# "Stepped Plane Optics on the M14-Type Rifle."

### What is SPO?

"SPO" or "Stepped Plane Optics" is a term we use at M14.ca to describe the <u>versatility</u> of running a CASM scope mount high and an ultra-low SHG (Scout Hand Guard). The versatility comes from <u>two mounts</u> on dissimilar focal planes; one optics mount high, one optics mount ultra-low, allowing you to position optics rearmost on the M14 and foremost on the M14.

# What are the advantages of running an "SPO" M14?

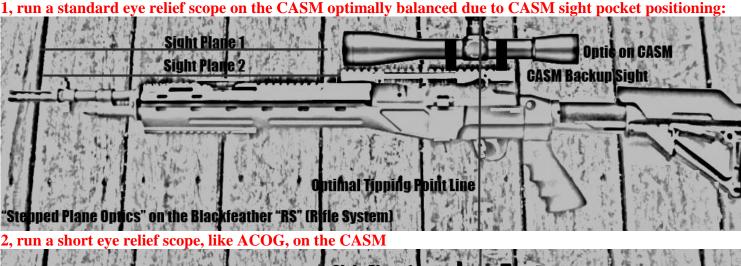
- 1. With an SPO equipped rifle, the rifleman can run irons, a back up sight, a red dot co-witnessed or a scope, at the same time, or, in different configurations depending on course of fire or mission type.
- 2. With an SPO equipped rifle, the rifleman can choose optimal mounting points for ideal position and balance and add or remove optics as required, often, to maintain the optimal swing weight of the rifle.
- 3. With an SPO equipped rifle, we are adding two precise optics platforms but <u>only 4.6 ounces</u> of weight to a rack grade M14 rifle.

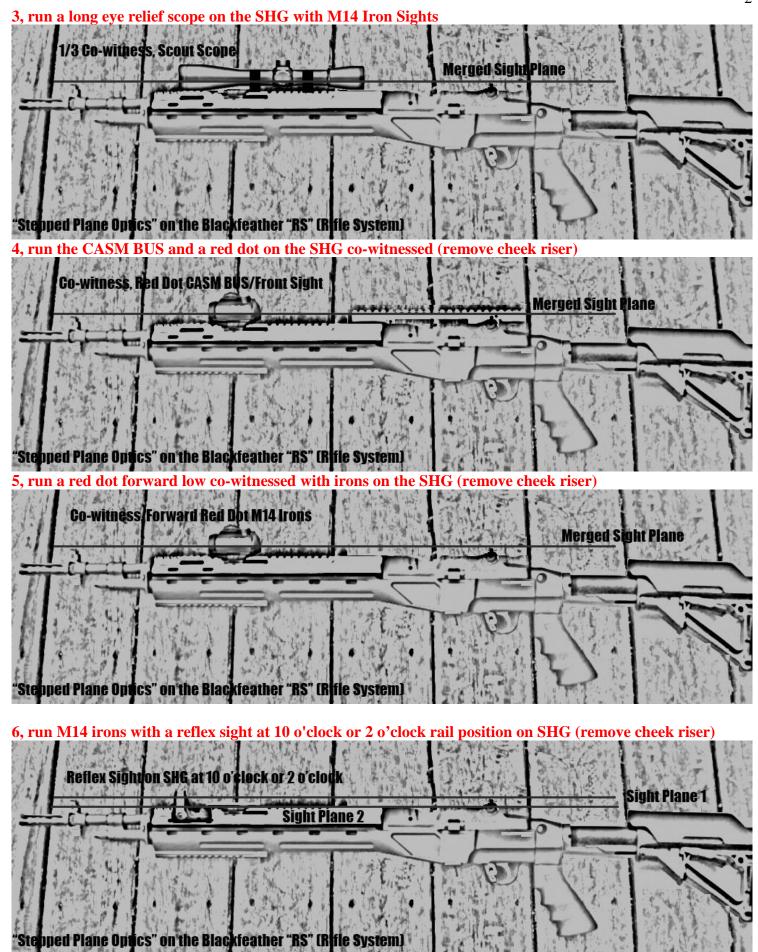
These options are made possible from the ideal height position and design of the two, precise optics mounts from M14.ca: the higher CASM or CASM "EX" scope mount and the ultra-low, forward mount that is our Scout Hand Guard or "SHG."

The CASM series scope mount and the SHG can be used separately but they are two distinct parts that work together to bring the "SPO" advantaged M14 into reality.

## What Optics Can I Set Up On My SPO Advantaged M14 and How?

Under the following circumstances, you can:





7, Three sight planes. Run scope on CASM with red dot at 10 o'clock or 2 o'clock rail position on SHG

Sight Plane 1

Sight Plane 2

Sight Plane 3.

Stepped Plane Optics" on the Blackfeather "RS" (Rifle System)

8, Three sight planes. Run nightvision low/scope high co-witnessed, CASM BUS/Front Sight w. Reflex Sight

Sight Plane 1

Sight Plane 2

Sight Plane 3.

Sight Plane 3.

## *Note:*

In every example illustrated above, the optics platform for the SPO-equipped M14-type rifle is <u>distinctly separate</u> from the lower stock (see <u>Dissassembly and Optics Zero On The Blackfeather "RS"</u> near the end of this document).

# Reliability, Weight, Balance and Lastly, Ease of Installation

#### 1. The CASM Scope Mount

The CASM scope mount is a proven reliable M14 scope mount. It is currently installed on thousands of M14-type rifles. It adds <u>1 ounce</u> of weight to the M14 rifle after removing the rear iron sight assembly, sets up in under 10 minutes with no gunsmithing and maintains zero.

The CASM scope mount, seated in the rear sight pocket, allows you to run your scope further back in the rear sight pocket. This position of scope mount and scope afford a better tipping point balance for you and your M14 than Brookfield-inspired forward mounted scope mounts.

#### 2. The Scout Hand Guard

The Scout Hand Guard or "SHG" from M14.ca weighs approximately double that of the original US GI M14 synthetic hand guard at only <u>6.56 ounces</u>.

The SHG is optically precise due to a proprietary barrel clamping methodology that offers superb fitment of rail to barrel, despite dimensional variation.

No other ultra-low, forward hand guard offers such an optically precise installation for standard contour barrels.

US GI vs M14.ca Scout Hand Guard: Net weight gain to M14-type rifle = 3.6 ounces



## "CASM Swing Weight And Balance" VS "Swing Weight And Balance on Brookfield"

Shown below is the <u>net weight gain</u> to the M14 rifle of only 10z, when installing a CASM scope mount and

replacing the rear iron sights.





While the built-in non-adjustable rear BUS included with the "CASM" scope mount may not be as convenient or as fine in adjustment as the M14 rear sight it replaces, *for use as a true BUS system*, *intended primarily for back up or emergency use*, with instant access to iron sights with the optic mounted, with iron sights that are zeroed for practical use at practical distances (we say, 250 meters), the CASM BUS works as designed and is 100% reliable. Another advantage here is the *slight* but noticeable rearward weight shift of the CASM-equipped and scoped M14. Unlike Brookfield-inspired scope

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mounts that seat the scope mount forward of the iron sights, <u>adding up to 10.4 ounces of weight</u> to produce a middle-heavy/forward heavy rifle, the CASM scope mount sits further back in the rear sight pocket altering the tipping point of the M14. In this regard, swing weight is advantaged to the rifleman. The effect is that it "feels" lighter as the rifle is moved often and quickly through a course of fire.

## Dissassembly and Optics Zero On The Blackfeather "RS."

Both the "SHG" and "CASM" optics mounts are attached directly to the M14 Barrel and Receiver Groups (BRG). Removal of the M14 BRG on a Blackfeather "RS" equipped rifle is done by removing one bolt on the bottom of the Blackfeather "RS" stock using the M14 disassembly tool. The bolt is affixed to the proprietary Blackfeather "RS" oprod guide which, upon installation, is locked in position after zeroing. The notable effect is that removing the BRG (along with the affixed optics) will not affect zero during disassembly. Furthermore, riflemen who are fortunately equipped with a second BRG and a second Blackfeather "RS" oprod guide, can enjoy swapping BRGs into the same stock without losing optics zero on, for example, one "DMR-type" rifle and one "CQB-type" rifle. This is the conclusion to the advantages of running a Blackfeather "RS" –equipped "SPO" M14-type rifle.

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