

OTTO[®]

NoizeBarrier[®] TAC Circumaural Headset

Technical Manual and Instructions for Use



IMPORTANT SAFETY WARNINGS

This NoizeBarrier® TAC Headset reduces exposure to noise and loud sounds that can damage hearing. Be sure to follow the instructions in this manual carefully. Failure to follow these recommendations may severely reduce the amount of hearing protection provided by the HEADSET.

- The headset must be worn at all times in noisy environments to avoid hearing loss/injury.
- Misuse of or failure to wear hearing protection when exposed to hazardous noise may result in hearing loss and/or injury. If you experience symptoms of hearing injury (ringing in ears, dulled hearing, headaches), contact your supervisor or a medical professional immediately.
- The headset must be fitted, adjusted and maintained in accordance with manufacturer's instructions to achieve the expected attenuation and hearing protection. Failure to do so may result in hearing loss and/or injury.
- The NoizeBarrier® TAC headset provides audio signal sound pressure level limitation to limit the radio transmission audio signal to 82 dB effective to the ear.
- The situational awareness feature of the NoizeBarrier® TAC will continue to function if the batteries in the headset are depleted or missing, as long as the headset is connected to the radio using the Multi-Port Hub PTT.
- At approximately 30 minutes of battery life remaining, the headset will present an audible tone to the user indicating that there is low battery life. This will repeat every 2 minutes until the batteries are depleted. Talk-through powered by two AAA batteries.
- The thermoplastic polyurethane foam ear seals on the NoizeBarrier® TAC may deteriorate with use and should be examined at frequent intervals for damage, such as cracking and leakage. Replace as recommended on page 9.
- Using cloth hygiene covers over the foam ear seals may affect the acoustic performance of the headset.
- The audibility of warning signals at a specific workplace may be impaired while using the NoizeBarrier® TAC headset if the situational awareness functionality is not activated.
- The NoizeBarrier® TAC headset may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.
- This earmuff is provided with electrical audio input. The wearer should check correct operation before use. If distortion or failure is detected, the wearer should refer to the manufacturer's advice.
- This headset is provided with level-dependent attenuation. The wearer should check correct operation before use. If distortion or failure is detected, the wearer should refer to the manufacturer's advice for maintenance and replacement of the battery. See page 6.
- Battery life may last up to 100 hours if lithium batteries are used. Headset performance will not degrade over time as the batteries are depleted.
- Warning: the output of the electrical audio circuit of this hearing protector may exceed the daily limit sound level.

NoizeBarrier® TAC Instructions for Use

Introduction

The NoizeBarrier® TAC headset provides clear radio communications, industry-leading hearing protection and excellent situational awareness/talk-through capability for mission-critical operations. Advanced talk-through sound suppression circuitry enhances the ability to hear low-level sounds while protecting hearing.

The NoizeBarrier® TAC headset features left and/or right integrated audio input download(s) to connect to external radio(s) or other communications device(s). Situational awareness functions are controlled by buttons on the left ear seal and powered by two AAA batteries that provide approximately up to 100 hours of use if a lithium battery is used. Selectable signal separation allows dual comm users to separate audio into left, right or both ears. An external Push-To-Talk (PTT) cable is required to control communications functions.

Some models of the NoizeBarrier® TAC headset may also be used with the Multi-Port Hub PTT that provides modular control of up to three communications platforms. The Hub is compatible with major radio platforms using detachable cables, as well as vehicular and aircraft intercoms (ICS). Situational awareness can be controlled either via buttons on the headset or volume controls on the Hub. See page 8.

An optional helmet mount kit is available to change the headset from an over-the-head headband configuration to a top or rear rail helmet-mounted configuration while in the field without the use of tools. For convenience, a spare battery for the situational awareness functionality can be stored in each of the two rail-mount assemblies. See pages 10 and 11.

This manual covers the following equipment:

Model	Black		Flat Dark Earth	Olive Drab
NoizeBarrier® TAC Headset with Dynamic Boom Microphone	V4-10995BK V4-11020BK V4-11032BK V4-11033BK V4-11054BK	V4-11055BK V4-11056BK V4-11058BK V4-11059BK V4-11082BK	V4-10995FD V4-11020FD V4-11032FD V4-11033FD V4-11042FD	V4-10995OD V4-11020OD V4-11032OD V4-11033OD
NoizeBarrier® TAC Headset with Electret Boom Microphone	V4-10995EBK V4-11032EBK V4-11033EBK V4-11042EBK		V4-10995EFD V4-11032EFD V4-11033EFD V4-11042EFD	V4-10995EOD V4-11032EOD V4-11033EOD V4-11042EOD
NoizeBarrier® Helmet Mount Kit - Team Wendy® and Ops-Core	C102359BK C102365BK		C102359FD C102365FD	C102359OD C102365OD

Supplied Equipment

Figure 1

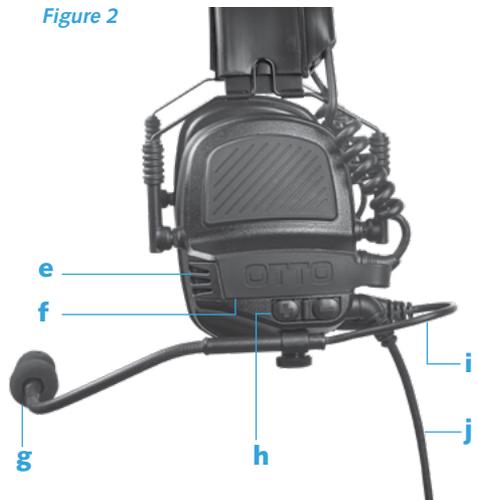


NoiseBarrier® TAC Headset

(Figure 1-2)

- a) Headband
- b) Adjustment frames
- c) Audio cross-over cable
- d) Comply™ foam ear seals
- e) Situational awareness (talk-through) microphones
- f) Battery compartment and cover
- g) Noise-canceling communications microphone with adjustable boom
- h) Power/Volume control
- i) Push-to-talk connector cable (for models with disconnectable cable, see page 6)
- j) Boom microphone connector

Figure 2



Features of the NoizeBarrier® TAC Headset

- Circumaural headset compatible with major helmet systems
- Talk-through electronics for situational awareness (SA)
- Limits volume to safe level and lowers sound floor without clipping
- Passive Attenuation: 23 dB NRR
- Amplified hearing of external communications
- Volume + and - buttons on left ear cup control situational awareness circuitry
- 5-step volume control adjusts +/- 12dB
- Telescopic microphone is available in Dynamic or Electret versions, can be mounted on the left or right side and adjusts to the optimal distance from face
- Wind noise suppression technology
- Automatic shut down after two hours of idle time
- Scalloped front ear cups reduce interference with rifle stock
- Low-profile silicone headband can easily be worn under most helmet systems
- Proprietary Comply™ thermoplastic polyurethane foam ear seals allow for secure comfortable fit
- Ear seals snap in for easy field replacement
- SCBA-compatible connector for gas mask interface
- MIL-STD-810G compliant
- Immersion tested and fully sealed to IP68 standards for 1 meter/31 minutes
- USA country of origin. TAA, BAA, and Berry Amendment compliant
- Optional helmet mount interfaces with the ARC and Team Wendy® rail systems.
- Each rail mount includes a battery holder for an extra battery.
- Headset weight: 555gm (19.57 oz)

Situational Awareness Talk-Through Operation

The NoizeBarrier® TAC headset's talk-through technology allows users to hear normal sounds around them and maintain complete situational awareness (SA). At the same time, sound suppression circuitry reduces dangerously loud noises over 82dB to safe levels. The NoizeBarrier® TAC is unique in that it does not shut down situational awareness when loud noises, including impulse noises such as gunfire, are blocked. The headset will continue to transmit sounds at a safe volume.

Talk-through SA feature is NOT required to be active to receive and transmit radio communications. When talk-through is not activated the headset works simply as a passive noise-reducing headset.

Operation

Download Cables

Most models of the NoizeBarrier® TAC headset have hard-wired download cables ready to attach to your push-to-talk cable.

However, Models V4-10995FD and V4-11042FD have connectors for the download cables to allow you to remove cables when not in use. To attach a download cable to these models, simply line up the cable with the connector on the headset and push to lock it in place. To release, pull down on the collar on the cable to easily pull the cable away from the connector.

Install the Batteries to Power the Talk-Through Functionality

(Figure 3-6)

The NoizeBarrier® TAC headset uses battery or radio power to operate the situational awareness/talk-through functions. Batteries are not required for radio communication.

1. Identify the rubberized battery covers on the ear cups.
2. With finger pressure, pry off the battery cover on one ear cup (Figure 3).
3. Install a AAA battery, aligning the '+' and '-' symbols on the battery with the markings in the battery compartment.
4. To close the battery cover, start by inserting one end of the cover into the battery compartment (Figure 4).
5. Slightly bend the cover and insert the other end into the opposite end of the compartment (Figure 5).
6. Press the battery cover securely into place over the chamber by applying pressure from the middle and moving outward to the ends (Figure 6).
7. Repeat the operation with the other ear cup.
8. When replacing batteries, be sure headset is off before opening battery compartment. (See instructions on page 9).



Figure 3



Figure 4



Figure 5



Figure 6

Configuring the Boom Microphone (Figure 7)

The boom microphone is commonly worn on the left side but can be installed on either the left or right ear cup. To move the mic from one side to the other:

1. Identify and pull out the two-pin plug that attaches the boom mic to the ear cup.
2. Unscrew the knurled screw that attaches the boom assembly to the bottom of the ear cup.
3. Remove the knurled screw from the locking clamp and reverse it so that the clamp will position the boom at the outboard position on the headset.
4. Position the boom under the opposite ear cup, and thread the screw in to the ear cup.
5. Re-orient the boom so that the mic symbol faces the user's mouth.
6. Tighten the knurled screw until boom is secured.
7. Plug the two-pin plug into the jack at the back of the new ear cup. Note that the rubber insert for the plug has an offset shape so that it will only insert in one direction.



Figure 7

Wearing the Headset (Figure 8)

(Note: If mounting the headset to the helmet with the optional Rail Mounting Kit, please see instructions beginning on page 10.)

1. Identify the left and right ear seals. The Power/Volume buttons are on the left ear cup.
2. Place the headset over the head.
3. Adjust ear cup height by pulling or pushing on the cups until the ear seals are securely positioned over the ears. Adjustment is accomplished by extending and contracting the ear cup frames on either side of the ear cups while holding the headband in place.
4. For effective sound protection, be sure that the ear seals are completely sealed around the ear and obstacles such as hair, jewelry, or clothing are out of the way.



Figure 8

Boom Mic Placement (Figure 9)

The boom is flexible and has a length adjustment screw to ensure proper placement for effective communications.

1. Position the boom microphone so that the microphone is about ¼ inch from the mouth.
2. To adjust boom length, loosen the screw, position the mic at the desired length, and re-tighten.
3. Position the mic element so that the mic symbol  on the boom faces directly toward the user's mouth.



Figure 9

Powering Up and Using the Talk-through SA Function (Figure 10)

1. Place the headset on your head.
2. Power up active talk-through by pressing and holding either the + or – button on the left side of the headset until a long tone sounds to indicate that talk-through SA is active.
3. Volume + and – buttons adjust the talk-through SA audio for five volume levels. A tone will sound when maximum or minimum volumes are reached.
4. To power down the unit, press and hold either the + or – button on the headset until a different long tone sounds to indicate that talk-through SA is turned off.



Figure 10

Connecting to a Radio

The NoizeBarrier® TAC headset can be used for radio communications regardless of whether active talk-through is powered. The headset may be configured to work with single, dual or multiple radios or other communications devices.

Single Radio

1. Plug the connector on the headset cable into the Push-To-Talk (PTT) cable for your two-way radio.
2. Attach the cable to the connector on the radio.
3. Turn on the radio.
4. Receive volume for radio communications is controlled by the volume controls on the radio. The + and – buttons on the headset only control the volume of the situational awareness talk-through function.
5. Use the PTT controls for radio communications.

Dual Radio

1. Follow the above steps to attach the second cable to the communications device.
2. Sound from the radio or other device connected to the left side of the headset will be heard in the left ear, and sound from the device connected to the right side will be heard in the right ear. Additional audio steering capabilities are available via the mono/stereo button located on the right ear cup.

Multiple Devices

1. Plug the headset into the Multi-Port Hub PTT.
2. Refer to the Multi-Port Hub PTT Technical and Instruction Manual for operating instructions when using the Hub.

Note: The listening volume on the headset is controlled by the volume control on the radio or other communications device. The + and – button on the headset and on the Hub only control the situational awareness talk-through function.

Maintenance

Low Battery/Replacing Batteries

The NoizeBarrier® TAC headset uses two AAA batteries to control situational awareness (talk-through). Batteries are not required for radio communication. At approximately 30 minutes of battery life remaining, the headset will present an audible tone to the user indicating that there is low battery life. This will repeat every 2 minutes until the batteries are depleted.

Replace the batteries following the Battery Installation Instructions on page 6. Be sure the headset is powered off before replacing the batteries.

If you purchased a NoizeBarrier® Helmet Mount Kit for either Team Wendy® or ARC helmets and need to remove the spare battery from the compartment please see page 11.

NOTE: The situational awareness feature of the NoizeBarrier® TAC will continue to function if the batteries in the headset are depleted or missing, as long as the headset is connected to the radio using the Multi-Port Hub PTT.

Replacing the Ear Seals (Figures 11-15)

The ear seals are mounted in a removable frame for easy replacement.

1. Remove the ear seal by sliding fingers under the inside of the frame and pulling it straight out with a firm motion.
2. The foam liner inside the ear seal will fall out. Replace it with a new one.
3. Position a new ear seal over the ear cup. Align the TOP of the ear seal with the TOP label inside the ear cup.
4. Press firmly to squeeze the ear seal into the cup until it snaps into place.



Figure 11



Figure 12



Figure 13



Figure 14



Figure 15

Cleaning the Headset

- Use a soft cloth to remove dirt and debris from the headset.
- Use a damp soft cloth to wipe down the ear seals.
- Avoid full immersion of the NoizeBarrier® TAC headset in liquid for cleaning.

Storage

When not in use, store the headset in temperatures between -40° and +71°C.

Using the Headset with Optional NoizeBarrier® Helmet Mount Kit

(Figures 16-20)

(Parts: C102359BK, C102359FD, C102359OD;
C102365BK, C102365FD, C102365OD)

The NoizeBarrier® TAC headset can easily convert from over-the-head use to mount on helmet rails with the use of the optional helmet mounting kit. The helmet mount kit also includes a compartment for a spare battery on each ear cup. Follow the steps below for Team Wendy® and ARC.

1. Locate the lip on the headband. Pull the smaller section away from the headband. Pull the cross-over cable out from under the lip on the headband so it hangs free. (Figure 16).
2. Holding an ear cup with one hand, with the other hand firmly grasp the plastic adjustment frame where it attaches to the ear cup. Pull the adjustment frame off the pivot point on the ear cup, being careful not to pull on the wire form portion of the adjustment frame. The frame will unsnap from the retention ball on the ear cup (Figure 17).
3. Repeat the operation on the frame on the other side of the same ear cup.
4. Repeat steps 2 and 3 on the other ear cup to fully remove the headband.
5. Position the rail mount over the ear cup and snap the rail mount frames onto the pivot points on the ear cups (Figure 18). NOTE: The spare battery compartment on the rail mount frames should be positioned at the top of the frame.
6. Attach the other rail mount to the other ear cup.



Figure 16



Figure 17



Figure 18

- Slide the ear cup into the top or rear rails by inserting the tab on the back side of the swivel base into the rail guide. The crossover cable is routed along the rear and the boom microphone faces the front of the helmet. (Figure 19).



Figure 19

- For Team Wendy® and ARC, to remove spare battery from the compartment, remove the helmet mount. Holding the mount by its wire form, sharply strike the mount into the palm of the hand with the battery facing the palm. The battery will eject from the holder into the user's hand (Figure 20).



Figure 20

Positioning the Headset (Figures 21-23)

- The rail system mount has two positions. The first position is outward (Figure 21). In this position the ear seals sit slightly off the head for comfort. The second position is inward to provide contact with the head and a solid seal around the ears when in a noisy environment.
- To engage the ear cups against the head, press the palms of the hands inward against the wire form adjustment frames until they snap into the inward position against the head (Figure 22). This is best accomplished by pushing against the bend in the wire frames—pushing inward on the ear cups WILL NOT engage the inward detent.
- To release the headset to the outward position, squeeze the wire forms together (Figure 23). This will release the adjustment frames to swing outward.



Figure 21



Figure 22



Figure 23

NRR (Noise Reduction Rating)

Noise Reduction Rating	<h1 style="margin: 0;">23</h1> DECIBELS (WHEN USED AS DIRECTED)
THE RANGE OF NOISE REDUCTION RATINGS FOR EXISTING HEARING PROTECTORS IS APPROXIMATELY 0 TO 30 (HIGHER NUMBERS DENOTE GREATER EFFECTIVENESS)	
OTTO ENGINEERING, INC.	Ear Muffs
Federal law prohibits removal of this label prior to purchase.	
LABEL REQUIRED BY U.S. E.P.A. REGULATION 40 CFR Part 211, Subpart B.	

Earmuffs

Frequency (HZ)	125	250	500	1000	2000	3150	4000	6300	8000
Mean Attenuation (dB)	18.0	18.9	25.0	30.0	32.1	37.9	37.9	36.8	34.1
Standard Deviation (dB)	2.9	1.7	1.7	2.0	2.3	2.9	3.5	3.3	4.1
NRR=23 dB; Headband Force=2.7 lbs.					PER ANSI S3.19-1974				

TEST REPORT ID: Q5342A, Michael and Associates, Inc.

Important: NRR is not attenuation, and the labeled NRR for most earmuffs does not represent typical performance. While the labeled NRR is 23 dB, the typical user can expect to obtain a higher level of attenuation across frequencies when the ear muffs are used as directed and the device is off.

SNR (Single Number Rating)

Classification:

NoizeBarrier® TAC EN 352-1: 2002

Frequency (HZ)	125	250	500	1000	2000	4000	8000	SNR = 28 dB
Mean Attenuation (dB)	18.7	19.2	24.9	32.1	30.9	38.3	34.4	H = 30 dB
Standard Deviation (dB)	3.5	3.1	2.9	3.5	3.3	3.1	3.6	M = 25 dB
Assumed Protection Value (dB)	15.2	16.1	22.0	28.6	27.5	35.2	30.8	L = 19 dB

EN 352-4: 2001 +A1: 2005

Criterion levels H = 115.5 dBA M = 107.0 dBA L = 96.0 dBA

Sound pressure level of external noise for which sound pressure level under the earmuff first exceeds 85 dBA

EN 352-6:2002

Electrical input for which the mean + one standard deviation of A-weighted diffuse-field related sound = 96.0 mV pressure level is equal 82 dB

The European Union testing was conducted by Michael and Associates, Inc. Report Q5796A, Q6030A and Q6032A.

This product is in compliance with EN 352-1: 2002, EN 352-4: 2001, EN 352-6: 2002 and 2016/425.

Notified Body responsible for EU type examination: SATRA Technology Europe, Ltd., Bracetown Business Park, Clonee, Co. Meath, D15 YN2P, Ireland (Notified Body No. 2777)



Declaration of Conformity available at www.otto-comm.com

Troubleshooting

Problem	Possible Causes	Suggested Action
Headset will not power on talk-through/situational awareness	Depleted batteries	Replace batteries
	Batteries improperly installed	Check polarity of batteries
	Situational awareness volume turned all the way down	Press + button to increase volume
Cannot hear or transmit over radio	Poor connection between headset and radio	Check all connections between headset and radios
	Radio turned off/wrong channel	Check power, battery, and channel on radio
	Incorrect cable	Check radio and PTT cable compatibility
Poor transmission quality	Boom microphone poorly positioned	Check positioning of mic and make sure mic symbol is facing the mouth
	Debris in microphone	Remove wind sock and inspect microphone
	Boom mic connection poor	Check mic plug connection at the back of the headset
Low radio receive volume	Radio volume controlled at radio, not by headset buttons	Check volume settings on the radio

Spare Parts and Accessories

Description	Part Number
Ops-Core Helmet Mounting Kit - Flat Dark Earth	C102359FD
Ops-Core Helmet Mounting Kit – Olive Drab	C102359OD
Ops-Core Helmet Mounting Kit – Black	C102359BK
Team Wendy® Helmet Mounting Kit - Flat Dark Earth	C102365FD
Team Wendy® Helmet Mounting Kit – Olive Drab	C102365OD
Team Wendy® Helmet Mounting Kit - Black	C102365BK
Headset bag with drawstring	C760607
Soft Comply™ foam snap-in ear seal, standard size	C807485
Soft Comply™ foam snap-in ear seal, thin size	C807504
Over-The-Head headband assembly	C102574
Mic Boom Assembly, dynamic	C816751
Mic Boom Assembly, electret	C816781
Boom windscreen and O-rings (pack of 5)	C807420

Information on Disposal of Old Electrical and Electronic Equipment (applicable for EU countries that have adopted separate waste collection systems).



Products with the symbol (crossed-out wheeled bin) cannot be disposed as household waste.

Old electrical and electronic equipment should be recycled at a facility capable of handling these items and their waste byproducts. Contact your local authority for details in locating a recycle facility nearest to you. Proper recycling and waste disposal will help conserve resources while still preventing detrimental effects on our health and the environment.



WARNING: This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and other reproductive harm. For more information go to www.P65Warnings.ca.gov

Product Registration

Register to receive email alerts whenever updates or mission critical information regarding your product becomes available. <https://go.otto-comm.com/product-registration>

For questions or more information, please contact:

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