

TM-HALO

OPERATION AND MAINTENANCE OF SOUND SUPPRESSOR MODEL HALO

Including Classic HALO, HALO-VX (Vortex),
& HALO-GM (Government Model)

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

Manufactured by



GEMTECH
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☆ ☆ ☆ ☆ ☆ **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-HALO

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OPERATIONAL MANUAL FOR
SOUND SUPPRESSOR MODEL
HALO™ (5.56mm)

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IMPORTANT

The manufacturer disclaims any liability for damages resulting from any unauthorized modification of this product. Any modification of this suppressor without prior express authorization from Gemtech's Engineering Department will void all warranties, both written and implied, and will result in the assumption of all liability by the person performing the unauthorized modification.

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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.

SAFETY NOTES

Always handle weapons in a safe manner and assume they are loaded until they have been cleared.

User installation or removal of the sound suppressor must be accomplished in accordance with the instructions contained in this book.

Any replacement or re-installation of the standard flash compensator must be accomplished by a qualified armorer in accordance with the instructions contained in this book.

Serious injury to the user may result from an improperly installed flash compensator and/or suppressor.

☆☆☆☆☆ **DANGER** ☆☆☆☆☆

☞ **Before performing any 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.**

CHAPTER 1: INTRODUCTION

MODEL VARIATIONS

There are three different variations of the HALO suppressor: Classic, Vortex, and Government Model.

1. The original HALO (Classic) is no longer in production but may be encountered. It was intended to mount on NATO specification 22mm diameter flash hiders with lengths varying between 1.75 and 2.1 inches (which includes the A1/A2 birdcage and HK 33/53/93 flash hider).
2. The current HALO (Vortex) will mount on either the standard A1/A2 birdcage (or dimensionally similar flash-hiders/brakes) or on the SEI Vortex flash hider.
3. The Government Model HALO is more compact and designed to mount only on the US military A1 or A2 birdcage, and mounts using the rear BFA groove in these flash hiders. The HALO-GM is also available in titanium as HALO-GMT. In stainless, it is the most affordable option.

DESCRIPTION AND DATA

The HALO sound suppressor is a precision firearms sound suppressor designed to mount without tools on a standard NATO specification flash hider for weapons chambered for the 5.56x45mm NATO cartridge. The sound suppressor will reduce sound and flash signatures as well as recoil. Featuring a patented tool-free mounting system, the suppressor can be installed or removed in less than 30 seconds. Because of standard flash hider mounting, the suppressor can be interchanged between a variety of weapons chambered for the 5.56x45mm cartridge.

Because the suppressor mounts on the standard NATO specification (22 mm diameter) flash hider, there are no incompatibilities with other standard accessories as may occur with a proprietary flash compensator/mount. All variations are compatible with the KAC SOCOM suppressor mount.

All HALO suppressors are full-auto fire rated within the limits of the ammunition and host weapon.

PHYSICAL SPECIFICATIONS

	HALO (CLASSIC)	HALO (VORTEX)	HALO-GM*
Length (inch)	7.77	7.1	6.9
Diameter (inch)	1.5	1.5	1.5
Weight (ounce)	24.8	21	20
Sound Reduction	32 dB		
Finish	Black Oxide	Black Oxide	Black Oxide
Material	Stainless	Stainless	Stainless
Blast Baffle	Inconel	Inconel	Inonel
Minimum Barrel Length (in.)	10.3	10.3	10.3
Lifespan (rounds)	>25,000	>20,000	>25,000

*HALO-GMT has same specifications as HALO-GM except that weight is 12.2 ounces and material is titanium. Color will be either silver (natural) or desert earth Cerakote.

CHAPTER 2: WEAPON PREPARATION**GENERAL**

These instructions apply to the M4 carbine and other weapons in the M16 family. The compensator (flash hider) is used as a mount for the suppressor. In order to maintain proper suppressor alignment with the bore, it is **absolutely essential** that the flash hider be concentric with the bore. If it is not, alignment will be impossible. Baffle strikes from misalignment are the responsibility of the user, do not reflect a defect in the suppressor, and are **not covered under warranty**.

For there to be proper alignment, it is essential that the compensator backs against a surface that is 90° to the bore axis. Any washer that does not have perfectly parallel sides will tilt the compensator. **Lock washers and crush washers cannot provide parallel sides and will always result in misalignment.** For this reason, a shim washer set is included with the suppressor for proper clocking of the flash hider (compensator). If the compensator is already mounted with a peel washer, there is no need to re-mount. The crush washer can be easily identified by its black color and slight taper.

NEVER EVER USE A CRUSH WASHER

CAUTION

UNLOAD AND CLEAR ALL WEAPONS BEFORE BEGINNING THIS PROCEDURE! SECURE WEAPON IN A HOLDING FIXTURE. DO NOT DAMAGE THE STOCK.

REPLACING THE LOCK WASHER or CRUSH WASHER

1. Remove existing Compensator (flash hider) from the muzzle of the weapon using either the Combination Wrench (NSN 4933-00-070-9152) or a 3/4" open wrench. Remove and discard the existing crush or lock washer.
2. Clean the barrel threads of all dirt, grease, rust and other foreign matter using an approved solvent such as MEK (methyl ethyl ketone). Rust, if any, must be removed with a wire brush or steel wool. Do not let any solvents contact the stock or leak between the stock and the action.
3. The desired orientation of the A2 compensator or dimensionally similar brakes is with the non-slotted portion down. Symmetric flash hidere (A1) do not need orienting and may be mounted without shims.
4. If using the peel washer, heat the washer in a propane torch to delaminate the sections. Place the thickest portion of the peel washer or the thickest shim in the set on the barrel.
5. The compensator is screwed hand tight onto the muzzle threads and lightly snugged with the wrench. Note the relative position of the blank section of the bird cage.
6. Thin flakes of the peel washer or shims are added as needed to obtain the correct thickness. The thick flake is the rearward most part.
7. The peel washer or shim set is replaced on the barrel and the compensator is reinstalled as described above.
8. This procedure in paragraphs 5 through 7 is repeated until the compensator can be torqued to the correct location.
9. The compensator is then removed, thoroughly degreased with MEK, and 2-3 drops of Flexbar Rocksett™ ceramic thread adhesive is placed on the treads. The compensator is then torqued into its final orientation utilizing a torque wrench and either the Combination Wrench (NSN: 4933-00-070-9152) or a 3/4 inch crow foot wrench. The final torque must not be less than 35 ft/lbs nor more than 45 ft/lbs.
10. Check alignment utilizing a mounted HALO suppressor and an alignment gauge.

11. Similar procedures may be necessary with other weapons.
12. The HK weapons may require some resourcefulness in re-mounting the flash compensator if it is not concentric with the bore axis. It is essential to check alignment before using the suppressor.

CHAPTER 3: MOUNTING THE SUPPRESSOR

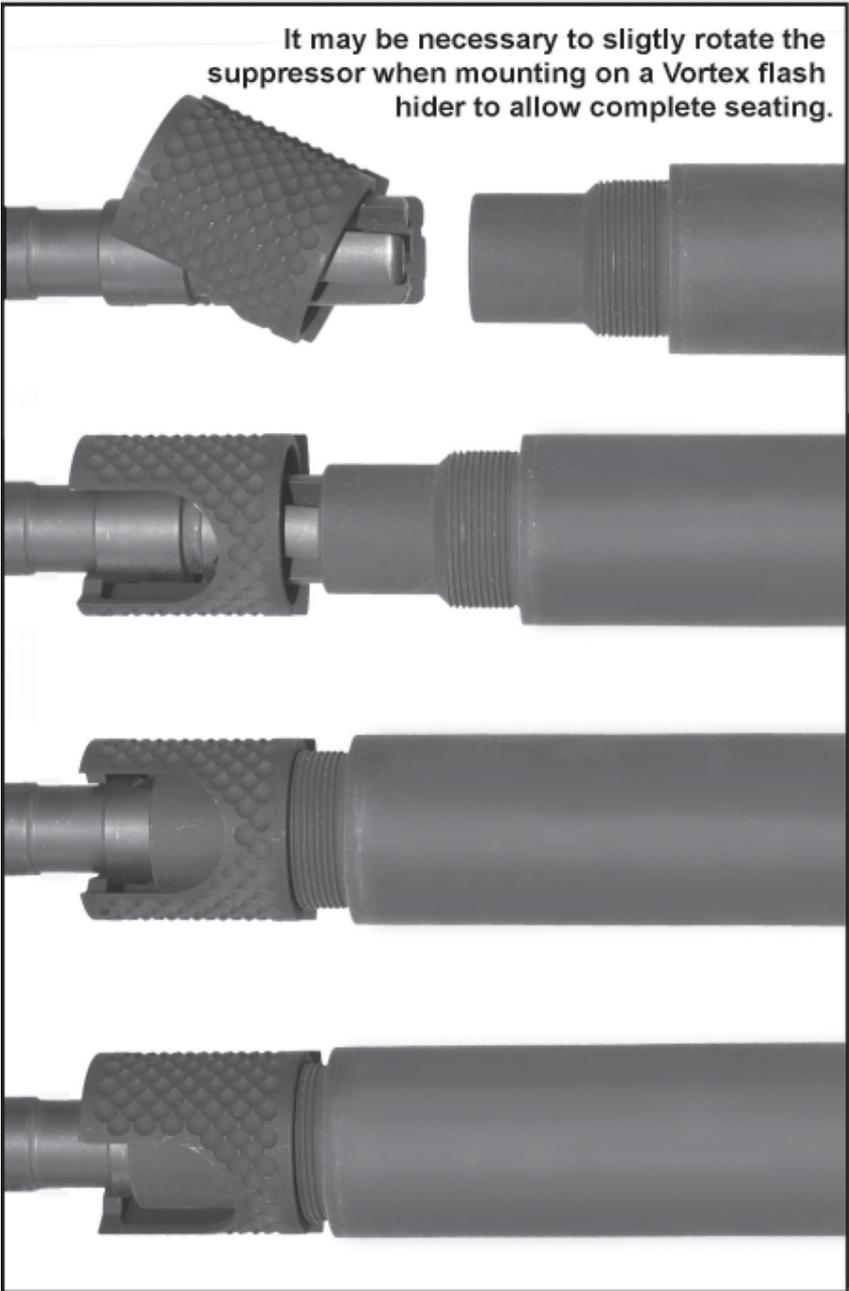
Mounting and dismounting the suppressor on the weapon varies only minimally between the HALO variants. Refer to the photos on the following pages. It may be necessary to wipe mud, sand and dust off the mating parts of the retaining collar and suppressor mount before mounting during extreme conditions.

1. Remove the closer from the suppressor.
2. Angle the closer to slide over the flash hider.
 - a) For the Classic and Vortex versions, position the closer behind the flash hider shim spacer.
 - b) For the GM (or titanium GM) version, position the closer into the rear groove just forward of the wrench flats (rear BFA groove)
3. Slide the suppressor over the flash hider and screw into the closer until snug.

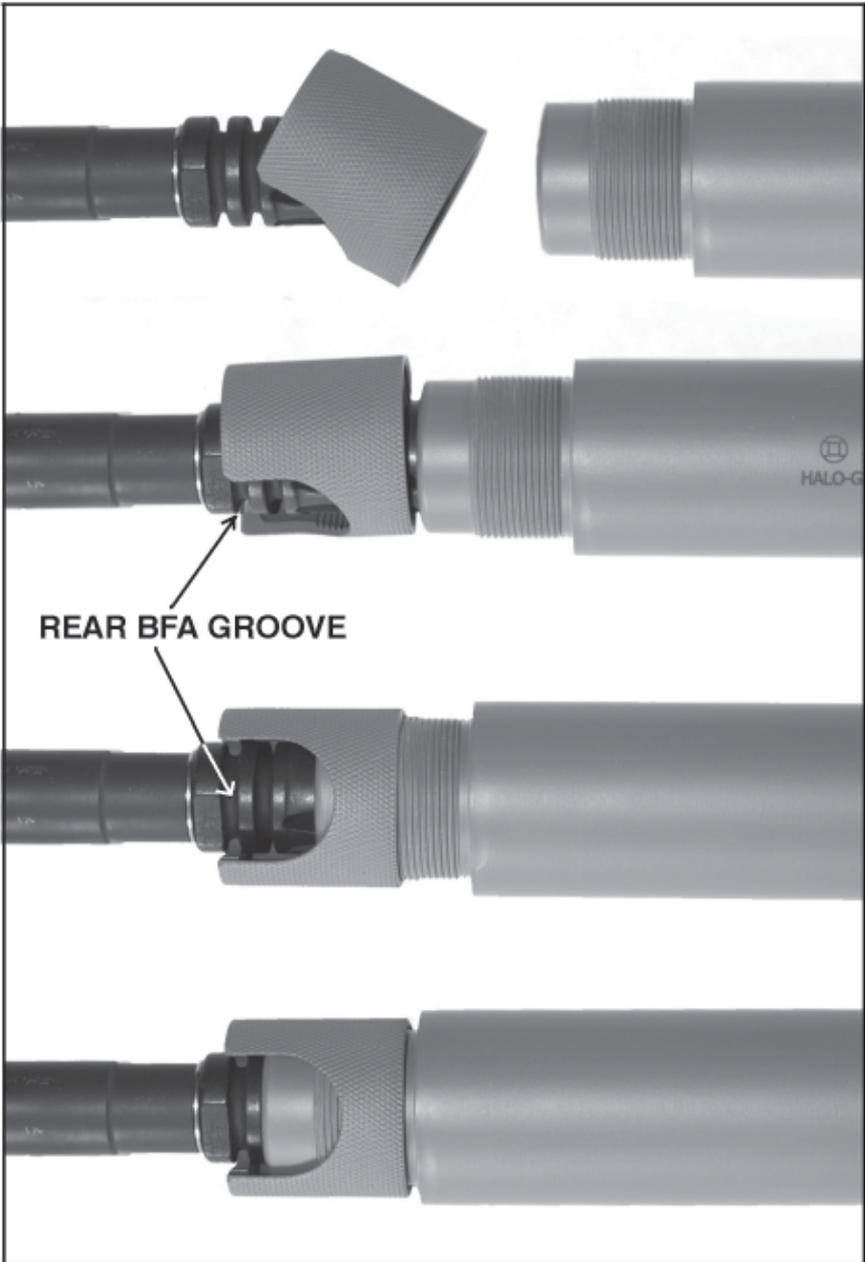


Mounting on the HALO (classic and Vortex)

It may be necessary to slightly rotate the suppressor when mounting on a Vortex flash hider to allow complete seating.



Mounting on the HALO-GM and HALO-GMT



CHAPTER 4: MAINTENANCE and TROUBLE SHOOTING

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

PMCS is performed daily while the suppressor is in use. The procedures are a systematic inspection of the system that will enable you to spot defects that might cause it to fail during a mission.

1. Weapon Flash Compensator: Check for cleanliness, including carbon build-up. Clean and lubricate with CLP or similar light oil.
2. Visually inspect the suppressor bore for foreign objects, including sand and mud. Sand or mud may be rinsed out with water, draining to the rear. Follow any immersion by immediately blowing out with a high pressure air hose until completely dry. The suppressor must not be shot with residual liquid inside. Carbon buildup in the mount may be scraped with a scraper or a brush for 3/4" copper pipe fittings, and polished with red Scotchbrite.
3. Inspect the exterior for dents and other evidence of external damage. Replace suppressor if damaged.

MAINTENANCE PROCEDURES

1. Operator maintenance consists of external inspection of components of the suppressor for serviceability and cleaning. Maintenance instructions covered elsewhere in this manual (e.g., PMCS, troubleshooting) are not repeated in this section. Specifically refer to paragraph 3.3.2 and its subparagraphs.
2. Armorer's maintenance shall consist of the installation, adjusting, gauging and replacement of the flash compensator.
3. Depot maintenance shall be provided by the manufacturer to include disassembly of the suppressor for replacement of damaged internal parts.
4. Cleaning and lubrication. The operator is responsible for keeping the suppressor exterior surface, mount, and flash compensator clean and serviceable. The interior does not require cleaning.

DO NOT make any attempt to clean the interior of the suppressor. High propellant flame temperatures minimize internal carbon build-up. Damage caused by user attempts to clean the interior of the suppressor are not covered under warranty.

TROUBLESHOOTING:

This section contains basic troubleshooting information for locating and correcting the more common issues which may develop. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections that will help to determine probable causes and corrective action to take. Perform the tests/inspections and corrective actions in the order listed. This manual cannot list all possible malfunctions that may occur, or all possible tests or inspections and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious), or is not corrected by listed corrective actions, the manufacturer should be contacted.

1. Flash Compensator loose, mis-aligned, or damaged: Re-install (or install new flash compensator) with new shim washer set (A2). If using an A1 flash compensator, no shims or washers are necessary. Gauge alignment with alignment rod or laser gauge while suppressor is mounted. See instructions pages 6 and 7 (Chapter 2).
2. Poor group size/accuracy: Inspect the front end cap. If there is evidence of damage from bullet impact or copper streaking, this is an indication of misalignment requiring re-mounting and re-gauging of the flash compensator.
3. Suppressor will not fit on Flash Compensator: Clean Flash Compensator and mating surface inside suppressor mount, lubricate with CLP or similar. Light oil or motor oil can be used as a field expedient. For cleaning the female surface inside the mount, a brush for cleaning 3/4" copper pipe fittings may be used.
4. Retaining collar will not screw suppressor tightly on flash compensator: Clean threads with solvent and lubricate. Be certain retaining collar encloses entire flash compensator (classic and vortex versions) or is engaged in the rear blank firing attachment groove for the HALO-GM versions

DESTRUCTION AND DISPOSAL:

Destruction of the HALO suppressor may be necessary to prevent its capture, utilization, or examination by hostile personnel. Techniques of disposal and destruction vary with circumstances, time available, and resources. Total destruction is preferable, as it prevents disclosure of the technology to the enemy.

- 1 Disposal at sea. The suppressor will rapidly sink to the depths of the sea, making recovery impractical.

- 2 Total destruction on land. This can be accomplished through the use of thermite grenades or high explosives. If time permits, the suppressor can be sawed into several pieces and the pieces scattered and/or buried over a wide area.
- 3 Partial destruction on land. The suppressor can be made unusable by means of small arms fire.

OPERATING TEMPERATURES:

During use, the HALO 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 rate of heat build-up approximates 7.5°F per round at an average rate of 2 rds/sec. The rate of cooling in the atmosphere increases slightly as the temperature differential between the suppressor and the ambient air increases. The elevated temperatures can pose a hazard to personnel and materials that may contact the suppressor when hot. Although **not** recommended, the suppressor can be cooled rapidly by immersion in a nonflammable liquid, such as water followed by complete drying prior to use.

CHAPTER 5: AMMUNITION and DUTY CYCLE

AMMUNITION:

1. This suppressor was specifically designed for use with M855 ball ammunition. NATO SS-109 ammunition is also suitable. Most commercial .223 ammunition will function properly in this suppressor.
2. Ammunition loaded with highly frangible projectiles is not recommended nor is damage from this ammunition covered under warranty. If necessary it may be used only in barrels having a twist rate of 1:12 or slower.
3. Subsonic ammunition is not recommended for use with this suppressor. With rare exceptions, subsonic ammunition does not stabilize properly, resulting in excessive yaw and potential baffle contact. With loose military chambers, there may not be enough pressure to properly obturate the neck, resulting in projectiles stuck in the barrel.

DUTY CYCLE/FULLY AUTOMATIC FIRE:

In the case of suppressors designed for .223 (5.56mm), there are some limitations in the duration of fully automatic fire due to shortcomings in the ammunition, not the suppressor.

5.56mm is a unique cartridge. The projectile is physically small and lightweight. The relatively high muzzle velocity causes excessive barrel heating from friction, with outside barrel temperatures exceeding 600° F in a 100 round burst. Bore temperature is considerably higher. The projectile contains a small quantity of lead, which, after a 100 round burst softens and/or melts. The softening of the lead core results in geometric instability of the projectile, causing excessive yawing, tumbling, and suppressor baffle contact. These effects are not normally seen anywhere near this early in larger caliber projectiles, such as 7.62 NATO.

Although the suppressor is capable of withstanding long bursts using ammunition not containing any lead, any lead containing 5.56mm ammunition will damage the suppressor. Because of the deleterious heating effect, most weapon manufacturers place serious limitations on sustained fully automatic fire and state that the barrel is ruined after a 200 round burst.

Limitations are ammunition limitations, and damage that results from host weapon abusive firing will not be covered under warranty.

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 insure 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.

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

