



**MATHESON  
TRI•GAS**

ask. . .The Gas Professionals™

## **INSTRUCTION MANUAL**

### **GAS TRAK**

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## SERVICE

### General Service

A unit that is not functioning in a normal manner should be removed from service until such time that repairs or replacement can be made. Upon completion of repair, full testing should be performed to assure the user that the equipment has been returned to its original operating parameters. Matheson Tri-Gas offers a repair service to its customers for all products that Matheson Tri-Gas (Matheson) sells. To arrange for repair service, call 215-641-2700 and ask for the Warranty Administrator. **NO PRODUCT WILL BE RECEIVED BY MATHESON WITHOUT INDICATION OF GAS SERVICE AND WITHOUT PROPER RETURN MATERIAL AUTHORIZATION PROVIDED BY THE WARRANTY ADMINISTRATOR. (All repairs must be made by Matheson or an assigned and approved facility to maintain any warranties or guarantees).**

If the unit is under an applicable warranty, return the unit to Matheson for repair or replacement. To arrange for warranty service, call 215-641-2700 and ask for the Warranty Administrator. **NO PRODUCT WILL BE RECEIVED BY MATHESON WITHOUT INDICATION OF GAS SERVICE AND WITHOUT PROPER RETURN MATERIAL AUTHORIZATION PROVIDED BY THE WARRANTY ADMINISTRATOR.**

If advised by the Warranty Administrator to return the product to Matheson, prepare the product for shipment and write, in large lettering, the RMA Number assigned by the Warranty Administrator on the outside of the box. Also, if required by the Warranty Administrator, supply the completed RMA form with the product. Make sure that the product is adequately packaged, in the original shipping container if possible, and shipped prepaid (Matheson will not accept COD freight) with a description of the observed deficiency to the attention of the:

Warranty Administrator  
Matheson Tri-Gas  
166 Keystone Drive  
Montgomeryville, PA 18936

The user is expected to periodically inspect the product for leaks, loose or worn parts, broken or non-functioning components and to address those situations immediately. If the user would require verbal assistance in ascertaining the potential of a problem with any Matheson product, contact the Matheson Regional Customer Service Center or your Matheson Sales Representative for assistance.

## LIMITED WARRANTY

This equipment is sold by Matheson Tri-Gas (Matheson) under the warranties set forth in the following paragraphs. Such warranties are extended only with respect to the purchase of this equipment directly from Matheson or Matheson's Authorized Agent as new merchandise and are extended to the first Buyer thereof other than the purpose of resale.

For a period of one year from date of original delivery (ninety days in corrosive service) to Buyer or to Buyer's order, this equipment, is warranted to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in this manual and any accompanying labels and/or inserts, provided that this equipment is properly operated under the conditions of normal use and that regular and periodic maintenance and service is performed or replacements are made in accordance with the instructions provided. Expendable parts of this equipment are similarly warranted to be free from functional defects in materials and workmanship and to conform to the description of this equipment contained in this manual and any accompanying labels and/or inserts. The foregoing warranties shall not apply if the equipment has been repaired other than by Matheson or a service facility designated by Matheson, or if this equipment has not been operated and maintained in accordance with written instructions provided by Matheson, or has been altered by anyone other than Matheson, or if the equipment has been subject to abuse, misuse, negligence or accident.

Matheson's sole and exclusive obligation and the Buyer's sole and exclusive remedy under the above warranties is limited to repairing or replacing, free of charge, at Matheson's sole discretion, the equipment or part which is telephonically reported to be a problem to the Matheson Regional Customer Service Center, and which if so advised, is returned with a written statement of the observed deficiency, not later than seven days after the expiration of the applicable warranty, to the Matheson Tri-Gas Equipment Technology Center during normal business hours, transportation charges prepaid, and which, upon examination, is found to comply with the above warranties. Return trip transportation charges for the equipment or part shall be paid by the Buyer.

**MATHESON SHALL NOT BE OTHERWISE LIABLE FOR ANY DAMAGES INCLUDING BUT NOT LIMITED TO INCIDENTAL DAMAGES, CONSEQUENTIAL DAMAGES, OR SPECIAL DAMAGES, WHETHER SUCH DAMAGES RESULT FROM NEGLIGENCE, BREACH OF WARRANTY OR OTHERWISE.**

**THERE ARE NO EXPRESS OR IMPLIED WARRANTIES WHICH EXTEND BEYOND THE WARRANTIES HEREINABOVE SET FORTH. MATHESON MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE EQUIPMENT OR PARTS THEREOF.**

**ACCEPTANCE OF THE EQUIPMENT BY THE FINAL BUYER INDICATES THE FINAL BUYER'S ACCEPTANCE OF ALL WARRANTIES AND LIMITATIONS SET FORTH ABOVE.**

### **USER RESPONSIBILITY**

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and/or inserts when installed, operated, maintained and repaired in accordance with the instructions provided. This equipment must be checked periodically, with the frequency of such inspections depending upon the scope of use. Damaged, worn or contaminated equipment should not be used. Parts that are broken, missing, plainly worn, distorted or contaminated should be replaced immediately. Should such repair or replacement become necessary, Matheson Tri-Gas (Matheson) recommends that a telephonic or written

request for service advice be made to the Matheson Equipment Engineering Group in Montgomeryville, Pennsylvania or to the nearest Matheson Regional Customer Service Center. This equipment or any of its parts should not be altered without the prior written approval of Matheson Equipment Engineering Group. The user of this equipment shall have the sole responsibility for any malfunction, which results from improper use, faulty maintenance, damage, improper repair, or alteration by anyone other than Matheson or a service facility designated by Matheson. Further, the ultimate user of the equipment is responsible for the training and safe operation of the equipment by personnel in his/her employ.

## **SAFETY PRECAUTIONS**

1. Many Specialty Gases are hazardous in nature. It is important that the user of the equipment carefully review the hazards associated with the gas to be used with the equipment.  
**BEFORE INSTALLING THE EQUIPMENT INTO ANY SYSTEM OR ON ANY CYLINDER OF COMPRESSED OR LIQUEFIED GAS, REFER TO THE MSDS THAT WAS SHIPPED WITH THE GAS, OR ON FILE IN YOUR FACILITY, AS TO THE SPECIFIC HAZARDS ASSOCIATED WITH THE GAS TO BE USED. ALSO, REFER TO ALL APPLICABLE INSERTS CONTAINED WITH THE EQUIPMENT FOR ADDITIONAL PRECAUTIONS AND OPERATING INSTRUCTIONS.**
2. Before using any equipment on toxic, corrosive, pyrophoric, flammable or other type of hazardous gas, test the leak integrity of the equipment using an inert gas.
3. Make certain that the equipment purchased is suitable for the application intended. Typically, equipment supplied by Matheson Tri-Gas (Matheson) has a model number, and pressure limitation labels and/or stampings. If not apparent, refer to other sections of this manual or product literature. Carefully review this information to establish the equipment is fit for service in the desired application.
4. Make certain that the equipment purchased or delivered to the ultimate end user conforms to the specifications of the user. The user is responsible for selecting equipment compatible with gases that are to be used, physical parameters of operation and performance and normal material compatibilities. Selection information can be found in Matheson Catalogs, Matheson Technical Bulletins and in the Matheson Gas Data Book. In addition, any Matheson representative would be pleased to aid in the selection of specific equipment.
5. Before installation of the equipment into any system or onto the cylinder of compressed or liquefied gas, carefully inspect the equipment for visible signs of damage or contamination. Close attention should involve visual inspection of all exposed and connecting threads for visible signs of wear and abuse. Also examine the equipment for any loose parts outside of those that must swivel for connection to the gas system, cylinder or outlet lines. Also examine the equipment for signs of contamination with dirt, grease or any other foreign material. Close attention should be given to the external appearance and the view of the equipment from the inlet and the outlet. If any foreign materials are present and cannot be removed from the equipment easily with a cloth, or if the threads on the equipment appear to be abused as indicated above, or any of the components appear to be loose, return the equipment immediately for service.

6. Before connecting a cylinder source of compressed or liquefied gas to the equipment, move the cylinder(s) to the work location and secure the cylinder before removing the cylinder valve cap. Check the cylinder valve as in step 5 for possible contamination and defective or loose parts. If for any reason the cylinder appears to be faulty as noted here, return the cylinder cap to the top of the cylinder, tighten down and remove the cylinder from the work area and call the supplier of the cylinder for immediate pick-up.
7. When using any hazardous gas, the cylinder of the gas should be placed under an exhaust hood or be placed in a suitable safety enclosure.

## **REGULATED SECTION NO PURIFIER (RSNP)**

(SEE FIG. 3)

### **INSTALLATION**

#### **BEFORE ATTACHMENT OF THE RSNP TO THE SOURCE SUPPLY, READ CAREFULLY THE "USER RESPONSIBILITY" AND "SAFETY PRECAUTIONS" SECTIONS OF THIS MANUAL**

1. Close the regulator by rotating the adjusting knob in a counterclockwise direction. As the knob is turned, the movement of the assembly should be easier.
2. Close the regulator outlet valve by turning clockwise.
3. Compression tube fittings are supplied as standard connections. These connections are for use with rigid metal tubing of the appropriate size. Depending upon the application, the tubing material will be either brass, or stainless steel. **NOTE: DO NOT USE STAINLESS STEEL TUBING WITH BRASS TUBE FITTINGS.** Use the manufacturer's instructions for making compression tube connections. **WARNING: NEVER USE TEFLON TAPE FOR MAKING A COMPRESSION TUBE CONNECTION.**
4. Make the connections between the inlet and outlet of the **RSNP** and the source supply. Note: Each **RSNP** equipped with positional inlet connector. You can choose the appropriate angle for your application. Connect the rigid tubing to the inlet of the regulator and **RSNP** outlet, and then to the equipment.
5. **BEFORE OPERATION** of the **RSNP** and associated equipment, **IT IS STRONGLY RECOMMENDED** that the user leak check the entire system using an inert gas and an approved method. **WARNING: THIS STEP IS REQUIRED WHEN USING ANY HAZARDOUS MATERIAL.**

## OPERATION

### **READ THE "SAFETY" AND "RSNP INSTALLATION" SECTIONS BEFORE OPERATION OF THE EQUIPMENT**

1. It is strongly recommended that high purity gas systems be thoroughly purged or evacuated before injecting high purity gases into the system.
2. The regulator control knob and the outlet valve should be closed as described in "**RSNP INSTALLATION**" section above.
3. The user should then put on appropriate safety apparel such as, but not limited to, safety glasses and gloves.
4. Observe all high-pressure connections in the pressurized system for leaks.
5. An approved leak-detecting device can be used to check for leaks. Consult the manufacturer's instructions for applications and hazards associated with the gas to be used in the system.
6. If method above cannot be utilized, re-close the source supply valve for a minimum of five minutes and observe the high-pressure gauge for a drop in pressure.
7. If a leak is indicated, by any of the methods listed above, recheck the source supply connection to the **RSNP** and all other high-pressure connections.
8. If all of the connections indicate no leak and the regulator and outlet valve are still closed, and the pressure continues to fall on the inlet gauge, reduce pressure in the system as outlined in the "SHUTDOWN PROCEDURES". Return the equipment? for replacement (if new) or repair (if out of warranty) by following the procedure in the "WARRANTY REPAIR" section.
9. If the system has been leak checked and is found acceptable, proceed to operate the **RSNP**.
10. Adjust the hand knob to raise the delivery pressure to the desired working pressure while observing the delivery pressure gauge. **DO NOT EXCEED THE MAXIMUM DELIVERY PRESSURE INDICATED BY THE MODEL NUMBER OR ANY ADDITIONAL LABELS.**
11. Observe all low-pressure connections in the pressurized system for leaks.
12. An approved leak-detecting device can be used to check for leaks. Consult the manufacturer's instructions for applications and hazards associated with the gas to be used in the system.
13. If method above cannot be utilized, re-close the source supply valve for a minimum of five minutes and observe the low-pressure gauge for a drop in pressure.

14. Again set the delivery pressure and open the outlet valve on the regulator. CHECK THE REST OF THE SYSTEM FOR LEAKS AS DESCRIBED ABOVE FOR LOW PRESSURE CHECK.
15. Upon completion of the leak check, open the inlet gas valve on the equipment to be supplied gas and begin use.
16. With the gas flowing through the system, some adjustment to delivery pressure may be needed. Make adjustments in accordance with the final equipment manufacturer's instructions.
17. SINGLE STAGE regulators will require adjustment as the cylinder pressure decreases. Periodically check the regulator for a change in the delivery pressure.
18. AS A GENERAL RULE, the cylinder should be considered empty when the cylinder pressure falls to twice (2x) the usable delivery pressure.

**NOTE: THE OUTLET VALVE ON THE REGULATOR IS MEANT TO BE USED AS A TEMPORARY SHUT OFF VALVE ONLY. IT IS NOT INTENDED TO THROTTLE OR CONTROL PRESSURE OR FLOW IN ANY WAY WHATSOEVER.**

#### SHUTDOWN

**THE FOLLOWING PROCEDURE IS TO BE USED WITH NORMALLY OPEN SYSTEMS OR FOR COMPLETE SYSTEM DISASSEMBLY. THIS PROCEDURE IS TO BE USED ONLY WHEN THERE IS NO CONCERN FOR INTRUSION OF AMBIENT AIR INTO THE SYSTEM**

1. Shut off the source supply valve completely.
2. Shut down any additional gas supplies that may be supplying gas to the system.
3. Open the regulator valve and the outlet valve to drain the contents of the regulator section through the system in use. The regulator gauge should descend to zero.
4. When using a toxic or other hazardous gas, run an inert gas through the regulator and system as a means to purge the toxic or hazardous gas out of the system before breaking any of the system connections.
5. After venting (and purging when necessary), close the regulator valve and the outlet valve.



**NON-REGULATED SECTION NO PURIFIER (NRSNP)**  
(SEE FIG. 1)

**INSTALLATION**

**BEFORE ATTACHMENT OF THE NRSNP TO THE SOURCE SUPPLY, READ CAREFULLY THE "USER RESPONSIBILITY" AND "SAFETY PRECAUTIONS" SECTIONS OF THIS MANUAL**

1. Close the outlet valve by turning clockwise.
2. Compression tube fittings are supplied as standard connections. These connections are for use with rigid metal tubing of the appropriate size. Depending upon the application, the tubing material will be either brass, or stainless steel. **NOTE: DO NOT USE STAINLESS STEEL TUBING WITH BRASS TUBE FITTINGS.** Use the manufacturer's instructions for making compression tube connections. **WARNING: NEVER USE TEFLON TAPE FOR MAKING A COMPRESSION TUBE CONNECTION.**
3. Make the connections between the inlet and outlet of the **NRSNP** and the source supply. Note: Each **NRSNP** equipped with positional inlet connector. You can choose the appropriate angle for your application. Connect the rigid tubing to the inlet and outlet of the **NRSNP**, and then to the equipment.
4. **BEFORE OPERATION** of the **NRSNP** and associated equipment, **IT IS STRONGLY RECOMMENDED** that the user leak check the entire system using an inert gas and an approved method. **WARNING: THIS STEP IS REQUIRED WHEN USING ANY HAZARDOUS MATERIAL.**

**OPERATION**

**READ THE "SAFETY" AND "NRSNP INSTALLATION" SECTIONS BEFORE OPERATION OF THE EQUIPMENT**

1. The outlet valve should be in the closed position as described in the "**NRSNP INSTALLATION**" section above.
2. The user should then put on appropriate safety apparel such as, but not limited to, safety glasses and gloves.
3. To avoid damage to the **NRSNP** internal parts, open the source supply valve SLOWLY. Keep the pressure gauge for a rise in pressure to less than or equal to gauge pressure.
4. Observe all pressure connections in the pressurized system for leaks.
5. An approved leak-detecting device can be used to check for leaks. Consult the manufacturer's instructions for applications and hazards associated with the gas to be used in the system.

6. If method above cannot be utilized, re-close the source supply valve for a minimum of five minutes and observe the pressure gauge for a drop in pressure.
7. If a leak is indicated, by any of the methods listed above, recheck the source supply connection to the **NRSNP** and all other pressure connections.
8. If all of the connections indicate no leak and the outlet valve is still closed, and the pressure continues to fall on the inlet gauge, reduce pressure in the system as outlined in the "SHUTDOWN PROCEDURES." Return the valve for replacement (if new) or repair (if out of warranty) by following the procedure in the "WARRANTY REPAIR" section.
9. If the system has been leak checked and found to be acceptable, proceed to operate the **NRSNP**.
10. Upon completion of the leak check slowly open valve on **NRSNP** to supply gas to downstream equipment at the source. Open the inlet gas valve on the equipment to be supplied gas and begin use.
11. With the gas flowing through the system, some adjustment to delivery pressure may be needed. Make adjustments in accordance with the final equipment manufacturer's instructions.
12. AS A GENERAL RULE, the cylinder should be considered empty when the cylinder pressure falls to twice (2x) the usable delivery pressure.

**NOTE: THE OUTLET VALVE IS MEANT TO BE USED AS A TEMPORARY SHUT OFF VALVE ONLY. IT IS NOT INTENDED TO THROTTLE OR CONTROL PRESSURE OR FLOW IN ANY WAY WHATSOEVER.**

### SHUTDOWN

**THE FOLLOWING PROCEDURE IS TO BE USED WITH NORMALLY OPEN SYSTEMS OR FOR COMPLETE SYSTEM DISASSEMBLY. THIS PROCEDURE IS TO BE USED ONLY WHEN THERE IS NO CONCERN FOR INTRUSION OF AMBIENT AIR INTO THE SYSTEM**

1. Shut off the source supply valve completely.
2. Shut down any additional gas supplies that may be supplying gas to the system.
3. Open the outlet valve to drain the contents of the **NRSNP** through the system in use. The **NRSNP** gauge should descend to zero.
4. After venting (and purging when necessary), close the outlet valve.

## **REGULATED SECTION WITH PURIFIER (RSWP)**

(SEE FIG. 4,5,7)

Matheson Tri-Gas (MTG) LabAssure Filters are suited for the purification of non-corrosive gases with low contamination concentrations to better than 6.0 grade (99.9999%) purity.

MTG LabAssure Filters are connected to the mounting block that is installed on your Gas Trak.

### **CAUTION:**

- 1. THE MAXIMUM CONCENTRATION OF OXYGEN ALLOWED IN THE GAS IS 0.5%.**
- 2. MAXIMUM GAS-SYSTEM PRESSURE MUST NOT EXCEED 160 PSI (11 Bar).**
- 3. DO NOT INSTALL A FILTER KIT NEAR OR IN THE HEATED AREA (I.E., THE HOT-AIR EXHAUST AT THE REAR OF THE GC).**
- 4. ALWAYS INSTALL FILTERS IN THE APPROPRIATE POSITION: ALL THREE HOLES SHALL BE ALIGNED WITH THE TWO VALVES AND POSITIONING PIN.**

### **INSTALLATION**

**BEFORE ATTACHMENT OF THE RSWP TO THE SOURCE SUPPLY, READ CAREFULLY THE "USER RESPONSIBILITY" AND "SAFETY PRECAUTIONS" SECTIONS OF THIS MANUAL.**

1. Close the regulator by rotating the adjusting knob in a counterclockwise direction. As the knob is turned, the movement of the assembly should be easier.
2. Close the regulator outlet valve by turning clockwise.
3. Compression tube fittings are supplied as standard connections. These connections are for use with rigid metal tubing of the appropriate size. Depending upon the application, the tubing material will be either brass or stainless steel. **NOTE: DO NOT USE STAINLESS STEEL TUBING WITH BRASS TUBE FITTINGS.** Use the manufacturer's instructions for making compression tube connections. **WARNING: NEVER USE TEFLON TAPE FOR MAKING A COMPRESSION TUBE CONNECTION.**
4. Make the connections between the inlet and outlet of the **RSWP** and the source supply. Note: Each **RSWP** equipped with positional inlet connector. You can choose the appropriate angle for your application. Connect the rigid tubing to the inlet of the regulator, and purifier outlet (located underneath of baseplate, see Fig. 5), and then to the equipment.
5. Remove flushcap by turning the knurled ring clockwise until the flushcap can be removed.
6. Turn the gas back on to the system. Note: As long as there is no filter cartridge connected, the baseplate will automatically block the gas stream. **NO GAS WILL PASS THROUGH THE BASEPLATE!** A MTG LabAssure Filter now can be installed.

### **7. INSTALLING THE FILTER**

- Remove the two metal shipping plugs from the filter inlet and outlet (positioned at the top of the filter). **Note: Once the filter is positioned on baseplate, the Teflon seals will be punctured and it is necessary to keep the filter in position to prevent air from entering the system.**
- Place knurled ring around the filter. Install the filter on baseplate making sure all three holes align with the two valves and positioning pin.
- While pushing the filter up on the baseplate, **hand tighten** the knurled ring until the filter is firmly connected to the baseplate. **Note: After installing the filter to the baseplate, highly pure gas will automatically stream through the filter into the GC system. Regularly check both the big and small Viton O-rings on the baseplate for hairline cracks. The slightest leak allows moisture, oxygen, and hydrocarbons to enter the system and contaminate the gas.**

**8. BEFORE OPERATION** of the **RSWP** and associated equipment, **IT IS STRONGLY RECOMMENDED** that the user leak check the entire system using an inert gas and an approved method. **WARNING: THIS STEP IS REQUIRED WHEN USING ANY HAZARDOUS MATERIAL.**

## OPERATION

### **READ THE "SAFETY" AND "RSWP INSTALLATION" SECTIONS BEFORE OPERATION OF THE EQUIPMENT**

1. It is strongly recommended that high purity gas systems be thoroughly purged or evacuated before injecting high purity gases into the system.
2. The user should then put on appropriate safety apparel such as, but not limited to, safety glasses and gloves.
3. Observe all high-pressure connections in the pressurized system for leaks.
4. An approved leak-detecting device can be used to check for leaks. Consult the manufacturer's instructions for applications and hazards associated with the gas to be used in the system.
5. If method above cannot be utilized, re-close the source supply valve for a minimum of five minutes and observe the high pressure gauge for a drop in pressure.
6. If a leak is indicated, by any of the methods listed above, recheck the source supply connection to the **RSWP** and all other high-pressure connections.
7. If all of the connections indicate no leak and the regulator and outlet valve are still closed, and the pressure continues to fall on the inlet gauge, reduce pressure in the system as outlined in the "SHUTDOWN PROCEDURES". Return the equipment? for replacement (if new) or repair (if out of warranty) by following the procedure in the "WARRANTY REPAIR" section.
8. If the system has been leak checked and is found acceptable, proceed to operate the **RSWP**.

9. Adjust the hand knob to raise the delivery pressure to the desired working pressure while observing the delivery pressure gauge. **DO NOT EXCEED THE MAXIMUM DELIVERY PRESSURE INDICATED BY THE MODEL NUMBER OR ANY ADDITIONAL LABELS.**
10. Observe all low-pressure connections in the pressurized system for leaks.
11. An approved leak-detecting device can be used to check for leaks. Consult the manufacturer's instructions for applications and hazards associated with the gas to be used in the system.
12. If method above cannot be utilized, re-close the source supply valve for a minimum of five minutes and observe the low pressure gauge for a drop in pressure.
13. Again set the delivery pressure and open the outlet valve on the regulator. **CHECK THE REST OF THE SYSTEM FOR LEAKS AS DESCRIBED ABOVE FOR LOW PRESSURE CHECK.**
14. Upon completion of the leak check, open the inlet gas valve on the equipment to be supplied gas and begin use.
15. With the gas flowing through the system, some adjustment to delivery pressure may be needed. Make adjustments in accordance with the final equipment manufacturer's instructions.
16. SINGLE STAGE regulators will require adjustment as the cylinder pressure decreases. Periodically check the regulator for a change in the delivery pressure.
17. AS A GENERAL RULE, the cylinder should be considered empty when the cylinder pressure falls to twice (2x) the usable delivery pressure.
- 18. NOTE: THE OUTLET VALVE ON THE REGULATOR IS MEANT TO BE USED AS A TEMPORARY SHUT OFF VALVE ONLY. IT IS NOT INTENDED TO THROTTLE OR CONTROL PRESSURE OR FLOW IN ANY WAY WHATSOEVER.**

#### SHUTDOWN

**THE FOLLOWING PROCEDURE IS TO BE USED WITH NORMALLY OPEN SYSTEMS OR FOR COMPLETE SYSTEM DISASSEMBLY. THIS PROCEDURE IS TO BE USED ONLY WHEN THERE IS NO CONCERN FOR INTRUSION OF AMBIENT AIR INTO THE SYSTEM**

1. Shut off the source supply valve completely.
2. Shut down any additional gas supplies that may be supplying gas to the system.
3. Open the regulator valve and the outlet valve to drain the contents of the regulator section through the system in use. The regulator gauge should descend to zero.

4. When using a toxic or other hazardous gas, run an inert gas through the regulator and system as a means to purge the toxic or hazardous gas out of the system before breaking any of the system connections.
5. After venting (and purging when necessary), close the regulator valve and the outlet valve.

### **NON-REGULATED SECTION WITH PURIFIER (NRSWP)**

(SEE FIG. 1,5,8)

Matheson Tri-Gas (MTG) LabAssure Filters are suited for the purification of non-corrosive gases with low contamination concentrations to better than 6.0 grade (99.9999%) purity.

MTG LabAssure Filters are connected to the mounting block installed on your Gas Trak.

#### **CAUTION:**

1. **THE MAXIMUM CONCENTRATION OF OXYGEN ALLOWED IN THE GAS IS 0.5%.**
2. **MAXIMUM GAS-SYSTEM PRESSURE MUST NOT EXCEED 160 PSI (11 Bar).**
3. **DO NOT INSTALL A FILTER KIT NEAR OR IN THE HEATED AREA (I.E., THE HOT-AIR EXHAUST AT THE REAR OF THE GC).**
4. **ALWAYS INSTALL FILTERS IN THE APPROPRIATE POSITION: ALL THREE HOLES SHALL BE ALIGNED WITH THE TWO VALVES AND POSITIONING PIN.**

#### **INSTALLATION**

**BEFORE ATTACHMENT OF THE NRSNP TO THE SOURCE SUPPLY, READ CAREFULLY THE "USER RESPONSIBILITY" AND "SAFETY PRECAUTIONS" SECTIONS OF THIS MANUAL**

1. Close the outlet valve by turning clockwise.
2. Compression tube fittings are supplied as standard connections. These connections are for use with rigid metal tubing of the appropriate size. Depending upon the application, the tubing material will be either brass or stainless steel. **NOTE: DO NOT USE STAINLESS STEEL TUBING WITH BRASS TUBE FITTINGS.** Use the manufacturer's instructions for making compression tube connections. **WARNING: NEVER USE TEFLON TAPE FOR MAKING A COMPRESSION TUBE CONNECTION.**
3. Make the connections between the inlet and outlet of the **NRSWP** and the source supply. Note: Each **NRSWP** equipped with positional inlet connector. You can choose the appropriate angle for your application. Connect the rigid tubing to the inlet of the **NRSWP** and outlet (located underneath of baseplate, see Fig. 5), and then to the equipment.
4. Remove flushcap by turning the knurled ring clockwise until the flushcap can be removed.

5. Turn the gas back on to the system. Note: As long as there is no filter cartridge connected, the baseplate will automatically block the gas stream. NO GAS WILL PASS THROUGH THE BASEPLATE! A MTG LabAssure Filter now can be installed.
6. **INSTALLING THE FILTER**
  - Remove the two metal shipping plugs from the filter inlet and outlet (positioned at the top of the filter). **Note: Once the filter is positioned on baseplate, the Teflon seals will be punctured and it is necessary to keep the filter in position to prevent air from entering the system.**
  - Place knurled ring around the filter. Install the filter on baseplate making sure all three holes align with the two valves and positioning pin.
  - While pushing the filter up on the baseplate, **hand tighten** the knurled ring until the filter is firmly connected to the baseplate. **Note: After installing the filter to the baseplate, highly pure gas will automatically stream through the filter into the GC system. Regularly check both the big and small Viton O-rings on the baseplate for hairline cracks. The slightest leak allows moisture, oxygen, and hydrocarbons to enter the system and contaminate the gas.**
7. **BEFORE OPERATION** of the **NRSWP** and associated equipment, **IT IS STRONGLY RECOMMENDED** that the user leak check the entire system using an inert gas and an approved method. **WARNING: THIS STEP IS REQUIRED WHEN USING ANY HAZARDOUS MATERIAL.**

## OPERATION

### **READ THE "SAFETY" AND "NRSNP INSTALLATION" SECTIONS BEFORE OPERATION OF THE EQUIPMENT**

1. The outlet valve should be in the closed position as described in the "**NRSWP INSTALLATION**" section above.
2. The user should then put on appropriate safety apparel such as, but not limited to, safety glasses and gloves.
3. To avoid damage to the **NRSWP** internal parts, open the source supply valve SLOWLY. Keep the pressure gauge for a rise in pressure to less than or equal to gauge pressure.
4. Observe all pressure connections in the pressurized system for leaks.
5. An approved leak-detecting device can be used to check for leaks. Consult the manufacturer's instructions for applications and hazards associated with the gas to be used in the system.
6. If method above cannot be utilized, re-close the source supply valve for a minimum of five minutes and observe the pressure gauge for a drop in pressure.
7. If a leak is indicated by any of the methods listed above, recheck the source supply connection to the **NRSWP** and all other pressure connections.

8. If all of the connections indicate no leak and the outlet valve is still closed, and the pressure continues to fall on the inlet gauge, reduce pressure in the system as outlined in the "SHUTDOWN PROCEDURES". Return the valve for replacement (if new) or repair (if out of warranty) by following the procedure in the "WARRANTY REPAIR" section.
9. If the system has been leak checked and found to be acceptable, proceed to operate the **NRSWP**.
10. Upon completion of the leak check, slowly open valve on **NRSWP** to supply gas to downstream equipment at the source. Open the inlet gas valve on the equipment to be supplied gas and begin use.
11. With the gas flowing through the system, some adjustment to delivery pressure may be needed. Make adjustments in accordance with the final equipment manufacturer's instructions.
12. AS A GENERAL RULE, the cylinder should be considered empty when the cylinder pressure falls to twice (2x) the usable delivery pressure.

**NOTE: THE OUTLET VALVE ON THE REGULATOR IS MEANT TO BE USED AS A TEMPORARY SHUT OFF VALVE ONLY. IT IS NOT INTENDED TO THROTTLE OR CONTROL PRESSURE OR FLOW IN ANY WAY WHATSOEVER. Should this be here? This is non-regulated.**

#### SHUTDOWN

**THE FOLLOWING PROCEDURE IS TO BE USED WITH NORMALLY OPEN SYSTEMS OR FOR COMPLETE SYSTEM DISASSEMBLY. THIS PROCEDURE IS TO BE USED ONLY WHEN THERE IS NO CONCERN FOR INTRUSION OF AMBIENT AIR INTO THE SYSTEM**

1. Shut off the source supply valve completely.
2. Shut down any additional gas supplies that may be supplying gas to the system.
3. Open the outlet valve to drain the contents of the **NRSWP** through the system in use. The **NRSWP** gauge should descend to zero.
4. After venting (and purging when necessary), close the outlet valve.



## TYPICAL PANEL ASSEMBLY

A panel can be a single section, or as many as five sections (see Fig. 6,7,8). Panels come pre-assembled and mounted to channels ready for installation. Each channel has (2) pre-drilled holes for regular 3/8" hardware size, and whole assembly can be easy mounted on customer's site.

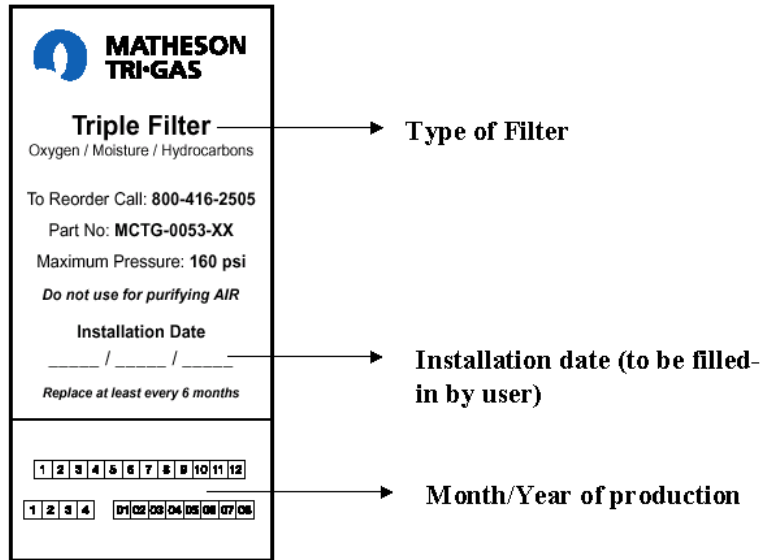
### REPLACEMENT PARTS

#	DESCRIPTION	PART NO.
1	<b>Moisture Filter Ultra Capacity</b>	<b>MCTG-0050-XX</b>
2	<b>Oxygen Filter Ultra Capacity</b>	<b>MCTG-0051-XX</b>
3	<b>Hydrocarbon Filter Ultra Capacity</b>	<b>MCTG-0052-XX</b>
4	<b>MS Triple Filter (Oxygen, Moisture, Hydrocarbons)</b>	<b>MCTG-0053-XX</b>
5	<b>Combination Filter (Moisture, Hydrocarbons)</b>	<b>MCTG-0054-XX</b>
6	<b>Replacement "O"-Ring Set</b>	<b>MRNS-0945-VA</b>
7	<b>Regulator</b>	<b>Contact Matheson Representative</b>

## REPLACEMENT OF THE FILTER

A filter needs to be exchanged when the visual indicators begin to change color.

### Explanation of the Filter Label



### Specific Capacities of Filter types

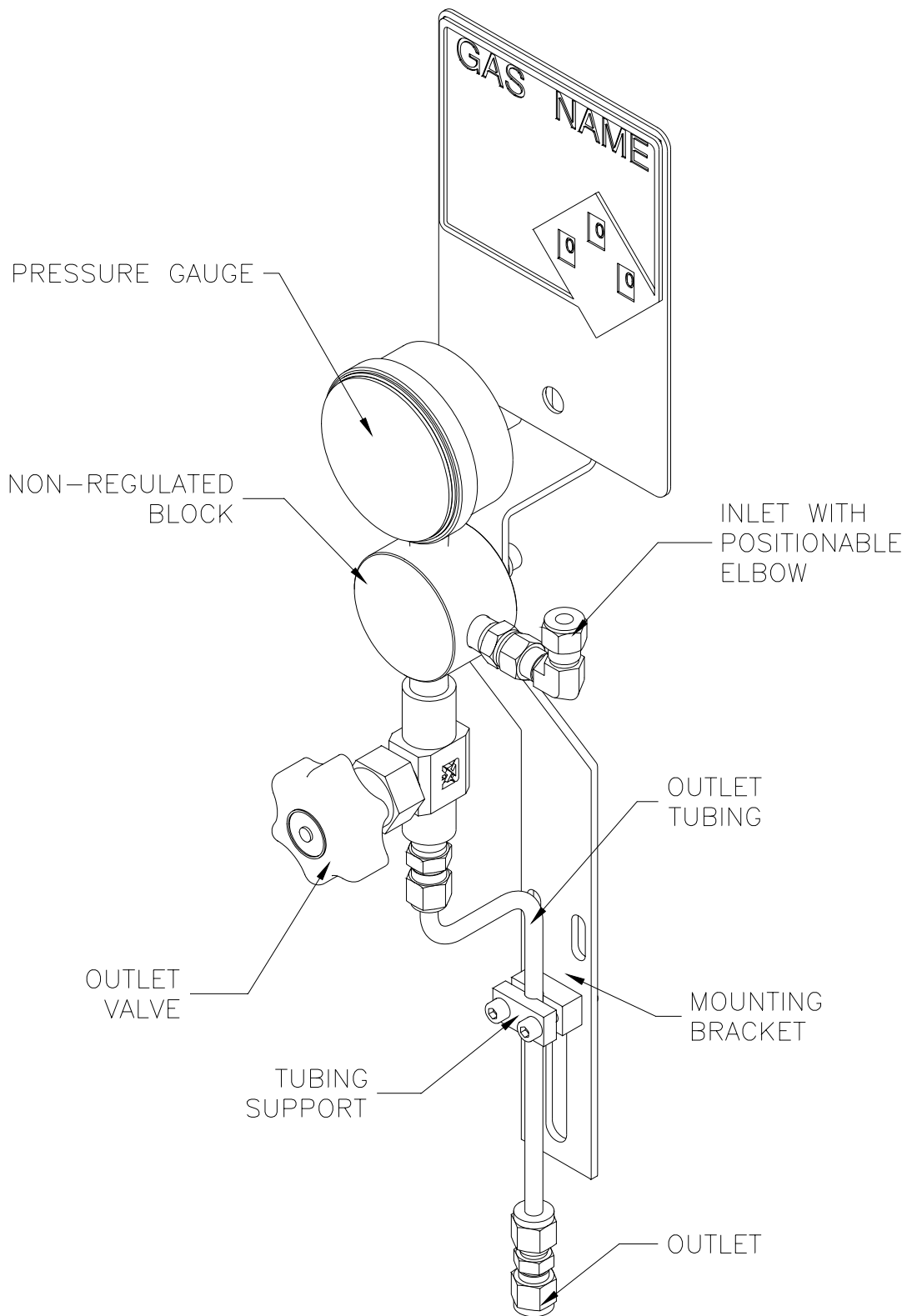
Type of Filter	Capacity			
	H <sub>2</sub> O (gr)	O <sub>2</sub> (ml)	Hydrocarbons	Estimated Lifetime *
Moisture	7.2			> 2 years
Oxygen		1000		> 2 years
Hydrocarbon			not specified	> 2 years
Combi	3.6		not specified	> 1.5 years
MS-Triple	1.8	300	not specified	> 1 years

\* **Note:** The data given in the table strongly depends on the level of gas purity prior to entering the filter.

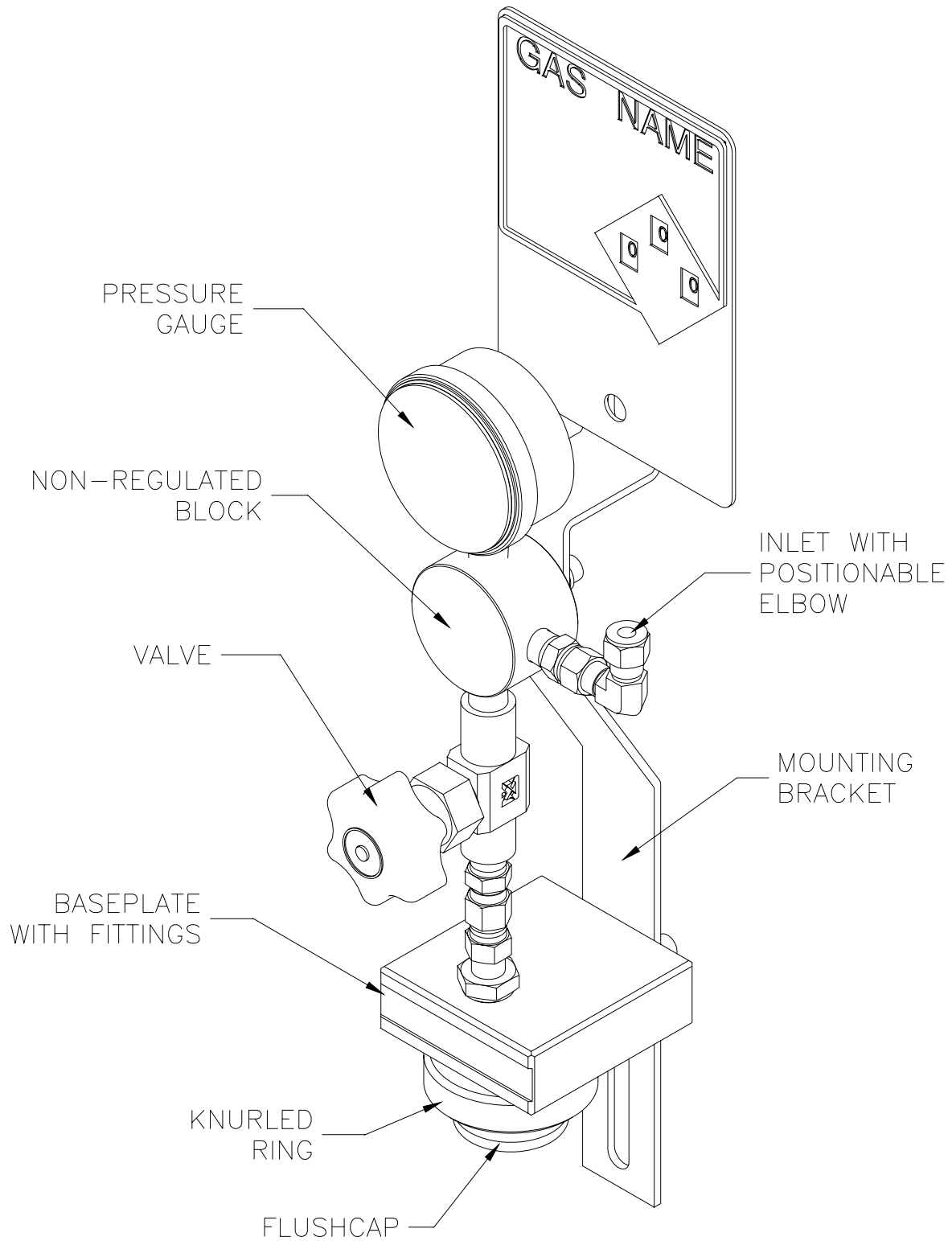
**Replacement of the filter is recommended every 6 months, regardless of the saturation level.**

## **APPENDIX (LIST OF FIGURES)**

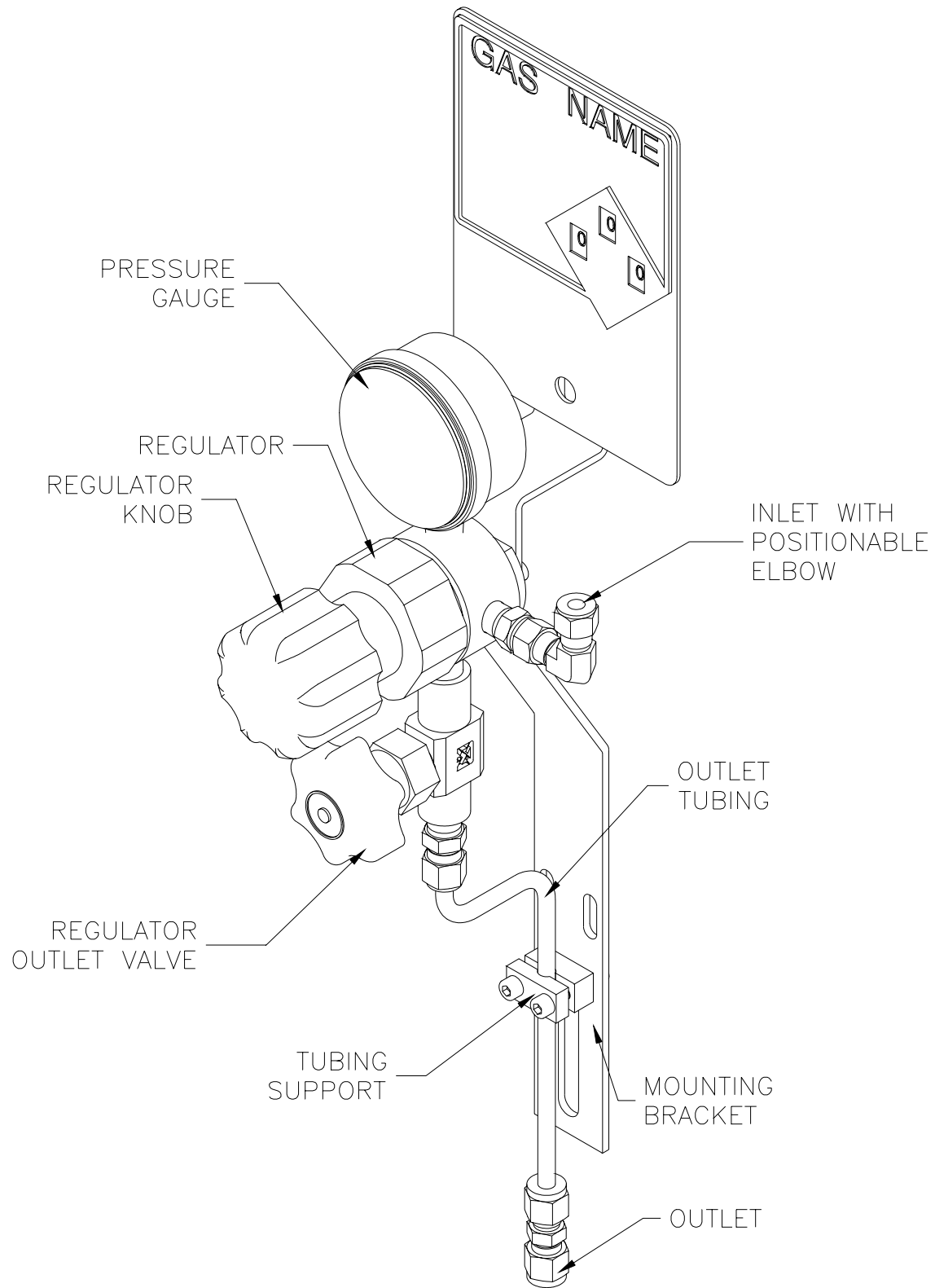
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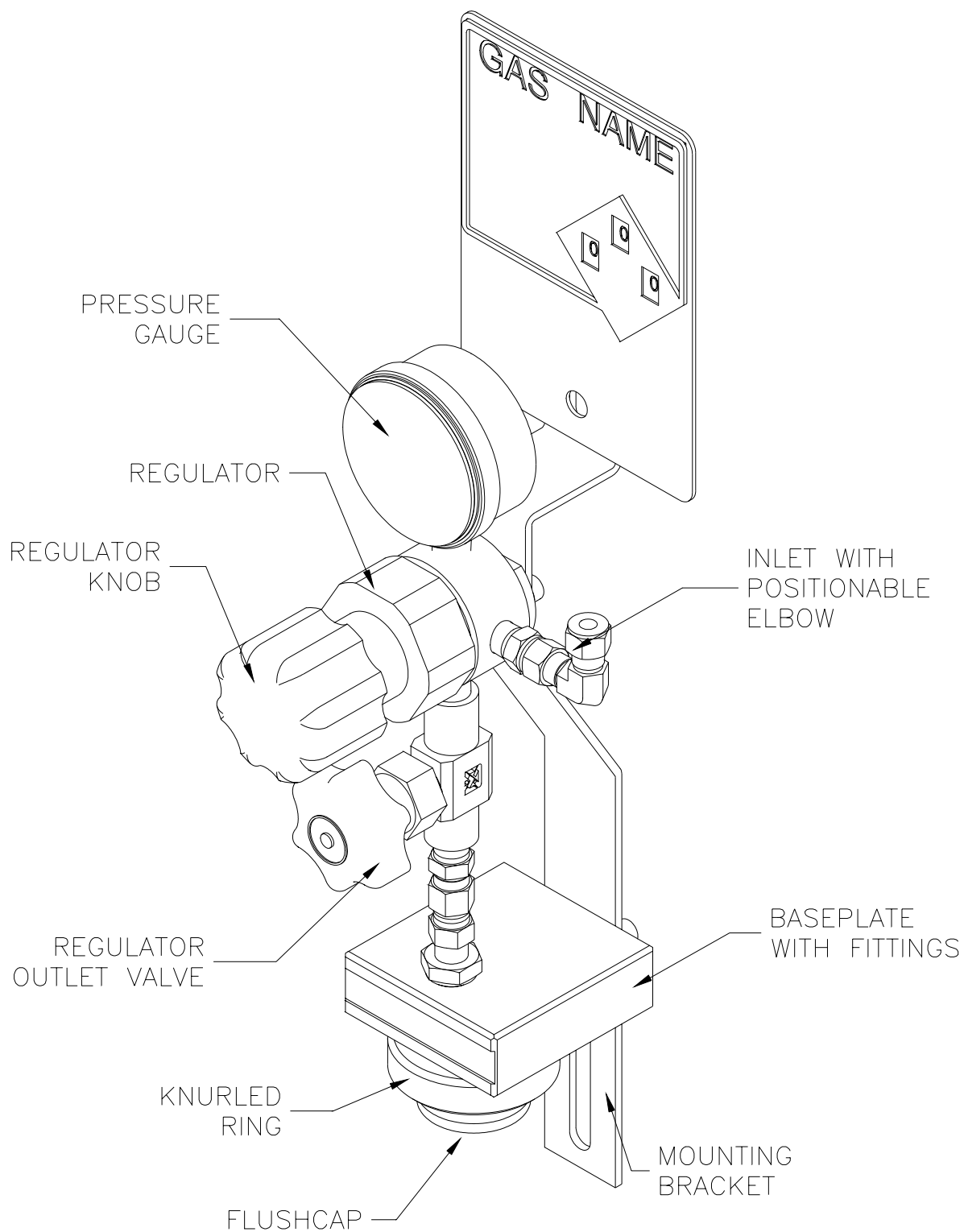
NON-REGULATED SECTION NO PURIFIER  
 FIG. 1



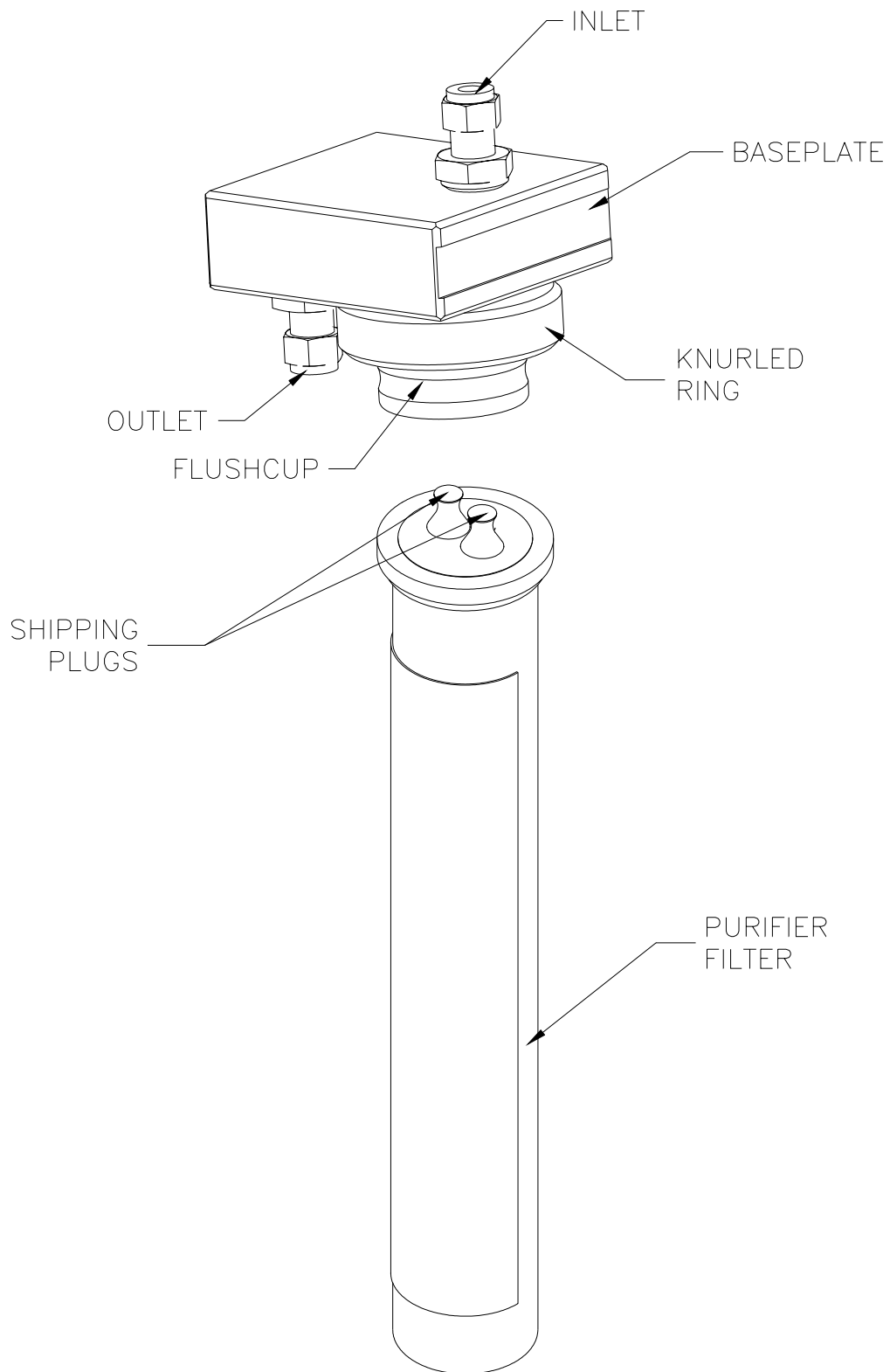
NON-REGULATED SECTION WITH PURIFIER  
FIG. 2



REGULATED SECTION NO PURIFIER  
 FIG. 3

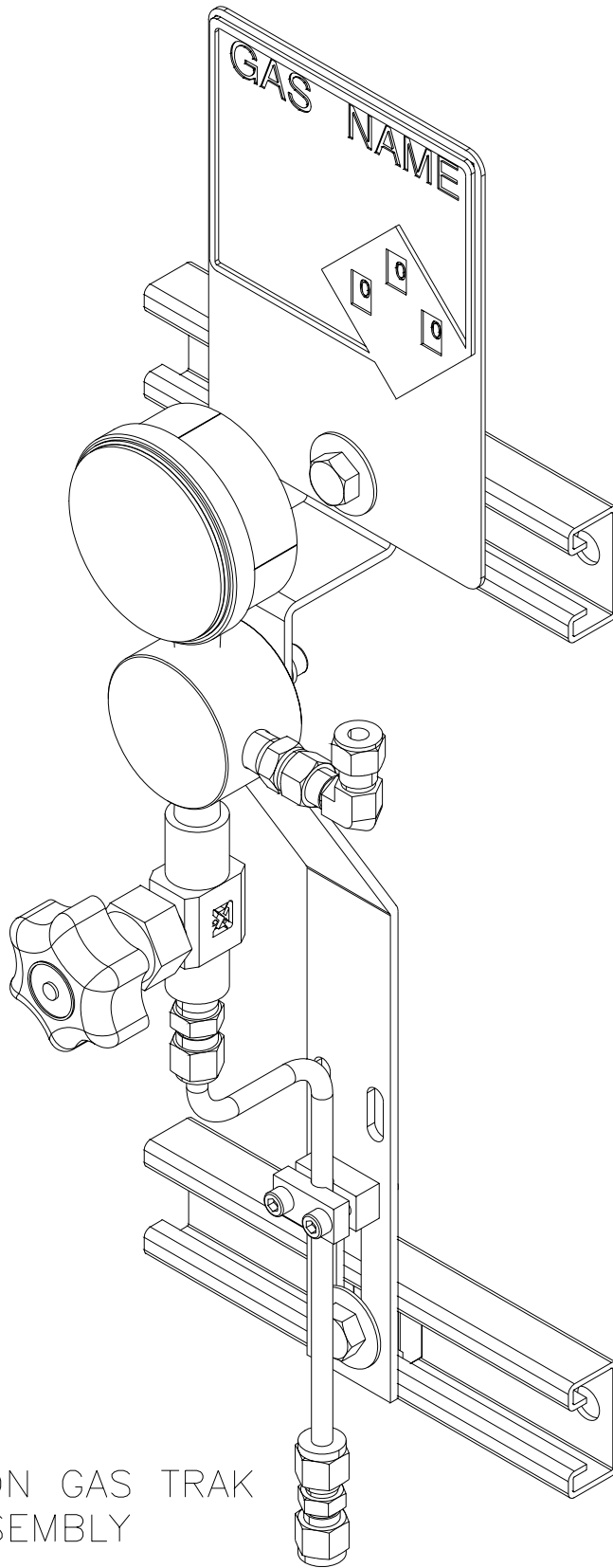


REGULATED SECTION WITH PURIFIER  
FIG. 4



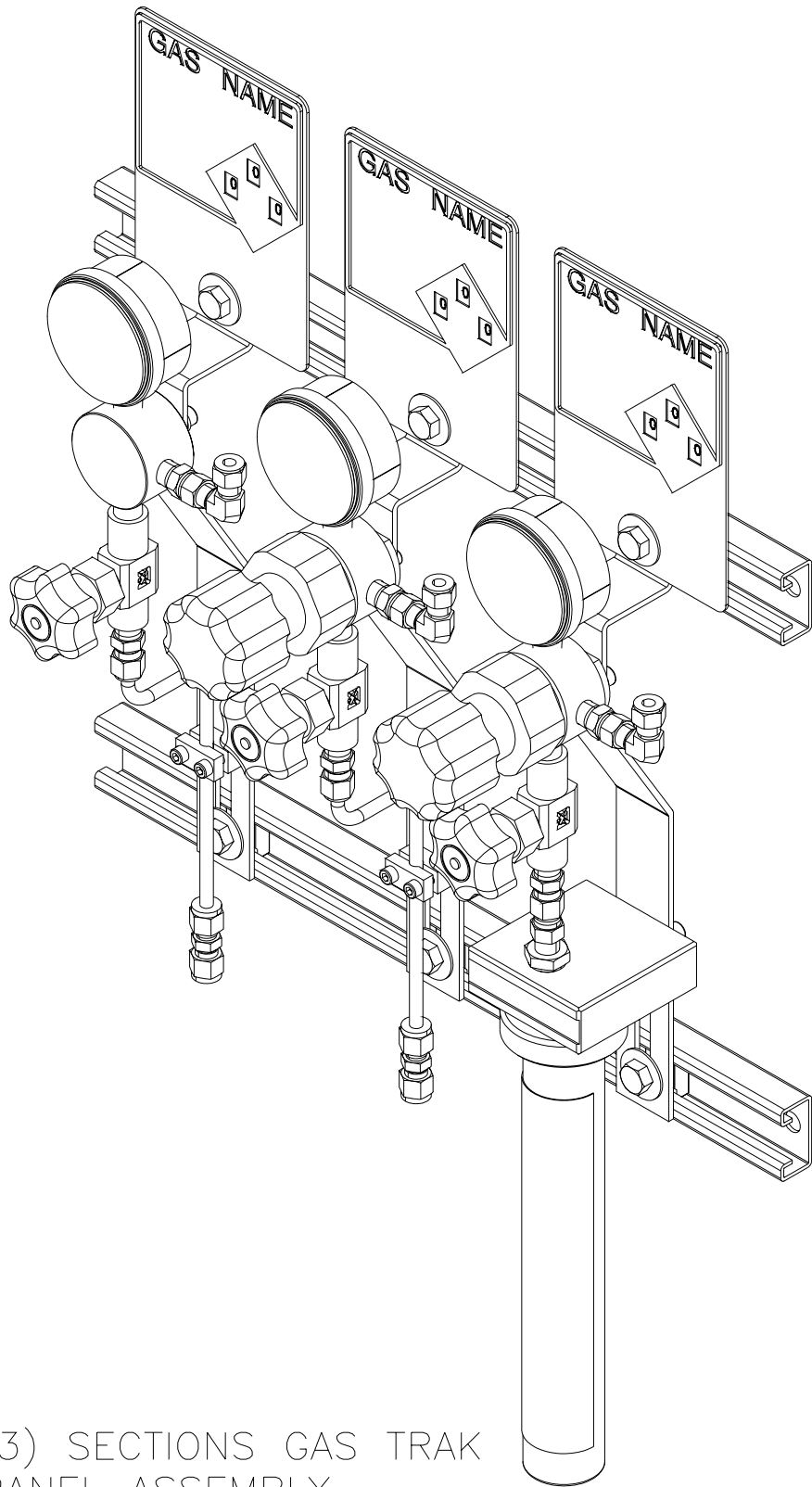
PURIFIER (FILTER AND BASEPLATE)  
FIG. 5





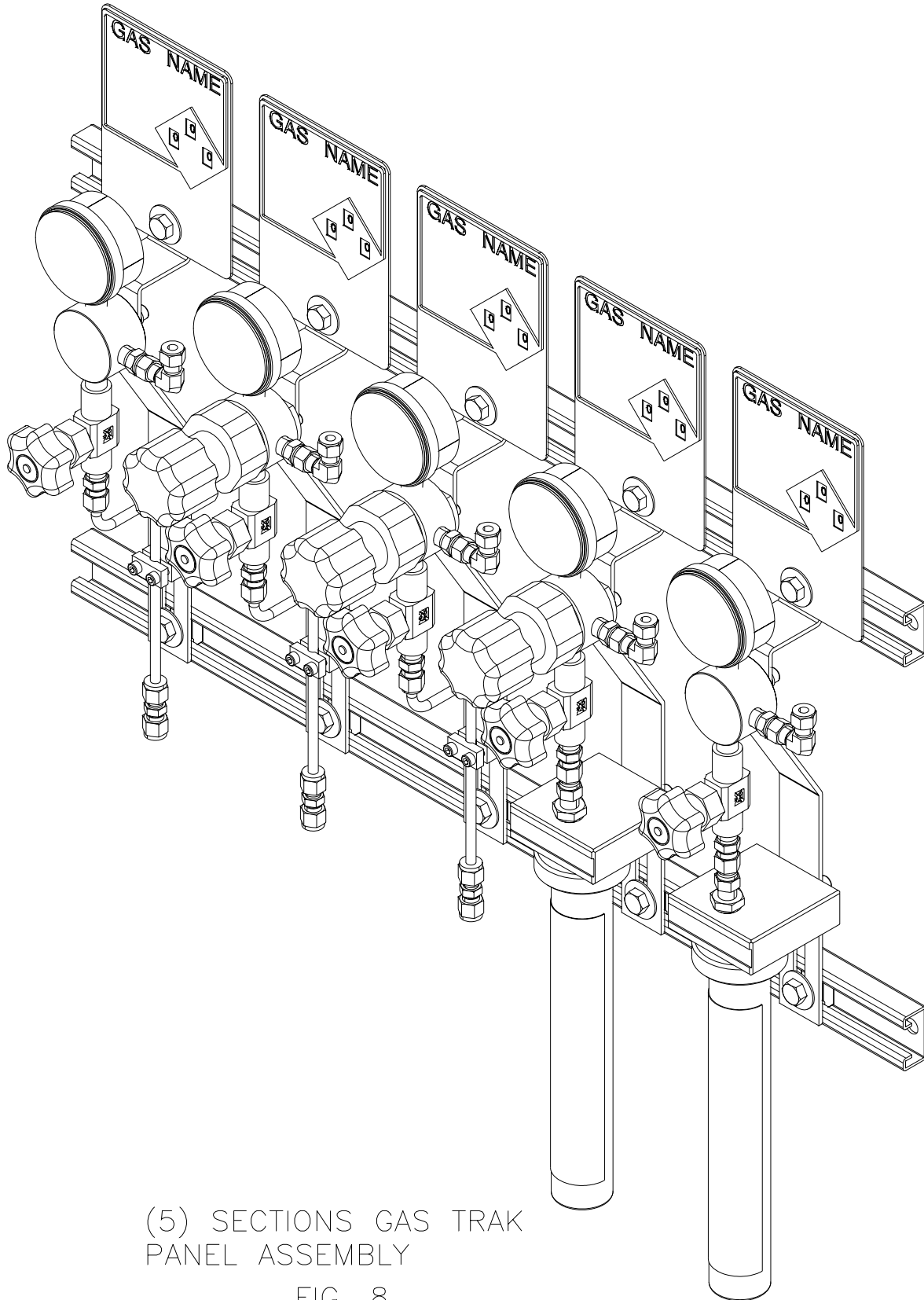
(1) SECTION GAS TRAK  
PANEL ASSEMBLY

FIG. 6



(3) SECTIONS GAS TRAK  
PANEL ASSEMBLY

FIG. 7



(5) SECTIONS GAS TRAK  
PANEL ASSEMBLY

FIG. 8