CAT/SC/MANUAL

RATINGS AND RESTRICTIONS

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1. CARTRIDGE DESIGNATION

C.A.T's Titanium SC 9mm handgun suppressors are designed specifically for use on a 9mm tilt-lock handgun. Tilt-lock handguns are by far the most common type of handguns in the modern market and can easily be identified by watching the barrel while manually manipulating the slide. As the slide moves to the rear, the proximal end of the barrel (chamber that holds the cartridge) drops down and out of the way to allow the slide to continue moving rearward. This type of action is common and well established as highly functional... until you add a significant weight to the muzzle end of the barrel. As we all learned from the chubby kid on the elementary school seesaw, added weight on one end of a lever impedes the barrels ability to tilt freely. Because of this, handgun suppressors are outfitted with a linear decoupler (also referred to as a "booster assembly" or "Nielsen Device"). This is a simple device that includes a piston on which the suppressor can move, a spring to return the suppressor to lock-up and a retaining cap (with o-ring seal) to keep it all in place. As the projectile exits the muzzle, the pressure of the round pulls the suppressor body forward on the piston which removes the weight of the suppressor from the barrel. This allows for the previously described tilting action that is crucial for the cycle of the handgun. This is a long and perhaps overly ambitious explanation of the function of a suppressed handgun but it is also necessary to explain what the SC is – as well as what it is not. SC is designed to maximize the performance of a suppressed tilt-lock handgun system that is chambered in 9x19mm NATO. Unlike other handgun suppressors that are "rated" for many other applications such as centerfire rifle or rimfire hosts, the SC is intended for use only on a handgun. The included booster assembly is tuned for the weight of the suppressor and pressure of a 9mm cartridge. The suppressor itself is optimized for a 9mm projectile and pressure profile out of a 3-5 inch barrel. Can you run your SC on a .300BLK rifle with subsonic ammo? Yes, a quick look at .300BLK subsonic pressures will tell you they aren't much different from 9mm supers. Should you run your SC on a rifle? No. You're better than that. Pull up your big boy pants and buy an ODB or JL or DD!

A note for you Berretta Bois, yes, this booster will also work on a rotating barrel.

2. BARREL LENGTH

There are no barrel length restrictions on SC running on the intended host platform: the tilting barrel handgun described above in Caliber Designation. That is a generalized statement regarding the length of a system's barrel. It still falls on you, the user, to ensure that the projectile fired out of whatever ammo you are using is stable once it leaves your barrel.

If the specific round you are firing has too little or too much twist (or too little velocity in the case of very short barrels), **the projectile has a significant propensity to become unstable in flight.** Think of a tightly spiraling football (stable) versus a football lobbed end-over-end (unstable). If your projectile is yawing or tumbling, it is almost always evident on paper. We recommend you shoot 5-10 rounds at a paper/cardboard target somewhere around 25yds and inspect the holes created by the projectiles. While not a perfectly scientific test, if the diameter of the hole closely matches that of the bullet, then your projectile is most likely stable. If the hole is not circular, noticeably bigger than the projectile or you observe the profile of the bullet on the paper (keyholing), then no suppressor -including a C.A.T suppressor - should be used with that particular system (firearm and ammo).

Note: For best results, we recommend not grouping these shots. You are looking for the individual holes punched by the bullet and not a grouping of multiple shots in one hole.

RATINGS AND RESTRICTIONS

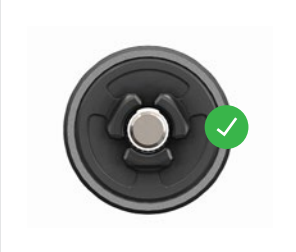
3. CONCENTRICITY

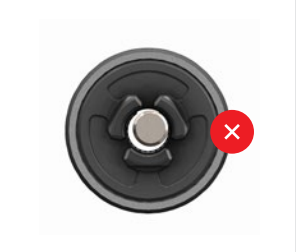
In this instance, concentricity shall be defined as the parallelism of the line-of-bore of both the host firearm (barrel) and the suppressor. If the bore of your handgun is not perfectly centered and perpendicular to the shoulder of your threads, the suppressor may be far enough out of parallel that a round exiting the barrel would strike a portion of the suppressor. There are alignment rods sold in various places that will aid in checking the alignment of a suppressor and barrel/bore.

If you prefer to gamble there is a more "field expedient" method that can be used at your own risk. While C.A.T recommends the use of a caliber appropriate bore alignment rod, you can also conduct a more cursory visual inspection as well. With the firearm unloaded and suppressor properly mounted, remove the barrel from the firearm so that you can look down the proximal end (from the chamber not the muzzle) of the barrel. Aligning the chamber and muzzle similar to a set of ghost ring sights, center the exit pupil inside the ring of the chamber. If the end cap of the suppressor appears to be out of center, do not shoot. Purchase an alignment rod or take the firearm and suppressor into a gunsmith to inspect further.

Note: See Steps 13&14 of the Installation section of this manual for more information.

STEPS 15 & 16
Use a properly made, purpose built silencer alignment rod to ensure the silencer is properly mounted and concentric to the bore line.





Once your cartridge, barrel and concentricity are established, you're cleared hot to do some shooting. In the next section, we will describe how to properly record your actual rate of fire for any titanium suppressor.

Do not use an o-ring on your barrel threads with any suppressor. Many aftermarket threaded barrels (and some OEM ones) ship with an o-ring installed on the back of the threads to help secure the thread protector to the barrel and prevent it from working itself loose. These o-rings will prevent your pistol suppressor's piston from properly shouldering against the barrel and potentially throw your suppressor out of concentricity. Remove any such o-ring before installing any suppressor.

Note: if you are having an issue with your suppressor working itself loose during a course of fire, we recommend a single wrap of high heat "plumbers" Teflon tape. The cheap white tape works but this type of tape is color coded for heat rating and a yellow tape will hold up better. Do not over apply plumbers tape or you will run into the same issue as an o-ring and prevent your suppressor from shouldering properly against the barrel.

4. SCHEDULE OF FIRE – TITANIUM SPECIFIC FACTS

While specifically optimized for 9mm tilt-lock barrel handguns, users should not exceed a maximum service temperature of approximately 650°F (343°C). Once this temperature threshold is reached, the suppressor should be allowed to cool down. Titanium Ti6Al4V has inherent material properties which give the material a lower heat conductivity rating, and the suppressor is susceptible to particle erosion and melting past this temperature limit. If the user notices discoloration on the exterior discontinue use and allow it to cool down. Do not dip the suppressor in water in an attempt to cool it down. C.A.T recommends SC Titanium users invest in an infrared thermometer and create their own platform specific firing schedule, based on ammunition and barrel length. It is recommended to create this firing schedule by shooting five round groups, with one second intervals between rounds, then testing the temperature of the suppressor up to 550°F (288°C). At this operating temperature, the user should record the amount of time until the suppressor returns to 150°F (65°C). This would become the baseline firing schedule based on the user's platform and ammunition type.

RATINGS AND RESTRICTIONS

5. WEAR

C.A.T SC Titanium has a dedicated “waffle” style erosion interface at the end of the blast chamber. This is a sacrificial erosion wall, and users should not be concerned if they are seeing wear, this is designed to support the erosion caused by unburnt particulates (especially in short barrel platforms) and is designed to protect other internal areas inside of the suppressor.

6. SPARKING

C.A.T SC Titanium has a dedicated “waffle” style erosion interface at the end of the blast chamber. This is a sacrificial erosion wall, and users should not be concerned if they are seeing wear, this is designed to support the erosion caused by unburnt particulates (especially in short barrel platforms) and is designed to protect other internal areas inside of the suppressor.

Excessive white sparking may be noticed upon first use, this is due to microscopic Titanium dust from the Additive Manufacturing process. Over the course of use this white sparking will subside but will never fully disappear. Titanium white sparking is separate from flash and cannot be controlled by a flash hider or other methods, as it is a byproduct of Titanium being classed as a reactive metal.

CAT/SC

1/2X28 PISTON

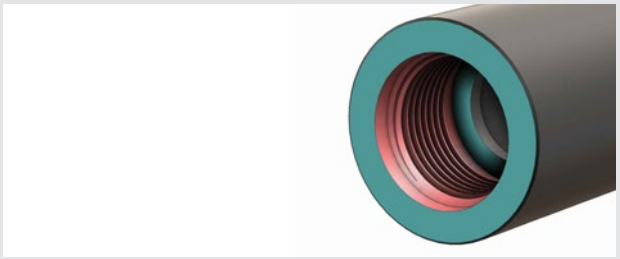
MODEL: CAT/SC
CALIBER: 9 MM
WEIGHT TITANIUM (LONG): 9.5 OZ
WEIGHT TITANIUM (SHORT): 7.5 OZ
OVERALL LENGTH (LONG): 7.5"
OVERALL LENGTH (SHORT): 5.5"
DIAMETER: 1.40″
MIN BARREL LENGTH: NO RESTRICTIONS
OPTIMIZED VELOCITY: 900-1200FT/S
OPTIMIZED PLATFORM: GLOCK 19
TECHNOLOGY: SB-SHOCK
RECOMMENDATION: 9MM HANDGUN
FINISH: DLC
MOUNTING: 1/2×28 (PISTON INCLUDED)

INSTALLATION

STEP 1
Remove the magazine from the firearm, then visually and manually check and clear the action and chamber of the firearm. Ensure the host firearm is unloaded at all times.

STEP 2
Check the barrel threads and shouldering surface (Fig. 1 PINK surfaces) are clean and free of debris. Also double check that there is no o-ring installed anywhere on the barrel threads (usually back at the shoulder of the barrel).

STEP 3
Prior to installing the CAT SC onto the barrel, inspect the SC piston threads (Fig. 2 RED) and shouldering surfaces (Fig. 2 BLUE) to ensure those critical surfaces are also clean and free of debris.



STEP 4
Prior to installing the CAT SC onto your handgun, it is recommended that you disassemble and inspect your booster assembly to better understand the “moving parts” of your suppressor. The booster assembly (described in part 1 “Cartridge Designation” of this manual) contains 4 parts:

i.Piston
ii.Spring
iii.Retaining ring/cap
iv.O-ring (Fig. 4 ORANGE)

INSTALLATION

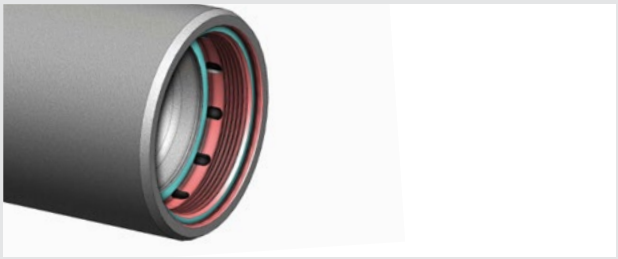
The Retaining Ring has machined wrench flats that can be used with an (adjustable) open ended wrench or placed in vise jaws if the cap is overly snug. Unscrewing and removing the Retaining Ring (Fig. 3) will expose the entire booster assembly. The Retaining Ring can be removed from the Piston which will expose the O-ring (Fig. 4 ORANGE). Ensure that this O-ring is properly installed and remains lubricated for the life of the suppressor. CAT recommends a high temperature white lithium grease be applied to the interior of the Retaining Cap (and subsequently the O-ring) regularly for proper function of your booster device. Gun oil can be used as well though make sure you do not use any cleaning solvent on the o-ring as it will prematurely degrade the material.

FIG 3

Once the booster assembly is inspected and lubricated, slide the retaining cap back onto the piston (with spring in place as in Fig. 4) before putting anything back into the suppressor body. It is easier for most people to assemble the booster entirely while it is outside of the suppressor (as in Fig. 3). Install the booster assembly into the rear of the suppressor and rotate until the forward lugs of the piston fall into the suppressor housing. Then tighten (clockwise) the Retaining Ring. A good hand tight connection is all that is required but users can snug the cap on with a wrench if they so choose. Do not overtighten the ring into the suppressor body.

FIG 4

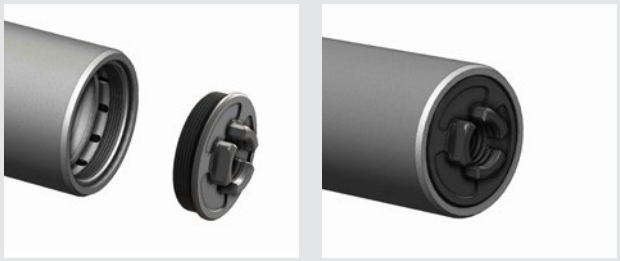
STEP 5
Prior to installing the SC front cap, inspect the internal mounting surfaces of the CAT SC front cap interface and ensure the critical mounting surfaces are clean and free of debris (red surfaces - pay special attention to making sure the blue shouldering regions are clean and free of debris).



STEP 6
Inspect the SC front cap and ensure the critical surfaces are clean and free of debris (green surfaces, especially the shouldering surface).

INSTALLATION

STEPS 7 & 8
Ensure the front cap is firmly installed by using an 11/16" (.6875") wrench or socket to screw it in CLOCKWISE (right hand to tighten).



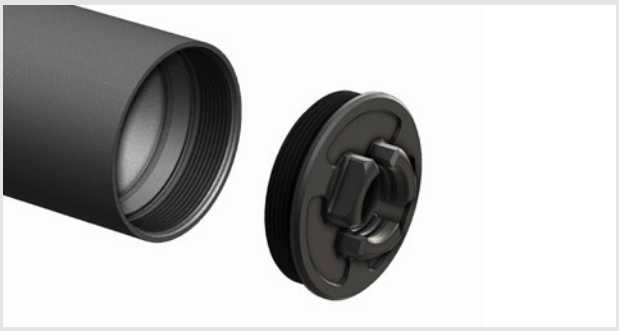
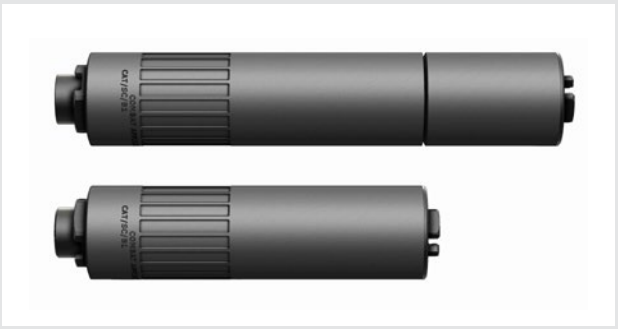
STEP 9
Thread the suppressor (piston) onto the barrel of your firearm by hand. Once snug against the shoulder of the barrel, you can back the suppressor off a quarter turn or so and “snap” the suppressor by rotating quickly until it bottoms out. This “snapping” motion is basically using your wrists as an impact wrench and will ensure a much tighter lockup than simply snugging the suppressor on by hand.

RECONFIGURING LENGTH

STEP 1
Your CAT SC ships in its full 7.5” configuration but can be shortened by the user if they so choose. To accomplish this, begin by removing the extension tube from the main body.

Note: this should be done by hand and reinstalled only “hand-tight.” If you end up over torquing your extension tube on at some point. An inexpensive pair of strap wrenches can be invaluable to help remove stuck suppressors/suppressor parts.

STEP 2
Remove the endcap from the extension tube and reinstall it onto the suppressor body where the extension tube used to be.



STEP 3
Reverse this procedure to reinstall the extension tube. Remove the endcap from the main body, reinstall extension tube and then thread your end cap back on.