

**INSTALLATION**

**and**

**INSTRUCTION**

**MANUAL**

**for**

***QUALITY***

***AIR***

***BREATHING***

***SYSTEMS***

**Model 50 Systems  
Outfitted with ABM-725 Monitor**

**M A R T E C H S E R V I C E S**  
**C O M P A N Y**

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# INSTRUCTION MANUAL FOR *QUALITY AIR BREATHING SYSTEMS*

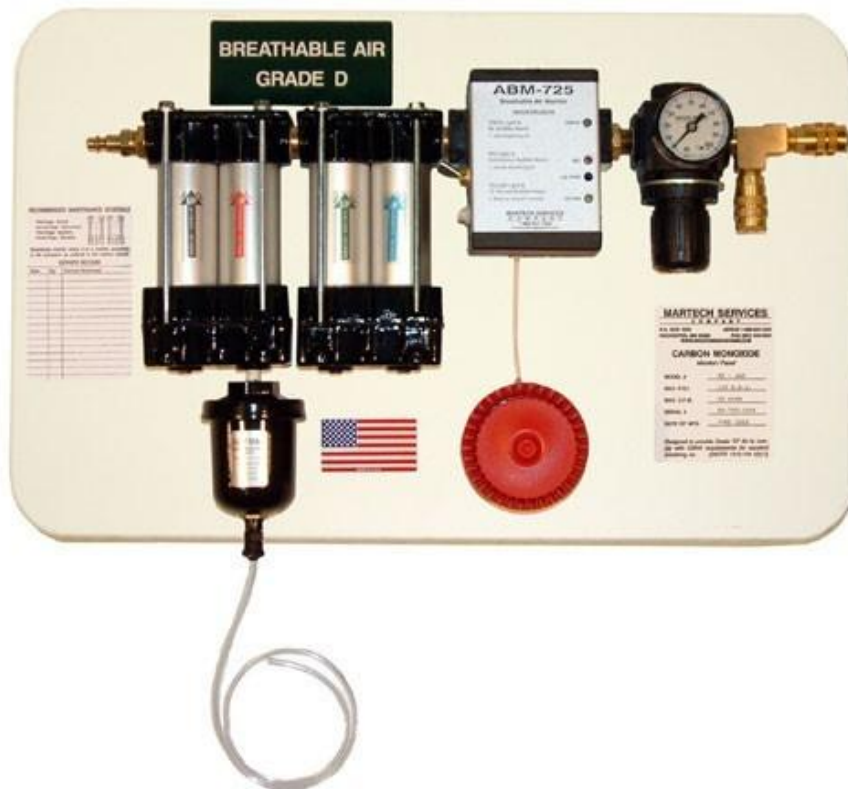
## Model 50 Systems Outfitted with ABM-725 Monitor

### I. INTRODUCTION:

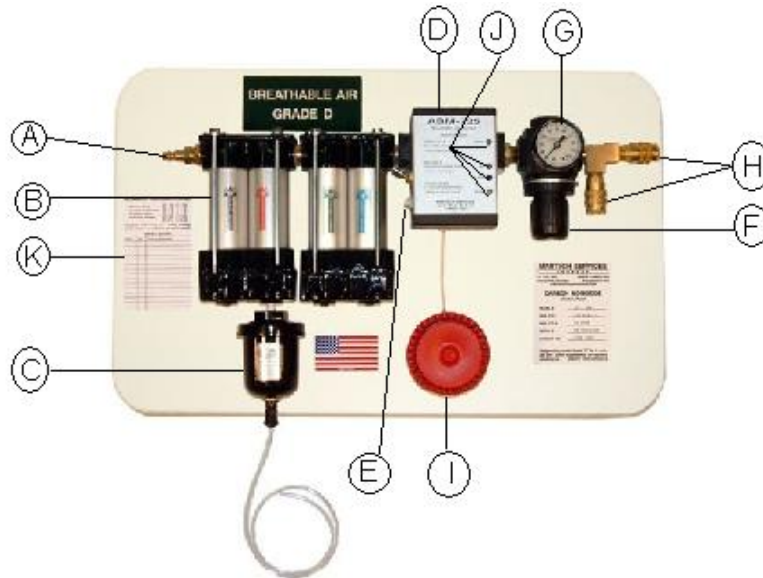
The *Quality Air Breathing System* manufactured by Martech Services Company is designed to provide Grade "D" Breathable air for compliance with OSHA 29 CFR 1910.134.

**PURPOSE:** To effectively remove liquid water, oily gaseous hydrocarbons, dirt, rust, scale and other potentially dangerous contaminants, to provide safe compressed breathing air. Then the onboard carbon monoxide monitor continuously samples the air supplied for compliance with current OSHA standards.

A complete *Quality Air Breathing System* consists of four stage filtration, automatic float drain, broad band monitor, audible and visual alarms, self relieving regulator with gauge, and quick connects, all panel mounted. This system is designed to be used with a NIOSH/MSHA approved air supplied respirator. (available as optional equipment.)



(Figure #1) Model 50 Systems *Quality Air Breathing System* (typical)



(Figure #2) Model 50 Components

**NOTE:** System has been calibrated at the factory and is ready for use upon installation.

**II. COMPONENTS:**

- A. - Inlet port
- B. - Filtration; Stages 1, 2, 3, 4.
- C. - Automatic Float Drain (replaced with weep drain on Model 50-P)
- D. - Broad Band Monitor
- E. - Calibration port & switch
- F. - Self-relieving regulator
- G. - Pressure gauge
- H. - Outlet ports
- I. - Audible Alarm (optional on 50-P)
- J. - Indicator lamps
- K. - Maintenance label

**III. SET UP AND INSTALLATION:**

1. **LOCATION OF SYSTEM:** To be most effective, the system should be mounted as close as possible to the point of use. Such as on the outside of a paint booth. **DO NOT MOUNT ON THE INSIDE OF A PAINT BOOTH.** In order to provide the protection as designed, the system must be located where the visual and audible signals can be monitored to ensure safety of the operator. The *Quality Air Breathing System* is shipped with a male quick connect at the inlet port and female quick connects at the outlet ports.
2. **VERTICAL POSITION:** The system must always be mounted in a vertical position with the four stage filtration in a upright position a minimum of 4' off the ground and close to the work area.

3. ANCHORING SYSTEM: System should be securely mounted to the outer booth wall or an adjacent wall with appropriate sized fasteners. (Fasteners not included)

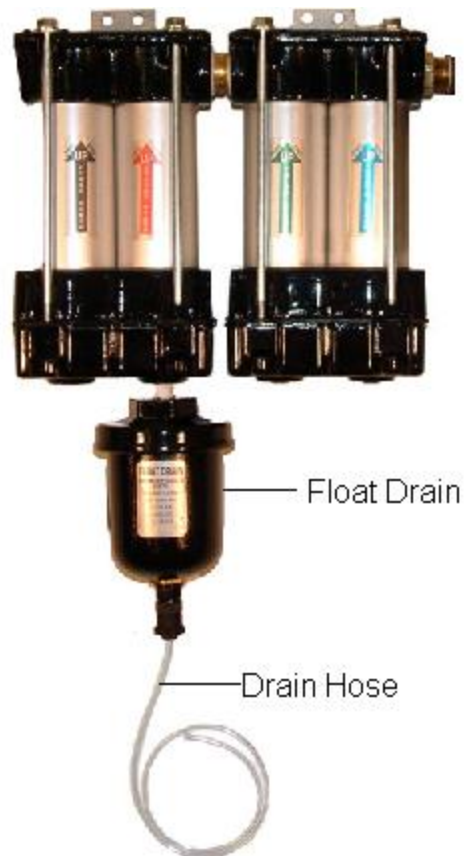
4. FLOAT DRAIN INSTALLATION: The float drain included, is used in conjunction with the filtration to automatically drain collected liquids from the system. Operation is dependent on the liquid level inside the drain bowl. The drain will automatically open and expel the collected liquids once an ounce or more of fluid is present. The float drain is installed under the second stage filter. The drain tube (supplied) should be secured, and/or the fluids collected in a waste container.

TO INSTALL: (May already be factory installed)

- A. Remove the masking tape, which is covering the opening directly under the second stage filter.
- B. Insert the threaded tube at the top of the float drain into the opening and hand tighten until snug. Wrench shoulders are provided to assist in the tightening process, if needed. Teflon tape has already been applied to the threads to provide a tight seal.

SPECIFICATIONS:


Maximum Pressure	200 PSIG
Maximum Temp.	125F
Clean with Kerosene	
Diameter	2 3/4"
Length	5"



(Figure #3) Float Drain

5. **INLET AIR ATTACHMENT:** Connect the male inlet port to shop air with air hose having a matching female connector. Or hard pipe to system using 1/2" ID hard piping materials and fittings. Check air supply to assure a minimum of 40 PSI or greater is being supplied to the system, continuously.

6. **OUTLET AIR ATTACHMENT:** Should you elect to hard pipe to one or more locations, you may remove the female quick connect outlet ports, and then hard pipe to your desired locations, using 3/8" or 1/2" black pipe, or stainless steel, depending on the size of the opening on the regulator.


 **WARNING:** Use only black pipe or stainless steel pipe for supplying breathing air from the system to the quick connect(s). The use of other types of piping material may "off-gas" and contaminate the already monitored breathable air. Should special circumstances exist, please contact the manufacturer for assistance and instructions for proper installation.

7. **ELECTRICAL SERVICE:** Connect power supply plug into standard 110 volt outlet (1 amp required). The power supply converts the 110 volts AC to 12 volt DC for safety.

8. Connect a NIOSH/MSHA approved air supplied respirator to the outlet port.  
(see Figure #2)

When a new system is totally connected to air source, electrical source, and air supplied respirator, run the system in a free flow position for approximately 8 hours to rid of any undesirable startup odors. (i.e.; pipe dope, rubber hose smell, and plastic respirator odors.)

Refer to NIOSH/MSHA approved instructions, supplied with air supplied respirator, for proper pressure settings.

 **WARNING:** Failure to follow air supplied respirators, manufacturers pressure setting recommendations, for proper operation and operator comfort, may result in undesirable physical side effects.


#### **IV. START UP PROCEDURES:**

**START UP:** The monitor will be in standby (yellow light) for approximately one minute after both air pressure and electrical supply have been applied to the system. During the standby mode the alarm circuit is deactivated and the green "OK" light will not activate. (It is recommended that the air monitor be continuously powered to eliminate any warm-up time.)

When the system's standby light turns off and only the "OK" green light is illuminated, the compressor air is ready for use. The air is continuously monitored; and if carbon monoxide or other toxic fumes are present in the air supplied, the monitor will alert the operator(s).

**CONTINUOUS OPERATION:** Use strictly in accordance with these instruction, labels, and limitations pertaining to the System. If you have any questions about the application of the *Quality Air Breathing System*, it is recommended that you consult Technical Services Department at Martech Services Company, phone: 1-800-831-1525.

## **V. MAINTENANCE:**

 **WARNING:** ALWAYS TURN OFF AIR SUPPLY AND BLEED AIR PRESSURE BEFORE DISASSEMBLY OF SYSTEM OR INJURY COULD RESULT.

- 1 - Turn off air and bleed air pressure.
- 2 - Loosen the bolts on the top of the manifold enough to allow the filters to move freely.
- 3 - Remove the corner bolt and slide out, and dispose of the old filters.
- 4 - If replacing only one filter within the manifold, install the new filter, and also replace the cap gaskets (provided) on the filter not being changed. Be certain the new filter(s) are installed with the arrow label pointing up.
- 5 - Replace the corner bolt and tighten to a torque limit of 25 inch pounds, in a crisscross sequence.
- 6 - Recheck for proper torque limit upon completion.

### **RECOMMENDED FILTER CHANGES:**

First Stage - Annual

Second Stage - Semi-Annual

Third Stage - Quarterly

Fourth Stage - Quarterly

## **VI. CALIBRATION:**

A calibration kit is available to re-calibrate your system after it has been in service for several months. The system, when new, is shipped from the manufacturer already calibrated and ready to use.

**RECOMMENDED FREQUENCY:** It is recommended that the system be recalibrated every 3 to 6 months with normal usage. It may require recalibration more frequently with heavy usage. Make note of sequential calibration dates on the maintenance schedule panel sticker, located to the left of the first stage filter housing. (See Figure #2)

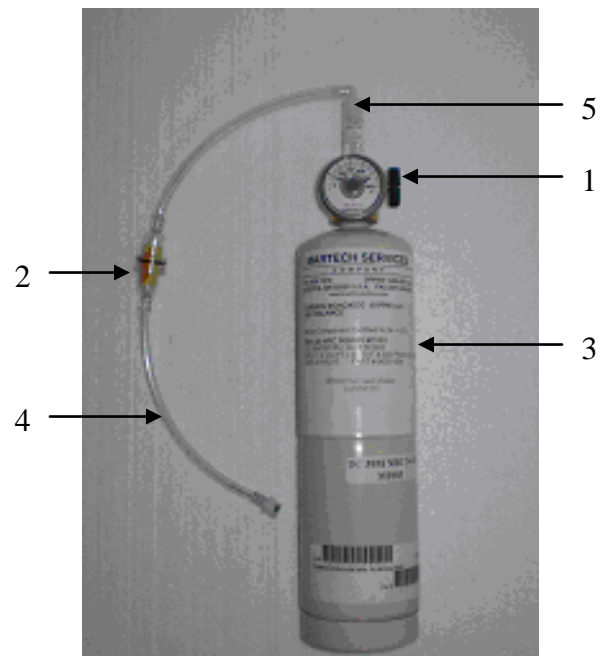
**CALIBRATION PROCEDURE** (See Figure #4 and Figure #5) **Perform only after monitor has been running for at least 2 hours prior to doing a calibration.**

Before attaching the calibration connector to the bottle of test gas:

1. Turn ON/OFF valve (1) to its full OFF position.
2. Twist apart clear sponge housing. (2)
3. Moisten the sponge by putting a few drops of water directly on it.
4. Twist the clear sponge housing back together. (2)
5. Attach the calibration valve assembly to the bottle of calibration gas. (3)
6. Attach hose (4) on calibration connector, to CAL Port (B) on the ABM 725.
7. Toggle CAL/RUN switch (A) to the Cal position.
8. Using ON/OFF valve (1) on the calibration connector, slowly turn valve until flowmeter (5) ball floats to the middle of mark on clear tube.
9. After 30 seconds adjust calibration control (C) clockwise until the RED alarm light on the ABM-725 just comes ON.  
**IMPORTANT: IF THE ALARM LIGHT COMES ON BEFORE THE 30 SECONDS, TURN CALIBRATION CONTROL COUNTER-CLOCKWISE UNTIL THE RED LIGHT GOES OUT.**
10. Toggle CAL/RUN Switch to the RUN position (A), turn calibration connector valve (1) off, and remove hose (4) from CAL PORT.



(Figure #4) ABM-725 Monitor



(Figure #5) Calibration Assembly

## **VII. TROUBLE SHOOTING:**

### *POSSIBLE CAUSE and SOLUTIONS;*

#### YELLOW ALARM LIGHT & AUDIBLE CHIRP EVERY 10 SECONDS:

- |             |   |
|-------------|---|
| Sample air. | The internal pressure switch will alert user with a Yellow alarm light and audible chirp every 10 seconds if the pressure to the system is less than 40 PSI, and/or if the internal flow assembly is plugged. |
| Run/Cal     | The monitor RUN/CAL switch has been left in the CAL position. Toggle Switch to the RUN position, which will restart the warm up cycle.  |

#### RED ALARM LIGHT & AUDIBLE ALARM ON:

### *POSSIBLE CAUSE and SOLUTIONS;*

- |                            |   |
|----------------------------|---|
| ABM-725 not Warmed up      | If the system has not been operated recently, allow two hours of warm up prior to use. Allow air to flow through system to help restore clean air to the sensor. For best performance the ABM-725 should be powered continuously.   |
| Dirty Air                  | Compressors that have been idle tend to build up oil vapors in the tank and lines. Flush air by opening the valve downstream to release stale air.<br><br>Inlet air may be contaminated. Air intake should be above the roof line and well clear of furnace flue or vents.<br><br>Filters may be dirty. Inspect filters and replace when necessary. |
| ABM-725 out of Calibration | Recalibrate unit per instructions. If red alarm light stays on after calibration gas is removed, contact manufacturer for service instructions.   |

#### NO LIGHTS LUMINATED:

Check to see that a good power source exists to system. If so, and no lights are on, call manufacturer for service instructions.

#### SERVICE ASSISTANCE:

Service assistance is available 24 hours per day, 7 days a week, by calling toll free; 1-800-831-1525.



**NOTES:**