



Clinical Practice Procedures: Trauma/Helmet removal

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Date	June, 2019
Purpose	To ensure a consistent procedural approach for helmet removal.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
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Helmet removal

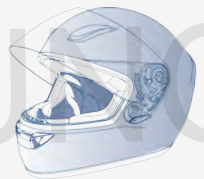
June, 2019

Helmet removal is required in all cases where a patient has a helmet still in situ.

This is necessary to allow adequate exposure to provide thorough patient assessment and appropriate treatment.

There are many types of helmet in use with varying levels of safety technology available. Clinicians should be aware of these differences as this may determine the safest removal technique. An assessment of the helmet should occur before any attempt at removal.

Helmet types:^[1]



Full face helmet: covers the whole head with a fixed chin bar. This design offers the highest level of protection.



Off road or motocross helmet: is the same design as the full face helmet with an elongated chin and visor. Usually worn for sport with goggles.



Modular or flip up helmet: covers the whole head with a moveable chin bar. The chin bar can be worn in open or closed positions. Chin protection provided only when fixed closed.



Open face or 3/4 helmet: covers the ears, cheeks and back of head. The face is exposed and there is no chin protection



Half helmet: Covers the top of the head only. Offers minimal protection

Irrespective of helmet type or incorporated safety mechanisms, this procedure should optimally be performed by **2 officers**.

Indications



- Removal of a motorcycle helmet in the setting of trauma

Contraindications

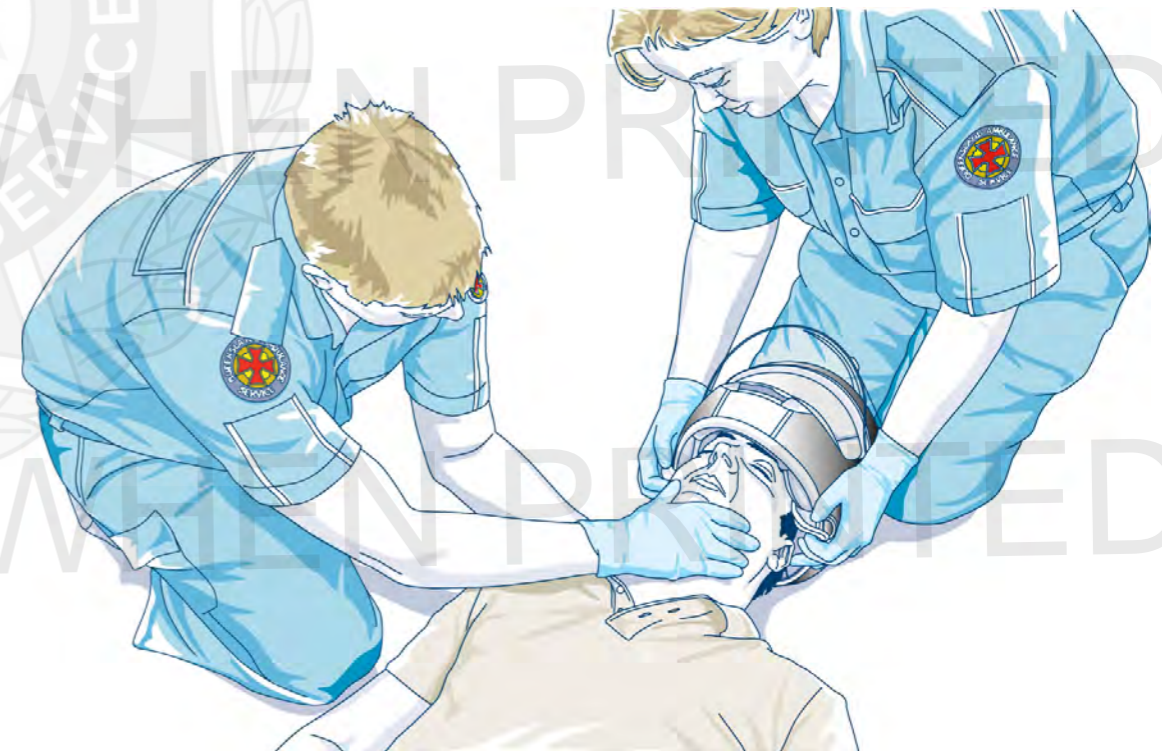


- Nil in this setting

Complications



- Possible exacerbation of C-spine injury



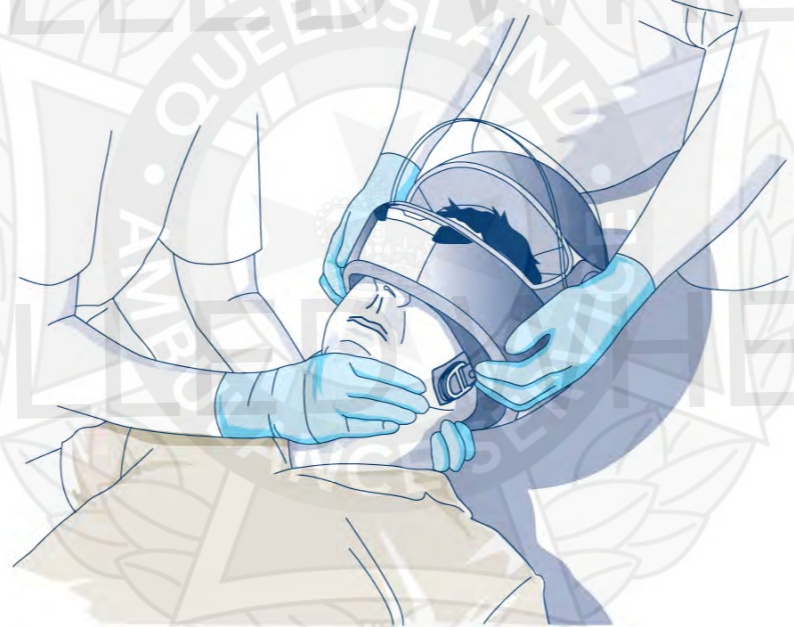
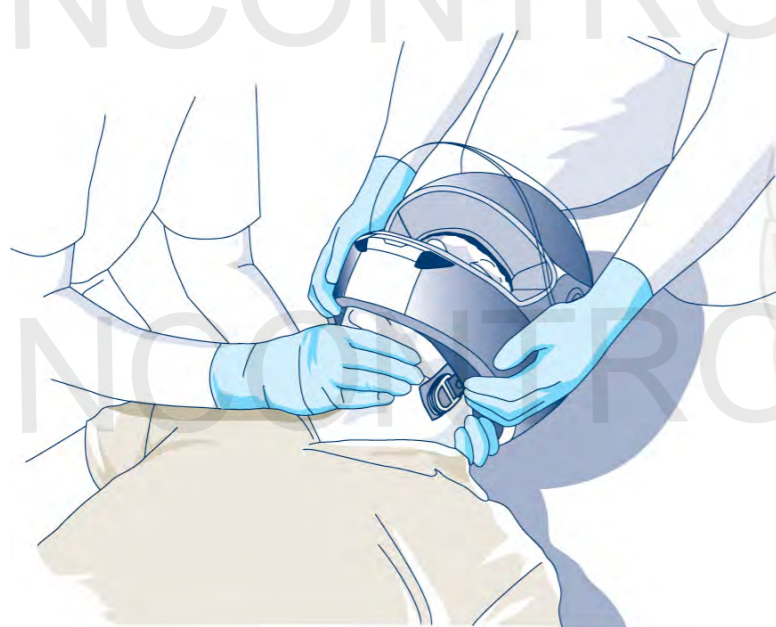
Procedure – Helmet Removal

This procedure should be followed with consideration for different helmet types and safety mechanisms installed.

- Assess helmet for type and determine any incorporated safety mechanisms. Look for warning stickers, protruding tabs or tubes and removal instruction on the side of the helmet. The conscious patient may be able to advise clinicians on removal procedure.
- Determine and agree on any alterations to standard removal procedure with assistant.

Standard helmet removal procedure^[2]

1. The primary officer provides Manual In-line Stabilisation (MILS) from the front of the patient by placing one hand on the mandible and the other applying supportive pressure on the occipital region.
2. Ensure any chin strap or guard is released or cut.



3. The second officer gently flexes the helmet apart laterally and lifts in a steady rearward motion avoiding movement of the neck.
4. As the helmet is removed, the primary officer may be required to readjust hand position to provide adequate support below the occiput.
5. Once the helmet is removed, the responsibility of MILS should be safely transferred to an officer at the head end of the patient.

+ Additional information

- If the patient is prone, maintain MILS and log roll into the lateral or supine position before removal where possible.
- If bystander assistance is required, the clinician should take the primary role and provide MILS.
- If the patient requires transport, ensure the helmet goes with them in order for hospital staff to assess damage.
- Some motorcycle riders carry a medical information card inside their helmet to alert first aiders / emergency personnel about their identification, medical history, allergies and other information to facilitate medical treatment. A small sticker is usually placed on the outside of the helmet, adjacent to where the card is tucked under the inside lining of the helmet.

Main principles regardless of helmet type and safety technology

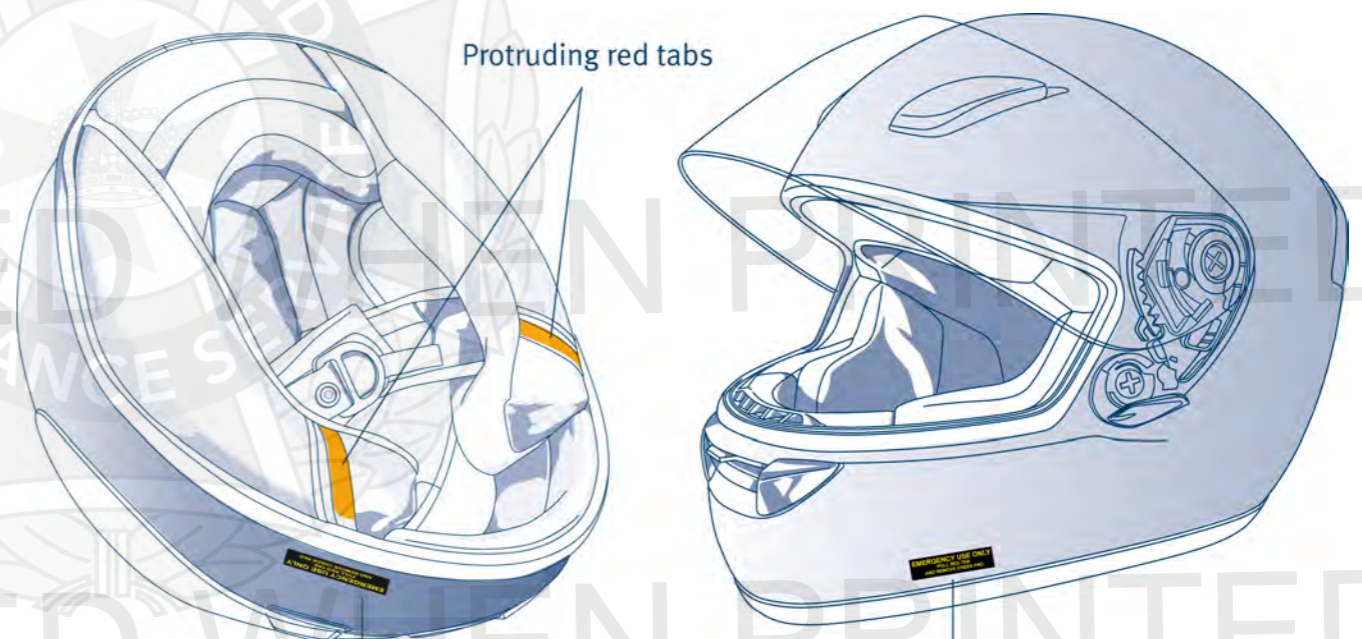
- Removal should occur with consideration of a possible cervical spine injury.
- Continual communication between the 2 officers removing the helmet is paramount.
- Removal should not require excessive force.

Safety technology

There are safety mechanisms that may be incorporated into motorcycle helmets. Clinicians should be aware of these and be looking for them on initial inspection while the helmet is still in situ. If the patient is conscious, they may be able to advise if safety technology is incorporated. The most common safety mechanisms are described here. Be aware that others may exist:

Emergency Quick Release System (EQRS)^[3]

This mechanism allows the removal of the cheek pads while the helmet is still in situ. The cheek pads hold the helmet in place so once they are removed, the helmet can subsequently be removed with little effort and minimal neck movement. The cheek pads are removed by pulling bilaterally protruding red tabs. This will allow each cheek pad to be pulled out through the bottom of the helmet. The helmet requires manual stabilisation during this process as it will become loose as the cheek pads become displaced. There may be instructions for use on the helmet.



**EMERGENCY USE ONLY
PULL RED TAB
AND REMOVE CHEEK PAD**

Safety technology (continued)

Eject Helmet Removal System (EHRS)^[4]

EHRS may be pre installed into any motorcycle helmet. It is designed to aid in the safer removal of a helmet after an incident by pushing the helmet off the head after the upper spine has been immobilised. It consists of a deflated airbag (pre installed in the top inside of the helmet) attached to some air tubing with a connector on the end. This connector should be visible while the helmet is in situ and recognised as a protruding tube from the posterior or lateral aspect of the helmet. Look for warning stickers. This system can only be activated using a separately stored inflator bulb which may be found with the patient belongings or companion. Attach the inflator bulb to the connector and once MILS is being provided, slowly squeeze the inflator bulb repeatedly to inflate the airbag. This will cause the helmet to lift off the patient's head. Manual manipulation of the helmet is NOT required, however manual guidance and support is necessary. If this inflator bulb is not located, revert to standard helmet removal procedure.

Rear system access^[5]

Emergency personnel on-site at a race track may carry an Eject EMT Kit. This is designed to be inserted into a helmet that is still in situ and does NOT have pre-installed EHRS. This involves inserting a deflated airbag into the top inside of the helmet using a thin tool which is inserted between the forehead of the patient and the helmet. This is then inflated to remove the helmet. This should only be used by personnel specifically trained in its use. This does NOT form part of QAS training.

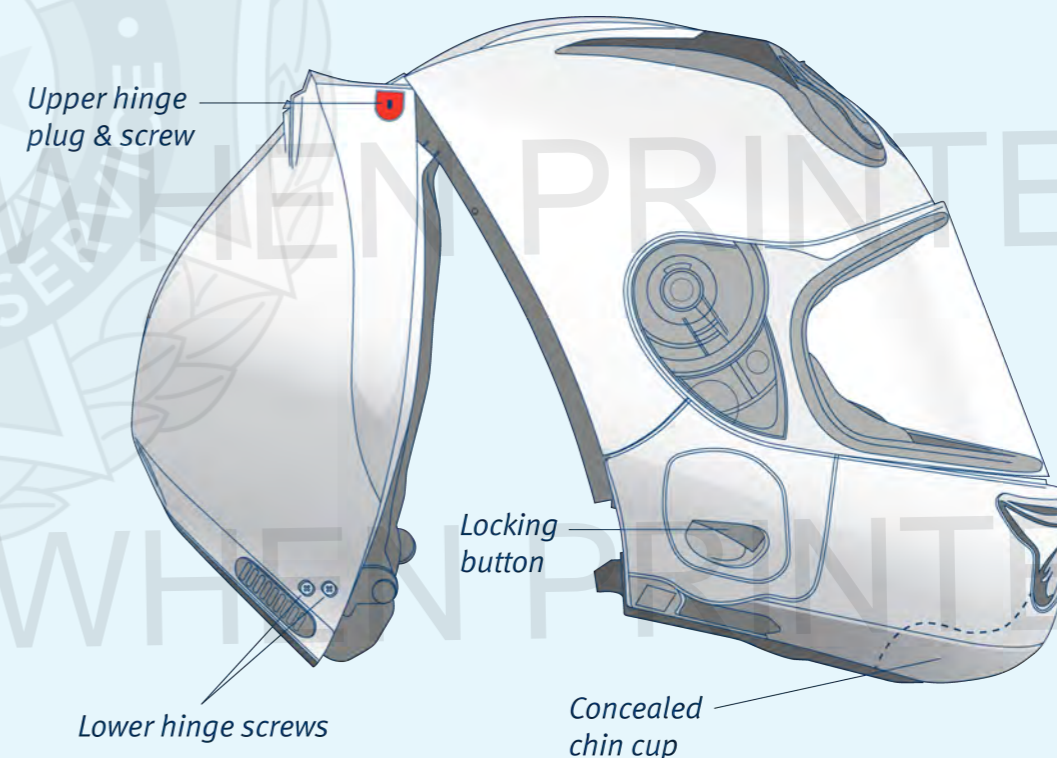
If this is in use at an incident site ensure trained personnel are activating it. If in doubt, revert to standard helmet removal procedure. Clinicians should be aware of the existence of this device. This mechanism provides a closer fitting helmet particularly around the chin bar area and allows removal of the helmet with minimal movement of the head of neck.

Full Helmet Airbag Technology^[6]

This mechanism is incorporated into some full face helmets. It provides a full head coverage interior airbag designed to be inflated at all times when the helmet is in situ. When inflated it provides a very close fitting helmet so it is imperative that it is deflated before any attempted helmet removal. Facial, head and neck injury may result if this airbag is not deflated before removal. The airbag can be deflated using a deflation button found inside the chin guard area of the helmet to the left of a larger inflation button. Look for warning stickers.

VOZZ Helmets^[7]

The VOZZ is a full-face helmet made up of two sections, a smaller rear segment and a larger front segment that can be either opened like a clamshell via a hinge at the back of the helmet, or separated altogether using a flat blade screwdriver.



Safety technology (continued)

VOZZ Helmets (cont.) [7]

The VOZZ helmet has no chin strap, but has a chin cup designed to hold the helmet in position. Care must be taken when removing the helmet to ensure the chin cup is moved clear of the patient's chin before lifting the front of the helmet from the patient's face.

The following procedure is the preferred method for VOSS helmet removal by QAS clinicians, as a flat blade screwdriver is often not readily available:

1. Carefully open the helmet's visor to facilitate patient breathing and gain access to the chin cup.
2. Depress both red locking buttons on either side of the helmet.
3. Release the rider's chin from the concealed chin cup by carefully sliding your fingers into the helmet between the concealed chin cup and the patient's chin.
4. Support the rear shell and gently roll the helmet in a backward motion.

N.B. To completely remove the helmet from under the patient's head, one officer must provide Manual In-Line Stabilization (MILS) by placing their hands on either side of the patient's head, while another officer carefully slides the helmet backward and out from under the patient.

Click on the link below to view a video of this procedure:

[VOZZ Emergency Helmet Opening Procedure \[8\]](#)

In situations where the bottom hinge locking buttons are damaged and where a flat blade screwdriver is available, the helmet may be removed by completely separating it into two halves. To do this, the following procedure must be used:

First Officer – kneel at the head of patient and support the rear of the helmet with both hands.

Second Officer – positioned at the patient's side; follow these steps:

1. Carefully open the helmet's visor to facilitate patient breathing.
2. Remove the red stopper plug & screw from each side of the rear (*upper*) hinge using a flat blade screwdriver.
3. Remove the two hinge screws from each side at the (lower) front of the helmet, to disengage the front (*lower*) hinge.
4. Without lifting, slowly roll the front half of the helmet forward, pivoting at the bottom hinge, to release the patient's chin from the helmet's internal chin cup.
5. Lift the front of the helmet away from the patient.
6. The smaller rear section of the helmet remains in place, supporting the back of the patient's head & neck.

N.B. To completely remove the rear section of the helmet from under the patient's head, one officer must provide Manual In-Line Stabilization (MILS) by placing their hands on either side of the patient's head, while another officer carefully slides the helmet backward and out from under the patient.

Click on the link below to view a video of this procedure:

[VOZZ Emergency Helmet Opening Procedure \[9\]](#)