



## M14/M1A SHG-M® Product Data Sheet MEDIUM WEIGHT

### Specifications:

<b><u>Product Name:</u></b>	M14/M1A SHG-M®
<b><u>Type:</u></b>	Mil-spec, Picatinny Rail M14/M1A Scope Mount
<b><u>Material:</u></b>	6061 Alloy, Type II Hard Anodized
<b><u>Colors:</u></b>	Black, FDE
<b><u>OAL:</u></b>	12.675"
<b><u>Weight:</u></b>	181gr. (rail and installed hardware)
<b><u>Compatibility:</u></b>	<b>FITS SAI INC. LOADED/NM MEDIUM WEIGHT BARRELS</b>
<b><u>Company:</u></b>	The Upgrade Path Inc. for M14.ca
<b><u>Contact:</u></b>	Sales
<b><u>Web Info.:</u></b>	<a href="http://www.m14.ca">http://www.m14.ca</a>
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### Shipping Components:

- 1 x 6061 alloy hand guard rail with Type II anodizing*
- 8 x 6-32 x 5/16" allen head screw ( brackets)*
- 1 x 10-32 x 3/18" socket set screw*
- 1 x M14 M1A SHG instruction sheet*
- 1x Vial of Loctite® 243 (Blue)*
- 1 x length of .002" alloy tape bracket shim (may or may not be required)*

### Description:

The M14/M1A SHG-M® (Scout Hand Guard-MEDIUM) is the world's first Scout Hand Guard for Springfield Armory Inc. Loaded and National Match rifles. The SHG-M® replaces the original M1A hand guard and uses a sturdy and reliable fitment methodology. The picatinny rail is approx. 12 5/8" long and mounts as low as the top flat of your M1A receiver. It includes mounting points at 10 o'clock and 2 o'clock for a 4" length of picatinny rail, sold separately (these two rails are available as a shipping item for Blackfeather "RS" customers).

**Note:** a new copy of this document can be downloaded from: <http://www.m14.ca/>

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## M14/M1A Scout Hand Guard [SHG-M] Introduction

The M14.CA alloy railed hand guard, the SHG-M, or Scout Hand Guard Medium, has been designed specifically to match, complement, enhance, and perfectly fit along with the Blackfeather® “RS” [B/F] alloy stock. While primarily designed to be used as another *modular* component in the M14.ca B/F enhancement system, this railed hand guard is also suitable for stand alone installation, and compatible with many other M1A type stocks, although with some other stocks some modification and fitting may be required.

When used as intended, in conjunction with a B/F stock equipped with the proprietary M14.ca adjustable op rod guide [ AORG ], the close fit between the SHG and the AORG ensures absolutely zero rotation and perfect vertical alignment.

The internal surfaces of the CNC precision machined SHG match up perfectly with the external contours of the Blackfeather® “RS” AORG. Since the close fit of the AORG to the large support bosses inside the forearm of the stock also ensure perfect vertical alignment of the AORG within the stock, a properly installed SHG will always be perfectly aligned with vertical, and will stay that way.

This “optically precise” fit, and the security of the massive contact surfaces aligning and maintaining this fit, are critical to ensure retention of zero with any optical devices installed on the SHG-M.

The M14.CA railed hand guard is designed to be as low as possible (it is equal to the top flat of the M14 receiver ring) and as light as possible, while still retaining rigidity, strength, and long term durability. The SHG-M is CNC precision machined from aircraft grade 6061 alloy. Including the two steel barrel clamps and screws, the SHG-M weighs merely 181 grams or 6.56 ounces. This is approximately twice the weight of the issue GI fiberglass hand guard it replaces. For maximum strength with heavy optical devices such as night vision scopes, three barrel clamps may be used to secure the hand guard to the barrel. However, for any thing less than military use with the heaviest optics, two clamps should be more than adequate.

**The internal barrel interface surfaces of the M14.CA railed hand guard have been CNC machined to precise tolerances matching up to the barrel contours of the SAI INC. Medium Weight Barrel only. The SHG-M® will not fit USGI Standard Contour barrels. For standard contour barrels, see our M14.ca SHG® on our web site.**

**NOTE 1:** The following instructions are intended for those mounting the SHG to an existing Blackfeather® “RS” stock system, which includes the critical Adjustable Op Rod Guide. The AORG provides perfect rotational / vertical alignment, and suitable strength to prevent rotation or shifting with even the heaviest optics under the worst conditions.

**NOTE 2:** That being said, with the two barrel clamps tightened down, and the eight individual screws with blue threadlocker in place, and the tension screw set, and the retention clips employed on a Medium Contour barrel, even without the AORG, the M14.CA railed hand guard will still be as strong as or stronger than any other M14 hand guard system on the market.

**NOTE 3:** The rails on the alloy railed hand guard are designed to maintain optically precise alignment with the bore. They will maintain zero of precisely aligned critical optical equipment even when the upper part of the rifle [ barreled receiver with SHG attached ] is removed for cleaning or for “swapping”. This is a major advantage over other alloy stock and railed hand guard designs. Like an AR-15, the Blackfeather “RS” stock and hand guard system have been designed so that various “uppers” are swappable into the same “lower” with minimal disruption to zero.

**Note 4:** The lower rails on the fore arm of the Blackfeather “RS” stock, while also precisely machined and fitted, can not guarantee perfect alignment and return to zero when the barreled receiver is removed and replaced into the stock. For this reason these lower fore arm rails are best suited for mounting equipment such as bipods, flashlights, etc that do not require optical precision.



## M14/M1A Scout Hand Guard [SHG] Installation Instructions

### Tools Required

1. A 1/16" allen wrench
2. A 3/32" allen wrench for adjusting rail tension

The tolerances on the railed hand guard are very precise, but unfortunately, given the slight variations in contour with medium weight barrels, some slight fitting may be required to achieve a perfect fit. Given the redundancy in the two clamp retaining design, perfect fit is not actually required to still achieve more than adequate strength and optical precision. However, some thin self-sticking alloy tape shims, and detailed installation instructions, are included.

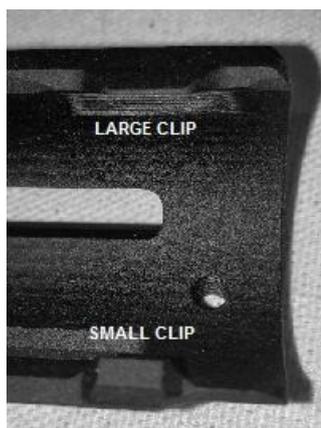
## START HERE

- 1.] Remove the rifle from the stock.
- 2.] Remove existing hand guard.

*OPTIONAL: For those attempting to achieve perfection in top of rail to bore alignment, measure the outside diameter [OD] of the barrel at the two clamping locations. Write down these measurements now.*

### IMPORTANT NOTE

- 3]. Take note of the two rear most aluminum "retention clips" machined directly into the SHG-M. (One clip is SMALL. One clip is LARGE).



With the SHG-M right side up and with the barrel and receiver groups on a solid flat surface, "rotate" the rear of the SHG-M, SMALL CLIP FIRST, then rotate LARGE CLIP LAST, until the rear of the SHG engages the barrel recesses and is held firm. (For removal, the reverse is true (large clip removal first, small clip last).

**DO NOT PUSH THE REAR OF THE SHG-M "STRAIGHT DOWN FROM THE TOP" ONTO THE BARREL'S U.S.G.I. HANDGUARD RETAINING NOTCHES. THE SHG-M MUST BE ROTATED INTO POSITION. DOING SO COULD DEFORM ONE OR MORE RETENTION CLIPS.**

For Blackfeather RS customers, the tight precision fit of the internal mounting surfaces at the Adjustable Op Rod Guide will also perfectly align the SHG-M with vertical.

*NOTE: a rubber mallet may be required to gently persuade the mating process between SHG-M and the Blackfeather "RS" AORG after rotation.*

**4.]** Check that the back of the hand guard has enough clearance from the barrel/receiver joint so that this raised portion is not interfering with the snug fit of barrel to hand guard at the rear end.

**5.]** Check that the barrel will actually fit into the front bedding surface, and how far down it goes into the tapered section. If the barrel goes all the way down to the bottom, but still is firmly held at the sides, your barrel is on spec for O.D., and should give near perfect top-of-rail to bore alignment.

**6.]** If the barrel is undersize here, it can move from side to side under impact, which could *theoretically* cause a slight deterioration in accuracy, or shift in zero. **However**, once the half round at the top front clamps are tightened up, drawing the barrel down, and holding it against the hand guard mounting surfaces, the top half round steel clamp sections should provide more than adequate security and strength.

To achieve perfection in barrel contact, security and bore alignment for those barrels a bit undersize at the front, a bit of shimming may be required. Simply add a piece of the included alloy tape, and apply to the inside of the front barrel mounting surfaces.

*OPTIONAL: for those attempting to achieve perfection in top of rail to bore alignment, measure the distance at the front of the rail from the top of the rail to the bottom of the barrel. Subtract HALF of the barrel O.D. measurement. This is the distance from top-of-rail to bore centerline.*

*Now measure the distance at the rear of the rail, again subtract half of the barrel O.D. measurement. These numbers should be very close. Add or remove shim tape as required*

**7.]** If satisfied with the fit and alignment, start clamping down the screws at front and middle retention straps. Go slowly here and for perfect fit, check the measurements again after tightening. The straps are designed to distort slightly under tension to closely adapt to the slight taper of the barrel. The screws are in oval slots which allow for considerable play here, and may or may not pull the clamps down tight enough to bottom out the clamps against the alloy surfaces of the hand guard. With the front and middle straps, work evenly with both sides, just like installing a steel scope ring.

**8.]** Apply blue threadlocker and turn down the rear vertical screw until it just contacts the top of the barrel. **Add no more than 1/16 - 1/8 turn extra rotation to pre-load the spring tension of the SHG-M at the rear.**

*1/16 of one turn is represented here graphically.*



If you are satisfied with the straightness and alignment of the rail top, **remove one screw at a time**, add blue threadlocker to each individual screw, and retighten to where it was before. The installation is now complete. For those wanting even more rail space, you can purchase two more optional removable 4" rails. These rails can be mounted at the 2 o'clock and 10 o'clock positions. If you already own a Blackfeather "RS" stock, the 4" rails that were included with the stock may be mounted to the SHG-M instead of the forearm.



# M14/M1A Scout Hand Guard [SHG] Installation Notes For Non-Blackfeather “RS” Rifle Stocks

While the Scout Hand Guard [ SHG-M ] is primarily intended for use with the Blackfeather® “RS” [ B/F ] stock, and the Adjustable Op Rod Guide [ AORG ] that is part of the B/F system, the SHG may be installed with other M14 type stocks. However, the recommended installation with the AORG will be more secure and align the top of the rail more precisely with vertical.

***NOTE:** The AORG of the B/F stock allows for “free floating” the barrel from the AORG forward. This design has demonstrated significant improvements in dampening barrel harmonics, and in some cases has improved accuracy.*

If mounting the SHG-M to any stock still using a conventional fore end tensioning system, some care must be used to ensure that the design characteristics of the conventional tensioning system are retained. Specifically, the conventional fore end tensioning system requires some free play between the hand guard and the fore end, so that barrel is free to return to the [hopefully] same location after each shot. The steel tip of the fore end must have free movement within the U shaped lip at the bottom of the stock ferule. Otherwise the barrel may bind at different locations after different shots, and accuracy will not be optimum.

**Mounting the SHG-M to any conventional stock simply requires that adequate clearances between the hand guard and the fore arm be maintained.**

Creating such clearances is a usual step in building any accurate M14 rifles ... even those with the conventional fore arm tensioning and fiberglass hand guards. For some stocks, zero modifications are required. For others, a few minutes with a Dremel or a file or sand paper may be required to create clearances between the clamp screws and the fore end, or else the bottom edges of the SHG-M and the top edges of the fore arm.

***NOTE:** many US GI fiberglass stocks are twisted at the fore end, with one side noticeably higher than the other. These stocks may require extra internal reinforcing and more fiberglassing to correct such twisting. Simply sanding down the top edge is NOT the optimum fix for such cases. The black plastic Chinese stocks and most wood stocks seem to be fairly straight, and may or may not require much in the way of modification for clearances.*

**1.]** Aside from the clearance issues mentioned above, mounting a SHG-M to a conventionally stocked M14 is the same as with a Blackfeather stocked version, with one major exception: because the Adjustable Op Rod Guide is not there to provide instant and secure vertical alignment, extra care must be taken to ensure the top of the rail is true to vertical.

The best way to achieve this is to use two small straight bars about 6” long, one at the flat on the top of the receiver, and one at the front of the rail. Looking across these two bars will give a very precise indication of alignment. However, maintaining this alignment as the bands are tightened down must be done slowly, and checked often.

***NOTE:** Barrel harmonics with the M14 is a complicated issue. Each M14 can and often will exhibit strong preferences for ammunition type and for various modifications. Whatever you attach to your barrel can often have an effect on accuracy. We are marketing the SHG-M for use primarily as a precision optical mount platform, and we make no claims that this hand guard will actually improve accuracy. However, several other semi auto rifles have demonstrated improved accuracy with the addition of a clamp on “barrel stiffener”. The SHG effectively will act as such a barrel stiffener, and may reduce or make barrel vibrations act in a more consistent manner. Theoretically this may improve accuracy, but once again, we are not making any claims or guarantees for that.*