



Tornado Technologies
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U.S.A.
Cage: 596X9



OPERATOR'S INSTRUCTION MANUAL
FOR OXY22 SPECIFIC-PURPOSE,
WET, WIPED SILENCER

TORNADO TECHNOLOGIES WARRANTY

For the life of this Tornado Technologies product, we will repair or replace the product at no charge to the owner if it becomes damaged by any defect in materials and workmanship for any reason other than misplacement, illegal use, or deliberate misuse. This warranty is transferable and will be honored to any and all owners of this product.

REPAIR POLICY

Should the silencer require repair or modification, please contact Tornado Technologies to secure shipping information so that the silencer can be brought in for evaluation. Please include a brief letter, including all forms of contact (address, telephone, e-mail) and a brief description of the issue.

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THE FOUR RULES OF FIREARMS SAFETY

1. All guns are always loaded. Even when they are not, treat them as if they are.
2. Never let the muzzle cover anything you are not willing to destroy.
3. Keep your finger off the trigger till your sights are on the target.
4. Identify your target, and what is behind it.

WARNING! Always wear eye protection when shooting.

WARNING! Never install or remove a silencer onto or from a loaded host firearm.

WARNING! Be sure the OXY22 is securely mounted before discharging the host firearm.

WARNING! Follow all safety procedures outlined in the operator's manual for your host firearm.

WARNING! Be familiar with the handling characteristics of your host firearm.

CAUTION! The OXY22 silencer and the host firearm barrel may become extremely hot during use. Wear heat-resistant gloves or allow the silencer and host firearm to cool before removing the silencer.

OXY22 DESCRIPTION

The OXY22 from Tornado Technologies is a 1oz, ultra-compact suppressor designed for use on compact 22LR handguns. It was specifically designed and intended for use on the Beretta 21A pistol by specially trained operators for specific purposes. Use should be limited to 5 yards or less with subsonic solid projectile ammunition. Maximum sound reduction is achieved when the silencer's hollowed end cap is in contact with a soft target. The acoustic performance of the OXY22 in such a small footprint is made possible with a combination of baffle, artificial environment, and elastomer wipe technology. The OXY22 is designed to be user-serviceable, and can be refreshed without the use of tools. Please take a moment to read this manual and familiarize yourself with the recommended operating procedures of the Tornado Technologies OXY22.

SPECIFICATIONS

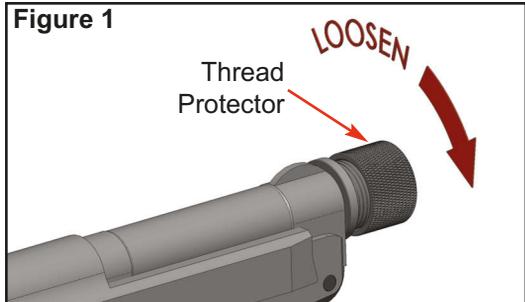
Caliber	.22LR
Overall Length	1.5"
Diameter	1"
Weight	1oz
Baffle Material	7075 T6 Aluminum
Body Material	7075 T6 Aluminum
Front End Cap Material	7075 T6 Aluminum
Keyring Adapter Material	300 Series Stainless
Wipe Material	90A Durometer Polyurethane
Finish	Black Anodized MIL-A-8625F Type III Class 2 Hardcoat

INSTALLING YOUR OXY22 ON A HOST FIREARM

1. Always keep the host firearm pointed in a safe direction.
2. Unload the firearm and make it safe by removing the magazine, inspecting and unloading the chamber, and engaging the safety to the "SAFE" position. Your host firearm's owner's manual will contain detailed instructions for proper unloading procedures.

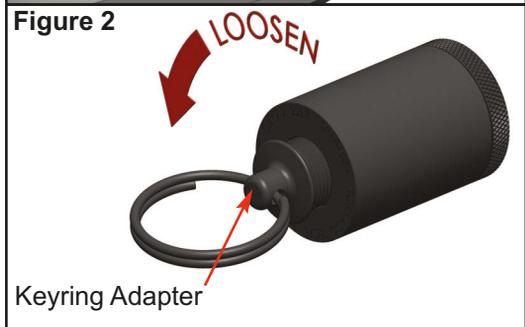
3. If present, remove the thread protector cap from the host firearm's muzzle. See Figure 1.

Figure 1



4. If present, remove the keyring adapter from the rear of the OXY22. See Figure 2.

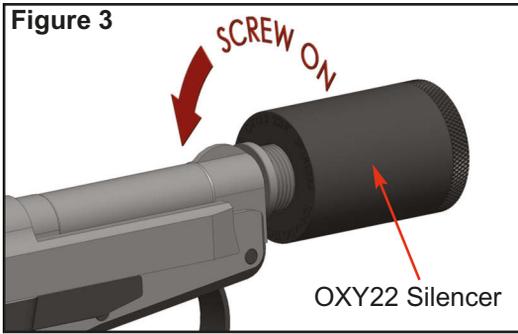
Figure 2



5. Check the muzzle threads on the host firearm to insure they are compatible with the 1/2-28 threads in the rear of the OXY22. Examine the threads on the host-firearm muzzle to insure they are clean and free of damage.

6. Examine the threads in the rear of the OXY22 to insure they are clean and free of damage.
7. Examine the exterior of the OXY22 for any signs of damage.
8. Carefully screw the OXY22 onto the host firearm's muzzle threads in the direction indicated in Figure 3, until the rear face of the silencer is fully seated against the shoulder behind the muzzle threads.

WARNING! It is the user's responsibility to frequently verify the OXY22 remains securely screwed onto the host firearm's muzzle threads.



KEEPING YOUR OXY22 SECURELY THREADED TO THE HOST FIREARM

CAUTION! Silencers absorb a significant amount of heat-energy when in use, resulting in the exterior surfaces of the silencer becoming extremely hot. Use heat-resistant gloves if necessary when checking the tightness of the OXY22 on the host firearm barrel to prevent skin burns and/or personal injury.

1. Always keep the host firearm pointed in a safe direction.
2. Unload the firearm and make it safe by removing the magazine, inspecting and unloading the chamber, and engaging the safety to the "SAFE" position. Your host firearm's owner's manual will contain detailed instructions for proper unloading procedures.
3. Verify the security of the silencer on the host firearm barrel by attempting to tighten it onto the host firearm's muzzle threads in the direction indicated in Figure 3.

REMOVING YOUR OXY22 FROM A HOST FIREARM

1. Always keep the gun pointed in a safe direction.
2. Unload the firearm and make it safe by removing the magazine, inspecting and unloading the chamber, and engaging the safety to the "SAFE" position. Your host firearm's owner's manual will contain detailed instructions for proper unloading procedures.
3. Verify the OXY22 is cool enough to handle. If the silencer is hot, put on a heat-resistant glove before moving on to step 4.

- Carefully unscrew the OXY22 from the host firearm's muzzle threads. See Figure 4.

DISASSEMBLING YOUR OXY22

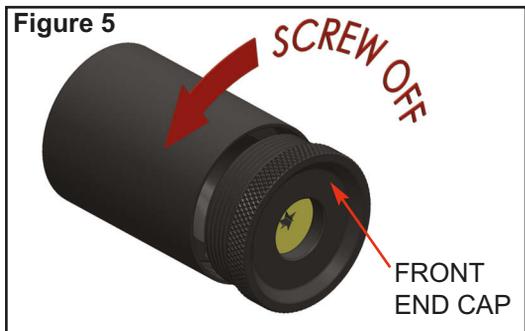
The OXY22 relies on a combination of artificial environment and elastomer wipe technology in order to achieve acoustic performance in such a small package. To maintain optimal sound suppression, the OXY22 should be dismounted after each magazine of use (10 rounds maximum) before replacement of the wipes and ablative is required. The first seven rounds are the quietest and sound performance will deteriorate with each successive round. The polyurethane end cap wipe will typically remain effective for 30 shots if the recommended ammunition is used.

WARNING! Only disassemble a silencer that is not attached to a host firearm. Attempting to clean or perform maintenance on a mounted silencer could lead to property damage, personal injury and/or death.

- Always keep the host firearm pointed in a safe direction.
- Unload the firearm and make it safe by removing the magazine, inspecting and unloading the chamber, and engaging the safety to the "SAFE" position. Your host firearm's owner's manual will contain detailed instructions for proper unloading procedures.
- Verify the OXY22 is cool enough to handle. If the silencer is hot, put on a heat-resistant glove before moving on to step 4.
- Carefully unscrew the OXY22 from the host firearm's muzzle threads. See Figure 4.

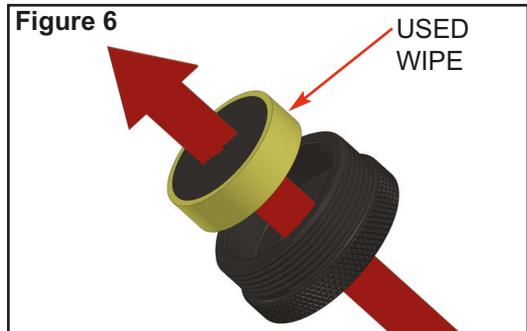
- Grasp the knurled front end cap rim and unscrew the front end cap in the direction indicated in Figure 5.

NOTE: If the front end cap is difficult to remove, use a set of Cannon Plug Pliers to grasp the knurled



rim to aid in unscrewing. Cannon Plug Pliers are available from McMaster Carr Supply (www.mcmaster.com), part number 5555a55. The non-marring jaws will provide a good grip on the knurled front end cap rim while protecting the finish.

6. Push the used front end cap wipe out of its recess in the front end cap. See Figure 6.

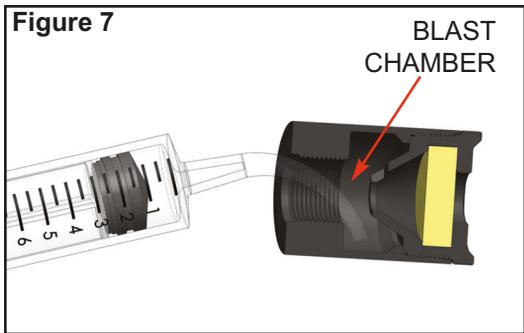


REASSEMBLING YOUR OXY22 AND REPLENISHING THE ABLATIVE MEDIA

1. Insert a fresh wipe in the inner recess of the front end cap. See Figure 6. The OXY22 is designed to take a 3/4" diameter, 1/4" thick polyurethane wipe or two 1/8" thick wipes. We have found, that a balance between the amount of ablative, the wipe material durometer, and matching that to the weapon is the key to gaining the most suppression. Our testing found that approximately 1ml of water-based ablative such as wire pulling gel or ultrasound gel, and a 1/4" 90 durometer wipe (or 2x1/8"), gets best results on the majority of Beretta 21A pistols with CCI Std. Velocity or Norma Subsonic .22LR.
2. If front end cap threads are dry, apply a light coating of oil such as Break Free® CLP®.
3. Thread the front end cap, with the new wipe, into the silencer body. The wipe will be slightly compressed between the front end cap and the baffle. This compression helps keep the front end cap securely screwed into the body during use. Due to variance in the thickness of the wipes, a small gap between the front of the silencer body and the knurled end cap rim is completely common and no cause for alarm.

CAUTION! Screw the front end cap and wipe into the body of the OXY22 silencer hand-tight. Do not use a tool to tighten the front end cap.

4. The recommended abrasive media for the OXY22 is Wire Pulling Gel. This water-based material is available from most big-box building supply stores and most hardware stores. It is both effective as an abrasive media, and it is also very economical. After loading the included 12ml syringe, hold it vertically and expel any air from the syringe, then distribute 1ml of abrasive in the blast chamber of the OXY22. See Figure 7.



5. Your OXY22 is now ready for use. If not used immediately, the provided keyring adapter should be installed to prevent the abrasive evaporating.

CLEANING YOUR OXY22

Due to the required use of an abrasive media and the nature of .22LR, we recommend cleaning after each use to prevent hard carbon build-up.

1. If your OXY22 is mounted to a host firearm, keep the gun pointed in a safe direction and unload it and make it safe by removing the magazine, inspecting and unloading the chamber, and engaging the safety to the "SAFE" position. Your host firearm's owner's manual will contain detailed instructions for proper unloading procedures.
2. Verify the OXY22 is cool enough to handle. If the silencer is hot, put on a heat-resistant glove before moving on to step 4.
3. Carefully unscrew the OXY22 from the host firearm's muzzle threads. See Figure 4.
4. Disassemble your OXY22. See the section in this manual titled "Disassembling Your OXY22".
5. The inner cone of the baffle can be accessed through the front of the OXY22 body with the front end cap and wipe removed. Flush liberally with an aerosol cleaner. Use a shop rag or paper towels to wipe away any stubborn accumulated fouling from the accessible surfaces of the

baffle and end cap. Cleaning with solvent may optically change the surface appearance of the silencer. This can be restored to a deep black by applying a light coating of oil such Break Free® CLP®. This should also be applied to the threads on the front end cap.

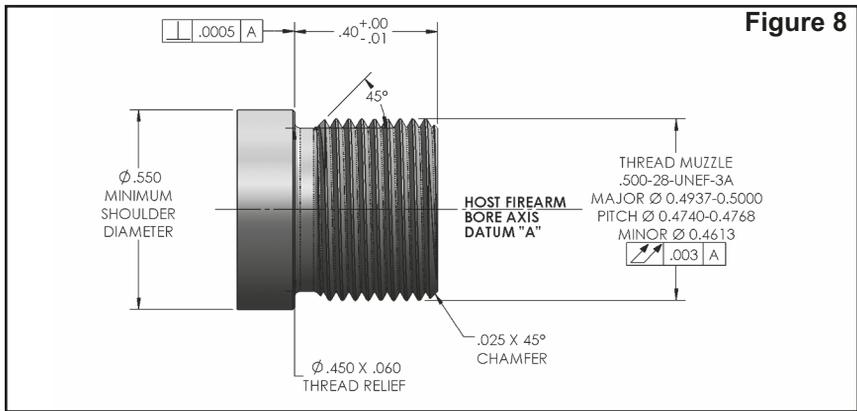
NOTE: The baffle is permanently installed with adhesive and is not designed to be removed. No attempt at removal should be made.

6. The blast chamber of the OXY22 is best cleaned by flushing liberally with an aerosol cleaner. Leave to dry or blow out with compressed air. Follow up with cotton swabs to wipe away any loosened material and repeat the process. For an aerosol cleaner we recommend 3M 08901 Gasket Prep and Parts Cleaner. This type of cleaner is almost pure acetone, so make sure to use appropriate personal protective equipment. It will also dissolve plastic, so avoid getting over-spray on things such as a pistols grips. For parts that are painted or plastic and might be effected by acetone, we recommend CRC 05103 QD Electronic Cleaner.
7. Make sure the threads in the rear of the OXY22 body are clean and free of particulate matter.
8. Reassemble your OXY22 following the procedures outlined in the section in this manual titled "Reassembling Your OXY22 And Replenishing The Ablative Media".

NOTES ON BARREL THREADING

A properly threaded host firearm muzzle is critical to the life of a silencer. Threads must be properly sized and cut concentrically with the host firearm's bore. Tornado Technologies offers a broad variety of threading options, and can modify a customer's Beretta 21 to accept an OXY22 silencer. For more information on the barrel threading services offered by Tornado Technologies, please visit www.tornado-technologies.com.

Figure 8 is a dimensioned and toleranced drawing that details the recommended thread profile that can be used with an OXY22 or most other manufacturer's 22lr suppressors.



NOTES ON AMMUNITION

CAUTION - Do not use hollowpoints or other fragmented or segmented projectiles with the OXY22. Engagement of the end cap wipe with such ammunition will drastically reduce the lifespan of the wipe.

During the development and testing of the OXY22 silencer, CCI Standard Velocity and Lapua Subsonic round nose were identified as having the multiple desirable qualities of good acoustic performance, clean burning, and being extremely reliable and consistent. You, the customer, will be the ultimate judge of which brand of ammunition best suits your needs based on availability and budget.

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