

TM-TPRS

OPERATION AND MAINTENANCE OF SOUND SUPPRESSOR MODEL TPR-S

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

Manufactured by



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ISSUED: February 25, 2002

☆☆☆☆ **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-TPR-S

FIRST EDITION	March 1998
SECOND EDITION	September 2000
THIRD EDITION	February 2002
Updated	2017

Published by:

ATI Star Press
Antares Technologies, Inc.
P.O. Box 140618
Boise, Idaho 83714
Phone: (208) 939-7222

Illustrations pp. 9 and 11 drawn for Gemtech by Michael L. Smith

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OPERATIONAL MANUAL FOR SOUND SUPPRESSOR MODEL TPR-S™ (7.62 mm)

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☆☆☆ **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. The model TPR-S is engineered to give a lifetime of service if simple routine maintenance is performed. Please take a few minutes to read this instruction manual and keep it in a safe and convenient place.

The model TPR-S sound suppressor is designed to provide a secure and accurate quick-detach mounting system on a variety of .30 caliber (or smaller) centerfire rifles up to and including the .300 Winchester Magnum cartridge. The common mounting system is the patented Bi-Lock™ mount 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 TPR-S 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. Field grade barrels will exhibit widening of the group. When used with a varmint grade barrel and ammunition featuring flat based projectiles, the TPR-S 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.

The characteristic sound spectrum of a non-suppressed firearm is in the low frequency range of human hearing. The TPR-S suppressor utilizes advanced suppression techniques which result in a significant frequency multiplication and spectrum shift. As a result, the primary sound energy is a relatively high frequency indistinguishable from the ballistic crack and bullet flight noise. Higher frequencies cannot be perceived from as far away as lower frequencies.

This suppressor contains no expendable parts and may be cleaned by immersion in suitable solvents and oils. This instruction manual gives the necessary instructions for maintenance of this unit.

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 TPR-S 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 TPR-S 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 TPR-S 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.**

SPECIFICATIONS

Caliber:	.300 Win Mag or less
Length:	9.25 in.
Diameter:	1.375 in.
Weight:	30 ounces
Suppression level:	in excess of 26 dB*
Materials:	Stainless steel alloys
Finish:	Black Oxide

*Note: because of the frequency multiplication design of the suppressor, attenuation of sound frequencies traditionally associated with firearms is significantly greater than suggested by the sound meter. A significant portion of the sound measured by the sound level meter is beyond the range of human hearing. In addition, the suppressor generates significant amounts of masking white sound to disguise the characteristic firearms sound.

☆☆☆☆☆ **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.

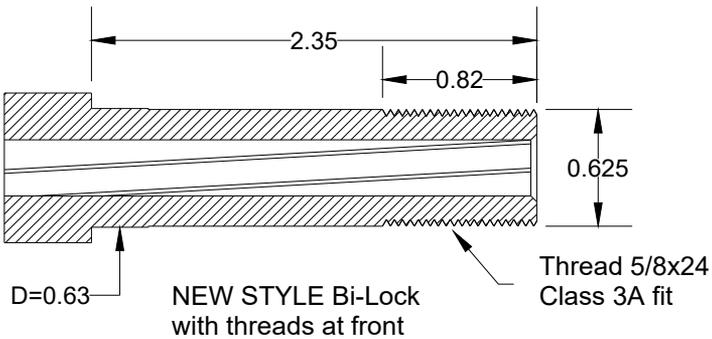
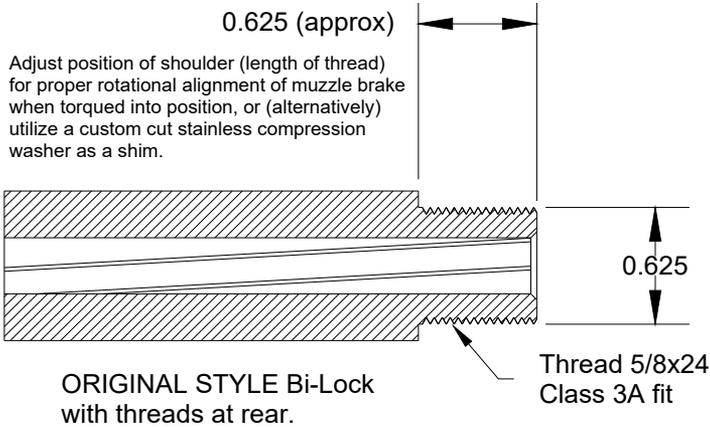
AMMUNITION

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, use of any bullet other than the above **WILL VOID THE 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. 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
Specifications, Bi-Lock TPR-S/M24 Mount

FIG 1

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 5/8x24 NEF Class 3 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.
2. Thread the muzzle of the rifle as specified in Fig 1 (P.6) for the Bi-Lock used with 5/8x24 threads (Class 3A 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 the original style Bi-Lock, the correct rotational orientation of the muzzle brake is with the lug horizontal and the muzzle brake ports slightly above center. There are several methods of achieving this orientation. Orientation of the new style Bi-Lock is non-critical.
 - 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 properly.
 - b) The second method is to custom cut a stainless steel compression washer to act as a shim. If using this method, it is important that the washer be fabricated with both sides parallel. We recommend against the use of an aluminum compression washer, because the different rate of expansion will change dimensions and tension during heating caused by shooting. This can affect group size as a function of barrel temperature.
 - c) We suggest against trying to trim the back of the Bi-Lock™ mount to achieve proper 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: There are two acceptable thread adhesives to prevent unscrewing during sustained (fully automatic) fire. These are Loctite® 620 and Rocksett. Rocksett has the higher temperature rating. For bolt action weapons, Loctite® 272 is acceptable.
6. Degrease all surfaces with acetone or MEK (methyl ethyl ketone). 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 20 and 30 ft-lbs. Allow the thread adhesive to set up for at least 72 hours before use. A special installation tool is available from Gemtech which will accept a 1/2 inch drive torque wrench. This tool may either be purchased or rented from Gemtech.

☆☆☆☆☆ **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 before use.

INSTALLATION of TPR-S Suppressor on Bi-Lock Mount

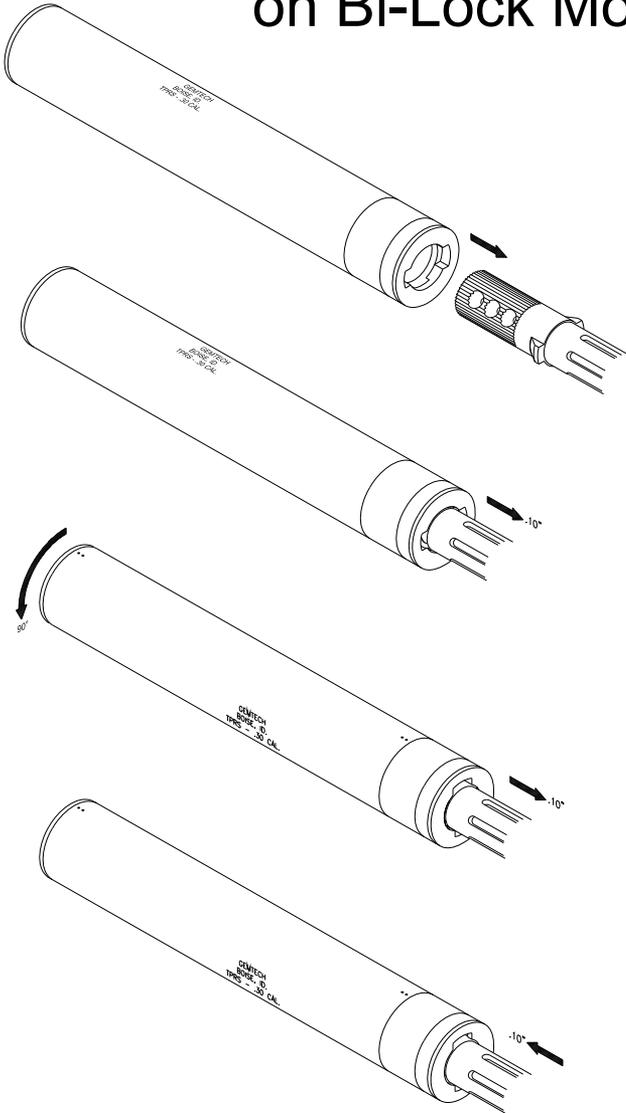


FIG 3

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 TPR-S 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.

Because the internal design of the suppressor makes complete drainage difficult, we strongly recommend against any attempt to clean the internals of the suppressor by immersion.

It is essential, however, to disassemble the mount and clean these parts on a relatively frequent basis, especially if the mount becomes “sticky” when installing or removing the suppressor.

The TPR-S suppressor body is sealed and cannot be disassembled. Attempting to do so will void the warranty and may permanently damage the suppressor.

MOUNT DISASSEMBLY and CLEANING

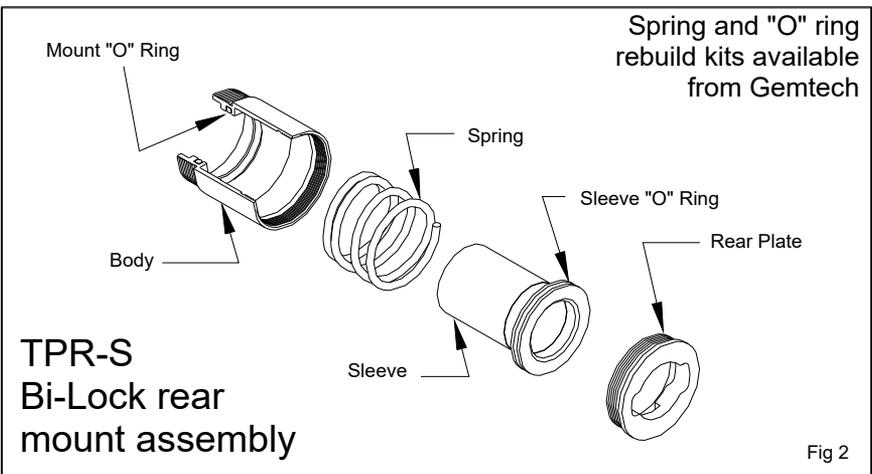
It is absolutely necessary to clean carbon buildup from the inside of the mounting sleeve. This is best performed with a piece of Red Scotch-Brite moistened with a light oil. If the mount becomes “sticky” during mounting, it must be disassembled for thorough cleaning of the movable sleeve. The mounting section can be partially disassembled if necessary to replace the Viton “O” rings in the mount or to clean the sleeve

The rear plate of the suppressor will unscrew permitting removal of the sleeve and mount spring. Although a special wrench can be fabricated, the Bi-Lock™ mount on the weapon is the ideal tool for removal or installation of the rear plate. When using the Bi-Lock™ mount as the disassembly tool, slip the suppressor onto the Bi-Lock™ without fully locking it in place. The suppressor can then be unscrewed from the rear plate.

Once the plate has been removed, the sleeve can usually be pulled out without undue difficulty. If necessary, a slide-hammer type bearing puller work can be used. The sleeve must be cleaned thoroughly, both inside and out, using red Scotch-Brite or steel wool. Before reassembly, lightly coat the “O” ring bearing surfaces with **Permatex SuperLube® with Teflon® (#82325)**. This is the approved mount lubricant.

Should replacement be necessary, the “O” ring inside the body of the mount can be picked out with a dental pick. Replacement Viton “O” rings of the proper size are available as a set from Gemtech.

No other disassembly is possible. See drawing (Fig. 3) below for details.



THREAD MOUNTING TPRS

The TPR-S suppressor is also offered in a thread mount version as a less expensive alternative to the Bi-Lock quik detach mounting system. This version has similar performance and mounts on standard 5/8x24 threads. Weighing 26 ounces, the length is 8 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.

LIMITED WARRANTY STATEMENT

Gemini Technologies, Inc., dba Gemtech, warrants to the initial retail purchaser that Gemtech products will be free of defects in workmanship or material and that the product meets manufacturing specifications at the time of manufacture. This warranty is limited to the repair or replacement of the product. This express limited warranty is exclusive and no other express or implied warranty is otherwise provided.

GEMTECH MAKES NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

Product technical specifications and/or designs may be changed without notice. This warranty does not cover negligence, misuse, careless or improper handling and/or operation, abuse, unauthorized adjustments or modifications, improper mounting/installation, ordinary wear and tear, the failure to follow manufacturer instructions and/or the use of inappropriate or defective ammunition.

Gemtech shall have no liability for incidental or consequential damages and under no circumstances will Gemtech be liable for personal injury, property damage or economic loss.

This warranty and disclaimer is subject to all applicable laws some of which may limit these terms.

WARRANTY REPAIRS: Return of a Damaged Suppressor

If a suppressor is damaged due to a manufacturing defect once it has been fired, it may be returned to Gemtech for repair or replacement. Determination to repair or replace is made solely at our discretion and only after we have had the opportunity to examine and determine that the cause of the damage is due to a manufacturing defect. It is the responsibility of the customer to cover shipping costs and insurance to return the suppressor to Gemtech for inspection or repair. Gemtech will pay any reasonable shipping and insurance costs to return the unit to you.

To assure proper legal procedures for any repair returns, fill out and provide a copy of the General Service Form with any packages sent to us.

(Visit gem-tech.com, navigate to Customer Support/Return and Repair Policies to download the fillable General Service Form.pdf or call 208.939.7222)

BATFE no longer requires transfer on a Form 5 to the manufacturer for repair. BATFE does require a letter accompanying the suppressor detailing the repairs or modifications required (satisfied by a completely filled out General Service Form). BATFE also requires proof of ownership satisfied by a photocopy of the front of the owner's Form 3, 4, or 5.

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

HUNTING NOTICE

Although more states are permitting hunting with suppressors, it is suggested that the local state Fish & Game Department be consulted for the most recent changes in local laws.

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