



M14/M1A Scout Hand Guard [SHG]

Introduction

The M14.CA alloy railed hand guard, the SHG, or Scout Hand Guard, 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 M14 /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. This design offers the strongest, most stable, most secure, most precise, railed hand guard available for the M14 platform.

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 is CNC precision machined from aircraft grade 6061 alloy. Without including the three steel barrel clamps and screws, or the two removable side rails, the alloy portion of the railed hand guard weighs merely 186 grams or 6.56 ounces. This is approximately only 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. This “massively redundant” aka “belt and suspenders” design philosophy is built into the SHG, providing an extra margin of optic mounting security.

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 a standard weight US GI barrel. At this time, the hand guard is not designed to fit “Medium” or “Heavy” weight barrels.

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 massive strength to prevent rotation or shifting with even the heaviest optics under the worst conditions.

NOTE 2: That being said, with the three massive barrel clamps tightened down, and the fourteen individual screws with Loctite® in place, 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.

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

Copyright 2013, The Upgrade Path Inc. for M14.ca

All Rights Reserved

This document may be reproduced, published, stored in a electronic database, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, for any and all purposes as long as it is distributed in its complete, unaltered form.

Questions about this document can be addressed to email: info@m14.ca



M14/M1A Scout Hand Guard [SHG] Installation Instructions

Tools Required

1. A 1/16" allen wrench

The tolerances on the railed hand guard are very precise, but unfortunately, given the slight variations in contour with even US GI standard barrels, and the some times wide “out of spec” variations in after market “standard” barrel contours, some slight fitting may be required to achieve a perfect fit. Given the redundancy in the three 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.

NOTE: The front of the railed hand guard has a bedding surface that is noticeably tapered both ways. These tapers are designed to allow for fitting most barrels even with the rather generous variations in barrel outside diameter often seen at this location on the barrel. These tapers also allow for some slight fore and aft adjustment along the tapered barrel. The optical plane of the top of the rail has been designed to be as close to perfect longitudinal alignment with the bore as humanly possible ... but only with in spec barrels.

START HERE

- 1.] Remove the M14 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 rear, and at the three clamping locations. Write down these measurements now.

- 3.] With hand guard up-side-down and resting on a solid flat surface, lay the barreled receiver into the SHG. The tight precision fit of the internal mounting surfaces at the Adjustable Op Rod Guide will perfectly align the SHG with vertical.

NOTE: a rubber mallet may be required to gently persuade the mating process between SHG and AORG.

- 4.] Most M14 barrels are machined with a slightly angled under cut at the shoulder. When tightened down to proper draw and torque, the out side edge of the barrel shoulder usually distorts outwards a noticeable amount. Barrel diameter at the back, over the chamber, is supposed to be 1.100". The internal dimensions of the barrel mating surfaces at the rear of the railed hand guard are designed to precisely fit that particular dimension. 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 rear. 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.

NOTE: one side of the rear clamp mechanism comes with a small steel block threaded to accept the three long screws. Use one of the long screws to temporarily engage the threads on the middle hole of the steel block.. Once the clamp is drawn upwards enough for the shorter permanent screws to engage the threads, the shorter screws can be installed. This merely helps with alignment and eases installation. Note also that on one side of the steel block the threaded opening is tapered. The tapered side is installed down so as to allow easier alignment of the screws from the top down.

Warning: *Do not overtighten the rear clamp to the point that it starts warping the top rail. This can be measured visually by placing the railed hand guard upside down on some precisely flat surface, and eye balling for light under the rail. If required, add shim tape here.*

Check the right side of the rear clamp to ensure that there is adequate clearance for the op rod to reciprocate without impacting the clamp.

If you are satisfied with the straightness and alignment of the rail top, *remove one screw at a time*, add Loctite to each individual screw, and retighten to where it was before.

8.] At this point, most recreational shooters will have installed one of the strongest, most secure, most optically precise railed front hand guards available for the M14 platform. However, for those intending to mount heavy optics to the rails, and those requiring even more strength, i.e., for military use, the third middle clamp may be installed.

9.] 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 10o’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 instead of the fore arm.

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

Copyright 2013, The Upgrade Path Inc. for M14.ca

All Rights Reserved

This document may be reproduced, published, stored in a electronic database, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, for any and all purposes as long as it is distributed in its complete, unaltered form.

Questions about this document can be addressed to email: info@m14.ca



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

While the Scout Hand Guard [SHG] 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 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 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 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 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.

Also, without the AORG to maintain security of alignment under major impacts, the third band should also be considered a requirement rather than an option.

***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 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.*

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

Copyright 2013, The Upgrade Path Inc. for M14.ca

All Rights Reserved

This document may be reproduced, published, stored in a electronic database, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, for any and all purposes as long as it is distributed in its complete, unaltered form.

Questions about this document can be addressed to email: info@m14.ca



M14/M1A SHG® Product Data Sheet

Specifications:

<u>Product Name:</u>	M14/M1A SHG®
<u>Type:</u>	Mil-spec, Picatinny Rail M14/M1A Scope Mount
<u>Material:</u>	6061 Alloy, Type II Hard Anodized
<u>Color:</u>	Black
<u>OAL:</u>	12.675"
<u>Weight:</u>	164gr. (rail only)
<u>Compatibility:</u>	Fits all Blackfeather® "RS" stocks, all M14/M1A family of rifles with modification).
<u>Company:</u>	The Upgrade Path Inc. for M14.ca
<u>Contact:</u>	Sales
<u>Web Info.:</u>	http://www.m14.ca
<u>Email:</u>	info@m14.ca

Shipping Components:

- 1 x 6061 alloy hand guard rail with Type II anodizing
- 8 x 6-32 x 5/16" allen head screw (front brackets)
- 3 x 6-32 x 1/4" tapered allen head screws (rear barrel bulge bracket)
- 3 x 6-32 x 1/2" tapered allen head screws (rear barrel bulge bracket)
- 2 x barrel retention brackets, front
- 1 x barrel retention bracket, rear + seating plate
- 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® (Scout Hand Guard) replaces the original M1A/M14 hand guard and uses a much larger, sturdier and more reliable fitment methodology than competing designs. The picatinny rail is approx. 12 5/8" long and mounts as low as the top flat of your M14 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).

Copyright 2013, The Upgrade Path Inc. for M14.ca

All Rights Reserved

This document may be reproduced, published, stored in a electronic database, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, for any and all purposes as long as it is distributed in its complete, unaltered form.

Questions about this document can be addressed to email: info@m14.ca