

SECTION VI. AIRLINE FILTER & CO-MONITOR



41 Series Airline Filters



Head Protection



Respiratory Protection



Fire and Rescue Safety



Thermal Imaging

41 Series Airline Filters help deliver cleaner air for up to six workers.

Versatile Application

Bullard Airline Filters can be used in conjunction with other compressor safeguards such as carbon monoxide monitoring to supply Grade D breathing air to supplied-air respirators. They may also be used to supply drier, cleaner air to tools and pneumatic systems to reduce down-time and repair costs.

Heavy Duty

The 41 Series Airline Filters are constructed of heavy gauge steel to withstand rugged industrial environments.

High Capacity

41 Series Airline Filters contain large disposable filter cartridges allowing longer periods of filtration.

Light Weight for Easy Portability

Each model weighs approximately 23 pounds (10.5 kg).

Efficient

The 41 Series Filter cartridges are specifically designed to effectively trap and remove oil particulates, odor and organic vapors using a multi-layer filtering system. Compressor-supplied air enters the filter and travels through 6 layers of filter material before exiting through the outlet port. Carded cotton, felt material, activated charcoal and activated alumina work in sequence to supply cleaner air to workers or equipment.



Model 41A Airline Filter

Single-outlet filter (pressure gauge, relief valve, and pressure regulator not included).



Models 41P2 and 41P2E Airline Filters

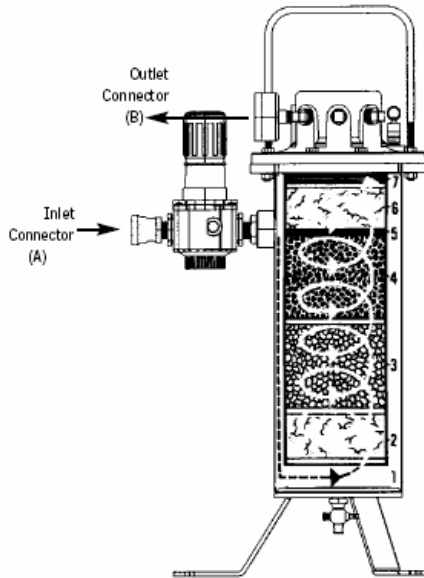
2-outlet filter with pressure gauge, relief valve, pressure regulator and hose adapter fitting.



Model 41P6 Airline Filter

6-outlet filter with pressure gauge, relief valve, pressure regulator and hose adapter fitting. Available in wall mount version (model 41P6WM).

Replaceable filter cartridge 7-stage operation



Cartridges effectively trap and remove impurities with little pressure loss. The supplied-air enters the compressor at inlet connector (A), travels through 6 layers of filter material, and exits outlet connector (B). Filter materials work in sequence to trap and hold water, oil, particulates, odors, and organic vapors so that cleaner air is delivered to workers or equipment.

1. Water is removed by condensation of air in outer cylinder
2. Carded cotton removes particulates
3. Activated alumina adsorbs oil and moisture
4. Activated charcoal removes odors and moisture
5. Felt material removes particulates
6. Carded cotton removes particulates
7. Respiratory felt at final stage acts as a final filter before air is transferred to worker or air driven tools

Specifications

Airline Filter	Model 41A	Model 41P2	Model 41P6	Model 41P6WM	Model 41P2E
Max. Air Flow Rate	100 cfm* (2830 lpm)	75 cfm (2120 lpm)	75 cfm (2120 lpm)	75 CFM (2120 lpm)	75 cfm (2120 lpm)
Inlet Connection	1" NPT (Fem.)	1" NPT (Fem.)	1" NPT (Fem.)	1" NPT (Fem.)	3/4" (19 mm) NPT (Fem.)
Outlet Connection	1" NPT (Fem.)	2 outlets 1/4" & 3/8" NPT (Fem.)	6 outlets 3/8" NPT (Fem.)	6 outlets 3/8" NPT (Fem.)	2 outlets 1/4" (6 mm) BPT (Fem.)
Relief Valve	-	125 psig (8.6 bar)	125 psig (8.6 bar)	125 psig (8.6 bar)	125 psig (8.6 bar)
Tank Diameter	5 1/2" (14 cm)	5 1/2" (14 cm)	5 1/2" (14 cm)	5 1/2" (14 cm)	5 1/2" (14 cm)
Height	19" (48 cm)	23 1/2" (60 cm)	25 1/4" (64 cm)	22" (56 cm)	23 1/2" (60 cm)
Weight	19 lb. (8.6 kg)	22 lb. (10 kg)	24 lb. (10.9 kg)	28 lb. (12.7 kg)	22 lb. (10 kg)

*At maximum recommended pressure of 100 psig (6.9 bar)

41 Series Airline Filters

Ordering Information

Bullard Airline Filters

CATALOG NUMBER	DESCRIPTION
41A	Single-outlet filter. Pressure gauge, relief valve, and pressure regulator not included
41P2	2-outlet filter with pressure gauge, relief valve, pressure regulator, and hose adapter fitting
41P6	6-outlet filter with pressure gauge, relief valve, pressure regulator, and hose adapter fitting
41P6WM	6-outlet filter with wall-mount bracket, pressure gauge, relief valve, pressure regulator, and hose adapter fitting.
41P2E	2-outlet filter with pressure gauge, relief valve, pressure regulator, and hose adapter fitting, plus adapters suitable for European threaded connections

Replacement Parts

CATALOG NUMBER	DESCRIPTION
41AF	Replacement filter cartridge
41P6UPK	6-outlet manifold upgrade (includes manifold, regulator assembly, relief valve, and gauge) for 41P6
41P2M	2-outlet manifold assembly (includes manifold with regulator, relief valve and gauge) for 41P2 and 41P2E
41PRV	Pressure Relief Valve for 41P2, 41P2E, and 41P6/41P6WM airline filters. Set at 125 psig (8.6 bar).
41RG	Regulator Gauge for 41P2, 41P2E, and 41P6 airline filters
41P2R	41P2 regulator and assembly (For use with flat top design only)
41EAK	European adapter kit for 41P2E containing (1) 1" (25 mm) x 3/4" (19 mm) Pipe Reducing Bushing, (1) 3/8" (7 mm) x 1/4" (6 mm) Reducing Bushing, and (2) 1/4" (6 mm) British Thread Adapters.

WARNING

Filter cartridge must be changed periodically for maximum efficiency. Frequency of cartridge changes depends on operating conditions. Cartridge should be changed immediately if respirator wearer feels, smells or tastes contaminants inside the respirator. Filter tank should be drained at least daily to remove trapped water and oil (a petcock is provided on the bottom of the tank for this purpose). Failure to follow these instructions could result in death or serious injury.

WARNING

The 41 Series Airline filters do not remove carbon monoxide and other toxic gases. Review and observe all pertinent federal and state safety regulations in conjunction with airline respirators. Failure to observe safety regulations or improper use of Bullard Airline Filters could result in death or serious injury.

Bullard products are manufactured to exacting specifications. Any alteration or modification of these products by the user may adversely affect product performance. This information is in summary form only for easy reference. Refer to labels, instruction sheets and other literature accompanying the product for more complete details regarding product installation, use, maintenance, warnings, performance capabilities, complete specifications, user instructions, and precautions.



11388 Breininger Rd. * P.O. Box 87 * Hicksville, OH 43526

Phone: (800) 542-6646 * (888) "MOD-SAFE" * (419) 542-6645

Fax: (419) 542-6475 * Email Address: modsafe@bright.net

MST MODEL 5700 - 1/2 AIRLINE "CO"
MONITORING SYSTEM
MANUAL

WARNING: Do not attempt to operate this equipment without first reading and understanding the service manual enclosed with this device.

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SPECIFICATIONS
MST AIRLINE "CO" MONITORING SYSTEM
MST MODEL 5700 - 1/2

**MST MODEL 5700-1 (110
VAC) MST MODEL 5700-2 (12
VDC)**

SIZE:	10 3/4"W X 9 3/4"H X 7"D (273mm X 248mm X 179mm)
WEIGHT:	LESS THAN 7 LBS (3.2 KG)
OPERATING PRESSURE (MAX.):	100 PSIG DYNAMIC (6.9 BAR) (Flow meter to be set at (1.0) SCFH)
SENSOR TYPE:	ELECTROCHEMICAL
RANGE:	0-199 PPM CO
ACCURACY:	+/-5% OF READING
ALARM-TYPE:	PIEZOELECTRIC - 85 dB(A) AT (1) FT. (OPTIONAL 119 dB (A) AT (10) FT.)
ALARM LEVEL SETTING:	USER ADJUSTABLE FACTORY SETTING: 10PPM (5 PPM IF SPECIFIED)
AMBIENT OPERATING TEMPERATURE RANGE:	32 - 104° F (0 - 40 ° C)
OTHER FEATURES:	PROTECTIVE ENCLOSURE ADJUSTABLE SAMPLE FLOW METER EXTERNAL REMOTE ALARM JACK

LOW-BATTERY
INDICATOR
RED LED ALARM
INDICATOR
9 VDC BATTERY
BACK-UP

GENERAL DESCRIPTION

The MST Airline Carbon Monoxide Monitoring System is designed to take a continuous air source sample and monitor for levels of Carbon Monoxide. If pre-set alarm level is reached, a visual and audible alarm will be energized. The system is housed in a corrosion/water resistant carrying case.

GENERAL OPERATION

(Refer to Figure No. 1)

Initially power the monitor system by connecting the supplied 110 VAC or 12 VDC Adapter (A) to power source. Note that 9-volt transistor-type batteries can be installed in monitor at (B) to provide a back-up power source if the main power source fails. The regulated air source to be monitored will enter through system's inlet at (C). The source air flow rate will be set at the Flow Meter Adjusting Knob (D). The metered source air flow is then introduced to the Monitor's "CO" Sensor at (E). Audible/LED Lights (F) will be energized when the pre-set "CO" alarm level has been reached.

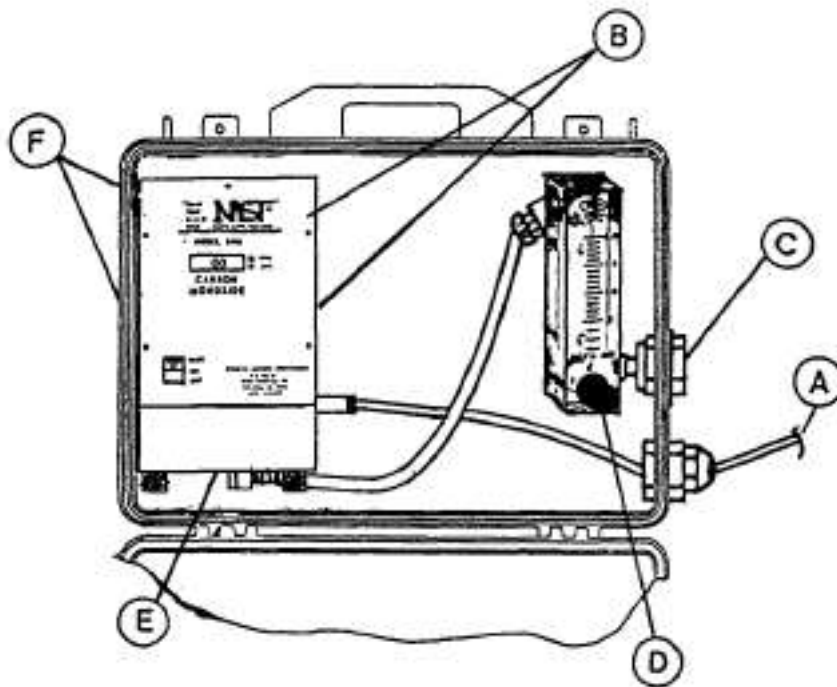


FIGURE NO. 1

GENERAL OPERATION

MST, Inc. strongly recommends that a complete safety program be instated to ensure that the respiratory air is in compliance with all OSHA/CSA standard and other applicable laws regulating the use of supplied air respiratory systems. MST, Inc. recommends that the air quality be tested upon installation and periodically re-tested to ensure that the minimum requirements for breathing air are maintained.

MST, Inc. will not assume any liability for accidents or personal injury resulting from the improper use of this equipment. Service on this equipment should only be performed by qualified personnel. This system is to be used only by trained qualified personnel in accordance with a respiratory program as outlined in OSHA Regulation 29 CFR 1910.134 (b).

CUSTOMER AIR SUPPLY (Refer to Figure No. 2)

- 1) SUPPLIED AIRLINE PRESSURE - The maximum air pressure at inlet of MST's Unit should not exceed 100 PSIG.
- 2) REGULATED SUPPLIED AIR - MST recommends that the supplied air be regulated to 100 PSIG max. pressure prior to entering the MST Unit so the air sample flow rate to monitor remains constant at 1.0 SCFH, or black floating ball is within the green boxed area etched on Air Sample Metering Valve.
- 3) SUPPLIED AIR CONDITIONING - Remove excessive water/oil from supplied air to prevent contamination/clogging of MST's Flow Meter and "CO" Sensor.
- 4) AVOID INSTALLING MST UNIT AFTER DESICCANT DRYER - The Desiccant Dryer produces extremely dry air, (4% R. H. or less), which over a period of time will dry the "CO" sensor out and decrease its life substantially.

MST'S AIRLINE "CO" MONITORING SYSTEM INITIAL INSTALLATION AND START-UP (Refer to Figure No. 2)

- 1) SUPPLIED AIR HOOK-UP- MST Unit's inlet is supplied with 1/8" NPT female threads for customer hook-up. MST suggest the supplied air be regulated and free of large volumes of water/oil.
- 2) POWER MONITOR AND CALIBRATE - Connect MST's 110 VAC or 12 VDC Adapter to power source and let warm up for a minimum of (5) minutes. If battery back-up is required, install the 9-volt transistor-type batteries in monitor at this time. (NOTE: The 9 volt batteries will power monitor for approximately (30-35) hours. After warm-up period, the "NORMAL GREEN LED" light will be on and the "ALARM RED LED" light will be faintly blinking. Monitor's calibration should be checked now. Refer to MST Monitor Manual.
- 3) CALIBRATION GAS REQUIREMENTS - Zero Gas: Nitrogen, free of "CO". Span Gas: 95 PPM of "CO" concentration in air. Calibration gas flow to monitor should be 1.0 SCFH (472 cc/minute).
- 4) EXTREME TEMPERATURE CHANGES: Avoid; MST Monitor best performs at an ambient temperature range of 32- 104° F (0-40° C). Always calibrate monitor after it has stabilized in the surrounding temperature where system is to be used.

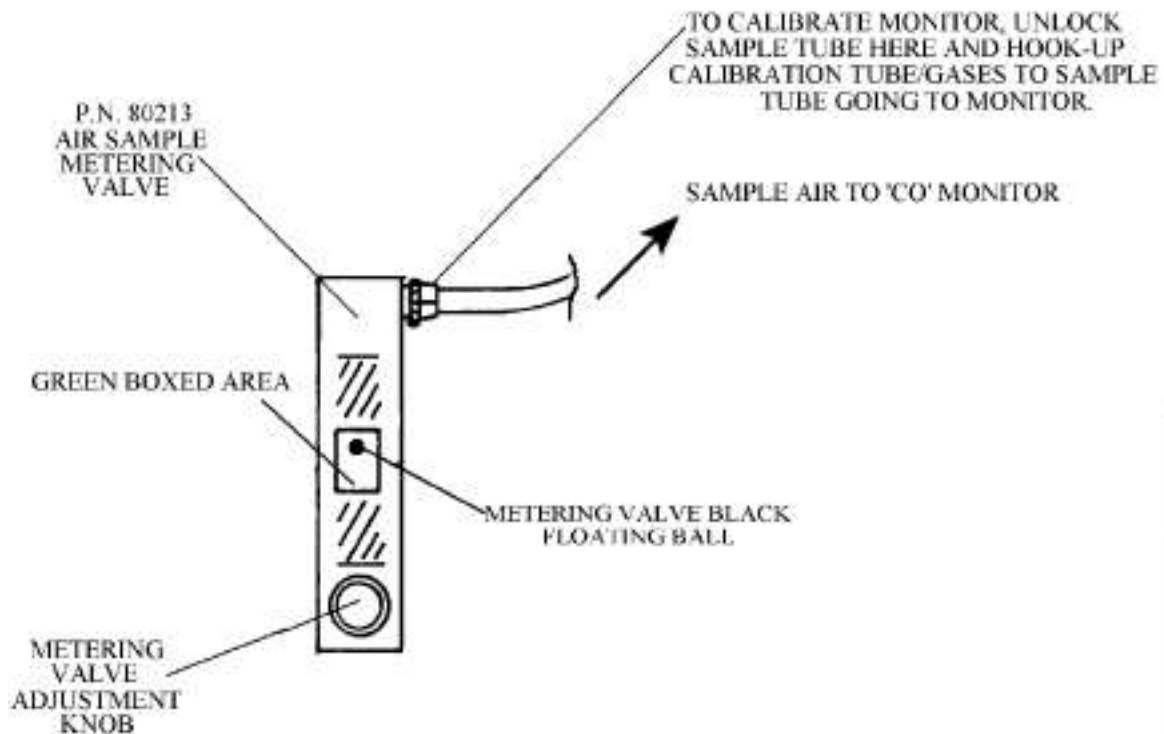
FIGURE NO. 2

AIR SAMPLE TO MONITOR ADJUSTMENT

WARNING : SERIOUS INJURY could result if the **AIR SAMPLE METERING VALVE** is not properly adjusted. Proper sample air flow to 'CO' monitor is required for monitor to give correct 'CO' level readout.

AIR SAMPLE METERING VALVE ADJUSTMENT

- A) Pressurize system and set regulator for proper air flow to Airline Monitor Inlet, 100 PSIG Max.
- B) Adjust Air Sample Metering Valve's adjustment knob so the black floating ball is within the GREEN BOXED area etched on valve body. Proper air sample is now being metered to the 'CO' Monitor. Periodically check to be sure ball is floating in this area.



MST AIRLINE "CO" MONITORING SYSTEM GENERAL OPERATION AND MAINTENANCE

WARNING: If the Monitor's alarm should sound, remove mask or hood immediately and move to a safe breathable atmosphere. Have a proper qualified personnel examine air system and make the appropriate corrections before using again.

- 1) MONITOR ALARM CONDITION - The monitor will alarm due to one or more of the following conditions:
 - a) Monitor is out of calibration. The Monitor should be calibrated monthly if used continuously and prior to use if used on a non-continuous basis. Calibrate Monitor as outlined in the MST Monitor Manual.
 - b) If the Monitor can be and is calibrated, but the alarm still sounds, excessive CARBON MONOXIDE IS PRESENT IN YOUR AIR LINE. REMOVE MASK OR HOOD IMMEDIATELY AND MOVE TO A SAFE BREATHABLE ATMOSPHERE. CHECK AIR SYSTEM TO CORRECT PROBLEM BEFORE USING AGAIN.
 - c) If the Monitor can not be calibrated, the Carbon Monoxide Sensor may require replacement. See MST MONITOR MANUAL for replacement instructions and other trouble shooting information. The MST MONITOR has a (1) year warranty. All warranty work must be performed at factory.
 - d) If the Monitor was calibrated in a surrounding temperature other than where the system was being used and the temperature difference was 36° F (20° C) or greater, the Monitor may give a false alarm due to its characteristics. Always calibrate the Monitor in the temperature conditions where the monitor is to be used in. Monitor best performs at temperature range of 32 to 104° F (0 to 40° C).
- 2) MONITOR "NORMAL" MODE - The Monitor's "NORMAL GREEN LED" light will

be
on full bright from 0-9 PPM of carbon monoxide and the "ALARM RED LED" light will
be
faintly blinking while the "Low Battery Amber LED" is off.

- 3) MONITOR "LOW BATTERY" MODE - If the power source should fail and the battery back-up is below a preset voltage output, the "AMBER LOW BATTERY LED" will come on. Note: The 9-volt batteries in the battery back-up system will power Monitor continuously for approximately (30-35) hours.
- 4) MONITOR "ALARM" MODE - If carbon monoxide concentrations exceeds the alarm point (factory set at 10 PPM), the "ALARM RED LED" light will come on full bright, the "NORMAL GREEN LED" light will be off and the audible alarm will sound.
- 5) CONTAMINATED AIR SUPPLY - If water and/or oil is visibly seen in the flow meter and/or sample tube to MST Monitor, excessive water and/or oil is present in the supplied

air. These contaminants should be coalesced out prior to inlet of MST's "CO" Monitoring System to eliminate clogging of MST's Flow Meter and or "CO" Sensor.

RECORD KEEPING

Record all periodical air quality checks, monitor calibration date and any other service performed on the MST "CO" Monitoring System.

MST, INC. SHALL NOT BE LIABLE FOR ANY INJURY LOSS OF DAMAGE, (DIRECT OR CONSEQUENTIAL), ARISING OUT OF THE USE OF OR THE INABILITY TO USE THIS PRODUCT, BEYOND THE REPLACEMENT OF THE DEFECTIVE MATERIALS OR WORKMANSHIP. USER OF SUPPLIED AIR RESPIRATORS SHOULD EVALUATE THEIR OWN PARTICULAR APPLICATION AND PERFORM THEIR OWN TESTS FOR AIR QUALITY TO DETERMINE THE SUITABILITY FOR USE OF THIS PRODUCT.

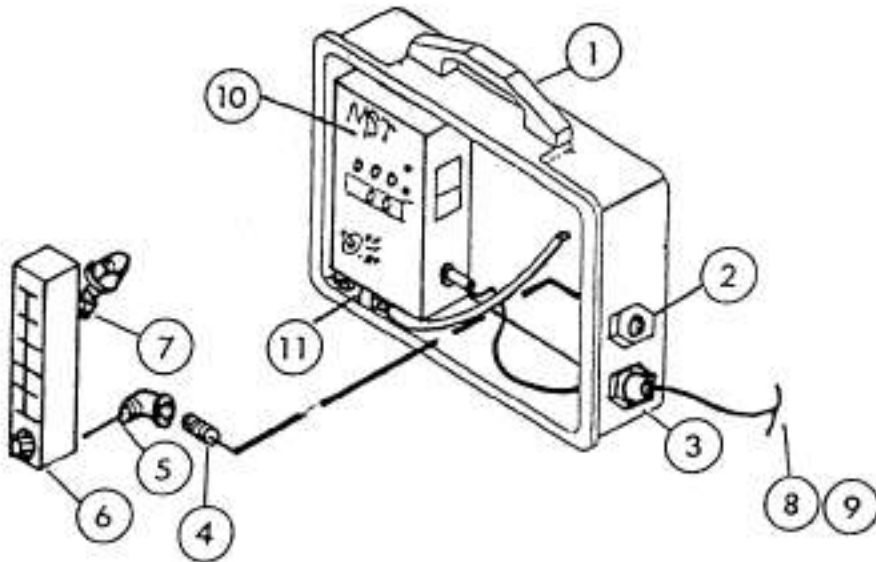
For further information, or questions about service or maintenance care of this unit, contact your local distributor or MST, Inc. @ (800) 542-6646.


SERVICE RECORD
MST AIRLINE "CO" MONITORING
SYSTEM MODEL 5700 - 1/2

DATE OF SERVICE	SERVICE PERFORMED

MST "CO" AIRLINE MONITOR SYSTEM MODEL 5700 - 1/2 PARTS

- 1) 80211, (1), CASE
- 2) 80210, (1), BRASS BULKHEAD ASSEMBLY
- 3) 80243, (1), PLASTIC BULKHEAD ASSEMBLY
- 4) S603-001, (1), 1/8" CLOSE NIPPLE
- 5) S623-001, (1), 1/8" - 90° STREET EL
- 6) 80213, (1), 0-2.0 SCFH FLOW METER
- 7) 80261, (1), TUBE LOCKING COLLAR
- 8) 80247, (1), 110 VAC ADAPTER FOR MODEL 5700-1
- 9) 80123. (1), 12 VDC ADAPTOR FOR MODEL 5700-2
- 10) 80127, (1), MST "CO" MONITOR, MODEL 5700
- 11) 80133, (1), "CO" SENSOR



A 3D cutaway rendering of an industrial abrasive blasting system. The image shows a large cylindrical abrasive blaster mounted on a metal frame. The blaster has a hopper at the top and a nozzle assembly at the bottom. The nozzle is connected to a blue control valve. The system is installed in a structure with metal grates and beams. The background is a light yellowish-tan color.

When all of the above fail or if you need special assistance, please call

ABRASIVE BLAST SYSTEMS, LLC

(972) 205-9309

866-666-9309

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WE THANK YOU FOR YOUR BUSINESS!

WARNING

These products & equipment are not, under any circumstances, to be used with sand or silica products of any type, and use of such materials will void warranty. Also, as with the use of any product or equipment, you must be sure to use the proper safety equipment, and to properly train your employees in the use of any equipment or products. The manufacturer, wholesaler and distributor assume no responsibility arising from the failure to use proper safety equipment or the failure to properly train employees in the use of the products and equipment.