FEATURES

- Compliant with all requirements of NIOSH and ANSI/NFPA-1981, 1997 Edition.
- Regulator: mask-mounted second-stage regulator (MMR) provides clean low-profile design; air hoses concealed within harness straps to reduce clutter; bypass system conveniently located on second stage.
- Facepieces: choice of Ultravue Facepiece or wide-vision Ultra Elite Facepiece (both available in three sizes) and in a choice of silicone or Hycar rubber; super hardcoat lens; speaking diaphragm or optional ESP Communications System.
- Choice of eleven high-and low-pressure cylinders to accommodate different needs and budgets.
- Harness & Formed Carrier: flame- and heat-resistant; retroreflective coatings and markings; designed for comfort and durability.
- All MMR units can be easily upgraded to include the Quick-Fill option for emergency escape breathing, plus fast, convenient refilling of cylinders.

DESCRIPTION

MMR Air Masks feature a sleek design and provide high performance in a comfortable, lightweight unit. Developed jointly by MSA's U.S. and German engineering teams, MMR Air Masks feature world-class performance.

Performance is maximized by splitting the regulator stages, with the first-stage mounted on the cylinder backplate and the lightweight second-stage regulator mounted on the unit's full facepiece. An intermediate-pressure hose connects the two stages and is routed through the harness.

Like all MSA open-circuit self-contained breathing apparatus (SCBA), Ultralite MMR and Custom 4500 MMR units can be used where oxygen deficiency or hazardous contaminants present a danger. Custom 4500 MMR Air Masks can be used with 60-minute, 45-minute and 30-minute-rated cylinders pressurized at 4500 psig. Ultralite MMR Air Masks are used with 2216 psig cylinders rated at 30 minutes, or with MSA's L30+ Stealth or Composite III

Cylinders, pressurized at 3000 psig to provide 15 more cubic feet of air than the standard 30-minute cylinders. A dual-purpose conversion kit adds the capability of an air-line respirator.

MMR Air Masks are pressure-demand apparatus, designed to maintain a slight positive air pressure inside the facepiece during inhalation and exhalation. This helps prevent contaminants from seeping in around the facepiece, even if there are small breaks in the face-to-facepiece seal.

For comfort, MMR Air Masks assure maximum performance with minimum weight.

Ultralite MMR and Custom 4500 MMR Air Masks comply with performance requirements of the American National Standards Institute (ANSI) and the National Fire Protection Association (NFPA) ANSI/NFPA-1981 Standard for Open-circuit SCBA, 1997 Edition. They are certified by the National Institute for Occupational Safety and Health (NIOSH).

MSA

The Ultralite MMR Air Mask:

A low-pressure (2216 psig or 3000 psig) SCBA, this model accommodates six different 30-minute-rated cylinders. For maximum weight reduction, the Ultralite MMR Air Mask is available with MSA Stealth L30 or L30+ Carbon-Wrapped Cylinders. When equipped with the Stealth L30 Cylinder, the Ultralite MMR Air Mask weighs only 19.5 pounds. The optional 3000 psig Stealth L30+ Cylinder, while slightly heavier, more closely approximates 30 minutes' use under heavier exertion. The Ultralite MMR Air Mask can also be used with a fiberglass or Kevlar fully-wound Composite II cylinder, fiberglass hoop-wound cylinder, or aluminum cylinder, all of which are pressurized at 2216 psig.

The Custom 4500 MMR Air Mask:

Interchangeable 4500 psig air cylinders let you use this high-pressure apparatus as a 60-minute, 45-minute, or 30-minute-rated unit. The complete Custom 4500 MMR Air Mask, with MSA Stealth H-30 Carbon-Wrapped Cylinder, weighs approximately 19.5 pounds, and is one of the lowest profile 30-minute SCBAs available. When equipped with a 30-minute fully-wound Composite II cylinder, the unit weighs approximately 22.8 pounds. With the long-duration (60-minute) Stealth H-60 Cylinder, the apparatus weighs approximately 25 pounds. Equipped with the 45-minute Stealth H-45 Cylinder, the weight of the apparatus is approximately 22 pounds. Another cylinder option is a 60-minute fully-wound Fiberglass cylinder (approx. 30.5 pounds).

Custom 4500 MMR Air Mask, shown with Vulcan Harness, Ultra Elite Facepiece and SpeeD-On FHR Head Harness.

Dual-Purpose Conversions:

For added versatility of MMR Air Masks, dual-purpose conversion kits are available, providing the capabilities of an air-line respirator and SCBA in one. Cylinder choices remain the same for both Ultralite MMR and Custom 4500 MMR units. The conversion kits may be installed by MSA or by an MSA-certified Level II Air Mask specialist.

SIX BASIC COMPONENTS

Standard MMR Air Masks consist of either an Ultra Elite or Ultravue Facepiece, two regulator stages, an audible low-pressure warning device, FHR (flame-and heat-resistant) harness and carrier assembly, and air cylinder.

Ultra Elite® and Ultravue® Facepieces:

MMR Air Mask users can choose between two pressure-demand facepieces: the state-of-the-art, wide-vision Ultra Elite Facepiece and the proven Ultravue Facepiece with wrap-around lens.

Designed to provide exceptional peripheral and downward vision, the Ultra Elite Facepiece is available in small, medium and large sizes and in

Ultra Elite Facepieces

a choice of two materials: black silicone or black Hycar™ rubber. Hycar rubber provides a super-soft facepiece texture for a smooth and comfortable fit. It also resists chemical attack and temperature extremes; and withstands rugged day-to-day use without tearing and ripping.

The design of the Ultra Elite Facepiece is based on extensive anthropometric studies of the face-length, temple-width and chin-width data from more than 8,000 individuals. The result is a facepiece that provides improved seals against a wide range of facial contours.

Like Ultra Elite Facepieces, Ultravue Facepieces are available in small, medium and large sizes. They are also

color-coded to size. The small Ultravue Facepiece has a gray lens ring, the medium has a black ring, and the large size is gold. These different sizes help users to comply with various OSHA requirements and consensus standards, such as ANSI/NFPA-1500, Standard for Fire Department

Ultravue Facepieces

Occupational Safety and Health Programs. Ultravue Facepieces are also available in three materials and two colors, including black and green Hycar rubber, and black silicone.

To provide a secure, comfortable fit, MSA full facepieces utilize five adjustable straps to hold the facepiece to the head — two straps on each side and one on top. Each strap has stainless steel, field-replaceable buckles that resist chemical attack. With the Ultra Elite Facepiece, the straps feature slightly larger adjustment tabs that are easier to manipulate, even with gloves on.

For slip-on convenience, both the Ultra Elite and Ultravue Facepiece can be equipped with the optional EZ™-Don or NFPA-compliant SpeeD-ON® Facepiece Harness. Made of flame- and heat-resistant Kevlar Fabric, the harness features a hair-net-type, five-point suspension that can be easily and securely adjusted at each point.
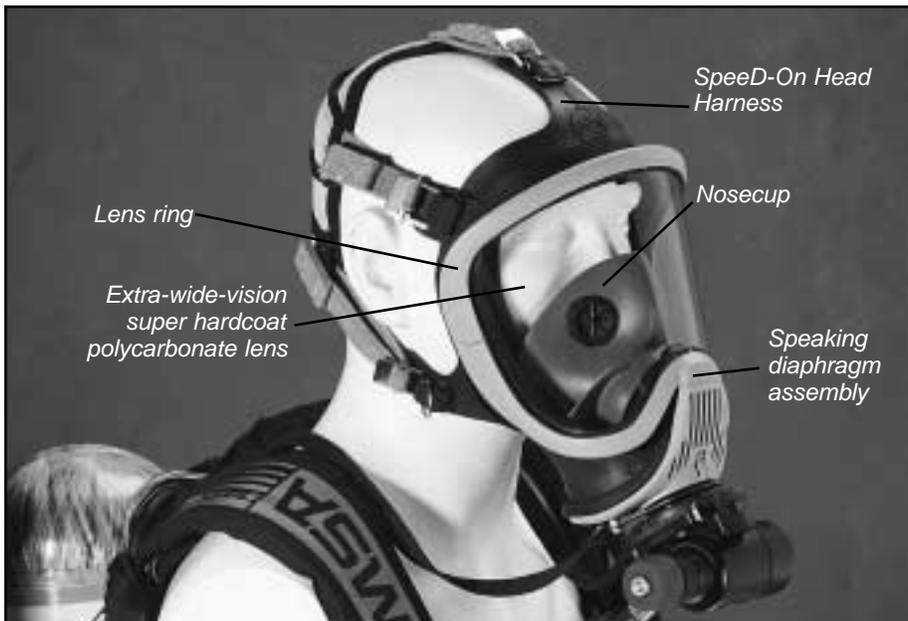
Lenses on MSA full facepieces are molded from polycarbonate and are retained by a two-piece lens ring assembly. To replace the lens on either the Ultra Elite or Ultravue Facepiece, simply remove the two screws of the lens ring and insert a new lens.

A special super hardcoating provides a tougher, more durable facepiece lens to resist scratching.

To help minimize lens fogging, both facepieces use molded-in tissot ducts and a baffle plate. This allows inhaled air to flow over the lens while exhaled air is directed down toward the exhalation valve, not on the lens.

MSA also offers optional nosecups (two sizes for Ultra Elite Facepieces and three sizes for Ultravue Facepieces) to reduce fogging when

Labels on image:
- SpeeD-On Head Harness
- Lens ring
- Nosecup
- Extra-wide-vision super hardcoat polycarbonate lens
- Speaking diaphragm assembly

The Ultra Elite Pressure-Demand Facepiece with SpeeD-On FHR Head Harness

working in sub-freezing temperatures. The NIOSH certifications of MSA Air Masks require that a nosecup be used at temperatures below 32° F.

Ultra Elite and Ultravue Facepieces are both equipped with a spring-loaded, pressure-demand exhalation valve designed for easy maintenance. A small post extends through the valve and can be pressed from inside the facepiece for easy inspection and cleaning. The facepieces also have an inhalation check valve that prevents exhaled air from entering the second-stage regulator. This feature also simplifies routine cleaning and maintenance.

To provide speech intelligibility, MSA full facepieces feature a mechanical speaking diaphragm that allows short-range communication. The speaking diaphragm consists of a Kapton disc sealed between two perforated aluminum discs.

With the Ultravue Facepiece, the communications assembly is protected by a high-strength Noryl housing, which is secured to the facepiece with a stainless steel clamp. With the Ultra Elite Facepiece, the speaking diaphragm is integrated into the facepiece itself and protected by a polycarbonate housing.

MSA also makes available the ESP® Communications System and the ESP® RI or VARI-Clear™ System for direct two-way radio interface (see page 11).

For added versatility, Ultra Elite and Ultravue Facepieces are interchangeable with other MSA pressure-demand apparatus.

Ultra Elite and Ultravue Facepiece assemblies include a Nomex neck strap to carry the facepiece in a ready position for quick donning. The neck strap attaches in a manner that positions the facepiece upside down when carried, preventing debris and water from collecting inside the facepiece and possibly going into the second-stage regulator.

MMR First-stage Regulator is mounted to cylinder backplate.

The First & Second-Stage Regulators:

Together, the MMR regulators reduce the pressure of the cylinder air to slightly above atmospheric pressure, and then regulate air flow to meet the respiratory requirements of the user. The design results in a system that can provide more than 500 liters of air per minute (lpm), enough for the most demanding situations where the wearer's breathing rate is at its very highest.

The balanced first stage, also called the high-pressure regulator, is mounted on the backplate near the cylinder. Air from the cylinder is routed to the first stage via a steel-reinforced, braided fabric high-pressure hose. Even as cylinder pressure decreases, the outlet pressure of the first stage remains constant.

Air travels from the first to the second stage via a neoprene intermedi-

ate pressure hose that runs through the left shoulder strap to minimize clutter and reduce the possibility of snagging when operating in confined, debris-strewn areas.

The facepiece-mounted second stage responds quickly and accurately to the wearer's rapidly changing breathing requirements. The second stage features a unique "pilot operated" design that results in an unusually compact unit. The second stage maintains a positive pressure inside the facepiece, even under testing conditions well in excess of the respiration rate and flows required by NFPA-1981.

Each side of the second-stage unit features a control function, and the unit can be inserted and turned to either side so the controls are where they are most convenient for the user. One control is the shut-off button, which is recessed for protection against accidental impact. Air flow to the facepiece is automatically activated simply by inhaling. When the user removes the mask, pushing the shut-off button stops the air flow. The other control is a red bypass knob. In the event that the second stage malfunctions, the bypass can be activated with a simple twist to provide a flow of air.

Second-stage Regulator is mounted on the facepiece.

The second-stage housing is made of Ultem, an extreme-heat-resistant material. The entire assembly attaches to the facepiece through a quarter-turn quick connect mechanism that locks into place. The first-stage regulator housing is made of a high-strength aluminum alloy, specially anodized both inside and out with a Teflon-impregnated hardcoat that resists chemicals and saltwater spray.

Second-stage regulators are interchangeable between high- and low-pressure MMR Air Masks.

Both stages of the regulator have been designed for high performance, reliability, durability and ease of maintenance.

A neckstrap/regulator retainer which provides a redundant lock between facepiece and regulator is required at temperatures below 32ºF.

The second-stage regulator, or low-pressure portion, is composed of an anodized aluminum "spool" assembly that houses the bypass valve, power-stage body and lever assembly. At the heart of the unit is the power-stage diaphragm, a durable silicone membrane with a precision control orifice. A highly responsive pilot diaphragm operates a precise control linkage, modulating the pressure above the power-stage diaphragm, thereby providing precise flow of air to the user.

The first-stage regulator has only one moving part and one moving O-ring. It features a "nested spring" design that provides a redundant independent control of air regulation.

In use, the first-stage regulator provides a nearly constant output pressure, even under declining cylinder pressures.

The first-stage regulator has a pressure-relief valve that vents any excessive pressure which may develop in the system and then automatically reseats.

The regulator inlet has a sintered stainless steel filter to prevent particles that may be in the cylinder air from entering and affecting the performance of the regulator. The filter traps particles as small as 20 microns.

A dial-type pressure gauge that shows the remaining air pressure in the cylinder is mounted on the right shoulder strap in an inverted position that can be easily read by the user. The pressure gauge is connected to the first-stage regulator, via a hose that runs through the shoulder strap.

The dial-type gauge is easy to read since it provides a "picture" as well as a number. The gauge features luminescent numerals that can be read in complete darkness, and is protected by a flame-resistant rubber guard.

Dual-Purpose Regulator Conversion:

Air-line capability can be added to any MMR Air Mask through installation of the dual-purpose conversion kit. Any MSA-trained Level II Air Mask

Dual-Purpose Regulator Conversion Kit

specialist can install the kit.

The dual-purpose operation is unique in that the SCBA cylinder valve remains open at all times. When the air-line is connected to the waist belt-mounted junction block, air from the cylinder is automatically shut off, and only air from the air-line is used. When the user disconnects the air-line, air flow automatically comes from the SCBA cylinder. It is not necessary to open or close the cylinder valve when using the dual-purpose feature.

ORDERING INFORMATION

Audi-Larm™ Warning Device:

All MSA Air Masks are equipped with the time-proven Audi-Larm Warning Device that signals the user by a loud, clear bell when the air supply in the cylinder has been reduced to 20 to 25% of the rated service life of the air mask.

Audi-Larm Warning Device

With Ultralite MMR Air Masks, it rings at approximately 540 psig, indicating that about six minutes of air remain; with Custom 4500 MMR Air Masks and a 30-minute-rated cylinder, it rings at approximately 1,000 psig, indicating that about 12 minutes of air remain.

It also rings, briefly, every time the unit is pressurized to assure the user that the alarm is operating properly; if it doesn't ring when pressurized, the unit must not be used and should be checked and repaired immediately.

The 2½-inch diameter, nickel-plated brass bell produces a loud ringing sound that is distinctive from sirens and other alarms, making the Audi-Larm device easy to hear even in noisy work areas.

The device connects to the air cylinder valve by a hand-tightened coupling nut. This large-grooved coupling can be easily connected and disconnected even while wearing bulky gloves.

ORDERING INFORMATION

Audi-Larm Assemblies:

Part No.

Part No.	
492279	Audi-Larm Assembly for Ultralite MMR Air Mask (Black Rhino Harness)
492280	Audi-Larm Assembly for Custom 4500 MMR Air Mask (Black Rhino Harness)
10012995	Audi-Larm Assembly for Ultralite MMR Air Mask (Vulcan Harness)
10012996	Audi-Larm Assembly for Custom 4500 MMR Air Mask (Vulcan Harness)

FHR Harness and Carrier Assembly Options:

MSA MMR Air Masks are now available with a variety of carrier and harness assembly options. The new

Vulcan™ Carrier and Harness Assembly has a unique lumbar support system which features a "flared" frame design that shifts SCBA weight from your back to your hips, thus alleviating pressure from the critical spine area. And for the utmost in comfort, an optional lumbar pad provides a great shock-absorbing addition. The waist bands are also available in a single- or double-pull configuration, and are made of Kevlar material for NFPA compliance and resistance to flame and heat. In addition, the friction buckles are now angled at 30 degrees and are sewn into the shoulder straps. This provides a low profile and simplifies donning requirements. The fixed-form cylinder band also has a new "rolled" edge which allows for quicker and easier cylinder changeout.

Vulcan Harness and Carrier Assembly

The Black Rhino™ carrier and harness assembly includes a large, rubberized triangular backpad for even weight distribution, a formed backplate, extra padded shoulder straps, wide Kevlar pull straps, a fixed-length Kevlar-blend chest strap and a black Nomex waist belt. The assembly also features new, sleek, anti-rotation friction buckles that secure the apparatus to the wearer.

Also available is the low-cost Wolverine™ carrier and harness assembly. The Wolverine harness is constructed entirely from Kevlar material and uses a winged carrier assembly for comfort.

The shoulder straps on the Black Rhino carrier and harness are extra wide and padded for wearer comfort. They are covered and padded with Nomex, a flame- and heat-resistant material. Each shoulder strap is reinforced with a stainless steel cable. Should severe flames, heat, abrasion or chemical attack weaken the strap fabric, the steel cable will help to keep

the apparatus on the wearer's back.

For practical purposes, the color of the shoulder straps is black with retroreflective markings that provide enhanced visibility.

The shoulder straps are attached to the top of the carrier assembly with T-nuts, washers and screws, not rivets. This makes the straps easy to replace in the field. If a strap wears out or becomes damaged, it can be replaced simply by loosening the T-nut assemblies. Leather wear-pads at each attachment point extend the life of the straps.

Stainless steel friction buckles on the shoulder straps are easy to release and adjust and positively retain the pull straps, once adjusted. The pull straps secure the bottom of the carrier assembly to the shoulder straps.

Each 1½-inch pull strap is made of Kevlar material and the last four inches of the pull straps are triple thick to create a "handle" that is easy to locate and grip, even when wearing bulky gloves.

The harness also features a fixed-length, mid-connect strap to keep the shoulder straps properly positioned during use, and thereby allow full arm movement. The fixed-length design eliminates adjustment and the snap-type fastener provides for quick and easy attachment.

The chest strap attachment includes an anti-rotation feature that prevents the pull straps, attached at the same point, from twisting.

The improved one-piece, heavy-duty, extra-long, black Nomex waist belt features a push-button, seat-belt-style buckle. The buckle has a durable steel "tongue" and a rugged friction bar. The waist belt is attached to the buckle and triangular back pad with durable T-nuts, allowing easy field replacement.

The formed backplate assembly is made of a lightweight aluminum alloy with an easy-to-replace triangular backpad made of a tough rubberized material. This backpad actually "hugs" the back for increased wearer comfort.

The stainless steel quick-change cylinder band accommodates different kinds and sizes of air cylinders. For example, on the Custom 4500 MMR unit, changing from a 30-minute to 60-minute air supply (or 60 to 30) can be accomplished in just seconds. You just turn the latch wing to tighten or loosen the cylinder band.

For easy identification, the cylinder bands are color-coded to match compatible cylinders. Bands on Ultralite

MMR Air Masks have yellow/silver Mylar labels; bands on the Custom 4500 MMR Air Masks have green Mylar labels.

ORDERING INFORMATION

Vulcan, Black Rhino and Wolverine Harness & Carrier Assemblies:

Part No.
10005710 Vulcan Single-Pull Harness & Carrier Assembly for Ultralite MMR Air Mask
10005711 Vulcan Single-Pull Harness & Carrier Assembly for Custom 4500 MMR Air Mask
10005788 Vulcan Double-Pull Harness & Carrier Assembly for Ultralite MMR Air Mask
10005789 Vulcan Double-Pull Harness & Carrier Assembly for Custom 4500 MMR Air Mask
816487 Black Rhino Harness & Carrier Assembly for Ultralite MMR Air Mask
816486 Black Rhino Harness & Carrier Assembly for Custom 4500 MMR Air Mask
807819 Wolverine Harness & Carrier Assembly for Ultralite MMR Air Mask
811186 Wolverine Harness & Carrier Assembly for Custom 4500 MMR Air Mask

DragonFly® Personal Alert Safety System (PASS):

The DragonFly PASS is among the first PASS devices designed to meet the stringent new NFPA-1982, 1998 Edition standard which calls for automatic (hands-off) activation of PASS devices as well as two jumps in pre-alarm volume. The DragonFly PASS exceeds the new standard by offering a range of pre-alarm volumes and tones to help users avoid unnecessary progression to full alarm. Super-bright LED indicators provide visual indications: green indicates normal operation; red "wig-wag" indicates pre-alarm; and continuous red indicates full alarm. In addition, an easily acces-

DragonFly Personal Alert Safety System

sible activation button allows users to summon help manually.

Integrated directly into your SCBA, the low-profile DragonFly IP PASS automatically activates when your MSA Air Mask's cylinder valve is opened. Because the pressure switch and electronics are all housed within the PASS, assembly is as easy as changing a pressure gauge.

The DragonFly SA (stand-alone) PASS features a tethered key designed to be attached to your jump seat, locker, or vehicle interior. When you jump into action, the key snaps off, and your DragonFly SA PASS activates and is on guard, monitoring your every move. Once the job is complete, you can turn off your stand-alone PASS by simply replacing the key and pressing reset twice.

ORDERING INFORMATION

DragonFly PASS:

Part No.
10005048 DragonFly IP PASS with heat sensor
10005049 DragonFly IP PASS without heat sensor
10009767 DragonFly IP PASS with heat sensor and low-pressure gauge
10009766 DragonFly IP PASS without heat sensor, with low-pressure gauge
10009769 DragonFly IP PASS with heat sensor and high-pressure gauge
10009768 DragonFly IP PASS without heat sensor, with high-pressure gauge
10005071 DragonFly SA PASS with heat sensor
10005072 DragonFly SA PASS without heat sensor

Redundant Alarm:

Redundant Alarm

Answering the requests of firefighters nationwide, the NFPA now requires two low-pressure warning indications for SCBA to comply with NFPA-1981, 1997 Edition.

When you open your Air Mask's cylinder valve, the Redundant Alarm activates, displaying pressure readings through an analog gauge. The Redundant Alarm is low-profile and easily accessible, because it is built into your Air Mask and conveniently positioned at chest level.

Should cylinder pressure decrease to 1100 psig on high-pressure Air Masks or 540 psig on low-pressure units, both audible and visual indicators activate. Alternately flashing red and amber LEDs, a flashing electroluminescent backlight and piercing 85-decibel* sound bursts continuously warn of low-pressure levels.

For NFPA-1981, 1997 Edition compliance, replacement of existing low-pressure alarms is required. Replacement is easy for Air Masks with either belt-mounted or mask-mounted regulators.

* 85-dbA alarm measured at three meters

ORDERING INFORMATION

Redundant Alarm:

Part No.
10009770 Redundant Alarm low-pressure kit
10009771 Redundant Alarm high-pressure kit

Air Cylinders:

To accommodate different applications and needs, MSA offers Air Mask users several cylinders from which to choose. A total of eleven high- and low-pressure cylinders are available, including lightweight Stealth carbon-wrapped, fully-wound composite cylinders, a hoop-wound cylinder, and an all-aluminum cylinder.

MSA compressed air cylinders are color-coded for easy identification.

Low-pressure cylinders, pressurized at 2216 psig, are yellow. A unique "intermediate-pressure" cylinder, the Composite III Cylinder, pressurized at 3000 psig, is gray. And high-pressure, 4500 psig cylinders are green.

Stealth™ Cylinders are MSA's lightest cylinders and feature a unique outerwrap made of lightweight, high-performance carbon fibers. The carbon fibers, which have a high strength-to-weight ratio, reduce cylinder weight by two to six pounds when compared to today's lightweight fiberglass-wrapped cylinders and as much as 10 pounds when compared to aluminum cylinders.

Like all MSA fully-wound composite cylinders, Stealth Cylinders are made with a seamless aluminum liner that is precision-formed by a six-step process with quality control inspections all along the way. After forming the neck of the liner by a computer-controlled spinning process, the cylinder is wound thousands of times with high-strength carbon fibers impregnated with epoxy resin. The process is then completed with a final overwrap of fiberglass fibers for enhanced abrasion resistance. As a final touch, MSA added a "glow-in-the-dark" luminescent band for improved visibility at night. The outer edges of the luminescent band contain the color coding which differentiates between high or low pressure.

Stealth Cylinders are available in both high-and low-pressure models.

Standard air mask cylinders feature fully-wound composite construction, although MSA offers optional hoop-wound, and aluminum cylinders for Ultralite MMR users.

MSA composite cylinders have seamless aluminum liners that are completely wound over their entire surface, with high-strength glass filaments impregnated with epoxy resin. Kevlar-wrapped cylinders, which offer some weight savings over fiberglass-wrapped cylinders, use ultrahigh-strength Kevlar fibers.

The 30-minute, low-pressure, hoop-wound composite cylinder features fiberglass wrapping and provides a cost-saving advantage over fully-wound composites. In general, hoop-wound cylinders are three to five pounds heavier than fully-wound fiberglass cylinders.

Less expensive than MSA's hoop-wound cylinder, the 30-minute 3AL Cylinder is pressurized at 2216 psig and features all-aluminum construction. Because of its weight (approximately 18 pounds), it is designed for personnel who don't use an SCBA frequently.

MSA cylinders are equipped with a cylinder valve that incorporates a handwheel mounted at a right angle to the valve stem for ease of operation and protection from damage. The easy-to-read luminescent dial-type gauge has a removable rubber guard to minimize damage. And the aluminum cylinder valve is anodized with the same Teflon-impregnated coating as the first-stage regulator and Audi-Larm device.

Cylinders

ORDERING INFORMATION—Including Cylinder weight comparison

(All weights shown below are approximate figures)

Cylinder Type (Cylinder & Valve)	NIOSH Service Life Rating	Pressure	Weight (Empty)	Part No.
Stealth L-30	**30-minute**	**2216 psig**	**7 lb. - 9 oz.**	**807586**
Stealth L-30+	**30-minute**	**3000 psig**	**9 lb. - 13 oz.**	**816115**
Kevlar Fully-Wound (Composite III)	30-minute	3000 psig	10 lb. - 11 oz.	**801289**
Fiberglass Fully-Wound	30-minute	2216 psig	10 lb. - 1 oz.	**801279**
Fiberglass Hoop-Wound	30-minute	2216 psig	13 lb.	**469619**
Aluminum	30-minute	2216 psig	18 lb.	**809872**
Stealth H-30	**30-minute**	**4500 psig**	**7 lb. - 8 oz.**	**807587**
Fiberglass Fully-wound	30-minute	4500 psig	11 lb. - 1 oz.	**801287**
Stealth H-45	**45-minute**	**4500 psig**	**9 lb. - 10 oz.**	**807570**
Stealth H-60	**60-minute**	**4500 psig**	**12 lb. - 11 oz.**	**807588**
Fiberglass Fully-Wound	60-minute	4500 psig	18 lb. - 9 oz.	**801285**

The Quick-Fill® System: A Unique Option

The Quick-Fill System lets MSA Air Mask users refill and transfill air cylinders while the air mask is worn, without the need to remove the air cylinder — even in IDLH atmospheres.

This MSA-exclusive optional kit is available for Ultralite MMR and Custom 4500 MMR Air Masks, including units that have been converted for dual-purpose operation. It can also be installed on most other MSA pressure-demand air masks not originally equipped with the feature. It is designed for use with air masks equipped with fully-wound or hoop-wound composite cylinders, or aluminum cylinders.

Use of the Quick-Fill System allows unprecedented flexibility to:
- Quickly refill an SCBA cylinder from a mobile compressor or cascade system instead of changing the cylinder.
- Transfill between two cylinders, providing an Emergency Breathing System (EBS).
- Extend the air supply over longer durations when a remote cascade system or other compressed air source is conveniently located in a remote area.

Because the SCBA performance is not affected, MSA Air Masks retain their NIOSH certifications during use of the Quick-Fill system.

DESCRIPTION

On MMR Air Masks, the Quick-Fill conversion kit consists of a junction block and male Quick-Fill fitting, which is installed in the gauge line located on the left shoulder strap of the apparatus. Any accessory Quick-Fill Hose with a "female" quick-disconnect can be used to connect a pressurized air source to the male Quick-Fill fitting assembly to achieve air transfer.

The pressurized air source can be an air compressor, a cascade system or another Quick-Fill equipped air mask.

Air flow to the facepiece is not interrupted by the Quick-Fill process. And, if the receiving cylinder is empty, air flow to the facepiece is restored immediately upon connection of the

The Quick-Fill system allows emergency transfilling of air between Air Masks (EBS).

Quick-Fill System. For users who prefer it, a waist-mounted Quick-Fill adapter assembly is available as an alternative to the standard shoulder-mounted unit.

Cylinder filling and transfilling can be achieved in less than a minute. Once the cylinder is pressurized at the proper level, or, in the case of transfilling, equalized, the user can quickly disconnect. **Caution: The Composite III and Stealth L30+ (3000 psig) Cylinders are not designed for use on Quick-Fill equipped apparatus. An unexpected loss of air through the pressure relief valve will result if a fully-charged Composite III or Stealth L30+ Cylinder is used with such units.**

Fittings:
The Quick-Fill capability can be easily added to all MMR Air Masks. Simply install the junction block with the male Quick-fill adapter into the pressure gauge line, following the instructions provided with the kit. Quick-Fill Male Adapter assemblies include a filtering element, a male stainless steel quick-disconnect and a dust cover.

The Ultralite MMR Quick Fill kit includes a special pressure-relief valve, which is installed in a port provided on the Audi-Larm assembly. The pressure-relief valve prevents over

Fast refilling without cylinder changeover.

filling in the event that a high-pressure air source is used.

Hoses:
The Quick-Fill System must be used with Quick-Fill Hoses supplied by MSA. Standard lengths are available, but MSA will supply custom lengths of hose if required

Hoses are steel-reinforced and have a braided polyester outer core and Teflon inner core. Depending on the application, female quick-disconnects with dust covers are located on one or both ends.

Standard 25-foot lengths are available for refilling cylinders from compressors, cascade systems and mobile air compressor systems.

For EBS capability, a 3-foot Emergency Transfill Hose with female quick-disconnects on each end is available with a special Kevlar Storage Pouch that can be attached to the SCBA harness or carried in a firefighter's turn-out gear.

APPLICATIONS

The Quick-fill System has three primary applications:

In normal use, a firefighter or worker wearing a Quick-Fill equipped Air Mask can refill the cylinder from a compressed air source simply by connecting his Quick-Fill Male Adapter to the Quick-Fill Hose.

Air entering the male Quick-Fill fitting passes directly into the cylinder. During the filling process, the user can monitor air pressure by watching the pressure gauge on the left shoulder strap. Once the cylinder reaches proper pressure (either 2216 or 4500 psig), the user simply disconnects.

For EBS applications, a firefighter or worker has the ability to transfill cylinder air to an air mask user who may be running low on air. By connecting the 3-foot Emergency Transfill Hose between Quick-Fill fittings, air pressure between the two SCBA cylinders will equalize.

For example, if a firefighter with 800 psig of air connects to a firefighter with 2,000 psig of air, their cylinders of air will equalize at approximately 1,400 psig.

Transfilling can be accomplished between any MSA Air Mask properly equipped with the Quick-Fill accessory, regardless of the model and pressure rating.

Note: in EBS situations, the donor's air mask must have more air pressure than the receiving air cylinder and the donor unit's Audi-Larm Device must not be ringing, indicating a low air supply.

"Extending" the rated service life of an air mask can be accomplished using the Quick-Fill System by putting a compressed air source near the work area, creating a "fresh air" station — even within an IDLH environment.

Applications could include confined spaces work in general industry, or fire fighting situations in high-rise buildings, subways, ships or HazMat work areas.

The fresh air station can be a cascade system on a mobile cart or a portable compressor, equipped with a Quick-Fill Hose.

In a fire fighting application, it could even include a length of hose extended from a compressor-equipped truck into the window of a high-rise building.

When a cylinder refill is needed, an air mask user merely goes to the fresh air station and connects to the Quick-Fill Hose. This eliminates the need to leave the immediate work area for a cylinder changeover, saving time and permitting workers to concentrate on the task at hand.

Optional Waist-Mounted Quick-Fill connection

Standard 25-foot Quick-Fill Hoses (Custom Lengths Available)

The Quick-Fill option and hoses must be ordered separately. Quick-Fill adapters can be easily installed by the customer. (See chart below.)

For connecting to compressors or cascade systems, hoses with special fittings may be desired. MSA offers a selection of hoses with special threaded fittings, outlets or coupling nuts, so users can customize their Quick-Fill refilling systems.

Note: Female quick-disconnect fittings have dust covers. All SAE Fittings are for high-pressure service.

Part No.	Fitting
485332	FQD — FQD
487906	FQD — SAE-4 Fitting
487907	FQD — CGA-347 Outlet (4500 psig)
487908	FQD — CGA-346 Outlet (2215 psig)
487909	FQD — CGA-347 CN (4500 psig)
487910	FQD — CGA-346 CN (2215 psig)

FQD=Female Quick-Disconnect   CN=Coupling Nut

Quick-Fill Assemblies:

Part No.
- **495172** Ultralite MMR Quick-Fill Kit (shoulder)
- **495173** Custom 4500 MMR Quick-Fill Kit (shoulder)
- **494963** Ultralite MMR Quick-Fill Kit (waist)
- **494962** Custom 4500 MMR Quick-Fill Kit (waist)
- **485366** EBS Hose Package, includes 3-foot Emergency Transfill Hose in Kevlar Pouch
- **485331** Emergency Transfill Hose, less Kevlar Pouch
- **485390** Kevlar Pouch
- **485391** Male stainless steel quick-disconnect with SAE-10 thread, complete with dust cover (also for use as a fitting for customized refilling systems)
- **485392** Female quick-disconnect with SAE-4 thread, complete with dust cover

The ExtendAire™ System

The ExtendAire System can be used as both an emergency breathing system as well as a dual-purpose device to allow firefighters to quickly and easily connect to an air-line.

Part No.	
812956	ExtendAire Kit, Single quick-disconnect
812955	ExtendAire Kit, double quick-disconnect
812958	ExtendAire Airline Hose
812973	40" Rescue Hose

The ExtendAire System

Assembled To Order (ATO)

MSA offers more breathing apparatus choices than any other SCBA manufacturer.

With the Ultralite and Custom 4500 MMR Air Masks, users can choose from an extensive line of cylinder options, dual-purpose capabilities, the Quick-Fill System, the ExtendAire System, various size facepieces and nosecups, the SpeeD-On Head Harness and other options based on specific requirements.

All totalled, there are hundreds of possible combinations, and MSA continues to develop even more options so that workers can select just the right air mask for the job.

MSA's Assemble-To-Order (ATO) will make ordering the right mask easier and faster than ever. Instead of choosing from a handful of complete Air Mask assemblies, users can order a custom-made air mask with every option exactly as desired.

The ATO System is not only easy to use, it's fast, too. In selecting the SCBA components and accessories, customers can create their own model number and can phone in, toll-free, to MSA at 1-800-MSA-2222.

To obtain a copy of the Assemble-To-Order System and Price Information for Ultralite MMR and Custom 4500 MMR Air Masks, request Bulletin No. 0105-50. For a copy of the Assemble-To-Order System and Price Information for MMR XTreme™ Air Masks, request Bulletin No. 0105-25-MC.

To obtain a copy of the ATO via FAX, call MSA QuickLit Information Service at 1-800-672-9010. At the prompt, request QuickLit Document #2342 (ATO for Ultralite MMR and Custom 4500 Air Masks) or QuickLit Document #2465 (ATO for MMR XTreme Air Masks).

Advantages of the ATO System include:
- You get the exact model of SCBA you need
- No Special orders, because all orders are customized
- Fresher cyclinders from our continually rotated inventory
- Simplified ordering process
- Timely delivery

ACCESSORIES FOR MSA AIR MASKS

ESP Communications System

ESP®, ESP® RI (Radio Interface) and VARI-Clear™ Personal Communications Systems:

For use with the Ultravue and Ultra Elite Facepieces, these battery-powered

systems enhance vocal communications. They may be used with any of the self-contained breathing apparatus shown in this data sheet.

The ESP Communications System provides electronic speech projection through a waterproof, facepiece-mounted, wireless assembly. The system, which is easy to install, allows users to talk to each other — clearly and easily — without static or interference from radio frequencies. Designed for hands-free operation, the ESP System features a "Continuous On" mode that permits users to leave the system on without having to activate it every time they want to speak.

Both the ESP RI and VARI-Clear Systems offer voice amplification (VA) plus radio interface (RI) for communications over two-way radio systems such as walkie-talkies. The ESP RI System is compatible only with the Ultra Elite facepiece. The compact, water-resistant systems are easy to use and provide clear communications even in high-noise areas.

Ultra Elite Facepiece with Spectacle Kit

flexible wire support assembly, an integrated universal bridge/frame guide and a metal-frame spectacle front. Corrective lenses are not included. Lenses can be obtained locally or through MSA.

The flexible wire support is inserted between the inturned peripheral lip of the Ultravue or Ultra Elite Facepiece and the facepiece lens.

Spectacles are adjusted by moving them in or out of the rubber guide and moving the rubber guide up or down the center wire support.

of moist air with the facepiece lenses, thus reducing the possibility of lens fogging.

They are required when breathing apparatus are used in temperatures below 32ºF. Molded from a soft rubber compound, nosecups are resistant to facial oils. They can be quickly and easily attached to MSA full facepieces without tools. Nosecups come in three sizes (small, medium and large) for Ultravue Facepieces and two sizes (medium and large) for Ultra Elite Facepieces.

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| **Nosecups for Ultravue Facepieces** |
| **Part No.** |
| **471710** Nosecup (small) |
| **471711** Nosecup (medium) |
| **471712** Nosecup (large) |
| |
| **Nosecups for Ultra Elite Facepieces** |
| **Part No.** |
| **810412** Nosecup (medium gray) |
| **495188** Nosecup (medium black) |
| **810413** Nosecup (large gray) |
| **495189** Nosecup (large black) |
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MSA High-Pressure Filling Hose

Provides a convenient means to connect and charge high-pressure air into a high-pressure 4500 psig cylinder. Designed for 5000 psig working pressure, the five-foot-long hose has stainless steel fittings at both ends— CGA #347 fitting at the air cylinder outlet and CGA #677 at the charging end. It has a nylon protective covering which can be quickly and easily replaced if it becomes abraided. Vent holes in the hand-tightened cylinder coupling nut prevent high-pressure (4500 psig) air from entering a low-pressure (2216 psig) cylinder during filling.

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| **MSA High-Pressure Filling Hose** |
| **Part No.** |
| **476105** MSA-High Pressure |
| Filling Hose Assembly |
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| **ESP & VARI-Clear Personal** |
| **Communication Systems:** |
| **Part No.** |
| **811737** ESP System Conversion kit |
| for Ultravue Facepieces |
| **817297** ESP System Conversion kit |
| for Ultra Elite Facepieces |
| **10016593** ESP RI Ultra Eilte Mask- |
| Mounted Microphone Kit |
| with Quick-Connect |
| **817374** ESP RI Pressure-Demand |
| Component Housing Cover |
| **496917** VARI-Clear Facepiece |
| Conversion Kit, with ampli- |
| fier, microphone and inlet |
| housing assembly |
| **497368** VARI-Clear Inlet Housing |
| Kit (simplifies adding |
| VARI-Clear System at a |
| later date) |
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Spectacle Kit for MSA Full Facepieces:

Designed for use by those persons who must wear corrective lenses. A proper facepiece-to-face seal cannot be established if the temple bars of spectacles extend through the sealing edge of a full facepiece.

The Spectacle Kit consists of a

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| **Spectacle Kits** |
| **Part No.** |
| **454819** Prescription Spectacle Kit |
| for use with Ultravue |
| Facepieces (less lenses) |
| **804638** Prescription Spectacle Kit |
| for use with Ultra Elite |
| Facepieces (less lenses, side|
| wire support) |
| **493581** Prescription Spectacle Kit |
| for Ultra Elite Facepieces |
| (less lenses, center support)|
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Nosecups:

Nosecups

Nosecups are used with Ultravue and Ultra Elite Facepieces to inhibit contact

Wall-Mounted Case for MSA Air Masks:

Corrosion-resistant, tough, plastic case has a leakproof synthetic rubber gasket; protects breathing apparatus from sunlight, weathering, dust and corrosive atmospheres. Facepiece lies free on handy shelf, and regulator and cylinder are held at a convenient height in quick-release brackets. Keeps apparatus in ready-to-go condition. Measures 34$\frac{1}{2}$" H x 11$\frac{1}{2}$"D x 19$\frac{3}{16}$"W.

Wall-Mounted Case Part No.	
Ultralite MMR	
695308	30-Minute
Custom 4500 MMR	
695796	30-Minute
695797	60-Minute

Outlet connection
Tee
Pigtail
Low-pressure hose
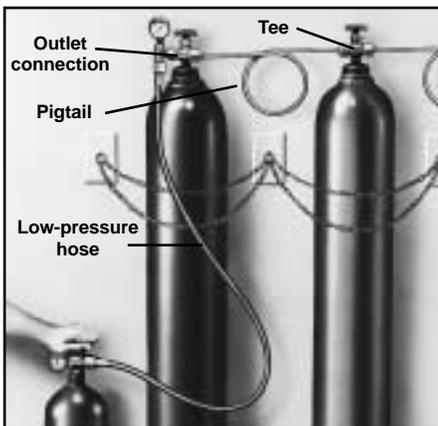
Accessories for Filling Low-Pressure (2216 psig) Cylinders:

Basic components for the system are: one coupler tee, one pigtail, one outlet connection complete with low-pressure gauge and one five-foot low-pressure (2216 psig) filling hose.

The coupler tee, which makes a connection between the supply cylinder valve and the pigtail, and the outlet connection and gauge which measures pressures from 0 to 3000 psig, are constructed of brass. The pigtail, which joins supply cylinders, is made of tubular copper.

The low-pressure filling hose connects the outlet connection and the air mask cylinder to be refilled.

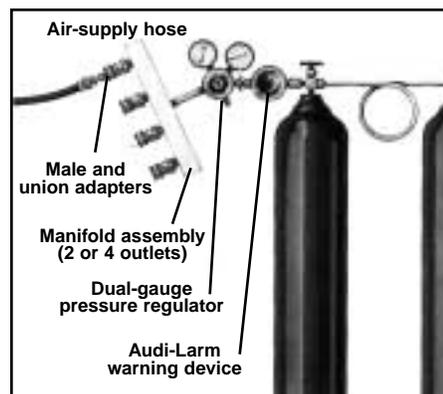| Part No.	
68846	Air Outlet Connection complete with Gauge
68850	Air Coupler Tee
68851	Air Pigtail
476156	5-ft. Low-Pressure Filling Hose

Air-line Accessories for Dual-Purpose Versions:

The following components are used to assemble a cascade system, which consists of a bank of respirable-air cylinders that supply a flow of air to Dual-Purpose Air Masks. The arrangement consists of: cylinders (supplied by the user), which are the source of air to the Foster connector on the dual-purpose regulator; coupler tees and pigtails to join the cascade cylinders together; an Audi-Larm™ Device that warns when air pressure in the cascade system falls below approximately 400 psig; a dual-gauge pressure regulator that reduces the high pressure from the system to the required inlet pressure range for Dual-Purpose Air Masks; a manifold that allows users to receive air from the cascade system (two- and four-outlet models available) with Foster Quick-Disconnects; approved air-supply hose and fittings.

Air-supply hose
Male and union adapters
Manifold assembly (2 or 4 outlets)
Dual-gauge pressure regulator
Audi-Larm warning device

Part No.	
47370	Four-outlet Manifold Assembly with Foster Quick-Disconnects
84416	Two-outlet Manifold Assembly with Foster Quick-Disconnects
85078	Audi-Larm Warning Device
68850	Air Coupler Tee
68851	Air Pigtail
68858	Pressure Regulator, dual-gauge, 0 to 3000 psig
633352	High-Pressure Regulator, dual-gauge, 0 to 5500 psig

Neoprene Air-Supply Hose
481071	8-ft. length, brass fitting
455020	15-ft. length, brass fitting
455021	25-ft. length, brass fitting
455022	50-ft. length, brass fitting
481077	8-ft. length, st. steel fitting
481078	15-ft. length, st. steel fitting
481079	25-ft. length, st. steel fitting
481080	50-ft. length, st. steel fitting

PVC Air-Supply Hose
481051	8-ft. length, brass fitting
471511	15-ft. length, brass fitting
471512	25-ft. length, brass fitting
471513	50-ft. length, brass fitting
484225	100-ft. length, brass fitting
481057	8-ft. length, st. steel fitting
481058	15-ft. length, st. steel fitting
481059	25-ft. length, st. steel fitting
481060	50-ft. length, st. steel fitting

Coiled Nylon Air-Supply Hose
491513	8-ft. length, brass fitting
491514	15-ft. length, brass fitting
491515	25-ft. length, brass fitting
474043	50-ft. length, brass fitting
696014	Hose/Breathing Tube Cover, 200-ft. roll
55716	Male Adapter for Foster Quick-Disconnects
69542	Union Adapter (required to attach male adapter, 55716, to end of air-supply hose)