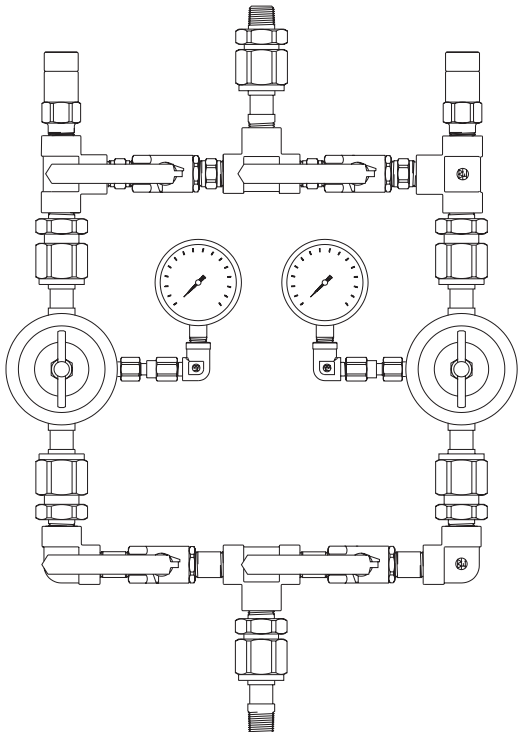
WESTERN INNOVATOR

Installation and Operating Instructions
For

DUAL LINE ASSEMBLIES

DLA 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 dual line assembly consists of line regulators, isolation valves, a line pressure gauge and a line relief valve. The unit is designed to feed from one regulator while the other regulator is isolated by the ball valves. This isolated regulator is to be used if the supply regulator fails and needs to be replaced or serviced.

CAUTION

Failure to adhere to the following instructions can result in personal injury or property damage:

- Never permit oil, grease, or other combustible materials to come in contact with cylinders, manifold, and connections. Oil and grease may react when 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.
- 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 atmosphere, creating a potential hazard.
- Welding should not be performed near nitrous oxide piping. Excessive heat may cause the gas to dissociate, creating an explosive force.

WARRANTY

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

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GENERAL INSTRUCTIONS

Dual line assemblies should be installed in accordance with guidelines stated by the National Fire Protection Association, the Compressed Gas Association, OSHA, 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°F (49°C) or fall below 0°F (-18°C). A dual line assembly placed in an open location should be protected against weather conditions. During winter, protect the dual line assembly from ice and snow. In summer, shade the dual line and cylinders from continuous exposure to direct rays of the sun.

Leave all 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 outside.

CAUTION:
Remove all protective caps prior to assembly. The protective cap may ignite due to heat of recompression in oxygen systems.

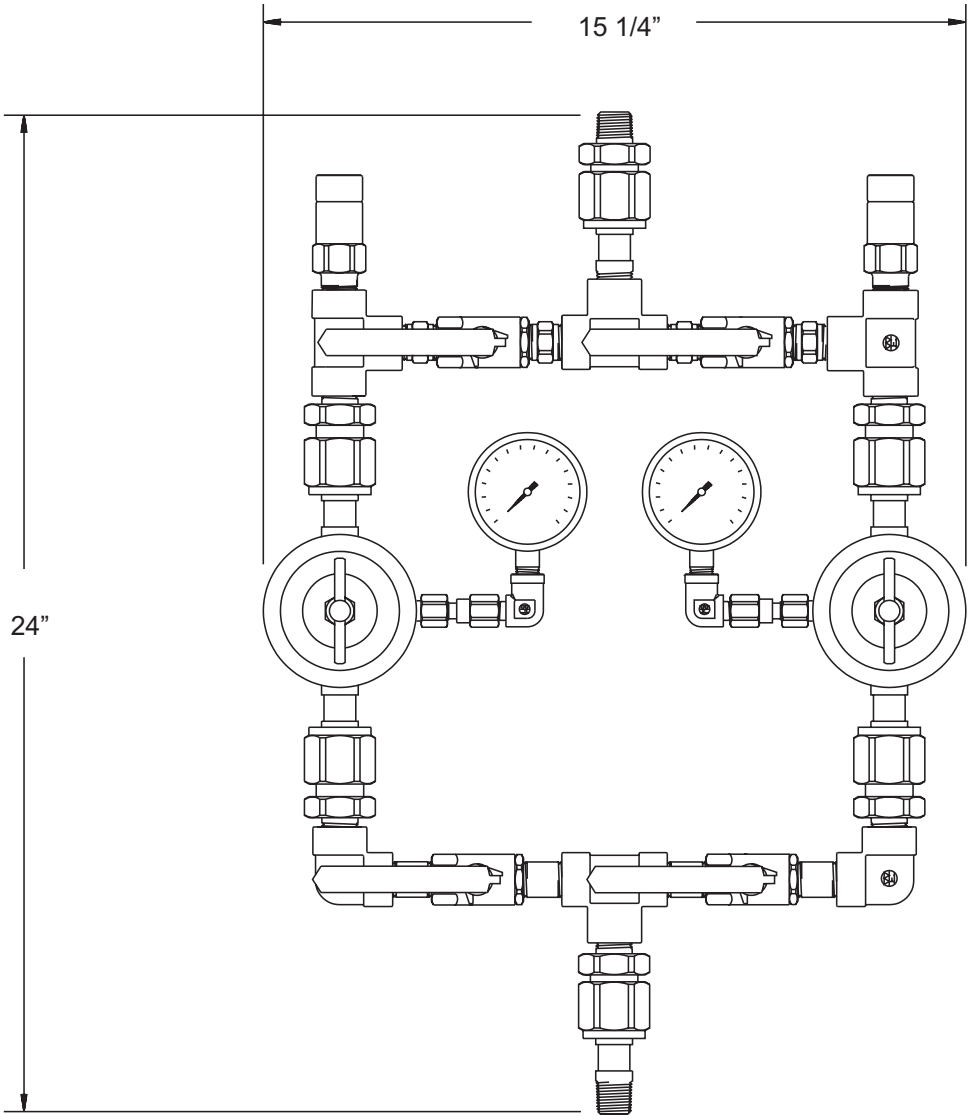

Figure 1

DUAL LINE INSTALLATION

1. Identify the appropriate components per figure 2.
2. Remove the ½ NPT inlet nut & nipple from from the dual line.

> **NOTE:**
> - When soldering, the piping shall be purged with nitrogen.
> - All brazed piping must be cleaned for oxygen service prior to connecting the dual line.
> - See NFPA 99 for additional information on brazing and taping allowances and requirements.

3. Connect this ½ NPT nut and nipple to the supply line.
4. Remove the “Outlet Bushing” from the dual line.
5. Connect the ½ NPT end to the delivery pipeline.

If installing the system indoors the outlet of the relief valve shall be piped away.

6. Disassemble the “Relief Valve Unions”.
7. Assemble the ½ NPT nut and nipple to the relief valve outlet using teflon tape.
8. Connect the ¾ NPT end of the bushing to the relief valve pipe away piping.
9. Assemble the dual line assembly into the piping system by connecting to all the appropriate union connections.

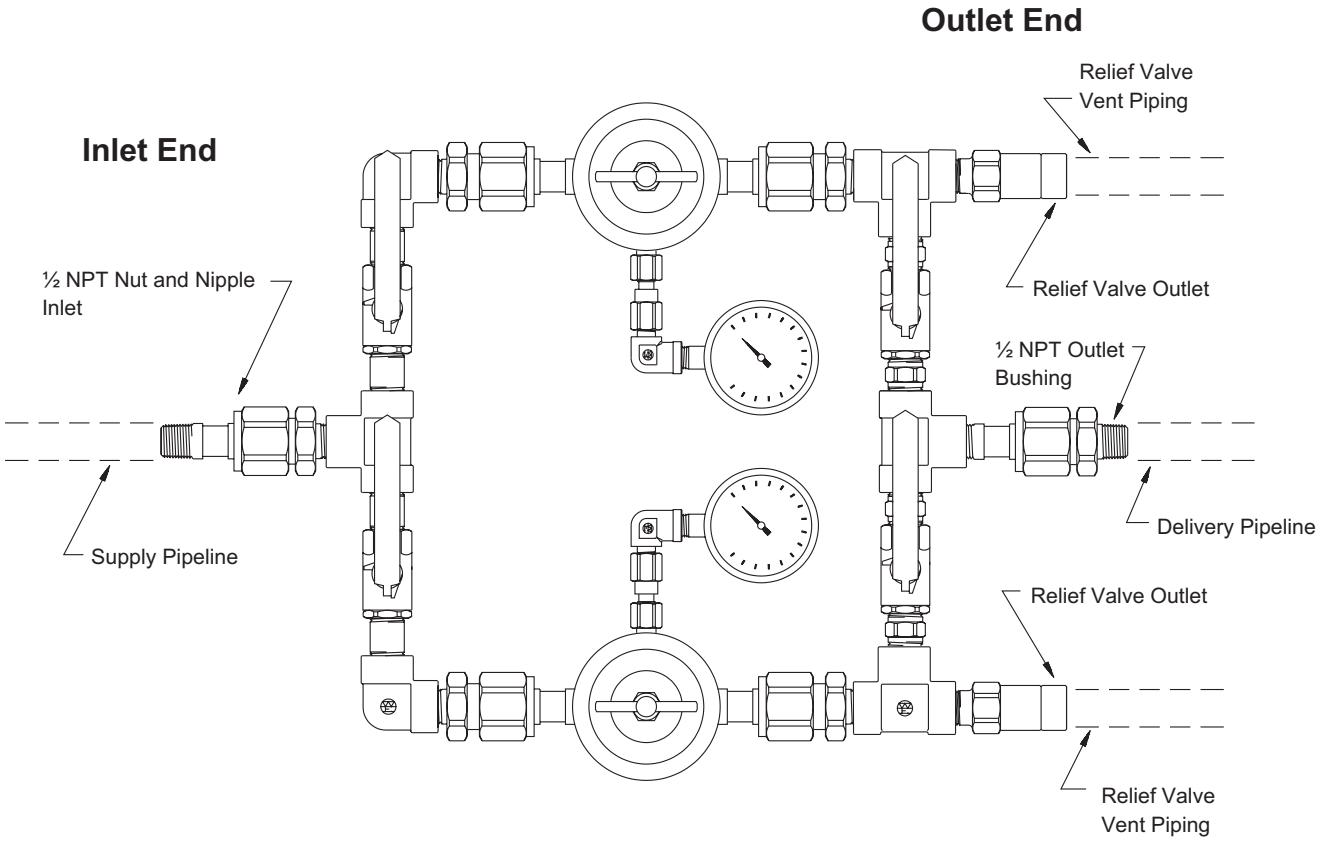

Figure 2

HEALTH CARE INSTALLATIONS

1. Determine the installation requirements required by NFPA 99.
2. If installing the dual line to meet the “Cylinder systems with reserve supply” (4.3.1.1.6). The installation should look similar to figure 3 below.

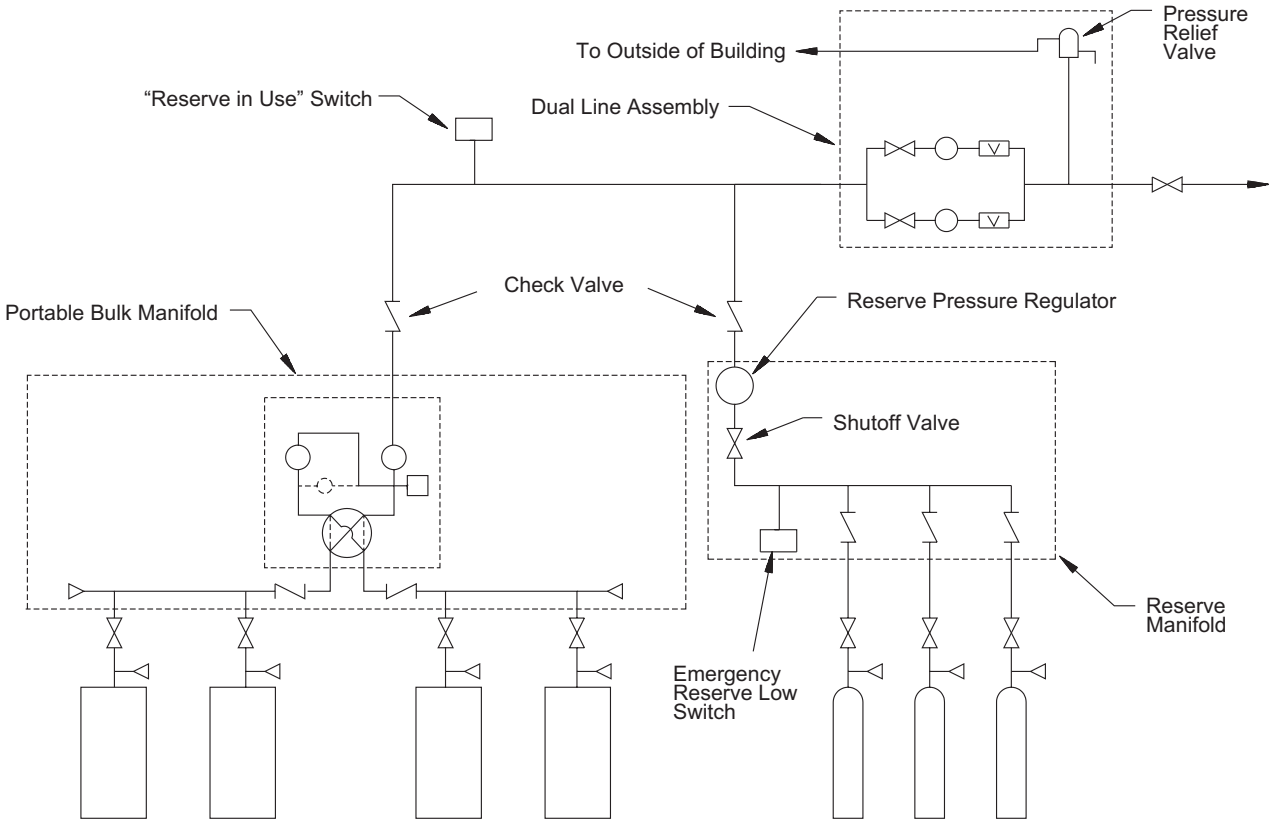

Figure 3

STARTUP AND CHECKING PROCEDURE

1. Back both regulator adjusting screws out (turn counter-clockwise) until they spin freely.
2. Open the inlet and outlet isolation valves for one regulator.
3. Close the inlet and outlet isolation valves for the other regulator.
4. S-L-O-W-L-Y pressurize the system supplying pressure to the dual line assembly.
5. Apply an oxygen compatible leak test solution to the inlet connections. There should be no bubbles that indicate leakage.

> **NOTE:**
> The inlet pressure to the dual line should not exceed 350 psig

6. S-L-O-W-L-Y turn the regulator adjusting screw clockwise to increase the regulator setting. The delivery pipeline will now begin to pressurize.
7. Continue to increase the setting of the regulator until the desired setting has been reached.
8. Apply an oxygen compatible leak test solution to the outlet connections. There should be no bubbles that indicate leakage.
9. Close the inlet and outlet isolation valves for the regulator that was just set.

> **NOTE:**
> If the regulator setting is adjusted above the desired pressure, a flow of gas from the outlet of the dual line will be required to lower the regulator setting.

10. S-L-O-W-L-Y open the inlet and outlet isolation valves for the other regulator.
11. Create a flow of gas to lower the delivery pipeline pressure. The pressure need not be taken down to zero. The pressure need only be below the desired regulator setting.
12. S-L-O-W-L-Y turn the regulator adjusting screw clockwise to increase the regulator setting.
13. Continue to increase the setting of the regulator until the desired setting has been reached. The system is now ready for use.

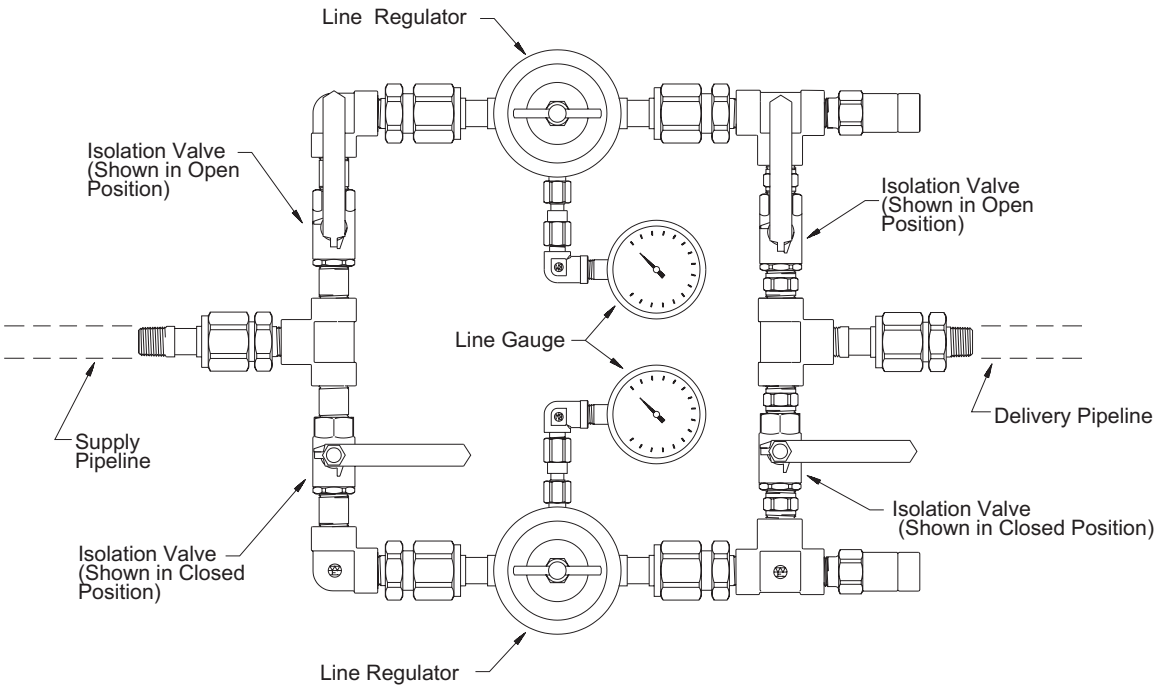

Figure 4

GENERAL MAINTENANCE

1. Main section
    a) Daily - record line pressure.
    b) Monthly
        1) Check regulators and valves for external leakage.
        2) Check valves for closure ability.
    c) Bi-annually
        1) Check relief valve pressures.
        2) Replace regulator seats.

TROUBLE-SHOOTING (Only qualified repair personnel should make repairs)

SYMPTOM	PROBABLE CAUSE	REMEDY OR CHECK
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.
	Flow Capacity too high.	Reduce flow requirement.
Relief valve venting.	Line regulator crawling.	Rebuild/replace regulator.
	Line relief opening early.	Replace relief valve.

MANIFOLD MAINTENANCE & REPAIR PARTS

REGULATORS

WMR-2-4-1.....Line Regulator for DLA-4
WMR-2-5-1.....Line Regulator for DLA-5
RK-1100B.....Repair Kit for 8430 and 8431

VALVES

WMV-5-8 .....½ NPT Ball Valve

GAUGES

G-2-100W.....100 PSIG Gauge (DLA-4)
G-2-400W.....400 PSIG Gauge (DLA-5)

RELIEF VALES

WMV-8-75 .....75 PSIG Relief Valve (DLA-4)
WMV-8-250 .....250 PSIG Relief Valve (DLA-5)

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 1 year from the date of shipment from the 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 item has 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.

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