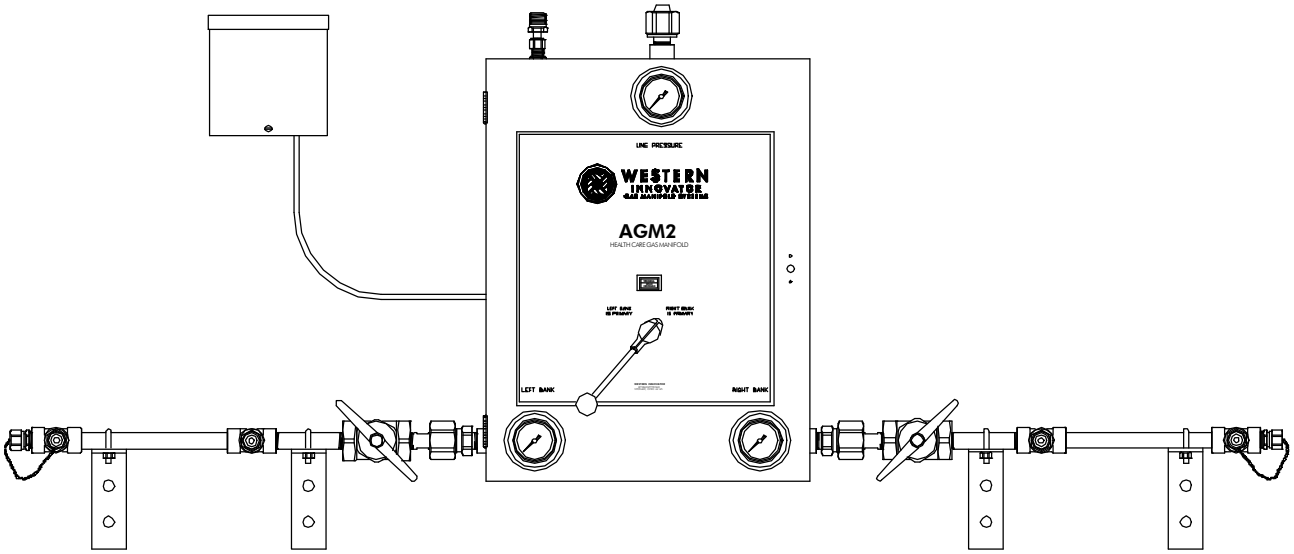
WESTERN INNOVATOR

Installation and Operating Instructions For AUTOMATIC CHANGEOVER MANIFOLD AGM2, AGM2HL, & AGM2HP SERIES



INTRODUCTION

Western manifold systems are cleaned, tested and prepared for the indicated gas service and are built following National Fire Protection Association and Compressed Gas Association guidelines. The manifold consists of a manifold control unit, an internal dual line assembly, and two supply bank headers, one primary and one secondary supply to provide an uninterrupted supply of gas for the specific gas application. The manifold control unit is designed and built with features providing automatic changeover from the depleted "Primary" supply bank to the "Secondary" supply bank while maintaining a constant delivery pressure. Alarm, signal connections and lights show system status and alert the need to replace depleted cylinders. Features of the automatic system include integral adjustable line regulators, stainless steel braided flexible pigtails (rigid copper pigtails for oxygen) with check valves, rigid wall-mounted headers, and complete mounting hardware.

CAUTION

Failure to follow the subsequent instructions can result in personal injury or property damage:

- Never permit oil, grease, or any other combustible material to come in contact with cylinders, manifold, and connections. Oil and grease may react and ignite while in contact with some gases-particularly oxygen and nitrous oxide.
- Cylinder, header, and master valves should always be opened very s-l-o-w-l-y. Heat of recompression may ignite combustible materials.
- Pigtails should never be kinked, twisted, or bent into a radius smaller than 3 inches. Mistreatment may cause the pigtail to burst.
- Do not apply heat. Some materials may react and ignite while in contact with some gases–particularly oxygen and nitrous oxide.
- Individual cylinders should always be secured with racks, chains, or straps. Unrestrained cylinders may fall over and damage, or break off the cylinder valve, which may propel the cylinder with great force.
- Oxygen manifolds and cylinders should be grounded. Static discharges and lightning may ignite materials in an oxygen enriched atmosphere, creating a fire or explosion.
- Welding should not be performed near nitrous oxide piping. Excessive heat may cause the gas to dissociate, creating an explosive force.
- Do not use leak test solution that contains ammonia. Solutions containing ammonia may cause brass tubing and fittings to crack.

WARRANTY

All Western medical manifolds are warranted against defects in materials and workmanship for the period of two years from date of purchase. See back cover for details of limited warranty.

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GENERAL INSTRUCTIONS

Manifolds should be installed in accordance with guidelines stated by the National Fire Protection Association, Compressed Gas Association, Occupation Safety Health Administration, and all applicable local codes. The carbon dioxide and nitrous oxide manifolds should not be placed in a location where the temperature will exceed 120° F (49° C) or fall below 20° F (-7° C). The manifolds for all other gases should not be placed in a location where the temperature will exceed 120° (49° C) or fall below -20° F (-29° C). A manifold placed in an open location should be protected against adverse weather conditions, including direct rain, snow, and heavy moisture. During winter, protect the manifold from ice and snow. In summer, shade the manifold and cylinders from continuous exposure to direct rays and heat of the sun.

Leave all manifold protective covers in place until their removal is required for installation. This precaution will keep moisture and debris from the piping interior, avoiding operational problems.

All safety relief valves shall be piped/vented to the outside. Follow all local and applicable codes for piping systems.

CAUTION:

- Remove all protective caps from the pigtails and manifold. If left in place, the protective cap may ignite due to heat of recompression in oxygen systems.

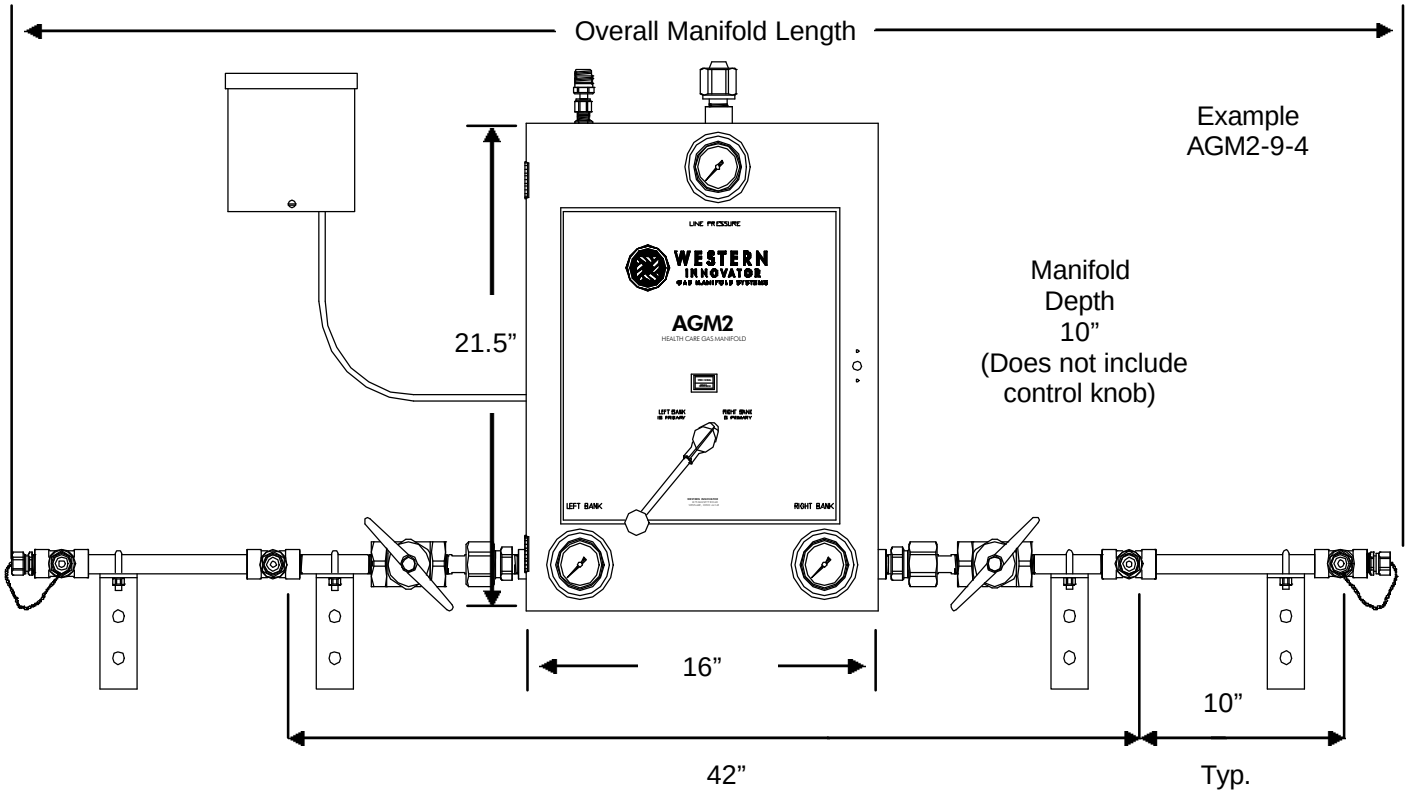
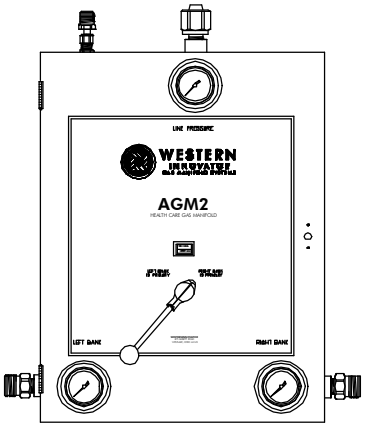


Figure 1

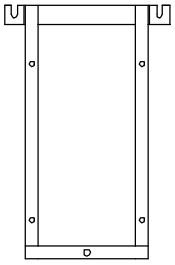
Total number of cylinders	4	6	8	10	12
Overall manifold length	5’ - 8”	7’ - 4”	9’ - 0”	10” - 8”	12’ - 4”

AGM2 COMPONENTS

1. Verify that all components below have been received. If any of these items are missing or damaged, please notify your supplier immediately.



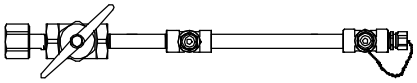
Cabinet Manifold
(Control knob is not attached during shipping)
Quantity = 1



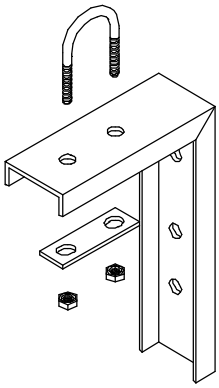
Bracket
(Attached to back of manifold)
Quantity = 1

Control Knob
(Part of accessory kit)
Quantity = 1

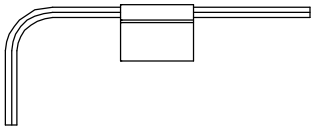
Pigtails
Quantity = Same as the number of ports on the headers



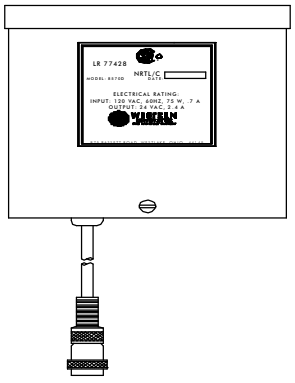
Headers
Quantity = 1 left side
1 right side



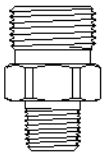
Brackets & U-Bolt Kits
Quantity = Even number required to support headers



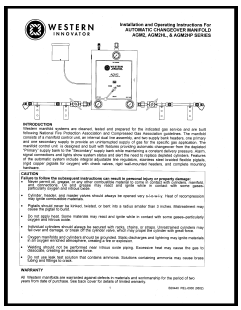
Allen Wrench & Clip
(Part of accessory kit)
Quantity = 1



Power Supply
(Part of accessory kit)
Quantity= 1



Outlet Fitting & Union
(Part of accessory kit)
Quantity = 1



Instructions
(Part of accessory kit)
Quantity = 1

CONTROL SECTION INSTALLATION

1. Determine and mark the vertical center line for installation of the manifold control unit. (Figure 2).

2. Measure from the floor to a point 63.5” in height* of this vertical line. Using a level, mark a horizontal line at this point extending approximately 10” to the left and 10” to the right of center.
   (* Suggested manifold height. Wall mounting heights may vary from one installation to another depending on available space, cylinder height, etc.)

3. Center the mounting bracket on the vertical line, aligning the top 2 mounting holes with the horizontal line (Figure 3).

4. Holding the bracket as shown in Figure 3 mark the locations for the 5 fasteners.

5. Anchor the mounting bracket to the wall. These fasteners are not provided with the manifold. The type fastener used shall be selected based on the wall type.

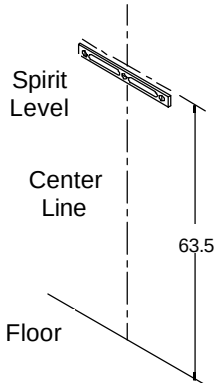


Figure 2

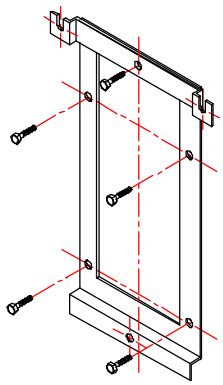


Figure 3

CAUTION:
- The manifold weighs 65 – 70 lbs. The fasteners chosen shall be sized to hold the weight of the manifold. Undersized fasteners could allow the manifold to fall off the wall which could cause injury.

6. Secure the mounting bracket to the manifold control unit by sliding the round retainers on the back of the cabinet into the slots on bracket. Place the nut on the bolt which protrudes from the case and tighten lightly. This bolt only stabilizes the bottom of the unit and is not load-bearing (the nut is shipped threaded to the bolt). (Figure 4)

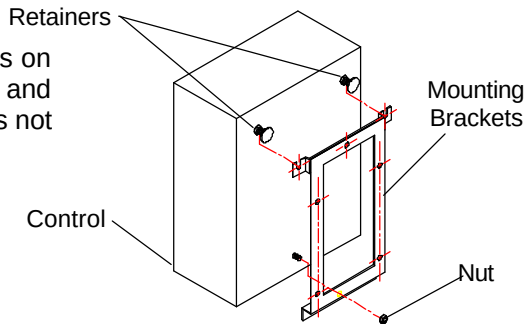


Figure 4

HEADER INSTALLATION

NOTE:
- Half the brackets will be used on the left side while half will be used on the right side.

1. Attach the left header to the union on the left side of the manifold control unit. Using a level, mark the placement of mounting brackets while keeping the header on a horizontal plane.
(Figure 5)

2. Position the brackets so that the top of the bracket is aligned with the bottom of the headers and is centered between the cylinder connections. The brackets should be evenly spaced with the end bracket placed as close to the last cylinder as possible to provide the most support and stability.
(Figure 6)

3. Mark the mounting hole and install fasteners suitable for type of wall construction. (Figure 6)

4. Fit the U-bolt over the header piping and tighten the two mounting nuts. (Figure 6)

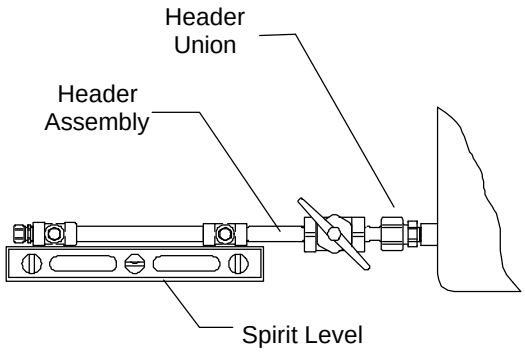


Figure 5

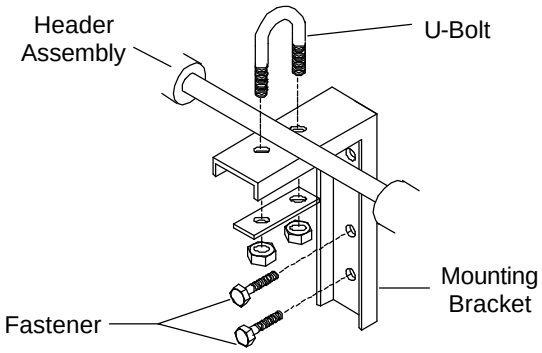


Figure 6

CONNECTING TO THE DELIVERY PIPELINE

1. An outlet union is supplied with the manifold. The 1/2 NPT end of the outlet fitting shall be attached to the delivery piping using Teflon® tape. (Figure 7)

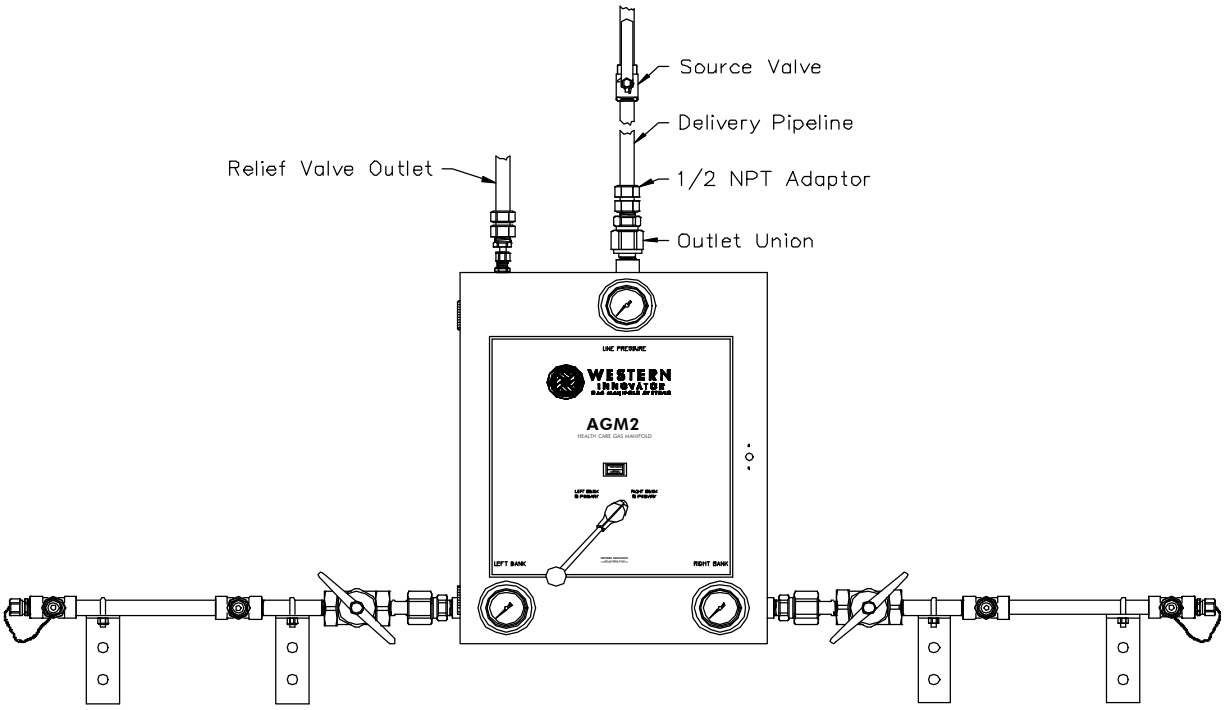


Figure 7

2. Connect the outlet union to the manifold outlet nut and nipple. (Figure 7)

3. A source valve shall be located near the manifold outlet per current requirements of NFPA 99 for gas source shutoff valves in level 1 distribution plumbing.

RELIEF VALVE VENT LINE

NOTE:
- If the manifold is installed indoors, vent piping must be attached to the manifold relief valve outlet. The vent piping shall be routed outdoors.

1. The relief valve outlet union is supplied to connect to the vent piping. The 1/2 NPT relief valve union shall be attached to the vent piping using Teflon® tape. (Figure 7)

2. Connect the relief outlet fitting to the manifold. Thread the compression fitting nut until it is finger tight. Then tighten, using a 11/16 wrench, 1-1/4 turns.

CAUTION:
- Any brazing performed on the delivery pipeline or relief valve vent line shall be done following the guidelines outlined in the current NFPA 99 for level 1 distribution plumbing.

ELECTRICAL

CAUTION:
- Turn off all power while connecting and wiring the power supply.

1. A 24 VAC power supply transformer is furnished with the manifold control unit. Mount the box onto the wall, to the left of the manifold, with the top edge approximately aligned with top of the control unit. The attached control cable terminates in a 4 prong plug matching a receptacle on the left side of the control unit, (Figure 8).

2. After mounting the power supply box to the wall, plug the cable into the control unit receptacle.

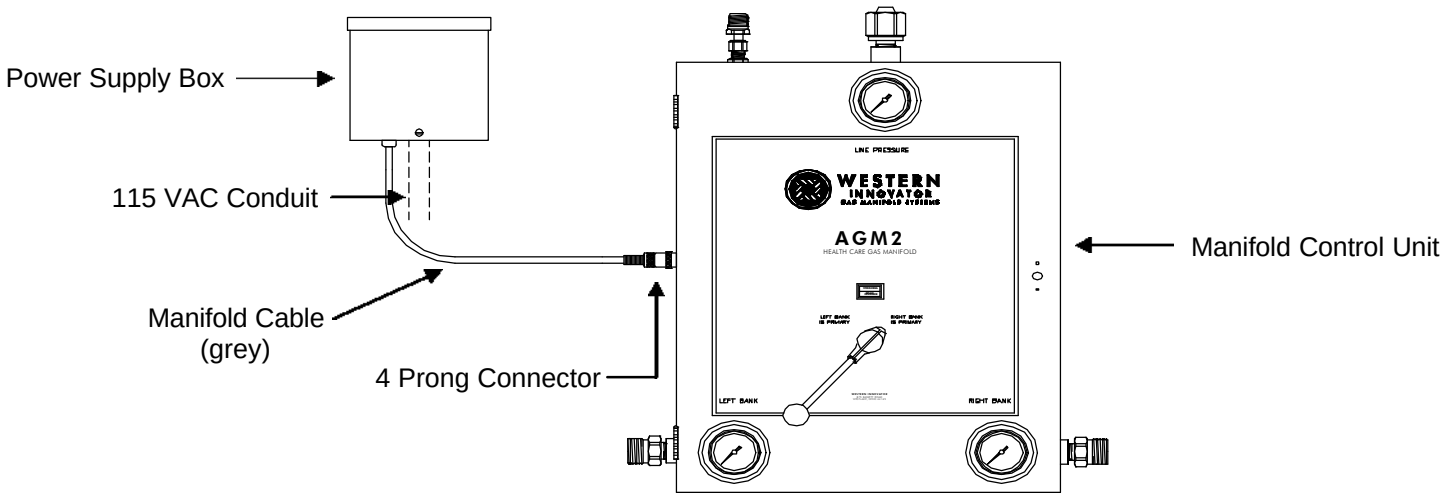


Figure 8

3. The center hole on the underside of the power supply box provides access for conduit and connection of 115 VAC power. Connect the 115 VAC black and white leads in the power supply as shown. (Figure 9)

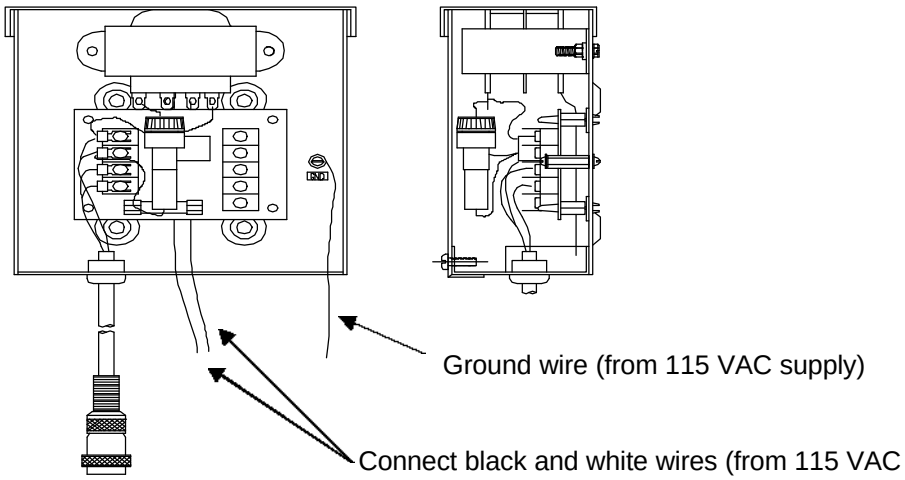


Figure 9

4. Connect the ground wire to the ground terminal as shown in Figure 9.

5. After completing the 115 VAC connections, the power supply should be completely installed and 115 VAC power can be applied.

6. Manifolds with heater have a 3 prong cord that should be plugged into a standard 115 VAC that can provide 4 AMPS.

REMOTE ALARM HOOKUP

A five terminal remote alarm terminal strip is on the right side of the circuit board in the power supply box for remote alarm interfacing. The top three terminals on this strip (N/C, N/O, and C) provide dry contacts for remote alarm hookup. Wiring diagrams for remote audio/visual alarms are included with the alarms. Listed below are four different remote alarm configurations. Terminals identified as N/O and N/C have been marked in the unactuated state.

In some instances the power supply for the remote alarm is normally a part of the electrical contact on proposed constructions and should exist in any furnished hospital. The following procedure should be followed:

1. Two alarm signal wires requiring dry contacts should run to the manifold location.

2. Connect one signal wire to the common (C) terminal and the other signal wire to the normally open (N/O) terminal on the terminal strip on the right side in the power supply box. (Figure 10)

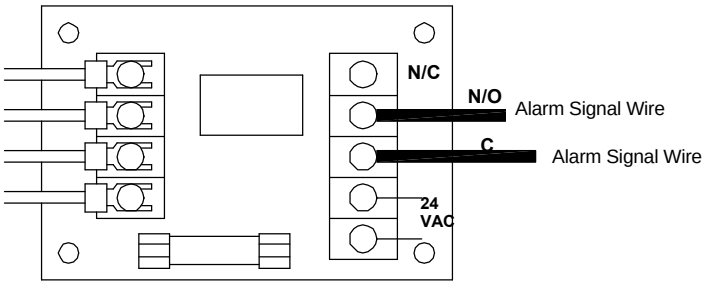


Figure 10

Note: Alarm function is initiated on an open circuit.

If the remote alarm designed for 24 VAC operation then connect the alarm as follows:

1. Connect the ground wire from the alarm to one 24 VAC terminal on the right side of the circuit board in the power supply box. (Figure 11)

2. A jumper wire is connected between the other 24 VAC terminal and the common (C) terminal.

3. Connect the “reserve in use” signal wire to the normally closed (N/C) terminal.

4. If a “system normal” signal is also employed, connect that signal wire to the normally open (N/O) terminal.

Note: Alarm function is Initiated on a closed circuit.

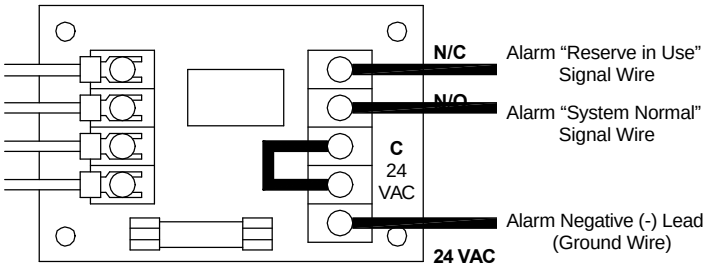


Figure 11

If the remote alarm designed for voltages other than 24 VAC then connect the alarm as follows:

1. Connect the ground wire from the alarm to the negative (-) connection at the power source. (Figure 12)

2. There should be NO connections to the 24 VAC terminal on the right side of the circuit board.

3. Connect the positive (+) connection from the power source to the common (C) terminal on the circuit board.

4. Connect the “reserve in use” signal wire to the normally closed (N/C) terminal.

5. If a “system normal” signal is also employed, connect that signal wire to the normally open (N/O) terminal.

Note: Functions Initiated on a closed circuit.

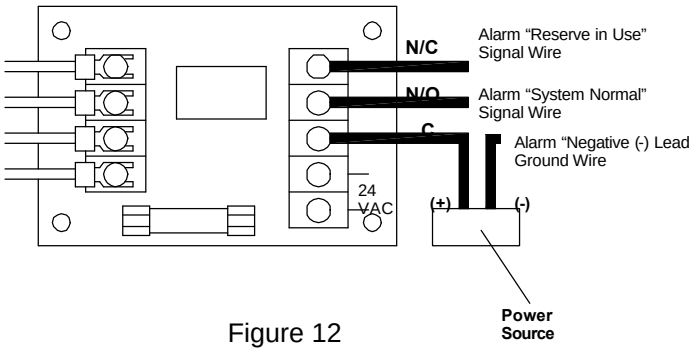
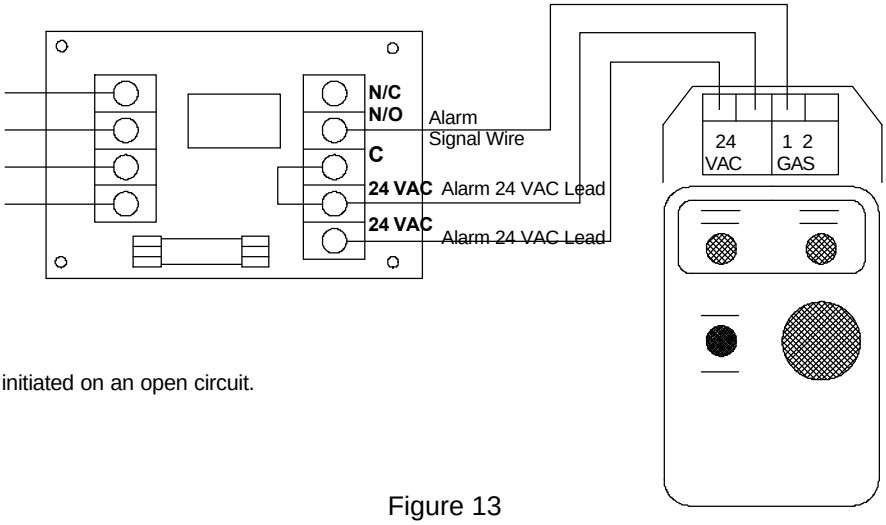


Figure 12

Western's Alarm

1. Connect one 24 VAC lead from the alarm to one 24 VAC terminal on the right side of the circuit board in the power supply box. (Figure 13)
2. Connect the other 24 VAC lead from the alarm to the other 24 VAC terminal.
3. A jumper wire is connected between one 24 VAC terminal and the common (C) terminal.
4. Connect the alarm signal wire from the #1 gas terminal of the alarm to the normally open (N/O) terminal.



Note: Alarm function is initiated on an open circuit.

Figure 13

INSTALLING PIGTAILS AND ATTACHING CYLINDERS

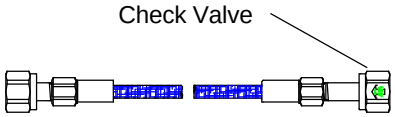


Figure 14

1. Remove plastic protective covers from all pigtails.
2. Establish flow direction of check valve in pigtails.
3. Connect pigtails to header check valve outlet bushing with direction of check valve flow from cylinder to manifold end of pigtail (the check valve end of the pigtail should be connected to the cylinder). (Figure 14)
4. Check master valves to verify that they are open (turn counter-clockwise to open).
5. Remove protective cylinder caps from full replacement cylinders. With the valve outlet pointed away from you or anyone else, slowly open each cylinder valve slightly to blow out any dirt or contaminants which may have become lodged into the cylinder valve.
6. Place and secure full cylinders into position using chains, belts, straps, or cylinder stands.

CAUTION:
- Pigtails should never be kinked, twisted, or bent in a radius smaller than 3 inches. Mistreatment may cause pigtail to burst.

7. Connect pigtails to cylinder valves and tighten securely.
8. S-L-O-W-L-Y turn each cylinder valve until each cylinder is fully open.
9. Check all cylinder and pigtail connections for leaks using Western leak detector LT-100 or an oxygen safe equivalent solution.
10. Observe the following conditions:
    - The line pressure will be indicated from the top gauge on the front of the cabinet.
    - The pressure reading for each bank will be indicated from the respective gauge on the front of the cabinet.
    - The green "Service Normal" light is illuminated when both banks are full.

START UP AND CHECKING PROCEDURE

1. Open the cabinet door and attach the knob to the 4-way valve (Figure 15), using the 5/32 allen wrench provided (the manifold is shipped with the valve in the off, straight up position).

2. Turn the control indicator knob fully to point to the right bank. S-L-O-W-L-Y open one cylinder valve on the right bank (turn counter-clockwise to open). The right bank pressure gauge should show the full pressure of the right bank of cylinders.

3. S-L-O-W-L-Y open one cylinder valve on the left bank. The left bank pressure gauge will show the full pressure of the left bank of cylinders. The green "System Normal" light comes on, extinguishing the red "Depleted Bank" light.

> **NOTE:**
> - Connections can loosen during shipment causing leaks. Be sure to pressurize manifold, check connections for leaks with a suitable oxygen safe leak solution (Western LT-100 or equivalent) and tighten as needed prior to putting manifold into service.
> - Relieve pressure before tightening connections.
> - Return to step #2 if pressure was relieved from manifold to rework connections. Otherwise, continue from steps #4.

4. Create a slight flow of gas by opening the bleeder valve inside the manifold. Close the right cylinder valve to simulate a depleting right bank. Observe the following:
   - The right bank pressure slowly falls and the control automatically switches over to the left bank.
   - Delivery pressure remains constant.
   - Green "System Normal" light is extinguished.
   - Red "Replace Depleted Bank" light illuminates.
   - Any remote alarms should be activated at this time.

5. S-L-O-W-L-Y reopen the right cylinder valve. Observe the following:
   - Right bank pressure returns to full pressure.
   - Green "System Normal" light illuminates.
   - Red "Depleted Bank" light is extinguished.
   - Any remote alarms should be canceled.

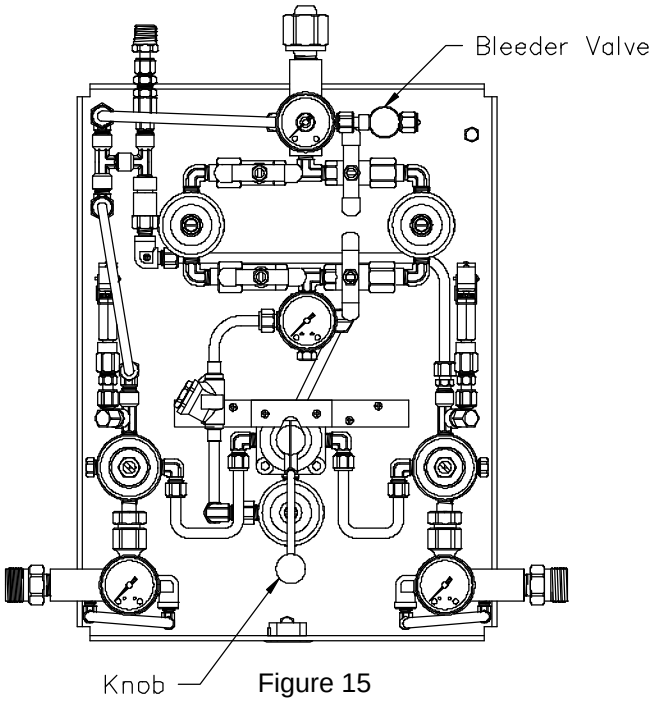


Figure 15

LINE DELIVERY PRESSURE ADJUSTMENT

The delivery pressure has been factory set. If adjustment is required, carefully proceed according to the following instructions:

1. Leave the manifold in full operational status.

2. Removed the knob from the 4 way valve using Allen wrench provided with system.

NOTE:
- Mark or note the position of the knob prior to removal. This will aid re-assembly by properly orienting the knob.

3. Create a flow condition in the delivery pipeline system.

4. Locate the line pressure regulator that is feeding the system (open ball valves).

5. Adjustment: Turn clockwise to “increase” pressure, turn counter-clockwise to “decrease” pressure.

6. Close door and latch.

7. Attach the knob (in the same orientation it was removed in step 2) to the 4 way valve using the Allen wrench provided. Your system is now ready for use.

NOTE:
- The knob for the 4-way valve should always be turned fully to the left or right for proper operation of the manifold.

MANIFOLD OPERATION

The manifold control unit includes the following components and features: green “System Normal” and red “Bank Depleted” indicator lights”, cylinder pressure gauges, line pressure gauge, intermediate pressure gauge, internal dual line assembly, intermediate relief valves, line relief valve, supply bank control indicator knob, and automatic bank changeover. Each supply bank consists of a header with 24” stainless steel flexible pigtails with check valves, individual header check valve outlet bushings, master shut off valve, and union connection for attachment to the control unit.

The cylinder bank that supplies the piping system is known as the “Primary” supply, while the cylinders on stand-by are referred to as the “Secondary” supply. On the service bank, the gas flows into the manifold control unit inlet to the bank pressure gauge, then into the primary regulator before heading to the intermediate gauge. The gas then flows into the dual line assembly. The valves leading to one line regulator should be closed. This regulator is to be used as an emergency back up. The gas flows through the open valve leading to the other line regulator. Delivery pressure is controlled by the line regulator and is adjustable (See Delivery Line Adjustment– page 13). The gas exits the line regulator and proceeds past the line pressure gauge and into the delivery piping.

The gas on the secondary bank flows into the manifold cabinet to the bank pressure gauge. The gas then flows through the primary regulator and into the intermediate regulator. The intermediate regulator reduces the pressure below the primary regulator pressure. Since the primary regulator pressure is higher than the intermediate regulator pressure, gas will not flow from the secondary bank.

Changeover from the “Primary” to “Secondary” side is accomplished by a pressure differential between the primary regulator and the intermediate regulator. As cylinder contents are depleting, the pressure will drop to a point where the switch indicates that the bank is empty. At this time the green light will extinguish and the red light will illuminate. Pressure will continue to drop until it reaches the set pressure of the intermediate regulator. At this point the “Secondary” bank will automatically begin to flow without any interruption in line delivery pressure.

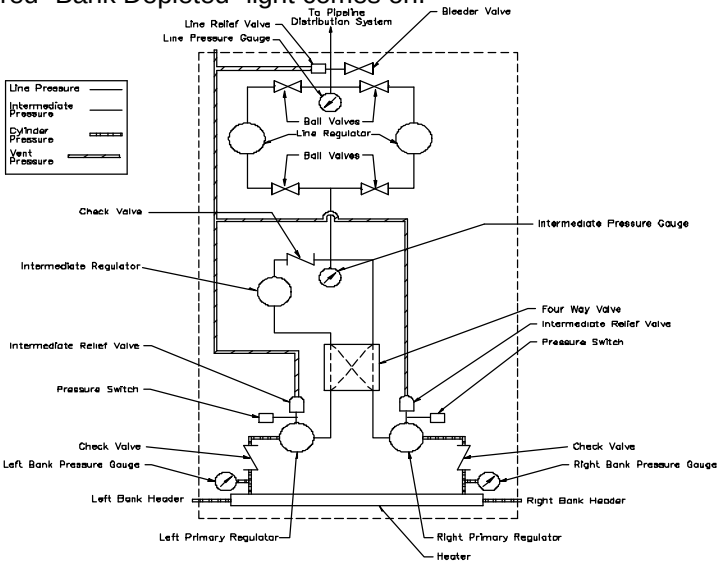
There are two definite indicators as to which bank should be changed; (1) red “Bank Depleted” light and (2) cylinder bank pressure reading.

After replacing empty cylinders, open the cylinder valves. Because the cylinder pressure will actuate the pressure switch, the red “Bank Depleted” light will be extinguished and the knob indicator must be turned to its opposite position to indicate the new cylinder bank is now the secondary supply. Moving the indicator knob to its opposite position after replacement of an empty bank is all that must be done when resetting the manifold. The indicator knob must always be in the extreme right or left position.

To insure proper operation, observe the following guidelines:
1. Carefully follow all instructions,.
2. Establish proper flow direction of check valves.
3. Be sure cylinder valves are fully opened.
4. Replace depleted cylinders as soon as practical after the red “Bank Depleted” light comes on.

AGM2HL – MODELS FOR USE WITH CARBON DIOXIDE AND NITROUS OXIDE

Nitrous Oxide and Carbon Dioxide systems include a 500 SCFH capacity heater.
The thermostatically controlled heater warms the gas before entering the regulator, preventing “freeze-up”.
The control is supplied with a 6-foot cord and plug for 115 VAC power and draws 4 AMPS.



AGM2HL SERIES MANIFOLD – PIPING SCHEMATIC

CYLINDER REPLACEMENT & HANDLING

1. Shut off all cylinder valves as well as the master valve on depleted cylinder bank.

2. S-L-O-W-L-Y loosen and remove the pigtail connection from the depleted cylinders.

3. Remove depleted cylinders and replace protective caps.

4. Remove protective cylinder caps from full replacement cylinders. With the valve outlet pointed away from you or anyone else, slowly open each cylinder valve slightly to blow out any dirt or contaminants which may have become lodged into the cylinder valve.

5. Place and secure full cylinders into position using chains, belts, straps, or cylinder stands.

6. Connect pigtails to cylinder valves and tighten securely.

CAUTION:
- Pigtails should never be kinked, twisted, or bent into a radius smaller that 3 inches. Mistreatment may cause the pigtail to burst.

7. Open master valve S-L-O-W-L-Y.

8. S-L-O-W-L-Y turn each cylinder valve until each cylinder is fully open (turn counter-clockwise to open).

9. Check all cylinder/pigtail connections for leaks using Western Leak Detector, LT-100 or an equivalent oxygen safe solution. Repair or replace any connections that show signs of bubbles which indicates leakage.

10. Observe the following conditions:
    - The pressure gauge on the bank being pressurized will display cylinder pressure.
    - The red “Bank Depleted” light goes out and the green “Service Normal” light comes on.

NOTE:
- Failure to rotate the knob after installing new cylinders will result in a partially full reserve bank.

GENERAL MAINTENANCE

1. Main Section
   a) Daily – record line pressure
   b) Monthly
      1) Check regulators, valves and compression fitting for external leakage.
      2) Check valves for closure ability.
   c) Annually
      1) Check relief valve pressures.
      2) Replace regulator seats.

2. Manifold header
   a) Daily – observe nitrous oxide and carbon dioxide systems for cylinder frosting or surface condensation. Should excessive condensation or frosting occur it may be necessary to increase manifold capacity.
   b) Monthly
      1) Inspect valves for proper closure.
      2) Check pigtails for cleanliness, flexibility, wear, leakage, and thread damage. Replace damaged pigtails immediately.
      3) Inspect pigtail check valves for closure ability.
   c) Every 2 Years
      1) Replace all copper pigtails.
   d) Every 4 Years
      1) Replace all stainless flex pigtails.

SYMPTOM	PROBABLE CAUSE	REMEDY OR CHECK
PRIMARY REGULATOR		
Venting at relief valve.	Over pressure due to creeping or faulty regulation of primary regulator.	Replace regulator seat and nozzle components.
Gas leakage around primary valve body halves.	Loose bonnet.	Tighten bonnet.
Pressure regulator body and bonnet.	Diaphragm leak.	Replace diaphragm.
FOUR-WAY VALVE		
Gas leakage around joint In valve body halves.	Body halves not joined tightly enough.	Tighten screws.
	O-rings worn.	Replace valve.
Gas leakage through body wall.	Porosity holes developed in casing.	Replace valve.
Both banks feeding.	Four-way valve seats leaking.	Replace valve.
INTERMEDIATE PRESSURE REGULATOR		
Gas leakage around regulator body/bonnet.	Loose bonnet.	Tighten bonnet.
Required gas flow not available after change-over occurs.	Intermediate regulator not set correctly.	Adjust intermediate regulator per specifications.
Both banks feeding.	Intermediate regulator set at too high a delivery pressure.	Adjust intermediate regulator per specifications.
	Total draw from equipment on manifold is too high.	Reduce the amount of equipment so total draw matches manifold flow capacity.
LINE PRESSURE REGULATOR		
Gas leakage around regulator body/bonnet.	Loose bonnet.	Tighten bonnet.
Pipeline not at desired pressure.	Line regulator not set correctly.	Set delivery pressure per specifications.
Required gas flow not available.	Line regulator not set correctly.	Set delivery pressure per specifications.
	Total draw from equipment on manifold is too high.	Reduce the amount of equipment so total draw matches manifold flow capacity.

SYMPTOM	PROBABLE CAUSE	REMEDY OR CHECK
ELECTRICAL SYSTEM		
No indicator lights on front panel come on when power is hooked up.	No power to unit.	Check electrical power supply.
Red indicator light does not come on when one bank is empty and changeover occurs.	Change-over occurring at too high a pressure.	Adjust intermediate regulator Setting per specifications.
	One or both pressure switches may be set to low a pressure.	Adjust pressure switch per Specifications.
Green indicator light does not come on even though both banks are full. (Red indicator light stays on with both banks full).	Master valve, or cylinder valves on bank are closed.	Slowly open valves.
	All pigtails on one or both banks installed in direction against flow of the check valve.	Check that all pigtails are installed correctly (check valve ends to cylinders).
	Control knob was rotated to select new “service” side without changing empty cylinders.	Replace depleted cylinders.
	Pressure switch wiring incorrect or disconnected.	Check pressure switch wiring.
	One or both pressure switches may be set at too high a pressure.	Adjust pressure switch per specifications.
	Primary regulator set at too low a pressure.	Adjust primary regulator delivery pressure per specifications.
OPERATIONAL		
One or more cylinders remain full after manifold indicates a depleted bank.	Some pigtails installed in direction against the flow of the check valve.	Check that all pigtails are installed correctly (check valve ends to cylinders).

MANIFOLD MAINTENANCE & REPAIR PARTS

NOTE:

- Western manifold systems are designed and tested for optimal performance and adherence to safety specifications. We recommend the use of Western replacement components to maintain the standards of performance and the safety of the product.

REPLACEMENT PIGTAILS

24" Stainless Steel Flexible Braid with Check Valves ,
36" Pigtails for staggered systems have part numbers that end with "-36".

PFP-320CV-24……CGA 320 for Carbon Dioxide (CO_2) Service
PFP-326CV-24……CGA 326 for Nitrous Oxide (N_2O) Service
WPR-63CVV……CGA 540 for Oxygen (O_2) Service
PFP-92CV-24……..CGA 580 for Nitrogen (N_2) Service
PFP-346CV-24……CGA 346 for Compressed Air

24" Synthetic Fiber Braid Hose with Check Valve

PFS-92CV-24……...CGA 580 for Helium (He) Service (for non medical service).

PRESSURE GAUGES – 2" Diameter, 1/4" NPT Back Port

WMG-3-3……..100 psi…..Line gauge AGM2, AGM2HL
WMG-3-4……..400 psi…..Line gauge AGM2HP
WMG-3-4……..400 psi…..Intermediate gauge
WMG-3-8……2000psi.....Cylinder pressure gauge AGM2-4, AGM2-8, AGM2HL
WMG-3-12……...4000psi….Cylinder pressure gauge AGM2-2,5,7,9, AGM2HP

VALVES AND VALVE REPAIR KITS

WMS-1-53……...CGA 540 Check Valve Bushing
WMV-2-16……Master Valve
WMS-13-53……..Four way valve assembly
RK-1085……...Repair kit for WMV-2-16
RK-1041……...Repair kit for low pressure check valves
WMS-1-59……...CGA 326 Check Valve Bushing
WMS-1-62……...CGA 346 Check Valve Bushing
WMS-1-54……...CGA 580 Check Valve Bushing
WMS-1-65……...CGA 320 Check Valve Bushing

PRESSURE SWITCHES

WME-4-4……..Pressure Switch (all gases except Oxygen & Compressed Air)
WME-4-4C……...Pressure Switch (Oxygen& Compressed Air)

POWER SUPPLY REPLACEMENT PARTS

8570D……...Power Supply Assembly (transformer, PCB, case, and cable)
WME-8-1……..Power Supply PCB (includes dry contacts for remote alarms)
9103002……...2.5 Amp fuse for in line fuse holder.

INDICATOR LAMP REPLACEMENT

Square Style
WMS-1-136……Dual indicator light assembly.
MK-1011……..Replacement bulb kit.

MANIFOLD MAINTENANCE & REPAIR PARTS

AGM2 SERIES REGULATORS AND REGULATOR REPAIR KITS

AGM2 Series Primary Regulators
WMS-13-68.....Left Primary Regulator for AGM2 (Oxygen & Air)
WMS-13-73.....Right Primary Regulator for AGM2 (Oxygen & Air)
WMS-13-69.....Left Primary Regulator for AGM2 (N_2, He)
WMS-13-74.....Right Primary Regulator for AGM2 (N_2, He)
WMS-13-72.....Left Primary Regulator for AGM2, AGM2HL & AGM2HP (CO_2 & N_2O)
WMS-13-77.....Right Primary Regulator for AGM2, AGM2HL & AGM2HP (CO_2 & N_2O)
WMS-13-70.....Left Primary Regulator for AGM2HP (N_2, He)
WMS-13-75.....Right Primary Regulator for AGM2HP (N_2, He)
WMS-13-71……Left Primary Regulator for AGM2HP (Oxygen & Air)
WMS-13-76……Right Primary Regulator for AGM2HP (Oxygen & Air)
RK-1037.....Repair Kit for WMS-13-69, WMS-13-70, WMS-13-72, WMS-13-74, WMS-13-75 & WMS-13-77 Primary Regulators
RK1038.....Repair Kit for WMS-13-68 and WMS-13-71, WMS-13-73, and WMS-13-76 Primary Regulators (Oxygen & Air)
AGM2 Series Line Regulators
WLR-13-60L.....Left Line Regulator for AGM2 & AGM2HL (Air, He, CO_2, N_2O, O_2, N_2)
WLR-13-60R.....Right Line Regulator for AGM2 & AGM2HL (Air, He, CO_2, N_2O, O_2, N_2)
WLR-13-200L.....Left Line Regulator for AGM2HP (Air, He, CO_2, N_2O, O_2, N_2)
WLR-13-200R.....Right Line Regulator for AGM2HP (Air, He, CO_2, N_2O, O_2, N_2)
RK-1160.....Repair Kit for WLR-13-200R (L)
RK-1161……..Repair Kit for WLR-13-60R (L)

AGM2 Series Intermediate Regulators
WLR-15-125.....Intermediate Regulator for AGM2 & AGM2HL (Air, He, CO_2, N_2O, O_2, N_2)
WLR-15-225.....Intermediate Regulator for AGM2HP (Air, He, CO_2, N_2O, O_2, N_2)
RK-1160.....Repair Kit for WLR-15-125 and WLR-15-225

LIMITED WARRANTY

WARRANTY: The Seller expressly warrants that the products manufactured by it will be free from defects in material, workmanship and title at the date of shipment. This Warranty is exclusive and is IN LIEU OF ALL IMPLIED OR STATUTORY WARRANTIES (INCLUDING WITHOUT LIMITATION, WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM COURSE OF DEALING OF USAGE OR TRADE) or any other express or implied warranties or representations. All claims under this warranty must be made in writing and delivered to the Seller prior to the expiration of 2 years from the date of shipment from factory, or be barred. Upon receipt of a timely claim, the Seller shall inspect the item or items claimed to be defective, and Seller shall, at its option, modify, repair or replace, free of charge, any item or items which the Seller determines to have been defective at the time of shipment from the factory, excluding normal wear and tear. Inspection may be performed at the Seller´s plant, and in such event, freight for returning items to the plant shall be paid by Buyer. Seller shall have no responsibility if such items have been improperly stored, installed, operated, maintained, modified and/ or repaired by an organization other than the Seller. Adjustments for products not manufactured by Seller shall be made to the extent of any warranty of the manufacturer or supplier thereof. The foregoing shall be the Seller´s sole and exclusive liability and Buyer´s sole and exclusive remedy for any breach of warranty or for any other claim based on any defect in ,or non-performance of, the products, whether based on breach of contract or in tort, including negligence or strict liability.

WESTERN INNOVATOR

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