



# The WM-6XL Long “Wm. Malcolm®” Telescopic Rifle Scope Instruction Manual



## SPECIFICATIONS

**Power:** 6X

**Length:** 30 in.

**Eye relief:** approx. 4.5 in.

**Parallax:** 30 Yards to Infinity

**Optics:** Fully Multi-coated

**Tube:** 3/4", shockproof, waterproof, nitrogen filled.

**Objective:** 17mm

**Weight:** 1.85 lb. (29.60 oz.)

**Reticle:** Fine Crosshair

**Mounting:** Malcolm

**Field of View:** 10' @ 100 yard

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## WARNING:

For safe usage of this scope, it is absolutely necessary that it must be securely mounted to your rifle. The rear scope mount requires installation using our heavy duty recoil base provided with the scope package. This should be done by a competent gunsmith and requires drilling and tapping two 8-40

## **holes in your barrel. Failure to follow this procedure can result in personal injury.**

**THANK YOU** for purchasing the Wm Malcolm rifle telescope.

Our new Malcolm scope is a piece of history. Since very little is generally known about early telescopic sights, a little history is in order to understand how the Malcolm scope fits in.

Good terrestrial telescopes were being built by the early 1700's. These had all the optical quality that was necessary for a rifle telescope. However it would not be until the mid 1800s that rifles became sufficiently accurate to require a telescopic sight.

The problem was how to mount the scope to the rifle so it could be "zeroed" to the rifle.

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

His first mounts followed the design written about by John Chapman in his book published in 1844 and used by many early riflescope builders. The elevation adjustment was a threaded post in the rifle tang.

The scopes were the full length of the barrel for two reasons. One: The long length increased the accuracy of the adjustments. Two: The effect of heat rising from the barrel was eliminated.

In order to shoot long range (1000 yds) with a black powder rifle, the scope has to be elevated around 3 degrees. With a full-length scope, this means that the rear must be raised about one and a half to two inches. The tang mount screw adjustment was very fragile when raised to this height.

At some point (probably after the Civil War) Malcolm devised a new solution to accommodate this much elevation. He built a "rabbit eared" type mount that was located where the rear sight was usually positioned. This was more rugged than the previous designs and could be precisely adjusted either by a vernier scale or a scale and a micrometer like screw system. Also his scopes were assembled to withstand the recoil of the heavier calibers.

By the turn of the 20<sup>th</sup> Century, Malcolm had become the leading scope manufacturer in the U.S. The company would continue in business until WWII. However new optical technologies being developed in Europe along with the development of smokeless powder and jacketed bullets made his designs obsolete by the time of the Great War.

But in that time between the opening of the West and the death of the great Buffalo herds, Malcolm scopes saw it all.

Our new Malcolm scopes are constructed in the same manner as the originals and in keeping with the general look and feel of the original scopes. We are using high quality fully multicoated lens.

Our mounting system keeps the look of the original scopes but is much easier for a modern shooter to adjust. Our rear mount has both windage and elevation adjustments yet has the same look as Malcolm's original mount and is a design that could have been built by Malcolm in the 1800's.

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### **1. Basic Definitions and Adjustments**

#### **A. Eyepiece:**

The eyepiece is at the rear of the scope. A knurled locking ring secures the eyepiece. You can change the scope's focus to suit your individual eyesight. Loosen (turn clockwise) the knurled locking ring, and turn the eyepiece clockwise or counter-clockwise until you are comfortable with the

focus. Then, tighten the locking ring snugly. Tighten finger tight only. Do not use tools to tighten.

### **B. Rear Mount.**

The rear mount contains the windage and elevation adjustments. It attaches to the heavy recoil base.

### **C. Front Mount.**

The front mount provides a precise pivot system for the scope. It attaches by using the front sight dovetail.

### **D. Heavy-Duty Recoil Base:**

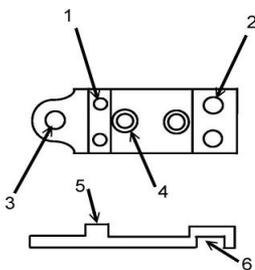
You need to have the barrel drilled and tapped for two 8-40 holes and then attach the base. To properly secure the rear mount it is required that this method is used.

### **C. Tube Locking Collar (TLC):**

This is the locking ring installed behind the elevation block in the rear mount to prevent the scope from moving forward due to recoil.

## **2. Instructions for installing the Heavy Duty Recoil Base.**

Because there is a tremendous variation in the strength of barrel steel used in both original and reproduction black powder muzzle loading and cartridge rifles, we have designed our heavy duty recoil base. In the original and our present Malcolm scopes, the rear mount takes all of the recoil. This means that the rear dovetail groove takes a lot of force. A 4000 series alloy steel barrel can be 5 to nearly 10 times as strong as a 1000 series steel such as 12L14 leaded steel. Since it is difficult to know what steel is in your barrel, we insist that our heavy duty recoil base is required to install. On Sharps type rifles that have the usual rear sight dovetail and screw hole, you can simply remove the rear sight and install the heavy recoil base using the correct sized dovetail block and a screw that fits the screw hole in the rifle. The screw attaches to the barrel thru hole (3) and the dovetail block is repositioned to slot (6) and attached with supplied screws thru holes (2). The rear mount is attached to the base using the screws that had been provided in holes (1) to secure the rear U Shape mount to projection (5). There are two extra holes (4) in the base that require drilling and tapping two 8-40 screw holes in the barrel to screw the base on securely in this way. This is the only way we can assure you that the scope will not shoot loose.



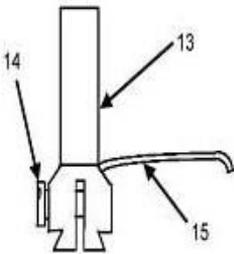
**Note:** When initially installing the rear mount on projection 5 it may be necessary to hand fit it into the slot in the rear mount. This is to insure the windage adjustment is very precise. Check the fit of the Malcolm dovetail block of the rear mount in the dovetail cuts in you barrel. The fit should be precise, but still allow these dovetailed parts to be slipped in without having to be driven in. IF THE DOVETAIL CUTS OF YOUR BARREL AND THE DOVETAIL BLOCK IN THE MALCOLM MOUNTS DO NOT MATCH, CONTACT **LEATHERWOOD HI-LUX OPTICS** AT (310) 257-8142) TO GET HELP.

### 3. Mounting the "Wm. Malcolm®" Telescopic Rifle Sight

The standard dovetails provided both for the front and rear mount are 3/8 wide. This is standard on most rifles. However if you have an original Sharps, a Shiloh Sharps, C. Sharps or Armi-Sport rifle the rear dovetail is a different size. You need to contact your dealer or **LEATHERWOOD / HI-LUX OPTICS** at (310) 257-8142 to obtain a dovetail block of the correct size. There are 4 different lengths of sunshades available to allow one scope to be used on several different barrel lengths. Check the general layout of the rifle and the scope to confirm that the scope has the correct sunshade length. Remove the sights of your rifle from the dovetail cuts in the top of the barrel.

#### Mounting Procedures:

##### A. To install The Front Mount:

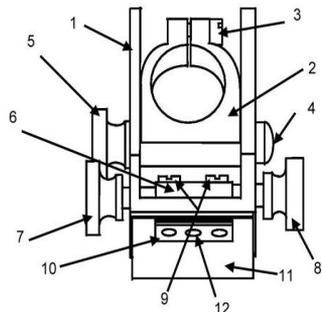


3/8" Dovetail size

(1). The front ring (13) slides forward to be removed from the scope. Slide the front mount into the front sight dovetail (Nearly all reproduction rifles have a 3/8 dovetail. If yours does not, it will be necessary to use an accessory front mount that has a provision for different width dovetails). It may be necessary to tap the front mount in place. Check the fit of the Malcolm dovetailed base of the front mount in the dovetail cut on you barrel. The fit should be precise, but still allow these

dovetailed parts to be slipped in without having to be driven in. IF THE DOVETAIL CUTS OF YOUR BARREL AND THE DOVETAILED MALCOLM MOUNT PARTS DO NOT MATCH, CONTACT **LEATHERWOOD HI-LUX OPTICS** AT (310) 257-8142 FOR HELP.

(2). There are two screws in the front mount. These should be on the muzzle side of the mount. Center the mount in the dovetail and tighten these two screws. These screws spread the mount and



cause it to be locked in the dovetail. This completes installation of the front mount.

## **B. To Install The Rear Mount:**

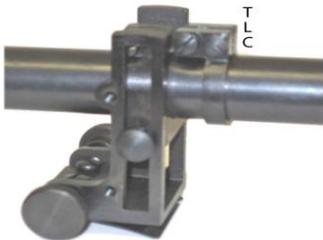
(1). To remove the rear mount bracket assembly (1), loosen and remove the knurled nut (5) and washers from the elevation lock cross bolt (4). Push the cross bolt toward the left and remove. You can now lift the scope (with scope elevation mount block attached) from the bracket.

(2). Loosen the two screws (9) that attach the windage adjustment plate (6) to the rear mount bracket (1) and the dovetail base block (10). This allows the base block (10) to be removed from the remainder of the rear mount. If your rifle dovetail cut is 3/8", the dovetail block should be used when you install the heavy-duty recoil base.

(3). Loosen the two screw in the heavy duty recoil base (1), Position the rear mount bracket assembly (1) over the Heavy Duty Recoil Base Projection (5). ,align the two screws (9) with the two screw holes of the heavy duty recoil base projection (5) and tighten to attach the mount to the base. (Be sure that the flat spring tension plate is in place between the bottom of the mount and the top of the heavy duty recoil base. The curve of the spring should be facing down, so that the bracket pushes down against the center of the spring, not the ends.) Make sure that the screws (9) are sufficiently tightened that the spring is almost flat. If these screws (9) would not be tightened and secured, the mount bracket could be bent in front by the recoil.

(4). Before the scope is reinstalled in the mounts, first loosen the two ring screws (3) just enough to allow the scope block (2) to slide on the scope tube. Insert the front of the scope (sunshade tube) into the front mount and slide forward. Re-insert the elevation adjustment screw (from left side of mount) through the mount bracket and the hole through the bottom of the scope block, slip on the washers and knurled lock nut (5). You can now adjust the scope for proper eye relief and engagement with the front mount. Level the scope as close as possible and tighten the lock nut to secure scope in place.

(5). Rotate scope until crosshairs are level. Loosen elevation lock nut (5) just enough to allow scope to be lifted to highest position in the rear mount. This will permit access to the screws (3) that tighten the ring on the tube. Tighten the screws (3) very tightly to prevent scope from rotating or sliding back and forth in the ring. Return the scope to level position, and you're ready to make sight-in adjustments. (Even if you get the screws tightened, you still need to install the tube locking collar to prevent the scope from moving).



## **C. To install The Tube Locking Collar (TLC):**

Install the TLC to fit against the back of the rear elevation block as the photo shows. You can remove the E.P. from the back quickly and slide the TLC on the tube and put the E.P. back on as soon as you can. You should tighten the two screws on the TLC tightly. Now the scope should not move forward during shooting. (If the TLC is already on the tube, you just need to tighten the two screws).

#### **4. Procedures To Sight In The "Wm. Malcolm"™ Telescopic Rifle Sight"**

(1). Make sure mounts have been correctly and securely attached to the barrel, and that the crosshairs in the scope are level. Also ensure that the ring screws have been sufficiently tightened to secure scope to prevent it from turning or sliding back and forth in the ring.

(2). Familiarize yourself with all the features of the scope mounts, especially the adjustment graduations found along the rear of the left "ear" of the rear U shape mount. Each mark basically represents 10 minutes of adjustment at 100 yards. Each mark on the vernier scale on the scope elevation mount block represents roughly 1 minute of angle.

(3). Place a sizeable target board or piece of paper (2'x2') at 25 yards, centering a small 1-inch bulls-eye on the target. Center the crosshairs and take a shot. If you are on the paper, you have your starting point. If not, get a bigger target.

(4). First, adjust for windage. Begin by loosening the knurled elevation adjustment knob along the right side of the rear mount, then lift scope to maximum elevation. This will permit access to the windage adjustment plate inside the front of the mount.

(5). Slightly loosen the two screws that secure the plate to the mount.

(6). Loosen the knurled windage adjustment screw on the opposite side in which you need the point of impact to move. Tightening the screw on the side that you wish the bullet to move, will move the rear mount (and point of impact) in the correct direction. Each full turn of the screw moves the point of impact about 5 minutes. When you feel the scope has moved far enough, retighten the two screws that fasten the adjustment plate to the mount and retighten the windage adjustment screw that was loosened.

(7). Return scope to the elevation marking used when taking the initial shot at the target and tighten lock nut securely, then shoot once more. Note how far the point of impact changed in relation to how far the windage adjustment was moved. Repeat the process until the point of impact (left-right) is in perfect alignment with the aiming point.

(8). If the shot is high, loosen the elevation adjustment screw and lower the rear of the scope, if the shot was low, raise the rear of the scope. Retighten the elevation screw lock nut and shoot another shot. Repeat the process until shots center the bulls-eye.

(9). Move the target to 50 yards and repeat the elevation adjustment. Once the rifle and load are printing "dead on", move the target to 100 yards.

(10). Once you have your rifle hitting and grouping well at 100 yards, you are ready to stretch out the range to 200 yards...300 yards...and farther, to determine the elevation settings required to hit the target.

**Note:**

The **REAR MOUNT** offers adjustments for both **ELEVATION** and **WINDAGE**. When the **REAR MOUNT** is adjusted to the **RIGHT**, it moves the point of impact to the **RIGHT**. When the **REAR MOUNT** adjustment is moved to the **LEFT**, point of impact moves to the **LEFT**. When the adjustment of the **REAR MOUNT** is moved **UPWARD**, point of impact moves **UPWARD**. When the **REAR MOUNT** is adjusted **DOWNWARD**, the point of impact moves **DOWNWARD**.

The standard **FRONT MOUNT** offers some **WINDAGE** adjustment for those rifles that tend to shoot noticeably off to one side. Whenever possible, **Leatherwood / Hi-Lux Optics** recommends that the **FRONT MOUNT** be centered as closely as possible in the front dovetail cut of the barrel. However, if the mount must be used to compensate for point of impact that is too far off one way or the other to be adjusted by the **REAR MOUNT**, remember to **ALWAYS** move the **FRONT MOUNT** in the **OPPOSITE** direction that you want the point of impact to go. Moving the **FRONT MOUNT** to the **RIGHT** moves point of impact to the **LEFT**. Moving the **FRONT MOUNT** to the **LEFT** moves the point of impact to the **RIGHT**. (**NEVER MOVE THE FRONT MOUNT SO FAR TO ONE SIDE OR THE OTHER. IT WILL NOT COMPLETELY UTILIZE THE FULL DOVETAIL CUT IN THE BARREL!**)

**5. Our Optional accessories:**

- (1) Fine Elevation Adjustment Kit.
- (2) Different Size of sunshades (3", 5", 7" and 9").
- (3) New Long Range precision Mount.
- (4) Sliding Mount for Heavy recoil gun.
- (5) Larger dovetail size for front mount and rear dovetail block.



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