



Installation and Use Instructions for RIFLESPEED AR15/AR10 Gas Controls

Installation by a gunsmith or qualified armorer is recommended. Instructions below are for retrofit or new installation. See videos on the RIFLESPEED YouTube channel or at www.riflespeed.com

Work Objectives:

1. Properly install RIFLESPEED Gas Control assembly on your barrel
2. Understand operation and adjustment of RIFLESPEED Gas Control
3. Determine proper settings for your RIFLESPEED Gas Control

Tools and Supplies Required:

1. 3/32 Inch Hex Wrench (Included)
2. 5/64 Inch Roll-Pin Holder (for Gas-Tube Roll-Pin)
3. 5/64 Inch Roll-Pin Punch (for Gas-Tube Roll-Pin)
4. Hammer
5. Bench Block or Vice with Non-Marring Jaws
6. High-Temperature Thread Locking Compound (Rocksett, Vibratite 137, or equivalent)
7. MAPP Torch (if removing fasteners that were installed with high-temperature thread locker)
8. 5/32 Inch Roll Pin Punch (for optional Barrel Cross-Pin)

Installation Instructions:

1. Insure firearm is unloaded and no ammunition is present in work area
2. Remove Bolt Carrier Group (if present)
3. Insure bore is free from obstruction
4. Remove muzzle device if larger in diameter than gas block journal
5. If retrofitting existing barrel assembly equipped with low-profile style gas block, verify that existing gas block set screws can be accessed with handguard in place
 - A. If so, removing the handguard is optional (note: inserting gas tube into receiver is easier without handguard)
 - B. If not, you'll need to remove the handguard
 - C. If you wish to dimple your barrel for the rear set screw, you'll need to remove your handguard
6. Unfasten existing gas block by loosening the set screws and removing the barrel cross-pin (if pin is present)
 - A. If set screws have been installed with high-temperature thread locker, use of a MAPP torch may be required to break screws free
7. Slide existing gas block toward muzzle until gas block can be removed from barrel
8. If retrofitting a barrel with a milspec-style front sight base, seek the help of a gunsmith or qualified armorer
9. Examine the barrel's gas port for excessive erosion (teardrop shape) or obstruction
 - A. Replace barrel if excessive wear is observed or obstruction can't be removed
10. Examine exterior of barrel around and opposite gas port for burrs, galling, or other damage. Previously installed set screws often leave burrs
 - A. Remove any burrs, if necessary. Lightly filing or sanding burrs until flush with barrel surface is adequate. Small burrs may be tapped flush with a small smooth-faced hammer if desired
11. Use the **Nomenclature Diagram** and **Package Contents Layout Diagram** to help conduct this process. Inspect your RIFLESPEED Gas Control assembly and package contents to locate the components listed on the **Package Contents Layout Diagram** included with these instructions. The corresponding letters within each block will be used throughout the installation instructions.
 - A. Gas Control Assembly (assembled length varies by model)
 - B. #10-32 Set Screws (Quantity 2)
 - C. 5/32" x 3/4" Coiled Spring Pin (Barrel Cross-Pin)
 - D. 5/64" x 5/16" Slotted Spring Pin (Gas-Tube roll-pin)
 - E. Plunger #937
 - F. 3/32" L-Shaped Hex Wrench
12. If retrofitting an existing barrel assembly, installation of a new RIFLESPEED Gas Tube is required. RIFLESPEED Gas

Controls use a straight Gas Tube rather than the bent gas tubes found on most rifles. RIFLESPEED Gas Tubes are sold separately at www.riflespeed.com. Installing a new Gas-Tube Roll Pin **(D)** is also required. A new Gas-Tube Roll Pin **(D)** is included within the contents of your Gas Control Assembly retail package and an additional Gas-Tube Roll Pin is included with each RIFLESPEED Straight Gas Tube you purchase.

13. Insert closed end of gas tube into Gas-Tube Aperture on rear of RIFLESPEED Gas Control Body (See **Nomenclature Diagram**) with Gas Port facing the barrel.
14. Align cross-pin hole in gas tube with gas-tube-pin hole in Gas Control Body (See **Exploded View Diagram**)
15. Confirm that your gas tube's gas port is visible through the rearmost set screw hole (See **Nomenclature Diagram**) of your RIFLESPEED Gas Control. This verifies proper installation of your gas tube.
16. Install 5/64" x 5/16" Gas-Tube Roll Pin **(D)** through Gas Control Body and gas tube, ensuring even positioning of the pin from each side
17. Use a chemical degreaser to remove oil from set screws **(B)** and set screw holes (See **Nomenclature Diagram**) in Gas Control Body
18. Loosely install set screws **(B)** into Gas Control Body so the screws do not protrude inside the Primary Bore (See **Nomenclature Diagram**)
19. If your barrel is not dimpled for the rearmost set screw, use a RIFLESPEED alignment tool or drilling fixture to mark and/or dimple your barrel for the rear set screw of your RIFLESPEED Gas Control
20. Slide Gas Control assembly with installed gas tube onto barrel until the Gas Aperture (See **Nomenclature Diagram**) in your Gas Control Body is positioned over your barrel's gas port. The gas tube will be inserted into the upper receiver during this process.
21. If your barrel is dimpled for set screws, align the rearmost dimple on your barrel with the rearmost set screw of your Gas Control Assembly
22. If no alignment or dimpling jig is available, insure alignment with your barrel's gas port by visually aligning Gas Control Assembly with vertical axis of weapon. The Gas Aperture inside your Gas Control is centered at 0.295" from the rear face of the Gas Control Body. Compare this measurement to the center of the gas port on your barrel to insure alignment. The Gas Aperture in your Gas Control Body is larger than the gas port in your barrel, so minor misalignment won't restrict gas flow. Misalignment can affect the interaction between your gas tube and the key on your bolt carrier so attempt to align everything as precisely as possible.
23. The set screws **(B)** on your Gas Control are spaced 0.450" apart. If you choose to dimple barrel for both screws, use this spacing. Dimpling both locations is optional, but is suggested.
24. Tighten rear set screw **(B)** into dimple or against barrel
25. Visually confirm that the alignment of your Gas Control Assembly is undisturbed
26. Remove front set screw **(B)** and apply **high-temperature** thread locker to threads
27. Lightly wipe away excess thread locker. Allow thread locker to cure according to manufacturer's recommendations
28. Reinstall front set screw **(B)**. Tighten screws by applying firm torque to long arm of hex wrench with a thumb and two fingers
29. Remove rear set screw **(B)** and apply **high-temperature** thread locker to threads
30. Lightly wipe away excess thread locker, if necessary. Allow thread locker to cure according to manufacturer's recommendations
31. Reinstall rear set screw **(B)** by applying firm torque to long arm of hex wrench with a thumb and two fingers
32. Dial your Control Knob to position #6. Confirm and note of the number of Rotation Indicator Grooves (See **Exploded View Diagram**) visible on your Plunger. The number of visible grooves indicates which of its two Rotation Ranges your Gas Control is currently configured to use. Gas Controls are delivered in Rotation Range #1 from the factory. This is the correct range for most configurations, and all 5.56x45mm configurations identified during development of the RIFLESPEED Gas System. During this development, a very small number of firearm configurations were found to need a bit more gas than most other configurations. For this reason, a second rotation range has been engineered into your RIFLESPEED Gas Control. Use of Rotation Range Two allows more gas into the action of your firearm. More information on Rotation Ranges and Gas Control setup is detailed in the **Instructions for Use** section.
33. Reinstall handguard (if applicable)
34. Reinstall muzzle device (if applicable)
35. Ensure bore is free from obstruction
36. To use barrel cross-pin **(C)**, consult a gunsmith or qualified armorer for installation
37. Test fire weapon according to steps detailed in **Instructions for Use**.

Instructions for Use of your RIFLESPEED Gas Control

Now that your RIFLESPEED Gas Control is mounted securely on your barrel, you'll need to determine your settings and adjustments. This is a simple process that will deliver all of the benefits of the RIFLESPEED Gas Control System.

1. Insure your Control Knob is in Rotation Range one by dialing your Control Knob to #6 and verifying that only one Rotation Indicator Groove (See **Exploded View Diagram**) is visible on the installed Plunger. If two Rotation Indicator Grooves are visible, your Control Knob is in Rotation Range two. You'll need to dial past the Rotation Stop (See **Exploded View Diagram**) into Rotation Range one. If your Gas Control is installed under an extended hand-guard and the Rotation Indicator Grooves (See **Exploded View Diagram**) are not visible, visually confirm that the gap between the Plunger Ring (See **Exploded View Diagram**) and the Spring Flange (See **Exploded View Diagram**) are approximately the same size when you are dialed to setting #1. At setting #1-1 the gap will be approximately 0.100" wide. The Plunger Ring is approximately 0.095" wide and provides a visual reference to confirm your installation.
2. Almost every tested configuration uses Rotation Range one. If your firearm requires significant use of the higher numbers in the second Rotation Range of the Control Knob, select a shorter plunger. If a shorter plunger does not allow you to use Rotation Range one (this is very uncommon so contact us for support) then install the optional Spacer (See **Exploded View Diagram**) sold separately at www.riflespeed.com between the Spring Flange (See **Exploded View Diagram**) and the Wave Spring (See **Exploded View Diagram**) and use Rotation Range two. This Spacer simply increases the spring pressure on Rotation Range two to match the Spring Pressure on Rotation Range one. To install Spacer:
 - A. Unscrew the Control Knob from the Gas Control Body and remove it from the barrel
 - I. Press the Tab on top of the Plunger Ring (See **Exploded View Diagram**) rearward to unscrew your Control Knob past the Rotation Stop feature (See **Exploded View Diagram**) of the Control Knob.
 - B. Remove the Plunger and Plunger Ring (See **Exploded View Diagram**) from the Gas Control Body and remove the Plunger Ring from the barrel. The Plunger will separate from the Plunger Ring during this process. Take care that it is not lost
 - C. Remove the Wave Spring from the Gas Control Body
 - D. Slide the Spacer you've purchased separately from www.riflespeed.com or your preferred dealer over the barrel and onto the Gas Control Body with the Spacer Gap (See **Exploded View Diagram**) at the 12:00 position (top). Spacer can face either direction
 - E. Reinstall the Wave Spring with the Spring Gap (See **Exploded View Diagram**) at the 12:00 position. Waves can face either direction.
 - F. Couple the Plunger and Plunger Ring at their Coupling Groove and Notch (See **Exploded View Diagram**) then reinstall coupled assembly onto Gas Control Body. Plunger Ring can face either direction. Plunger Ball (See **Exploded View Diagram**) faces muzzle. Plunger should pass through gaps in Wave Spring and Spacer then into Plunger Channel (See **Nomenclature Diagram**) of Gas Control Body.
 - G. Reinstall the Control Knob onto Gas Control Body with numbered-end toward muzzle and tighten until you reach the Rotation Stop feature (See **Nomenclature Diagram**). Press the Plunger Ring Tab (See **Exploded View Diagram**) firmly rearward and turn the Control Knob one position. Release the Plunger Ring Tab. Both Rotation Indicator Grooves should be visible with the Control Knob turned to position 6 of the second Rotation Range. If you see only one Rotation-Indicator Groove then you've gone too far. Turn the Control Knob back out to Rotation Range two
 - H. Following this process guarantees that your Gas System is set to the second Rotation Range for use with low-pressure cartridges
 - I. Remove the Spacer before using Rotation Range one. Use of first Rotation Range with Spacer installed can result in damage to your Wave Spring

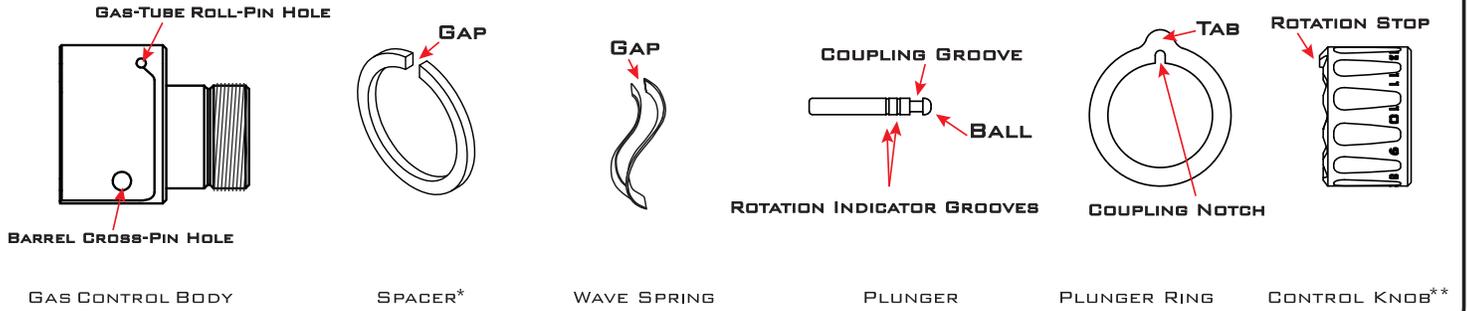
This concludes the optional Spacer installation process. Instructions resume below without Spacer
3. With your Control Knob dialed to the starting setting of #1-6, insert a magazine charged with **one** round of ammunition into your carbine's magazine well and chamber the round. Leave the now-empty magazine in place
4. Fire one shot and verify that the bolt-carrier group locks in the open (rearward) position with empty magazine in place
 - A. If so, reduce the gas sent to your carbine's action by turning the Control Knob down two numbers. If you reach position 1-1 you are at your minimum gas setting. If you wish to further reduce the gas going to your action you may try the longer Plunger included within the retail package of your Gas Control or one of the other Plungers sizes available for purchase at www.riflespeed.com
 - B. If the bolt-carrier group does not lock in the rearward position on an empty magazine, increase the gas sent to your carbine's action by turning the Control Knob up two numbers
5. Insert another magazine charged with only a single round into your carbine's magazine well and chamber the round
6. Fire one shot and verify that the bolt-carrier group locks in the open (rearward) position with an empty magazine in place

- A. If so, continue reducing the gas by two settings and repeat firing until the bolt does not lock to the rear. Your goal is to find the exact setting at which point your bolt-carrier group locks in the open (rearward) position upon firing when an empty magazine is in the magazine well. It is important to verify this with multiple shots and multiple different magazines.
- B. If the bolt-carrier group does not lock in the rearward position on an empty magazine, continue increasing the gas by two settings and repeat firing until the bolt carrier group does lock to the rear with an empty magazine in the magazine well. Your goal is to find the exact setting at which your bolt-carrier group consistently locks in the open (rearward) position upon firing when an empty magazine is in place. It is best to verify this with multiple shots and multiple different magazines.
7. Once you've found the setting where your bolt consistently locks to the rear by adjusting in increments of two settings, you can determine if the in-between setting reliably locks the bolt to the rear on an empty magazine. Decrease gas by one setting and fire again with magazine in place. Repeat this process to determine the minimum setting for consistent lock-back.
8. You can use your rifle for competition or recreational purposes on this minimum setting
9. Increase the gas delivered to your carbine's action by dialing the Control Knob up one number from the minimum setting for tactical, defensive, or duty use
10. Extreme circumstances can require an increase of two settings. Examples of this would include use in extreme cold, use with a highly fouled action, use with inconsistent or mixed ammunition, or a combination of these factors. If a defensive or tactical firearm is stored or carried for extended time periods between firings, it is recommended that you place your Control Knob on your minimum setting plus two settings. This allows for seasonal changes, evaporation or loss of lubrication, or other factors
11. Make note of the correct setting for your configuration and conditions.
12. If you encounter or are issued a Gas-Control-equipped firearm and need to determine the proper settings to use, set your Control Knob to position #6 and repeat steps 7 through 11 until the ideal configuration is determined. If no acceptable position is found, move the Control Knob to Rotation Range two and repeat the procedure.
13. RIFLESPEED Gas Controls come assembled with Plunger #917 installed. This has been shown to be a good all-around selection for most cartridges and firearm configurations. Plunger #937 is also included in the retail package. Use of a shorter or longer Plunger may be required with some firearm configurations. Longer Plungers offer more constriction for configurations where less gas is required. Larger cartridges such as the 308 Winchester and 6.5 Creedmoor may use a longer Plunger than some 5.56 configurations due to the increased volume of gas of the larger cartridges. Many factors contribute to the selection of the appropriate Plunger for your application so always confirm function with your firearm. The modular design of RIFLESPEED Gas Controls allows quick reconfiguration.

The process of determining the ideal Gas Control setting must be completed for each configuration of weapon, ammunition type, suppressor, and environmental conditions you encounter. A carbine with a 14.5-inch barrel firing Milspec 5.56x45mm ammunition through a suppressor on an extremely hot day will have one ideal setting. The same carbine firing commercial-pressure .223 Remington ammunition on a cold day with no suppressor will have a different ideal setting. Make note of the ideal settings for your configuration in different situations. Baseline settings determined in temperate conditions will provide reliability through almost any conditions. Minor adjustments will provide ideal performance in extreme scenarios.

It is not necessary to use extremely heavy buffers and extra-strength springs with a properly adjusted RIFLESPEED Gas Control in place. We recommend an H buffer (3.8 oz) and standard carbine spring for most configurations that use a carbine-length buffer system. A lighter "CAR" buffer (3.0 oz) can be used if desired and may offer even less recoil. Verify performance in your firearm prior to tactical or defensive employment. A standard rifle buffer is recommended for configurations using a rifle-length buffer system. Additional information on how to establish and maintain ideal performance from your carbine can be found at www.riflespeed.com. Reference charts are available that show which Gas Control model fits many popular carbine configurations. Check out the RIFLEBLOG for articles on carbine operation and performance tuning. High quality RIFLESPEED parts and accessories like gas tubes, alignment jigs, and bench blocks are available at the riflespeed.com store.

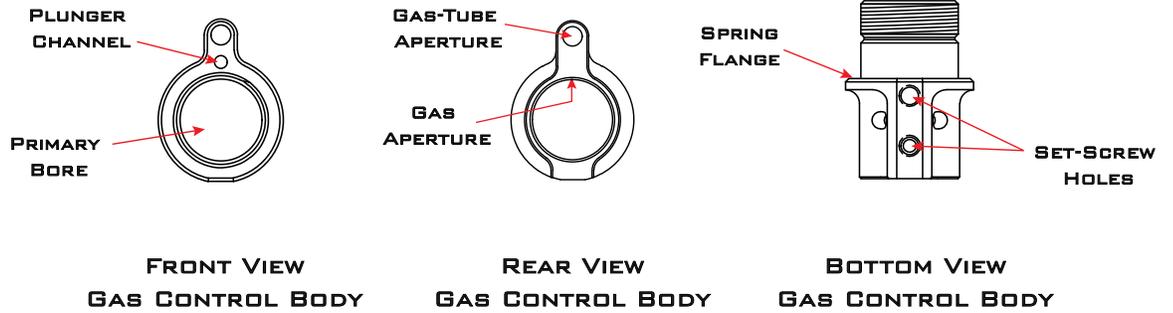
EXPLODED VIEW DIAGRAM OF RS7519/RS6219 ASSEMBLY



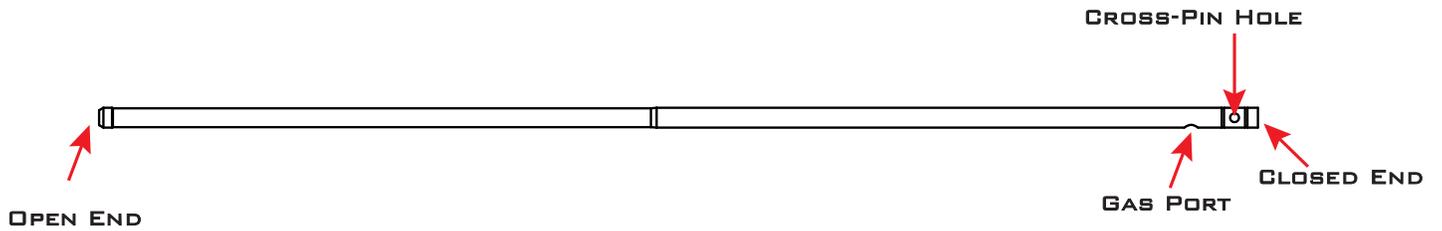
* SPACER (SOLD SEPARATELY) IS USED ON ROTATION RANGE TWO ONLY. DO NOT USE ON ROTATION RANGE ONE

** CONTROL KNOB LENGTH VARIES BY MODEL

NOMENCLATURE DIAGRAM



STRAIGHT GAS TUBE



PACKAGE CONTENTS LAYOUT DIAGRAM



- A: GAS CONTROL ASSEMBLY (1 ASSY, LENGTH VARIES BY MODEL)
- B: #10-32X3/16" HEX DRIVE SOCKET SET SCREW (2PC)
- C: 5/32" X 3/4" COILED SPRING PIN (1 PC, BARREL CROSS-PIN)
- D: 5/64" X 5/16" SLOTTED SPRING PIN (1 PC, GAS-TUBE ROLL-PIN)
- E: PLUNGER #937
- F: 3/32" L-SHAPED HEX WRENCH (1 PC)

