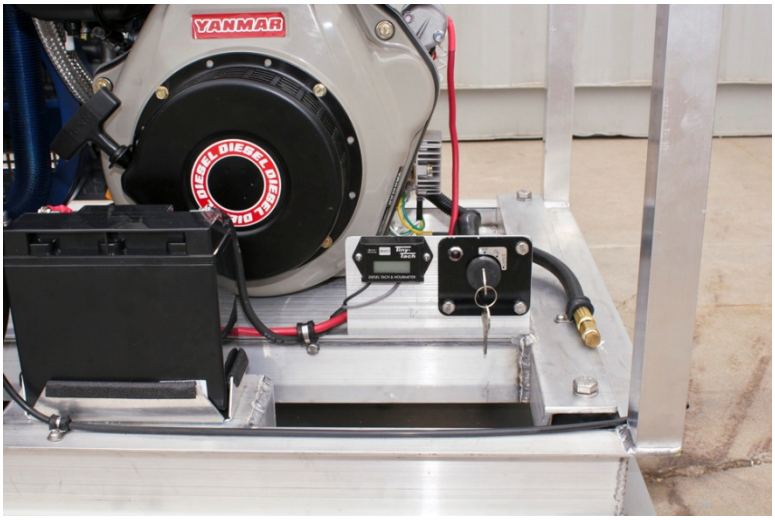
⚠ Warning

OSHA Regulations require an emergency backup source of breathing gas for the diver in case of an emergency or compressor malfunction.

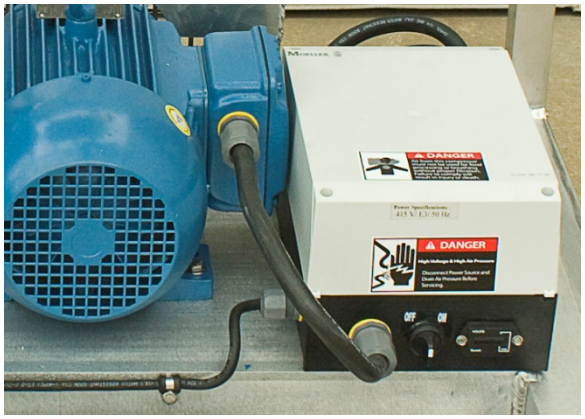
11.1 Shutdown:

Before shutting down any compressor, make sure all divers are no longer using the compressor this includes in water divers and decompressing divers.

Electric & Diesel: The Engine can be shut off by turning the power key off.



Diesel Engine Power Switch and Tach



Electric Motor Power Switch and Tach.

12.0 Operation Notes:

- During the running of a Nuvair Champion LP Compressor you should hear air escaping from fittings, belt slap from a loose belt, knocking noise or any other audible concerns switch the diver to back up source and stop operation of the compressor to prevent damage to the compressor or faulty operation.
- The Nuvair Champion LP compressors utilize 3 stage breathing air filtration to achieve Grade "D" Air, Do NOT use any substitute filters.
- Bleed condensate drain on the volume tanks daily or every 8 hours of operation.
- Use only NUVAIR 455 compressor lubricant in the Champion piston compressor.
  Do NOT substitute or Mix Lubricants.

13.0 Maintenance

⚠ 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.

⚠ 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.

⚠ Caution

If system 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.

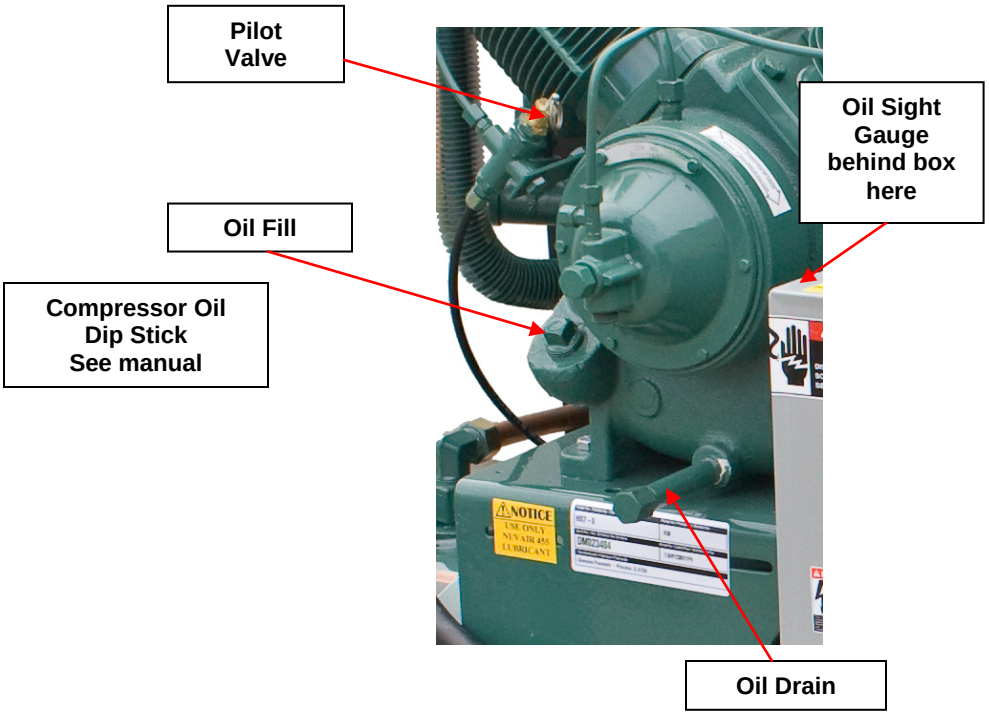
13.1 Routine Maintenance

1) Champion Compressor Lubricant: Change compressor lubricant after the first 50 hour break in period and every 200 hours thereafter on the Champion. Only use lubricants rated for use with breathing Air systems such as NUVAIR455 ™. Never mix Compressor Lubricants. See LP Compressor manual for details.
   (Optional Diver 3 stage Filtration Package)
2) LP Filtration Inspection: On a daily basis, inspect each Filter Bowl for the presence of moisture and each Element for any unusual degradation or wetness.
   (Optional Diver 3 stage Filtration Package)
3) LP Filtration Elements: Change LP Filter Elements every 100 hours to maintain CGA Grade D air standards. Visual differential pressure (DP) indicators on the HF7 and HF5 filters assist with monitoring replacement intervals. See Section 14.3 for details. If the Compressor System is operated in high humidity and/or high temperature, Filter Elements must be changed more often.
4) (Optional) Low Volume tanks should be drained daily of Moisture.
5) 1 Gallon Surge tank should be drained regularly and at end of daily operation.

13.2 Compressor Lubricant:
Change Champion Compressor with NUVAIR 455 rated lubricant every 200 hours or minimum once per year. Do not mix brands.

1) Check oil and diesel levels before operation.
2) Drain (optional) Volume tanks daily. Check filters for moisture daily.

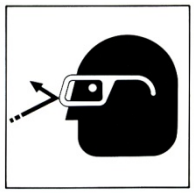
Refer to Supplied Engine manual for proper oil and maintenance.





⚠ 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.



⚠ Caution

Wear eye protection, gloves, and skin protection when performing oil changes. Although the oil is not classified as a dangerous substance, the oil can be irritating to your eyes and skin.



⚠ Caution

Both oil and oil filter are classified as "special wastes" and must be disposed of properly according to applicable national and local laws. Failure to dispose of these wastes properly can lead to death of wildlife as well as government



⚠ Warning

Do not carry out any maintenance tasks if the compressor has just shut down. Wait for the compressor to cool to avoid skin burns.

⚠ Caution

Special attention needs to be given to the arrangement of the four LP Air Filtration Elements and Bowls. Properly reinstall each Element and Bowl to the correct Housing. Improper sequence can cause damage to downstream components

14.0 LP Filtration *(Optional Diver 3 stage Filtration Package)*

Three stages of Hankison LP filtration are used to produce Grade D air:

1) Particle Removal to 1 micron
2) Coalescing & Water/Oil Vapor Removal to 0.01 micron
3) Oil Vapor Removal to 0.003 PPM

14.1 Filtration Inspection

Open each Filter and inspect as follows:

1. Inspect Bowl for the presence of moisture. A high level of moisture build-up in the HF7 or HF5 Filter indicates improper operation of auto-drain floats. Any evidence of moisture in the HF1 Filter indicates the air is not cooling properly and moisture is not properly being removed. Excess moisture will prevent the final filter from operating properly.
2. Inspect Elements for any unusual degradation or wetness. Element degradation can indicate more serious problems. Contact Nuvair for assistance.



HF1 Filter with Manual Drain – Should not Contain Moisture

HF7 & HF5 Filters with Auto-Drain Floats & DP Indicators.

Air Flow



Housing

Element

Bowl

HF7-20 Particle Removal

HF5-20 Coalescing & Water/ Oil Vapor Removal



⚠ 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.

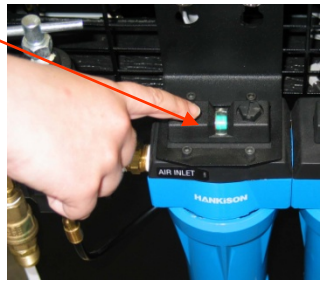
14.2 Changing Filtration Elements (optional Breathing Air Elements)

Change the LP Filter Elements every 100 hours or once per year*. If the Compressor System is operated in high humidity and/or high temperature, Filter Elements must be changed more often. Visual DP indicators on the HF7 and HF5 filters assist with monitoring replacement intervals.

1) Push up on the Bowl, rotate CCW, and lower to remove.
2) Gently rotate Filter Element and pull down off mounting post.
3) Replace Element and reassemble in reverse order.



DP Indicator Changes from Green to Red. Yellow indicates filter needs to be replaced. Do Not Use When Red.



⚠ Notice

The interior of the Filter Bowls can be cleaned with a diluted solution of Simple Green™ and flushed thoroughly with clean water. This will assist to prolong the life of the element, bowl, and auto drain.

14.3 Changing Air Intake Filtration

Inspect and or change the air intake Filter Elements every 40 hours or once per year. If the Compressor System is operated in high humidity or a dusty dirty environment, Filter Elements must be changed more often. Inspect elements periodically to determine if the elements should be changed sooner than recommended.

14.4 Air Intake Extension

The air intake filter housings are mounted on couplings. In the event that the compressor will be used in a windy environment that may cause the diesel engine exhaust to be blown into the intake filters it may be necessary to extend the elements vertically to prevent engine exhaust from entering the elements. Reinforced hose tubing can be purchased from Nuvair to extend the height of the elements. By using a Nuvair PRO CO monitor you will notice changes in CO immediately and the use of a CO monitor is highly recommended by Nuvair.



⚠ Danger

Carbon Monoxide "CO" is a colorless, odorless, tasteless gas that will not support life. Breathing gas mixtures containing CO will lead to unconsciousness and may cause death.

15.0 Spare Parts List

See Compressor manual for LP Compressor parts list. Other System components and related items are listed below.

System Components	Type	Part Number
Compressor Lubricant, Food Grade	Nuvair 455, 1 Gal (Other Sizes Available)	9406
LP Filtration Element – R15	Hankison HF 7-20 (blue housing)	E7-20
	Hankison HF 5-20	E5-20
	Hankison HF 1-20	E1-20
	Norgren F74G (black housing)	4338-04
	Norgren F74V	4341-01
	Nirgren F74H	4344-02
Air Intake Filter Element	Champion	14
	Related Equipment Components	
Air Quality Analysis Kit	Specify: (1) CGA Grade Required	
	(2) Single Use or Program Use	

16.0 Service Record Log

Date	Technician Name	Service Performed

Material Safety Data Sheets

Nuvair™ 455 Premium Synthetic Food Grade Air Compressor Lubricant

Effective Date: 03/19/2010

I. Product Identification:

- Trade Name: …… Nuvair 455
- Chemical Name: …….... Polyalphaolefin
- Chemical Family: ……..…. Synthetic hydrocarbons/Esters

II. Components & Hazard Statement:

This product is non-hazardous. This material is not considered hazardous by the OHSA Hazard Communication Standard (29 CFR 1910.1200).

III. Physical Data:

- Viscosity: ..... 100 cst. @40°C
- Specific Gravity (Water = 1.0): 0.85
- Boiling Point: ..... N.A.
- Vapor Pressure: ..... Negligible
- Appearance & Odor: ..... Clear – with Mild odor
- Solubility in Water: ..... Negligible

IV. Fire & Explosion Hazard Data:

- Flash point: ..... 464°F / 24°0C/ COC
- Auto ignition Temperature: ..... Not Established
- Flammability Limits: ..... Not Established
- Extinguishing Media: ..... Dry Chemical; CO2 Foam; Water Spray
- Special Fire Fighting Procedure: ……. Burning may produce irritating/noxious fumes. Firefighters should use NIOSH/MNSA approved self-contained breathing apparatus. Use water to cool fire-exposed containers to prevent pressure build-up.

V. Reactivity Data:

- Stability: …….. This product is stable and will not react with water.
- Materials to Avoid: ..... Avoid strong oxidizers
- Hazardous Decomposition Products: …..... Carbon monoxide, Carbon dioxide

VI. Health Information:

- Eye Contact: ..... Flush eyes with water for 15 minutes. Call physician if irritation develops.
- Skin Contact: ..... Wash skin with soap and water.
- Inhalation: ..... Remove to fresh air.
- Ingestion: ..... First aid not normally required. If uncomfortable, call physician.

VII. Health Hazard Data:

- Exposure Limit: ..... Not Applicable
- Effects of Overexposure: …… Low oral and dermal toxicity. Prolonged or repeated exposure may cause irritation, nausea, and vomiting.

VIII. Employee Protection:

For general personal hygiene, wash hands thoroughly after handling material. Avoid contact with skin and eyes. Chemical impervious gloves are not required, but may be recommended for prolonged exposure. Use in a well ventilated area.

IX. Storage, Spill, & Disposal Procedures:

- Storage: …… Store in clean, dry area.
- Spills: …… Use absorbent materials to soak up fluid.
- Disposal: …… Incinerate this product and all associated wastes in a licensed facility in accordance with Federal, state, and local regulations.

X. Hazard Rating Information:

NFPA
- Health: …….. 0
- Flammability: ……..... 1
- Reactivity: …….. 0
- Personal Protection: …….. B

This information contained herein is based on the data available to us and is believed to be true and accurate. Nuvair makes no warranty, expressed or implied, regarding the accuracy of this data or the results to be obtained from the use thereof. Nuvair assumes no responsibility for injury from the use of this product.

NUVAIR SYSTEM WARRANTY

NUVAIR extends a limited warranty, which warrants the 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 it's 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.

A warranty registration card, supplied with system documentation, must be filled out and submitted to NUVAIR for the warranty to be in full effect. If the warranty registration card is not received within thirty (30) days of installation, the thirty-six (36) month warranty will begin with the date of shipment from 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:

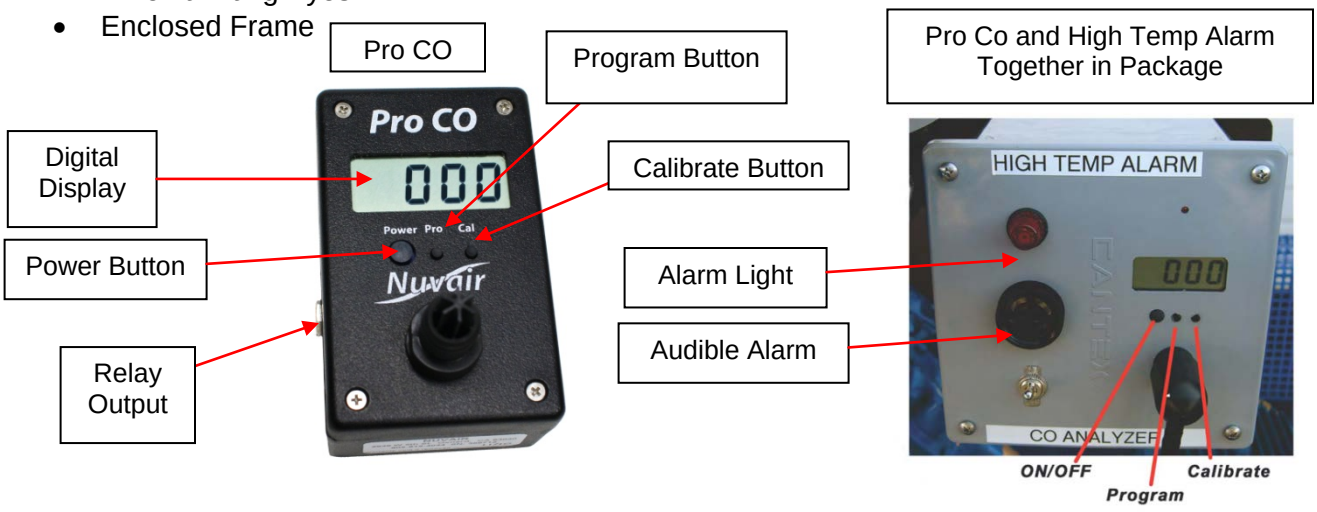
Application for warranty service can be made by contacting NUVAIR during regular business hours and requesting a Return Material Authorization number. Materials that are found to be defective must be shipped, freight pre-paid, to the NUVAIR office in Oxnard, California. Upon inspection and determination 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 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.

Options for Champion Compressors from Nuvair:

- Pro CO Monitor- Audible, visual and shutdown capable
- Pro CO High Temp Combo
- 30 Gallon or Larger receiver tank
- Breathing Air Filtration – 3 Stage or 4 stage
- Low Oil Level Switch
- Low Oil Pressure Switch
- Low Tank Pressure Switch
- 4 Point Lifting Eyes
- Enclosed Frame



Nuvair Pro CO with High Temp Alarm

Carbon Monoxide Analyzer with High Temp Alarms

Advantages

- 2 Programable Alarm Thresholds
- Audible Alarm at Set Point or 10 ppm CO
- Fast Response
- Accuracy of +/- 1%
- High Temp Switch set at 350°F
- Compact Water Resistant Container
- Made to Test Breathing Gases**
- Easy To Operate, Reliable and Accurate
- Optional Relays for External Alarm or Compressor Control

Features

- Audible & Visual Alarms for CO and High Temp
- On/Off Button CO
- On/Off Switch High Temp
- Accuracy of +/- 1%
- Response Time of 90% in less than 15 seconds
- Temperature Compensated Sensor
- User Replaceable Batteries
- Low Battery Warning Indicator
- 4-20 mA Output
- Factory Reset
- 6 ft. Sensor cable & Analyzer hose



Specifications Pro CO High Temp Combo* (Part #9620)	
Range	0-100 ppm CO
Display Accuracy	+/- 1%
Sensor Type	Electrochemical
Expected Cell Life, Room Air	18 Months
Power	(2) 9Volt batteries
Response Time	less than 50 Seconds
Operating Temperature	41-104°F (5-40°C)
Storage Temperature	41-104°F (5 to 40°C)
Operating Humidity	15 to 90% r.h.
Warranty	12 Months
Dimensions	W x 7 7/8" H x 7 3/8" D x 4 3/8"
Weight	3 lbs. less high temp cable

*All specifications are at ambient / sea level, 77°F (25°C) **Calibration must be done with calibration CO test gas



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