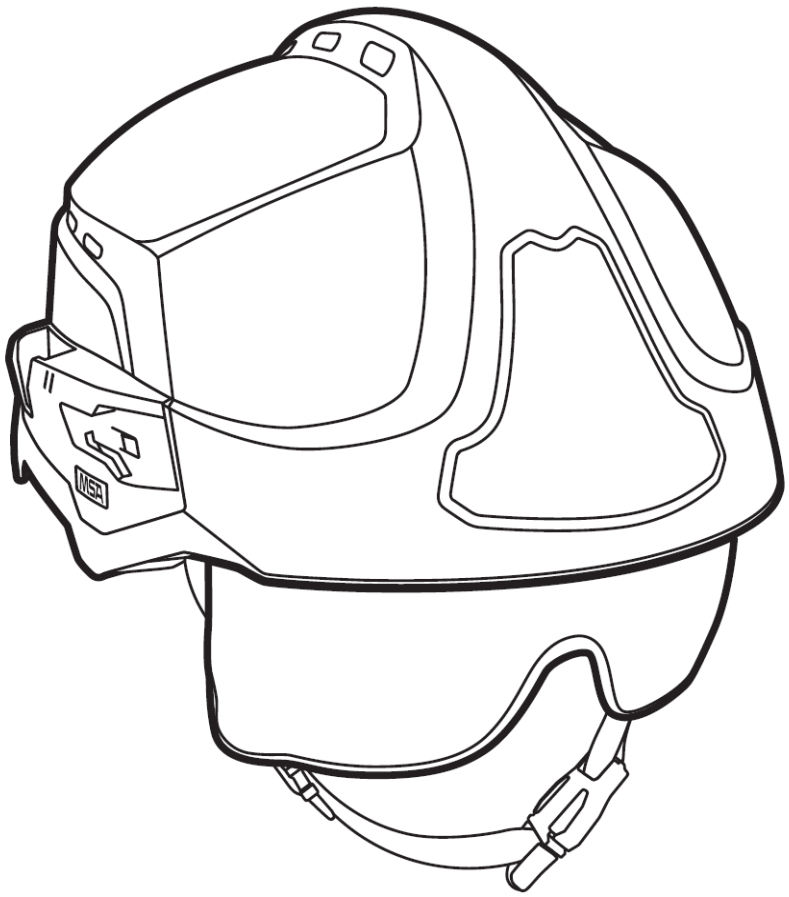
MSA
The Safety Company



Operating Manual

MSA Cairns XR2

Technical Rescue Helmet

Order No.:PQ120200/00

Print Spec: 10000005389 (EO)

⚠ WARNING!

Read this manual carefully before using or maintaining the device. The device will perform as designed only if it is used and maintained in accordance with the manufacturer's instructions. Otherwise, it could fail to perform as designed, and persons who rely on this device could sustain serious injury or death.

The warranties made by MSA with respect to the product are voided if the product is not installed and used 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 additional information relative to use or repair, call 1-800-MSA-2222 during regular working hours.

Thank you for purchasing your new MSA Cairns Technical Rescue Helmet. Welcome to the MSA Cairns Community of technical rescue helmet owners! Congratulations: you've just joined the thousands of Cairns technical rescue helmet owners who know why MSA Cairns is the market leading technical rescue helmet in North America.

Take these three steps to become actively engaged with other helmet owners:

(1) Go to www.MSAsafety.com/registration and register your technical rescue helmet for its lifetime warranty.

(2) Follow us on Facebook (facebook.com/MSAsafetyFire) and Twitter (@MSAsafety, #lovemyCairns).

(3) Visit our active fire service brotherhood of MSA Cairns Technical rescue helmet owners at MSAFIRE.com KEYWORD: CairnsCommunity.

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Contents

1 Dangers, Warnings and Cautions

WARNING!

Technical rescue is an extremely dangerous activity. All personnel who have or will have the responsibility for using or maintaining this helmet must follow the instructions in this manual carefully. This helmet will perform as designed only if it is used and maintained according to the instructions. Otherwise, the helmet could fail to perform as designed, and personnel who rely on it for their safety can sustain serious personal injury or death.

This helmet does NOT provide protection from all burns, injuries, diseases, conditions, or hazards. Do not perform Technical rescue activities without the proper training and equipment.

Use extreme caution for all operations.

Use MSA Cairns® XR2 Technical Rescue Helmets within the guidelines of NFPA 1500, Standard on Fire Department Occupational Safety and Health Program (current edition); CFR Title 29, Part 1910, Subpart I, Personal Protective Equipment and NFPA 1951, Standard on Protective Ensembles for Technical Rescue Incidents (current edition), as applicable.

This helmet is NOT intended to provide protection during structural fire fighting. Do not use the helmet for structural firefighting.

This technical rescue helmet provides LIMITED protection to the head when worn during technical rescue incidents, as designated. Avoid exposure to flashovers, collapses, falls, and other conditions that may exceed the protective capacity of the technical rescue helmet.

If this technical rescue helmet is exposed to heat, you may be BURNED with NO warning and NO sign of damage to the technical rescue helmet.

The optional ANSI Z87 visor/face shields provide LIMITED protection to the area they cover. The visor provides LIMITED protection to the area covered.

To provide maximum protection and reduce the risk of injury, adjust the helmet with all components in position to fit on the head properly and fasten the chinstrap securely.

Do not use the helmet as a vehicular or sports helmet.

Follow the procedures in Section 5.2.1 Routine Inspection to inspect the helmet after EACH use. Replace any part of the helmet that shows signs of wear or damage.

All plastics can degrade over time. Inspect routinely and replace damaged plastic components immediately.

Use only components and accessories that are included with the original helmet or approved by MSA. Using unauthorized components or accessories can adversely affect helmet performance.

Do not alter, paint, or attach any item that is not recommended by MSA to the helmet.

Do not use abrasive cleaners or solvents to clean the helmet.

Use only helmet markings (front identification shields, retro reflective trim) and helmet accessories (integrated lighting modules, communications headsets, etc.) that are supplied and/or approved by MSA.

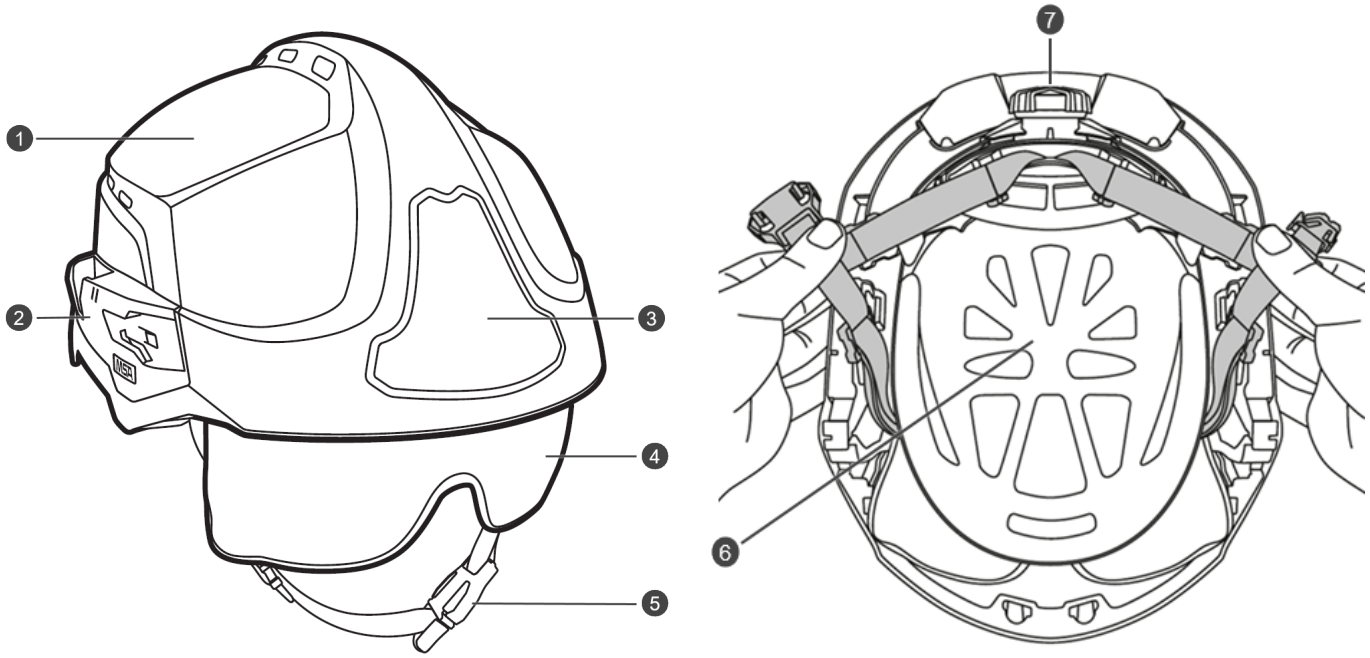
Failure to follow these warnings can result in serious personal injury or death.

2 Description

2.1 Overview

The helmet consists of the following components:

Figure 1 Overview MSA Cairns XR2



1	*Shell*	*5*	*Chinstrap*
2	*Accessory interface*	*6*	*Suspension padding*
3	*Front plate*	*7*	*Knob for headband adjustment*
4	*Ocular visor (option)*		

2.2 Technical Specifications

Helmet sizes:	from 6-1/2 to 8-1/8 inches (52 cm to 65 cm)
Weight (helmet only):	1.65 lb ± 0.11 lb (750 g ± 50 g)
Options:	• Headlamp • Ocular visor • Face shields • Goggle mask • Retro-reflective stickers

3 Use and Adjustment

For adequate protection, this helmet must fit or be adjusted to the size of the user's head.

The attention of users is also drawn to the danger of modifying or removing any of the original component parts of the helmet, other than as recommended by the helmet manufacturer. Helmets should not be adapted for the purpose of fitting attachments in any way not recommended by the helmet manufacturer.

3.1 Basic Adjustments

Basic adjustments should enable a high level of comfort for most users. They can be performed with the helmet on the head.

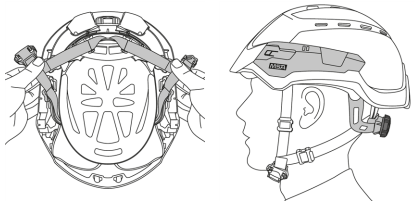
⚠ WARNING!

To provide maximum protection, make sure to adjust the helmet properly. Tightening the ratchet beyond its limits can cause damage to internal gears and result in reduced protection.

Do not store equipment that is not explicitly authorized by MSA in or on the helmet. The storage of gloves, wedges, lights, and other equipment in or on the helmet can dramatically change the protective capacity of the helmet.

Failure to follow this warning can result in serious personal injury or death.

Helmet Donning

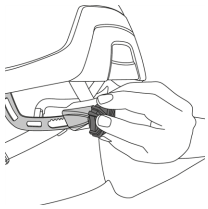


(1) Position the chinstrap as shown.

(2) Grab the helmet with both hands and install it on your head.

(3) If too tight, open the headband by adjusting the knob (anticlockwise).

Head Size Adjustment



(1) Adjust the head size using the knob (clockwise to tighten, anticlockwise to loosen) until you reach a snug fit on the head.

(2) Check tightness: helmet should not fall when leaning forward (with open chinstrap).

Chinstrap and Retention System Adjustment

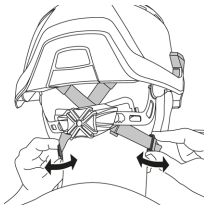
⚠ WARNING!

Never wear the helmet without fastening and tightening the chinstrap.

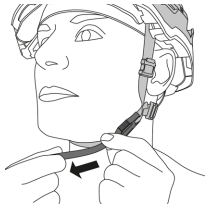
Failure to follow this warning can result in serious personal injury or death.

The retention system includes 5 adjustment points (chin, sides and rear) to secure retention on the head through a tight fit of the chinstrap and rear straps.

(1) Close the chinstrap buckle (if not possible, loosen the adjustment).



(2) Tighten the side and rear adjustments to achieve a tight, yet comfortable fit (ear should be comfortable).



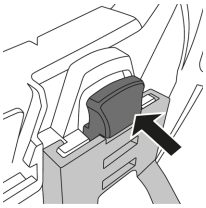
(3) Complete the adjustment with the chinstrap adjustment.

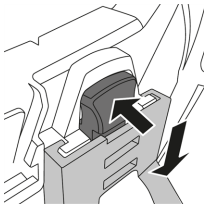
3.2 Advanced Adjustments

The following adjustments can be used to optimize wearing and comfort of the helmet after an initial assessment. They should be performed if the basic adjustments do not enable a comfortable fit and must be performed without wearing the helmet. Basic adjustments may need slight changes after advanced adjustments are completed.

3.2.1 Ride Height Adjustment

The suspension position in the helmet shell can be adjusted to modify ride height (3 positions), depending on wearer's head size and shape.

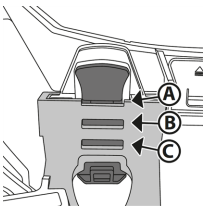




(1) Unlock the 3 yellow tabs (left, right, rear) by pulling them forward and down

(2) Adjust the suspension depth (left, right, rear) to the most comfortable ride height. Ensure all tabs are positioned at the same depth.

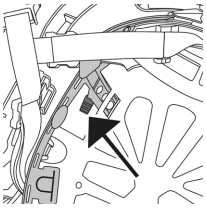
- A : for smaller head size
- C : for larger head size

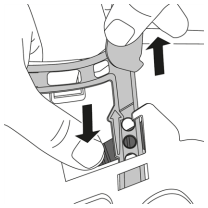


(3) Lock the yellow tabs by pulling them forward and up.

3.2.2 Nape Strap Height Adjustment

Nape strap height may be adjusted to optimize tightness and rear comfort (3 positions).





(1) Release the nape strap by pushing the adjustment clip.

(2) Place the strap in the desired position.

(3) Release the adjustment clip.

(4) Verify that the position is the same on both sides.

4 Accessories

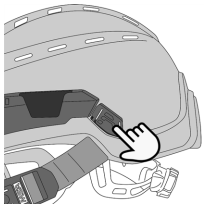
4.1 Responder Goggles (GA3705)

Installation


(1) Insert the plastic clip through the attachment slot until it clicks in position.

(2) Repeat the operation for the other side

Removal



(1) Push the plastic clip and slide it out of the attachment slot.

Use


(1) Grab the goggle frame with both hands and bring it down under the helmet brim.

(2) Adjust elastic band on the face by pulling the straps to the rear, to optimize comfort and protection.

(3) To put the helmet back in standby position, pull the elastic band clips forward and bring the frame on the helmet shell

NOTE: It is preferable to store the goggles inside the helmet when not used to avoid premature wearing of the straps (loss of elastic tension).

4.2 Eye and Face Protection Visors

Face shields will provide protection to the eyes and substantial areas of the face.

⚠ WARNING!

Important Information on Visors (Ocular Visor and Face Shields):

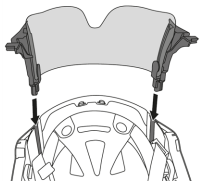
- Users should ensure the correct type of visor is fitted to their helmet for their intended activity.
- The stated levels of protection are only provided when the visor is fully in the in-use protective position.
- Ocular visors will offer little or no protection to substantial areas of the face. They must only be used where an adequate risk assessment indicates that facial protection is not required.

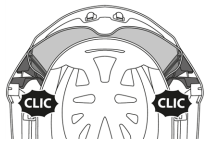
- Mesh face shields are not suitable for wildland firefighting and only suitable for non-firefighting associated activities such as wood cutting, road clearance, etc. Additionally, they should not be used where there is a risk of exposure to heat, flame, sparks, splashes of harmful or molten liquids, or electricity.
- Visors meeting the requirements for electrical properties according to EN 14458 provide limited protection (brief accidental unintended contact with live low voltage conductors), and all component parts of a visor/helmet assembly shall have the same marking to achieve this.
- Visors worn over non-designated corrective frames may transmit impacts which may damage the corrective eyewear thus creating a hazard to the user.
- Keep the ocular visor in standby position (stowed under the helmet shell) during the use of a breathing apparatus (SCBA).
- Service life of visors depends on the conditions of use.
- Any visor or face shield that has been dropped or damaged must be replaced.
- Visors shall be regularly inspected. Any visor with a scratched or damaged lens must be replaced.
- Materials that come in contact with the wearer's skin could cause allergic reactions in susceptible individuals.

Failure to follow these warnings can result in serious personal injury or death.

4.2.1 Ocular Visor (GA3702)

Installation





(1) Insert the plastic clips in the shell slots until they click in position.

Removal

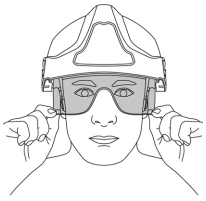
(1) Push the plastic clips and slide them out of the attachment slots.

⚠ WARNING!

With the ocular visor in the working position and adjusted, if there are gaps between your face and the spectacles that could let external agents intrude and cause damage to your eyes, use safety glasses under the spectacles. Safety glasses MUST comply with the applicable requirements of the latest revision of ANSI/ISEA Z87.1.

Failure to follow this warning can result in serious personal injury or death.

Use



(1) Position the ocular visor in-use by pulling it down.

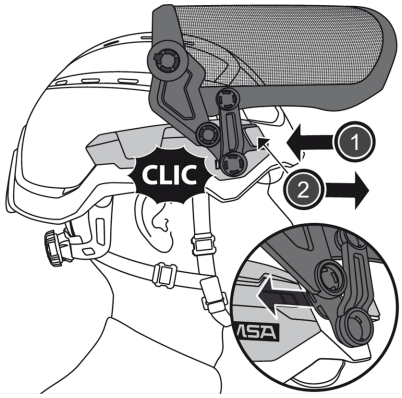
(2) Tilt the ocular visor towards the face for an optimal fit.

(3) Push the visor up to put it back in standby position.

The ocular visor can be adjusted to optimize the distance between visor and face.

4.2.2 Face Protection Visors (Mesh GA3703 / Clear GA3704)

Installation

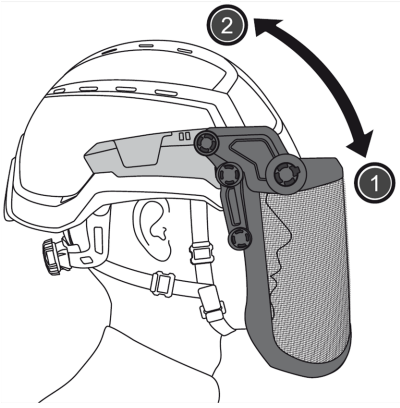


(1) Insert the visor attachment clips in the rail and push until it clicks. Repeat on the other side.

Removal

(2) Push the green locking button and slide back the visor attachment clip out of the rail. Repeat on the other side.

Use

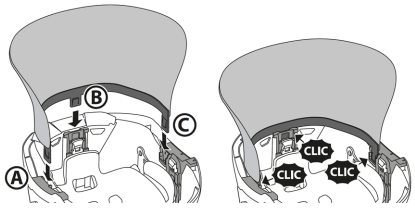


(1) Move the face protection visor down by pulling its lower edge until it reaches the in-use position.

(2) Return to standby position by pushing the face protection visor up until it reaches the upper stop.

4.3 Neck Protector (GA3709)

Installation



(1) Place the neck protector upside down above the helmet.

(2) Insert the central clip (B).

(3) And continue with (A) and (C).

Removal

(1) To remove the neck protector, release the clips by pressing them.

4.4 Headlamp

If the headlamp is removed from the helmet, the following components should be installed.

Front plate (GA3707) to replace front module, and rear cover (GA3706) to replace the rear module.

For further information see the head lamp user manual.

4.5 Water Rescue Lateral Protection Panel (Option) (GA3701)

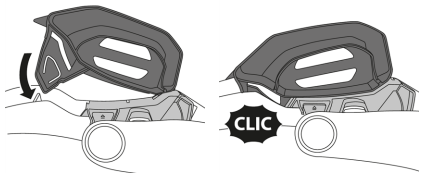
The water rescue protection panel enables helmet full compliance to EN 1385:2012 standard (helmets for canoeing) by increasing the area of protection to the side (GA3701).

⚠ WARNING!

Do not use the helmet for water rescue protection without the lateral protection panel.

Failure to follow this warning can result in serious personal injury or death.

Installation



(1) Insert the front edge in its groove and push the rear clip through the slot until it clicks. Repeat the operation for the other side

Removal

(1) Push the rear clip ① and pull it down ② to release it completely from its slot. Repeat the operation for the other side.

For an overview of the available accessories, see section 6 .

5 Care and Maintenance

WARNING!

- This helmet is made to absorb the energy of a blow by partial destruction or damage to the helmet and/or harness. Replace the helmet after it has withstood an impact, even if there is no visible damage.
- Do not drop the helmet.
- Avoid unnecessary impacts which may cause damage to the helmet or its accessories (goggles, visor, etc.).
- Replace any damaged parts only with genuine MSA parts, as only these original parts are authorized and ensure the performance of the helmet.

Failure to follow these warnings can result in serious personal injury or death.

Carefully obey all of the procedures for cleaning, inspecting, repairing, and storing the helmet.

For additional guidance, refer to the current edition of NFPA 1851, which specifies the minimum selection, care, and maintenance requirements for structural and proximity firefighting protective ensembles and the individual ensemble elements.

5.1 Cleaning

WARNING!

- Helmets that are dirty or soiled from technical rescue incidents may be contaminated with toxins that are poisonous, pathogenic, toxic or carcinogenic. Failure to properly clean the helmet after each use per the recommended cleaning procedures may result in injuries, illness, disease and/or death. Helmets should be properly cleaned consistent with NFPA 1851 under the supervision of the authority having jurisdiction and standard operating procedures.
- Do not use cleaning solvents, oils, varnishes, or polishes other than those recommended in this manual to clean or decontaminate helmets or helmet components.
- Do not use abrasives, solvents, paint removers, acetone, paint or lacquer thinner, or any chlorinated organic solvents to clean the helmet shell. Use of these substances can degrade the protective properties of the helmet shell.
- Do not use equipment that produces mechanical action such as tumbling or agitation to machine-wash or dry complete helmets.
- Do not use forced hot air or put the helmet directly on a heat source to dry it.
- Do not apply paint, stickers, cleaning products with a hydrocarbon base or solvents to the helmet or visors to prevent damaging the materials of your helmet.
  Failure to obey these warnings can result in serious personal injury or death.
- To prevent contamination after technical rescue incidents, clean the helmet after each use, before inspection.
- Elements contaminated by CBRN agents must be handled according to decontamination and disposal procedures set by the applicable authorities.
- Remove any helmet that has been exposed to chemical or biological contaminants from service and clean it using the procedures in the Section 5.1.2 Advanced Cleaning.
- For cleaning, use a solution of 1.5 oz (43 g) of mild detergent per 1 gal (3.8 L) of water at a temperature no higher than 110 °F (43 °C).
- Do not use a helmet that is wet from use or cleaning. Allow all parts to air dry completely before use.
- Do not use a heat source such as forced air to dry components more quickly. Do not tumble dry.

Failure to follow these warnings can result in serious personal injury or death.

5.1.1 Routine Cleaning

Plastic Components, Goggles and Visors

Use soapy water and a soft cloth.

Textile Materials and Soft Goods (Padding, Chinstrap, Neck Protector)

These can be removed from the helmet and machine cleaned. Follow the cleaning instructions on the labels.

5.1.2 Advanced Cleaning

If the helmet is particularly soiled or has been exposed to severe conditions, advanced cleaning is recommended. It can be carried out manually or using an approved mechanical, machine cleaning method. Please refer to the care and maintenance manual.

5.2 Inspection

WARNING!

Failure to follow the recommended inspection procedures can reduce helmet performance and result in serious personal injury, disease, illness, or death.

Do not use a helmet that has damage.

Do not attempt to test the helmet. The performance properties of the helmet and its components cannot be properly tested by a user in the field.

Failure to follow these warnings can result in serious personal injury or death.

WARNING!

Replace the helmet after it has withstood an impact, even if there is no visible damage.

In case of visible damage identified during the routine inspection (before or after use), such as impacts, significant scratches, coating removal on the shell or visors, melted parts, broken parts, torn straps or padding, missing components, non-operational moving parts (such as visors or ratchet), etc., the helmet should be taken to the trained maintenance technician or an MSA approved maintenance center.

Failure to follow these warnings can result in serious personal injury or death.

5.2.1 Routine Inspection

Clean the helmet per section 5.1 Cleaning prior to inspection.

Inspect the helmet after each use for the following signs of damage from impact and thermal exposure. If any of these conditions exist, remove the helmet from service immediately and repair or replace it as applicable.

After each use, check every part of the helmet and, especially the attachment points.

- No evident wear
- No fractures or cracks
- Continued, proper fit

5.2.2 Advanced Inspection

WARNING!

Only a manufacturer-trained organization, verified organization, or verified Independent Service Provider (ISP) can perform advanced inspection.

Failure to follow this warning can result in serious personal injury or death.

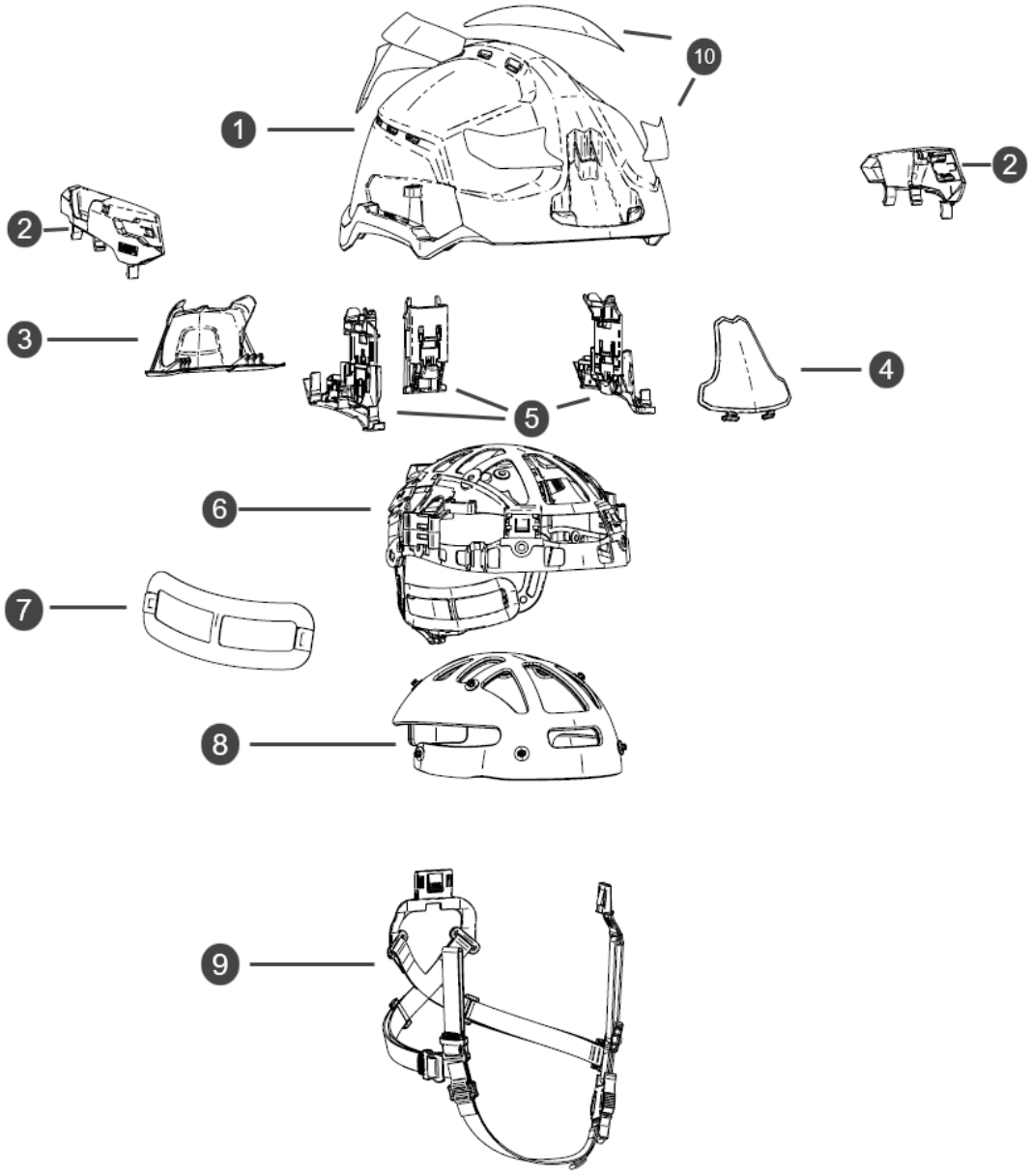
Advanced inspection includes all of the items listed for 5.2.1 Routine Inspection as well as the following items. After the helmet is put into service, do an Advanced Inspection of all protective ensemble elements at least every 12 months, or whenever a routine inspection removes the ensemble from service, whichever occurs first.

NOTICE

For the purposes of replacement (according to NFPA 1851, Standard on Selection, Care, and Maintenance of Protective Ensembles for Structural Fire Fighting and Proximity Fire Fighting) and warranty, the manufacturing date for the helmet ensemble is based on the oldest original part shipped as a component of the complete compliant helmet ensemble, irrespective of the manufacturing date of the replaced parts.

Disassemble the helmet using the instructions in Section 5.3 Disassembling / Reassembling and inspect all components for the conditions listed in Section 5.2.1 Routine Inspection.

Figure 2 Exploded View



1	*Shell*	*6*	*Suspension / headband assembly*
2	*Accessory Interface*	*7*	*Neck pad*
3	*Rear cover*	*8*	*Suspension padding*
4	*Front plate*	*9*	*Chinstrap*
5	*Suspension holders*	*10*	*Reflective stickers (option)*

If any of the following conditions exist, replace the relevant part or assembly.

Helmet shell

- Visible cracks or holes reducing mechanical structure

- Visible impacts inside the helmet shell

Suspension and headband assembly

- Plastic suspension assembly: visible cracks, damaged attachment points / clips preventing secured attachment to the helmet
- Headband: broken / blocked ratchet knob, visible cracks, missing Velcro attachment points, damaged / missing neck pad

Suspension padding

Torn fabric, missing foam, stiff foam, damaged stitching, damaged / missing Velcros

Chinstrap

- Broken / non operating buckle
- Damaged straps (torn, missing stitching, etc.)
- Damaged / broken adjusters preventing proper adjustment and tightness

Accessory interface and suspension holders

Major crack, broken clips, loose attachment to the helmet shell

Front plate / rear cover

Broken clips preventing proper attachment to the helmet shell

Reflective trim (optional)

Torn, partially detached, permanently soiled trim

Goggles and ocular visor (optional)

- Blistered, bubbled, cracked, charred or otherwise damaged hardware or lens
- Lens will not stay in the stowed position and/or cannot be adjusted
- Broken quick-connect attachment clips

Neck protector (optional)

- Torn fabric, holes, missing stitching
- Broken clips preventing proper attachment to the helmet

5.3 Disassembling / Reassembling

5.3.1 Suspension Padding

Disassembling

(1) Detach Velcro attachment and remove the padding.

Reassembling

(1) Install the padding onto the helmet suspension and fasten Velcros at the front and on the sides to secure attachment.

5.3.2 Chinstrap

Disassembling

(1) Push and release the rear clip and pull the rear straps through the headband (between ratchet pad and rear headband).

(2) Push and release the side clips and pull the chinstrap out .

Reassembling

(1) Attach the side clips (push down until it click is heard) ensuring buckle is on the left (wearer's perspective).

(2) Slide the rear straps through the headband and attach the rear clip (push down until a click is heard) .

5.3.3 Suspension and Headband Assembly

Disassembling

(1) Unlock the adjustment levers (yellow) on the sides and on the rear.

(2) Release the side attachment points by pressing the lever and pulling out the suspension.

(3) Release the rear attachment point by pressing the lever and pulling out the suspension .

Reassembling

(1) Insert the rear attachment point and push until it clicks.

(2) Pre-insert the side attachments points (left and right) and push both sides simultaneously until it clicks.

(3) Ensure that the ride height adjustment is correct (→ 3.2.1).

5.3.4 Front Plate

Disassembling

(1) Push both attachment clips towards the inside of the helmet until the front plate is released.

Reassembling

(1) Position the front plate and slide it downward towards the edge of the helmet until it clicks.

5.3.5 Rear Cover

Disassembling

(1) Push both attachment clips and pull the cover out of its location.

Reassembling

(1) Position the cover and push it inside it location until it clicks.

For an overview of the available replacement parts, see section 6 .

5.4 Storage

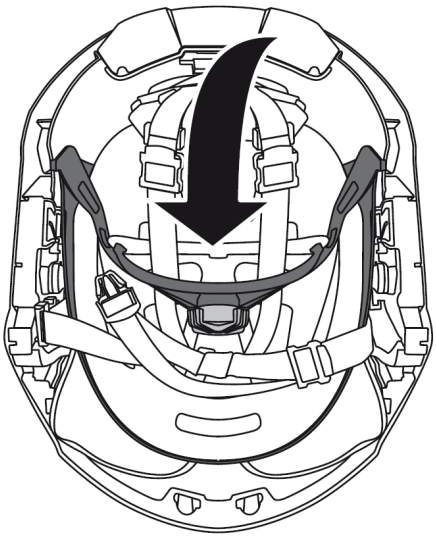
WARNING!

Do not store equipment that is not explicitly authorized by MSA in or on the helmet. The storage of gloves, wedges, lights, and other equipment in or on the helmet can dramatically change the protective capacity of the helmet.

Failure to follow this warning can result in serious personal injury or death.

- Clean the helmet (shell and internal components) after use before storing.
- Store the helmet in a clean, dry area where it is not exposed to heat, cold, or sunlight.
- Store the helmet in a proper storage bag (GA3708) and/or in a closed cabinet to avoid extended exposure to cold, humidity, exhaust fumes, etc.
- When not in use, store the helmet with the ratchet suspension set to its smallest size.
- Store the face shield and visor (if applicable) inside the helmet (stowed position).
- Place the goggles inside the helmet when stored.
- For long duration storage, fold the nape strap inside the helmet (→Figure 3) to prevent distortion of the plastic headband.

Figure 3 Nape Strap Storage

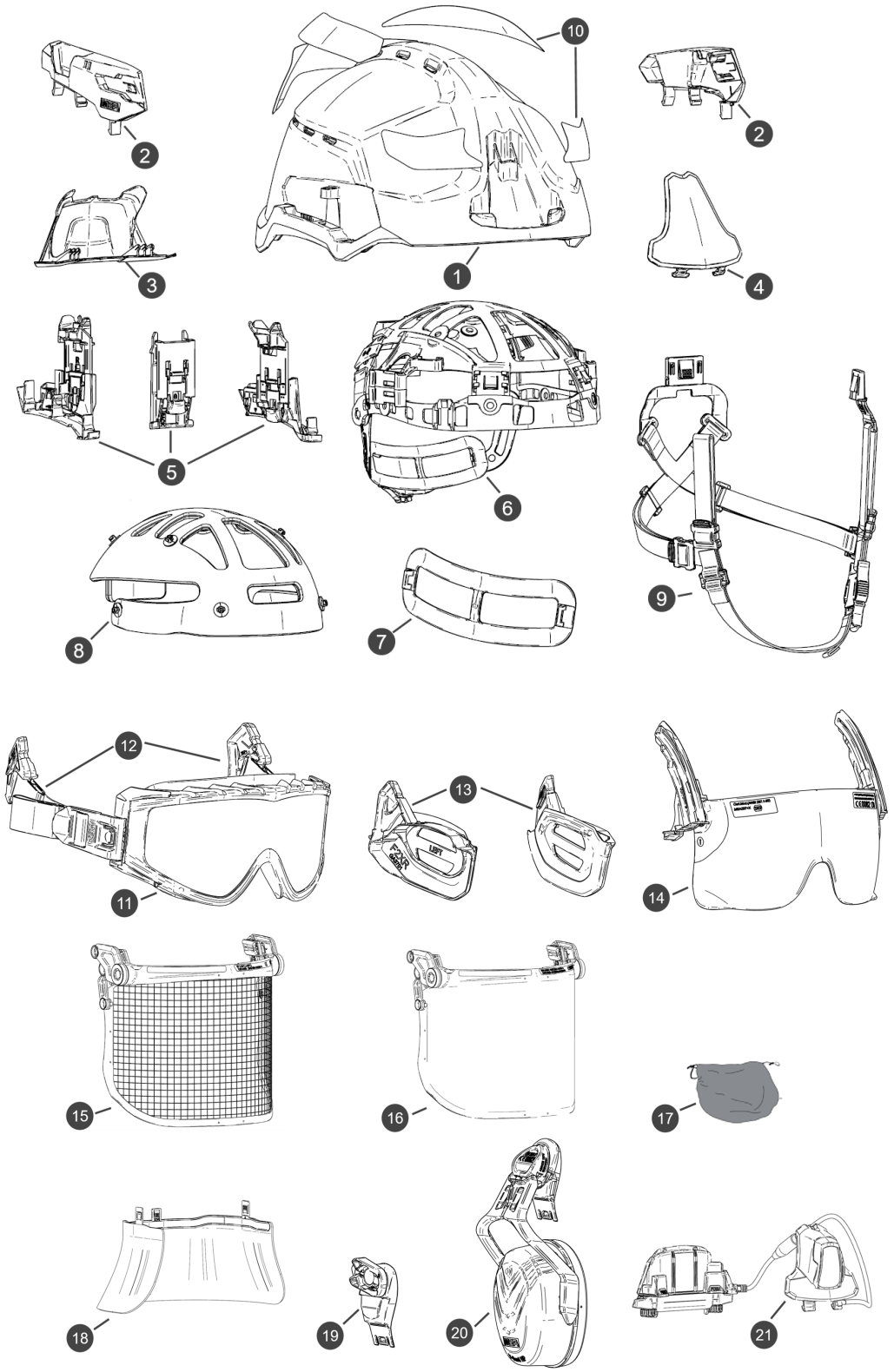


6 Replacement Parts and Accessories

Please see our catalog, visit MSAFIRE.com or contact your authorized MSA fire service distributor for a full line of genuine MSA accessories and replacement parts.

No.	P/N	Description	Type
1	GA3712	Painted shell vented XR2	Spare part
1	GA3713	Painted shell unvented XR2	Spare part
2	GA3717	Accessory Interface XR2(pair)	Spare part
3	GA3706	Back plate XR2	Spare part
4	GA3707	Front plate XR2	Spare part
5	GA3718	Suspension holders (Lateral and rear) XR2	Spare part
6	GA3714 / GA3728	Suspension & headband assembly XR2/ Nape strap with ratchet knob XR2	Spare part
7	GA3716	Neck pad XR2	Spare part
8	GA3715	Suspension padding XR2	Spare part
9	GA3711	Chinstrap, complete XR2	Spare part
10	GA3719-XX	Retro reflective stickers set	Accessory
11	GA3705	Goggle Mask XR2	Accessory
12	GA3722	Goggle mask elastic band adapters (x2)	Spare part
13	GA3701	Water Rescue Lat.Protec. panel L&R XR2	Accessory
14	GA3702	Ocular visor Assembly XR2	Accessory
15	GA3703	Mesh visor assembly ANSI/ISEA Z87.1 XR2	Accessory
16	GA3704	Clear visor assembly ANSI/ISEA Z87.1 XR2	Accessory
17	GA3708	Transportation bag XR2	Accessory
18	GA3709	Neck protector XR2	Accessory
19	GA3710	Lamp bracket XR2	Accessory
20	10190356	V-Gard hearing protection Low	Accessory
	10190357	V-Gard hearing protection Medium	Accessory
21	GA3724	ATEX 3AA L2XR headlamp	Accessory
	GA3725	Non-ATEX 3AA L2XR headlamp	Accessory
	GA3726	ATEX Li-ion L2XR headlamp	Accessory
	GA3727	Non-ATEX Li-ion L2XR headlamp	Accessory

Figure 4 Exploded View of the Helmet, Spare Parts and Accessories



7 Warranty and Product Registration

Refer to ID 3600-72-MC (MSA Cairns 10-Year Warranty and Terms of Sale).

Registering your new technical rescue helmet is important! Registering your new technical rescue helmet will help MSA provide quicker, more efficient service and support. Your product registration can help ensure you get the most out of your warranty, especially if your technical rescue helmet was a gift and you don't have a proof of purchase date.

Registering your product will solidify the start date on your warranty period and eliminate confusion and frustration if you ever have to take advantage of your warranty.

Finally, in the unlikely event a safety notification or warranty service is required, MSA will have the ability to contact you. Your completed registration also helps us to keep you updated on support, service, product information and promotions/special offers.

To register your new MSA Cairns Technical Rescue Helmet, go to http://us.msasafety.com/productRegistration.

8 Contacting MSA

Keep these instructions in a safe place so you can refer to them in the future. For questions regarding the operation of this helmet or suggestions and comments about it, contact Customer Service at 1-877-MSA-FIRE.

MSA
The Safety Company

For local MSA contacts, please visit us at ***MSAsafety.com***