



**WARNING!**

**DO NOT USE WITH ENRICHED AIR SYSTEMS, ABOVE 21% OXYGEN**  
(the use of enriched air, above 21% oxygen, will void manufacturer's warranty)



## High Pressure Breathing Air Compressors

**Model # Max-Air 90 PBAC      9.0 cfm**

## Owner's Operating Manual & Parts List

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Thank you for choosing MAX-AIR, where quality and commitment give you the best in technology and support available today. Be sure to ask your MAX-AIR dealer about our complete line of compressors and accessories.

This owner's manual uses signal words recommended by the American National Standards Institute (see ANSI Z535.4) to designate levels of hazards. These signal words and their definitions are as follows:

**DANGER** This warning indicates a very hazardous situation, which, if not avoided, will result in death or serious injury. This signal word is limited to the most extreme situations.

**WARNING** indicates a potentially hazardous situation, which if not avoided, could result in death or serious injury.

**CAUTION** indicates a potentially hazardous situation, which if not avoided, might result in minor or moderate injury. It is also used to alert against unsafe practices.

## NOTICE

Follow manufacturers recommendations and cautions, of drive engines and electric motors. Carefully read and follow these instructions prior to operation of your compressor.

## CAUTION

As a new owner of a cylinder-filling compressor you are now "a filling station." You must follow all local, state and federal regulations. Prior to filling a cylinder, check the pressure rating and current hydro date stamped on cylinder neck. Do not fill out-of-date, (hydro-date) cylinders for anyone. You should also control that you and your buddies have a valid scuba certification, nationally and/or internationally accepted and issued by a recognized instructional agency.

## GENERAL

In the interest of health and safety, we strongly recommend that you follow these operating instructions precisely. Damage resulting from any deviation from these operating instructions is excluded from the warranty and liability of **Max-Air**.

### Special Attention Must Be Paid To The Following:

**a) Correct maintenance of the filtering system.**

**b) Regular drainage of the condensate.**

When opening the condensate drain tap, both condensate and air should escape profusely.  
Contaminated or wet filters result in contaminated air.

**c) Fill "in test" air cylinders only. Normal rated operating pressures must not be exceeded.**

**d) Air intake.**

The intake of exhaust gases (e.g. from the driving motor) could have fatal consequences. When operating the compressor, ensure that the air intake draws clean air and cannot be contaminated by noxious exhaust gases.

## **TECHNICAL DESCRIPTION**

Model:	MAX-AIR 90(9.0cfm)
Weight:	276 lbs (125kg) w/9 HP Honda engine
Dimensions:	42"L x 20"W x 28.5"H
Construction:	Air cooled, three stage, three cylinder high pressure compressor, all stainless steel interstage cooling
Max. pressure:	340 bar (5000 psig)
Approx. output:	MAX-AIR 90 (260 L/min.) (9.0cfm)
Interstage pressure:	1 stage 7 bar (100 psig) with interstage safety 2 stage 40-46 bar (570-655 psig)
Safety valves:	On all stages. 3 stage 225 - 340 bar (3200/5000 psig)
Bearings:	Entire crankshaft assembly on roller bearings
Lubrication:	Splash lubrication with oil thrower pin
Oil content:	1.7 Liter/58 Fl. oz.
Oil type:	MaxLube 501 synthetic oil
Oil viscosity:	Summer: Above +10°C (50°F) SAE20W/40 Winter: From +10°C to -15°C (50° to 5°F) SAE 10W Below -15°C (5°F) SAE 5W
Permissible inclination:	5° of compressor at maximum oil level
Drive motors:	7.5 HP single/three phase electric motor (MAX-AIR 90) 9 & 6.5 HP gasoline engine 9 HP diesel engine
Warranty:	One year from purchase date
Standard equipment:	Intake filter, cartridge filter, high pressure hoses, pressure gauge, (2) SCUBA cylinder filling attachments, pressure relief valves, 60 oz. synthetic compressor oil, spare parts list and owners manual.

## **2.2 Working System**

Ambient air, which must be free from exhaust fumes, is drawn through the intake filter and inlet valve into the 1st stage cylinder, where it is pre-compressed.

A portion of the compression heat is dissipated through the valve head, piston, cylinder, crankcase and lubricating oil to the cooling airflow. The larger portion remains in the compressed air and cooled down in the following intercooler to a few degrees above ambient temperature. The air is then passed on to the next stages, where it is compressed in the same way. The after cooler cools the air to 10° C above ambient temperature at the maximum.

Operating temperatures are:

inlet nipples of suction valves approximately 15° - 20° C above ambient temperature (hand warm);

outlet nipples of pressure valves and valve heads approximately 90° - 105° C.

Each stage incorporates an independent preset safety relief valve.

The intake air always contains a certain amount of humidity depending on the weather. During compression and the consequent cooling down, this humidity largely condensates and forms the condensate together with small particles of lubricating oil. This condensate is a milky fluid and precipitates in the separators.

## **2.3 Technical details of the compressor Block**

### **2.3.1 Crankcase, crankshaft, piston, cylinder**

The crankcase is made of light alloy; the bearing cover is sealed by means of an O-ring. The crankshaft, connecting rods and piston pins all incorporate roller bearings and grooved ball bearings. The connecting rods are mounted on the single throw of the crankshaft.

The pistons of the 1st and 2nd stage are made of light alloy and incorporate piston rings.

The 3rd stage piston is a free-floating piston with piston rings. The free-floating piston is driven by a guide piston, the lateral surface of which is flattened to improve the lubrication of the free piston. The cylinders are made of cast iron.

### **2.3.2 Valve heads, valves, intercoolers, separators, filters**

The valves are screwed into the well-ribbed valve heads. Valves are arranged side by side and can be removed by a valve key.

Maintenance of the pressure valves can be carried out from outside, the suction valves can only be removed after removal of the valve heads. Torque for tightening the valve head screws of the 3rd stage: start with 1 kpm (7ft.-lb), finish with 2,2 kpm (16 ft.-lb) ensure yourself that piston is down into the cylinder.

## **DANGER**

### **2.3.3 Safety valves**

The safety valves prevent damage to the compressor by overpressure and are factory set at the following pressures:

1st stage: 113 psi (8 bar)      2nd stage: 725 psi (50 bar)      3rd stage: 5000 psi (340 bar).

In case a safety valve blows, do not adjust to a higher pressure but check for the cause. Refer to section 5.

**Adjustment of the safety valves, by non-authorized persons, may result in the loss of the warranty and may result in serious injury or death.**

### **2.3.4 Cooling, lubrication**

The 1st and 2nd stage intercoolers and the after cooler consist of steel pipes and are smooth. The splash lubrication operates with oil thrower pins. The high-pressure stage is lubricated by oil vapors.

### **2.3.5 Pressure holding valve**

This valve is mounted after the carbon filter.

Working Procedure

This valve will only open when the internal pressure of the compressor has reached 1800PSI  $\pm$ 300 PSI (80  $\pm$ 20 bar) to permit a constant and optimum separation.

## **2.4 Base Frame, Protective Frame, Covers**

Depending on the specifications of the buyer, the compressor rests on a base frame consisting of welded section steel with an additional frame bracket for the mounting of electric motors or it is further equipped with an allover protecting frame. This frame is also made of section steel and its entire surface is painted to make it weather and corrosion-resistant.

The flywheel of the compressor, in the basic version, is covered by a steel cover or a grid, both being designed with a view to safety and optimum air guidance.

The front panel incorporates 2 filling valves, final stage pressure gauges and the side panel incorporates the condensate drain manifold for the manual draining of the filters (special frame version mod. compact).

## **WARNING**

## **3. Safety Precautions for The Filling of Cylinders**

### **3.1 General Precautions for the filling of cylinders**

Take care that the intake air is pure and free from noxious gases and exhaust fumes.

Make use of the intake hose and secure it in such a way as to ensure that no engine exhaust fumes are taken in.

Filling hoses must be in perfect condition, connecting threads faultless. Particular attention should be paid to damage of the connecting fittings. If the rubber is scored, the hose must not be used any longer because water can enter and attack the wire gauze. In that case it is not guaranteed that the hose is able to hold the pressure.

Do not open disconnected filling valves when under pressure since the highly compressed air can cause serious injury or death.

Check air tightness of the complete unit regularly by brushing all fittings and couplings with soap solution and repair all leaks. **(DO NOT USE YOUR HAND/FINGERS TO DETECT LEAKS)**

All work on the compressor unit must be carried out with the compressor shut down and depressurized.

On a compressor with an electric motor, disconnect at the power source prior to any work.

Never weld high-pressure tubing.

Never empty air-cylinders completely. The closed cylinder should always contain some residual pressure in order to avoid the entrance of humid ambient air.

## **WARNING**

### **4. Installation, Operation, Maintenance, Service**

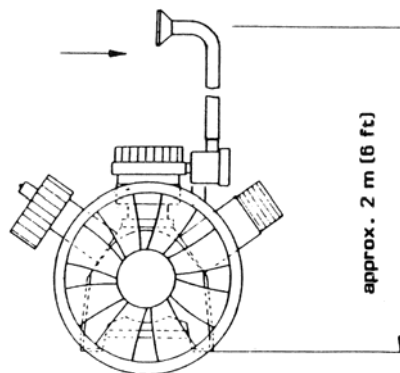
#### **4.1 Installation**

**Make sure there is good ventilation.**

Install the unit on a level ground (maximum permissible sloping 5°), clearance of minimum 2 ft (24") completely around the compressor to ensure proper ventilation.

In order to prevent health hazards the intake air must be free from exhaust fumes. This can be effected by stretching the intake snorkel to its full length, considering the direction of the wind and securing it approximately 2 m above level ground. Check that the hose is not bent or broken (Table 3).

**Do not operate the unit in closed or partly closed rooms, whatever size. This applies to all units with gas or diesel engines.**



**Table 3: Location of the intake hose**

## 4.2 Starting-up

Before starting engine check oil level in the crankcase of the horizontally placed compressor (§ 4.8.1)  
Use MAXLUBE 501 synthetic oil.

### ***Starting of the engine:***

Before starting electric motors, check voltage. Electric connections must comply with the respective regulations. Verify fan direction. Compare motor with mains and frequency. Fuse motor correctly.

Check direction of rotation. The use of a motor starting contactor is recommended. If using a gasoline engine driven compressor, check oil level in motor and compressor (§ 4.8.1)

Before starting the engine, open condensate drain valve so that engine starts without load. Pull the choke (half open). As soon as the motor has been started, switch to full power, then close condensate drain so that pressure is built up in the individual stages.

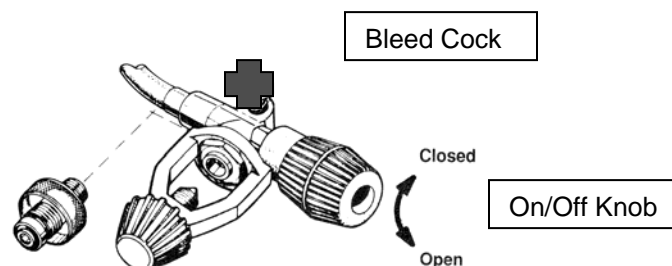
## **WARNING**

## 4.3 Filling procedure

Use only cylinders that are within hydro test date and pressure rated to the fill pressure preset on your compressor. The preset pressure relief (blow-off) on the final stage is usually 10% above the cylinder rated pressure.

Example: if you are filling a 3000 psi rated cylinder you should close the fill valve or shut off the compressor at 3000 psi (NOT ABOVE IT). The 10% additional pressure, preset on the relief valve, is just an added safety in case you can not shut off in time. Letting the relief valve blow-off often will damage it, as it is designed to blow-off for emergency only.

To check the pressure blow-off of your final relief valve, close the fill valve and bleed, let the compressor build up pressure. When safety valve blows-off read the pressure at the final pressure gauge and make a note of it for the future. After you are satisfied that the setting is correct for your fill pressure fully open filling valve first, then open cylinders valve – monitor fill pressure during filling operation. After reaching the desired pressure, always close cylinder valve first, then close the fill valve. To remove fill valve from cylinder you must bleed the residual pressure by opening the bleed cock on the fill valve.



**Operation of filling valve**

#### **4.4 Shutdown procedure**

On compressors using gasoline drive, close hand lever on carburetor and turn "On/Off" switch off. Close fuel cylinder valve and drain condensate out of compressor. In addition, check oil level of compressor, gasoline level in engine tank and carry out current service (§ 4.8).

#### **4.5 Preparation for extended storage**

Prior to extended storage, the compressor should run a few minutes against a small backpressure of approximately 300PSI (20 bar), by partly closing filling valve in order to prevent possibility of corrosion. Open condensate drain valve again, then close them to prevent loss during transportation.

#### **4.6 Preservation of compressor**

Remove intake air filter cartridge. Start compressor and slowly fill 10 to 20 cm<sup>3</sup> of MAXLUBE 501 synthetic oil into intake piece of compressor. Keep filling valve open and condensate drain valve closed. Operate unit for approximately 1 minute. Close filling valves and open condensate drain valves. Decompress all stages and then close all valves.

In cases of prolonged storage periods, run unit every 3 months. Lubricating oil loses its efficiency during prolonged idle periods in the compressor and motor. This requires draining and replacing with fresh oil at least once a year.

#### **4.7 Maintenance and air tightness test**

Besides the standard stipulated service works (§ 4.8) we recommend you clean the compressor at regular intervals to notice any oil leakage and impairment to the efficiency of the cooling system resulting from dirt on cooler coils and fins. Test air tightness by regularly brushing all fittings, valves and tubing of the condensate drain with soap-water or with leak test spray.

Air leaks considerably impair the output of the compressor.

#### **4.8 Service, service timetable**

##### ***4.8.1 Oil level check, change of oil***

Check oil level daily before putting the unit into operation. Oil level must be between minimum and maximum of transparent tube on the crankcase, behind the filter or on the front, oil level sight glass for cabinet models. Oil level must not be too high because excessive oil can result in over-lubrication and coking of the valves. When oil level is too low, oil thrower pins do not any longer dip into oil, lubrication stops and the unit is destroyed.

**Oil change:** first oil change after 15 operating hours, further oil changes every 50 operating hours. If the operating hours indicated above are not reached within 5 months, oil must be changed after the season or before storing for the winter. Do not use oils of different brands at the same time: do not use openly stored oil, but only from original oilcans.

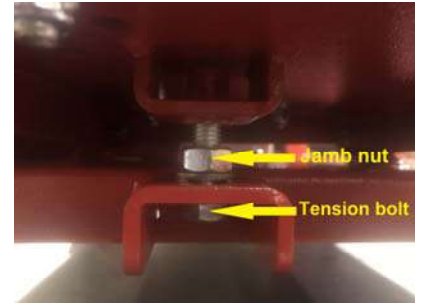
## **WARNING**

### **4.8.2 Safety valve control**

The final safety valve protects the 3rd stage and the high-pressure cylinders and is factory set to 10% above the requested filling pressure. The safety valve of the 3rd stage must be checked for proper functioning periodically. Pump unit to final pressure, with filling valve closed, until safety valve releases. Blow-off pressure of the safety valve to be checked on pressure gauge, then open filling valve.

### **4.8.3 V-belt adjustment**

Visually check V-belt upon startup for proper tension and then physically check at 10, 30 and 120 operating hours. Maximum give at the middle between the pulley's should not exceed 10 mm when subject to a pressure of 5 kg. To adjust belt tension loosen the jamb nut, adjust tension bolt and re-tighten jamb nut.



### **4.8.4 Intake filter**

Check every 25 operating hours. The 5 micron filter cartridge (air intake cartridge) must be changed after having it turned 3 times by 90°.

**Cleaning:** only wipe out with damp cloth. DO NOT blow air inside filter case. Check O-ring in the filter case and make sure that the holding spring, on top, is installed properly. Only use original cartridges.

### **4.8.5 Condensate drain system**

Condensate = water/oil vapors = emulsion

The color of this emulsion should be milky-white; traces of brown discoloration are acceptable. If the emulsion suddenly turns dark brown and smells, stop the unit and check oil level. If oil level is okay, check for adequate, cool air circulation around the unit.

## **CAUTION**

***Drain off the condensate every 8-10 minutes for manual drain units.***

***For automatic drain units with preset drain timing, make sure the automatic condensate drain is working and drain time, frequency and duration is adequate for your climate.***

## **CAUTION**

### **4.8.6 Activated carbon cartridge, replacement intervals**

The cartridge must be changed before air starts to reek of oil. The quality of breathing air depends to a large extent on the condition of the cartridge. For this reason, it is important to keep strictly to the replacement intervals of 12 operating hours for the average size cylinder. The replacement intervals will vary depending on the climate you are operating in (i.e., rain, excessive moisture and humidity). This purifier cartridge LF-1002 is rated for 10,000 cft @ 72°F air intake temperature, draining the

condensate often, derate by 10% for every 5°F above 72°F. The reverse applies for temperatures below 72°F.

**Important for filter maintenance:** Service only when unit is turned off and totally depressurized. Check filter case, threads and O-rings and maintain or replace if necessary. It is recommended to record the quantity of pressure cylinders filled in order to reassure that the precise replacement intervals are kept. Leave the cartridge in the filter during idle periods. Leave unit at approximately 1000 – 600 psi//75 - 40 bar to prevent ambient humidity from penetrating into the compressor pipe system.

#### ***4.8.7 Suction and pressure valves***

Valves should be taken out and cleaned after 1,000 operating hours. The seats must be carefully treated to prevent even the slightest damage. Use only gasoline, soft brushes of copper or nylon. Do not use steel brushes, screwdrivers, etc. Should you detect even the smallest damage (ruptures, worn, seats, etc.), replace the entire part. In order to service the valves, the valve heads must be removed.

#### ***4.8.8 Drive motors***

Upon request: gasoline engine - 4 stroke; Diesel engine; Electric engine 7,5 HP.

For further details, see data sheet of manufacturer.

#### ***4.8.9 Mounting of cooler and belt guard***

After approximately 50 operating hours, check fixation of cooler and retighten. Check distance between rotating parts and guard so that smooth operating is guaranteed even after lengthening of the v-belt.

#### **Maintenance schedule:**

Prior to every cylinder filling:

- drain condensate (§4.8.5)
- check safety valve (§4.8.2)
- review filling procedures (§4.3)
- check oil level daily (§4.8.1)
- purification cartridge replacement intervals (§4.8.6)

### Maintenance after operating hours:

<u>Hours</u>	<u>Recommended Service</u>
1/2	Check valve heads. Intake piping must be hand warm; outlet piping must be hot (§2.2)
15	First oil change (§4.8.1) check tension of v-belt (§4.8.3)
25	Maintenance of intake filter (§4.8.4)
30	Check tension of v-belts (§4.8.3)
50	Check fixation of cooler and belt guard (§4.8.9) Oil change (§4.8.1)
120	Check tension of v-belt (§4.8.3)
1000	Check suction and pressure valves (§4.8.7)
2000	Replace all suction and pressure valves
3000	Replace piston ring, check suction and pressure valve and 3 <sup>rd</sup> stage piston sleeve

### 4.9 Start-up procedure and workshop instruction

Gaskets and O-rings can be replaced and serviced by the user them self, if he or she, has sufficient experience to do so. Repairs on the crankcase and bearings shall only be carried out by an authorized workshop. Safety valves must be replaced as complete parts.

#### 4.9.1 Cylinders

When removing and replacing cylinders note that the piston is in the top position, must be on the same level with the cylinder top edge. Correct differences with gaskets under the cylinder.

#### 4.9.2 Piston

The 1st and 2nd stage pistons are equipped with piston rings. In the 3rd stage the piston is floating and runs with piston rings in a piston case (3<sup>rd</sup> stage rings not sold separately). In repairs or reassembly, take care that the piston rings are replaced in the correct sequence.

#### 4.9.3 Piston ring gap

Should piston rings exhibit excessive wear and high oil consumption, check piston ring gap.

Test procedure: Insert piston ring into respective cylinder. The upper rim should be approximately 10 mm from upper edge of cylinder. Check gap with feeler gauge.

#### Permissible, maximum piston ring gaps.

<u>Stage</u>	<u>Max-Air 55</u>	<u>Max-Air 90</u>	
1st stage	Ø88 mm	Ø95 mm	s= 0,6 mm
2nd stage	Ø36 mm	Ø38 mm	s= 0,36 mm

If gap is not as above, replace the piston rings and cylinder.

#### **4.9.4 Tightening torque**

<b><u>screw</u></b>	<b><u>thread</u></b>	<b><u>max. torque</u></b>
hex. screw inner hex. Screw	M 6	1,0 kpm / 7 ft-lbs
hex screw inner hex. Screw	M 8	2,5 kpm / 18 ft-lbs
hex. screw inner hex. screw	M 10	4,5 kpm / 32 ft-lbs

Valve head screw requires torque wrench tightening

## Trouble Shooting

Trouble	Cause	Remedy
Gas engine does not start		See operating manual
Electric motor does not start	One phase failed	Check fuses
Safety valve I blows off	2nd stage valves defective	Clean valves or replace
Safety valve II blows off	3rd stage valves defective	Replace
Safety valve III blows off	Maximum operating pressure exceeded	Stop compressor, disconnect cylinder
Final safety valve blows off below 210 bar	Safety valve not well adjusted	Replace safety valve
Safety valve 1st or 2nd stage blows off below normal intermediate pressures	Safety valve defective	Replace safety valve
Engine speed and output decrease	Engine power insufficient v-belt slipping	Adjust v-belt
Output decreases although engine speed is correct	Valves blocked or leaking Damaged piston of 3rd stage Blocked cooling tubes or gaskets leaking  Intake filter blocked Intake hose bent Worn pistons or rings	Clean or replace Replace Tighten or replace Check; brush with soap, replace Replace Readjust Replace
Oil taste in delivered air	Activated carbon filter saturated	Replace
Compressor gets too hot	Wrong direction of rotation  Dirt on outside of cooler Dirty valve(s) not closing properly (causing over-charge of another stage) V-belt torn (loose)	See arrow on compressor  Clean Clean or replace Replace (tighten)

**Strict observance of the operating instructions increases the life of the compressor and reduces down time.**

## Compressor Pumping Group Identification Sheet

### Model Max-Air 55, 90 and 180 Twin

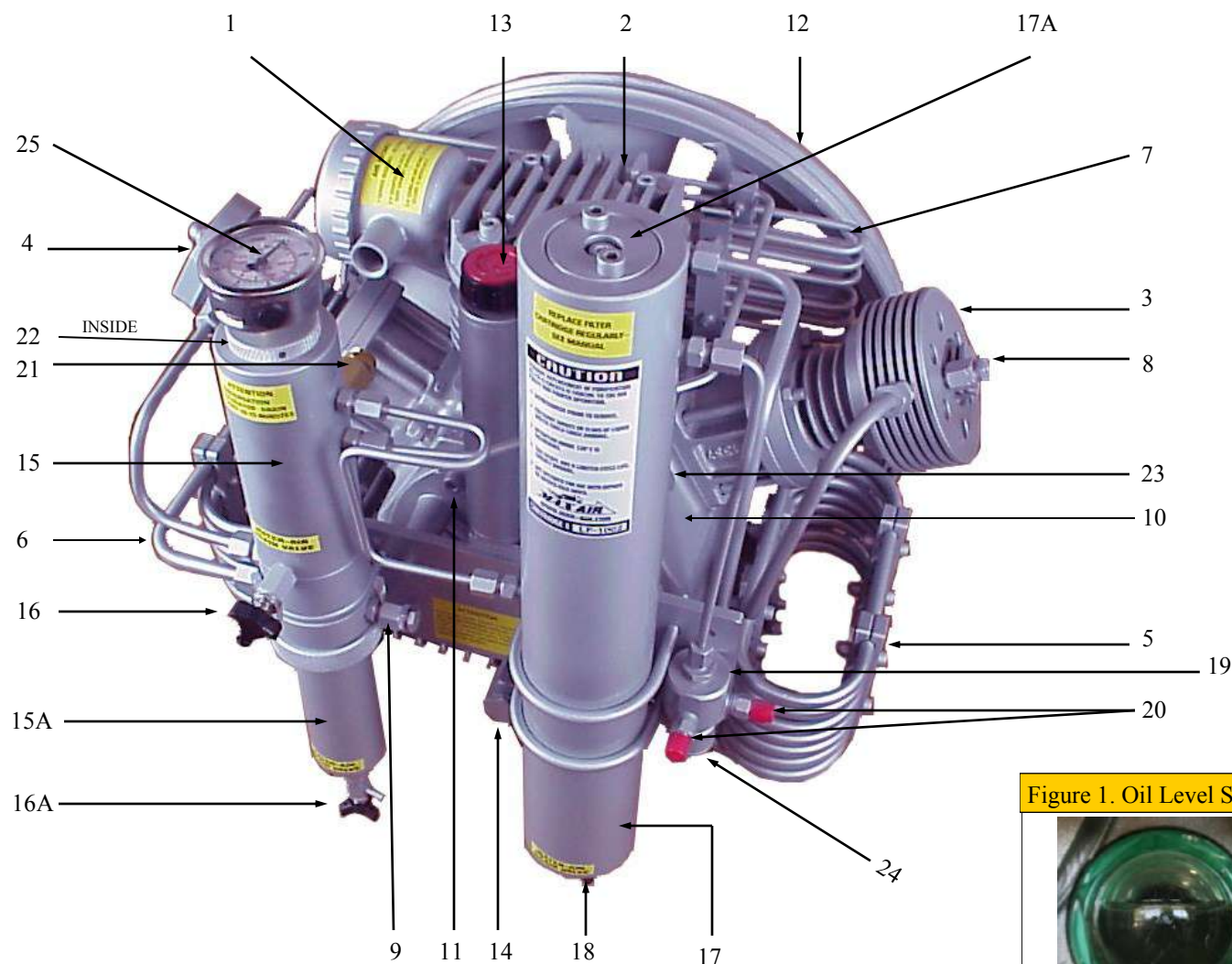


Figure 1. Oil Level Sight Glass



- |                                     |  |
|-------------------------------------|--|
| 1. Intake filter housing            | 15. Oil and water separator (high pressure)                              |
| 2. Valve Head 1st Stage             | 15.A. Oil and water separator (low pressure)                             |
| 3. Valve Head 2nd Stage             | 16. Oil and water separator drain tap, high pressure                     |
| 4. Valve Head 3rd Stage             | 16.A. Oil and water separator drain tap, low pressure                    |
| 5. Interstage cooler I – 2nd stage  | 17. Purifier housing   |
| 6. Interstage cooler II – 3rd stage | 17.A. Purifier housing cap   |
| 7. After cooler                     | 18. Filter housing drain tap   |
| 8. Safety valve 1st stage           | 19. Pressure maintaining valve (1800 psi)                                |
| 9. Safety valve 2nd stage           | 20. Purified air outlets (2)   |
| 10. Crankcase casting               | 21. Final safety relief valve (factory preset to customer requirement)   |
| 11. Front bearing cover             | 22. Check valve—INSIDE upper separator                                   |
| 12. Fan wheel                       | 23. Oil fill vent cap screw  |
| 13. Oil filler cap                  | 24. Oil level indicator, behind filter housing (not shown) See figure 1. |
| 14. Oil drain plug                  | 25. Final pressure gauge bar/psi   |

**NOTE: DO NOT RE-ADJUST SAFETY VALVES #8, 9 and 21, unless you are a licensed, qualified high pressure compressor mechanic (CALL THE FACTORY)!**

**YOU MUST READ AND UNDERSTAND THIS INFORMATION  
PRIOR TO FILLING BREATHING AIR CYLINDER!!**

## **BREATHING AIR PURIFICATION FILTER CARTRIDGE (DISPOSABLE)**

### **Part Number LF-65247**

Fits all Max-Air compressors with upgraded purification **PU-35000** for breathing air

Typical processing capacity (cartridge life) @ 72°F intake temperature for  
Grade “E” breathing air SCUBA or SCBA @ 5000 psi.

Compressor model Max-Air 55 = 35,000 cubic feet (or prox 106 hours of running time)

Compressor model Max-Air 90 = 35,000 cubic feet (or prox 65 hours of running time)

### **MAKE SURE WHENEVER CHECKING FILTRATION THAT THE SYSTEM IS SHUT OFF AND COMPLETELY DRAINED OF AIR PRESSURE**

#### **NOTE:**

1. The cartridge life is based on 72°F intake temperature, draining the condensate every 15 minutes or more often if in hot and humid climate
2. The 35,000 cubic feet must be de-rated by 2% for every 1°F above 72°F.  
The reverse applies to temperatures below 72°F.

i.e. @ 82°F decrease capacity by 20%

@ 92°F decrease capacity by 40%

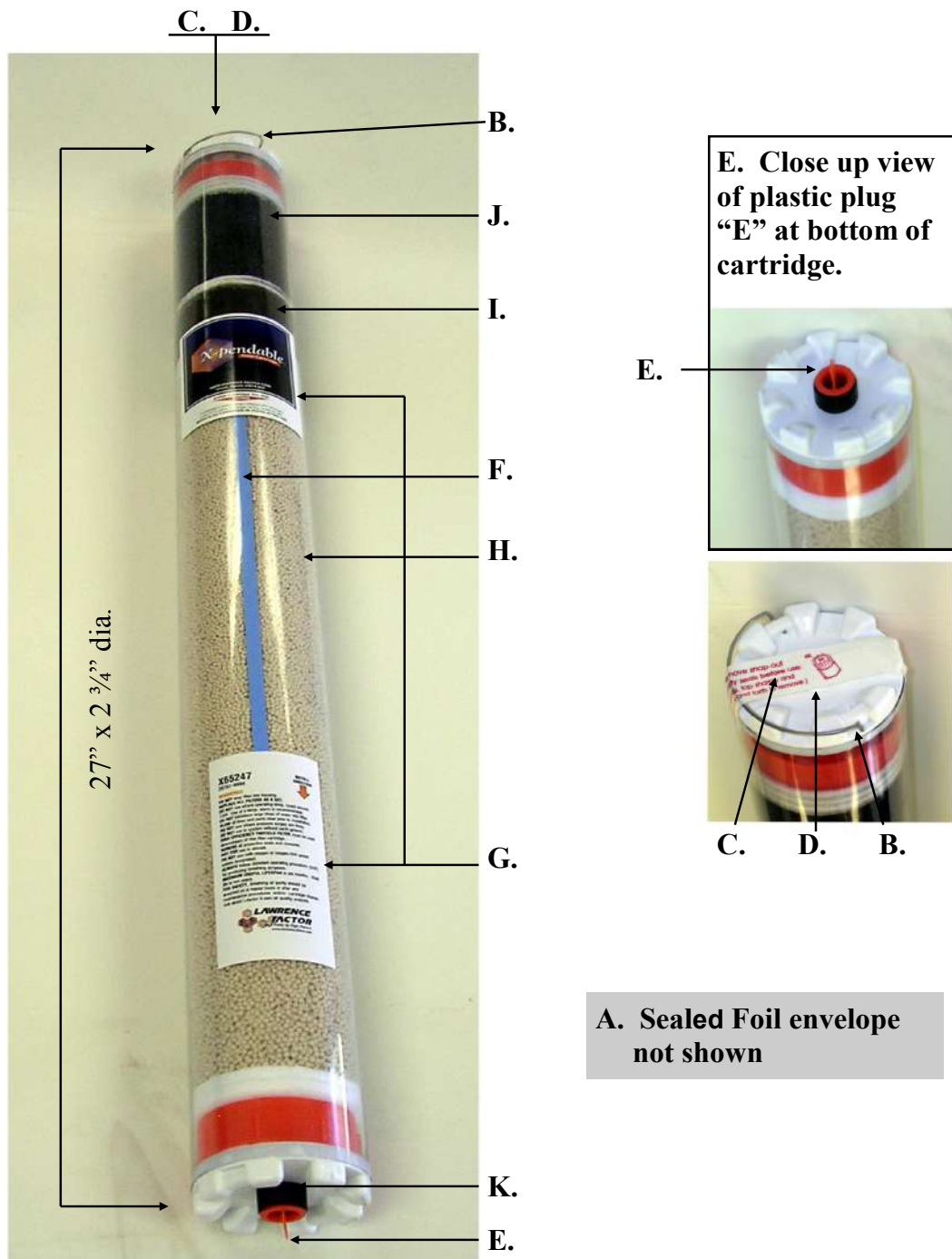
@ 102°F decrease capacity by 60%

**DO NOT** use where temp. could exceed 120°F.

#### **CARTRIDGE COMPONENT IDENTIFICATION:**

- A. Sealed foil envelope (not shown) –makes sure it is not torn or punctured.  
**Do not open until ready to install.** For extended storage re-wrap in two or three heavy duty zip lock bags. Store in a cool, dry, dark place.
- B. Lifting handle for ease of installation, fold back flat prior to screw down housing cap.
- C. Read and remove tape c
- D. Remove snap-out plastic plug under tape.
- E. Remove plastic plug, make sure internal O’ring is present and lubricated (use silicone grease only)
- F. LifeBand™ changes color from blue to beige along entire length.  
Replace **ALL** cartridges in system at this time. It is advisable to pull out cartridge every 5 hours to inspect LifeBand™ and for any sign of moisture.
- G. Warning label read and understand this and any labels on the filter.
- H. Molecular sieve (beige beads) removes humidity
- I. Hopcalite catalyst converts trace amounts of carbon monoxide to carbon dioxide
- J. Activated charcoal removes bad odors and taste of lubricant
- K. Internal O’ring is located inside black plastic sleeve and can only be seen after removing “E”. Make sure the O’ring is in place and in good condition.

- **Maximum cartridge life, once installed, is six months regardless if it has not reached the full processing capacity.**
- **Maximum shelf life in unopened package is two (2) years**



Part Number LF-65247

35,000 cft @ 72°F @ 5000psi

**YOU MUST READ AND UNDERSTAND THIS INFORMATION  
PRIOR TO FILLING BREATHING AIR CYLINDER!!**

## **BREATHING AIR PURIFICATION FILTER CARTRIDGE (DISPOSABLE) Part Number LF-1002**

Fits only compressor model Max-Air 90 with **standard filtration**

Typical processing capacity (cartridge life) @ 72°F intake temperature for

Grade “E” breathing air SCUBA or SCBA @ 5000 psi.

Compressor model Max-Air 55 = 10,000 cubic feet (or prox 30 hours of running time)

Compressor model Max-Air 90 = 10,000 cubic feet (or prox 18 hours of running time)

**MAKE SURE WHENEVER CHECKING FILTRATION THAT THE  
SYSTEM IS SHUT OFF AND COMPLETELY DRAINED OF AIR PRESSURE**

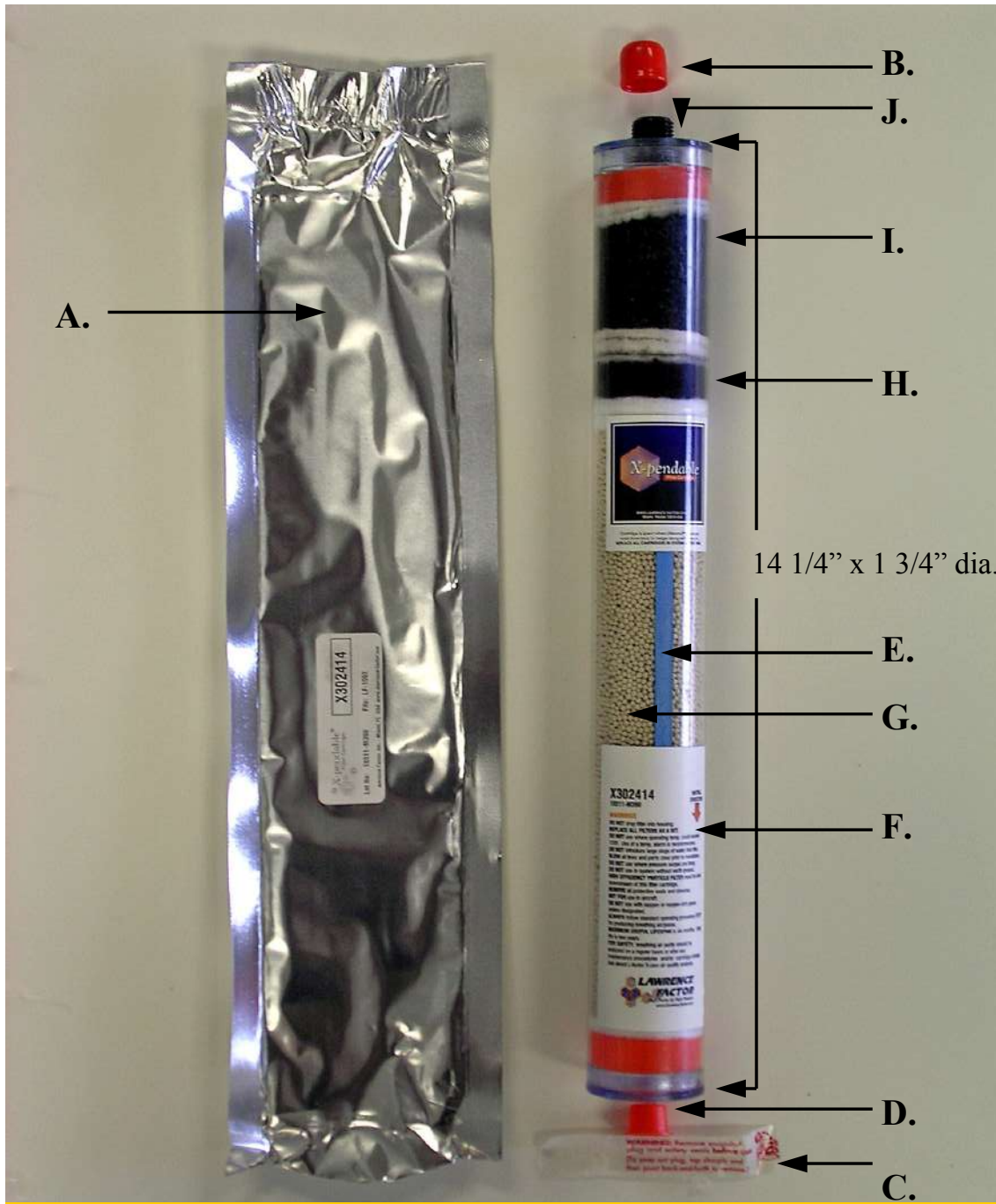
### **NOTE:**

1. The cartridge life is based on 72°F intake temperature, draining the condensate every 15 minutes or more often if in hot and humid climate.
2. The 10,000 cubic feet must be de-rated by 2% for every 1°F above 72°F. The reverse applies to temperatures below 72°F.
- i.e. 

@ 82°F decrease capacity by 20%	}	<b>DO NOT</b> use where temp. could exceed 120F.
@ 92°F decrease capacity by 40%		
@ 102°F decrease capacity by 60%		

### **CARTRIDGE COMPONENT IDENTIFICATION:**

- A. Sealed foil envelope –makes sure it is not torn or punctured.  
Do not open until ready to install. For extended storage re-wrap in two or three heavy duty zip lock bags. Store in a cool, dry, dark place.
  - B/C/D/ Remove and dispose of protective cap B & D and tape C prior to installing or filter will not function and may implode in filter housing, causing extensive damage to the compressor and contaminating the air.
  - E. LifeBand™ changes color from blue to beige along entire length.  
Replace **ALL** cartridges in system at this time. It is advisable to pull out cartridge every 5 hours to inspect LifeBand™ and for any sign of moisture.
  - F. Warning label read and understand this and any labels on the filter.
  - G. Molecular sieve (beige beads) removes humidity
  - H. Hopcalite catalyst converts trace amounts of carbon monoxide to carbon dioxide
  - I. Activated charcoal removes bad odors and taste of lubricant
  - J. O’ring seal – make sure the O’ring is in place and in good condition.
- **Maximum cartridge life, once installed, is six months regardless if it has not reached the full processing capacity.**
  - **Maximum shelf life in unopened package is two (2) years**



**Part Number LF-1002      10,000 cft @ 72°F @ 5000psi**  
**NOTE: Dimensions exclude threaded plastic nipple w/O'ring**

## **CARBON MONOXIDE ELEMENT #MI-4002R**

### **DESCRIPTION**

This detector consists of a 'Visual' indicator (#MI-4000), into which a small (15 mm diameter) replaceable disc is inserted. The 'Visual' indicator has a clear sight lens through which the disc may be seen. The disc changes color in the presence of low concentrations of carbon monoxide within 5 to 10 minutes of exposure and therefore acts as a clear visible warning before the proportion of gas reaches an unacceptable level. If higher and more dangerous concentrations of carbon monoxide are present, the disc changes color within a few seconds.

### **USAGE**

The detection disc is specially treated to prolong its life. A color change from tan to dark grey will occur in the presence of carbon monoxide. The rate of change of color is directly related to the concentration of carbon monoxide present. The detector will change color in five to ten minutes at 50 –100 ppm of carbon monoxide, but will change color within a few seconds if the level reaches 500-1,000 ppm (0.05%-0.1%), at which concentration it can be lethal.

### **BENEFIT**

The detector is a quick, inexpensive and simple means of showing the presence of carbon monoxide in the sample air. There is no need for troublesome sampling equipment or expensive analytical equipment. The change in color is easy to spot and the results can be interpreted by non- specialist staff.

## Assembly and Disassembly Model MI-4000 Visual Indicator

Item	Qty	Part No.	Description
1	1	583	Body
2.	1	584	Cap
3	1	593	Window
4	1	592-1	O ring 2-018
5	1	592-2	O ring 2-019
6	1	592-3	Spring
7	1	592-5	Indicator humidity (blue)
8	1	592-6	Indicator CO (beige)

### NOTES:

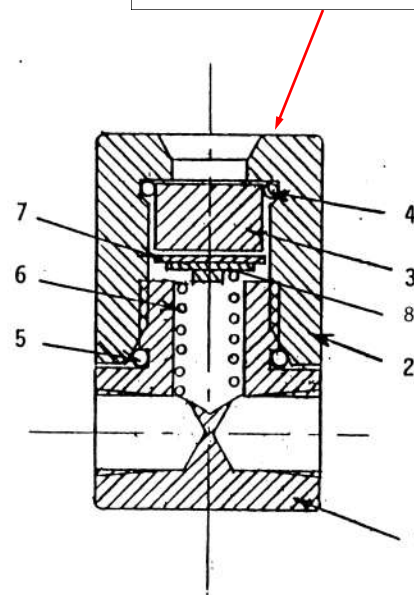
1. Technical bulletin – 588
2. Use Dow silicone grease 111 or equivalent on seals and threads
3. Tighten cap hand tight only
4. Install window (3) with smooth, small diameter against O ring (4)
5. Insure window (3) is fully against shoulder of cap (2)
6. Avoid spring or other hard objects touching window
7. Install so both elements can be seen through window, insure spring is in place to hold element against window
8. When installing humidity element place it in cap (2) with blue face against window
9. COLOR CHANGE:
  - Blue to pink means high humidity
  - Beige to dark brown means dangerous levels of carbon monoxide

### NOTE:

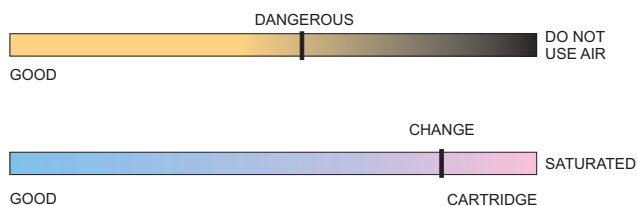
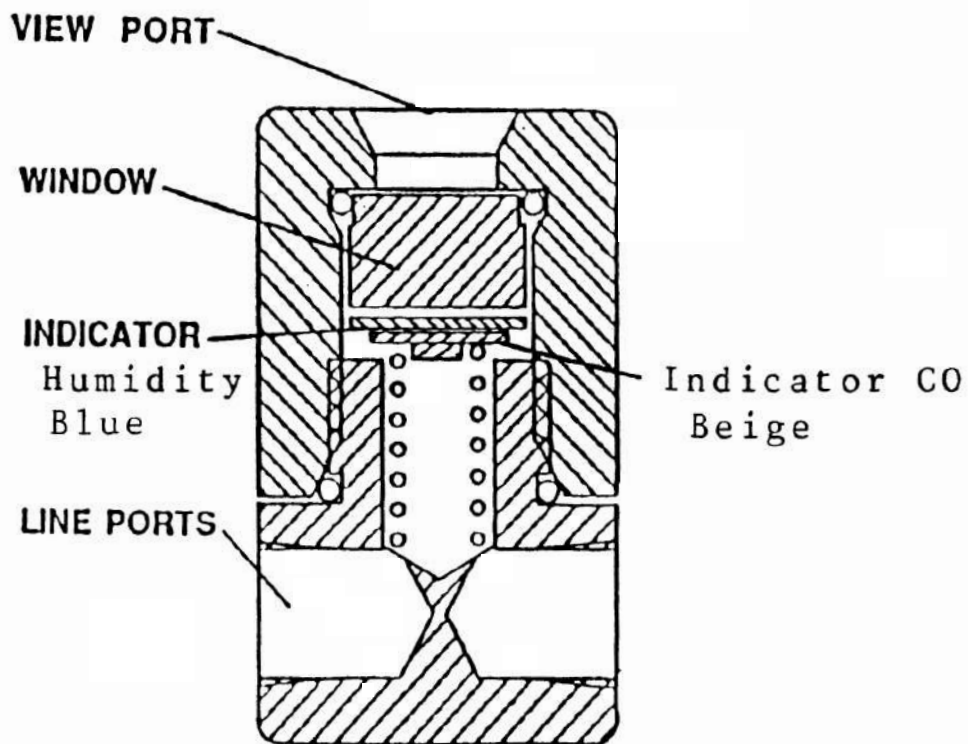
1. **DO NO TOUCH ELEMENTS WITH HANDS  
USE CLEAN TWEEZERS OR CLEAN NEEDLE  
NOSE PLIERS**
2. **MAKE SURE COMPRESSOR AND FILTER  
HOUSING ARE COMPLETELY DRAINED OF  
ALL AIR PRESSURE PRIOR TO ATTEMPTING  
REMOVAL OF CAP FOR MAINTENANCE.**

**BLEED ALL PRESSURE FROM  
UNIT AND SHUT OFF POWER**

Unscrew by hand , counter-clockwise,  
to remove and replace elements.  
Reinstall cap hand tight.



Remove top half of element housing and invert.  
Place the blue moisture indicator down inside element against  
the glass taking care not to touch the blue element with your fingers.  
Place the beige element on top of the spring.  
Re-attach the top half of the element housing hand tight.



Good Conditions: INNER RING - YELLOW  
OUTER RING - BLUE

# Warranty

## IMPORTANT:

The materials supplied by Max-Air are covered by a 12-month warranty, the validity of which begins on the date of delivery as proven by the delivery document.

Max-Air shall repair or replace those parts it acknowledges to be faulty during the warranty period. In replacing the faulty part Max-Air shall not be liable for any other expenses sustained by the dealer or his customer such as presumed damage (present or future), lost earnings or fines.

Routine and unscheduled maintenance must be carried out in compliance with the instructions contained in this manual. Should the required work not be covered by the manual or assistance be required you are advised to contact Max-Air directly by email, even where agreements have already been made on the phone. Max-Air cannot be held liable for any delays or failure to execute work.

Max-Air cannot be held liable for any damage or malfunctions caused by work carried out on the compressor by unauthorized personnel.

**Max-Air** guarantees that its compressors are free from defects vis-à-vis design, workmanship and materials for a period of 12 months starting from the date of delivery of the compressor; should the customer note any flaws and/or defects they must report them, in writing, to **Max-Air** within 30 (thirty) days of their discovery otherwise the warranty could be rendered null and void. The warranty only covers flaws and faults that occur where the compressor is used properly in compliance with the instructions contained in this manual and where periodic maintenance is carried out. The warranty does not cover faults caused by improper use of the compressor, exposure to atmospheric agents (rain etc.) or damage during transport; all materials subject to wear and those subject to periodic maintenance are not covered by the warranty and are to be paid for by the customer in full; in any event the warranty is rendered null and void if the compressor is tampered with or if work is carried out on it by personnel who have not been authorized by **Max-Air**.

A compressor that has been acknowledged as faulty on account of flaws in design, workmanship or materials shall be repaired or replaced free of charge by **Max-Air** at its plant in Kerrville, Texas; costs regarding transport, delivery of spare parts and any materials subject to wear shall be met by the customer. Should warranty-covered work need to be carried out on the customer's premises, travel and accommodation costs for personnel sent by **Max-Air** shall be met by the customer. The act of taking delivery of machines and/or faulty components or the sending of technicians to assess the presumed defects and/or flaws reported by the customer does not in itself imply acknowledgement that the defect is covered by warranty. Repairs and/or replacements made by **Max-Air** during the warranty period do not in any way prolong the latter itself. Acknowledgement that a defect is covered by warranty does not in itself mean that **Max-Air** is in any way liable to award compensation. **Max-Air** cannot be held liable for any other direct or indirect damages imputable to compressor defects and flaws (loss of production or earnings etc.) except in cases where serious negligence is demonstrated.

## This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.