



# Wm. Malcolm 6X Two Tone Short Rifle Telescope Adjustable Parallax Owner's Manual



## **WARNING:**

It is absolutely necessary to securely mount the scope to your rifle. The front and rear scope mounts require installation using the provided 60° dovetail bases or equivalent bases. This should be done by a competent gunsmith and will often require drilling and tapping your barrel. Failure to follow this procedure can result in serious personal injury.

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**THANK YOU** for purchasing the Wm. Malcolm 6X short rifle telescope with adjustable parallax manufactured by Hi-Lux Optics.

Since very little is generally known about early telescopic sights, a little history is in order to understand where the Wm. Malcolm short telescopic sight fits in.

Good terrestrial telescopes were being built by the early 1700's. However, these scopes were riddled with chromatic aberrations, distortions, and cloudy glass among other issues. Nonetheless, these telescopes had adequate optical quality for use as rifle telescopes. It was not until the mid 1800s that rifles became sufficiently accurate to require a telescopic sight. The problem then became how to mount the scope so that it could be zeroed to the rifle.

In 1855, William Malcolm started building 'Rifle Telescopes'. He understood that a riflescope must be properly constructed to hold zero. He made his scope tubes by boring them from solid bar stock, the same procedure as was used to build rifle barrels. The lenses were mounted on separate housings, securely fastened to the scope tube.

His first mounts followed the pattern described by John Chapman in his book published in 1844. This pattern was used by many early riflescope builders. The elevation adjustment was a simple threaded post in the rifle tang.

At some point (probably after the Civil War), Malcolm devised a new solution to more precisely adjust elevation. He built a "rabbit ear" type mount that was located where the rear sight was usually positioned. This was much more robust than the previous designs and could be precisely adjusted either by a vernier scale or a scale-and-micrometer screw system. Additionally, he assembled his scopes to withstand the recoil of the heavier caliber – finally using steel in place of earlier brass designs.

Between the opening of the West and the death of the great Buffalo herds, Malcolm's scopes saw it all.

As repeating rifles appeared and the need for long-range single shot rifles were on the decline, short scopes in new styles of mounts began to appear. By the turn of the century, Malcolm was primarily producing this new type of scope in magnifications between 4X and 20X, with 6X

designs being the most popular. Our Malcolm short rifle telescopes are based on a design that continued to see use even during WWII. By the turn of the 20<sup>th</sup> Century, Malcolm had become the leading scope manufacturer in the U.S. The company continued in business until WWII, even though some new optical technologies had been developed in Europe which would make this line of scopes obsolete. However, American Marines would still carry this later type of Malcolm scope into combat during WWII. Descendants of these scopes, such as the Unertl, were used in armed conflicts as late as Vietnam.

Our Wm. Malcolm vintage scopes are constructed in the same manner as the original, sharing the authentic look and feel of the original scopes. While the aesthetics and mechanical functionality of our Wm. Malcolm scopes are reminiscent of the original, the optical performance is much improved due to the fully multicoated HD lenses, and the mechanical performance is improved by advancements in metallurgy and machining processes.

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# Section 1: Riflescope Specifications

Model	Power	Obj. (mm)	F.O.V.@ 100 Yds (Feet)	Eye Relief (Inch)	Length (Inch)	Weight (O.Z.)	Exit Pupil Range (mm)	Tube Size
M634183P	6X	17	12	4.5	18	23	2.8	3/4"
M634183BP	6X	17	12	4.5	18	23	2.8	3/4"

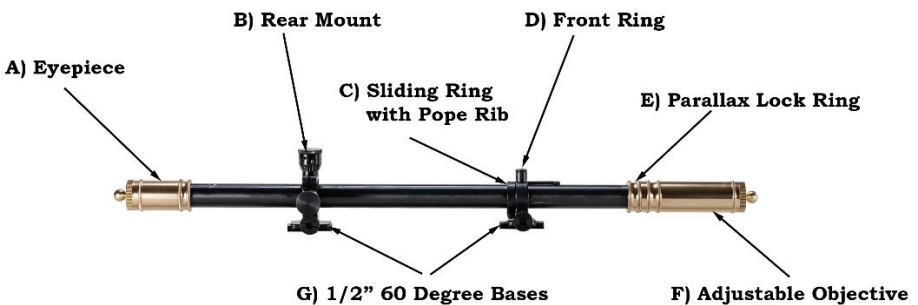
All the air-glass surfaces are fully multi-coated with our proprietary DiamondTuff14 to maximize light transmission. The minimum focusing distance is 10 yards and the parallax distance is set at 100 yards.

The reticle is a fine crosswire. The rear Malcolm style micrometer mount has windage and elevation adjustment built in. The main tube is 3/4" in diameter.

The Malcolm Parallax Adjustable short rifle telescopes come in 2 finishing options: 6X blued finish, 6X Two Tone finish.

The Malcolm short rifle telescopes are shockproof, waterproof and nitrogen purged with a single-piece steel tube body.

# Section 2: Basic Definitions and Adjustments



\*\* Malcolm 6X Parallax Adjustable with Two Tone finish shown above \*\*

## **A. Eyepiece:**

The eyepiece is at the rear end of the scope, closest to your eye. A knurled locking ring secures the eyepiece's position on the threads. You can change the scope's focus to suit your individual eyesight and prescription. Loosen (turn clockwise) the knurled locking ring, and turn the eyepiece clockwise or counter-clockwise until the reticle appears in sharp focus. Then, tighten the locking ring snugly to the eyepiece. Tighten the locking ring finger tight only.

The standard eyepiece will set the magnification of the scope to 6X. We also offer a magnification booster eyepiece that will increase the magnification to 10X.

## **B. Rear Mount:**

The windage and elevation adjustments are located on the Rear Mount. There are rotation indices on the stems of the elevation and windage adjustment turrets. To lock the adjustments in place, you can tighten down the turret locking screw located on the top right of the rear mount bracket. If desired, the turrets can be reindexed by loosening the three set screws on the turret. This rear mount attaches to crescent cut 60-degree blocks, otherwise known as Unertl-style blocks.

## **C. Sliding Ring with Pope Rib**

The Sliding Ring with Pope Rib clamps on to the scope tube and provides a Pope Rib for the front ring's plunger to slide on. If eye relief needs to be adjusted, you will need to reposition this ring along the body of the scope. If the crosshairs are not level, you will need to rotate this ring and retighten it. Any adjustments to the sliding ring can be accomplished by first loosening the screw in the ring

## **D. Front Ring:**

The front ring provides a precise pivot system for the scope. It has the standard 60-degree dovetail groove and locking screw. There is a slide lock ring attached with the front mount to reduce the amount of recoil forces traveling through the scope. After every shot, the scope will need to be pulled back. This is called "resetting the scope to battery".

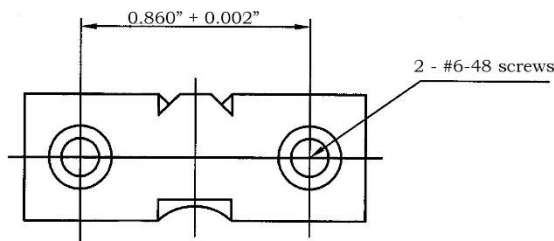
## E. Parallax Lock Ring

The parallax lock ring sits against the objective lens cell to lock in the parallax setting. Use the rear edge of the parallax lock ring to line up the parallax setting which marks the desired parallax distance.

## F. Adjustable Objective:

The Objective Lens Cell is at the end of the scope opposite of the Eyepiece. Light enters the optic through the objective lens. The position of the Objective Lens Cell will affect the parallax setting of the scope. To lock in the parallax setting, position the Objective Lens Cell so that it is flush with the parallax lock ring.

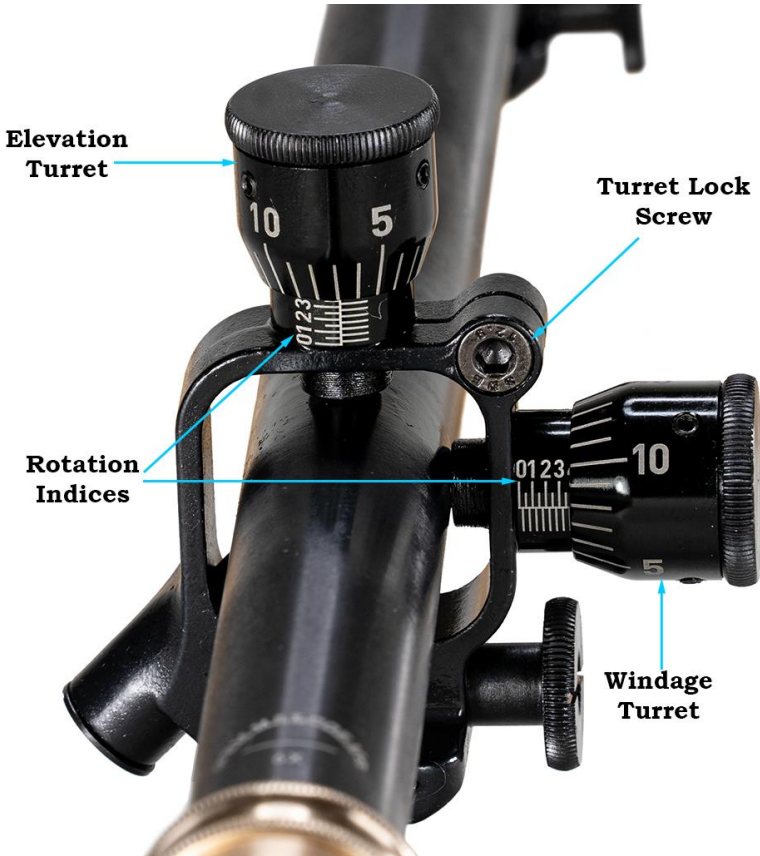
## G. 1/2" 60° Base



The scope comes with two standard 60-degree dovetail bases. The hole spacing is  $0.860''$  from center to center. Unertl bases or other 60-degree bases should work with the provided scope mounts. The dovetail slot in the mounts is  $\frac{1}{2}$  inch wide.

## Section 3: Adjusting the Scope

The Wm. Malcolm Parallax Adjustable short scope is an externally adjusted scope. The adjustments for point of impact are made in the rear mount.



The rear mount offers adjustments for both windage and elevation. When the **WINDAGE TURRET** is rotated **COUNTER-CLOCKWISE**, the point of impact moves to the **RIGHT**. When the **WINDAGE TURRET** is turned **CLOCKWISE**, the point of impact moves **LEFT**.

When the **ELEVATION TURRET** is turned **COUNTER CLOCKWISE**, the point of impact moves **UPWARD**. When the **ELEVATION TURRET** is turned **CLOCKWISE**, the point of impact moves **DOWNWARD**.

Each tickmark on the **ELEVATION** and **WINDAGE** Turrets indicates one unit of adjustment. The value of each tickmark depends on the spacing between the front and rear mounts from center to center.

<b>Front to Rear Mount Spacing (center to center)</b>	<b>Adjustment Value per Tickmark</b>
<b>5.4"</b>	<b>1/3 MOA</b>
<b>7.25"</b>	<b>1/4 MOA</b>
<b>9.0"</b>	<b>1/5 MOA</b>
<b>10.8"</b>	<b>1/6 MOA</b>
<b>12.6"</b>	<b>1/7 MOA</b>
<b>14.4"</b>	<b>1/8 MOA</b>

The rotation indices on the turret stems show how many rotations of the turret have been made.

The windage and elevation turrets can be re-indexed by loosening the three set screws on the turret mark ring. Once loosened, rotate the face of the turret marking ring without turning the turret. Once the turret mark ring has been repositioned, you can tighten down the set screws.

If desired, you can lock the adjustment settings in place by tightening down the turret lock screw. Adjusting this screw will also adjust the amount of torque required to turn the turrets. At looser settings, the turrets may rotate slightly under strong recoil.

## **Section 4: Mounting the Wm. Malcolm Short Rifle Telescope**

The front and rear mounts are designed to fit the 60-degree base to mount externally adjusted scopes. The dovetail slots in the mounts are cut 1/2" wide. This type of base has been widely used for many externally adjusted scopes such as the Unertl and Fecker.

Mounting the 60 degree bases to the barrel may require drilling and tapping. We recommend that you contact a qualified gunsmith to work on your rifle.



The thumbnuts on the front and rear mounts are designed to engage the crescent cut found on these bases. The supplied bases have both crescent and posa cuts. For this scope, the crescent cut should be on the same side as the thumbnut. From the factory, this will be the right hand side.

Proper alignment of the mounting thumbnuts on the blocks is essential to prevent the scope from shooting loose. We recommend that you visually line the thumbnut with the crescent cut scope groove. Next, hand tighten the thumbnut. Then rock the mount back and forth while tightening slowly to confirm that the thumbnut is set within the crescent groove. Finally, tighten the thumbnut down using the supplied spanner wrench.

## Section 5: Adjusting the Parallax Setting

The parallax setting can be adjusted from 10 yards to infinity. First, familiarize yourself with the parts of the scope required to adjust the parallax setting.



The position of the objective lens cell determines the parallax setting. The parallax lock ring prevents the objective lens cell from moving.

There are a series of numbers and parallax setting indicator lines. The numbers refer to the parallax focus distances in yards. The lines indicate the approximate position where the parallax lock ring will need to be positioned.

Align the desired parallax indicator line with the back edge of the parallax lock ring. Then turn the objective lens cell so that it is flush with the front face of the parallax lock ring.

Moving the objective lens cell towards the eyepiece will move the parallax focus distance further out. Moving the objective lens cell away from the eyepiece will bring the parallax focus distance in closer.

Once the parallax setting has been made, check to make sure that the target is in sharp focus.

You can visually confirm that parallax has been eliminated by the following procedure.

1. Line up the crosshairs on a target positioned at the parallax distance. For best results, set the rifle in a rest or on shooting bags.
2. Look through the eyepiece without disturbing the rifle. When you make slight adjustments to the position of your eye, you should notice that the crosshairs will stay aligned with the same point on the target.
3. If you see the crosshairs “float around” the target when you make slight changes to your eye position, you will need to slightly adjust the position of the objective lens cell and repeat this procedure.

**NOTE: The parallax setting indicator lines are not exact positions for the parallax setting. Rather, they are a starting point for you to begin fine tuning the parallax setting. We recommend fine tuning your parallax setting at a known distance.**

## Section 6: Sighting in the Wm. Malcolm Short Rifle Telescope

1. Check that the mounts have been correctly and securely attached to the barrel using the provided mounting blocks, and that the crosshairs in the scope are level. This can be done by loosening the screw at the bottom of the **SLIDING RING WITH POPE RIB**. This allows the scope tube to be rotated until the crosshairs are level. Be sure to retighten the screw after plumbing the crosshairs.
2. Familiarize yourself with all of the features of the scope and mounts, especially the **WINDAGE** and **ELEVATION TURRETS**. Before adjustment can be made with either turret, the **TURRET LOCK SCREW** must be loosened by turning it **COUNTER CLOCKWISE**.
3. Adjust the parallax focus so that the target is sharply resolved. Refer to Section 5 for detailed steps.
4. We recommend zeroing at just 25 yards, placing a sizeable 2'x2' or large sheet of cardboard or paper on the target board. Using a small aiming mark near the middle of the target, center the crosshairs and take a shot. If you're on the paper, you have your starting point.
5. Determine how much windage adjustment needs to be made and turn the **WINDAGE TURRET** to move the scope tube in the appropriate direction.

To move bullet impacts to the **RIGHT**, turn the adjustment knob **COUNTER CLOCKWISE**. To move bullet impacts to the **LEFT**, turn the windage adjustment knob **CLOCKWISE**.

Each line will move the point of impact by 1 unit of adjustment. Refer to the chart in Section 3.

**Note: Like the original scopes of this design, there are no clicks. However, there are numbered graduations. Pay attention to how much you moved the adjustment**

**knob and the rotation indicator line that the turret is currently set. This will make additional adjustments easier.**

6. Next, determine how much elevation adjustment is needed and turn the **ELEVATION TURRET** to move the scope tube in the appropriate direction.

To move point of impact **UP**, turn the adjustment knob **COUNTER CLOCKWISE**. To move point of impact **DOWN**, turn the adjustment knob **CLOCKWISE**.

7. Move the target to 50 yards and repeat this process. Once the rifle is on paper, move the target to 100 yards and repeat again to secure a good 100 yd zero.

### **Note on Zeroing Certain Rifle Calibers:**

The Malcolm style rear micrometer mount does not provide as much elevation travel for low velocity big bore black powder cartridge rifles (i.e. .45-70, .50-70, .50-90) as the rear mount of the earlier styled Long Wm. Malcolm scope (circa 1870).

Using the provided bases, the micrometer rear mount should provide ample adjustment for shooting out to 500 yards with the large .45 and .50 caliber metallic cartridge rifles.

We also manufacture mounts and bases that are compatible with the Malcolm short rifle telescopes.

As of this printing, we have no machining mounts for: Winchester 1885 Low and High Wall, Winchester 1873/1876 lever action rifles, Winchester 1892/1894 lever action rifles, Marlin 1894/1895 lever actions, Henry Big Boy and Henry Golden Boy lever action rifles, and rimfire rifles with an 11mm rail.

For questions about rifle compatibility with the Malcolm scopes, please contact Hi-Lux Optics customer support at (888) Hi-Lux12 (888-445-8912).

## Section 7: Removing the Wm. Malcolm Short Rifle Telescope Mounts

### Instructions to Remove the Existing Mounts

1. Remove the eyepiece and the lock ring. The scope is sealed and the nitrogen will not escape.
2. Turn the windage and elevation turrets clockwise, until the turrets stop. Doing so will relieve some of the spring pressure of the mount on the tube.
3. Remove the rear mount slowly to reduce the likelihood of scratches on the scope body.
4. Loosen the front sliding lock ring.
5. Remove the front mount slowly from the back (Eyepiece side).

**WARNING: We highly recommend that you lubricate the Malcolm scope body with Multi-Purpose Oil prior to removing the mounts. Doing so will mitigate friction from the mount sliding across the scope body.**

## Section 8: DiamondTuff Guarantee

**Hi-Lux, Inc.** warrants its products against defects arising from faulty workmanship, or materials, for the lifetime of the product. **Normal wear and tear is not covered by this limited lifetime warranty.** Any attempt to alter, dismantle or change the standard specifications of the products, will make this warranty null and void.

This warranty is made to the **original purchaser** of the goods including all international sales, and applies only to the products purchased through our authorized distributors or dealers. The international warranty is subject to approval from our authorized distributor or us directly.

Warranty obligation is limited to the repair or replacement of any product returned to **Hi-Lux, Inc.**, which is determined by the manufacturer to have defects arising from faulty workmanship, or materials that

adversely affect the satisfactory operation of the product. It should be noted that on items containing an etched glass reticle that the occasional appearance of some small particles is common and not a warrantable repair. **There is a two-year warranty from the date of purchase for the electronic components that are contained on or within the products.**

**Hi-Lux, Inc.** reserves the right to request proof of purchase and purchase date. To guarantee warranty service, the enclosed warranty form must be completed and returned or register online at [www.hi-luxoptics.com](http://www.hi-luxoptics.com) within 90 days of purchase to establish all warranty rights between you, the original purchaser, and **Hi-Lux, Inc.**

We assume no liability for any incidental or consequential damages, or incidental expenses. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you. No warranties are made, or are authorized to be made, other than those expressly contained herein.

To file a claim under this warranty, please contact the Customer Service Department of **Hi-Lux, Inc.** at (310) 257-8142 to obtain a Return Authorization number (RA number). After receiving your RA number, please mark the number on the outside of the package; enclose the defective item with a brief explanation of the problem. Please be sure to include your name, address and phone number.

Failure to obtain a RA number may result in either refusal upon delivery, or lengthy delays for warranty repairs and service required for the item returned to us. All returns are to be shipped prepaid direct to **Hi-Lux, Inc.** including a check or money order in the amount of \$21 to cover postage and handling regardless of purchase date.

**Attn.:** Warranty & Service Dept.

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In the event of a non-warranty repair, you will receive an estimate prior to any work being done. This warranty gives you specific legal rights and you may have other rights, which vary from state to state. As defined by federal law, this is a limited warranty.



For detailed videos on how to setup the Malcolm scopes, check out the Hi-Lux Optics YouTube channel.

