



COUNCIL DECISION REQUEST

SUBJECT: Fire Station Air Compressor

MEETING DATE: 3-7-13

SUBMITTED BY: Martin deMasi

SUBMITTAL TO AGENDA
APPROVED BY TOWN MANAGER

AMOUNT BUDGETED: \$

EXPENDITURE REQUIRED: \$33,910.04



EXHIBITS (If Applicable, To Be Attached): W.W. Williams bid, bid tabulation

POSSIBLE MOTION "I move to award the bid for the purchase of a new breathing air compressor and related equipment including the option for carbon monoxide/moisture monitoring to the W.W. Williams Company, authorize the expenditure of \$33,910.04 for such bid, and authorize the Mayor or the Town Manager to sign all necessary documents to make this purchase."

SUMMARY OF THE BASIS FOR POSSIBLE MOTION: This is one of the last pieces of equipment to be installed in Fire Station 13. The funds for this purchase are part of the bond issue that voters passed in 2003 that built and equipped the fire station. This equipment will allow firefighters to maintain required and necessary respiratory protection equipment in a ready condition without having to travel across town.

A request for bids was published beginning January 25, 2013 and three bids were received by the bid due date of February 21, 2013. A summary of the bids is as follows:

W.W. Williams	\$33,910.04 (including carbon monoxide and moisture monitoring gauges)
United Fire	\$38,151.66 (did not include electrical work as required)
L.N. Curtis	\$40,381.81 (did not include electrical work as required)

W.W. Williams' provided the lowest bid which also includes carbon monoxide and moisture monitoring gauges at an additional cost of \$3198.45. The total for the W.W. Williams bid including the optional equipment is less than the next lowest bidder. Staff recommends that this project be awarded to W.W. Williams to include both options for a total of \$33,910.04.

PROS: This equipment provides the capability to maintain breathing apparatus in a ready condition.

CONS: None

MAR 07 2013 I.4 *



COUNCIL DECISION REQUEST

FUNDING:

Acct: 433-5-5246-01-8602	Budget: \$13,000	Available: 95.00	Expense: 30,711.59	Remaining: 0	*
Acct:	Budget:	Available:	Expense:	Remaining:	
Acct:	Budget:	Available:	Expense:	Remaining:	

FM:

Hope La Cuité

Date: 2-27-13

* This is an expenditure that was not in the budget, however there is sufficient beginning fund balance to cover this item.

r Bids: Breathing Air Compressor, Cascade & Fill Station Project #1-13

ference:

0 p.m. February 21, 2013 Opening: Immediately Following the Closing

bidders who return plans within 10 days in good condition refunded in full

rs will be refunded \$

Name of Company	Address	Phone #	Fax #	Amount of Bid
A+E Reprographics	1030 Sandhill Dr, Ste 101 Phoenix AZ 85035	508-442-9116	928-776-1550	\$38,151.66
United Fire Equip	Phoenix AZ - E Repro.com			
Bob Bogans	bobb@ufec.com			
W.W. Williams CO	sketch@wwilliams.com			\$30,711.59
Spencer Kell	..			
L.N. Curtis	tspark@lncurtis.com			\$40,381.81
Travis Sparks				
United Fire Equipment Company	Jeff@ufec.com 335 N. 4th Ave, Tucson AZ 85705	520-622-3639	520-322-3991	



February 21, 2013

Town of Payson – Fire Department
303 N. Beeline Hwy
Attn: Town Clerk & Chief deMasi
Payson, AZ 85541

**Re: BREATHING AIR COMPRESSOR, CASCADE & FILL STATION / PROJECT #1-13
Quote # S1168**

Dear Chief,

Thank you for the opportunity to provide your department with a state of the art air compressor, fill station and air storage package. Our offer is for Mako breathing compressors, a brand of Gardner Denver. I feel the proposed unit will meet and exceed your demands, specifications provided and NFPA 1901 guidelines.

Breathing Air Compressor System

One (1) Mako model BAM06H-E3 Breathing Air Module compressor package including:

- Four stage, air-cooled compressor (14.0 cfm @ 6000 psi)
- 10 Horsepower electric motor (230V/60Hz/3 phase)
- UL listed electric panel
- Direct online IEC starter package
- PLC controller
- Instrumentation / controls:
 - High air temperature switch
 - Low oil pressure switch
 - Start/stop air pressure switch
- Gauge panel including:
 - Hour meter
 - High air temperature warning light
 - Low oil pressure warning light
 - High air pressure light
 - Emergency stop button
 - Final stage pressure gauge
- MK2C purification system (processes 32,400 cf w/ an 70 F inlet)
- CO/Moisture indicator kit
- Automatic condensate drain with muffler reservoir
- Enclosed, insulated, vertical cabinet
- Hinged access door in front
- Removable, hinged access doors on sides
- ¼" JIC male outlet fitting

Special Net: \$17,647.83

1. Our standard one (1) year warranty applies, unless the Mako5 is purchased



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Breathing Air Compressor System

One (1) Mako model BAM06H-E3 Breathing Air Module compressor package including:

- Four stage, air-cooled compressor (14.0 cfm @ 6000 psi)
- 10 Horsepower electric motor (230V/60Hz/3 phase)
- UL listed electric panel
- Direct online IEC starter package
- PLC controller
- Instrumentation / controls:
 - High air temperature switch
 - Low oil pressure switch
 - Start/stop air pressure switch
- Gauge panel including:
 - Hour meter
 - High air temperature warning light
 - Low oil pressure warning light
 - High air pressure light
 - Emergency stop button
 - Final stage pressure gauge
- MK2C purification system (processes 32,400 cf w/ an 70 F inlet)
- CO/Moisture indicator kit
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- Removable, hinged access doors on sides
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Air Storage Cascade System

One (1) model SSS-260-B Air Storage system including:

- Two (2) 6000 psi ISO/UN cylinders each with service valve and burst disc (509 cf each @ 6000 psi)
- Self-standing, steel, inline vertical rack

Special Net: \$2,622.41

SCBA Fill Station

One (1) Mako model SCFS2-3HP Two position, SCBA/Scuba, containment fill station including:

- Two position, front loading, containment fill station (29" long maximum cylinder length)
- Latching front door with safety interlock
- Two fill whips with isolation valves, bleed valves and CGA 347 SCBA fill adapters
- Fill panel including:
 - Regulator with inlet and outlet gauges
 - Safety relief valve on outlet of regulator set at 4700 psi
 - One fill control valve and gauge
 - Three bank cascade control with "to" and "from" valves
 - Bypass valve
 - Regulated auxiliary outlet with valve and high pressure male coupler
 - Embedded silk screen air flow schematic

Special Net: \$5,368.41

Accessories / Fill hoses

2. When you order a CO or CMM monitor our service department will supply, during start-up, one 0PPM calibration gas canister and one 20PPM gas calibration canister for the CO Monitor.

One (1) 009006-7800, 0 PPM calibration gas

Price: \$57.87 each

One (1) 003M4884-1, 20 PPM calibration gas

Price: \$57.87 each

Interconnection hoses, we will supply one (1) 15 foot hose to run from the BAM to the SCFS2 and two (2) 10 foot hoses to run from the TM6002 to the SCFS2.

Two (2) 005H316-120, 10 foot high pressure hose

Price: \$61.91/ea x2 pcs = \$123.82

One (1) 005H316-180, 15 foot high pressure hose

Price: \$86.24/ea



Optional Accessories – (not included in bid package price)

❖ **Carbon Monoxide Monitoring System:**

add* \$2,708.33

(* This amount is NOT included in your totals)

The CO monitor shall be mounted on the compressor operations panel.

- Shall be piped into the air flow downstream of the purification system
- Shall be tamper-resistant requiring a keystroke sequence to access monitor controls.
- Must have a warning light, audible alarm & shutdown for high concentrations of CO.
- Shall reliably detect co concentrations from 0 to 10 ppm. A digital readout shall continuously indicate the amount of CO in the compressed breathing air.
- Must be capable of adjustment at any point on the monitor between 5 to 10 ppm for shutdown.
- The unit shall indicate day till next calibration; factory set every 90 days.
- Calibration kit with 20 ppm CO is to be provided. Additionally, a cylinder with 0 ppm of CO shall be provided to conveniently and accurately calibrate the monitor.
- The system shall come complete with solenoids to control system calibration.
- The unit must stop the compressor supply air to the CO cell while the compressor is not running. This extends the life of the CO cell.

- **CMM Air Monitoring System:** The CMM is a dual monitor for both CO & moisture. It will include our standard CO monitor (see above) and the Moisture monitor with cartridge detection below:

add* \$3,198.45

(* This amount is NOT included in your bid pkg)

❖ **Moisture Monitor (Cartridge Monitoring System):**

The cartridge monitoring system shall be mounted on the compressor operations panel. The system is designed to monitor the quality of air being discharged after the compressor's purification systems. The system continuously evaluates the moisture content of the purified air and also confirms the presence of the cartridge filter in the purification chamber. The complete system consists of the following:

- A. Moisture monitor probe
- B. photo cell cartridge detection sensor
- C. Microprocessor control unit
- D. Cartridge "ok" green light
- E. Cartridge life warning light
- F. Cartridge expired red warning and compressor shutdown
- G. Install filter text message



The cartridge monitoring system operating procedure is as follows:

- Cartridge detection: In the event that a cartridge filter is not installed in the purification chamber, a text message will be displayed and the compressor will not start. This same condition will also occur in the event that any electrical connections in the system are faulty or otherwise not made. Note that mechanical devices, which could be subjected to corrosion, are not utilized.
- Moisture monitor: Upon start-up of the compressor, the moisture monitor probe (a) will continuously monitor the moisture content of the air stream at pressure. A timing device within the microprocessor control unit (a) is activated upon start-up to allow the moisture sensor to stabilize. This time cycle is operative for 8 to 15 minutes. During this cycle, the cartridge "ok" green light (d) will be flashing. Once the stabilization period is complete, the applicable status light for the moisture level will illuminate.
- Status light conditions:

Cartridge "OK" green light (d): This light will remain illuminated as long as the moisture level in the air stream is within pre-set limits. This light flashes during the initial stabilization cycle.

Cartridge life warning yellow light (e): This light will illuminate when the moisture level in the air stream approaches the pre-set limit. During this time, approximately one hour duration, the air quality is within acceptable levels.

Cartridge expired red warning light (f): This light will illuminate when the moisture level in the air stream exceeds the pre-set limit. The compressor unit shuts down under this condition.

- Adjustable timed cycles and moisture limits: All timed cycles and moisture limits which are not specified will be factory pre-set as follows:
 - 15 minutes for initial moisture probe stabilization.
 - The air stream moisture limit will be preset at -65 degrees F atmospheric dewpoint (24 ppm water vapor content) in accordance with recommendations by NFPA 1500. Other dewpoint limits can be set provided that the following are known:
 - Operating pressure
 - Mean ambient temperature



Extended Warranty - optional

One (1) Mako5 Extended Warrant

- Mako standard warranty is one (1) year parts and labor on the entire package
- With the Mako5 the customer receives two (2) years parts and labor on the entire BAM compressor package with additional coverage in years 3, 4 and 5 on the compressor block and purification system, parts only. 1000 maximum operational hours during the 5 year period.
- Semi-annual inspections and PM's must be performed during the 5 year period by an authorized and certified Mako distributor service technician
- Mako5 extended warranty policy and guidelines apply
- See attached for more details

1. **Optional 5-year warranty for compressor system additional:** **add *\$500.00**
(* This amount is NOT included in your totals)

AUTHORIZED SERVICE CENTER

The nearest factory authorized service center is W.W. Williams, Southwest Division – Flagstaff
1135 W. Kaibab Ln, Suite 2
Flagstaff, AZ 86001
Phone #928-310-8584

Hours of operation Monday through Friday 7:00 AM – 4:30 PM

- Basic start-up and travel to your specified location/station will be provided by a W.W. Williams certified factory trained Mako technician. > **Price = \$1,300.00**
- Barnett Electric of Payson, AZ will be contracted to connect power to compressor from station panel.
- W.W. Williams is authorized to perform warranty work, preventative maintenance, and on-going service.

Customer Responsibilities:

*** Customer is to provide a forklift for moving the compressor and fill station into position (capable of safely lifting 2000lbs). If this cannot be provided, one will be supplied by W.W. Williams at an additional cost. If there are space restrictions for this, please notify W.W. Williams ASAP. Proper ventilation is required for good air quality. This can be achieved through a well ventilated room or open space for the compressor system to be installed in. If additional plumbing is needed for the inlet or exhaust of the compressor, additional charges will be applied appropriately.



Total for Breathing Air compressor, fill station, cascade storage system, fill hoses, technician start-up and travel, electrician, freight & standard 1-yr warranty = \$30,711.59

(Price includes local sales tax rate @ 9.446% for equipment, hoses, fittings, misc parts required for initial start-up.)

Delivery: (exit factory) will be approximately four to six weeks after receipt of order.

Freight: FOB Princeton, IL USA > **Price: \$965.00**

Terms: NET15 days

Validity: 60 days

Attached in this booklet you will also find the following information:

- 1) Bid Proposal summary shown as estimate
- 2) Specifications & drawings of the products proposed
- 3) Third party certification letter of Fill Station exceeding NFPA 1901 testing
- 4) Standard Warranty Policy
- 5) Extended Warranty details
- 6) Mako Product Catalog
- 7) Customer Reference list
- 8) Proof of Liability Insurance

We are willing to work with Town staff on coordination of this project. Once the equipment is on order we will make arrangements with your appointed contact person for delivery, start-up & training. We understand that this engagement will not result in a conflict of interest with any Town employee or W.W. Williams employee's during the completion of our service(s). We will work diligently on finishing this project on-time and communicate with your appointed contact person throughout the duration of the entire process.

If there is a formal bid tabulation posted or a review of all the bids received; I would like to be notified with the results as well as the department's decision.

We look forward to providing you with your new Mako breathing air compressor system.

If you have any questions, please do not hesitate to contact me.

Sincerely,

W.W. Williams

A handwritten signature in black ink, appearing to read "SK", written over the company name.

Scott Krueger

SW Territory Fire Service & Equipment

Cell: 602-741-3970

skrueger@wwwilliams.com

LINE	QTY	VENDOR	PART #	DESCRIPTION	UNIT PRICE	EXT'D PRICE
1	1	MAKO	BAM06H-E3	Breathing Air Module 14cfm, 10hp, 6000-psi (3-ph 208V)	\$17,674.83	\$ 17,674.83
2	1	MAKO	SCFS2-3HP	Fill Station	\$5,368.41	\$ 5,368.41
3	1	SCBAS	SSS-260-B	Air Storage & 2 DOT 6,000-psi Cylinders	\$2,622.41	\$ 2,622.41
4	1	MAKO	009006-7800	0 PPM calibration gas	\$57.87	\$ 57.87
5	1	MAKO	003M4884-1	20 PPM calibration gas	\$57.87	\$ 57.87
6	2	MAKO	005H316-120	HP FILL HOSE 10'	\$61.91	\$ 123.82
7	1	MAKO	005H316-180	HP FILL HOSE 15'	\$86.24	\$ 86.24
8						
9	232	WILLIAMS	MILEAGE	Flagstaff to Payson	\$0.75	\$ 174.00
10	4	WILLIAMS	TRAVEL	Billed @ 45/hr estimated time 4 hours round trip	\$46.00	\$ 180.00
11	5.75	WILLIAMS	START-UP	Technicians time at job site	\$96.00	\$ 546.25
12	1	BARNETT	ELECTRICIAN	Contractor for certified electrician	\$330.00	\$ 330.00
13	1	WILLIAMS	MISC	MISC Hoses & Fittings, supplies, etc.	\$69.75	\$ 69.75
14	1	MAKO	MAKO-5	Extended 5-YR Warranty (Optional: Not incl'd in total >	\$500.00	
15	1	MAKO	CO	CO MONITOR W/ Auto calibration (Optional: Not incl'd in total >	\$2,708.33	
16	1	MAKO	CMM	CO Monitor & Moisture Monitor (Optional: Not incl'd in total >	\$3,198.45	
					Sub-Total	\$25,991.44
					Tax @ 9.446%	\$2,455.15
					Travel/Set-up	\$1,300.00
					Freight	\$965.00
					TOTAL	\$30,711.59

NOTES:
 Station 13 @ S Rim Club Pwky, Payson, AZ 85541
 Flagstaff to Payson is 2 hr 10 min (116 miles) - one way

RECEIVED

FEB 21 2013

TOWN CLERK
 TOWN OF PAYSON

Sales Specifications
Breathing Air Module
Model BAM06H

The entire breathing air module shall be integrated into a single, free-standing unit third party certified to meet cTUVus standards. The outer frame shall be of heavy-duty construction consisting of welded two inch square tube. To minimize radiant sound level the enclosure shall contain sound absorbing material.

The unit shall be designed to allow installation flush against a wall without inhibiting cooling air flow or maintenance access. The complete system shall not exceed the following dimensions.

31 ¼" (W) X 42"(D) X 66"(H)

The breathing air module shall be factory assembled and tested to assure quality and reliability. The system scope of supply shall be housed within the confines of the sheet metal enclosure; to include: UL listed electrical panel, purification system, muffler reservoir and pressure bearing components as follows:

Compressor: The compressor block shall be four stage, air cooled, pressure oil lubricated of "V" configuration and rated for continuous duty at 6000 psig with a charging rate of 14.0 cfm. The crankcase shall be of all cast iron construction, fully enclosed and support an iron crankshaft with oversized ball bearings on each end. Only two connecting rods shall be utilized. Each connecting rod shall be equipped with needle bearings on each end for long life. All pistons shall be of the captive design, manufactured of aluminum or steel and incorporate rings on all stages. Cylinders shall be of aluminum or cast iron construction with deep cooling fins to provide maximum heat dissipation. The compressor flywheel shall incorporate a high velocity fan to remove heat from the compressor. Cooling air flow from the fan shall be a minimum of 3000 cfm. Individually mounted intercoolers shall be utilized after each stage of compression and the aftercooler shall be designed to deliver final air at a temperature not to exceed 18 degrees F above ambient. Suction and delivery valves shall be designed in such a manner that they can be replaced without replacing the entire assembly. Valve inspection covers are to be provided on the first and second stage cylinders. Relief valves shall be utilized after each stage of compression.

The pressure lubrication system shall include an oil pump to supply metered quantities of lubricant directly to the fourth stage piston through a regulator and replaceable spin-off type, full flow filter. The oil pump shall be directly driven off of the crankshaft. Belt driven pumps shall not be acceptable. An oil level sight glass shall be provided for checking the crankcase oil level.

The compressor system shall have a moisture separator after every stage of compression. An automatic drain system shall be supplied to periodically discharge accumulated condensation from each moisture separator during operation and whenever the unit shuts down.

Compressor systems requiring cool down or (unloaded running periods) and those that require auxiliary cooling fans are not acceptable. The compressor system must be rated for continuous operation with no intermittent duty cycles.

The compressor manufacturer shall have an ISO 9001 quality management system standard approval on the design and manufacture process.

Compressor Enclosure: The breathing air module shall be fully enclosed with solid steel panels, minimum thickness 14 gauge. All sections of the compressor enclosure shall be lined with sound absorbing material.

An air ducting system that allows against-the-wall installation by drawing cooling air from below the unit and directing it upwards and away from the operator and control panel shall be provided.

Insulated and gasketed maintenance access doors equipped with quarter turn latches shall be located on both sides and in front of the compressor system. These latches shall be designed to draw the access doors into the frame opening. Male-female hinges on side doors shall be used to allow their fast and easy removal without requiring hand tools.

The underside of the cabinet shall be grated to prevent debris from entering the compressor compartment.

Auto Drain Muffler/Reservoir: An automatic drain muffler/reservoir system, manufactured of 14 gauge steel, shall be incorporated into the package. The reservoir shall be designed to capture discharged condensation without the need for piping to the outside and to reduce the discharge noise level. A conveniently located valve shall be supplied on the outside of the cabinet to periodically drain the condensate accumulated in the muffler/reservoir at atmospheric pressure.

Electric Motor: NEMA designed B, 2-pole, 10 horsepower, open drip proof motor shall be furnished for 3 phase, 60 hertz, 230 volts. The motor shall be suspended underneath the compressor baseplate. This baseplate shall incorporate rubber shock mounts, which isolates vibration from the rest of the cabinet. The V-belt drive shall be guarded to meet OSHA requirements.

Purification System: The purification system and replacement filter cartridges shall be manufactured by the same company as the compressor package. The system shall be a multi-chamber arrangement each constructed of 7075T6

aluminum alloy with a tensile strength of 83,000 psi and designed for 6000 psi working pressure with a 4 to 1 safety factor. The first chamber shall be a mechanical separator to eliminate oil and water. Subsequent chambers shall utilize replaceable filter cartridges constructed of high strength, non-corrosive FDA grade polycarbonate plastic.

Non-corrosive stainless steel springs and spin welded end caps shall be incorporated within the cartridge boundary. The cartridges shall be designed to remove water vapor, hydrocarbons, noxious gases, taste and odors.

Systems requiring depressurization to check filter condition shall not be acceptable. Carbon monoxide shall also be eliminated by catalytic oxidation. The purification system shall process 34,200 cf (with a 70° F inlet temperature) before cartridge replacement. The air delivered shall meet CGA grade D & E and NFPA 1989 (2008 edition) air quality standards.

Control System: The unit shall include all necessary controls to assure efficient operation and monitor compressor performance. All necessary electric motor controls shall also be included and rated for NEMA class 12. As a minimum, the control system shall include the following:

- Air pressure switch to automatically start and stop the unit in order to maintain system pressure.
- High air temperature shutdown.
- Direct online IEC starter package with a 24 volt control voltage.
- PLC controller.
- Illuminated power "on" switch.
- Independent "start" and "stop" push button switches.
- Emergency stop button.
- Low oil pressure switch.

Instrumentation: The unit shall include all necessary gauges and lights necessary to indicate all normal and shutdown conditions. All gauges, lights and indicators shall be mounted on a steel control panel centrally located on the front of the unit and also within the cabinet.

As a minimum, the instrumentation panels shall include the following:

- Compressor interstage and final air pressure gauges.
- Hour meter.
- High air pressure shutdown light.
- High air temperature shutdown light.
- Low oil pressure light

Optional Accessories

- ❖ **Carbon Monoxide Monitoring System:** The CO monitor shall be mounted on the compressor operations panel.
- Shall be piped into the air flow downstream of the purification system
- Shall be tamper-resistant requiring a keystroke sequence to access monitor controls.
- Must have a warning light, audible alarm & shutdown for high concentrations of CO.
- Shall reliably detect co concentrations from 0 to 10 ppm. A digital readout shall continuously indicate the amount of CO in the compressed breathing air.
- Must be capable of adjustment at any point on the monitor between 5 to 10 ppm for shutdown.
- The unit shall indicate day till next calibration; factory set every 90 days.
- Calibration kit with 20 ppm CO is to be provided. Additionally, a cylinder with 0 ppm of CO shall be provided to conveniently and accurately calibrate the monitor.
- The system shall come complete with solenoids to control system calibration.
- The unit must stop the compressor supply air to the CO cell while the compressor is not running. This extends the life of the CO cell.

Or Optional Accessories (Item no.2)

- ❖ **CMM Air Monitoring System:** The CMM is a dual monitor for both CO & moisture. It will include our standard CO monitor (see above) and the Moisture monitor with cartridge detection below:

- **Moisture Monitor (Cartridge Monitoring System):**

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- A. Moisture monitor probe
- B. photo cell cartridge detection sensor
- C. Microprocessor control unit
- D. Cartridge "ok" green light
- E. Cartridge life warning light
- F. Cartridge expired red warning and compressor shutdown
- G. Install filter text message

The cartridge monitoring system operating procedure is as follows:

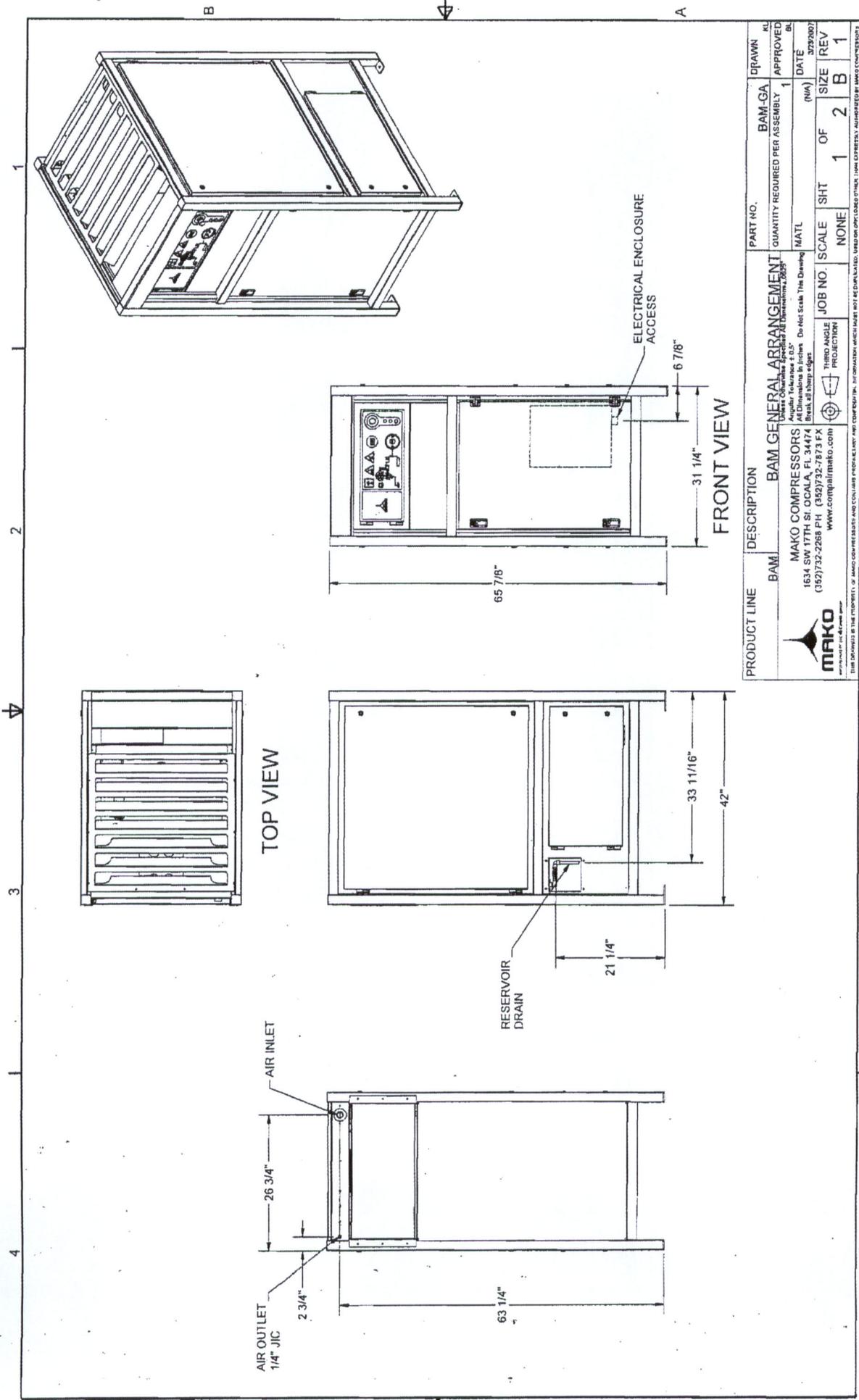
- Cartridge detection: In the event that a cartridge filter is not installed in the purification chamber, a text message will be displayed and the compressor will not start. This same condition will also occur in the event that any electrical connections in the system are faulty or otherwise not made. Note that mechanical devices, which could be subjected to corrosion, are not utilized.
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- Status light conditions:

Cartridge "OK" green light (d): This light will remain illuminated as long as the moisture level in the air stream is within pre-set limits. This light flashes during the initial stabilization cycle.

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- Adjustable timed cycles and moisture limits: All timed cycles and moisture limits which are not specified will be factory pre-set as follows:
 - 15 minutes for initial moisture probe stabilization.
 - The air stream moisture limit will be preset at -65 degrees F atmospheric dewpoint (24 ppm water vapor content) in accordance with recommendations by NFPA 1500. Other dewpoint limits can be set provided that the following are known:
 - Operating pressure
 - Mean ambient temperature

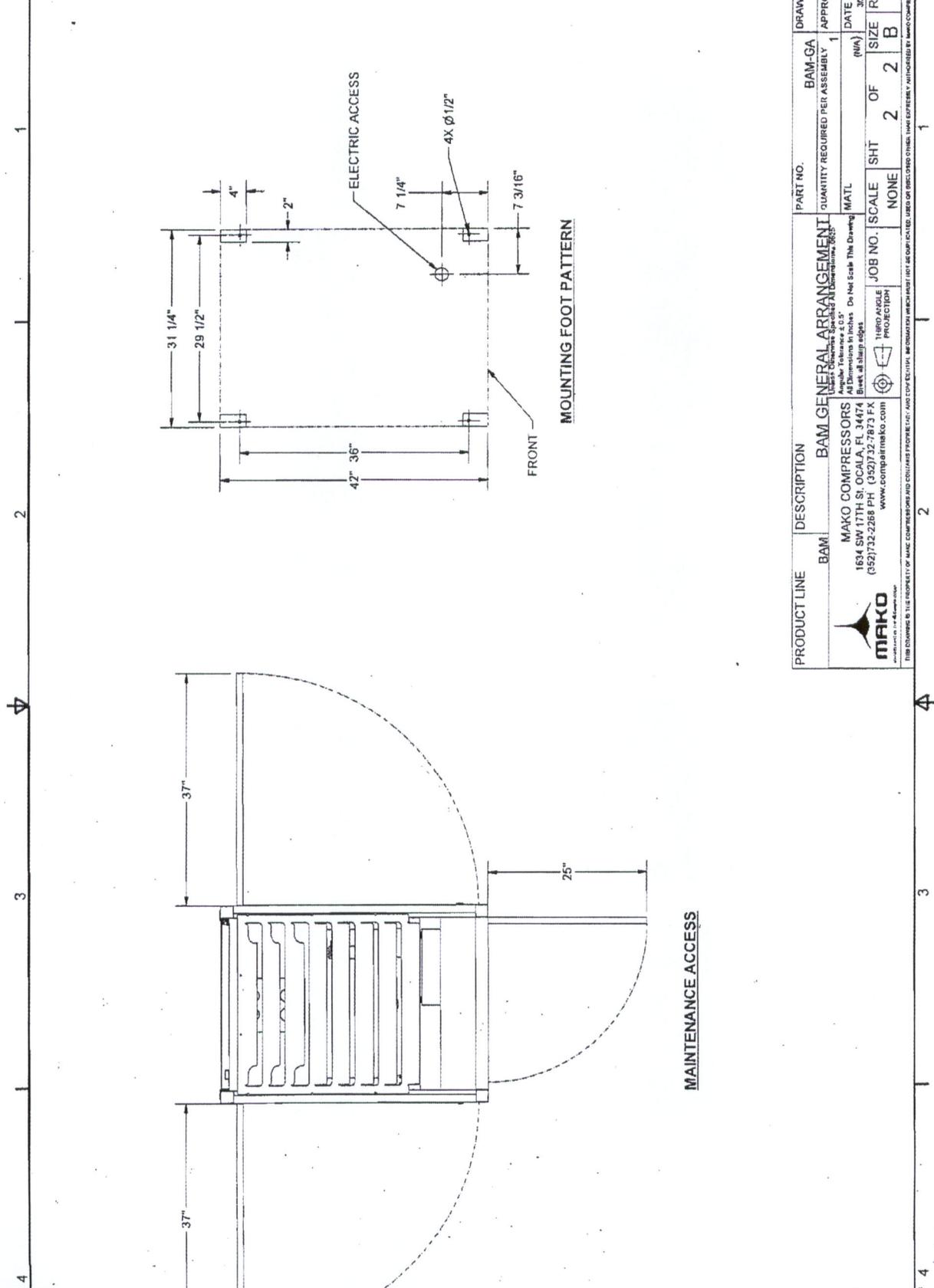


PRODUCT LINE	BAM	DESCRIPTION	BAM GENERAL ARRANGEMENT	PART NO.	DRAWN
			Quantity Required per Assembly	1	AL APPROVED
			Material	(N/A)	Bl DATE
			Job No.	3729207	
			Scale	NONE	REV
			Sheet	1	B 1
			Projection	1	

MAKKO COMPRESSORS
 1634 SW 17TH ST. OCALA, FL 34474
 (352)732-2288 PH (352)732-7873 FX
 www.complimakko.com

THIRD ANGLE PROJECTION
 ALL DIMENSIONS IN INCHES - DO NOT SCALE THIS DRAWING
 ANGULAR TOLERANCES ± 0.5°
 BREAK ALL SHARP EDGES

THIS DRAWING IS THE PROPERTY OF MAKKO COMPRESSORS AND CANNOT BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF MAKKO COMPRESSORS.



MOUNTING FOOT PATTERN

MAINTENANCE ACCESS

PRODUCT LINE	BAM	DESCRIPTION	BAM GENERAL ARRANGEMENT	PART NO.	DRAWN
	BAM	MAKO COMPRESSORS 1634 SW 17TH ST, OCALA, FL 34474 (352)732-2288 PH (352)732-7873 FX www.compartmako.com	Quantity Required Per Assembly 1	BAM-GA	APPROVED
			<small>Use Metric Dimensions for All Dimensions in Inches. Do Not Scale This Drawing. Break all sharp edges.</small>	DATE	REV
<small>THIS DRAWING IS THE PROPERTY OF MAKO COMPRESSORS AND COLLAS PROPERTIES, INC. AND COPIES MUST BE DESTROYED IF NOT BEING USED BY THE CUSTOMER. THIS DRAWING IS THE PROPERTY OF MAKO COMPRESSORS.</small>			<small>Material</small> MATERIAL	3/23/2007	1
			<small>Job No. / Scale</small> JOB NO. / SCALE	<small>Sht. / Size</small> SHT OF SIZE	<small>Rev</small> REV
			NONE	2	B
			1	2	1

Sales Specifications
Enclosed Containment Fill Station

Model SCFS2-3HP

The fill station shall be designed for stationary applications. The unit shall be totally enclosed, constructed of 3/16 inch plate steel and designed to contain an SCBA cylinder and metal fragments in the event of rupture during the filling process. The fill station shall be designed to vent rapidly expanding air away from the operator.

The fill station shall be ergonomically designed to allow the filling of two (2) SCBA bottles either separately or simultaneously. The maximum length of the SCBA bottle with the valve and fill adapter shall be 29 inches. Access to the enclosure for loading the SCBA cylinder shall be via a manually operated, tilt out door. The fill station door shall be provided with assisting devices to assure smooth operation and reduce operator fatigue. The fill station door shall be constructed of 3/16 inch plate steel. The SCBA cradle shall contain two (2) fill positions. Each fill position shall be lined with material to protect each SCBA cylinder from abrasion. The carriage shall be mounted on a pivoting system that will lower the cylinders to a near horizontal position and allow full access to all SCBA bottles, fill hoses and valve assemblies with minimal operator fatigue.

To ensure operator protection, a fully automatic safety interlock that prevents SCBA cylinder filling until the door is completely closed shall be provided. Two (2) fill hoses with SCBA adapters shall be provided and located within the enclosure. The fill hoses shall be protected by a safety relief valve set at 4700 psi.

The fill station shall be designed to fill the SCBA cylinders within the fill station boundary. The control panel shall include a 0 to 6000 psi adjustable regulator with push action valve, regulated outlet pressure gauge, one (1) SCBA fill valve and bottle pressure gauge.

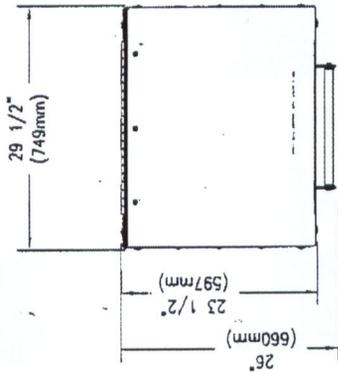
A painted steel fill panel affixed with a silk screen overlay shall be mounted on the front of the unit. The overlay shall contain an embedded airflow schematic. The fill station shall be designed to cascade the air storage system. The control panel shall include pressure gauges and flow control valves for three (3) storage banks. Piping shall be arranged to permit each bank to be filled or drawn down independently of other banks (one "From" valve and one "To" valve with pressure gauge per bank). This allows the operator to draw air from one bank to fill SCBA's, while simultaneously refilling another bank from the compressor. A bypass valve shall be supplied to permit direct use of the compressor, bypassing the storage system. A regulated auxiliary fill outlet, complete with a valve and high pressure coupler with mate shall be standard.

The fill station shall be built and tested to conform to NFPA 1901 and the recommendations in NFPA 1500.

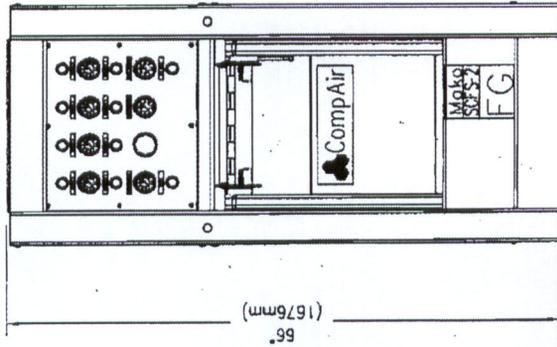
MAKO COMPRESSORS INC.



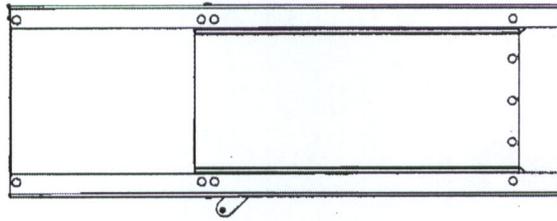
SCFS-2 STATIONARY CONTAINMENT FILL STATION
GENERAL ARRANGEMENT



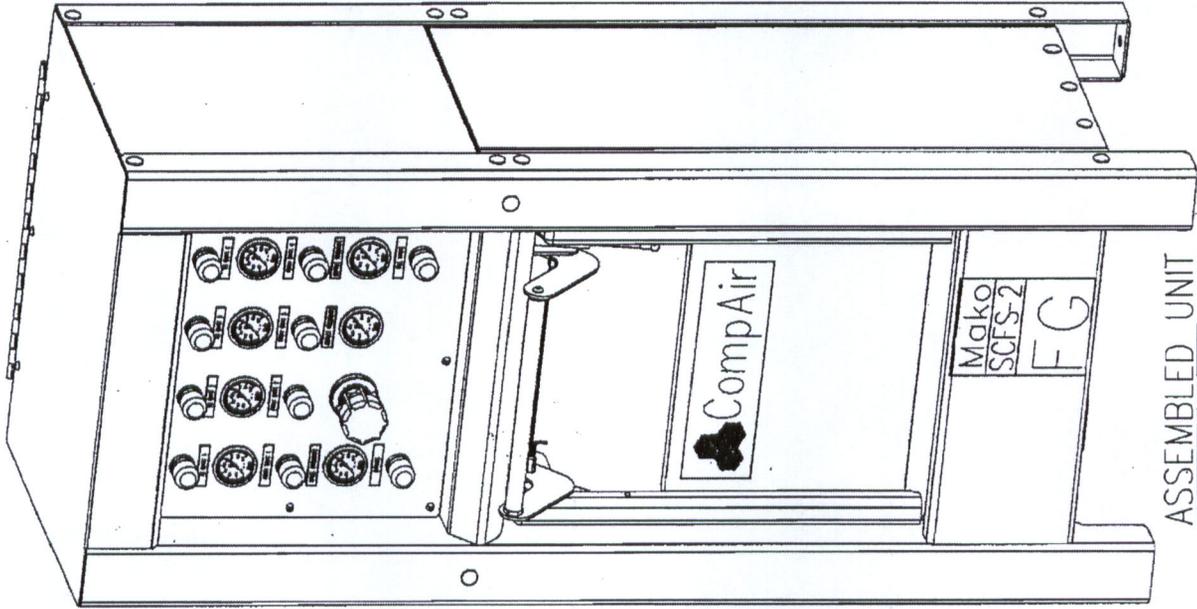
TOP VIEW



FRONT VIEW



SIDE VIEW



ASSEMBLED UNIT

N/A SCALE

SCALE: 1/16 SIZE
DRAWN BY: K. M. BAGGETT
DATE: NOV. 1, 2000
APPROVED BY: S. M. BAGGETT
PART NO. --
REPLACES DWG. -----

DRAWING NUMBER AND/OR FILE:
D:\STATION\SCFS\
DIG21571.DWG

1634 SW 17th STREET, Ocala, FLORIDA 34474 TELEPHONE (352) 732-2268 FAX (352) 732-7873

Sales Specifications
Air Storage System
Model SSS-260-B

The breathing air storage system shall include the number and type of cylinders specified below mounted on a self-standing vertical inline rack. The system shall include all fittings, interconnecting piping, valves and hardware necessary to operate as a cascade system and meet all current UN, D.O.T. , TC and ISO 9809 code requirements.

UN System -

The breathing air storage system shall consist of two (2) UN storage cylinders each with a minimum capacity of 509 cubic feet of air at 6000 psig.
Painted yellow



CompAir Mako

1634 SW 17th Street
Ocala, FL 34474

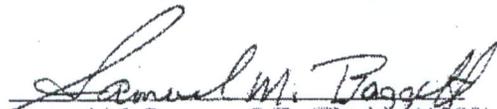
Telephone (352) 732 2268
Facsimile (352) 732 0414
www.compainnako.com

**TWO POSITION
STATIONARY CONTAINMENT FILL STATION
MODEL SCFS2
CERTIFICATION**

On June 24, 1996 an aluminum (Luxfer) 80 SCF SCUBA bottle (Number DOT-SP6498-3000 3AL P40694) was exploded at a pressure of 5200 PSIG inside the protective enclosure of the Mako Two Position SCFS (Stationary Containment Fill Station). Said protective enclosure successfully contained the fragments from the exploding bottle without compromising the protective boundary.

Although this test was conducted prior to the effective date of NFPA 1901 paragraph 23-9.4 all test parameters and conditions exceeded those subsequently prescribed by NFPA 1901 23-9.4. Attached is a third party witnessed test of a two position mobile containment fill station (MCFS2). Structurally the two position SCFS2 is identical to the MCFS2 with the exception of integral feet to place the containment chamber at an ergonomic height and a frame work extension above the containment chamber to hold air management panels.

The Mako SCFS2 is in full compliance by virtue of the original test and a subsequent validation test on the containment chamber.


Samuel M. Baggett, P.E. (Florida 41280)
Engineering Manager

01-20-05
Date



Mako Compressors

100 Gardner Park
Peachtree City, GA 30269
Phone: (877)-272-1675
Fax: (770) 632-5071

MAKO STANDARD WARRANTY POLICY

Mako warrants this product to operate in accordance with its specifications free from defects in material and workmanship, under normal conditions set forth in its Operating and Maintenance Manual for twelve (12) months from initial startup or eighteen (18) months from shipment by Mako, whichever period occurs first. Replacement parts are warranted to be free from defects in materials and workmanship for the remainder of the applicable original 12- or 18-month warranty period for the original product, or ninety (90) days from date of shipment by Mako, whichever period occurs later.

The warranty does not cover operating failures caused by major accessories (e.g., motors, engines, batteries) manufactured and separately warranted by their respective manufacturers, or electrical components; or failures of the product or any part if either has suffered damage due to abuse, accident, operation under abnormal conditions, or repair with parts or by persons not authorized or certified by Mako.

Mako's only obligation under the warranty is, at its option, to repair or replace any parts of Mako manufacture which are determined by it to have become defective during the applicable warranty period, provided the warranty claim is made within thirty (30) days after the end of the applicable warranty period. This is the buyer/owner's exclusive remedy for breach of the warranty.

The owner/user assumes all risks of any other direct, indirect, incidental or sub-sequential loss or damages, and no claim for any such loss or damages based on (i) breach of warranty, (ii) negligence, strict liability or other tort, or (iii) breach of contract, will be asserted by the owner/user or accepted by Mako.

This warranty is made in lieu of the warranties or merchantability, fitness for particular purpose, and all other warranties, express or implied and may not be varied or extended except in writing by an authorized official of Mako.

MAKO.5

5-YEAR EXTENDED WARRANTY

We've Got Your Back

5-YEARS, 1000 HOURS

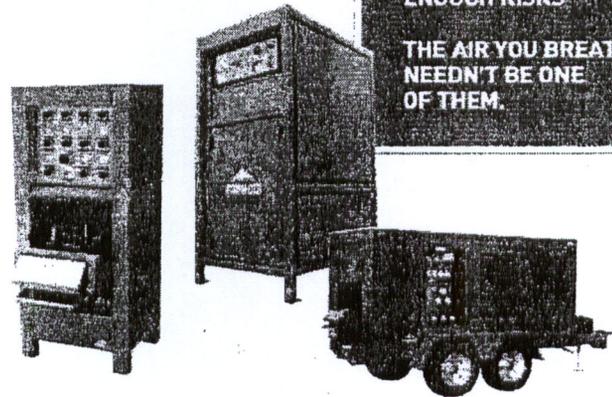
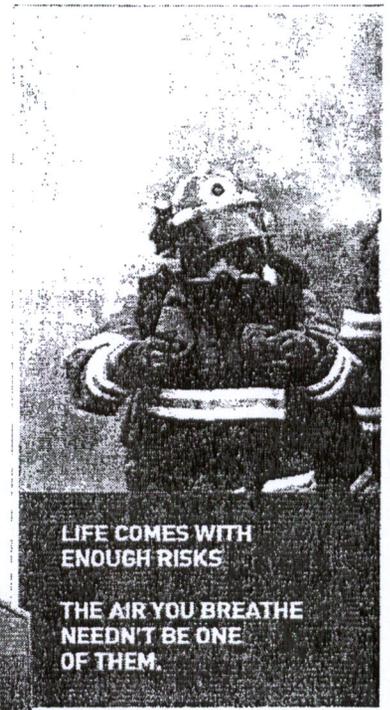
The Mako5 is offered exclusively to the municipal fire market, and it covers Mako's full-line of stationary breathing air compressors, containment fill-stations, and mobile trailer systems.

PROGRAM SUMMARY & REQUIREMENTS

- Warranty coverage:
 - » Stationary Compressors:
 - 2-year comprehensive, parts and labor
 - Years 3-5 block and purification system, parts only
 - » Containment Fill-Stations:
 - 2-Years comprehensive, parts and labor
 - » Mobile Trailer Systems:
 - 1-year comprehensive, parts and labor
 - Years 2-5 block and purification system, parts only
- Semi-annual inspections and PM's must be performed by an authorized and certified distributor service technician
- Customer is required to use only genuine Mako parts during the entire warranty period
- Compressor must be ran minimum 1-hour per week to ensure proper lubrication to all critical compressor block components

Maximize the benefits of your investment and have confidence knowing your Mako breathing air system is...

- The best built, most reliable product on the market
- Backed by our comprehensive 5-year, 1000-hour warranty
- Serviced by our distributors' highly trained, highly-skilled technicians
- Maintained using only genuine, Mako OEM parts



Contact your local authorized MAKO distributor for complete program details



Mako Compressors
100 Gardner Park
Peachtree City, GA 30269
877-272-1675
770-632-5071 fax
www.makocompressors.com

DISTRIBUTOR PARTNER

Mako5 - 5 Year Extended Warranty:

Coverage Periods:

- 5 Year – 1000 hours*

Coverage*:

- o **Stationary Compressors –**
 - Years 1-2, comprehensive – parts & labor
 - Years 3-5, block and purification system only – parts only
- o **Containment Fill-Stations –**
 - Years 1-2, comprehensive – parts & labor

Service Requirements:

- o Equipment start-up **MUST** be completed by an authorized, certified distributor service technician
- o Completed start-up report and registration documents **MUST** be submitted to Mako's service & warranty rep to initiate the extended warranty within 30-days of actual equipment start-up
- o Customer **MUST** agree and adhere to Mako's bi-annual service interval and PM requirements – said program must be administered and handled by an authorized, certified distributor service technician
- o **ONLY** genuine Mako parts may be used during the term of the warranty
- o Distributor **MUST** maintain an equipment maintenance log for each product covered under this warranty – said document is provided by Mako
- o To insure proper lubrication to critical block components, the compressor **MUST** be ran minimum 1-hour per week
- o If any of the aforementioned program requirements are not adhered to, the extended warranty is voided – NO refunds or credits will be issued

MAKO COMPRESSORS

<u>CURRENT CUSTOMERS</u>	<u>QTY</u>
APACHE JUNCTION FIRE	1
BAGDAD FIRE	1
BLYTHE FIRE	1
BUCKEYE FIRE	1
BUCKEYE VALLEY FIRE	1
CASA GRANDE FIRE	1
CHANDLER FIRE	1
CHINO VALLEY FIRE	1
CONGRESS FIRE	1
COTTONWOOD FIRE	1
DAISY MOUNTAIN FIRE	1
EAGER FIRE	1
EL FRIEDA FIRE	1
EL MIRAGE FIRE	1
FOREST LAKES FIRE	1
FORT MCDOWELL FIRE	1
GILA RIVER FIRE	2
GLDER VALLEY FIRE	1
GLOBE FIRE	1
GOLDER RANCH FIRE	1
GOODYEAR FIRE	1
HOUSTON MESA FIRE	1
KEARNEY FIRE	1
KINGMAN FIRE	1
LAKE PLEASANT FIRE	1
MAYER FIRE	1
MCMULLEN VALLEY FIRE	1
NOGALES FIRE	1
PHOENIX FIRE DEPT	7
PICTURE ROCK FIRE	1
PIMA COUNTY ROOSEVELT	1
PINE/ STRAWBERRY FIRE	1
RAYTHEON FIRE	1
RINCON VALLEY FIRE	1
RIO RICO FIRE	1
RIO VERDE FIRE	1
SAFFORD FIRE	1
	44

<u>CURRENT CUSTOMERS</u>	<u>QTY</u>
SAN LUIS FIRE	1
SCOTTSDALE FIRE	2
SEDONA FIRE	2
SIERRA VISTA FIRE	1
SOUTH TUCSON FIRE	1
SPRINGERVILLE FIRE	1
ST. DAVID FIRE	1
SUMMERTON FIRE	1
SUMMIT FIRE	1
SUN CITY FIRE	1
SUPERIOR FIRE	1
SURPRISE FIRE	3
THREE POINTS FIRE	2
TOHONO FIRE	2
TOMBSTONE FIRE	1
TRI CITY FIRE	1
TUCSON FIRE	3
WELTON FIRE	1
WHISPERING PINES FIRE	1
WICKENBURG FIRE	1
WILCOX FIRE	1
WILLIAMS FIRE	1
WINSLOW FIRE	1
WITTMAN FIRE	1
YUMA FIRE	2
YUMA PROVING GROUNDS	1
<u>LAS VEGAS AREA FIRE DEPT.</u>	
BOULDER CITY FIRE	1
CLARKE COUNTY FIRE	1
COLORADO CITY FIRE	1
LAS VEGAS FIRE, CITY OF	1
	39
TOTAL =	83

83 UNITS IN SW DIVISION AOR



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
10/29/2012

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Hylant Group - Columbus 565 Metro Place South, Suite 450 Dublin, OH 43017	CONTACT NAME:		
	PHONE (A/C, No, Ext):	614-932-1200	FAX (A/C, No): 614-932-1299
E-MAIL ADDRESS:			
INSURER(S) AFFORDING COVERAGE			NAIC #
INSURER A: Travelers Prop & Cas Co of America			25674
INSURER B: Great American Insurance Co.			16691
INSURER C:			
INSURER D:			
INSURER E:			
INSURER F:			

INSURED
The W.W. Williams Company
See Below for Additional Named Insured
835 West Goodale Blvd
Columbus, OH 43212

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input checked="" type="checkbox"/> LOC	X	X	TC2JGLSA134D691812	11/01/2012	11/01/2013	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS	X	X	TC2JCAP134D692A12	11/01/2012	11/01/2013	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
B	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> EXCESS LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE DED <input checked="" type="checkbox"/> RETENTION \$ 10,000	X		TUU357871306	11/01/2012	11/01/2013	EACH OCCURRENCE \$ 10,000,000 AGGREGATE \$ 10,000,000
A	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY <input type="checkbox"/> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		X	TC2HUB134D107A12 Included All Other States	11/01/2012	11/01/2013	<input checked="" type="checkbox"/> WC STATUTORY LIMITS <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)
 Additional Named Insureds: W.W. Williams Southwest, Inc., W.W. Williams Midwest, Inc., W.W. Williams Southeast, Inc., W.W. Williams Transport Refrigeration, Inc., W.W. Williams Power Systems, Inc., W.W. Williams Logistics, LLC.

Certificate Holder is included as Additional Insured where required by written contract. Insurance is primary and non-contributory where required by contract. Named Insureds Rights of Subrogation are waived where required by written contract.

CERTIFICATE HOLDER	CANCELLATION
PROOF OF INSURANCE	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE <i>Patricia Dayton</i>