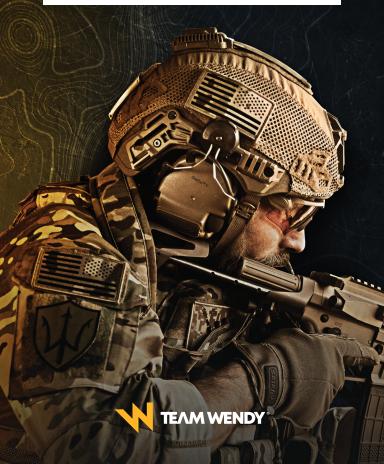
## EXFIL® BALLISTIC SL

USER GUIDE



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#### **■ NOTE**

For any topics not outlined in this guide, including warranty information, please visit TeamWendy.com.

## DESCRIPTIONS AND CAPABILITIES

#### DESCRIPTIONS AND CAPABILITIES

#### **Performance Standards and Certifications**

- Ballistic Performance: NIJ Level III-A (according to NIJ STD 0106.01/0108.01)
- Fragment Performance: 17gr V50 ≥ 731 m/s (2400 ft/s)
- Backface Deformation: 9mm FMJ RN @ 365 m/s (1195 ft/s), BFD < 25.4 mm all locations</p>
- Ballistic Certification: Certified by a third-party NIJ accredited laboratory
- Exceeds ACH Blunt Impact requirement per AR/PD10-02, 16Dec'13

#### DESCRIPTIONS AND CAPABILITIES

#### Equipment Capabilities, Characteristics and Features

Light, protective, durable – the EXFIL® Ballistic SL has it all in the most comfortable helmet on the market.

The helmet provides impact protection across a wide range of operational scenarios, including all airborne operations.

The helmet features the Wilcox® SL machined aluminum shroud for night vision mounts. It comes preinstalled with a Zorbium® Foam Liner and adjustable comfort pads for optimal fit. Its CAM FIT™ Retention System features easily adjustable Cam Lock sliders and a microadjustable BOA® Fit System. It is compatible with tactical communication headsets.

The EXFIL® Rail 3.0 accessory mounting system features T-slots for custom mounting and has a built-in Picatinny at its front for more efficient use of the accessory rail. The EXFIL® Rail 3.0 is compatible with all EXFIL® accessories and also provides integrated visor and shield mounting capability.

Review any compatibility restrictions for the accessory you would like to mount on its respective product page on TeamWendy.com.

#### DESCRIPTIONS AND CAPABILITIES

#### **Major Subsystems**

The EXFIL® Ballistic SL is composed of the following major subsystems, which are illustrated on page 8:

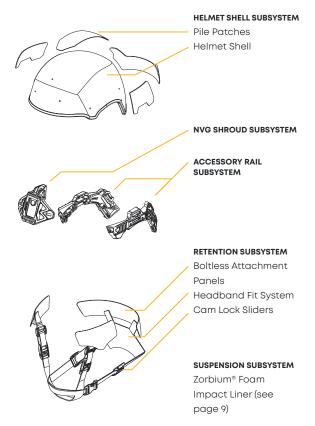
- Helmet Shell Subsystem
- NVG Shroud Subsystem
- Accessory Rail Subsystem, also referred to as adapter rails
- Boltless Retention Subsystem, containing a chinstrap and headband fit system
- Suspension Subsystem, containing an impact liner, set of thin comfort pads, set of thick comfort pads and set of hexagon pads

#### **⚠ WARNING**

Do not remove the suspension impact liner for any reason other than washing or replacement. Helmets are tested with the liner in its preinstalled configuration. Wearing the EXFIL® Ballistic SL without a properly installed impact liner could result in serious injury or death. The exception to this warning is discussed in the section titled Overhead Communications Fitting on page 23.

#### DESCRIPTIONS AND CAPABILITIES

#### **Major Subsystems**



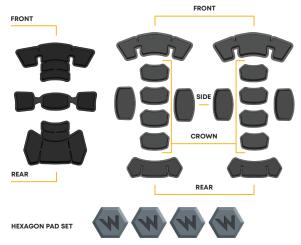
#### DESCRIPTIONS AND CAPABILITIES

#### **Suspension Subsystem**

The Zorbium® Foam Liner utilizes the same Zorbium® foam that has been proven in the ZAP™ 7-Pad NSN Liner System for the standard-issue ACH, packaged into a 3-piece impact liner with a removable center channel to accommodate overhead communication headbands. The liner system, which features an antimicrobial wicking fabric, also contains a series of adjustable comfort pads that allow the operator to customize fit and minimize pressure points.

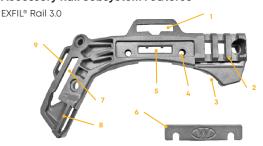
IMPACT LINER	THIN COMFORT	THICK COMFORT
	PAD SET	PAD SET

The backside of the thick comfort pad set features coyote brown fabric for easy distinction.



#### DESCRIPTIONS AND CAPABILITIES

#### **Accessory Rail Subsystem Features**



- Quick release mounting slot. Used for EXFIL® Picatinny Quick Release Rail Adapter and EXFIL® Peltor™ Quick Release Adapters.
- 2. Integrated Picatinny rail for use with Team Wendy EXFIL® Ballistic Visor and EXFIL® Face Shield. Can also be used in conjunction with rail mounted lights and accessories.
- Locating feature for the EXFIL® Ballistic Ear Covers and EXFIL® Mandibles.

- thread) for mounting accessories, such as Magpul® MOE® rails or Princeton Tec® Charge MPLS.
- Locating feature for EXFIL® Picatinny Quick Release Rail Adapter; a tool-free, snapmounted, 5-slot Picatinny rail.
- EXFIL® W Spacer Plate. Covers features when not in use.
- T-slot. Use weld nuts to mount ESS Pivot™ Rail Mounts.

#### DESCRIPTIONS AND CAPABILITIES

- Buckle housing for center-release buckles. Used for the EXFIL® Oxygen Mask Strap Kit.
- Webbing slot for securing objects to the back of the helmet, such as a counterweight.

#### **■ NOTE**

Team Wendy encourages the development of third-party mounting solutions that utilize the T-slot and captured nut features on the EXFIL® Rail 3.0.

# OPERATOR INSTRUCTIONS

## Donning / Removing the Helmet and Adjusting Retention

This section provides instructions for donning and removing the EXFIL® Ballistic SL, including adjusting the retention chinstrap and headband fit system. See page 25 for additional fitting instructions and troubleshooting.

**Step 1:** Prior to donning, visually inspect the suspension pads and retention system to make sure they appear to be in operational condition. Make sure the chin cup release buckle is unbuckled.

**Step 2:** Prepare the headband system by releasing any tension on the straps. If the dial is in the locked position, pull the dial head directly outward until it clicks to release the locking mechanism. Pull the headband sleeves and nape pad outward to expand the circumference of the headband





#### OPERATOR INSTRUCTIONS

Step 3: Position the helmet on top of the head.

**Step 4:** While wearing the helmet, press the dial head directly inward to engage the locking mechanism. Twist clockwise to tighten the headband as desired. The headband should pass just above the operator's ears. Adjust the fabric sleeve to cover as much of the cable as possible.





#### **■ NOTE**

To remove the EXFIL® Ballistic SL, unbuckle the chinstrap release buckle and release the dial from the locked position by pulling the dial directly outward until it clicks. Then lift the helmet up and away from the head.

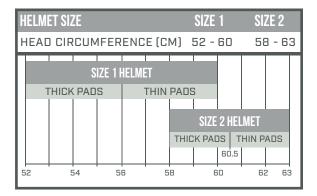
**Step 5:** Adjust the position of the retention chin cup by adjusting the length of the four attached webbing straps. To adjust the strap length, lift up on the tab of the Cam Lock slider so that it rotates out of the locked position. Grip the tab and pull the buckle in the desired direction. Secure the position of the slider by pushing down on the tab until it snaps into the locked position, which is flat against the surface of the webbing. Repeat as necessary for all Cam Lock sliders. Be sure to adjust the strap length while donning the helmet to fit appropriately.





**Step 6:** Buckle the chin cup release buckle. If necessary, repeat the strap adjustment process in step 5 until proper fit is achieved. The retention system chinstrap and headband should be tightened enough to secure the helmet to the head. They should not be so tight as to cause discomfort. The operator should be able to comfortably move the head and open the jaw to speak. Additional fit information is provided in the Sizing and Fitting Troubleshooting section on page 25.

#### Sizing by Head Circumference



#### Sizing and Fitting Instructions

This section provides instructions for selecting a helmet and properly fitting it to the operator's head. Basic instructions are provided that will accommodate the majority of operators; however, due to the many variations in head shape, there will be cases in which these instructions are insufficient. See additional information and options in Sizing and Fitting Troubleshooting on page 25. The section on Comfort Pad Placement contains additional information about the various comfort pad sets, shapes and how to remove or reposition the pads. Throughout the measuring and fitting procedure, evaluations should take place with the operator in an upright standing position and looking directly forward.

#### OPERATOR INSTRUCTIONS

#### Step 1: Select preliminary helmet size based on

**measurement.** Wrap a tape measure around the head, just above the eyebrows and around the back of the head at its widest circumference. Record the measurement. Select a preliminary helmet size (size 1 or size 2) for test fitting using the information in the Sizing Chart on the previous page.

Step 2: Don the helmet. Don the helmet by following the instructions in the Donning and Removing the Helmet section, including the retention chinstrap and headband. Begin the test fitting with the comfort pad configuration preinstalled by the manufacturer. Note that the preinstalled configuration uses the thin comfort pad set; the thick comfort pad set is packaged separately.

If a size 1 helmet shell fits too tightly when donned with the manufacturer preinstalled comfort pad configuration, switch to a size 2 helmet and continue the fitting process.

If a size 2 helmet shell fits too tightly when donned with the manufacturer preinstalled comfort pad configuration, see the Sizing and Fitting Troubleshooting section on page 25 for additional information before continuing the fitting process.

#### Sizing and Fitting Instructions

#### Step 3: Evaluate height and forward tilt of the helmet shell.

The front edge of the helmet should be as low as possible without interfering with the operator's field of vision or operation of devices (e.g. NVGs, binoculars, scope). The operator should be able to see the brim of the helmet when looking up with the eyes and without moving the head. Typically the space between the eyebrows and the helmet edge is about 5/8-inches (16 mm).

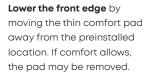
In profile, the highest point of the arc over the ear must be at or below the horizontal plane through the front edge point. Otherwise the helmet is tilting too far forward.





Step 4: Adjust comfort pad placement to correct issues with height and tilt of helmet shell. The height of the front edge of the helmet is most sensitive to the thickness of the comfort padding in the position just forward of the crown center point. Front edge height is most directly adjusted by altering the thickness and/or position of these pads.

Raise the front edge by replacing the preinstalled thin comfort pad with a thick comfort pad (coyote brown fabric on the back). Additional pads may be added in the vicinity as well.



The forward tilt of the helmet is most directly adjusted by altering the thickness and/or position of the comfort padding in the position just behind the crown center point.





#### OPERATOR INSTRUCTIONS

#### Sizing and Fitting Instructions

Increase the forward tilt by increasing the thickness and/or amount of padding in this location. Reduce the forward tilt by reducing the thickness and/or amount of padding in this location. If comfort allows, the pad may be removed entirely.

Repeat steps 2 and 3 following any changes made to the pad configuration.



#### **■** NOTE

Do not move on to the next step until the fitting conditions of the helmet shell height and tilt are met. If the instructions in this step are insufficient, see the Sizing and Fitting Troubleshooting section on page 25.

#### Step 5: Evaluate the helmet shell fit in horizontal directions.

After ensuring the front edge height and forward tilt of the helmet are acceptable, readjust the retention system as needed so that it is secure. Evaluate the motion of the helmet while moving the head in each of three directions.

- Nod the head forward and backward. 1.
- Nod the head side-to-side while the head remains forward-facina.
- Rotate the head side-to-side in a horizontal plane. 3.

#### OPERATOR INSTRUCTIONS

Begin with slow movements and increase the acceleration over several seconds. The helmet should remain secured to the head throughout the exercise. The helmet shell should not move more than a few millimeters in relation to the head. Stop immediately if the shell slides out of position.

Step 6: Adjust comfort pad placement to correct fit issues in horizontal directions. The tightness of helmet fit is adjusted by altering the thickness and/or position of the comfort pads located around the circumference of the helmet shell. This section assumes that all issues are caused by the helmet shell fitting too loosely in one or more directions. If the instructions in this step are insufficient, see the Sizing and Fitting Troubleshooting section on page 25 for additional information before continuing with the fitting process.

Increase the tightness of the helmet in the **front-to-back** direction by increasing the thickness and/or amount of padding at the front and rear of the shell. The amount of padding in the front and rear of the head does not have to be of equal thickness



or amount. Note that the retention headband system pulls the operator's forehead toward the front of the helmet. Best practice is to attempt to keep the head centered within the helmet shell.

#### Sizing and Fitting Instructions

Increase the tightness of the helmet in the **side-to-side** direction by increasing the thickness and/or amount of padding on each side of the head. It is recommended that the amount of padding on each side be symmetrical and of equal thickness.

Issues with rotational tightness may be solved by first addressing the helmet tightness in the front and side directions. However, if those directions are properly fit and increased rotational stability is desired, increase the amount and/or thickness of padding in the front and rear "corners" of the helmet.





Repeat steps 2 through 5 following any changes made to the pad configuration.

#### **Overhead Communications Fitting**

Under normal operating circumstances, none of the impact liner system (three black pads) may be removed. Operating the helmet with the impact liner removed may result in serious injury or death.

An exception may be made only in the situation where the operator must wear a communications headset which includes an overhead strap. In this situation it is allowable for the operator to remove the center pad of the impact liner. However, it is recommended that the operator first attempt to accommodate the overhead strap by adjusting only the comfort pad position.

#### **Comfort Pad Placement**

This section identifies the four different comfort pad sets available for the EXFIL® Ballistic SL and contains instructions for installing/removing.

Comfort pads are part of the suspension system of the EXFIL® Ballistic SL. Each helmet, as packed by the manufacturer, includes the followina:

- Set of eight thin comfort pads with black fabric on the back
- Set of eight thick comfort pads with coyote brown fabric on the back
- Set of four compression-molded hexagon comfort pads, which have more grip than the fabric pads

#### OPERATOR INSTRUCTIONS

A set of eight extra thick comfort pads is not included but is available as a sold-separate accessory item. These have green fabric on the back.

Each set of eight fabric encased comfort pads includes the followina:

- One front comfort pad intended for use at the front edge of the helmet
- One rear comfort pad intended for use in the rear of the helmet, above the nape pad
- Four rectangular arched pads intended for use in the crown or sides of the helmet
- Two rectangular rounded pads intended for use in the crown or sides of the helmet



The manufacturer's standard practice is to preinstall four pads from the thin set and two of the compression-molded hexagon pads. The rest of the included pads are located in transparent bags that are packed with the helmet system.

#### Installing / Removing Comfort Pads

Each comfort pad has a hook panel permanently adhered to the back of the pad. Install a comfort pad by pressing the hook panel against the black loop fabric of the suspension system impact liner pad. Portions of the comfort pads may overlap, but comfort pads cannot be installed directly overtop one another. Remove a comfort pad by peeling the hook panel off the impact liner pad.



#### Sizing and Fitting Troubleshooting

This section is intended to assist operators in diagnosing and addressing fit issues that are beyond the scope of the basic fitting instructions provided previously. Solutions are listed in order of increasing severity. Upon making any changes to the configuration of the comfort pad system or retention system, repeat the Sizing and Fitting Instructions provided previously.

If any of the steps outlined in this section do not address the fit issue, stop using the helmet immediately.

#### OPERATOR INSTRUCTIONS

#### If the EXFIL® Ballistic SL Shell is Too Tight

**Step 1:** If possible, replace the comfort pads with the next thinner size in one or more locations.

**Step 2:** Reposition the comfort pads so they fall closer to the gaps between the operator's head shape and the impact liner pads and/or place the comfort pads across gaps in the impact liner pads.

**Step 3:** If comfort and fitting security allow (using the criteria in the Sizing and Fitting Instructions), remove one or more comfort pads completely.

**Step 4:** If possible, switch to the next larger shell size and follow the Sizing and Fitting Instructions.

#### If the EXFIL® Ballistic SL Shell is Too Loose

**Step 1:** If possible, replace the comfort pads with the next thicker size in one or more locations.

**Step 2:** Increase the number of comfort pads used. Place pads on the largest surface areas of the impact liner.

**Step 3:** If possible, switch to the next smaller shell size and follow the Sizing and Fitting Instructions.

**Step 4:** Use pads from the extra thick comfort pad accessory kit (sold separately) in some or all locations.

#### OPERATOR INSTRUCTIONS

#### If the CAM FIT™ Retention System is Too Tight

**Step 1:** Make sure the four adjustable retention straps are positioned as close to the nape pad as possible.

**Step 2:** If wearing a size 1 helmet, check the Sizing and Fitting Instructions to see if your head circumference falls in the overlap between the size 1 and size 2 helmet systems. If so, switch to a size 2 helmet and follow the Sizing and Fitting Instructions.

**Step 3:** If wearing a size 2 helmet, reposition the existing retention system within the existing shell so that it is installed closer to the brim of the helmet. Only personnel trained and permitted to perform repairs on the EXFIL® Ballistic SL should perform this procedure.

#### If the CAM FIT™ Retention System is Too Loose

**Step 1:** Make sure the four adjustable retention straps are positioned as close to the retention chin cup as possible.

**Step 2:** If wearing a size 2 helmet, check the Sizing and Fitting Instructions to see if your head circumference falls in the overlap between the size 1 and size 2 helmet systems. If so, switch to a size 1 helmet and follow the Sizing and Fitting Instructions.

**Step 3:** If wearing a size 1 helmet, reposition the existing retention system within the existing shell so that it is installed farther away from the brim of the helmet. Only personnel trained and permitted to perform repairs on the EXFIL® Ballistic SL should perform this procedure.

## MAINTENANCE PROCEDURES

#### MAINTENANCE PROCEDURES

#### Storage Instructions

Store the EXFIL® Ballistic SL in a temperature and humidity controlled location where temperature is within 15-27°C (60-80°F) and humidity is within 30-65% Relative Humidity. Avoid exposure to UV radiation, including sunlight.

#### Inspection and Replacement Schedule

Replace the suspension padding system after every six (6) months of continuous use. Inspect all components frequently for signs of damage using the Inspection Checklist. Replace damaged components as soon as possible.

A helmet that exhibits damage to the shell or suspension liner, such as deformation or soft spots, should be removed from active use.

#### **Operator's Inspection Checklist**

#### **Exterior Inspections**

- Shell: The shell is not cracked or dented.
- Shroud: The shroud is not cracked or otherwise damaged. All three mounting nuts are securely fastened
- Accessory Rails: The accessory rails are not cracked or otherwise damaged. All three mounting nuts are securely fastened on each rail.

#### MAINTENANCE PROCEDURES

#### Interior Inspections

- Zorbium® Foam Impact Liner: All three pads are installed and undamaged. Pads should be replaced immediately if a soft spot is found.
- Retention Cam Locks: All four Cam Locks slide freely and lock securely.
- Retention BOA® Fit System: Headband tightens when dial is engaged and rotated; headband loosens freely when dial tension is released.
- 4. Retention Attachment: All straps are securely held against the inside of the shell by hook and loop panels. Slight separation at the attachment point is acceptable, but the panel should not peel off at the edges.
- Retention Stitching: All stitches are secure.

#### **↑** WARNING

Do not use the helmet until all of the inspection criteria are met. Heed the warning label attached to each EXFIL® Ballistic SL about the importance of shell inspection and proper fit. No helmet can protect the wearer from all foreseeable injuries. Severe head and neck injuries may still occur despite proper use of helmet.

#### MAINTENANCE PROCEDURES

#### **Washing Instructions**

Wash the helmet regularly, particularly after prolonged exposure to sand, salt, sweat and other contaminates. All components of the EXFIL® Ballistic SL may be hand washed and air-dried. Hand wash components using a soft bristle brush and mild laundry detergent. Rinse thoroughly and allow components to fully dry before reassembly and use.

The suspension system (pads) and retention system may be removed for washing. Instructions are in the Component Replacement section. Removal of the shroud and accessory rails is NOT recommended.

## REPLACEMENT INSTRUCTIONS

#### REPLACEMENT INSTRUCTIONS

#### **⚠ WARNING**

Only trained personnel with permission to repair/replace subsystems and components of the EXFIL® Ballistic SL should perform the replacement instructions described in this section. Repair or replacement attempts by an untrained or unauthorized person may result in improper system function, which may result in serious injury or death.

This section contains a list of replaceable items on the EXFIL® Ballistic SL organized by subsystem, replacement instructions for the major subsystems and a description of the accessory rails.

#### **Retention Subsystem Replacement**

#### **Tools Required: None**

**Step 1:** Remove all pads and the old retention system. Make sure the blue hook panels are securely attached to the shell interior.

**Step 2:** Begin with the rear section. Align the notches in the center of the retention loop panel with the notches in the blue hook panel. Press down in the center first, then work slowly out toward the edges.



**Step 3:** Install a side panel. Make sure webbing is not twisted, then align the edge of the retention loop panel with the bottom edge of the blue hook panel. Press down in the center first, then work out toward the edges.

**Step 4:** Repeat with the opposite side. Make sure the webbing is not twisted.



#### **Suspension Subsystem Replacement**

#### **Tools Required: None**

**Step 1:** Remove the old liner pads and make sure the hook panels are securely attached to the inside of the shell. Loosen headband strap completely.

**Step 2:** Install the rear pad of the impact liner as close to the edge of the shell as the retention system allows. The rear pad has a four-digit lot number printed on the inside surface.

**Step 3:** Install the front pad of the impact liner along the front of the shell

**Step 4:** Install the center pad between the front and rear pads.

**Step 5:** Place comfort pads as desired. Standard layout is shown below.



#### **Accessory Rail Subsystem Replacement**

Tools Required: 1/16-inch hex key

**Step 1:** Remove pads and peel back hook panels as needed from the side of the helmet to gain access to the three rail mounting screws. Do not remove the blue hook that is adhered to the shell.

**Step 2:** From the helmet interior, remove each of the three cap screws using a 1/16-inch hex driver. Use a finger to apply pressure to each nut on the outside of the rail—two friction nuts in the rear, one T-nut in the front. Retain each nut, cap screw and washer as they come loose.

**Step 3:** To install the replacement rail, position it so that each of the three holes aligns with the mount holes in the helmet

#### REPLACEMENT INSTRUCTIONS

shell. Starting with the front rail mount hole and working toward the rear, place a washer on each cap screw and push through the shell holes from inside the helmet.

**Step 4:** Place the T-nut into the front mount hole and partially tighten. Place the two friction nuts in the other corresponding holes and partially tighten each to ensure alignment. From the helmet interior, firmly tighten each screw using a finger to apply pressure on the nuts on the outside of the rail.

**Step 5:** Reinstall the retention system and suspension system padding.





#### **Shroud Subsystem Replacement**

#### Tools Required: 1/16-inch hex key

**Step 1:** Remove suspension system pads as needed from the side of the helmet to gain access to the three shroud mounting screws.

**Step 2:** From the helmet interior, remove each of the three #4-40 button head cap screws using the 1/16-inch hex driver. Retain each T-nut as it comes loose from the shroud slot.

**Step 3:** To install, position the shroud so that each of the three hole openings is visible through the slots in the shroud mount. Place a washer on each cap screw and push through the shell holes from inside the helmet.

**Step 4:** Place the T-nuts into each slot in the shroud mount. Partially thread each of the three screws to ensure alignment, then firmly tighten each screw.

Step 5: Reinstall the suspension system padding.





#### INNOVATE TO PROTECT



Founded in 1997, Team Wendy is dedicated to providing exceptional head protection systems designed from the inside out for those who risk their lives every day. Our Cleveland-based company places a strong focus on the prevention of traumatic brain injury (TBI) in honor of our namesake Wendy Moore, who died tragically from a TBI following a ski accident. In Wendy's name, we are steadfast in our pursuit of improving head protection research, design and development, bringing more choice, better technology and reliable customer service to the industry.



Military



Law Enforcement



Search & Rescue



Adventure



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