



## **INTRODUCTION**

Your M-1 Gasoline Vapor Detector is a state of the art fume monitoring and alarm system. It is a simple, yet a highly effective detector of engine compartment fuel fumes as well as fumes from un-burned hydrocarbons emitted from faulty exhaust systems and hydrogen battery vapors.

First fume detector with Var-a-Brite, "Power On" indicator lamp. New Var-a-Brite lighting brightens display light in daylight, while dimming light intensity in darkness.

## **INSTALLATION**

The M-1 is packaged with the following components. Please check to be sure that you have everything needed for your installation.

- 1 ea. 2" dia display module
- 1 ea. mounting bracket
- 1 ea. gasoline sensor (red)

### **2" DISPLAY INSTRUMENT INSTALLATION:**

1.0 The M-1 should be mounted at the instrument panel, in a convenient location so that visual and audible indicators may be observed easily. If a 2" instrument blank is not available in the panel, drill a 2-1/16" dia. hole to accommodate the installation of the M-1. Slip the instrument through the hole and secure with the bracket and nuts supplied with this unit. Do not make electrical connections at this time. They will be addressed later in paragraph 3.0 to 3.2.

### **SENSOR INSTALLATION**

2.0 Gasoline vapors are heavier than air and tend to settle in the lowest part of the bilge. The gas sensor should be located in the bilge just above the "slosh height" to insure that oily bilge water cannot contaminate the sensor. Rule of thumb; Install no lower in the bilge than the height of the starter solenoid. DO NOT install sensor in a location close to the manifold or exhaust system, as high heat radiation may damage sensor.

2.1 Quick Disconnect Style Sensor with 20' sensor cable is included. The disconnect/connector plug is located 12" from the red sensor. In the event you need to replace the red sensor, simply disconnect it at the plug and remove. When reattaching the sensor, make sure the connector "snaps" in place by pushing the side locks in. This insures a watertight seal. No need to reroute or replace the 20' sensor cable. NOTE: If longer sensor length is necessary, contact your retailer or our factory for lengths 25' through 100'.

An adhesive gasket on the sensor permits "sticking" it to the bulkhead before securing with mounting screws.

### **3.0 ELECTRICAL CONNECTIONS DISPLAY HEAD.**

CAUTION NOTE: Improper hook-up will damage unit and void warranty! All wiring connections shall be made using #16 Gauge stranded copper wire conforming to ABYC standards for marine use. Maximum fuse or circuit breaker shall not exceed .5 (1/2) ampere.

3.1 The BLACK wire (see fig. 1) on the control head shall be connected to a suitable ground connection on the instrument buss.

3.2 The RED wire (see fig. 1) on the control head includes a .5 Amp. (1/2 Amp.) fuse and shall be connected to positive at the instrument panel buss.

## **4.0 OPERATION**

After installation has been completed, the M-1 is ready for operation.

The display panel on the M-1 contains three windows. The left window is a green power on indicator. The right window is an opening for the Var-a-Brite light intensity detector. The center window is the red warning indicator.

When the M-1 is connected to the power buss via a fuse, it will be on and in monitor mode at all times, indicated by the green power on LED. If the M-1 is connected through a breaker, the system will be off until the breaker is turned on.

4.1 Upon powerup, the green power on LED will come on and the red warning LED may light momentarily to indicate a warm-up period for the sensor. The alarm horn will not come on during this period.

Should a vapor build up reach 10-20% of LEL (Lower Explosion Limit) the red warning LED will light indicating a detection of fumes. Should this condition last for longer than 10 seconds, the alarm horn will sound. This alarm will continue as long as vapors are present. The alarm horn may be silenced by pressing the "MUTE" switch, but the red warning LED will remain on until the vapor problem has been corrected. **NOTE: THE PROBLEM SHOULD NEVER BE CONSIDERED CORRECTED UNTIL THE RED WARNING LIGHT GOES OUT.**

4.2 If the Red LED begins to glow softly and/or intermittently, it is an indication that a gasoline vapor build-up is beginning to occur and you can anticipate a full alarm momentarily.

## **TESTING THE SYSTEM**

5.0 The M-1 can be tested for electrical continuity by pressing the "TEST" switch. The Red LED will come on. The light will glow as long as the switch is held down. If the test switch is held down longer than ten seconds, the horn will sound and the "MUTE" switch must be pushed to silence the horn.

5.1 Unplug sensor wire from display head while unit is powered up. The Red LED will illuminate and within 10-15 seconds the alarm horn will come on. If warning Red LED fails to come on and horn fails to sound, remove display immediately and return direct to manufacturer for repair or replacement.

## **FUNCTIONAL TESTING OF THE SENSOR**

**WARNING: DO NOT** use a gasoline soaked rag or a container partially filled with gasoline to test sensor. The raw gas could ignite resulting in serious injury. In addition, the isolated high concentration of fumes may damage the sensor and render it inoperative.

5.2 To TEST SENSOR use a Butane lighter with the striker wheel removed. Hold the lighter to the sensor and press down on the lever to release the Butane. In three to four seconds the warning light will come on. In about ten seconds the alarm horn will sound. Remove lighter from the sensor. Mute the alarm horn and within several seconds the warning light will shut off.

Whenever the M-1 alarms, the horn may be muted with the "MUTE" button, but **THE PROBLEM SHOULD NOT BE CONSIDERED CLEARED UNTIL THE ALARM LIGHT GOES OUT.**

## **IMPORTANT – IN THE EVENT OF AN ALARM:**

Immediately have all passengers and crew exit the passenger compartment. If an explosion or fire should occur, the probability of injury will be greatly reduced if no one is in a confined area of the vessel.

NOTE: It is important to understand, however, that an alarm would not have occurred unless a problem existed. Carefully check all fuel lines, gas lines, and other potential sources of gas leaks.

## **MAINTENANCE**

6.0 The M-1 requires very little maintenance. Periodic testing of the system as performed in paragraphs 5.0 and 5.1 should be conducted. The M-1 system is designed for continual operation. If your boat is connected to shore power while dock-side, continuous operation results in extended lifespan of the sensor.

CAUTION: While it is reasonable to assume the sensors will have useful lives of nine years or more, it is advisable to replace the sensors every three years due to harsh environmental conditions encountered in marine applications.

## **7.0 TROUBLESHOOTING**

The most likely problem that will be encountered is continuous alarming. If this should occur, and you are positive that there are no gas fumes present, check for recent use of solvent, paint or paint thinner, polish, etc. If none of these vapors are present, the next step is to thoroughly check the sensor wires for loose connections, broken wires, and water or oil contamination. Since the sensors are part of a normally closed system, broken wires will cause an alarm.

## **8.0 REPAIRS**

M-1 systems are not user serviceable. The unit must be returned to the factory for any repairs.

## **9.0 SPECIFICATIONS**

Operating Voltage: +7 min. to +15 VDC max.

Alarm point – 10-20% LEL @ 70° F

Sensor stability 0° – 130° F (–18°–54°C)

Sensor fail alarm

Sensor wire lead 20 feet – standard, other lengths available (Do not lengthen or shorten

Current Draw: Monitoring Mode 200 mA max.

Alarm Mode 210 mA max.

Alarm Horn 85 dB

Var-a-Brite light intensity control

**LIMITED WARRANTY  
THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS  
OR IMPLIED WARRANTIES**

Seller warrants title, materials, and workmanship on equipment, except components manufactured by others for which Seller assigns, as permitted, the original manufacturer's warranty. Seller's warranty shall be for a period of one (1) year from the date of sale to the ORIGINAL CONSUMER PURCHASER, during which non-conforming equipment returned to Seller at Buyer's expense and risk shall be repaired or replaced at Seller's option.

Fireboy-Xintex, Inc., will repair or replace products found to be defective in materials or workmanship within the period set forth above, provided that:

(a) the product has not been subjected to abuse, contamination, neglect, accident, incorrect wiring not our own, improper installation or servicing, or used in violation of instructions furnished by Fireboy-Xintex, Inc., and,

(b) as to any prior defects in materials or workmanship covered by this warranty, the product has not been repaired or altered by anyone except Fireboy-Xintex, Inc., and,

(c) the serial number has not been removed, defaced, or otherwise changed, and,

(d) examination discloses, in the judgement of Fireboy-Xintex, Inc., a defect in materials or workmanship which developed under normal installation, use and service. Fireboy-Xintex, Inc., does not assume the costs or removal and/or installation of the product or any other incidental costs which may arise as a result of any defect in materials or workmanship, and,

(e) upon discovery of defect, Buyer shall immediately cease use of the product and notify Fireboy-Xintex, Inc.

**ANY WARRANTY IMPLIED BY LAW, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS, IS IN EFFECT ONLY FOR THE DURATION OF THE EXPRESS WARRANTIES SET FORTH ABOVE.**

**NO PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY, OR TO ASSUME FOR FIREBOY-XINTEX, INC. ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS.**

**FIREBOY-XINTEX, INC. SHALL NOT BE LIABLE FOR THE LOSS OF USE, REVENUE, OR PROFIT OR FOR ANY INJURY, OR FOR ANY OTHER CONSEQUENTIAL OR INCIDENTAL DAMAGES.**

**BUYER IS NOT RELYING ON SELLER'S JUDGMENT REGARDING HIS PARTICULAR REQUIREMENTS, AND HAS HAD AN OPPORTUNITY TO INSPECT THE PRODUCT TO HIS SATISFACTION.**

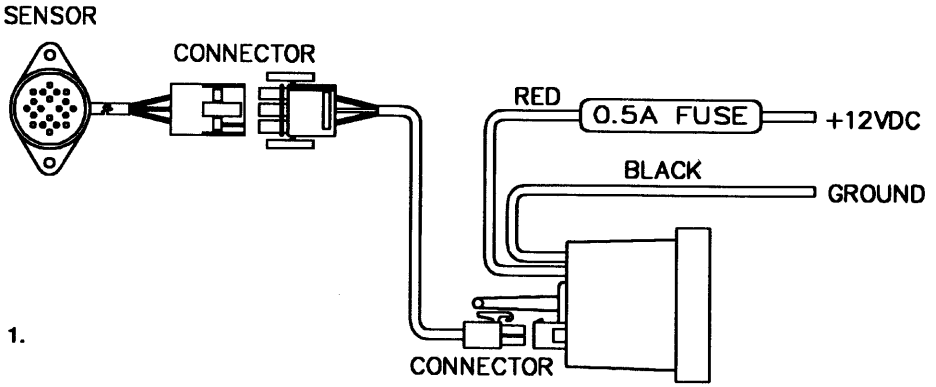


Fig. 1.

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