LIBERTY PRECISION MACHINE LLC

MASTER INSTALLATION MANUAL

Silencers · Muzzle Devices · Adapters · Accessories

17-4 PH Stainless Steel & Grade 5 Titanium Platforms

www.LibertyPrecisionMachine.com

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PART I

GENERAL INSTALLATION REFERENCE

Muzzle Devices · Thread Adapters · Torque Matrix · Heat Management · Cleaning

Section 1 — Safety Requirements

> ⚠ **WARNING:** Always ensure the firearm is unloaded, the action is clear, and the safety is engaged before performing any installation procedure. Never install or remove components on a loaded firearm.

The following safety requirements apply to all installation procedures in this manual:

- Confirm the firearm is unloaded — remove the magazine, lock the bolt/slide open, and visually inspect the chamber.
- Engage the safety selector before beginning any work on the firearm.
- Secure the firearm in a quality vise block before applying torque. Do not torque components while holding the firearm by hand.
- Use a calibrated torque wrench for all final torque values. Do not estimate by feel.
- Always confirm bore alignment with an alignment rod once the silencer is fully mounted before firing.
- **Never submerge a hot silencer in water to cool it.** Thermal quenching can cause irreversible damage. Allow cooling in open air only.
- **Use only ammunition for which your silencer is rated.** Use of out-of-spec ammunition could result in damage and serious injury or death.
- **Use good quality, factory-new ammunition.** Defective or reloaded ammunition can cause dangerous pressure spikes.
- Do not fire if any component is loose, improperly installed, or misaligned.

Section 2 — Tools and Materials Required

Tools

- Calibrated torque wrench (0–60 ft-lb range recommended)
- Vise block appropriate for your firearm platform
- Quality gunsmithing vise with non-marring jaws
- **Silencer tube clamp** — required for securing the silencer body when installing or removing thread adapters. Do not clamp bare tube in vise jaws.
- **11/16” socket** — for both 1/2-28 and 5/8-24 muzzle devices
- Appropriately sized socket or wrench to fit the applicable HUB mount adapter
- **Bore alignment rod** — for confirming concentricity once the silencer is mounted
- **Infrared (IR) thermometer — Recommended:** particularly for Grade 5 Ti silencers and high-volume shooting
- Isopropyl alcohol (90%+) and clean lint-free cloths
- Thread inspection pick or soft brush for cleaning threads

Thread Compounds

- **Nickel-Based Anti-Seize — Required:** for raw 416 SS barrels and all 1.375-24 adapter installations. Loctite LB 771 or equivalent rated to 2,400°F minimum.
- **Rocksett Ceramic Thread Locker — Required:** for nitrided 4140 barrel muzzle device installations only. Apply only to clean, degreased, dry threads.

NOTE: Both compounds are specified with specific intent. Do not substitute one for the other. Refer to Section 5 for the full torque and compound matrix.

Section 3 — Muzzle Device Installation

These instructions apply to all LPM muzzle devices including muzzle brakes, flash hiders, and mount-ready muzzle devices.

3.1 Determine Your Thread Compound

NOTE: Nitrided / black-nitrided 4140 steel barrel: use Rocksett. Raw or uncoated 416 SS barrel, or material unknown: use nickel anti-seize.

3.2 Preparation

1. Remove the magazine. Lock the bolt open. Confirm the firearm is unloaded. Engage the safety and secure in a vise block.
2. Remove any existing muzzle device and hardware.
3. Inspect barrel threads — clean, free of debris, carbon fouling, and residual compound. Wipe with isopropyl alcohol. Allow 60 seconds minimum to dry.
4. Inspect the muzzle device internal threads in the same manner.

3.3 Crush Washer / Shim / Direct Shoulder

⚠ **WARNING:** CRUSH WASHERS MUST NEVER BE USED ON ANY SILENCER MOUNT INTERFACE. Use a direct shoulder or flat shims only.

- **Direct shoulder (no washer) — Preferred:** torque directly to the values in Section 5.
- **Flat shim stack — Optional:** used only when a specific timing orientation is desired. Do not back off to achieve timing.

3.4 Thread Compound Application

If Using Rocksett (Nitrided 4140 Barrel):

1. Confirm threads are completely clean and dry. Any contamination prevents proper adhesion.
2. Apply a thin, even bead of Rocksett to the barrel male threads only.
3. Allow minimum 1 hour ambient cure before firing, or heat cure at 300°F for 1 hour.

If Using Nickel Anti-Seize (Raw 416 SS Barrel):

1. Apply a thin, even coat of nickel anti-seize to the barrel male threads only. Apply sparingly.
2. Thread the muzzle device on immediately and torque to specification.

3.5 Torque and Final Inspection

1. Thread the muzzle device onto the barrel by hand until snug. Stop if it does not thread smoothly.
2. Using an 11/16” socket and calibrated torque wrench, tighten to the value specified in Section 5.
3. If timing to a specific orientation, continue to the next indexed position. Do not back off.
4. Confirm the device is fully shouldered with no visible gap.

NOTE: Bore alignment with a rod is confirmed after the silencer is fully mounted to the firearm (Section 6), not at the muzzle device stage.

3.6 Post-Installation Check

After the first 5–10 rounds, allow the firearm to cool and re-check muzzle device tightness. Re-torque to specification if any movement is detected.

Section 4 — Thread Adapter Installation (Silencer-Side)

All LPM silencers use a 1.375”-24 thread on the silencer-side interface. Nickel anti-seize is the required compound for all 1.375-24 adapter installations regardless of silencer body material. Rocksett is not used at this interface.

NOTE: The 1.375-24 thread is self-locking by geometry due to its fine pitch and large diameter. Rocksett is unnecessary here.

4.1 Silencer Preparation

1. Confirm the firearm is unloaded and safe. Remove the silencer.
2. **Secure the silencer using a silencer tube clamp in a vise.** Do not clamp bare tube directly in vise jaws.
3. Inspect the 1.375-24 female threads and the adapter male threads. Clean with isopropyl alcohol and allow to dry.

4.2 Thread Compound Application

1. Apply a thin, even coat of nickel anti-seize to the male (adapter) threads only.
2. Apply sparingly. Excess will displace into the silencer interior.
3. Do not apply compound to the female (silencer) threads.

4.3 Adapter Installation

1. Thread the adapter into the rear of the silencer by hand. Should thread smoothly. If resistance is felt, stop and inspect for cross-threading.
2. Thread fully until hand-tight and shouldered.
3. Torque to specification using an appropriately sized socket for your HUB adapter and a calibrated torque wrench.
4. Confirm the adapter is fully seated with no visible gap.

NOTE: Torque: 17-4 SS silencer body: 35–45 ft-lbs. Grade 5 Ti silencer body: 28–35 ft-lbs.

4.4 Adapter Removal

With nickel anti-seize, standard reverse torque is sufficient. If unusually difficult to remove after extended high-temperature service:

- Allow the silencer to cool completely to ambient temperature.
- Apply penetrating oil at the thread interface and allow 10–15 minutes soak time.
- Use proper tooling only. Do not use pipe wrenches or improvised tools.
- Contact LPM before applying excessive force.

NOTE: Reapply fresh nickel anti-seize on every reinstallation.

Section 5 — Torque & Thread Compound Reference Matrix

Use the tables below to identify the correct torque and thread compound for your material combination.

5.1 Muzzle Device Torque Matrix

Muzzle Device	Barrel Material	Thread	Torque	Thread Compound
Nitrided 17-4	Nitrided 4140	1/2-28	15–20 ft-lbs	Rocksett
Nitrided 17-4	Nitrided 4140	5/8-24	20–28 ft-lbs	Rocksett
Nitrided 17-4	Raw 416 SS	1/2-28	15–22 ft-lbs	Nickel Anti-Seize
Nitrided 17-4	Raw 416 SS	5/8-24	22–30 ft-lbs	Nickel Anti-Seize

NOTE: Crush washers must never be used on a silencer mount interface.

5.2 Thread Adapter Torque Matrix (1.375-24)

Silencer Body	Adapter Material	Torque (1.375-24)	Thread Compound
17-4 PH SS	Nitrided 17-4	35–45 ft-lbs	Nickel Anti-Seize
17-4 PH SS	DLC-Coated Ti	35–45 ft-lbs	Nickel Anti-Seize
Grade 5 Ti	Nitrided 17-4	28–35 ft-lbs	Nickel Anti-Seize
Grade 5 Ti	DLC-Coated Ti	28–35 ft-lbs	Nickel Anti-Seize

5.3 Thread Compound Selection — Rationale

Compound	When Used	Why
Rocksett (Ceramic)	Nitrided 4140 barrel + nitrided muzzle device	Hard nitrided surfaces on dissimilar alloys carry low galling risk. The coarser muzzle device thread pitch and sustained impulse loading benefit from adhesive rotational retention. Both surfaces are protected by nitride; Rocksett adds back-drive security without sacrificing thread integrity.
Nickel Anti-Seize	Raw 416 SS barrel; all 1.375-24 adapter installations	Raw stainless threads are vulnerable to galling under high contact pressure. Nickel anti-seize provides a solid-particle barrier preventing metal-to-metal contact. Rated to 2,400°F. The 1.375-24 fine-pitch thread is self-locking by geometry; Rocksett is unnecessary and anti-seize protects the more vulnerable raw barrel thread.

NOTE: Never mix Rocksett and anti-seize on the same interface. Anti-seize contamination will prevent Rocksett from bonding.

Section 6 — Silencer Mounting to Barrel / Muzzle Device

6.1 Direct Thread Mounting

1. Remove the magazine, clear the action, confirm the chamber is empty, and engage the safety.
2. Confirm the correct adapter is installed for your barrel thread pitch.
3. **Apply a thin coat of nickel anti-seize to the barrel or muzzle device male threads.** Apply to male threads only.
4. Thread the silencer clockwise by hand. Must thread on smoothly. Do not force.
5. Thread until hand-tight and fully shouldered.
6. Insert a bore alignment rod and confirm concentricity before firing.
7. Fire 1–2 rounds and re-inspect for tightness.

⚠ **WARNING:** ALWAYS CONFIRM BORE ALIGNMENT WITH AN ALIGNMENT ROD BEFORE FIRING. Misalignment may result in a baffle strike, silencer damage, and potential injury.

6.2 Post-Firing Checks

- After the first 5–10 rounds, allow cooling and confirm the silencer is fully tightened.
- Confirm the front end cap is tight after initial heat cycling.
- **Do not touch the silencer while hot.** Never submerge in water to cool. Allow full cooling before handling.

Section 7 — Heat Management and Firing Guidelines

7.1 Grade 5 Titanium (Ti-6Al-4V) Silencers

Grade 5 Titanium (Ti-6Al-4V) is an outstanding silencer material but has lower thermal tolerance than stainless steel. Understanding and respecting these limits is essential to preserving performance and structural integrity.

7.1.1 Thermal Thresholds

Ti-6Al-4V mechanical property threshold: Measurable strength reduction begins above approximately 600°F (315°C). Above 750°F (399°C), the material enters a range of accelerated creep and potential microstructural change. Sustained exposure above these thresholds shortens service life.

🌡 **Recommended:** Invest in a quality infrared (IR) thermometer and establish a platform-specific firing schedule. Measure the exterior temperature after each string and record how long it takes to return to 150°F (65°C). That becomes your baseline cooling interval.

7.1.2 Rate of Fire

Semi-automatic use recommended. Full-auto or sustained rapid fire is not recommended. Limit strings to 5–10 rounds and allow the silencer to cool between strings. Short-barreled rifles generate more heat and require shorter strings and longer cooling intervals. An IR thermometer is the only reliable way to know where you are thermally.

7.1.3 Temperature Reference

Temperature	Action Required
Below 400°F (204°C)	Normal operation.
400–600°F (204–315°C)	Reduce rate of fire. Allow cooling between strings.
600–750°F (315–399°C)	STOP FIRING. Allow to cool below 400°F before resuming. Ti mechanical properties are degrading.
Above 750°F (399°C)	CEASE FIRE IMMEDIATELY. Allow full cooling. Inspect for damage before further use.

⚠ **WARNING:** Never submerge a hot silencer in water to cool it. Thermal quenching causes stress cracking in Ti components. Cool in open air only.

7.2 17-4 PH Stainless Steel Silencers

17-4 PH stainless steel in the H900 condition is highly thermally tolerant. LPM 17-4 silencers are fully welded and heat treated to H900, providing high strength and excellent resistance to sustained elevated temperatures.

7.2.1 Thermal Limits

Practical operating limit: 17-4 H900 retains excellent mechanical properties through approximately 800°F (427°C) for sustained use.

H900 overaging note: The H900 treatment was performed at 900°F. Sustained exposure at or above 900°F gradually overages the material toward softer H950/H1025 properties. This is a slow, cumulative process, not an acute risk, but reason to avoid prolonged full-auto strings at extreme temperatures.

Temperature monitoring: Because the silencer is painted, external surface condition is not a reliable temperature indicator. An IR thermometer is the correct tool for monitoring temperature during high-volume shooting.

7.2.2 Temperature Reference

Temperature	Action Required
Below 800°F (427°C)	Normal operating range. Continue monitoring.
800–900°F (427–482°C)	Reduce rate of fire. Approaching upper recommended limit.
Above 900°F (482°C)	CEASE FIRE. Allow full cooling. Sustained exposure above 900°F will gradually overage the H900 material. Inspect before further use.

⚠ **WARNING:** Never submerge a hot silencer in water to cool it. Thermal quenching can cause cracking and weld failure. Cool in open air only.

Section 8 — Maintenance and Cleaning

8.1 Cleaning Interval

Clean the silencer when it has gained 1–2 ounces above its clean baseline weight. Establish a baseline weight when the silencer is new. This corresponds to approximately 1,500–2,000 rounds for most centerfire cartridges, but weight gain is the definitive indicator.

> **NOTE:** Weigh with a postal or kitchen scale accurate to 0.1 oz. Record your baseline weight and date here.

8.2 Personal Protective Equipment

> ⚠ **WARNING:** Nitrile gloves are NOT safe for use with Breakthrough Technologies suppressor cleaner or CLR. Use neoprene or butyl rubber gloves (minimum 15 mil). Never clean a hot silencer.

Required PPE: Neoprene or butyl rubber chemical-resistant gloves; splash goggles or face shield. Perform cleaning in a well-ventilated area.

8.3 Cleaning Procedure

> ⚠ **WARNING:** Allow the silencer to cool completely to ambient temperature before beginning any cleaning procedure.

1. Remove the silencer from the firearm. Confirm the firearm is unloaded.
2. **Remove all nitrided components before using CLR.** CLR will damage nitrided surfaces. Nitrided adapters and end caps may be cleaned separately with Breakthrough Technologies suppressor cleaner.
3. Select your cleaning solution:

- **CLR:** effective and widely available. Do not use on nitrided components. Safe for 17-4 SS and Grade 5 Ti bodies.
- **Breakthrough Technologies Suppressor Cleaner:** purpose-formulated, compatible with nitrided components.

1. Submerge the silencer in cleaning solution. An ultrasonic cleaner is recommended.
2. **Ultrasonic note:** Cerakote surfaces must not contact metal in the tank — use plastic-lined baskets or plastic spacers. Plastic contact is fine. Repeated ultrasonic cycles may dull Cerakote cosmetically; this is aesthetic only.
3. Rinse thoroughly with clean water. Dry completely (compressed air or 200°F oven / 30 min). No moisture before reassembly.
4. Reinstall all nitrided components. Reapply nickel anti-seize to the 1.375-24 adapter threads before reinstalling.
5. Weigh after cleaning and confirm return to near-baseline weight. Record the date.

8.4 Cleaning Solution Disposal

Used cleaning solution contains lead and other firing byproducts. Do not pour down drains, into storm drains, or onto the ground.

- **CLR:** Contact your local household hazardous waste (HHW) program. Do not pour acid-based cleaners with heavy metals into municipal sewer systems.
- **Breakthrough Technologies:** Classified as oil under the Clean Water Act/OPA. Do not discharge into public waters. Contact local HHW or licensed waste disposal.
- **Regulations:** Always dispose in accordance with applicable federal, state, county, and local environmental regulations.

Section 9 — NFA Compliance and Warranty

Your LPM silencer is a National Firearms Act (NFA) regulated item. Ownership, possession, and transfer are governed by federal law and may be further restricted by state and local law.

⚠ **WARNING:** ALWAYS keep a copy of your approved ATF transfer documents with your silencer whenever transporting or using it.

9.1 Lifetime Warranty

Liberty Precision Machine LLC provides a limited lifetime warranty against all manufacturing defects and damages caused by normal use. LPM LLC will repair or replace free of charge any silencer found to have a covered manufacturing defect.

- Manufacturing defects in materials and workmanship
- Damage resulting from normal, intended use of the product

9.2 Warranty Exclusions

- Modifications not authorized by LPM LLC
- Abuse or neglect — usage outside the reasonable scope for which the product is intended
- Use of destructive, non-standard, or out-of-spec ammunition
- Criminal conduct
- Damage resulting from improper installation, including failure to follow this manual
- Thermal damage from use outside the heat management guidelines

9.3 Service and Returns

Do not ship any NFA item to LPM LLC without first contacting a representative. Include a copy of your ATF transfer documents with any shipment.

Contact: **www.LibertyPrecisionMachine.com**

The manufacturer is not responsible for damages or injuries due to misuse or unintended use of its products.

⚠ **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

PART II

SILENCER PRODUCT MANUALS

Spark .22 · Anthem · Mach · Torch 5.56 · DUTY 5.56 · COMP 6.5

Chapter 10 — Spark .22 Cal Silencer

The LPM Spark .22 is a rimfire silencer constructed with Grade 5 Titanium end caps, a Grade 9 Titanium outer tube, and 17-4 PH Stainless Steel baffles. The fully disassembleable design allows for complete cleaning of all internal components.

Chapter 10.1 Specifications

Specification	Value
Length	5.35"
Diameter	1.07"
Weight	5.2 oz
Barrel Thread	1/2–28
Caliber Rating	22LR, 22MAG, 22 HORNET, 17HMR, 17WSM, 5.7x28mm
Tube	Grade 9 Titanium
End Caps	Grade 5 Titanium
Baffles	17-4 PH Stainless Steel (x7)
Finish	C Series Graphite Black Cerakote
Front Cap Removal	15/16" socket, Dead Air Mask tool, or CGS Master Key

NOTE: The Spark .22 is NOT rated for any centerfire rifle cartridge. Rimfire and 5.7x28mm calibers only.

Chapter 10.2 Safety Notes

⚠ **WARNING:** Ensure the firearm is unloaded before beginning any installation procedure.

- Remove the magazine, lock the bolt open, and visually inspect the chamber before beginning.
- **Never submerge a hot silencer in water.** Allow cooling in open air only.
- The Spark .22 is designed for rimfire and 5.7x28mm calibers ONLY. It is NOT rated for any centerfire rifle cartridge.
- Use good quality, factory-new ammunition only.
- Confirm bore alignment after installation. Ensure the silencer is straight to the centerline of the bore before firing.

Chapter 10.3 Installation

The Spark .22 threads onto square-shouldered barrels with 1/2–28 threads up to .525" in length.

1. Inspect barrel threads — clean and free of debris. Wipe with isopropyl alcohol. Allow to fully dry.
2. **Apply a thin coat of nickel anti-seize to the barrel male threads.** Apply sparingly to the male threads only.
3. Thread the silencer clockwise onto the barrel threads. Do not cross-thread. Stop if it does not thread smoothly.
4. Thread on until hand-tight and fully shouldered against the barrel.
5. Visually confirm the silencer is straight relative to the bore centerline.
6. After the first 5–10 rounds, allow the silencer to cool and check tightness. Also confirm the front end cap is hand-tight.

Chapter 10.4 Disassembly

The Spark .22 should be disassembled and cleaned every 1,000–1,500 rounds. Rimfire fouling accumulates quickly.

⚠ **WARNING:** Allow the silencer to cool completely before disassembly.

1. Remove the silencer from the firearm.
2. Using a 15/16" socket, Dead Air Mask tool, or CGS Master Key, rotate the front end cap counterclockwise to remove.
3. Tilt the silencer so the baffle stack slides out. Be careful not to lose any of the 7 baffles. Use a wooden dowel (~3/8" diameter) to push the stack out if needed.
4. Separate the baffles for individual cleaning. Note the four baffle types and their order.

Chapter 10.5 Cleaning

⚠ **WARNING:** Nitrile gloves are NOT safe for use with CLR or Breakthrough Technologies cleaner. Use neoprene or butyl rubber gloves (minimum 15 mil). Splash goggles required.

1. Clean the baffles in an ultrasonic cleaner with CLR or Breakthrough Technologies suppressor cleaner. Standard soaking is also effective. Do not use powered wire brushes or abrasives on the baffles.
2. Clean the interior of the tube with a nylon brush and warm soapy water.
3. **Do not put the tube/end cap assembly in an ultrasonic cleaner while Cerakoted.** Ultrasonic cleaning may remove or dull the Cerakote finish over repeated cycles.
4. Rinse all components thoroughly with clean water.
5. Allow all components to air dry completely before reassembly. Do not reassemble with wet components.

NOTE: Dispose of used cleaning solution per local HHW regulations. Contains dissolved lead. Do not pour down drains.

Chapter 10.6 Reassembly

The Spark .22 contains 7 baffles in a specific order. Identify all four baffle types:

- **Blast baffle (1):** No cut through the cone-shaped center bore.
- **Skirt baffles (3):** 240° skirt on the inside rear portion of the baffle, with a cut through the bore.
- **Oval port baffles (2):** No inner skirt; small oval-shaped cutout in the straight-walled portion.
- **Rear baffle (1):** No inner skirt, oval port, and no 3-lobed lip at the rear.

1. Assemble baffles in order: 1 blast baffle → 3 skirt baffles → 2 oval port baffles → 1 rear baffle.
2. All baffles click together in one direction only. Rotate each until it clicks firmly.
3. Apply a thin coat of nickel anti-seize to the front end cap threads. Apply a light coat of high-temperature grease to the exterior of the assembled baffle stack.
4. Slide the assembled baffle stack into the tube. Align the bore cut with the serial number on the tube for consistent point-of-impact.
5. Thread the front end cap clockwise to compress the baffle stack. Tighten firmly by hand. Do not over-tighten.

Chapter 10.7 NFA Compliance and Warranty

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> ⚠ **WARNING:** ALWAYS keep a copy of your approved ATF transfer documents with your silencer whenever transporting or using it.

10.7.1 Lifetime Warranty

Liberty Precision Machine LLC provides a limited lifetime warranty against all manufacturing defects and damages caused by normal use. LPM LLC will repair or replace free of charge any silencer found to have a covered manufacturing defect.

- Manufacturing defects in materials and workmanship
- Damage resulting from normal, intended use of the product

10.7.2 Warranty Exclusions

- Modifications not authorized by LPM LLC
- Abuse or neglect — usage outside the reasonable scope for which the product is intended
- Use of destructive, non-standard, or out-of-spec ammunition
- Criminal conduct
- Damage resulting from improper installation, including failure to follow this manual
- Thermal damage from use outside the heat management guidelines

10.7.3 Service and Returns

Do not ship any NFA item to LPM LLC without first contacting a representative. Include a copy of your ATF transfer documents with any shipment.

Contact: **www.LibertyPrecisionMachine.com**

The manufacturer is not responsible for damages or injuries due to misuse or unintended use of its products.

⚠ **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Chapter 11 — Anthem Series

Anthem Series. 17-4 PH Stainless Steel .30 Cal / .375 Cal Rifle Silencer

Chapter 11.1 Product Overview

The LPM Anthem Series is constructed of 17-4 PH Stainless Steel, fully welded and heat treated to H900 condition. All structural components are fully welded and finished with C Series high temperature Cerakote. The removable front end cap has a black nitride finish.

The Anthem 38 V2 is bored for .375 caliber. All other Anthem variants are rated for .30 caliber or smaller. The Anthem series has no barrel length restrictions.

Model	Length	Weight	Caliber Rating	Barrel Restriction
Anthem-K2	5.5"	11.8 oz	.30 Cal or smaller	No restriction
Anthem-S2	6.85"	14.2 oz	.30 Cal or smaller	No restriction
Anthem-L2	9.1"	18.8 oz	.30 Cal or smaller	No restriction
Anthem 38 V2	7.2"	15.4 oz	.375 Cal or smaller	No restriction

NOTE: Weight shown is for silencer body only, without rear mount adapter.

NOTE: Full-auto rated for up to a 120 round continuous string of fire on a 10.5–12.5" 5.56x45mm NATO machine gun.

Chapter 11.2 What's Included

- LPM Anthem Series silencer
- Rearden MFG Ti Direct Thread Adapter (5/8–24)
- Additional thread adapters available at libertyprecisionmachine.com

NOTE: Additional thread adapters for other barrel thread pitches are available at libertyprecisionmachine.com.

Chapter 11.3 Safety Notes

⚠ **WARNING:** Ensure the firearm is unloaded, action clear, and safety engaged before any installation. Never install or remove components on a loaded firearm.

- **Caliber:** This silencer is rated for .30 caliber or smaller (.375 for the 38 V2). Do not use with cartridges exceeding the bore rating.
- **Ammunition:** Use good quality, factory-new ammunition only. Defective or reloaded ammunition can cause dangerous pressure spikes.

- **No water cooling:** Never submerge a hot silencer in water. Allow cooling in open air only. Thermal quenching can cause cracking and component damage.
- **Bore alignment:** Always confirm bore alignment with an alignment rod once the silencer is fully mounted before firing.

Chapter 11.4 Installation

Review Part I Sections 3–6 of this manual for complete muzzle device installation, thread adapter installation, torque specifications, and thread compound selection before proceeding.

Preparation

1. Remove the magazine. Lock the bolt open. Visually inspect the chamber. Confirm the firearm is unloaded.
2. Engage the firearm's manual safety.
3. Inspect the adapter installed in the rear of the silencer. Confirm it is correct for your barrel thread pitch and fully torqued per Part I Section 4.
4. Confirm the muzzle device is clean, properly installed, and fully torqued on the barrel.

Direct Thread Mounting

1. Confirm the firearm is unloaded and cleared.
2. **Apply a thin coat of nickel anti-seize to the barrel or muzzle device male threads.** Apply sparingly to the male threads only.
3. Thread the silencer clockwise onto the barrel or muzzle device by hand. The silencer must thread on smoothly. Do not force. If it does not thread smoothly, stop and contact LPM customer service.
4. Continue threading until the silencer is hand-tight and fully shouldered.
5. Insert a bore alignment rod through the silencer and confirm concentricity with the bore before firing.

> ⚠ **WARNING:** ALWAYS CONFIRM BORE ALIGNMENT WITH AN ALIGNMENT ROD BEFORE FIRING. Misalignment can result in a baffle strike causing serious injury.

Chapter 11.5 Post-Installation Checks

- After the first 5–10 rounds, allow the silencer to cool and re-check that it is fully tightened.
- After initial heat cycling, confirm the front end cap is tight. Use a 3/4" socket if tightening is needed.
- Periodically inspect all thread interfaces for carbon fouling and debris between range sessions.
- **Do not touch the silencer while hot.** Allow full cooling before handling.

Chapter 11.6 Heat Management

17-4 PH stainless steel in the H900 condition is highly thermally tolerant. LPM 17-4 silencers are fully welded and heat treated to H900, providing high strength and excellent resistance to sustained elevated temperatures.

Chapter 11.6.1 Thermal Limits

Practical operating limit: 17-4 H900 retains excellent mechanical properties through approximately 800°F (427°C) for sustained use.

H900 overaging note: The H900 treatment was performed at 900°F. Sustained exposure at or above 900°F gradually overages the material toward softer H950/H1025 properties. This is a slow, cumulative process, not an acute risk, but reason to avoid prolonged full-auto strings at extreme temperatures.

Temperature monitoring: Because the silencer is painted, external surface condition is not a reliable temperature indicator. An IR thermometer is the correct tool for monitoring temperature during high-volume shooting.

Chapter 11.6.2 Temperature Reference

Temperature	Action Required
Below 800°F (427°C)	Normal operating range. Continue monitoring.
800–900°F (427–482°C)	Reduce rate of fire. Approaching upper recommended limit.
Above 900°F (482°C)	CEASE FIRE. Allow full cooling. Sustained exposure above 900°F will gradually overage the H900 material. Inspect before further use.

⚠ **WARNING:** Never submerge a hot silencer in water to cool it. Thermal quenching can cause cracking and weld failure. Cool in open air only.

Chapter 11.7 Maintenance and Cleaning

Chapter 11.7.1 Cleaning Interval

Clean the silencer when it has gained 1–2 ounces above its clean baseline weight. Establish a baseline weight when the silencer is new. This corresponds to approximately 1,500–2,000 rounds for most centerfire cartridges, but weight gain is the definitive indicator.

NOTE: Weigh with a postal or kitchen scale accurate to 0.1 oz. Record your baseline weight and date here.

Chapter 11.7.2 Personal Protective Equipment

⚠ **WARNING:** Nitrile gloves are NOT safe for use with Breakthrough Technologies suppressor cleaner or CLR. Use neoprene or butyl rubber gloves (minimum 15 mil). Never clean a hot silencer.

Required PPE: Neoprene or butyl rubber chemical-resistant gloves; splash goggles or face shield. Perform cleaning in a well-ventilated area.

Chapter 11.7.3 Cleaning Procedure

⚠ **WARNING:** Allow the silencer to cool completely to ambient temperature before beginning any cleaning procedure.

1. Remove the silencer from the firearm. Confirm the firearm is unloaded.
2. **Remove all nitrided components before using CLR.** CLR will damage nitrided surfaces. Nitrided adapters and end caps may be cleaned separately with Breakthrough Technologies suppressor cleaner.
3. Select your cleaning solution:

- **CLR:** effective and widely available. Do not use on nitrided components. Safe for 17-4 SS and Grade 5 Ti bodies.
- **Breakthrough Technologies Suppressor Cleaner:** purpose-formulated, compatible with nitrided components.

1. Submerge the silencer in cleaning solution. An ultrasonic cleaner is recommended.
2. **Ultrasonic note:** Cerakote surfaces must not contact metal in the tank — use plastic-lined baskets or plastic spacers. Plastic contact is fine. Repeated ultrasonic cycles may dull Cerakote cosmetically; this is aesthetic only.
3. Rinse thoroughly with clean water. Dry completely (compressed air or 200°F oven / 30 min). No moisture before reassembly.
4. Reinstall all nitrided components. Reapply nickel anti-seize to the 1.375-24 adapter threads before reinstalling.
5. Weigh after cleaning and confirm return to near-baseline weight. Record the date.

Chapter 11.7.4 Cleaning Solution Disposal

Used cleaning solution contains lead and other firing byproducts. Do not pour down drains, into storm drains, or onto the ground.

- **CLR:** Contact your local household hazardous waste (HHW) program. Do not pour acid-based cleaners with heavy metals into municipal sewer systems.
- **Breakthrough Technologies:** Classified as oil under the Clean Water Act/OPA. Do not discharge into public waters. Contact local HHW or licensed waste disposal.
- **Regulations:** Always dispose in accordance with applicable federal, state, county, and local environmental regulations.

Chapter 11.8 NFA Compliance and Warranty

Your LPM silencer is a National Firearms Act (NFA) regulated item. Ownership, possession, and transfer are governed by federal law and may be further restricted by state and local law.

⚠ **WARNING:** ALWAYS keep a copy of your approved ATF transfer documents with your silencer whenever transporting or using it.

Chapter 11.8.1 Lifetime Warranty

Liberty Precision Machine LLC provides a limited lifetime warranty against all manufacturing defects and damages caused by normal use. LPM LLC will repair or replace free of charge any silencer found to have a covered manufacturing defect.

- Manufacturing defects in materials and workmanship
- Damage resulting from normal, intended use of the product

Chapter 11.8.2 Warranty Exclusions

- Modifications not authorized by LPM LLC
- Abuse or neglect — usage outside the reasonable scope for which the product is intended
- Use of destructive, non-standard, or out-of-spec ammunition
- Criminal conduct
- Damage resulting from improper installation, including failure to follow this manual
- Thermal damage from use outside the heat management guidelines

Chapter 11.8.3 Service and Returns

Do not ship any NFA item to LPM LLC without first contacting a representative. Include a copy of your ATF transfer documents with any shipment.

Contact: **www.LibertyPrecisionMachine.com**

The manufacturer is not responsible for damages or injuries due to misuse or unintended use of its products.

⚠ **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Chapter 12 — Anthem QD Series

Anthem QD Series. 17-4 PH Stainless Steel .30 Cal QD Rifle Silencer

Chapter 12.1 Product Overview

The LPM Anthem QD Series is constructed of 17-4 PH Stainless Steel, fully welded and heat treated to H900 condition. All structural components are fully welded and finished with C Series high temperature Cerakote. The removable front end cap has a black nitride finish.

The Anthem QD ships with the Rearden Atlas Gen 2 adapter installed and two muzzle devices: a 1/2-28 LPM Eclipse Flash Hider and a 5/8-24 LPM Liberty Bell Muzzle Brake. Install the appropriate muzzle device on the barrel before mounting the silencer.

Model	Length	Weight	Caliber Rating	Barrel Restriction
Anthem-K2 QD	5.5"	11.8 oz	.30 Cal or smaller	No restriction
Anthem-S2 QD	6.85"	14.2 oz	.30 Cal or smaller	No restriction
Anthem-L2 QD	9.1"	18.8 oz	.30 Cal or smaller	No restriction

NOTE: Weight shown is for silencer body only, without rear mount adapter.

NOTE: Full-auto rated for up to a 120 round continuous string of fire on a 10.5–12.5" 5.56x45mm NATO machine gun.

Chapter 12.2 What's Included

- LPM Anthem QD silencer with Rearden Atlas Gen 2 HUB adapter
- LPM Eclipse Flash Hider (1/2–28)
- LPM Liberty Bell Muzzle Brake (5/8–24)
- Additional muzzle devices and adapters available at libertyprecisionmachine.com

NOTE: Additional thread adapters for other barrel thread pitches are available at libertyprecisionmachine.com.

Chapter 12.3 Safety Notes

⚠ **WARNING:** Ensure the firearm is unloaded, action clear, and safety engaged before any installation. Never install or remove components on a loaded firearm.

- **Caliber:** This silencer is rated for .30 caliber or smaller. Do not use with cartridges exceeding the bore rating.
- **Ammunition:** Use good quality, factory-new ammunition only. Defective or reloaded ammunition can cause dangerous pressure spikes.

- **No water cooling:** Never submerge a hot silencer in water. Allow cooling in open air only. Thermal quenching can cause cracking and component damage.
- **Bore alignment:** Always confirm bore alignment with an alignment rod once the silencer is fully mounted before firing.

Chapter 12.4 Installation

Review Part I Sections 3–6 of this manual for complete muzzle device installation, thread adapter installation, torque specifications, and thread compound selection before proceeding.

Preparation

1. Remove the magazine. Lock the bolt open. Visually inspect the chamber. Confirm the firearm is unloaded.
2. Engage the firearm's manual safety.
3. Inspect the Atlas Gen 2 adapter installed in the rear of the silencer. Confirm it is fully seated and torqued. If the adapter has been removed, reinstall per Part I Section 4.
4. Confirm the muzzle device is clean, properly installed, and fully torqued on the barrel.

Mounting the Silencer (QD)

1. Confirm the firearm is unloaded and cleared.
2. Ensure the muzzle device taper shoulder interface is clean and free of carbon fouling.
3. Slide the silencer over the muzzle device, rotating clockwise until the threads draw the silencer securely onto the tapered surface.

> ⚠ **WARNING:** ALWAYS CONFIRM BORE ALIGNMENT WITH AN ALIGNMENT ROD BEFORE FIRING.

Chapter 12.5 Post-Installation Checks

- After the first 5–10 rounds, allow the silencer to cool and re-check that it is fully tightened.
- After initial heat cycling, confirm the front end cap is tight. Use a 3/4" socket if tightening is needed.
- Periodically inspect all thread interfaces for carbon fouling and debris between range sessions.
- **Do not touch the silencer while hot.** Allow full cooling before handling.
- For QD silencers: check that the silencer is fully seated against the taper shoulder after each mounting. Re-seat if any play is detected.

Chapter 12.6 Heat Management

17-4 PH stainless steel in the H900 condition is highly thermally tolerant. LPM 17-4 silencers are fully welded and heat treated to H900, providing high strength and excellent resistance to sustained elevated temperatures.

Chapter 12.6.1 Thermal Limits

Practical operating limit: 17-4 H900 retains excellent mechanical properties through approximately 800°F (427°C) for sustained use.

H900 overaging note: The H900 treatment was performed at 900°F. Sustained exposure at or above 900°F gradually overages the material toward softer H950/H1025 properties. This is a slow, cumulative process, not an acute risk, but reason to avoid prolonged full-auto strings at extreme temperatures.

Temperature monitoring: Because the silencer is painted, external surface condition is not a reliable temperature indicator. An IR thermometer is the correct tool for monitoring temperature during high-volume shooting.

Chapter 12.6.2 Temperature Reference

Temperature	Action Required
Below 800°F (427°C)	Normal operating range. Continue monitoring.
800–900°F (427–482°C)	Reduce rate of fire. Approaching upper recommended limit.
Above 900°F (482°C)	CEASE FIRE. Allow full cooling. Sustained exposure above 900°F will gradually overage the H900 material. Inspect before further use.

⚠ **WARNING:** Never submerge a hot silencer in water to cool it. Thermal quenching can cause cracking and weld failure. Cool in open air only.

Chapter 12.7 Maintenance and Cleaning

Chapter 12.7.1 Cleaning Interval

Clean the silencer when it has gained 1–2 ounces above its clean baseline weight. Establish a baseline weight when the silencer is new. This corresponds to approximately 1,500–2,000 rounds for most centerfire cartridges, but weight gain is the definitive indicator.

NOTE: Weigh with a postal or kitchen scale accurate to 0.1 oz. Record your baseline weight and date here.

Chapter 12.7.2 Personal Protective Equipment

⚠ **WARNING:** Nitrile gloves are NOT safe for use with Breakthrough Technologies suppressor cleaner or CLR. Use neoprene or butyl rubber gloves (minimum 15 mil). Never clean a hot silencer.

Required PPE: Neoprene or butyl rubber chemical-resistant gloves; splash goggles or face shield. Perform cleaning in a well-ventilated area.

Chapter 12.7.3 Cleaning Procedure

⚠ **WARNING:** Allow the silencer to cool completely to ambient temperature before beginning any cleaning procedure.

1. Remove the silencer from the firearm. Confirm the firearm is unloaded.
2. **Remove all nitrided components before using CLR.** CLR will damage nitrided surfaces. Nitrided adapters and end caps may be cleaned separately with Breakthrough Technologies suppressor cleaner.
3. Select your cleaning solution:

- **CLR:** effective and widely available. Do not use on nitrided components. Safe for 17-4 SS and Grade 5 Ti bodies.
- **Breakthrough Technologies Suppressor Cleaner:** purpose-formulated, compatible with nitrided components.

1. Submerge the silencer in cleaning solution. An ultrasonic cleaner is recommended.
2. **Ultrasonic note:** Cerakote surfaces must not contact metal in the tank — use plastic-lined baskets or plastic spacers. Plastic contact is fine. Repeated ultrasonic cycles may dull Cerakote cosmetically; this is aesthetic only.
3. Rinse thoroughly with clean water. Dry completely (compressed air or 200°F oven / 30 min). No moisture before reassembly.
4. Reinstall all nitrided components. Reapply nickel anti-seize to the 1.375-24 adapter threads before reinstalling.
5. Weigh after cleaning and confirm return to near-baseline weight. Record the date.

Chapter 12.7.4 Cleaning Solution Disposal

Used cleaning solution contains lead and other firing byproducts. Do not pour down drains, into storm drains, or onto the ground.

- **CLR:** Contact your local household hazardous waste (HHW) program. Do not pour acid-based cleaners with heavy metals into municipal sewer systems.
- **Breakthrough Technologies:** Classified as oil under the Clean Water Act/OPA. Do not discharge into public waters. Contact local HHW or licensed waste disposal.
- **Regulations:** Always dispose in accordance with applicable federal, state, county, and local environmental regulations.

Chapter 12.8 NFA Compliance and Warranty

Your LPM silencer is a National Firearms Act (NFA) regulated item. Ownership, possession, and transfer are governed by federal law and may be further restricted by state and local law.

⚠ **WARNING:** ALWAYS keep a copy of your approved ATF transfer documents with your silencer whenever transporting or using it.

Chapter 12.8.1 Lifetime Warranty

Liberty Precision Machine LLC provides a limited lifetime warranty against all manufacturing defects and damages caused by normal use. LPM LLC will repair or replace free of charge any silencer found to have a covered manufacturing defect.

- Manufacturing defects in materials and workmanship
- Damage resulting from normal, intended use of the product

Chapter 12.8.2 Warranty Exclusions

- Modifications not authorized by LPM LLC
- Abuse or neglect — usage outside the reasonable scope for which the product is intended
- Use of destructive, non-standard, or out-of-spec ammunition
- Criminal conduct
- Damage resulting from improper installation, including failure to follow this manual
- Thermal damage from use outside the heat management guidelines

Chapter 12.8.3 Service and Returns

Do not ship any NFA item to LPM LLC without first contacting a representative. Include a copy of your ATF transfer documents with any shipment.

Contact: **www.LibertyPrecisionMachine.com**

The manufacturer is not responsible for damages or injuries due to misuse or unintended use of its products.

⚠ **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Chapter 13 — Mach Series

Mach Series. Grade 5 Titanium .30 Cal / .375 Cal Rifle Silencer

Chapter 13.1 Product Overview

The LPM Mach Series is constructed of Grade 5 Titanium (Ti-6Al-4V), fully welded. All structural components are fully welded and finished with C Series high temperature Cerakote. The removable front end cap has a black nitride finish.

The Mach series is the Grade 5 Titanium counterpart to the Anthem series. The Mach 38 and 38L are bored for .375 caliber. Ti thermal limits apply — see the Heat Management section.

Mach-K, S, and L: muzzle brake recommended for barrels shorter than 14.5" when using supersonic ammunition.

Mach 38 and 38L: 16" minimum barrel length for .338 and .375 caliber cartridges burning more than 75 grains of powder.

Model	Length	Weight	Caliber Rating	Barrel Restriction
Mach-K	5.5"	7.4 oz	.30 Cal or smaller	No restriction; muzzle brake recommended for barrels shorter than 14.5" when using supersonic ammunition
Mach-S	6.85"	9.0 oz	.30 Cal or smaller	No restriction; muzzle brake recommended for barrels shorter than 14.5" when using supersonic ammunition
Mach-L	9.1"	11.9 oz	.30 Cal or smaller	No restriction; muzzle brake recommended for barrels shorter than 14.5" when using supersonic ammunition
Mach 38	7.2"	10.4 oz	.375 Cal or smaller	No restriction for .30 cal or smaller; 16" minimum for .338/.375 cal cartridges burning more than 75gr of powder
Mach 38L	9.45"	13.5 oz	.375 Cal or smaller	No restriction for .30 cal or smaller; 16" minimum for .338/.375 cal cartridges burning more than 75gr of powder

NOTE: Weight shown is for silencer body only, without rear mount adapter.

NOTE: Semi-automatic use is recommended. Ti thermal limits restrict sustained fire rates. See Heat Management section.

Chapter 13.2 What's Included

- LPM Mach Series silencer
- Rearden MFG Ti Direct Thread Adapter (5/8–24)

- Additional thread adapters available at libertyprecisionmachine.com

NOTE: Additional thread adapters for other barrel thread pitches are available at libertyprecisionmachine.com.

Chapter 13.3 Safety Notes

⚠ **WARNING:** Ensure the firearm is unloaded, action clear, and safety engaged before any installation. Never install or remove components on a loaded firearm.

- **Caliber:** This silencer is rated for .30 caliber or smaller (.375 for the Mach 38/38L). Do not use with cartridges exceeding the bore rating.
- **Ammunition:** Use good quality, factory-new ammunition only. Defective or reloaded ammunition can cause dangerous pressure spikes.
- **No water cooling:** Never submerge a hot silencer in water. Allow cooling in open air only. Thermal quenching can cause cracking and component damage.
- **Rate of fire:** Semi-automatic use recommended. Ti thermal limits apply — see the Heat Management section of this chapter.
- **Bore alignment:** Always confirm bore alignment with an alignment rod once the silencer is fully mounted before firing.

Chapter 13.4 Installation

Review Part I Sections 3–6 of this manual for complete muzzle device installation, thread adapter installation, torque specifications, and thread compound selection before proceeding.

Preparation

1. Remove the magazine. Lock the bolt open. Visually inspect the chamber. Confirm the firearm is unloaded.
2. Engage the firearm's manual safety.
3. Inspect the adapter installed in the rear of the silencer. Confirm it is correct for your barrel thread pitch and fully torqued per Part I Section 4.
4. Confirm the muzzle device is clean, properly installed, and fully torqued on the barrel.

Direct Thread Mounting

1. Confirm the firearm is unloaded and cleared.
2. **Apply a thin coat of nickel anti-seize to the barrel or muzzle device male threads.** Apply sparingly to the male threads only.
3. Thread the silencer clockwise onto the barrel or muzzle device by hand. The silencer must thread on smoothly. Do not force. If it does not thread smoothly, stop and contact LPM customer service.
4. Continue threading until the silencer is hand-tight and fully shouldered.
5. Insert a bore alignment rod through the silencer and confirm concentricity with the bore before firing.

⚠ **WARNING:** ALWAYS CONFIRM BORE ALIGNMENT WITH AN ALIGNMENT ROD BEFORE FIRING. Misalignment can result in a baffle strike causing serious injury.

Chapter 13.5 Post-Installation Checks

- After the first 5–10 rounds, allow the silencer to cool and re-check that it is fully tightened.
- After initial heat cycling, confirm the front end cap is tight. Use a 3/4" socket if tightening is needed.
- Periodically inspect all thread interfaces for carbon fouling and debris between range sessions.
- **Do not touch the silencer while hot.** Allow full cooling before handling.

Chapter 13.6 Heat Management

Grade 5 Titanium (Ti-6Al-4V) is an outstanding silencer material but has lower thermal tolerance than stainless steel. Understanding and respecting these limits is essential to preserving performance and structural integrity.

Chapter 13.6.1 Thermal Thresholds

Ti-6Al-4V mechanical property threshold: Measurable strength reduction begins above approximately 600°F (315°C). Above 750°F (399°C), the material enters a range of accelerated creep and potential microstructural change. Sustained exposure above these thresholds shortens service life.

🌡 **Recommended:** Invest in a quality infrared (IR) thermometer and establish a platform-specific firing schedule. Measure the exterior temperature after each string and record how long it takes to return to 150°F (65°C). That becomes your baseline cooling interval.

Chapter 13.6.2 Rate of Fire

Semi-automatic use recommended. Full-auto or sustained rapid fire is not recommended. Limit strings to 5–10 rounds and allow the silencer to cool between strings. Short-barreled rifles generate more heat and require shorter strings and longer cooling intervals. An IR thermometer is the only reliable way to know where you are thermally.

Chapter 13.6.3 Temperature Reference

Temperature	Action Required
Below 400°F (204°C)	Normal operation.
400–600°F (204–315°C)	Reduce rate of fire. Allow cooling between strings.
600–750°F (315–399°C)	STOP FIRING. Allow to cool below 400°F before resuming. Ti mechanical properties are degrading.

Temperature	Action Required
Above 750°F (399°C)	CEASE FIRE IMMEDIATELY. Allow full cooling. Inspect for damage before further use.

⚠ **WARNING:** Never submerge a hot silencer in water to cool it. Thermal quenching causes stress cracking in Ti components. Cool in open air only.

Chapter 13.7 Maintenance and Cleaning

Chapter 13.7.1 Cleaning Interval

Clean the silencer when it has gained 1–2 ounces above its clean baseline weight. Establish a baseline weight when the silencer is new. This corresponds to approximately 1,500–2,000 rounds for most centerfire cartridges, but weight gain is the definitive indicator.

NOTE: Weigh with a postal or kitchen scale accurate to 0.1 oz. Record your baseline weight and date here.

Chapter 13.7.2 Personal Protective Equipment

⚠ **WARNING:** Nitrile gloves are NOT safe for use with Breakthrough Technologies suppressor cleaner or CLR. Use neoprene or butyl rubber gloves (minimum 15 mil). Never clean a hot silencer.

Required PPE: Neoprene or butyl rubber chemical-resistant gloves; splash goggles or face shield. Perform cleaning in a well-ventilated area.

Chapter 13.7.3 Cleaning Procedure

⚠ **WARNING:** Allow the silencer to cool completely to ambient temperature before beginning any cleaning procedure.

1. Remove the silencer from the firearm. Confirm the firearm is unloaded.
2. **Remove all nitrided components before using CLR.** CLR will damage nitrided surfaces. Nitrided adapters and end caps may be cleaned separately with Breakthrough Technologies suppressor cleaner.
3. Select your cleaning solution:

- **CLR:** effective and widely available. Do not use on nitrided components. Safe for 17-4 SS and Grade 5 Ti bodies.
- **Breakthrough Technologies Suppressor Cleaner:** purpose-formulated, compatible with nitrided components.

1. Submerge the silencer in cleaning solution. An ultrasonic cleaner is recommended.
2. **Ultrasonic note:** Cerakote surfaces must not contact metal in the tank — use plastic-lined baskets or plastic spacers. Plastic contact is fine. Repeated ultrasonic cycles may dull Cerakote cosmetically; this is aesthetic only.
3. Rinse thoroughly with clean water. Dry completely (compressed air or 200°F oven / 30 min). No moisture before reassembly.
4. Reinstall all nitrided components. Reapply nickel anti-seize to the 1.375-24 adapter threads before reinstalling.
5. Weigh after cleaning and confirm return to near-baseline weight. Record the date.

Chapter 13.7.4 Cleaning Solution Disposal

Used cleaning solution contains lead and other firing byproducts. Do not pour down drains, into storm drains, or onto the ground.

- **CLR:** Contact your local household hazardous waste (HHW) program. Do not pour acid-based cleaners with heavy metals into municipal sewer systems.
- **Breakthrough Technologies:** Classified as oil under the Clean Water Act/OPA. Do not discharge into public waters. Contact local HHW or licensed waste disposal.
- **Regulations:** Always dispose in accordance with applicable federal, state, county, and local environmental regulations.

Chapter 13.8 NFA Compliance and Warranty

Your LPM silencer is a National Firearms Act (NFA) regulated item. Ownership, possession, and transfer are governed by federal law and may be further restricted by state and local law.

⚠ **WARNING:** ALWAYS keep a copy of your approved ATF transfer documents with your silencer whenever transporting or using it.

Chapter 13.8.1 Lifetime Warranty

Liberty Precision Machine LLC provides a limited lifetime warranty against all manufacturing defects and damages caused by normal use. LPM LLC will repair or replace free of charge any silencer found to have a covered manufacturing defect.

- Manufacturing defects in materials and workmanship
- Damage resulting from normal, intended use of the product

Chapter 13.8.2 Warranty Exclusions

- Modifications not authorized by LPM LLC
- Abuse or neglect — usage outside the reasonable scope for which the product is intended
- Use of destructive, non-standard, or out-of-spec ammunition

- Criminal conduct
- Damage resulting from improper installation, including failure to follow this manual
- Thermal damage from use outside the heat management guidelines

Chapter 13.8.3 Service and Returns

Do not ship any NFA item to LPM LLC without first contacting a representative. Include a copy of your ATF transfer documents with any shipment.

Contact: **www.LibertyPrecisionMachine.com**

The manufacturer is not responsible for damages or injuries due to misuse or unintended use of its products.

⚠ **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Chapter 14 — Torch 5.56 Series

Torch 5.56 Series. 17-4 PH Stainless Steel 5.56/6mm Caliber Rifle Silencer

Chapter 14.1 Product Overview

The LPM Torch 5.56 Series is constructed of 17-4 PH Stainless Steel, fully welded and heat treated to H900 condition. All structural components are fully welded and finished with C Series high temperature Cerakote. The removable front end cap has a black nitride finish.

The Torch 5.56 features both solid and vented removable front end caps finished in black nitride.

The Torch 5.56 QD ships with the Rearden Atlas Gen 2 HUB adapter and one LPM Eclipse Flash Hider (1/2–28). Install the included flash hider on the barrel per the LPM Master Installation Manual before mounting the silencer.

Minimum barrel length: 7.5" for all Torch 5.56 variants.

Model	Length	Weight	Caliber Rating	Barrel Restriction
Torch 5.56	6.2"	14.0 oz	6mm or smaller	7.5" minimum
Torch 5.56 QD	6.2"	14.0 oz	6mm or smaller	7.5" minimum

NOTE: Weight shown is for silencer body only, without rear mount adapter.

NOTE: Full-auto rated for up to a 120 round continuous string of fire on a 10.5–12.5" 5.56x45mm NATO machine gun.

Chapter 14.2 What's Included

- Torch 5.56: LPM Torch 5.56 silencer, Rearden MFG Ti Direct Thread Adapter (1/2–28)
- Torch 5.56 QD: LPM Torch 5.56 QD silencer, Rearden Atlas Gen 2 HUB adapter, LPM Eclipse Flash Hider (1/2–28)
- Additional thread adapters and muzzle devices available at libertyprecisionmachine.com

NOTE: Additional thread adapters for other barrel thread pitches are available at libertyprecisionmachine.com.

Chapter 14.3 Safety Notes

⚠ **WARNING:** Ensure the firearm is unloaded, action clear, and safety engaged before any installation. Never install or remove components on a loaded firearm.

- **Caliber:** The Torch 5.56 is rated for 6mm caliber or smaller, including 5.56 NATO and .223 Remington. Minimum barrel length: 7.5".
- **Ammunition:** Use good quality, factory-new ammunition only. Defective or reloaded ammunition can cause dangerous pressure spikes.

- **No water cooling:** Never submerge a hot silencer in water. Allow cooling in open air only. Thermal quenching can cause cracking and component damage.
- **Bore alignment:** Always confirm bore alignment with an alignment rod once the silencer is fully mounted before firing.

Chapter 14.4 Installation

Review Part I Sections 3–6 of this manual for complete muzzle device installation, thread adapter installation, torque specifications, and thread compound selection before proceeding.

Preparation

1. Remove the magazine. Lock the bolt open. Visually inspect the chamber. Confirm the firearm is unloaded.
2. Engage the firearm's manual safety.
3. Inspect the adapter installed in the rear of the silencer. Confirm it is correct for your barrel thread pitch and fully torqued per Part I Section 4.
4. Confirm the muzzle device is clean, properly installed, and fully torqued on the barrel.

Direct Thread Mounting

1. Confirm the firearm is unloaded and cleared.
2. **Apply a thin coat of nickel anti-seize to the barrel or muzzle device male threads.** Apply sparingly to the male threads only.
3. Thread the silencer clockwise onto the barrel or muzzle device by hand. The silencer must thread on smoothly. Do not force. If it does not thread smoothly, stop and contact LPM customer service.
4. Continue threading until the silencer is hand-tight and fully shouldered.
5. Insert a bore alignment rod through the silencer and confirm concentricity with the bore before firing.

> ⚠ **WARNING:** ALWAYS CONFIRM BORE ALIGNMENT WITH AN ALIGNMENT ROD BEFORE FIRING. Misalignment can result in a baffle strike causing serious injury.

Chapter 14.5 Post-Installation Checks

- After the first 5–10 rounds, allow the silencer to cool and re-check that it is fully tightened.
- After initial heat cycling, confirm the front end cap is tight. Use a 3/4" socket if tightening is needed.
- Periodically inspect all thread interfaces for carbon fouling and debris between range sessions.
- **Do not touch the silencer while hot.** Allow full cooling before handling.

Chapter 14.6 Heat Management

17-4 PH stainless steel in the H900 condition is highly thermally tolerant. LPM 17-4 silencers are fully welded and heat treated to H900, providing high strength and excellent resistance to sustained elevated temperatures.

Chapter 14.6.1 Thermal Limits

Practical operating limit: 17-4 H900 retains excellent mechanical properties through approximately 800°F (427°C) for sustained use.

H900 overaging note: The H900 treatment was performed at 900°F. Sustained exposure at or above 900°F gradually overages the material toward softer H950/H1025 properties. This is a slow, cumulative process, not an acute risk, but reason to avoid prolonged full-auto strings at extreme temperatures.

Temperature monitoring: Because the silencer is painted, external surface condition is not a reliable temperature indicator. An IR thermometer is the correct tool for monitoring temperature during high-volume shooting.

Chapter 14.6.2 Temperature Reference

Temperature	Action Required
Below 800°F (427°C)	Normal operating range. Continue monitoring.
800–900°F (427–482°C)	Reduce rate of fire. Approaching upper recommended limit.
Above 900°F (482°C)	CEASE FIRE. Allow full cooling. Sustained exposure above 900°F will gradually overage the H900 material. Inspect before further use.

⚠ **WARNING:** Never submerge a hot silencer in water to cool it. Thermal quenching can cause cracking and weld failure. Cool in open air only.

Chapter 14.7 Maintenance and Cleaning

Chapter 14.7.1 Cleaning Interval

Clean the silencer when it has gained 1–2 ounces above its clean baseline weight. Establish a baseline weight when the silencer is new. This corresponds to approximately 1,500–2,000 rounds for most centerfire cartridges, but weight gain is the definitive indicator.

NOTE: Weigh with a postal or kitchen scale accurate to 0.1 oz. Record your baseline weight and date here.

Chapter 14.7.2 Personal Protective Equipment

⚠ **WARNING:** Nitrile gloves are NOT safe for use with Breakthrough Technologies suppressor cleaner or CLR. Use neoprene or butyl rubber gloves (minimum 15 mil). Never clean a hot silencer.

Required PPE: Neoprene or butyl rubber chemical-resistant gloves; splash goggles or face shield. Perform cleaning in a well-ventilated area.

Chapter 14.7.3 Cleaning Procedure

⚠ **WARNING:** Allow the silencer to cool completely to ambient temperature before beginning any cleaning procedure.

1. Remove the silencer from the firearm. Confirm the firearm is unloaded.
2. **Remove all nitrided components before using CLR.** CLR will damage nitrided surfaces. Nitrided adapters and end caps may be cleaned separately with Breakthrough Technologies suppressor cleaner.
3. Select your cleaning solution:

- **CLR:** effective and widely available. Do not use on nitrided components. Safe for 17-4 SS and Grade 5 Ti bodies.
- **Breakthrough Technologies Suppressor Cleaner:** purpose-formulated, compatible with nitrided components.

1. Submerge the silencer in cleaning solution. An ultrasonic cleaner is recommended.
2. **Ultrasonic note:** Cerakote surfaces must not contact metal in the tank — use plastic-lined baskets or plastic spacers. Plastic contact is fine. Repeated ultrasonic cycles may dull Cerakote cosmetically; this is aesthetic only.
3. Rinse thoroughly with clean water. Dry completely (compressed air or 200°F oven / 30 min). No moisture before reassembly.
4. Reinstall all nitrided components. Reapply nickel anti-seize to the 1.375-24 adapter threads before reinstalling.
5. Weigh after cleaning and confirm return to near-baseline weight. Record the date.

Chapter 14.7.4 Cleaning Solution Disposal

Used cleaning solution contains lead and other firing byproducts. Do not pour down drains, into storm drains, or onto the ground.

- **CLR:** Contact your local household hazardous waste (HHW) program. Do not pour acid-based cleaners with heavy metals into municipal sewer systems.
- **Breakthrough Technologies:** Classified as oil under the Clean Water Act/OPA. Do not discharge into public waters. Contact local HHW or licensed waste disposal.
- **Regulations:** Always dispose in accordance with applicable federal, state, county, and local environmental regulations.

Chapter 14.8 NFA Compliance and Warranty

Your LPM silencer is a National Firearms Act (NFA) regulated item. Ownership, possession, and transfer are governed by federal law and may be further restricted by state and local law.

⚠ **WARNING:** ALWAYS keep a copy of your approved ATF transfer documents with your silencer whenever transporting or using it.

Chapter 14.8.1 Lifetime Warranty

Liberty Precision Machine LLC provides a limited lifetime warranty against all manufacturing defects and damages caused by normal use. LPM LLC will repair or replace free of charge any silencer found to have a covered manufacturing defect.

- Manufacturing defects in materials and workmanship
- Damage resulting from normal, intended use of the product

Chapter 14.8.2 Warranty Exclusions

- Modifications not authorized by LPM LLC
- Abuse or neglect — usage outside the reasonable scope for which the product is intended
- Use of destructive, non-standard, or out-of-spec ammunition
- Criminal conduct
- Damage resulting from improper installation, including failure to follow this manual
- Thermal damage from use outside the heat management guidelines

Chapter 14.8.3 Service and Returns

Do not ship any NFA item to LPM LLC without first contacting a representative. Include a copy of your ATF transfer documents with any shipment.

Contact: **www.LibertyPrecisionMachine.com**

The manufacturer is not responsible for damages or injuries due to misuse or unintended use of its products.

⚠ **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Chapter 15 — DUTY 5.56

DUTY 5.56. 17-4 PH Stainless Steel Duty Rifle Silencer

Chapter 15.1 Product Overview

The LPM DUTY 5.56 is constructed of 17-4 PH Stainless Steel, fully welded and heat treated to H900 condition. All structural components are fully welded and finished with C Series high temperature Cerakote. The removable front end cap has a black nitride finish.

The DUTY 5.56 is a compact, full-auto rated silencer designed for demanding duty and defensive applications. Its short profile minimizes system length while maintaining durability and sound reduction.

Model	Length	Weight	Caliber Rating	Barrel Restriction
DUTY 5.56	5.1"	11.7 oz	5.56mm or smaller	7.5" minimum

NOTE: Weight shown is for silencer body only, without rear mount adapter.

NOTE: Full-auto rated for sustained duty and defensive applications.

Chapter 15.2 What's Included

- LPM DUTY 5.56 silencer
- Rearden MFG Ti Direct Thread Adapter (1/2–28)
- Additional thread adapters available at libertyprecisionmachine.com

NOTE: Additional thread adapters for other barrel thread pitches are available at libertyprecisionmachine.com.

Chapter 15.3 Safety Notes

⚠ **WARNING:** Ensure the firearm is unloaded, action clear, and safety engaged before any installation. Never install or remove components on a loaded firearm.

- **Caliber:** The DUTY 5.56 is rated for 5.56mm NATO and smaller cartridges. Minimum barrel length: 7.5".
- **Ammunition:** Use good quality, factory-new ammunition only. Defective or reloaded ammunition can cause dangerous pressure spikes.
- **No water cooling:** Never submerge a hot silencer in water. Allow cooling in open air only. Thermal quenching can cause cracking and component damage.
- **Bore alignment:** Always confirm bore alignment with an alignment rod once the silencer is fully mounted before firing.

Chapter 15.4 Installation

Review Part I Sections 3–6 of this manual for complete muzzle device installation, thread adapter installation, torque specifications, and thread compound selection before proceeding.

Preparation

1. Remove the magazine. Lock the bolt open. Visually inspect the chamber. Confirm the firearm is unloaded.
2. Engage the firearm's manual safety.
3. Inspect the adapter installed in the rear of the silencer. Confirm it is correct for your barrel thread pitch and fully torqued per Part I Section 4.
4. Confirm the muzzle device is clean, properly installed, and fully torqued on the barrel.

Direct Thread Mounting

1. Confirm the firearm is unloaded and cleared.
2. **Apply a thin coat of nickel anti-seize to the barrel or muzzle device male threads.** Apply sparingly to the male threads only.
3. Thread the silencer clockwise onto the barrel or muzzle device by hand. The silencer must thread on smoothly. Do not force. If it does not thread smoothly, stop and contact LPM customer service.
4. Continue threading until the silencer is hand-tight and fully shouldered.
5. Insert a bore alignment rod through the silencer and confirm concentricity with the bore before firing.

> ⚠ **WARNING:** ALWAYS CONFIRM BORE ALIGNMENT WITH AN ALIGNMENT ROD BEFORE FIRING. Misalignment can result in a baffle strike causing serious injury.

Chapter 15.5 Post-Installation Checks

- After the first 5–10 rounds, allow the silencer to cool and re-check that it is fully tightened.
- After initial heat cycling, confirm the front end cap is tight. Use a 3/4" socket if tightening is needed.
- Periodically inspect all thread interfaces for carbon fouling and debris between range sessions.
- **Do not touch the silencer while hot.** Allow full cooling before handling.

Chapter 15.6 Heat Management

17-4 PH stainless steel in the H900 condition is highly thermally tolerant. LPM 17-4 silencers are fully welded and heat treated to H900, providing high strength and excellent resistance to sustained elevated temperatures.

Chapter 15.6.1 Thermal Limits

Practical operating limit: 17-4 H900 retains excellent mechanical properties through approximately 800°F (427°C) for sustained use.

H900 overaging note: The H900 treatment was performed at 900°F. Sustained exposure at or above 900°F gradually overages the material toward softer H950/H1025 properties. This is a slow, cumulative process, not an acute risk, but reason to avoid prolonged full-auto strings at extreme temperatures.

Temperature monitoring: Because the silencer is painted, external surface condition is not a reliable temperature indicator. An IR thermometer is the correct tool for monitoring temperature during high-volume shooting.

Chapter 15.6.2 Temperature Reference

Temperature	Action Required
Below 800°F (427°C)	Normal operating range. Continue monitoring.
800–900°F (427–482°C)	Reduce rate of fire. Approaching upper recommended limit.
Above 900°F (482°C)	CEASE FIRE. Allow full cooling. Sustained exposure above 900°F will gradually overage the H900 material. Inspect before further use.

⚠ **WARNING:** Never submerge a hot silencer in water to cool it. Thermal quenching can cause cracking and weld failure. Cool in open air only.

Chapter 15.7 Maintenance and Cleaning

Chapter 15.7.1 Cleaning Interval

Clean the silencer when it has gained 1–2 ounces above its clean baseline weight. Establish a baseline weight when the silencer is new. This corresponds to approximately 1,500–2,000 rounds for most centerfire cartridges, but weight gain is the definitive indicator.

NOTE: Weigh with a postal or kitchen scale accurate to 0.1 oz. Record your baseline weight and date here.

Chapter 15.7.2 Personal Protective Equipment

⚠ **WARNING:** Nitrile gloves are NOT safe for use with Breakthrough Technologies suppressor cleaner or CLR. Use neoprene or butyl rubber gloves (minimum 15 mil). Never clean a hot silencer.

Required PPE: Neoprene or butyl rubber chemical-resistant gloves; splash goggles or face shield. Perform cleaning in a well-ventilated area.

Chapter 15.7.3 Cleaning Procedure

⚠ **WARNING:** Allow the silencer to cool completely to ambient temperature before beginning any cleaning procedure.

1. Remove the silencer from the firearm. Confirm the firearm is unloaded.
2. **Remove all nitrided components before using CLR.** CLR will damage nitrided surfaces. Nitrided adapters and end caps may be cleaned separately with Breakthrough Technologies suppressor cleaner.
3. Select your cleaning solution:

- **CLR:** effective and widely available. Do not use on nitrided components. Safe for 17-4 SS and Grade 5 Ti bodies.
- **Breakthrough Technologies Suppressor Cleaner:** purpose-formulated, compatible with nitrided components.

1. Submerge the silencer in cleaning solution. An ultrasonic cleaner is recommended.
2. **Ultrasonic note:** Cerakote surfaces must not contact metal in the tank — use plastic-lined baskets or plastic spacers. Plastic contact is fine. Repeated ultrasonic cycles may dull Cerakote cosmetically; this is aesthetic only.
3. Rinse thoroughly with clean water. Dry completely (compressed air or 200°F oven / 30 min). No moisture before reassembly.
4. Reinstall all nitrided components. Reapply nickel anti-seize to the 1.375-24 adapter threads before reinstalling.
5. Weigh after cleaning and confirm return to near-baseline weight. Record the date.

Chapter 15.7.4 Cleaning Solution Disposal

Used cleaning solution contains lead and other firing byproducts. Do not pour down drains, into storm drains, or onto the ground.

- **CLR:** Contact your local household hazardous waste (HHW) program. Do not pour acid-based cleaners with heavy metals into municipal sewer systems.
- **Breakthrough Technologies:** Classified as oil under the Clean Water Act/OPA. Do not discharge into public waters. Contact local HHW or licensed waste disposal.
- **Regulations:** Always dispose in accordance with applicable federal, state, county, and local environmental regulations.

Chapter 15.8 NFA Compliance and Warranty

Your LPM silencer is a National Firearms Act (NFA) regulated item. Ownership, possession, and transfer are governed by federal law and may be further restricted by state and local law.

⚠ **WARNING:** ALWAYS keep a copy of your approved ATF transfer documents with your silencer whenever transporting or using it.

Chapter 15.8.1 Lifetime Warranty

Liberty Precision Machine LLC provides a limited lifetime warranty against all manufacturing defects and damages caused by normal use. LPM LLC will repair or replace free of charge any silencer found to have a covered manufacturing defect.

- Manufacturing defects in materials and workmanship
- Damage resulting from normal, intended use of the product

Chapter 15.8.2 Warranty Exclusions

- Modifications not authorized by LPM LLC
- Abuse or neglect — usage outside the reasonable scope for which the product is intended
- Use of destructive, non-standard, or out-of-spec ammunition
- Criminal conduct
- Damage resulting from improper installation, including failure to follow this manual
- Thermal damage from use outside the heat management guidelines

Chapter 15.8.3 Service and Returns

Do not ship any NFA item to LPM LLC without first contacting a representative. Include a copy of your ATF transfer documents with any shipment.

Contact: **www.LibertyPrecisionMachine.com**

The manufacturer is not responsible for damages or injuries due to misuse or unintended use of its products.

⚠ **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Chapter 16 — COMP 6.5

COMP 6.5. 17-4 PH Stainless Steel Competition Silencer

Chapter 16.1 Product Overview

The LPM COMP 6.5 is constructed of 17-4 PH Stainless Steel, fully welded and heat treated to H900 condition. All structural components are fully welded and finished with C Series high temperature Cerakote. The removable front end cap has a black nitride finish.

The COMP 6.5 is specifically designed for PRS (Precision Rifle Series) and similar precision competition formats. Its intentionally heavy design (21.8 oz) brings the balance point forward, providing maximum inertial resistance and recoil reduction to help competitors spot their own impacts.

Not recommended for hunting. Optimized for recoil reduction and impact spotting in competition.

Your COMP 6.5 ships with the MBEC (Muzzle Brake End Cap) installed. The MBEC adds lateral muzzle brake ports to reduce muzzle rise. If the MBEC needs to be removed or reinstalled, refer to Part III Chapter 22.

Model	Length	Weight	Caliber Rating	Barrel Restriction
COMP 6.5	7.2"	21.8 oz	6.5mm or smaller	7.5" minimum

NOTE: Weight shown is for silencer body only, without rear mount adapter.

NOTE: Designed for precision, bolt-action, and precision semi-auto platforms. Full-auto or rapid fire is not recommended.

Chapter 16.2 What's Included

- LPM COMP 6.5 silencer
- Rearden MFG Ti Direct Thread Adapter (5/8–24)
- MBEC (Muzzle Brake End Cap) — included and installed

NOTE: Additional thread adapters for other barrel thread pitches are available at libertyprecisionmachine.com.

Chapter 16.3 Safety Notes

⚠ **WARNING:** Ensure the firearm is unloaded, action clear, and safety engaged before any installation. Never install or remove components on a loaded firearm.

- **Caliber:** The COMP 6.5 is rated for 6.5mm caliber or smaller including 6.5 Creedmoor and 6.5 PRC. Minimum barrel length: 7.5".
- **Ammunition:** Use good quality, factory-new ammunition only. Defective or reloaded ammunition can cause dangerous pressure spikes.

- **No water cooling:** Never submerge a hot silencer in water. Allow cooling in open air only. Thermal quenching can cause cracking and component damage.
- **Bore alignment:** Always confirm bore alignment with an alignment rod once the silencer is fully mounted before firing.

Chapter 16.4 Installation

Review Part I Sections 3–6 of this manual for complete muzzle device installation, thread adapter installation, torque specifications, and thread compound selection before proceeding.

Preparation

1. Remove the magazine. Lock the bolt open. Visually inspect the chamber. Confirm the firearm is unloaded.
2. Engage the firearm's manual safety.
3. Inspect the adapter installed in the rear of the silencer. Confirm it is correct for your barrel thread pitch and fully torqued per Part I Section 4.
4. Confirm the muzzle device is clean, properly installed, and fully torqued on the barrel.

Direct Thread Mounting

1. Confirm the firearm is unloaded and cleared.
2. **Apply a thin coat of nickel anti-seize to the barrel or muzzle device male threads.** Apply sparingly to the male threads only.
3. Thread the silencer clockwise onto the barrel or muzzle device by hand. The silencer must thread on smoothly. Do not force. If it does not thread smoothly, stop and contact LPM customer service.
4. Continue threading until the silencer is hand-tight and fully shouldered.
5. Insert a bore alignment rod through the silencer and confirm concentricity with the bore before firing.

> ⚠ **WARNING:** ALWAYS CONFIRM BORE ALIGNMENT WITH AN ALIGNMENT ROD BEFORE FIRING. Misalignment can result in a baffle strike causing serious injury.

Chapter 16.5 Post-Installation Checks

- After the first 5–10 rounds, allow the silencer to cool and re-check that it is fully tightened.
- After initial heat cycling, confirm the front end cap is tight. Use a 3/4" socket if tightening is needed.
- Periodically inspect all thread interfaces for carbon fouling and debris between range sessions.
- **Do not touch the silencer while hot.** Allow full cooling before handling.

Chapter 16.6 Heat Management

17-4 PH stainless steel in the H900 condition is highly thermally tolerant. LPM 17-4 silencers are fully welded and heat treated to H900, providing high strength and excellent resistance to sustained elevated temperatures.

Chapter 16.6.1 Thermal Limits

Practical operating limit: 17-4 H900 retains excellent mechanical properties through approximately 800°F (427°C) for sustained use.

H900 overaging note: The H900 treatment was performed at 900°F. Sustained exposure at or above 900°F gradually overages the material toward softer H950/H1025 properties. This is a slow, cumulative process, not an acute risk, but reason to avoid prolonged full-auto strings at extreme temperatures.

Temperature monitoring: Because the silencer is painted, external surface condition is not a reliable temperature indicator. An IR thermometer is the correct tool for monitoring temperature during high-volume shooting.

Chapter 16.6.2 Temperature Reference

Temperature	Action Required
Below 800°F (427°C)	Normal operating range. Continue monitoring.
800–900°F (427–482°C)	Reduce rate of fire. Approaching upper recommended limit.
Above 900°F (482°C)	CEASE FIRE. Allow full cooling. Sustained exposure above 900°F will gradually overage the H900 material. Inspect before further use.

⚠ **WARNING:** Never submerge a hot silencer in water to cool it. Thermal quenching can cause cracking and weld failure. Cool in open air only.

Chapter 16.7 Maintenance and Cleaning

Chapter 16.7.1 Cleaning Interval

Clean the silencer when it has gained 1–2 ounces above its clean baseline weight. Establish a baseline weight when the silencer is new. This corresponds to approximately 1,500–2,000 rounds for most centerfire cartridges, but weight gain is the definitive indicator.

NOTE: Weigh with a postal or kitchen scale accurate to 0.1 oz. Record your baseline weight and date here.

Chapter 16.7.2 Personal Protective Equipment

⚠ **WARNING:** Nitrile gloves are NOT safe for use with Breakthrough Technologies suppressor cleaner or CLR. Use neoprene or butyl rubber gloves (minimum 15 mil). Never clean a hot silencer.

Required PPE: Neoprene or butyl rubber chemical-resistant gloves; splash goggles or face shield. Perform cleaning in a well-ventilated area.

Chapter 16.7.3 Cleaning Procedure

⚠ **WARNING:** Allow the silencer to cool completely to ambient temperature before beginning any cleaning procedure.

1. Remove the silencer from the firearm. Confirm the firearm is unloaded.
2. **Remove all nitrided components before using CLR.** CLR will damage nitrided surfaces. Nitrided adapters and end caps may be cleaned separately with Breakthrough Technologies suppressor cleaner.
3. Select your cleaning solution:

- **CLR:** effective and widely available. Do not use on nitrided components. Safe for 17-4 SS and Grade 5 Ti bodies.
- **Breakthrough Technologies Suppressor Cleaner:** purpose-formulated, compatible with nitrided components.

1. Submerge the silencer in cleaning solution. An ultrasonic cleaner is recommended.
2. **Ultrasonic note:** Cerakote surfaces must not contact metal in the tank — use plastic-lined baskets or plastic spacers. Plastic contact is fine. Repeated ultrasonic cycles may dull Cerakote cosmetically; this is aesthetic only.
3. Rinse thoroughly with clean water. Dry completely (compressed air or 200°F oven / 30 min). No moisture before reassembly.
4. Reinstall all nitrided components. Reapply nickel anti-seize to the 1.375-24 adapter threads before reinstalling.
5. Weigh after cleaning and confirm return to near-baseline weight. Record the date.

Chapter 16.7.4 Cleaning Solution Disposal

Used cleaning solution contains lead and other firing byproducts. Do not pour down drains, into storm drains, or onto the ground.

- **CLR:** Contact your local household hazardous waste (HHW) program. Do not pour acid-based cleaners with heavy metals into municipal sewer systems.
- **Breakthrough Technologies:** Classified as oil under the Clean Water Act/OPA. Do not discharge into public waters. Contact local HHW or licensed waste disposal.
- **Regulations:** Always dispose in accordance with applicable federal, state, county, and local environmental regulations.

Chapter 16.8 NFA Compliance and Warranty

Your LPM silencer is a National Firearms Act (NFA) regulated item. Ownership, possession, and transfer are governed by federal law and may be further restricted by state and local law.

⚠ **WARNING:** ALWAYS keep a copy of your approved ATF transfer documents with your silencer whenever transporting or using it.

Chapter 16.8.1 Lifetime Warranty

Liberty Precision Machine LLC provides a limited lifetime warranty against all manufacturing defects and damages caused by normal use. LPM LLC will repair or replace free of charge any silencer found to have a covered manufacturing defect.

- Manufacturing defects in materials and workmanship
- Damage resulting from normal, intended use of the product

Chapter 16.8.2 Warranty Exclusions

- Modifications not authorized by LPM LLC
- Abuse or neglect — usage outside the reasonable scope for which the product is intended
- Use of destructive, non-standard, or out-of-spec ammunition
- Criminal conduct
- Damage resulting from improper installation, including failure to follow this manual
- Thermal damage from use outside the heat management guidelines

Chapter 16.8.3 Service and Returns

Do not ship any NFA item to LPM LLC without first contacting a representative. Include a copy of your ATF transfer documents with any shipment.

Contact: **www.LibertyPrecisionMachine.com**

The manufacturer is not responsible for damages or injuries due to misuse or unintended use of its products.

⚠ **California Proposition 65 Warning:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

PART III

COMPONENT INSTALLATION GUIDES

Flash Hiders · Muzzle Brakes · End Caps · Thread Adapters · Thread Protectors · MBEC

Chapter 17 — Eclipse Flash Hiders

Installation guide for all LPM Eclipse flash hider variants.

Chapter 17.1 Products Covered

- LPM Eclipse Flash Hider (1/2–28 and 5/8–24)
- LPM Eclipse-L Flash Hider (1/2–28 and 5/8–24)
- LPM Eclipse 13.7" Pin-and-Weld Flash Hider (1/2-28 and 5/8-24)
- LPM Eclipse 14.5" Pin-and-Weld Flash Hider (1/2-28 and 5/8-24)

Chapter 17.2 Tools and Materials

- Calibrated torque wrench (0–60 ft-lb range)
- Vise block appropriate for your firearm platform
- 11/16" socket (for all LPM flash hiders)
- Isopropyl alcohol (90%+) and lint-free cloths
- Nickel anti-seize (raw 416 SS barrels) or Rocksett (nitrided 4140 barrels)
- Flat shim stack if timing orientation is desired (optional)

Chapter 17.3 Installation

All LPM Eclipse flash hiders are nitrided 17-4 PH stainless steel. Pin-and-weld variants follow the same procedure but are permanently installed — confirm final timing before welding.

NOTE: Nitrided 4140 barrel: use Rocksett. Raw 416 SS barrel or unknown material: use nickel anti-seize.

⚠ **WARNING:** NEVER USE A CRUSH WASHER ON A SILENCER MOUNT INTERFACE. Use flat shims or a direct shoulder only.

1. Remove the magazine. Lock the bolt open. Confirm the firearm is unloaded. Engage the safety and secure in a vise block.
2. Remove any existing muzzle device. Clean barrel threads and wipe with isopropyl alcohol. Allow 60 seconds minimum to dry.
3. If timing orientation is desired, select the appropriate flat shim stack. If no timing is desired, use a direct shoulder.
4. Apply thread compound to barrel male threads only. Rocksett: thin bead, minimum 1 hour ambient cure. Nickel anti-seize: thin coat, install immediately.
5. Thread the flash hider on by hand until snug. Using an 11/16" socket and calibrated torque wrench, tighten to specification.
6. If timing, continue to the next indexed position. Do not back off to achieve timing.
7. Confirm the device is fully shouldered with no visible gap.

NOTE: Pin-and-weld variants: confirm final timing orientation before permanently welding. Once welded, the installation is irreversible.

Chapter 17.4 Torque Reference

Barrel Material	Thread	Torque	Thread Compound
Nitrided 4140	1/2–28	15–20 ft-lbs	Rocksett
Nitrided 4140	5/8–24	20–28 ft-lbs	Rocksett
Raw 416 SS	1/2–28	15–22 ft-lbs	Nickel Anti-Seize
Raw 416 SS	5/8–24	22–30 ft-lbs	Nickel Anti-Seize

Chapter 18 — Liberty Bell & Baby Bell Muzzle Brakes

Installation guide for all LPM muzzle brake variants.

Chapter 18.1 Products Covered

- LPM Liberty Bell Muzzle Brake (1/2–28 and 5/8–24)
- LPM Baby Bell Muzzle Brake (1/2–28 and 5/8–24)

Chapter 18.2 Tools and Materials

- Calibrated torque wrench (0–60 ft-lb range)
- Vise block appropriate for your firearm platform
- 11/16" socket (for all LPM muzzle brakes)
- Isopropyl alcohol (90%+) and lint-free cloths
- Nickel anti-seize (raw 416 SS barrels) or Rocksett (nitrided 4140 barrels)
- Flat shim stack if timing orientation is desired (optional)

Chapter 18.3 Installation

LPM muzzle brakes are nitrided 17-4 PH stainless steel. The Liberty Bell and Baby Bell share the same installation procedure. The Baby Bell is a compact version of the Liberty Bell — installation is identical.

NOTE: LPM muzzle brakes do not require specific timing for standard use. A direct shoulder is the preferred method for silencer-mount applications.

⚠ **WARNING:** NEVER USE A CRUSH WASHER ON A SILENCER MOUNT INTERFACE. Use flat shims or a direct shoulder only.

1. Remove the magazine. Lock the bolt open. Confirm the firearm is unloaded. Engage the safety and secure in a vise block.
2. Remove any existing muzzle device. Clean barrel threads and wipe with isopropyl alcohol. Allow 60 seconds minimum to dry.
3. Apply thread compound to barrel male threads only. Rocksett: thin bead, minimum 1 hour ambient cure. Nickel anti-seize: thin coat, install immediately.
4. Thread the muzzle brake on by hand until snug. Using an 11/16" socket and calibrated torque wrench, tighten to specification.
5. Confirm the device is fully shouldered with no visible gap.

Chapter 18.4 Torque Reference

Barrel Material	Thread	Torque	Thread Compound
Nitrided 4140	1/2–28	15–20 ft-lbs	Rocksett
Nitrided 4140	5/8–24	20–28 ft-lbs	Rocksett
Raw 416 SS	1/2–28	15–22 ft-lbs	Nickel Anti-Seize
Raw 416 SS	5/8–24	22–30 ft-lbs	Nickel Anti-Seize

Chapter 19 — Front End Caps

Installation and removal guide for all LPM front end cap variants.

Chapter 19.1 Products Covered

- Front End Cap — Standard .30 CAL
- Front End Cap — 6.5mm CAL / .312" Bore
- Front End Cap — .375 CAL
- Front End Cap — 6mm Vented

Chapter 19.2 Tools and Materials

- 3/4" socket
- Silencer tube clamp (required)
- Quality gunsmithing vise with non-marring jaws
- Nickel anti-seize (for thread lubrication on reassembly)

NOTE: Always confirm the bore of the new end cap matches or exceeds the caliber of your host firearm before installation. Installing a smaller-bore end cap on a larger-caliber host firearm will cause an end cap strike.

Chapter 19.3 Removal

1. Remove the silencer from the firearm. Allow it to cool completely.
2. Secure the silencer using a silencer tube clamp in a vise. Do not clamp bare tube directly in vise jaws.
3. Using a 3/4" socket, rotate the front end cap counterclockwise to remove.
4. Inspect the threads on both the end cap and the silencer tube for debris or damage. Clean as needed with isopropyl alcohol.

Chapter 19.4 Installation

1. Apply a thin coat of nickel anti-seize to the end cap threads.
2. Thread the new end cap into the silencer clockwise by hand until snug.
3. Using a 3/4" socket and calibrated torque wrench, torque the end cap to 60 in-lbs (5 ft-lbs).
4. Confirm the end cap is fully shouldered with no visible gap.

⚠ **WARNING:** Never fire the silencer without confirming that the front end cap bore is clear and properly aligned with the bore centerline.

Chapter 20 — Thread Adapters

Installation guide for all LPM thread adapter variants.

Chapter 20.1 Products Covered

- Rearden MFG Ti Direct Thread Adapter — standard with all LPM direct-thread silencers (silencer-side)
- Rearden Atlas Gen 2 HUB Adapter — standard with all LPM QD silencers (silencer-side)
- LPM 1/2–28 to 5/8–24 Thread Adapter — sold separately (barrel-side)

Chapter 20.2 Tools and Materials

- Calibrated torque wrench (0–60 ft-lb range)
- Silencer tube clamp (required for silencer-side installation)
- Quality gunsmithing vise with non-marring jaws
- Vise block (for barrel-side adapter installation)
- Appropriately sized socket or wrench for HUB adapter
- 13/16" socket — for the LPM 1/2–28 to 5/8–24 barrel adapter
- Nickel anti-seize
- Rocksett (for nitrided 4140 barrels, barrel-side adapter only)
- Isopropyl alcohol (90%+) and lint-free cloths

Chapter 20.3 Silencer-Side Adapter Installation (Rearden DTA and Atlas Gen 2)

> **NOTE:** Torque: 17-4 SS silencer body: 35–45 ft-lbs. Grade 5 Ti silencer body: 28–35 ft-lbs. Apply nickel anti-seize to male adapter threads only.

1. Remove the silencer from the firearm. Allow to cool completely.
2. Secure the silencer using a silencer tube clamp in a vise. Do not clamp bare tube directly in vise jaws.
3. Inspect the 1.375-24 female threads and the adapter male threads. Clean with isopropyl alcohol and allow to dry.
4. Apply a thin, even coat of nickel anti-seize to the adapter male threads only.
5. Thread the adapter into the rear of the silencer by hand. Should thread smoothly. Stop and inspect for cross-threading if resistance is felt.
6. Torque to specification using an appropriately sized socket and calibrated torque wrench.
7. Confirm the adapter is fully seated with no visible gap.

Chapter 20.4 Silencer-Side Adapter Removal

1. Allow the silencer to cool to ambient temperature.
2. Secure the silencer in the tube clamp. Apply reverse torque to loosen. Standard reverse torque is sufficient with nickel anti-seize.

3. If unusually difficult to remove, apply penetrating oil and allow 10–15 minutes soak time.
4. Do not use pipe wrenches or improvised tools. Contact LPM before applying excessive force.

NOTE: Reapply fresh nickel anti-seize on every reinstallation.

Chapter 20.5 Barrel-Side Adapter Installation (1/2–28 to 5/8–24)

The LPM 1/2–28 to 5/8–24 thread adapter threads onto the barrel like a muzzle device, converting a 1/2–28 barrel to a 5/8–24 interface.

NOTE: Thread compound follows barrel material: nitrided 4140 — use Rocksett. Raw 416 SS or unknown — use nickel anti-seize.

1. Remove the magazine. Lock the bolt open. Confirm the firearm is unloaded. Engage the safety and secure in a vise block.
2. Remove any existing muzzle device. Clean barrel threads and wipe with isopropyl alcohol. Allow 60 seconds to dry.
3. Apply thread compound to barrel male threads only.
4. Thread the adapter onto the barrel by hand until snug. Using a 13/16" socket and calibrated torque wrench, tighten to specification.
5. Confirm the adapter is fully shouldered with no visible gap.

Chapter 20.6 Barrel-Side Adapter Torque Reference

Barrel Material	Torque	Thread Compound
Nitrided 4140	15–20 ft-lbs	Rocksett
Raw 416 SS	15–22 ft-lbs	Nickel Anti-Seize

Chapter 21 — Thread Protectors

Installation guide for the LPM Plan-B thread protector.

Chapter 21.1 Products Covered

- LPM Thread Protector — .9"-24 (Plan-B thread pattern and taper)

Chapter 21.2 Tools and Materials

- Hands only — hand-tight installation; no torque wrench required

The LPM Thread Protector is constructed of 17-4 H900 stainless steel with a black nitride finish. It threads onto Plan-B compatible muzzle devices (such as the LPM Eclipse Flash Hider) when a QD silencer is not installed, protecting the exposed Plan-B interface threads and taper from damage and fouling.

> **NOTE:** The thread protector must be removed before mounting a compatible QD silencer. Never attempt to mount a silencer with the thread protector installed.

Chapter 21.3 Installation

1. Confirm the QD silencer is NOT installed on the muzzle device.
2. Clean the Plan-B threads and taper on the muzzle device if needed.
3. Thread the thread protector clockwise onto the muzzle device by hand until snug. Hand-tight is sufficient.
4. Confirm the protector is fully seated on the taper interface.

Chapter 21.4 Removal Before Silencer Mounting

1. Rotate the thread protector counterclockwise by hand to remove.
2. Inspect the Plan-B threads and taper on the muzzle device. Clean any fouling before mounting the silencer.
3. Store the thread protector safely when the silencer is in use.

Chapter 22 — MBEC

Muzzle Brake End Cap — Installation Guide.

Chapter 22.1 Products Covered

- MBEC — LPM 1"-24 thread (for LPM Anthem, Mach, Torch, DUTY, COMP series) — includes MBEC wrench
- MBEC — Dead Air front end cap thread — includes MBEC wrench
- MBEC — OCL Infinity thread — wrench supplied by OCL with the Infinity silencer

Chapter 22.2 Tools and Materials

- 3/4" socket — required only for removing an existing standard LPM front end cap
- MBEC wrench (included with LPM and Dead Air MBEC variants) — for MBEC installation
- OCL-supplied wrench (for OCL Infinity MBEC variant only)
- Silencer tube clamp (required)
- Quality gunsmithing vise with non-marring jaws
- Nickel anti-seize

⚠ **WARNING:** The MBEC is recommended for PRS and precision competition use only. It is NOT recommended for hunting. The MBEC vents muzzle gas laterally through brake ports, significantly increasing concussive blast to the sides. Use only in appropriate competition settings.

NOTE: Select the correct MBEC SKU for your silencer. LPM silencers use the LPM 1"-24 variant. Confirm thread compatibility before purchase.

Chapter 22.3 Removing the Existing Standard Front End Cap

A 3/4" socket is required for this step only. If your silencer already has an MBEC installed, skip to Chapter 22.4.

1. Remove the silencer from the firearm. Allow it to cool completely.
2. Secure the silencer using a silencer tube clamp in a vise.
3. Using a 3/4" socket, rotate the existing standard front end cap counterclockwise to remove. Store it safely.
4. Inspect the front end cap threads on the silencer tube. Clean with isopropyl alcohol and allow to dry.

Chapter 22.4 Installing the MBEC

NOTE: The MBEC wrench does not have a provision for a torque wrench. The target is 60 in-lbs (5 ft-lbs) — firm but not excessive. Tighten by feel using the MBEC wrench.

1. Apply a thin coat of nickel anti-seize to the MBEC threads.
2. Thread the MBEC clockwise into the silencer tube by hand until snug.
3. **LPM / Dead Air variant:** using the included MBEC wrench, tighten to approximately 60 in-lbs (5 ft-lbs) by feel. Firmly seated with no play.
4. **OCL Infinity variant:** using the OCL-supplied wrench, tighten to approximately 60 in-lbs (5 ft-lbs) by feel.
5. Confirm the MBEC is fully seated against the tapered surface. A small gap between the MBEC and the front face of the silencer body may be visible on LPM and Dead Air variants — this is normal and expected.
6. Confirm the bore through the MBEC is clear and properly aligned.

⚠ **WARNING:** Never fire the silencer without confirming the MBEC bore is clear and properly aligned. Lateral brake ports will vent gas sideways during firing.

Chapter 22.5 Restoring the Standard Front End Cap

To remove the MBEC: use the MBEC wrench to loosen and remove. Clean threads and apply fresh nickel anti-seize to the standard end cap threads. Reinstall using a 3/4" socket and calibrated torque wrench at 60 in-lbs (5 ft-lbs).