

# ForceField™ Advanced Combat Helmet (ACH)

## OPERATION AND INSTRUCTIONS

### WARNING

THIS MANUAL MUST BE CAREFULLY READ BY ALL PERSONS WHO HAVE OR WILL HAVE THE RESPONSIBILITY FOR USING OR MAINTAINING THIS HELMET. THIS HELMET WILL PERFORM AS DESIGNED ONLY IF USED AND MAINTAINED ACCORDING TO THE INSTRUCTIONS; OTHERWISE IT COULD FAIL TO PERFORM AS DESIGNED AND PERSONS WHO RELY ON THIS HELMET COULD SUSTAIN SERIOUS PERSONAL INJURY OR DEATH.

The warranties made by MSA with respect to the product are voided if the product is not used and maintained 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-0018 during regular working hours.



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# INTRODUCTION

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## GENERAL INFORMATION

### Scope

This manual covers the basic fitting and use instructions for the Force Field Advanced Combat Helmet (hereafter referred to as the FORCEFIELD ACH.)

### DANGER

This helmet provides **LIMITED** protection to the head. It meets all performance requirements specified in the Description section of this manual; however, it will not protect the wearer against all possible hazards. Some conditions can exceed the helmet's capacity to provide protection and result in serious head, brain, spinal, or other injury including paralysis or death.

This helmet is **NOT** designed to provide protection from objects that contact the helmet surface within one inch of the edge of the helmet shell.

This is not a DOT approved helmet. Do not use for protection in or on a motorized vehicle. This helmet is not designed to protect the individual in non-ballistic applications.

For maximum protection, the helmet **MUST** fit firmly on the head with the chin strap securely fastened. All seven (7) helmet pads **MUST** be properly installed and in place when using the helmet.

Inspect the helmet before and after **EACH** use following the inspection instructions. Do not alter the helmet or attach any item not recommended by MSA.

Follow all warnings and instructions provided with this helmet. For replacement instructions, contact MSA.

Failure to follow all warnings and instructions can increase the risk of serious personal injury or death.

# DESCRIPTION

## FORCEFIELD ACH EQUIPMENT DESCRIPTION AND DATA

### Equipment Characteristics, Capabilities, and Features

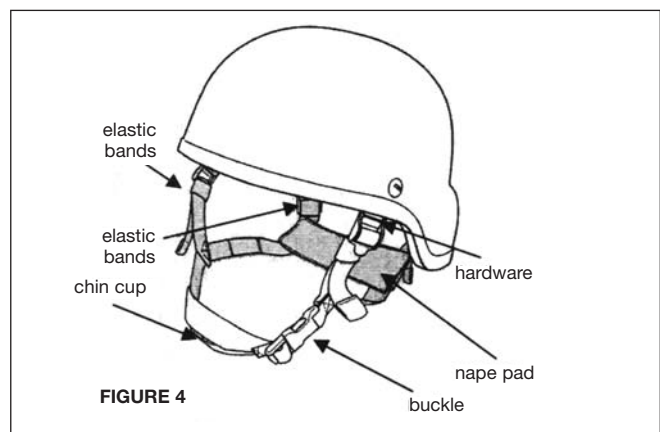
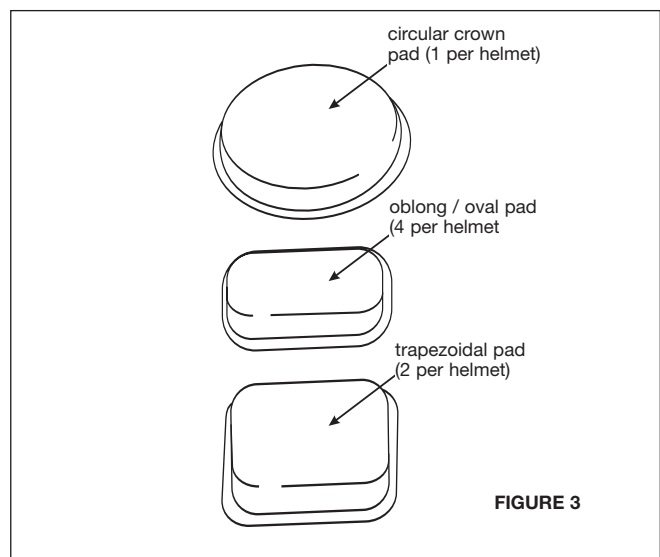
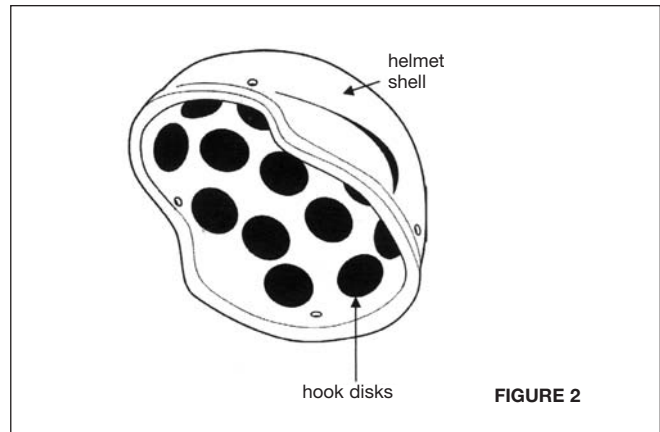
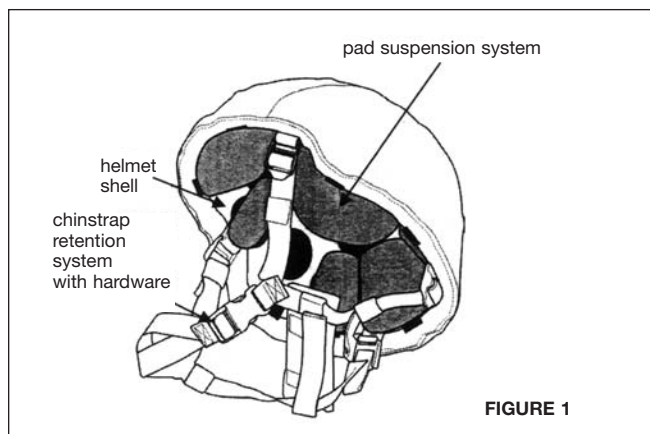
The FORCEFIELD ACH is a helmet system that complies with the NIJ (National Institute of Justice) 0106.01 Level IIIA as defined in the NIJ 0108.01 Standard for ballistic protection. The ForceField ACH also exceeds the US Military ballistic fragment and impact requirements defined in the US Army' Modular/Integrated Communications Helmet Statement of Work. This helmet system is compatible with the current night vision devices (NVG's), MSA communication packages, and MSA CBRN (chemical, biological, radiological, and nuclear) protection equipment.

- The FORCEFIELD ACH provides ballistic protection within the spectrum of environments: cold (-40°F), hot (160°F), salt water, fresh water, petroleums, oils, and lubricants, etc.
- The FORCEFIELD ACH allows maximum sensory and situational awareness for the operator. This includes an unobstructed field of view and increased ambient hearing capabilities when compared to the PASGT Helmet.
- The FORCEFIELD ACH retention/suspension system provides balance, stability, and comfort. This system provides for proper size, fit, and ventilation.
- The FORCEFIELD ACH pad suspension system provides impact protection throughout all operational scenarios, including static-line airborne operations and rappelling.

### Description of Major Components

The helmet is made up of the following major components, which are illustrated:

- helmet shell
- pad suspension system
- chinstrap retention system with hardware





# SIZE AND FITTING

## Sizing and Fitting Guidelines

The FORCEFIELD ACH is designed to provide the user with flexibility in pad size and location to customize the fit to comfort preferences.

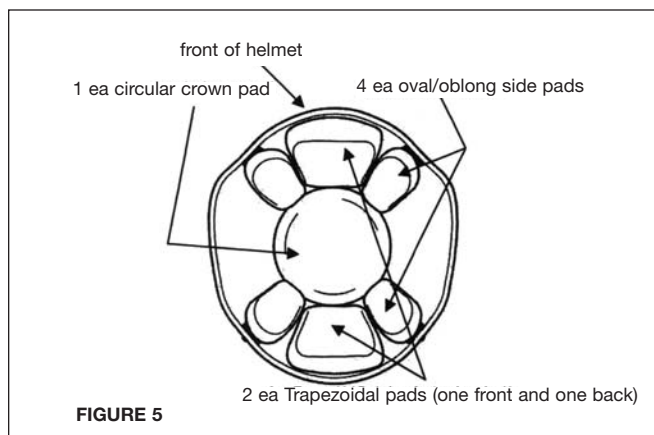
The table below provides a guideline for fitting the FORCEFIELD ACH.

### FORCEFIELD ACH Pad Sizing

Most users will obtain a proper fit with size 6 (3/4 inch) pads. Two size pads are available – a size 6 (3/4 inch - thinner) and a size 8 (1 inch - thicker). Proper fit is achieved when the helmet does not sit too high (crown pad does not contact head or too much of forehead is exposed) or too low (too low on brow or not compatible with eyewear, etc.) and is not too tight or too loose.

### Helmet Assembly and Fitting

- All seven (7) pads must be used for proper fit and protection.



### PAD SUSPENSION ADJUSTMENT

This unique suspension system is fully adjustable. The system has the following requirements and restrictions:

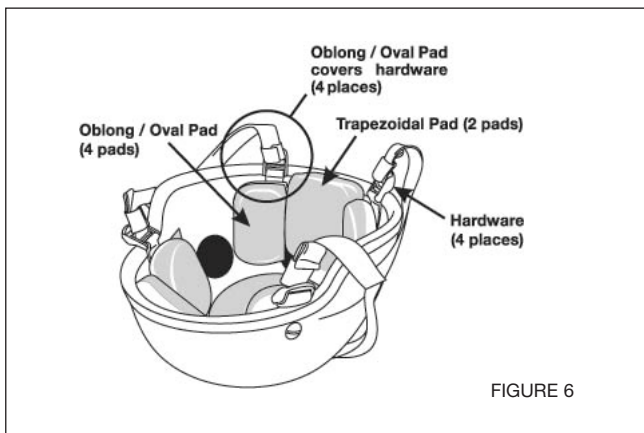
#### **⚠ WARNING**

The hardware (p-clamp, ladder lock, screw, and nut) inside the helmet where retention system webbing

ends must be covered by padding during airborne and other high risk operations such as air assault and rappelling/mountaineering; otherwise a hard point could contact the user's head during impact.

The oblong/oval pad must be placed flush with the rim (edge) of the helmet and completely cover the hardware. (See diaphragm Pad Placement over Hardware [Front] and Pad Placement over Hardware [Rear])

Failure to follow the above warnings may result in the helmet not providing the intended protection.



#### **⚠ WARNING**

All seven (7) helmet pads must be worn properly installed and in place when using the helmet; otherwise, the helmet may not provide the intended protection.

#### **⚠ WARNING**

This helmet must fit securely on the head to provide maximum protection. If you experience fit problems, tightness/looseness, or helmet profile is too high or too low refer to the Sizing and Fitting Troubleshooting. Failure to follow this warning may result in the helmet not providing the intended protection.

ACH-C Sizing			
Shell Size	Pad Size	Head Size (ISO)	Head Size (US)
Medium	No. 8 (1 inch)	52 – 56	6-1/2 – 7
Medium	No. 6 (3/4 inch)	56 – 58	7 – 7-1/4
Large	No. 8 (1 inch)	58 – 60	7-1/4 – 7-1/2
Large	No. 6 (3/4 inch)	60 – 62	7-1/2 – 7-3/4

## SIZING AND FITTING

### **⚠ WARNING**

**When donning the helmet for the first time in a cold environment, it is necessary to wear the helmet for a few minutes or otherwise warm the pads, such as by placing in pockets, before making final adjustments, so that the pads will conform to the shape of your head. Failure to follow this warning may result in the helmet not providing the intended protection.**

**Note:** If you experience hot spots or discomfort, try rearranging the pad system to accommodate a more comfortable fit.

The direction of the side oblong/oval pads may be changed to maximize comfort. These pads may be routed vertically from bolt to crown. This configuration maximizes airflow for better temperature regulation. These pads may be routed horizontally to make a seal around the user's head. This configuration is better suited for cold weather environments.

## SIZING AND FITTING TROUBLESHOOTING

### **1. If helmet is too tight:**

- To loosen helmet, push up on ladder lock.
- Try arranging side pads in a vertical configuration.
- Try changing individual back pad sizes and rearranging side pads to create space in the area you felt tightness.
- If rearranging the pads does not alleviate the tightness, try the next smaller pad size.

### **2. If helmet is too loose:**

- Try a larger size pad set or increase the current number of pads in use.
- If you are wearing a size 8 pad set and a size large shell, downsize to a size medium shell. If still too loose, increase the number of pads.

### **3. If helmet is too high: (i.e. crown pad does not contact top of head or too much of forehead exposed.)**

- First, try smaller sized pad set.
- If the first step does not work, try a larger shell size.

### **4. If helmet is too low: (i.e. helmet too low on brow, helmet not compatible with eyewear, or other similar compatibility issues.)**

- First, try larger suspension pads.
- If the first step does not work, try a smaller helmet shell.

# CHINSTRAP SYSTEM OPERATION

## ADJUSTING THE CHINSTRAP

1. Prior to donning helmet, loosen all adjustment straps (2 ladder locks in front, 2 ladder locks in back, and the nape pad). Unbuckle chinstrap buckle.

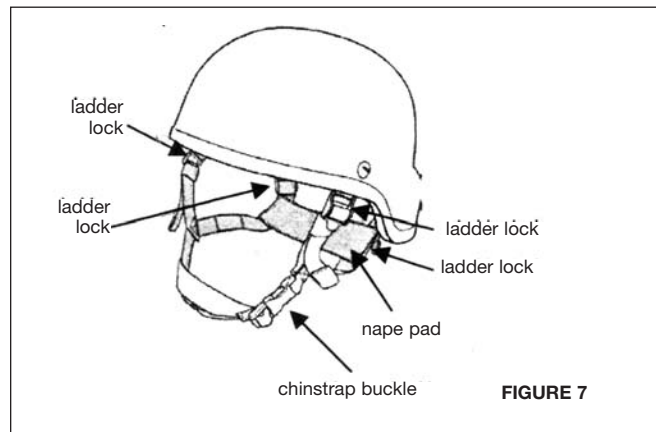


FIGURE 7

2. Position helmet on head and buckle chinstrap. Hold helmet in place with one hand on top of helmet for initial adjustment.

### **▲ WARNING**

If you pull too tightly on any strap during steps 3 and 4, or if you do not position the helmet on head and hold in place with one hand on the top of the helmet for initial adjustment as instructions in step 2, the helmet may become uncomfortable and tilted on your head and the chin cup may become uncentered. Failure to follow this warning may result in the helmet not providing the intended protection.

3. Partially tighten 2 back adjustment straps (one side at a time).
4. Partially tighten 2 front adjustment straps (one side at a time).
5. With both hands, fully tighten front and back adjustment straps.
6. The nape pad can be slid up and down along the rear legs of the chinstrap. It can be positioned according to personal comfort. When tightened (see figure below) against the nape by pulling on end webbing, the nape pad adds additional stability to the helmet such as when wearing NVGs. Keep the nape pad away from the ladder locks while adjusting the chinstrap to prevent jamming.
7. Periodically check the tightness of the chinstrap during use. If the chinstrap becomes loose, using both hands, retighten the front and back adjustment straps.

## REMOVING AND REPLACING THE CHINSTRAP RETENTION SYSTEM

1. Unthread the chinstrap retention system webbing from the ladder lock.
2. Lay the helmet on the crown with the front of the helmet away from you (buckle is located on right side of the helmet.)
3. Drape the replacement chinstrap over the helmet with the nape-strap pad facing down on the back/rear of the helmet (see Chinstrap Retention Orientation diagram below).
4. Insert and thread the four legs of the chinstrap into their corresponding ladder locks. (See Routing of Chinstrap Retention System Webbing through Ladder Lock diagram below.) For diagram of entire assembled helmet with chinstrap retention and hardware – see the Description section.
5. Ensure the webbing is not twisted.
6. Slide elastic band over loose ends of webbing.

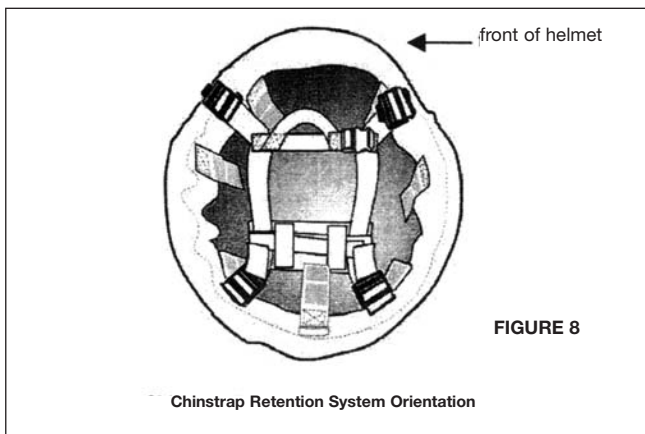
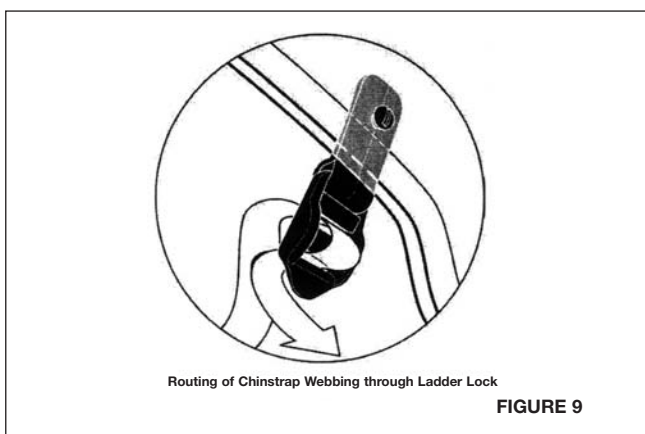


FIGURE 8



Routing of Chinstrap Webbing through Ladder Lock

FIGURE 9





# INSPECTION AND MAINTENANCE

## REPLACING THE FORCEFIELD ACH HARDWARE (LADDER LOCK, P-CLAMP, SCREW, OR NUT)

**Note:** To replace hardware, use a standard flathead screwdriver. If this tool is unavailable, a coin may be used.

1. Remove the chinstrap retention system. (see Removing and Replacing the Chinstrap Retention System)
2. Remove the screw with a standard flathead screwdriver and lift the ladder lock and p-clamp out.
3. Replace the necessary portion (ladder lock or p-clamp). Replace screw and nut. Ensure the proper facing of the ladder locks by seating the nut in the appropriate recessed portion of the p-clamp.
4. Tighten the screw.
5. Inspect the screws to ensure tightness.

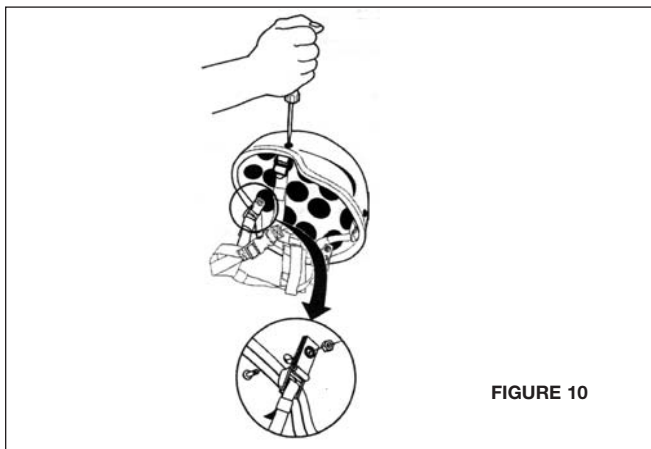


FIGURE 10

## REPLACING PAD SUSPENSION

**Note:** One side of the pads is covered with a green colored pile. On the other side, the pads are covered by black colored moisture-wicking fabric. Press the pad against the hook disks, green side down.

1. Pull the individual pads off the inner helmet hook disks.
2. Re-attach the suspension pads as needed. (see Pad Suspension Adjustment and Suggested Pad Configurations).

## CLEANING INSTRUCTIONS

### Helmet Shell

- Clean with mild soap and water. Use a soft brush or cloth.
- Allow to air dry.

### Chinstrap, Helmet Cover, and Pad Suspension (as applicable)

- Clean by hand with mild soap and water.
- Allow to air dry. **DO NOT MACHINE WASH OR DRY.**

### ⚠ WARNING

**Clean the FORCEFIELD ACH before inspection following the specified procedure. Failure to follow these cleaning procedures may cause an improper inspection and result in serious personal injury, disease, or death.**

### General

Inspect the FORCEFIELD ACH before and after each use according to the table below, to keep FORCEFIELD ACH in proper operating condition.

### ⚠ WARNING

**Do not modify the helmet in any way from its original configuration; otherwise, it may not provide the intended protection.**

INSPECTION AND MAINTENANCE		
ITEM TO BE INSPECTED	DO NOT USE IF	REPAIR/REPLACE
Chinstrap Retention System	Chinstrap webbing has larger than 1/8" fray, discernable cut, or other damage.	Replace the chinstrap.
	Hardware (p-clamp, ladder lock, nut, screw) or buckle is cracked, worn, or damaged.	Replace the hardware.
	Screws loose.	Tighten screws. If loosening persists, use Loctite 271.
Pads	Cuts, tears, or other damage to outer fabric or inner foam.	Replace the pads.
Shell	Gouges, scrapes, or other damage extends below the surface (below the paint).	Replace the helmet.
	Edging is loose or damaged.	Replace the helmet.
	Hook disks are damaged such that they will not securely hold the pads in place.	Replace the pads. If the pads still do not stick, replace the helmet.



## REPLACEMENT PARTS

### REPLACEMENT PARTS FOR THE FORCEFIELD ACH

- Chinstrap 300021A
- Pads, Size 6 - 3/4 inch - 10060678 (one set)
- Pads, Size 8 - 1 inch - 10060679 (one set)
- Pads, Size 6 - 3/4 inch - 10060735 (set of 10 pads)
- Pads, Size 8 - 1 inch - 10060736 (set of 10 pads)

# WARRANTY

## WARRANTY INFORMATION

### General Helmet System Warranty

The crown label determines the warranty for each of the FORCEFIELD ACH helmet system components. The date is printed on the crown of the helmet shell underneath the solid black label. The shell warranty period from date of manufacture is 60 months (5 years). The suspension/retention system (buckles, chinstraps, pads) warranty period from shell date of manufacture is 12 months (1 year).

### **⚠ WARNING**

**Use only accessory equipment of the type included in the original helmet or approved by MSA. Using unauthorized accessories may dramatically change the performance of the helmet. Failure to follow this warning may result in the helmet not providing the intended protection.**

## WARRANTY

1. Express Warranty – FORCEFIELD ACH products and/or components furnished under this order carry a Lifetime Warranty against material defects and/or faulty workmanship, with the exception of the helmet shell, which carries a 5 year shell replacement warranty from the date of manufacture and the chinstrap, plastics, and pads which carry a 1 year replacement warranty from the date of manufacture. MSA shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel or if the warranty claim results from abuse, misuse, or normal wear and tear of the product. No agent, employee or representative of MSA may bind MSA to any affirmation, representation or modification of the warranty concerning the goods sold under this contract. MSA makes no warranty concerning components or accessories not manufactured by MSA, but will pass on to the Purchaser all warranties of manufacturers of such components. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR

STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF: MSA SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

2. Exclusive Remedy – It is expressly agreed that the Purchaser's sole and exclusive remedy for breach of the above warranty, for any tortious conduct of MSA, or for any other cause of action, shall be the repair and/or replacement, at MSA's option, of any equipment or parts thereof, that after examination by MSA are proven to be defective. Replacement equipment and/or parts will be provided at no cost to the Purchaser, F.O.B. Purchaser's named place of destination. Failure of MSA to successfully repair any nonconforming product shall not cause the remedy established hereby to fail of its essential purpose.
3. Exclusion of Consequential Damages – Purchaser specifically understands and agrees that under no circumstances will MSA be liable to Purchaser for economic, special, incidental, or consequential damages or losses of any kind whatsoever, including but not limited to, loss of anticipated profits and any other loss caused by reason of the non-operation of the goods. This exclusion is applicable to claims for breach of warranty, tortious conduct or any other cause of action against MSA.

## QUESTIONS & SUGGESTIONS

Please keep these instructions in a safe place so you can refer to them in the future. If you have any questions regarding the operation of this helmet or suggestions and comments about it, please contact Customer Service at 1-888-MSA-0018.

## ADDITIONAL INFORMATION

If you wish to receive literature on accessories, options or more in-depth information, call 1-800-MSA-0018 or visit our website at [www.MSAnet.com](http://www.MSAnet.com).