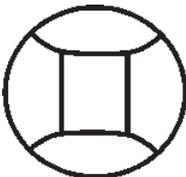


TM-HVT

OPERATION AND MAINTENANCE OF SOUND SUPPRESSOR MODEL HVT

**Before using this suppressor,
be certain you have read and
understand this manual.**

Manufactured by



GEMTECH
Div. of Gemini Technologies, Inc.
P.O. Box 140618
Boise, Idaho 83714

ISSUED: August 15, 2011

☆☆☆☆☆ **WARNING** ☆☆☆☆☆

☞ **Because sound suppressed weapons make less noise than non-suppressed weapons, it is easy to forget that they are still firearms. It is of vital importance to remember that a sound suppressed firearm is just as dangerous as a non-suppressed one, and the same safe handling requirements apply.**

TM-HVT

FIRST EDITION January 2006
SECOND EDITION February 2007
THIRD EDITION April 2010

Published by:

ATI Star Press
Antares Technologies, Inc.
P.O. Box 140618
Boise, Idaho 83714
Phone: (208) 938-2173

Illustration p. 9 drawn for Gemtech by Michael L. Smith

COPYRIGHT NOTICE:

©2010, 2011 Gemini Technologies, Inc.
All rights reserved. The contents of this publication may not be reproduced in any form or by any means in whole or in part without the prior written permission of the copyright owner.

TM-HVT

OPERATIONAL MANUAL FOR SOUND SUPPRESSOR MODEL HVT (7.62 mm NATO)

Manufactured by

GEMTECH

Division of Gemini Technologies, Inc.

P.O. Box 140618

Boise, Idaho 83714-0618

Phone: (208) 939-7222

FAX: (208) 939-7804

CONTENTS:

General Description	P. 2
Effectiveness and Ablative Warning	P. 3
Safety Notes	P. 4
Physical Specifications	P. 4
Ammunition Recommendations	P. 5
Bi-Lock Mount Installation	P. 6 & 7
Suppressor Mounting/Dismounting	P. 8
Maintenance and Cleaning	P. 10
Thread Mounting HVT	P. 11
Mount Disassembly and Service	P. 12
Warranty Statement	P. 13

☆☆☆ **WARNING** ☆☆☆

 **Failure to follow installation and maintenance instructions detailed in this manual can result in potential for serious injury to the user and damage to the weapon.** Firearm sound suppressors are user attached firearm muzzle devices, and as such are subject to improper attachment unless the proper procedures outlined in this manual are followed.

MANUFACTURER'S DISCLAIMER

The manufacturer is not responsible for improper usage of this product. This product is potentially dangerous, and as such it is the user's responsibility to understand and implement its proper use. If you do not understand the instructions in this manual, please contact the manufacturer for further clarification.

GENERAL DESCRIPTION

Congratulations! You have just purchased one of the most efficient and versatile centerfire rifle sound suppressors made. Please take a few minutes to read this instruction manual and keep it in a safe and convenient place. Designed for the 7.62x51 NATO cartridge, it is usable with any .30 caliber cartridge of similar or smaller case capacity and powder charge.

The model HVT sound suppressor is offered in two configurations: conventional thread mounting (HVT) and Quickmount (HVT-QM, a secure and accurate quick-detach mounting system). It is fast to operate and has no flash hider threads to gum up or be damaged in the field. There are no gates or parts to break. The Quickmount system is compatible with the older Bi-Lock™ mounts having two lateral projecting lugs for coupling.

All muzzle attachments, including suppressors, will change barrel harmonics and standing waves. This results in a slight change in point of impact with the device in place. The HVT suppressor and mount combination has been carefully engineered to provide a consistent, repeatable, and predictable shift in point of impact. The degree of change in the point of impact will vary with the specific weapon and the rigidity of the barrel. When used with standard weight law enforcement or military grade barrels, the HVT suppressor will have no deleterious effect on group size.

This suppressor is effective in markedly reducing the sound of the muzzle blast, making it difficult for an observer to determine the origin of the shot and eliminating the need for shooter hearing protection. There is no way of eliminating the ballistic crack (or sonic boom) of the projectile traveling down-range.

This suppressor contains no expendable parts. We recommend against cleaning the interior of the suppressor. This instruction manual gives the necessary instructions for maintenance of this unit.

USE OF ABLATIVE AGENTS (ARTIFICIAL ENVIRONMENT)

Do not fire this suppressor with any foreign material inside. This suppressor is designed to operate completely dry. Introduction of liquids, greases, or other foreign materials can cause abnormal pressures and must **never** be used. Any resultant damage is not covered under warranty.

OVERALL EFFECTIVENESS

The real limiting factor on the effectiveness of centerfire rifle suppressors is related to the sound of the bullet in free flight. The free flight bullet noise is related to the general bullet shape and is also directly proportional to the bullet velocity. The HVT suppressor is capable of reducing the sound of the muzzle blast to the vicinity of bullet and action noise levels. Because of the sound level of the bullet in flight, it is not possible to truly appreciate the degree of reduction when the muzzle blast is reduced to less than the bullet flight noise. Because of the frequency multiplication and spectrum shift capabilities of the HVT suppressor, the muzzle blast is reduced and masked by the bullet flight noise.

Besides sound suppression, there are two additional added benefits of a sound suppressor, which are seldom mentioned. The first is that a sound suppressor is also an exceptionally effective recoil reducer, often reducing recoil to less than one fourth of its original magnitude. The second is that a sound suppressor is an exceptionally effective flash suppressor, and when using a night vision device as a sight, the use of an efficient sound suppressor is almost mandatory to keep the flash from causing "blooming" on the viewing screen of certain variations of night vision devices.

The added weight of the suppressor on the barrel changes barrel vibrations, which usually improves grouping. The extra weight will alter the point of impact slightly as compared to the non-suppressed weapon. However, because of the design of the mounting system, point of impact shift is consistent and predictable.

SAFETY NOTES

1. Always handle weapons in a safe manner and assume they are loaded until they have been cleared.
2. User installation or removal of the sound suppressor must be accomplished in accordance with the instructions contained in this book.
3. Any installation, or removal of the Bi-Lock Compensator mounting system must be accomplished by a qualified armorer in accordance with the instructions contained in this book.
4. Serious injury to the user may result from an improperly installed Bi-Lock Muzzle Brake and/or suppressor.
5. **Operating Temperatures:** During use, the HVT suppressor absorbs large quantities of heat from the burning propellant gases. This heat is dissipated by radiation, convection, and conduction. The heat buildup is particularly noticeable during fully automatic fire, where the temperature of the suppressor can easily exceed 900°F in a short period of time. **The elevated temperatures can pose a hazard to personnel and materials that may contact the suppressor when hot, and the suppressor must be allowed to cool to ambient temperature before handling.**
6. **Only use the suppressor completely dry.**

SPECIFICATIONS

Caliber:	7.62 NATO and similar
Length:	9.2 inches (Quickmount) 8.2 inches (thread mount)
Diameter:	1.5 in.
Weight:	28 ounces (Quickmount) 24 ounces (thread mount)
Materials:	Stainless steel alloys
Finish:	Black Oxide
Minimum barrel length:	16 inches

☆☆☆☆☆ **WARNING** ☆☆☆☆☆

☞ This suppressor is designed to withstand only limited fully automatic fire (30 rounds maximum without cooling). With sustained fully automatic fire, heat buildup within the suppressor can reach levels that can cause severe burns and can ignite flammable materials. Because the suppressor becomes very hot during use, care must be used to prevent burns when touching or removing a hot suppressor.

CONSTRUCTION

The suppressor is built from 100% corrosion resistant stainless steel alloys.

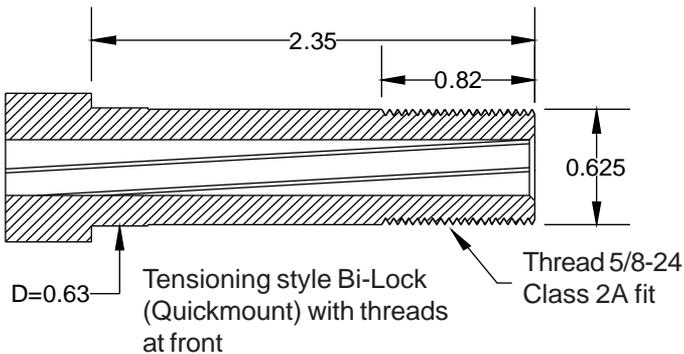
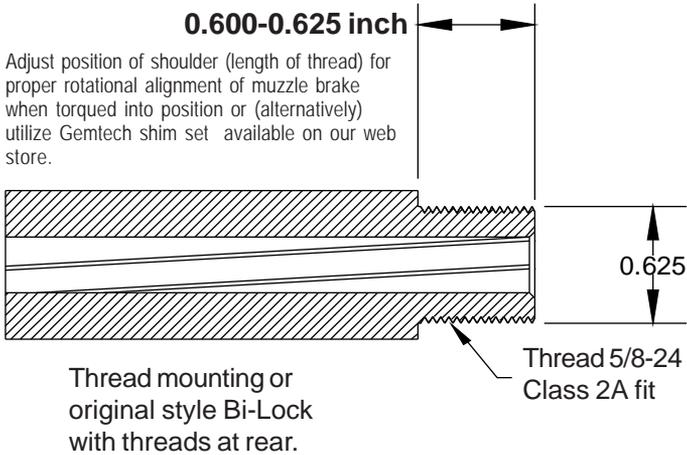
AMMUNITION

For all of our centerfire rifle suppressors it is recommended that only full metal jacketed, factory loaded hunting ammunition, or specific match-grade bullets be used. Some of the highly frangible jacketed bullets used in reloading ammunition have a tendency to have jacket separation, which is why we recommend the use of full metal jacketed bullets with the suppressor. Jacket separation will cause the bullet to tumble while in the suppressor which can seriously damage the internal baffles and lead to suppressor failure. Because of this, damage caused by use of any bullet other than the above **will not be covered under warranty if there is jacket separation.**

There has been a move toward the use of specially loaded .308 (7.62x51mm) subsonic ammunition to eliminate the ballistic crack of the projectile traveling faster than the speed of sound. Unfortunately, the majority of subsonic .308 ammunition is loaded with heavy, boat-tail projectiles which do not stabilize adequately in the twist rate of virtually all .30 caliber rifles. These projectiles, which may give a decent group at 50 meters, will yaw significantly during the first 10-15 meters in front of the muzzle, including within the suppressor. **Because of the potential for suppressor damage with subsonic ammunition, Gemtech will not warrant damage caused by subsonic ammunition not approved by us.** Specifically, we recommend against the use of Lapua, IMI, and other .308 subsonic ammunition loaded using boat-tail projectiles weighing over 200 grains. At the time of printing of this manual, only Engel Ballistic Research subsonic ammunition meets Gemtech warranty specifications.

☆☆☆☆☆ **WARNING** ☆☆☆☆☆

☞ Failure to follow installation instructions detailed in this manual can result in potential for serious injury to the user and damage to the weapon.



BARREL MUZZLE THREADING

INSTALLATION OF BI-LOCK MOUNT

This suppressor is attached to the rifle with ease on a standard sized, proprietary Bi-Lock mount. Proper alignment and mounting of the suppressor is dependent on the care and precision used during installation of the Bi-Lock mount.

1. The Bi-Lock mount attaches to threads on the muzzle of the rifle. Unless specially ordered otherwise, the Bi-Lock mount is supplied to mount on 5/8-24 NEF Class 2 threads. Our experience has shown that threads smaller than 5/8 inch are more likely to stress relieve the muzzle of the weapon, introducing inaccuracy. Barrels less than 20 inches are not recommended.
2. Thread the muzzle of the rifle as specified in Fig 1 (P.6) for the Bi-Lock used with 5/8-24 threads (Class 2A fit). For proper alignment, it is essential that the threads be absolutely concentric with the bore of the weapon and that there is a sharp shoulder at the rear of the threads that is 90 degrees to the bore axis. Barrel threading must be performed on a lathe with the barrel turned between centers. The barrel threading procedure is critical, and errors will result in misalignment. (See drawing P. 6). Gemtech can thread the barrel, properly install the Bi-Lock™ mount, and gauge the installation for a nominal fee.
3. Some hand fitting may be necessary for cosmetic purposes only if having the locking lugs in any particular orientation is considered desirable. Orientation of the lugs makes no functional difference. There are several methods of achieving this orientation.
 - a) The simplest is to trim the 90 degree shoulder area on the barrel while in the lathe so that when torqued on, the Bi-Lock™ mount will be oriented as desired.
 - b) The second method is to use the Gemtech shim set available on our web store.
 - c) We suggest against trying to trim the back of the Bi-Lock™ mount to achieve cosmetic fit.
4. Whichever method of insuring rotational position is utilized, proper orientation must allow for torquing the Bi-Lock™ into final position. We have found that the process of final tightening will rotate the Bi-Lock™ an additional 15-20 degrees.
5. Thread Adhesives: For auto-loading weapons, Rocksett is the preferred adhesive. having a higher temperature rating. For bolt action weapons,

Loctite® 272 is acceptable.

6. Degrease all surfaces with acetone. Apply the spacing shim (if used) and the appropriate thread adhesive. Screw on the Bi-Lock™ mount.
7. Using a torque wrench, torque the Bi-Lock™ mount into position utilizing between 30 and 40 ft-lbs. Allow the thread adhesive to set up for at least 72 hours before use.

☆☆☆☆ **DANGER** ☆☆☆☆

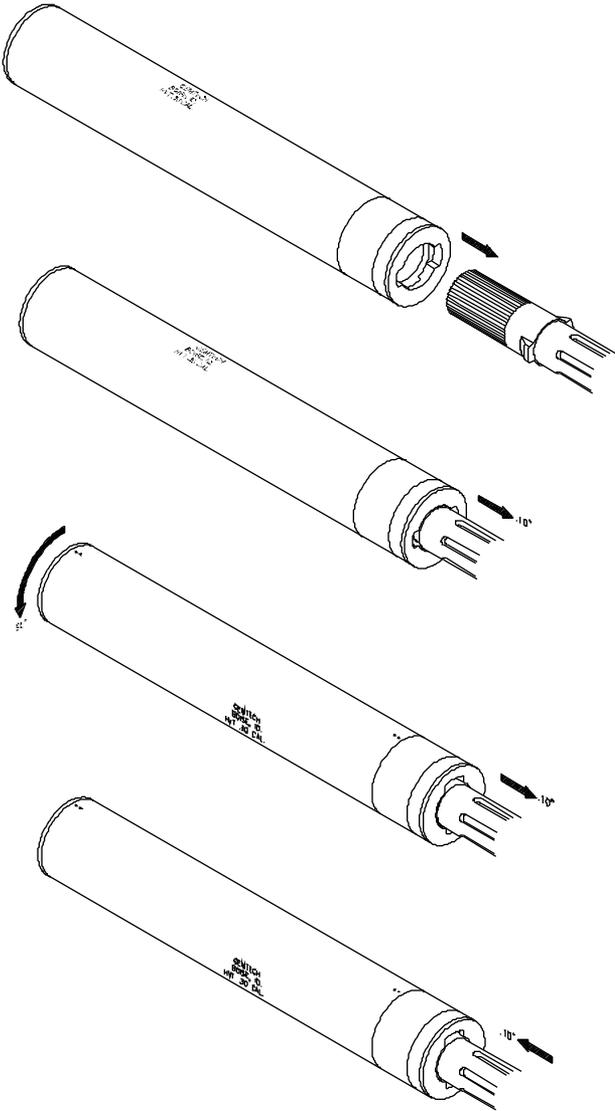
☞ **Before performing any installation or maintenance operation, always remove the magazine from the firearm, open the action, and visually ascertain that the chamber is empty and the weapon unloaded. Failure to do so can result in potential for serious injury to the user and others in the vicinity.**

SUPPRESSOR MOUNTING/DISMOUNTING

Mounting: Mounting of the suppressor on the Bi-Lock™ mount can be performed in less than 5 seconds. (See drawing P. 9 opposite.)

1. Place the base of the suppressor onto the Bi-Lock™ mount.
2. Rotate the suppressor until the lugs on the Bi-Lock™ mount enter the base of the suppressor. This can occur in only one position.
3. Press the suppressor onto the Bi-Lock™ mount against spring tension approximately 0.2 inch until the suppressor can be rotated on the Bi-Lock Compensator.
4. Rotate the suppressor 90 degrees counterclockwise (with reference to the operator's viewpoint) until the Bi-Lock™ mount lugs engage in recesses in suppressor mount. Internal stops prevent over-rotation. The suppressor will snap forward approximately 0.1 inch when engaged. Gently attempt to twist the suppressor to be certain it is locked in position. *The lugs must engage the locking recesses in the mount closer plate before use.*

Quickmount suppressor installation on Bi-Lock equipped weapons.



Dismounting: Dismounting is the reverse of mounting.

1. The suppressor will become dangerously hot with usage. If the suppressor must be dismounted when hot, a protective glove, such as Nomex, must be worn.
2. Move the suppressor rearward on the Bi-Lock™ mount approximately 0.1 inch until it can be rotated.
3. Rotate the suppressor approximately 90 degrees clockwise (with respect to the operator's viewpoint).
4. Pull the suppressor forward clear of the weapon. Carbon buildup on the Bi-Lock™ mount can be broken loose by twisting the suppressor during removal after the mount has cleared the Bi-Lock™ mount lugs.

☆☆☆☆ **CAUTION** ☆☆☆

☞ **Always read the warning label on any cleaner or solvent, and remember that virtually all solvents are inherently dangerous and potentially toxic. Always use adequate ventilation and both skin and eye protection when using organic solvents and avoid open flames.**

CLEANING

The HVT suppressor is constructed of 100% corrosion resistant stainless steel parts. As such, there is no real concern about corrosion from the products of combustion of the propellant gases. We have found no need for frequent or compulsive cleaning, and the majority of users never clean the inside of their suppressor.

While we strongly advise against attempting to clean the inside of the suppressor, cleaning can be performed by immersion of the suppressor in hydrocarbon based solvents. Although no immersion cleaning solution is perfect, we recommend a home-made solution referred to as "Ed's Red." This consists of equal parts of Automatic Transmission Fluid (Type A), mineral spirits, odorless kerosene, and acetone. Because the Acetone evaporates quickly, the solution should be stored in a sealed container. A simpler version is a 3:1 mixture of mineral spirits and automatic transmission fluid.

Ultrasonic cleaners are not effective with hydrocarbon-based solutions. Water based cleaners are not recommended.

Soak the unit overnight for cleaning of the body of the suppressor. The suppressor is then drained by standing first on one end and then the other, followed by rinsing with a similar solvent and draining again.

The suppressor must be blown dry with a source of compressed air so there is absolutely no residual moisture in the suppressor. **Firing with liquid remaining in the suppressor can result in abnormal and erratic internal pressures.** Any damage resulting is the user's responsibility and not covered under warranty.

THREAD MOUNTING HVT

The HVT suppressor is also offered in a thread mount version. This version has similar performance and mounts on standard 5/8x24 threads. The weight is 24 ounces, and the length is 8.2 inches.

The thread mounting version is particularly suited to bolt action weapons. If used on a semi-automatic weapon, it will be necessary to frequently ascertain that the suppressor is not loosening on the threads.

Installation requires that the suppressor be tightly screwed on to the threaded barrel. It is suggested that a rubber grip enhancer (such as what is used to unscrew jar lids in the kitchen) be used to be certain that the suppressor is tightly in place. Because point of impact shift will vary with the installation torque, it may be necessary to re-sight the weapon after installation and prior to mission critical operations. **Never ever use any type washer or lockwasher when mounting the suppressor.**

Cleaning is discussed elsewhere and is considered unnecessary in this version. Barrel threading specifications are the same as for the original Bi-Lock mount (top drawing, P. 6).

HUNTING NOTICE

Many states have laws prohibiting the hunting of game with a sound suppressor. Some even prohibit hunting non-game animals with a suppressor. If hunting with a suppressor is desired, consult your local state Fish & Game Department.

MOUNT DISASSEMBLY

There is no need normally to disassemble the mount, and replacement of damaged parts should be performed at the factory. However, if armorer repair is necessary:

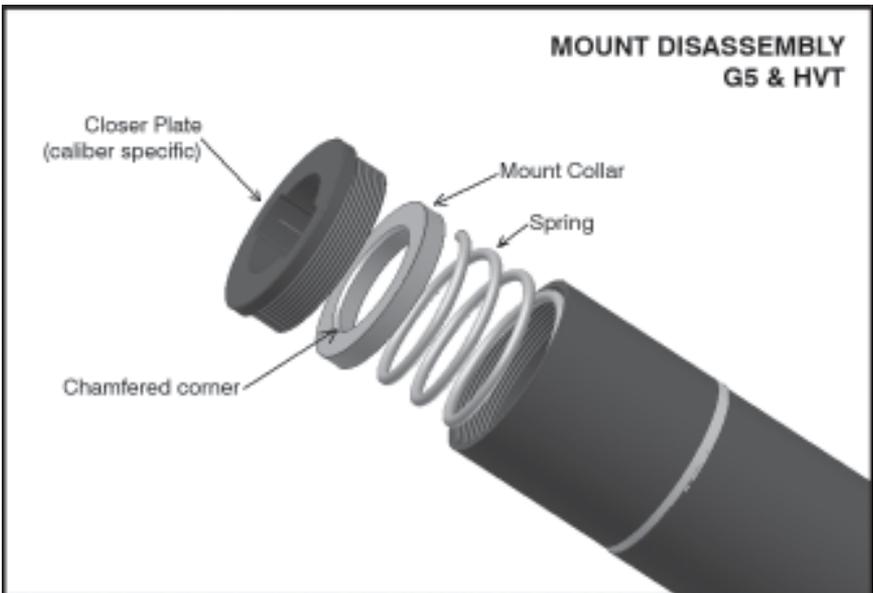
The closer (rear) plate of the suppressor is screwed tightly into the mount housing. To replace the spring or clean the mount recesses, the plate must be unscrewed. It is the user's obligation to be certain the closer plate remains tight during use. If inadvertent loosening is an issue, blue (242) Loctite can be used.

Once the plate has been removed, the mount collar can be removed without undue difficulty. The collar should be cleaned thoroughly using red Scotch-Brite or steel wool. Before reassembly, lightly coat the spring, inside of the mount body, and plate with a wheel bearing grease. This is the approved mount lubricant.

Following reassembly, the closer plate is screwed tightly into the mount housing and the roll pin is replaced so that it is flush with the outer surface of the mount.

No other disassembly is possible. See drawing below for details.

Military versions have the closer plate welded in position.



WARRANTY STATEMENT

Our "warranty" has been practiced since our personnel started in the suppressor business in 1976, in a time before legalese and when a handshake and this simple statement sufficed: "If a Gemtech product breaks and it's your fault, we'll fix it for a fair price in a timely manner. If it's our fault, we'll fix it quickly at no charge." This policy born of pride in craftsmanship and honor has served us and our clients well for over two decades and will continue in Gemtech's future.

The small print follows:

The Magnuson-Moss Act (Public Law 93-637) does not require any seller or manufacturer of a consumer product to give a written warranty. It does provide that if a written warranty is given, it must be designated as "full" or as "limited" and sets minimum standards for a "full" warranty.

As do most major firearms manufacturers, Gemtech has elected not to provide any written warranty, either "limited" or "full," rather than to attempt to comply with the provisions of the Magnuson-Moss Act and the regulations issued thereunder.

There are certain implied warranties under state law with respect to sales of consumer goods. As the extent and interpretation of these implied warranties varies from state to state, you should refer to your state statutes.

Gemtech certifies that all sound suppressors manufactured by them are free of defects in materials or workmanship, and that they meet manufacturing specifications at the time of manufacture.

It is our intent that the customer be completely satisfied with the product. Certain Gemtech products may be classified as ordnance and/or implements of war and are sold by us with the specific understanding that Gemtech has taken every reasonable precaution in providing our customers with inherently safe merchandise, and that we assume no liability whatsoever for unsafe handling by the purchaser or his agents. Gemtech assumes no responsibility whatsoever and we will honor no claims for damages, regardless of nature, for physical injury or property damage resulting from careless and/or irresponsible handling, adjustments to equipment, neglect or abuse.

Gemtech reserves the right to make changes at any time and without notice, in prices, to change specification or design, to add or remove accessory materials, and to add or delete items without incurring any obligation.

Use of ammunition that does not meet SAAMI specifications will void all warranties.

REPAIR POLICY

Gemtech maintains complete repair facilities for all suppressors manufactured by them. Return authorization and shipping instructions must be obtained prior to return. Contact Gemtech for this information.

ATF no longer requires transfer on a Form 5 to the manufacturer for repair. However, they do require a letter accompanying the weapon detailing the repairs required as well as proof of ownership. This requirement is satisfied by a photocopy of the front of the owner's Form 3, 4, or 5.

NOTE: ATF prohibits transferring the serial number to a new outer tube in the case of damage to the tube. Tube damage will require a new suppressor.

All Gemtech products are
100% manufactured in the
United States of America.

