

FireHawk[®] M7 Air Mask

NFPA 1981 - 2007 Edition Compliant

UPGRADE INSTRUCTIONS

⚠ WARNING

This manual must be carefully read and followed by all persons who have, or will have, the responsibility for upgrading this air mask. This air mask will perform as designed only if upgrading according to the instructions. Otherwise it could fail to perform as designed, and persons who rely on the air mask could sustain serious personal injury or death.

⚠ WARNING

DO NOT use a 2216psi air cylinder on a 3000psi operating system. Such a configuration is not approved by NIOSH. Failure to follow this warning can result in serious personal injury or death.

The FireHawk M7 Control Module, Power Module, and HUD Receiver comply with Part 15 of the FCC Rules.

Operations are subject to the following conditions:

- (1) This device may not cause harmful interference and
- (2) This device must accept any interference that may cause undesired operation.

Changes and modifications not expressly approved by the manufacturer could void the User's authority to operate the equipment.

The warranties made by MSA with respect to the product are voided if the product is not installed, used and serviced in accordance with the instructions in this manual. Please protect yourself and your employees by following the instructions. Please read and observe the WARNINGS and CAUTIONS inside. For any additional information relative to use or repair, write or call 1-800-MSA-2222 during regular working hours.

For More Information, call 1-800-MSA-2222 or Visit Our Website at www.MSAafety.com



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MINE SAFETY APPLIANCES COMPANY
CRANBERRY TWP., PENNSYLVANIA, U.S.A. 16066

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IMPORTANT NOTICE

THE UPGRADE OUTLINED IN THE MANUAL MUST ONLY BE PERFORMED BY C.A.R.E. TRAINED AND CERTIFIED TECHNICIANS.

A thorough understanding of the air mask is essential before attempting to service or maintain it. A user's instruction manual, P/N 10082858, is supplied with this kit. Refer to the user's instructions for specific user information, such as NIOSH Approval Information, donning and doffing instructions, and cleaning and disinfecting procedures.

This air mask will perform as designed only if used and maintained according to the manufacturer's instructions. You must read and understand these instructions before trying to use or service this product. We encourage our customers to write or call for information on this product before using it.

Inspect the air mask regularly and maintain it according to the manufacturer's instructions.

If the air mask does not perform as specified in this manual, it must not be used until it has been checked by authorized personnel.

Do not alter, modify, or substitute any components without the approval of the manufacturer. Such alterations will void the NIOSH approval.

NFPA 1981, 2002 EDITION COMPLIANCE INSPECTION

⚠ WARNING

DO NOT inspect the apparatus before cleaning if there is a danger of contacting hazardous contaminants. Clean and sanitize first, then inspect. Failure to follow this warning can cause inhalation or skin absorption of the contaminant and result in serious personal injury or death.

⚠ CAUTION

An SCBA cannot be upgraded until the following inspection and all required changes have been completed.

Inspect the entire air mask after it is cleaned and sanitized. NFPA-1500, as well as ANSI Standards Z88.2 and Z88.5, describe three levels of inspection procedures that are to be performed. Refer to these documents or to an inspection program prepared by a health professional in establishing an inspection program.

Note: An NFPA 1981, 2002 edition compliant air mask will have the URC fitting on the Audi-larm™ Audible Alarm, Heads-Up-Display (HUD) Receiver and HUD Transmitter or an ICM Tx or ICM TxR Integrated PASS.

Prior to installation of the FireHawk M7 Upgrade Kit, the air mask must be upgraded to be compliant with the 2002 Edition of the NFPA-1981 Standard. The components must be in good working order and free of damage or sig-

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nificant wear. Some accessories and components may not be approved for use on an NFPA 1981, 2007 edition compliant unit. Consult the NIOSH approval label (P/N10083874) included in the upgrade kit for a complete list of approved components.

⚠ WARNING

If any component of the air mask being upgraded is missing or needs to be replaced due to wear or damage, replace the affected component before installing the FireHawk M7 Upgrade Kit. Used, worn, or damaged parts can result in serious personal injury or death.

INSPECTION AND FUNCTIONAL TEST OF THE NFPA 1981, 2002 EDITION COMPLIANT AIR MASK

In addition to the inspection of components required prior to the upgrade, the following general inspection of the apparatus must be performed before installing the FireHawk M7 Upgrade Kit.

1. Don the air mask following the instruction procedures. These steps make up the air mask functional test.
 2. If all steps are performed successfully, remove the air mask and inspect it following the steps below.
 3. Facepiece
 - a. Inspect the facepiece for rubber deterioration, dirt, cracks, tears, holes, or tackiness.
 - b. Check the harness head straps for breaks, loss of elasticity, or missing buckles or straps. Check the straps for signs of wear.
 - c. Inspect the lens for cracks, scratches, and a tight seal with the facepiece rubber.
 - d. The exhalation valve must be clean and operate easily. Reach into the facepiece. Push and release the valve stem several times. The valve must move off the seat and return when released.
 - e. Inspect the facepiece inlet regulator coupling for damage. Also check to be sure that the spider gasket and valve disc are present, clean, and not damaged.
 - f. Inspect the facepiece rubber behind the Nightfighter Heads Up Display receiver bracket or Clear Command bracket for holes or tears.
 4. Cylinder Gauge
 - a. Be sure that the gauge needle and face is visible through the lens.
 - b. Be sure the gauge stem is not bent.
 5. Audible Alarm with URC Assembly
 - a. Check that the alarm rings briefly when the cylinder valve is opened.
 - b. Check that the bell is in the proper alignment and is fastened securely.
 - c. If the bell is loose, remove the alarm from service.
 - d. Unscrew the Audi-Larm Audible Alarm with URC Assembly coupling nut from the cylinder valve. Inspect the coupling nut for thread damage. Also be sure there is an o-ring, and that it is not damaged. Replace the insert o-ring if it is damaged.
 - e. Check Audi-Larm Alarm with URC Assembly and URC Assembly relief valve for any damage.
 - f. Check relief valve label for damage. Check for missing or lose label. Ensure that relief valve ports are showing. If any damage, remove air mask from service and replace relief valve.
6. High Pressure Hoses
 - a. Check the high pressure hose between the Audi-Larm Audible Alarm and the first stage regulator. Look for cuts or severe abrasions. If present, replace the hose. The hose should be securely attached to the first stage regulator and Audi-Larm.
 - b. Check the high pressure hose between the remote gauge and the first stage regulator. Look for cuts or severe abrasions. If present, replace the hose.
 7. Intermediate Pressure Hose Inspection
 - a. Inspect the intermediate pressure hose between the first stage regulator and the second stage regulator. The hose must be free of severe abrasions, wear, cuts or damage.
 - b. Inspect the connection between the first stage intermediate pressure hose and the second stage intermediate pressure hose. The hoses should swivel easily. The connection should be free of damage.
 - c. Inspect rubber washer for deterioration, dirt, cracks, tears, or tackiness.(for quick connect hoses only)
 8. Cylinder
 - a. Inspect the cylinder valve for signs of damage. The valve may be opened slightly to be sure it operates properly. Be sure to fully close the valve.
 - b. Inspect the cylinder body for cracks, dents, weakened areas, or signs of heat-related damage. If the cylinder is damaged, return it to an MSA service Center. Call 1-800-MSA-2222 for instructions.

Note: Check the hydrostatic test date on the cylinder approval sticker located on the cylinder neck. Composite cylinders must be tested every three years.

After all inspections have been completed successfully, install the FireHawk M7 Upgrade Kit

⚠ CAUTION

Only MSA certified technicians are authorized to install the NFPA 2007 Upgrade Kit.

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CYLINDER INSPECTION

The following model numbers are approved for use on the FireHawk M7 Air Mask.

Model No.	Service Pressure	Volume	Construction
5-447-1	2216 psig	45 scf	Carbon Fiber
7-1006-1	3000 psig	60 scf	Carbon Fiber
7-947-1	4500 psig	45 scf	Carbon Fiber
7-1348-1	4500 psig	66 scf	Carbon Fiber
7-1537-1	4500 psig	88 scf	Carbon Fiber

Note: Aluminum and steel cylinders are not approved for use with the FireHawk M7 Air Mask.

FACEPIECE UPGRADE

The facepiece upgrade will vary depending on the configuration of the air mask facepiece being upgraded. The following is a description of CBRN approved configurations:

- Ultra Elite® Facepiece models 7-935-4, 7-935-5, or 7-935-6 may be upgraded to be NFPA 1981, 2007 Edition Compliant with the following exceptions.
 - o The 5-point rubber head harness and Speed-ON® Head Harness are not CBRN approved. Users that have the 5-point rubber or Speed-ON Head Harnesses must install the 4-point adjustable Speed-ON Head Harness.
 - o Silicone Ultra Elite Facepieces are not CBRN approved and cannot be upgraded. Users that have silicone Ultra Elite Facepieces must use a new CBRN Ultra Elite Facepiece.
 - o The Ultra Elite Facepiece baffle is not CBRN approved. A medium or large nose cup must be installed.
- Ultra Elite Facepieces models 7-935-7, 7-935-8, or 7-935-9 with nose cups and 4-point adjustable Speed-ON Head Harnesses are CBRN approved.

The upgrade kit that was ordered should contain what is needed to upgrade to a CBRN compliant Ultra Elite Facepiece. The nose cup will not be part of the kit and must be ordered separately if the facepiece being upgraded does not contain one.

The facepiece upgrade consists of installing the following components depending on the kit that was ordered.

Note: If the kit includes a new facepiece, the facepiece upgrade is completed. Proceed to “Installing the FireHawk M7 HUD” section of this manual.

When upgrading from a 1/4-Turn Ultra Elite to Firehawk Push-to-Connect Ultra Elite Facepiece, the following components must be installed:

10033115	Push-to-Connect Inlet Adapter
489224	Push-to-Connect Facepiece Cover
10033208	Screws
490134	Spider Gasket
491933	Inlet Disc
10031102	4-Point Adjustable Speed-ON Head Harness (if needed)
10051706	Model Number Labels

When upgrading from 1/4-turn Ultra Elite to Firehawk Slide-to-Connect Ultra Elite Facepiece, the following components must be installed:

10018621	Slide-to-Connect Inlet Adapter
10034500	Slide-to-Connect Facepiece Cover
10033208	Screws
490134	Spider Gasket
491933	Inlet Disc
10031102	4-Point Adjustable Speed-ON Head Harness (if needed)
10051706	Model Number Labels

When replacing silicone Ultra Elite Facepieces, one of the following facepieces must be used:

Size	Slide-To-Connect	Push-To-Connect
Small	10084689	10084690
Medium	10084823	10084824
Large	10084827	10084828

REMOVING THE COMPONENT HOUSING COVER

The following procedure outlines the steps required to remove the component housing from the Ultra Elite Facepiece. This step is necessary for all upgrades unless a new facepiece was provided with the upgrade kit.

1. Remove the two component housing cover screws.

2. Remove the locking ring, if applicable.



3. Remove the component housing cover.
 - a. For the 1/4 Turn Regulator: Lift up on the cover release hook located forward of the adapter

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assembly opening. Once the release is lifted, remove the cover by pulling it away from the housing. Tilt the cover and work it over one adapter bayonet at a time.

b. For the Firehawk Slide-To-Connect Regulator: Remove the cover by pulling it away from the housing.

c. For the Firehawk Push-To-Connect Regulator: Pull the cover to release the retaining hook. With the cover between the hex flats and flange of the adapter, turn the adapter counter-clockwise to remove.



⚠ CAUTION

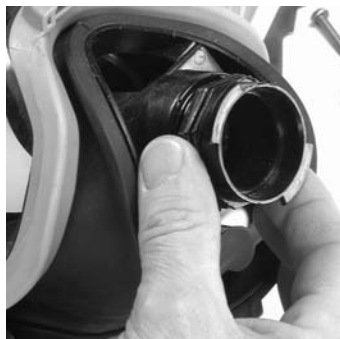
Be careful that you do not damage internal parts of the component housing assembly (exhalation valve, spring retainer, or speaking diaphragm) once the cover is removed.

UPGRADE INSTRUCTIONS

CONVERTING THE FACEPIECE FROM A 1/4 TURN MMR TO FIREHAWK REGULATOR

This procedure outlines the steps required to remove the 1/4 Turn MMR adapter from the Ultra Elite facepiece and to replace the spider gasket. If the facepiece being upgraded is already configured for the Firehawk Regulator, this step may be skipped.

1. Unthread and remove the old adapter assembly.



2. Remove the old spider gasket from the facepiece inlet by pulling up on the spider gasket pull-tab and pulling the spider gasket out of the facepiece inlet.

Replacing the Spider Gasket

1. Install a new inlet disc on the stem of the new spider gasket by working the hole in the center of the inlet disc over the spider gasket stem.
2. Note that the inlet gasket has a groove around it.
3. With the pull-tab facing you, insert the spider valve into the facepiece at an angle so that its groove captures the housing rim. The lower lip on the spider valve must be placed under the rim in the component housing.

Note: It may be necessary to bend the spider valve slightly to work the groove under the rim all the way around. When installed correctly, the spider valve will lay flat in the housing and none of the spokes will be bent.

INSTALLATION OF FIREHAWK M7 HUD BRACKET

Removing the NFPA 2002 HUD Bracket

1. Remove the Nightfighter Heads-Up-Display from the facepiece and discard.
2. Remove the screw from right side of the facepiece lens-retaining ring.
3. Remove the component housing cover. Refer to "Removing the Component Housing" section of the Facepiece Upgrade portion of this manual if component housing has not yet been removed.
4. Remove the mounting bracket and discard.

Installation of the new Firehawk M7 HUD Mounting Bracket to the facepiece

1. Slide the new bracket assembly onto the facepiece.

- a. Make sure that molded tab is under the lower lens ring.



2. Align the upper tab screw hole with the upper lens-ring screw hole.



3. Reinstall the screw.

- a. Make sure that the screw goes through the hole in the upper metal tab.



4. Align the screw hole in the lower metal tab with component housing screw hole.



5. Reinstall the component housing cover.
6. Check alignment and tighten screws

UPGRADE INSTRUCTIONS

FIREHAWK ADAPTER AND COVER INSTALLATION

The following steps outline the procedure for installing the Firehawk second stage regulator adapter and component housing cover.

Note: The following pictures show a push-to-connect style adapter and component housing cover. If a slide-to-connect adapter is being used, the installation procedure is the same but a different adapter and cover will be used.

1. Screw the adapter assembly into the facepiece.

- a. Ensure that the top flat is perpendicular to the centerline.



2. Place the component housing cover over the adapter assembly.



3. Insert the tab on the cover into the slot in the lens ring.

4. Press the cover until it locks.



Note: If necessary, use a small slot head screwdriver to engage the cover.

5. Place the neck strap brackets into the sockets (optional).

- a. Install Phillips screws and tighten.



7. Don the facepiece and check the face-to-facepiece seal.

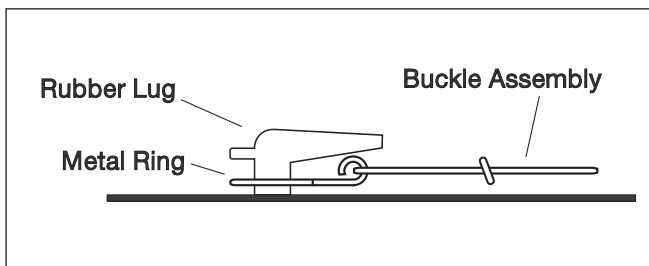
REMOVING THE HEAD HARNESS

If the facepiece being upgraded has a 4-point adjustable Speed-ON Head Harness, this step may be skipped. The 5 point adjustable Speed-ON Head Harness must be replaced.

1. Pull the ends of the head harness straps out of the metal buckles.
2. Remove the top metal buckle from the facepiece.

Installing the 4-point adjustable head harness

1. Place the top buckle of the 4-point adjustable head harness onto the facepiece.



2. Thread the four remaining side and bottom straps through the buckle.
3. Ensure that the straps are correctly oriented and they grip the straps when tightened.
4. Don the facepiece and check the face-to-facepiece seal. Follow the Facepiece Fit Check procedures in the FireHawk M7 Air Mask Operation and Instruction Manual (P/N 10082858).

UPGRADE INSTRUCTIONS

INSTALLATION OF FACEPIECE MODEL NUMBER LABELS

If the facepiece has been upgraded or if it does not have the model number described below, a new model number label must be applied to the facepiece. New CBRN compliant facepieces will have the new model number engraved on them and a label will not be required.

Identify the facepiece model number label from the set of three facepiece labels.

This table identifies the proper model number label.

Facepiece Model No.	Style	Size
7-935-7	Ultra Elite	Medium
7-935-8	Ultra Elite	Small
7-935-9	Ultra Elite	Large

Apply the label to the inside of the facepiece at the bottom left of the lens. Discard the remaining unused labels. Ensure that the model number is oriented properly and can be clearly seen from the outside of the lens.



INSTALLING THE FIREHAWK M7 HUD

Note: Once the facepiece has been upgraded, and HUD mounting bracket installed, the FireHawk M7 HUD is ready to be mounted to the facepiece.

1. Insert three AAA alkaline batteries in the appropriate locations on the battery cartridge. Follow the notations on the cartridge to ensure proper battery orientation.
2. Insert the battery cartridge into the battery tube on the FireHawk M7 HUD.
3. Before installing the battery cap, verify that the o-ring is in place and free of damage and debris. If the o-ring is missing or damaged, replace o-ring. Failure to do so may allow moisture or contaminants into the battery tube and cause the device to not function properly.
4. Thread the battery cap on to the battery tube of the FireHawk M7 HUD (clockwise). Hand-tighten cap until snug. Do not over-tighten battery cap.
5. As the battery cap makes contact with the battery cartridge, verify that the FireHawk M7 HUD display turns on and goes through its start up sequence before turning off. The yellow LED should not be flashing.

⚠ WARNING

Use only Rayovac 824 LR03, Rayovac Ultrapro 4R03, Energizer E92, Energizer Industrial EN92, Duracell MN2400, or Duracell Pro Cell MN2400 alkaline batteries in the FireHawk M7 HUD. Use of other batteries, or a combination of batteries from different manufacturers, will affect the performance of unit and void the Intrinsic Safety Approval.

Attaching the FireHawk M7 HUD to the Mounting Bracket

1. Align the metal tab on the FireHawk M7 HUD with the metal plate on the front edge of the bracket.



2. Rotate the M7 HUD so that the tab fits into the slot behind the thumbscrew.



3. Finger tighten the thumbscrew.

⚠ CAUTION

DO NOT use a screwdriver to tighten the thumbscrew.

REMOVING PRESSURE GAUGE OR INTEGRATED PASS DEVICE

⚠ WARNING

Before starting the procedures below, be sure that the cylinder valve is completely closed. Be sure that nothing blocks the regulator outlet. Open the bypass valve to relieve any pressure in the system. Failure to follow this warning can result in serious personal injury or death.

UPGRADE INSTRUCTIONS

1. Loosen and remove the pressure gauge or integrated PASS from the high pressure gauge hose. Discard gauge.
2. Using the o-ring removal tool, remove and discard the o-ring and back-up ring from the end of the hose.

Salvaging the Quick-Fill (male) Coupling

Note: If the Quick-Fill System is present on the current system, the Quick-Fill Coupling may be salvaged and used on the new FireHawk M7 Air Mask.

1. Place the Quick-Fill System block in a vise.
2. Unthread the Quick-Fill (male) coupling from the Quick-Fill System block using a 1" deep-well socket.
3. Discard the adapter block.
4. Using the o-ring removal tool, Remove and discard the existing o-ring (P/N 635068) on the Quick-Fill coupling (P/N 485070).
5. Set Quick-Fill coupling aside for use in later upgrade procedures.

SALVAGING PARTS FROM THE CURRENT CARRIER AND HARNESS ASSEMBLY

Note: Parts can only be salvaged from the Vulcan or AirFrame™ Carrier and Harness Assembly. Black Rhino carrier and harness assemblies must be discarded.

Note: These procedures assume that the cylinder has been removed from the carrier and harness assembly.

Removing the Pull-Strap (Waist) Belt Assembly from the Carrier

1. Both left and right straps
 - a. Remove the free end of the pull-strap (waist) from the shoulder strap friction buckle.
 - b. Remove the pull-strap (waist) from the carrier by rotating the tri-bar until it slides through the carrier slot.

Note: If the rescue belt accessory is installed on the current air mask, remove it by pushing the 2 tri-bar slides through the slots on the backplate. Save the rescue belt.

Note: When salvaging the waist belt and shoulder straps from a Vulcan Carrier and Harness Assembly, the rubber grommets located on the slots of the carrier are not needed for use on the FireHawk M7 Air Mask. Remove the components from the webbing and discard.

Removing the right shoulder strap

1. Pressure gauge or PASS device must be removed from high pressure gauge hose before removing the shoulder strap from the carrier and harness assembly.
2. Remove right pull strap from shoulder strap friction buckle.
3. Pull high pressure gauge hose out of the shoulder strap tunnel.

4. Remove shoulder strap from backplate by pushing tri-bar slide through the slot on the backplate.
5. Save right shoulder strap.

Removing the Left Shoulder Strap

If the current air mask has an approved Firehawk Second Stage Regulator, the regulator does not have to be removed before removing the left shoulder strap from the carrier. If this is the case, proceed to step 4 of this section.

Note: If the approved Firehawk Second Stage Regulator has a quick connect hose connection, inspect the rubber washer on the hose above the quick connect coupling. If the washer is missing or damaged, replace with a new washer (P/N 10047742) included in upgrade kit.

1. Remove the left pull strap from the shoulder strap friction buckle.
2. Disconnect the second stage regulator from the intermediate pressure hose.



- a. If present, use an 11/16" wrench to remove the Extend-Aire manifold.



3. Pull the first stage intermediate pressure hose through the shoulder strap.



4. Remove the shoulder strap from the backplate by pushing the tri-bar slide through the slot on the backplate.

UPGRADE INSTRUCTIONS

5. Save the left shoulder strap for use later.

If the current air mask has a 1/4 turn MMR second stage regulator

1. Remove the left pull strap from shoulder strap buckle.
2. Disconnect the second stage regulator hose from the first stage regulator. This coupling is located where the hose joins the first stage regulator.

Note: Refer to “removing the intermediate pressure hose from the first stage regulator” section of this manual for additional instructions.

3. Pull the second stage regulator and intermediate pressure hose out of the shoulder strap tunnel. Discard the regulator and hose.
4. Remove the shoulder strap from the backplate by pushing tri-bar slide through the slot on the backplate.
5. Save the left shoulder strap.

REMOVING THE FIRST STAGE REGULATOR FROM THE CARRIER AND HARNESS

All air masks being upgraded must have the first stage regulator removed from the carrier and harness assembly.

1. Use a 7/16” wrench to remove the bolts, lock washers, and flat washers that secure the regulator to the backplate.
2. Remove the first stage regulator from the backplate.
3. Remove the plastic slider (PR14 first stage regulator) from the backplate.
4. Remove any loose thread-locking material from the mounting bracket threads.

All SCBA that currently have the 1/4-turn MMR second stage regulator installed must have the first stage regulator upgraded to replace the second stage with an approved FireHawk regulator.

FIRST STAGE REGULATOR UPGRADE

All SCBA that currently have the Firehawk MMR installed do not need to upgrade the first stage regulator, with the exception of Firehawk MMR SCBA with dual purpose.

Note: The Dual-Purpose Accessory is not approved for use on NFPA 1981, 2007 edition compliant air masks. It must be removed from the SCBA to ensure NIOSH and NFPA compliance.

Proceed to the second stage regulator upgrade section if the first stage regulator does not require upgrading. The first stage regulator upgrade consists of installing the following components:

Intermediate Hose Assembly

635037 o-ring

630493 o-ring

805010 first stage regulator cap
10052743 model number labels

⚠ WARNING

DO NOT tighten or loosen fittings or connectors when the system is pressurized. Close the cylinder valve. Be sure nothing blocks the regulator outlet. Relieve pressure from the system by slowly opening the bypass valve. Failure to follow this warning can cause fittings or connectors to rupture, resulting in serious personal injury or death.

Removing the Intermediate Pressure Hose from the First Stage Regulator

Note: This step may have already been performed if the left shoulder strap was salvaged.

1. Disconnect the intermediate hose from the first stage regulator. Use an open-end or adjustable wrench. Turn the hex nut counter-clockwise to remove.



2. Pull the hose out from the left shoulder strap.
3. Discard 1/4 Turn MMR second stage regulator and intermediate pressure hose.

Removing the Relief Valve

1. Using a 5/8” wrench, turn the relief valve counter-clockwise and unthread the relief valve from the first stage regulator cap.
2. Remove and discard the o-ring from the relief valve. Be careful not to damage the sealing surface on the relief valve.
3. Clean any dirt or debris from the relief valve with a clean cloth. The relief valve will be re-used later.

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Removing the First Stage Regulator Cap

1. Using an adjustable or 1" open-end wrench, loosen the first stage regulator cap by turning counter-clockwise.
2. Unthread the cap fully from the first stage regulator.
3. Care should be taken to prevent damage to the exposed first stage regulator threads.
4. Remove and discard the o-ring from the first stage regulator housing. Be careful not to damage the sealing surfaces on the regulator body.

Installing the New First Stage Regulator Cap

1. To protect the o-ring, wrap paper or tape around the regulator body external threads.
2. Apply Christo-Lube Lubricant to the new o-ring (P/N 630493) and install it on the regulator body. Remove the paper or tape.
3. Thread the new first stage regulator cap on the first stage regulator. Using a torque wrench, torque to 180+/-10 in. lbs.

Installing the Relief Valve

1. To protect the o-ring, wrap paper or tape around the relief valve threads.
2. Apply Christo-Lube Lubricant to the new o-ring (P/N 635037). Install the o-ring on the relief valve. Remove the paper or tape from the relief valve.

3. Thread the relief valve into the first stage regulator cap clockwise by hand. Torque to 90+/-10 in. lbs. with a 5/8" socket.



Installing the New First Stage Intermediate Hose

1. Insert the new first stage intermediate hose through the entire left shoulder strap, starting at the end with the friction buckle.

2. Thread the first stage intermediate hose into the first stage regulator cap clockwise and hand-tighten.



3. Using a torque wrench, torque to 125+/- 5 in. lbs.

Installation of First Stage Regulator Model Number Label

After upgrading the first stage regulator the appropriate model numbers must be applied to the first stage regulator housing. Included in the upgrade kit are self-adhesive labels that must be used after completing the upgrade. Identify the first stage regulator model number label from set of three first stage regulator labels. The table below will help identify the proper model number label.



The first stage regulator assembly model number should be placed on the side of the first stage regulator over the existing laser engraved model number. Clean the housing prior to installing the new label. Discard the remaining unused labels.

HIGH PRESSURE GAUGE HOSE UPGRADE

For Air Masks WITHOUT Shoulder Mounted Quick-Fill System

Air masks that do not have a shoulder mounted quick-fill may reuse the same hose on the FireHawk M7 Air Mask. A new model number ID tag must be installed on the high pressure hose.

1. Install model number tag on high pressure hose where the hose joins the first stage regulator.
2. Wrap metal ID Tag (P/N 10083880) around high pressure hose.
3. Fold metal tab over to secure ID tag to high pressure hose.

For Air Masks WITH Shoulder Mounted Quick-Fill System

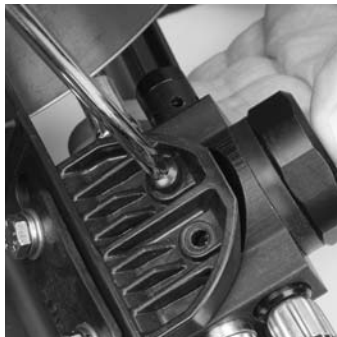
Air masks with shoulder mounted quickfill must replace the high pressure hose with a new shorter hose. This new hose will come with a new model number ID tag installed.

UPGRADE INSTRUCTIONS

Installing a New Hose on the PR14 First Stage Regulator

Removing the PR-14 First Stage Regulator from the Carrier

1. Use a screwdriver to remove the screws.



2. Remove the regulator from the mounting bracket.
3. Remove residual thread-locking material from the screws.
4. Remove residual thread-locking material from the regulator body threads.

Removing the Mounting Bracket

1. Use a 7/16" wrench to remove the mounting bracket bolts.



2. Remove the regulator from the mounting bracket.
3. Remove the mounting bracket.
4. Remove the plastic slider.
5. Remove residual thread-locking material from the bolts.
6. Remove residual thread-locking material from the mounting bracket threads.

Removing the High Pressure Gauge Hose

1. Remove the U-clip.



2. Pull the hose firmly to remove it from the regulator body.
3. Discard the high pressure hose.

Installing the new High Pressure Gauge Hose

1. Install the high pressure gauge hose into the high pressure gauge port.

Note: The high pressure gauge port is not labeled.

2. Install U-clips to secure the high-pressure and intermediate pressure fittings.



Note: The M7 Control Module and M7 Power module must be installed before the first stage regulator can be mounted to the Carrier.

Installing a New Hose on the Old Style First Stage Regulator

Removing the high pressure gauge hose from the first stage regulator

1. Use a 9/16" wrench to unscrew the hose from the regulator body.
2. Be careful not to damage the o-ring seat area on the regulator body.
3. Discard the high pressure hose.

Installing the new high pressure gauge hose on the first stage regulator

1. Insert new high pressure hose (P/N 10083879) into first stage regulator body.
2. Tighten hose connection to a torque of 100-140 in.lbs.

INSTALLING SOFT GOODS ON THE CARRIER AND HARNESS ASSEMBLY

Installing the Shoulder Straps

1. Install the shoulder strap by angling the tri-bar through the slot.



UPGRADE INSTRUCTIONS

2. Tug on the shoulder strap to test the attachment.



Attaching the waist belt to the Carrier

1. Install the tri-bars on the right and left pull straps of the waist belt in to the lowest slots on the carrier.

Note: For Swiveling Lumbar Pads or Rescue Belts, the waist belt is part of the lumbar pad assembly. Attach the outer most tri-bars to the lowest slots on the carrier. Also attach the tri-bars located in the center of the lumbar pad or rescue belt to two slots located in the center of the carrier.



Installing Double Pull Belts

1. Angle the tri-bar strap through the slot.
2. Tug on the belt to test the attachment.



3. From back to front, lace the free end of the pull-strap through the friction buckle.



4. Pass the strap over the bar and back through the buckle.

Attaching the waist belt pull straps to the shoulder straps

1. Lace the free end of the pull-strap through the friction buckle.



- a. Twist the strap clockwise one-half turn.



- b. With the fold down, pass the strap from back to front through the buckle.



- c. Pass the strap over the bar and back through the buckle.



2. Repeat procedure for the other side.

Installing the Chest Strap (optional)

Connect male and female ends of chest strap.

UPGRADE INSTRUCTIONS

1. Extend the chest straps.



2. Lay the unconnected male end under the right shoulder strap.



3. Lay the unconnected end of the male chest strap under the left shoulder strap.



4. Pass the end through the tunnel in the strap.



5. Lace the strap through the slide buckle.



- a. Thread the chest strap over the bar and down through the slide buckle.



- b. Pull the chest strap through.



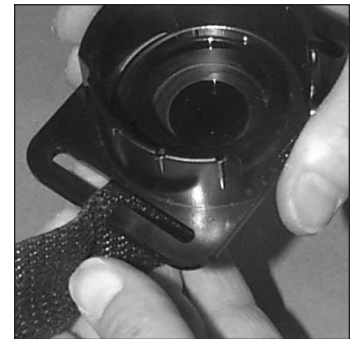
6. Don the Carrier/Harness Assembly to check chest strap installation.

Installing the Regulator Holder to the Waist Belt

If the air mask being upgraded has a Firehawk Second Stage Regulator, this section may be skipped.

1. Slide the regulator holder onto the left waist belt pull strap by placing the webbing through the slot in the clip and working one side of the clip onto the webbing. The clip should be located in the same location as the 1/4-turn regulator holder.

2. Work the other side of the clip onto the webbing.



INSTALLING THE FIREHAWK M7 CONTROL MODULE

Note: If the air mask being upgraded does not have the Quick-Fill system, the following steps pertaining to installing the quick-fill adapter may be skipped.

UPGRADE INSTRUCTIONS

Installing the Quick-Fill Adapter

1. Place the Quick-Fill Adapter block in a vise. This is attached to the M7 Control Module. Use protective sleeves to keep from damaging the block.

2. Wrap the coupling threads with transparent tape to prevent damage to the O-ring.



3. Apply a thin film of Christo-Lube Lubricant to the coupling O-ring (635068)
4. Slide the new O-ring over the coupling threads. Remove the tape.
5. Install the filter (485594) into the adapter by placing it at the bottom of the port.
6. Thread the coupling into the block and tighten to 70-75 ft.lbs. Using a 1" deep-well socket.

Installing the control module

1. Beginning at the front of the carrier and harness, thread the power and data cable through the tether and shoulder strap, and high pressure hose through the tether and shoulder strap.

USE EXTRA CARE WHEN HANDLING THE POWER AND DATA CABLE CONNECTOR TO AVOID DAMAGE TO THE PINS OR CONNECTOR.



Note: The power and data cable is curved to favor proper installation. Do not attempt to straighten the cable.

2. Pass the high pressure hose through the shoulder strap and tether.



3. Install new Back-up and O-Rings (skip this step if a new high pressure hose was provided as part of this upgrade kit).
 - a. Apply a thin film of Christo-Lube lubricant to the back-up ring (P/N 635277).



- b. Install the back-up ring in the groove.



- c. Apply a thin film of Christo-Lube lubricant to the o-ring (P/N 638167).

- d. Place the o-ring in the groove.



UPGRADE INSTRUCTIONS

4. Connect the high pressure hose to the Control Module.

Note: If equipped with a Quick-Fill system, connect the high pressure hose to the Quick-Fill manifold.

- a. Use a torque wrench and 9/16" crow foot to tighten the connector to 100-125 in lbs.
5. Turn the jam nut counterclockwise until it butts against the connector.
 6. Use a 5/8" crow foot to tighten the jam nut to 225-250 in. lbs.



7. Route the power and data cable through the channel on the carrier. (This cable will be retained later when the first stage regulator is installed).

Connect the Power and Data Cable



1. Carefully align the keyed connection.



2. Hand tighten the connector until the o-ring is no longer visible.



3. Use a torque wrench and 5/8" crow foot to tighten the connector to 6-8 in lbs.



Note: The control module executes a start up sequence when it receives power. Double-press the reset button to enter sleep mode.

UPGRADE INSTRUCTIONS

INSTALLING THE FIREHAWK M7 POWER MODULE

1. Verify that the shock mounts are in place before installation.



Note: Shock mounts and shock mount bosses are contoured. Match contours when installing shock mounts.

2. Insert the FireHawk M7 Power Module locating pins into the shock mounts.



3. Verify proper insertion.
4. Install Cylinder Stop.

- a. Position the Cylinder Stop over the Power Module.



- b. Insert screws with lock washers.

- c. Use a torque wrench and 3/16" hex bit to tighten the screws in an X pattern to 25-30 in lbs.



SECOND STAGE REGULATOR UPGRADE

The second stage regulator upgrade will be required for all users that have a 1/4 turn MMR or a non-CBRN compliant Firehawk Regulator.

Note: If the approved Firehawk Second Stage Regulator has a quick connect hose connection, inspect the rubber washer on the hose above the quick connect coupling. If the washer is missing or damaged, replace it with a new washer (P/N 10047742) included in the upgrade kit.

The second stage upgrade consists of installing one of the following CBRN approved Firehawk MMR Assemblies:

- 10047602 Firehawk MMR with STC inlet and threaded swivel intermediate pressure hose
- 10047600 Firehawk MMR with STC inlet and quick-connect intermediate pressure hose
- 10047601 Firehawk MMR with PTC inlet and threaded swivel intermediate pressure hose
- 10047529 Firehawk MMR with PTC inlet and quick-connect intermediate pressure hose

Note: These CBRN compliant Firehawk Regulators are also approved for use on the FireHawk M7 Air Mask: 10043892, 10043893, 10043894, and 10043895.

INSTALLING THE CBRN FIREHAWK MMR SECOND STAGE REGULATOR

Note: If a 1/4 turn MMR was previously installed on the air mask, follow the steps outlined in the first stage regulator upgrade section of this manual before completing the following procedure.

1. Remove the old second stage regulator from the apparatus if it is still connected.
2. Connect the second stage intermediate pressure hose to the first stage intermediate pressure hose:
 - a. For second stage regulators with threaded connections: Thread the second stage intermediate hose nut onto the first stage intermediate hose nut and tighten with a wrench.
 - b. For second stage regulators with quick-connect con

UPGRADE INSTRUCTIONS

nections: Push the coupling of the second stage intermediate hose into the insert on the first stage intermediate hose. Ensure the connection is secure.

INSTALLING THE FIRST STAGE REGULATOR

Note: The following pictures show the PR14 First Stage Regulator. The installatin procedure for the old style first stage regulator is identical to that for the PR14 first stage regulator.

1. Install the plastic slider onto the carrier rail.



2. Position the mounting bracket against the carrier rail.



Note: The cable must be captured under the mounting bracket before it can be bolted to the carrier.

3. Apply Loctite 222 (P/N 29787) to each bolt.

Note: New bolts have a pre-applied thread-locker and do not require Loctite 222 application.

4. Insert the bolts through the lock washers, flat washers, and slider into the mounting bracket.

5. Use a torque wrench and 7/16" socket to tighten the bolts to 35 ±5 in lbs.



6. Ensure the mounting bracket slides freely.

Installing the Regulator onto the Mounting Bracket

1. Verify that the U-clips are securely in place.

2. Position the regulator onto the mounting bracket.
 - a. Align the regulator mounting holes with the mounting bracket holes.



3. Apply Loctite 222 (P/N 29787) to each screw.

Note: New screws have a pre-applied thread-locker and do not require Loctite 222 application.

4. Install the screws through the mounting bracket into regulator.

5. Tighten the screws to 35-45 in lbs.



LEAK TESTING

The upgraded air mask must be thoroughly inspected and tested before use. Follow the "Leak Testing" section of the User's Maintenance Instructions (P/N 10088638).

FUNCTIONAL TEST

Before using the air mask, refer to the "visual inspection and functional test" section of the Firehawk M7 Operation and Instruction Manual (P/N10082858).

UPGRADE INSTRUCTIONS

FLOW TEST REQUIREMENTS

1. The air mask must be flow tested following the upgrade procedures and on an annual basis.
2. The air mask must be tested on a Biosystems Posichack 3 using the MSA Pro-Check 3 Software. The following tests should be performed:
 - a. Visual Inspection
 - b. Facepiece Leak Test
 - c. Static Facepiece Pressure
 - d. High Pressure Leak Test
 - e. Pressure Gauge Accuracy
 - f. Standard Work Rate
 - g. Maximum Work Rate
 - h. Alarm Accuracy
 - i. Bypass Test