

TACOM HQ[®]

Macro Charlie TARAC[®] Operator's Manual

V1.4

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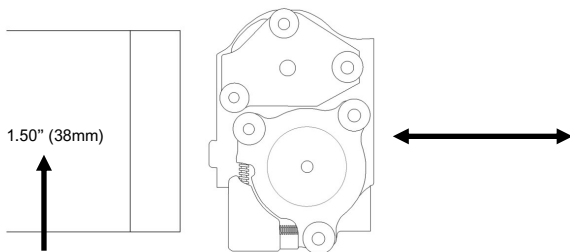
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Installation

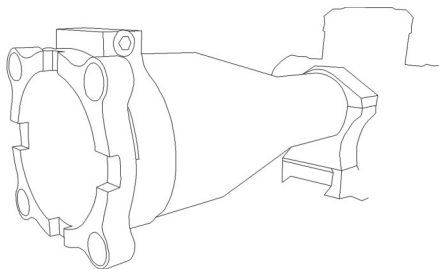
Rail Mount — To attach the Micro Charlie TARAC to a picatinny rail, depress the locking mechanism and rotate the mounting arm to the 90-degree, open position. Fit the unit in a picatinny slot. Rotate the arm back to the closed position. Mount anywhere in front of your objective. Optimized for 1.50" (38 mm) scope rings +/- 0.125" (3 mm) and works with any optic. See Fig. 1.

Fig. 1



Scope Mount — To attach the Macro Charlie TARAC to a scope (some models are exclusively rail mount), first thread the adapter onto the objective the same as a sun shade. This step may require removing the scope depending on bore offset). When it stops rotating, do NOT tighten. Rotate the adapter CCW until it is vertical (by eye). Use a level to square the Charlie to the scope and rifle and tighten the cross screw to 30in-lbs (same as scope ring tension screws). Mount the Charlie and check vertical alignment on a distant, vertical object or a Plumb Bob, and adjust accordingly. Insert both rear locking screws, and finger-tighten. See Fig. 2.

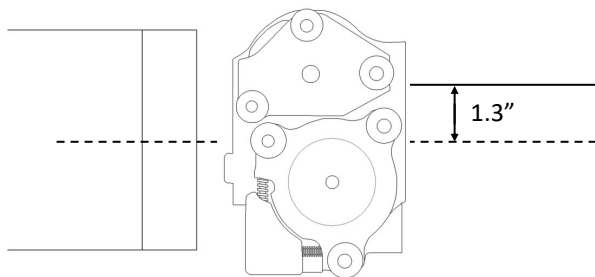
Fig. 2



Optic Centerline

Each Macro Charlie TARAC is preset using an autocollimator that will be accurate to within +/- 0.55 arc minutes of target. Other values may be found due to an offset between the scope's center line and the Charlie TARAC's induced optical center line. This measures approximately 1.3-inches. The angular offset is more pronounced at closer ranges, so if the target is within 100yds, this will need to be taken into account. As range increases, the offset ratio approaches zero. Use the tall target calculator located at www.tacomhq.com for a precise offset value. See Fig. 3.

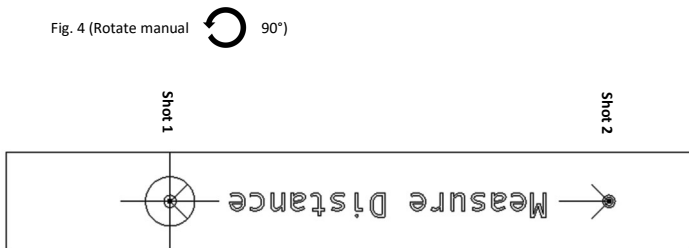
Fig. 3




Confirming Offset

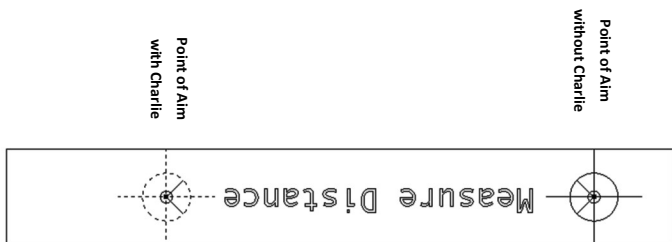
Method 1 — To confirm the offset of your Macro Charlie TARAC at the range, shoot a tall vertical target with a known point of aim at a known range (use a range finder to confirm distance) without the Charlie. Mount the Charlie and shoot at the same point of aim. The point of impact will be inches or feet (cm or m) from the original shot, so be cognizant of the backstop. Measure the distance between the two shots and calculate the MIL or MOA. See Fig. 4. One may also measure the offset using the scope's reticle to determine the MIL or MOA offset.

Fig. 4 (Rotate manual 90°)



Method 2 — To confirm the offset of your Macro Charlie TARAC without firing rounds, look at a target through your scope without the Charlie, and mark a known point of aim. Attach the Charlie and mark your new point of aim. Measure the distance between the two points and calculate your MIL or MOA (true not shooters). See Fig. 5.

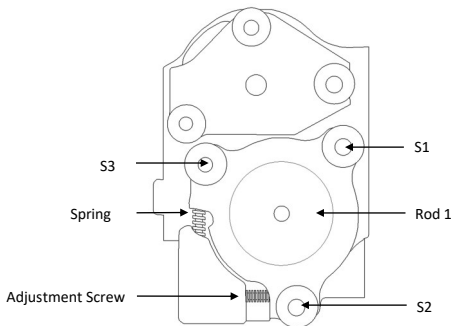
Fig. 5 (Rotate manual  90°)



Unit Adjustment

The Macro Charlie TARAC features an elevation mechanism on the right side of the unit, consisting of Rod 1, three #10-32 locking screws (S1, S2, and S3), a spring that loads Rod 1 against an adjusting screw, and an adjustment screw that tilts Rod 1. See Fig. 6.

Fig. 6



To adjust the Macro Charlie TARAC, loosen S1-S3 screws just beyond finger-tension, but DO NOT REMOVE. Turn the Adjustment screw to rotate Rod 1 0.3-MIL/1-MOA short of elevation target. Turning the Adjustment screw CW increases elevation. Turning the Adjustment screw CCW decreases elevation. See Fig. 7. Load S1-S3 screws with 10in-lbs, 20in-lbs (applying torque to S1-S3 screws will bring the left to right into its correct position.), 30in-lbs, 40in-lbs, and finally, 50in-lbs.

Fig. 7



Turning Adjustment Screw Clockwise (CW)
increases elevation



Turning Adjustment Screw
Counter-Clockwise (CCW)
decreases elevation

IMPORTANT: Always load S1-S3 screws and Adjustment screw by turning CW as you near your final adjustment value. Check elevation after each torque value. One complete turn of the 10-32 Adjustment screw achieves about 60 MILs of elevation shift. That equates to 2 MILs of elevation per 0.001" of movement or 1 MIL per six degrees of rotation.

Elevation Adjustment

Method 1 — To adjust the elevation of the Macro Charlie TARAC using a tall-target, bed the rifle, so the Charlie can be attached/detached without the platform moving. While looking at a tall, vertical target, mark a point of aim. Attach the Charlie, and adjust the unit until it matches a specific MIL or MOA shift using the tall target calculator at www.tacomhq.com > Charlie TARAC. See Fig. 8a-c.

Fig. 8a (Rifle w/o Charlie)

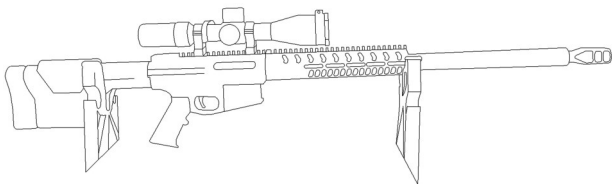


Fig. 8b (Rifle w/ Charlie)

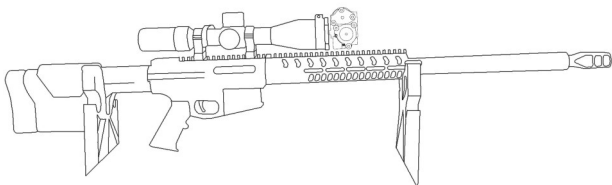
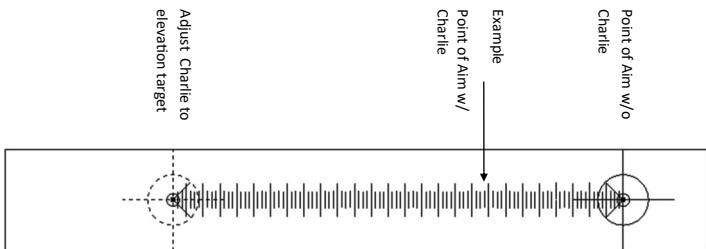


Fig. 8c "Ruler" (rotate Manual  90°)



It is advised to use Fig. 9 as a reference to compensate the difference in optical center lines when confirming the elevational offset of your Micro Charlie TARAC within 100-yds, and not using the tall-target calculator at www.tacomhq.com > Charlie TARAC. Values will appear short due to the 1.3-inch offset.

Fig. 9 (For reference ONLY if not using tall-target calculator at www.tacomhq.com.)

Range (Yds)	Charlie Centerline Offset
30—50	-1 MIL / 3.4 MOA
50—75	-.5 MIL / 1.7 MOA
75—125	-.3 MIL / 1.0 MOA
125+	-0 MIL / 0 MOA

Method 2 — To adjust the elevation of the Macro Charlie TARAC using the reticle, bed the rifle, so the Charlie can be attached/detached without the platform moving. Next, use the reticle to observe the distance between Point 1 (scope center) and Point 2 (x MIL/MOA below Point 1). See Fig. 10a. Attach the Charlie and adjust the unit until Point 2 is at scope center. See Fig. 10b.

IMPORTANT: As the Macro Charlie TARAC is adjusted (turning the Adjustment screw CW), the cross hairs will move down from the initial point of aim. This creates a larger elevation offset when raising the rifle to the same point of aim. The term "down" refers to one's point of view through the scope.

Fig. 10a (Scope image w/o Charlie)

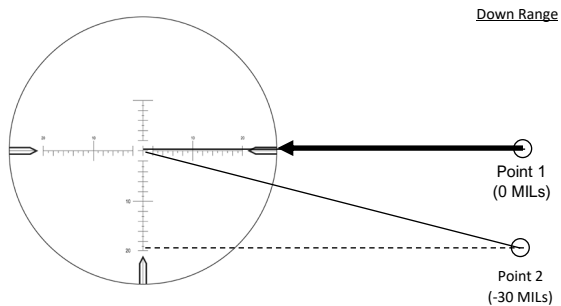
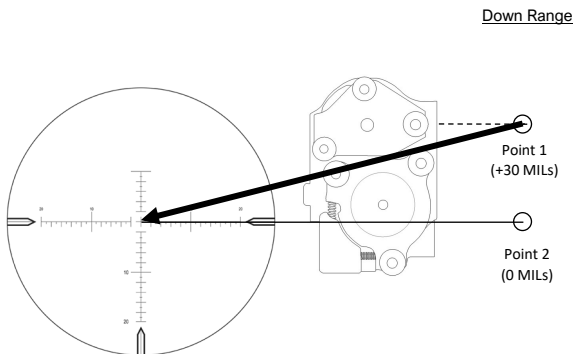
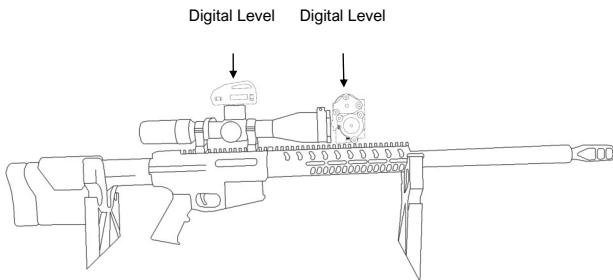


Fig. 10b (Scope image w/ Charlie set at 20 MILs)



Method 3 — To adjust the elevation of the Macro Charlie TARAC using a digital level, bed the rifle, so the Charlie can be attached/detached without the platform moving. Observe a known point of aim on a distant target. Measure angle 1. Add the Macro Charlie and tilt the muzzle up until target elevation is achieved. Adjust the Charlie until the distant target is centered within your cross hairs, and lock in place. Practice will guarantee your first shot will be within field of view. See Fig. 11. For utmost precision, we recommend you one of the levels at www.tacomhq.com. This is the fastest method for adjustment.

Fig. 11



Accuracy

Scopes are not the same manufacture to manufacture, particularly as they approach their limits. Therefore, results may vary for elevation. For example, high-end scopes are expected to perform within a percentage of absolute (variations are induced according to parallax adjustment). If a scope is expected to perform within 2% across its range, shooters will obtain unique values according to magnification, parallax, and range.

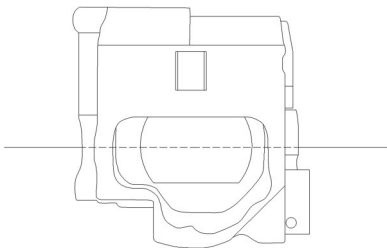
Cleaning & Maintenance

Maintain the Charlie TARAC as you would a scope. Glass is highly scratch resistant with a mil-spec coating. They will not fog.

Unit Zero

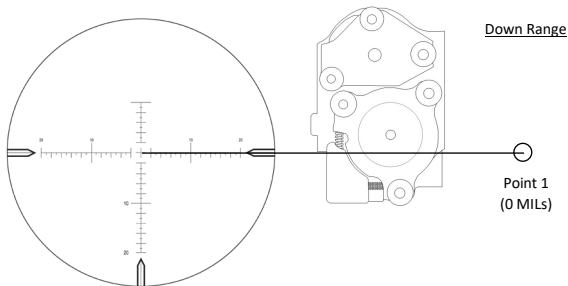
Method 1 — To zero your Charlie without using your scope, detach your unit from your scope or rifle. Look through the unit (from the scope side) at a distant target, preferably >100yds. Choose a long, horizontal line that is long enough to see both inside and outside the Charlie (such a roof). Adjust Rod 1 until the horizontal line seen in the Charlie is in line with the horizontal line outside the Charlie. See Fig.12. While this may seem crude, the human eye is capable of discerning extremely fine angles.

Fig. 12



Method 2 — To zero the Charlie using a scope, bed your rifle, so the Charlie can be attached/detached without the platform moving. Looking at a distant target, preferably +100yds, adjust Rod 1 and attach / detach the Charlie until its zero is in line with your scope zero. See Fig. 13. Greater the distance better the result.

Fig. 13



Notes
