

INTRODUCTION

Western fuel gas alarm kits are cleaned, tested and prepared for the indicated gas service and are built following National Fire Protection Association, Compressed Gas Association, and Canadian Standards Association, and OSHA guidelines. The fuel gas alarm kit consists of an explosion proof (Class 1, division 2) pressure switch, a 24 VAC transformer assembly, an audio visual alarm (BIA-3), and all fittings required for installation. This alarm kit will signal (to a remote location) that the manifold supply bank has depleted and the reserve supply is now in use. A green light on the alarm panel will indicate the system normal condition.

CAUTION

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

- Never permit oxidizers (oxygen and nitrous oxide) to be located near fuel gas installations. The oxidizer may react with explosive force when ignited while in contact with fuel gases.
- Cylinder, header, and master valves should always be opened very s-l-o-w-l-y. Heat of recompression may ignite combustible materials creating an explosive force.
- Pigtails should never be kinked, twisted, or bent into a radius smaller than 3 inches. Mistreatment may cause the pigtail to burst.
- Do not expose to an open flame or sparks. Fuel gases may react with explosive force when ignited 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 from its current position.

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

Fuel gas alarm kits should be installed in accordance with guidelines stated by the National Fire Protection Association, the Compressed Gas Association, OSHA, Canadian Standards Association, National Electric Code, and all applicable local codes. A power supply placed outdoors should be protected against weather conditions. During winter, protect the manifold from ice and snow. In summer, shade the manifold 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.

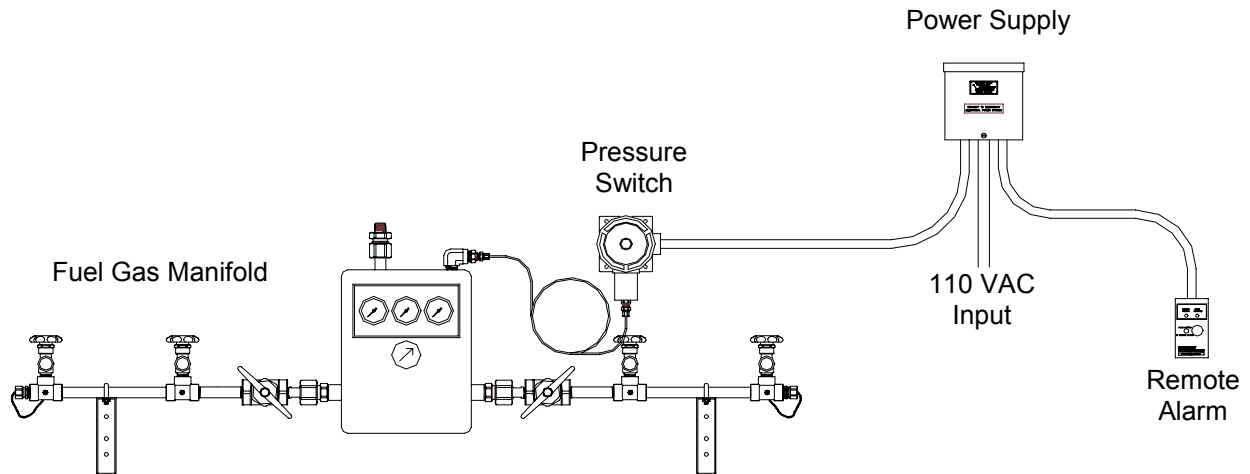


FIGURE 1

ALARM KIT INSTALLATION

1) The pressure switch should be mounted near the upper right hand corner of the manifold. (Figure 2)

2) Measure from the header to a point 10" in height* of this vertical line. Using a level, mark a horizontal line at this point extending approximately 3" to the left and 3" to the right of center.

(* - Suggested pressure switch height. Wall mounting heights may vary from one installation to another depending on available space, cylinder height, etc.)

3) Mount the pressure switch to the wall. By lining up the bottom holes on the pressure switch with the line marked in step 2.

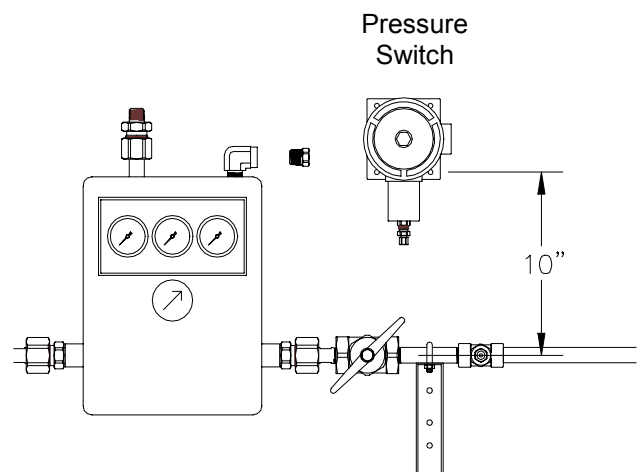


FIGURE 2

- 4) Deplete gas from the manifold. All pressure gauges on the manifold should read 0 psig)
- 5) Disconnect the 1/2 NPT pipe plug from the manifold. (Figure 3)

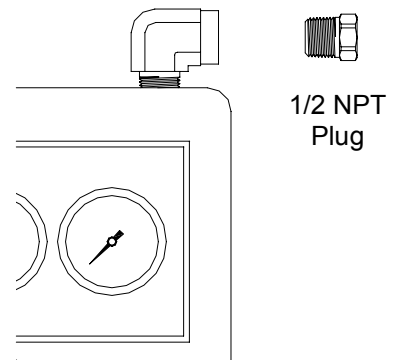


FIGURE 3

- 6) Install the supplied 1/2 to 1/8 tube fitting assembly to the port opened in step 5, using Teflon tape to seal the threads. (Figure 4)

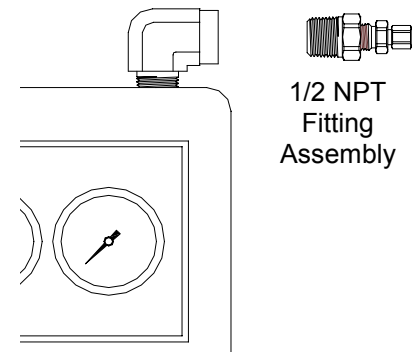


FIGURE 4

- 7) Install the 1/8" tubing to both the pressure switch and the manifold. (Figure 5)

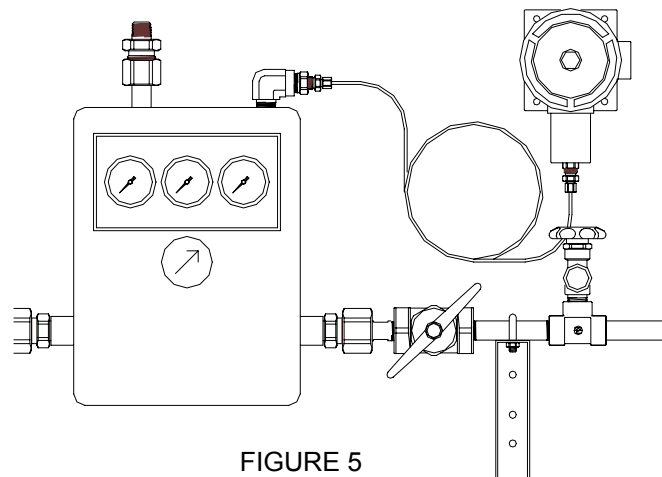


FIGURE 5

POWER SUPPLY INSTALLATION

- 1) The power supply should be located remote from the fuel gas manifold. (The power supply does not meet Class 1, division 2 requirements of the national electric code. Therefore, the power supply must be located at least 15 feet from the manifold when installed outside, or in another room when mounted indoors).
- 2) One hole in the underside of the power supply box provides access for 1/2" conduit and connection of 115 VAC power to the black leads. Remove 115 VAC power prior to making any connections. The right circular hole on the power supply box provides access for the remote alarm. The knockout provided on the left shall be used to wire the pressure switch.

REMOTE ALARM INSTALLATION

- 1) Enclosed with the remote alarm is a "BIA SERIES Installation Instruction Booklet". The remote alarm shall be installed following the instructions listed on pages 2 through 8 of the separate installation booklet.
- 2) The remote alarm should be located remote from the fuel gas manifold. (The alarm does not meet Class 1, division 2 requirements of the national electric code. Therefore, the alarm must be located at least 15 feet from the manifold when installed outside, or in another room when mounted in doors).

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 drycontacts for remote alarm hookup. Listed below is the recommended wiring configuration. Terminals identified as N/O and N/C have been marked the unactuated state.

Note: Alarm function is initiated on an open circuit.

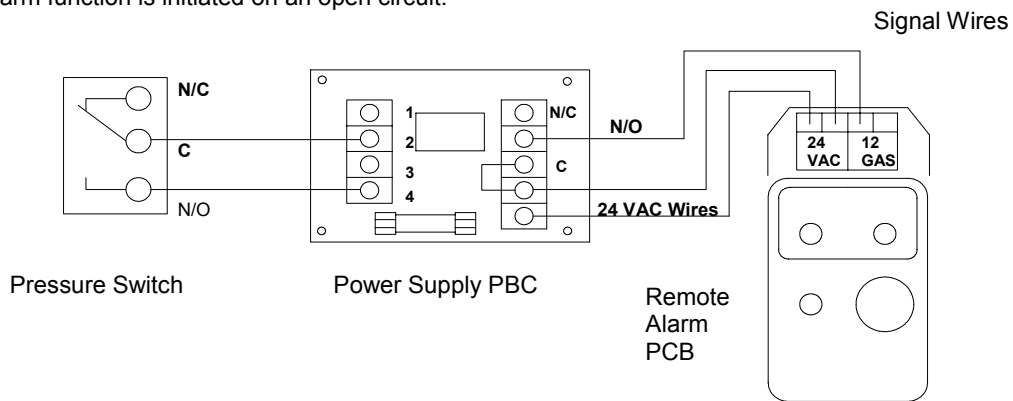


FIGURE 6 Western's Remote Alarm

REMOTE ALARM WIRING

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 6)
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 ground (C) terminal.
4. Connect the alarm signal wire to the normally open (N/O) terminal.

PRESSURE SWITCH WIRING

1. Connect a wire to terminal #2 on the power supply's left terminal strip. Connect the other end of this wire to the common terminal of the pressure switch.
2. Connect the other wire to the terminal #4 on the left side of the power supply. Connect the other end of the wire to the normally open (N/O) terminal on the pressure switch. (Figure 6)
3. All of the wiring shall meet the requirements of the National Electric Code (article 501 for class 1, division 2 locations).

START UP AND CHECKING PROCEDURES

1. After the wiring has been completed the power should be turned on to the power supply.
2. Turn the control indicator knob fully to the right. S-L-O-W-L-Y open the right master valve (turn counter-clockwise to open). The right bank pressure gauge should show the full pressure of the right bank of cylinders. The green "System Normal" light on the remote alarm comes on, extinguishing the red "Bank Depleted" light.
3. Apply leak test solution to the alarm kit pressure connections. There should be no bubbles, indicating leakage. Tighten any fitting that shows any indication of leakage.
4. S-L-O-W-L-Y open the master valve fully. The left bank pressure gauge will show the full pressure of the left bank of cylinders.
5. Create a slight flow of gas in the delivery pipeline system. Close the right master valve to simulate a depleting right bank. Observe the following:
 - The right bank gauge pressure slowly falls and the control automatically switches over to the left bank.
 - Delivery pressure remains constant.
 - Green "System Normal" light is extinguished on the remote alarm.
 - Red "Bank Depleted" light comes on.
6. S-L-O-W-L-Y reopen the right master valve. Observe the following:
 - Right bank pressure gauge returns to full pressure.
 - Green "System Normal" light comes on.
7. Turn the control indicator knob fully to the left and repeat procedures 3 and 4 to simulate an empty left bank.

ALARM KIT OPERATION

The pressure switch provided has been preset to actuate just before changeover has occurred. When the manifold changes over, the pressure switch actuates sending a signal back to the power supply. The relay located in the power supply circuit board (PCB) is actuated relaying the alarm condition to the remote alarm. The remote alarm signals by creating an audible sound and lighting a red light.

Once cylinders are replaced and the manifold is reset the pressure switch will de-actuate and the system normal signal will be sent to the power supply PCB. The relay in the power supply PCB will signal the remote alarm that conditions are normal and the green light will turn on.

SYMPTOM	PROBABLE CAUSE	REMEDY OR CHECK
ELECTRICAL SYSTEM		
No indicator lights on remote alarm come on when power is hooked up.	Power Input.	Check electrical power supply.
	Bulb solder joint broken.	Replace circuit board.
	Wiring disconnected.	Check all wiring connections.
Red indicator light on remote alarm is on but both banks are full.	Master valve, header valves, or cylinder valves on bank are closed.	Slowly open valves.
	Pressure switch set incorrectly.	Adjust pressure switch or return faulty unit for factory setting.
	Wiring not correct.	Check wiring terminal locations.
Red indicator light does not come on when one bank is empty and changeover occurs.	Pressure switch set to close at to low a pressure	Adjust pressure switch or return fault unit for factory setting.
	Control knob was rotated to select new "service" side without changing empty cylinders.	Replace depleted cylinders.
	Faulty connection to operating alarm unit.	Check input from alarm unit to terminal strip.
	Internal wiring incorrect.	Check internal leads to terminal strip.
Green indicator light does not come on even though both banks are full.	Pressure switch set at too high a pressure.	Adjust pressure switch or return fault unit for factory setting.

ALARM KIT REPLACEMENT PARTS

FGAK-A Acetylene Fuel Gas Alarm Kit

BB-4-8HP.....1/2 to 1/4 NPT adapter	MWS-4-6B.....1/8" tubing w/ 1/4 NPT tube fittings
BIA-3.....Remote Audio Visual Alarm	WMS-9-25C.....Power Supply
WMS-4-5.....Explosion proof pressure switch	

FGAK-H Hydrogen Fuel Gas Alarm Kit

BB-4-8HP.....1/2 to 1/4 NPT adapter	WMS-4-6C.....1/8" tubing w/ 1/4 NPT tube fittings
BIA-3.....Remote Audio Visual Alarm	WMS-9-25C.....Power Supply
WMS-4-8.....Explosion proof pressure switch	

FGAK-H Liquefied Fuel Gas Alarm Kit

BB-4-8HP.....1/2 to 1/4 NPT adapter	WMS-4-6C.....1/8" tubing w/ 1/4 NPT tube fittings
BIA-3.....Remote Audio Visual Alarm	WMS-9-25C.....Power Supply
WMS-4-17.....Explosion proof pressure switch	

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 supplied 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, or non-performance of, the products whether based on breach of contract or in tort, including negligence or strict liability.



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