



SPORT & RECREATIONAL OPTICS

# INSTRUCTION MANUAL

## SWEET 17™ SP RIFLE SCOPE

Sweet 17™ Scopes are designed for specific bullet weight compensation for 17 HMR in 17gr and 20gr.



Top quality multicoated optic technology reduces reflections and provides optimum light transmission for the best contrast and sharpest viewing resolution.



# STOP

**PLEASE DO NOT RETURN THIS PRODUCT TO THE STORE!**

If you need assistance, replacement parts or have questions regarding the warranty please contact BSA® Optics customer service:

**Phone: 954-581-2144**

(USA • Monday - Friday 8.30am - 5.00pm CST)

**1700 N 2nd St, Rogers, AR 72756**

Sweet 17™ Rifle Scopes are designed for the serious hunter. The main features of the Sweet 17™ are their ability to compensate for bullet trajectory by specific grain weight. The elevation drum will compensate for both 17HMR 17gr and 20gr.

The Windage and Elevation turrets have zero reset with “Allen” screw. Each model in the Sweet 17™ series have an adjustable parallax setting of 10 to ∞.

Each Sweet 17™ model scope includes:  
Hex Wrench, 3” Sun Shade and Micro Fiber Lens Cloth

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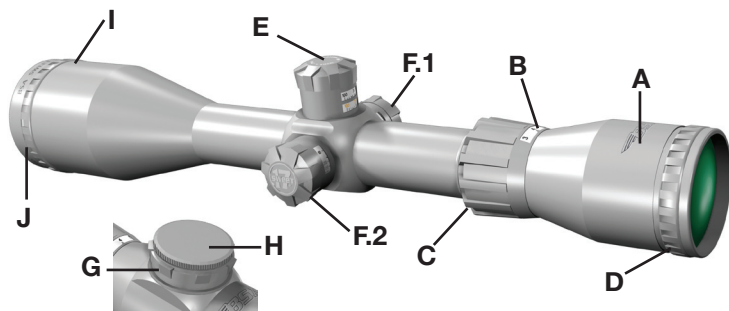
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**CAUTION:** DIRECT VIEWING OF THE SUN CAN CAUSE PERMANENT EYE DAMAGE. DO NOT ATTEMPT TO VIEW THE SUN WITH EITHER THIS PRODUCT OR THE NAKED EYE.

## 1.) FOCUSING YOUR SCOPE

Sweet 17™ scopes are “fast focus” and the standard eye relief on the Sweet 17™ is 4”. The zoom ring has an inner drum with markings, and a fixed inner ring with a window cutout. Only the outer ring and markings will turn when adjusted. The window is always facing the shooter.



- KEY:**
- A.) Ocular Bell
  - B.) Zoom Ring Window
  - C.) Zoom Ring
  - D.) Fast Focus
  - E.) Elevation Adjustment
  - F.1) Windage Adjustment
  - F.2) Side Parallax
  - G.) Rheostat
  - H.) Battery Compartment
  - I.) Objective Bell
  - J.) Objective End Ring

Hold the scope and look through the eye piece at a flat, featureless well lit area. The reticle should appear sharp and well defined. To make adjustments rotate the ocular bell focus in either direction. Look through the scope again. If the focus of the reticle has improved but is not perfect, continue to rotate in the same direction. If the condition has worsened you will need to rotate the bell in the opposite direction.



**CAUTION:** BE SURE THAT THE FIREARM IS NOT LOADED.  
PRACTICE SAFE FIREARM HANDLING AT ALL TIMES.

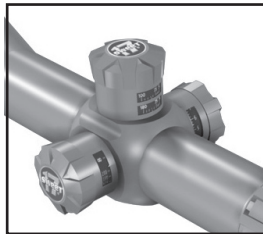
## 2.) MOUNTING

The Sweet 17™ scopes have a one-inch tube diameter. Depending on your rifle you will need to purchase the correct base diameter to insure fitment of mount and rail. Using a rest or gun vise is highly recommended. (One piece or two piece mounting rings can be used.)

- Separate the upper and lower halves of your ring(s).
- Install the lower half of your ring(s) on the rifle rail.
- Set the scope in the cradle.
- Replace the tops loosely (do not tighten).

Position the scope as far forward as possible and rotate the elevation turret to be vertical. Slowly pull the scope backward until your full FOV (field of view) is visible, check to make sure the reticle is aligned both vertically and horizontally with the bore axes of the firearm.

Once properly positioned, tighten the top halves of your ring(s) mount using a non-permanent thread lock.



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PRACTICE SAFE FIREARM HANDLING AT ALL TIMES.

## 3.) PRE-ZEROING

Locate an appropriate location to fire your rifle and set up a target at a distance of 100 yards from your shooting location. You should use a comfortable gun rest to eliminate as much human error as possible. Make certain the rifle is empty with no cartridge in the chamber and the breech open. Rotate the parallax ring to 100 yards.



**Manual:** Use the hex wrench supplied to loosen the top screw on each adjustment knob.

**For windage adjustment** turn clockwise to move the point of impact right, and counter clockwise to move the point of impact left.

**For the elevation adjustment** turn clockwise to lower the point of impact and counterclockwise to raise the point of impact. (See #5. Bullet Compensation)

**Using a boresighter:** Follow the instructions that came with your boresighter and install the boresighter in the muzzle of your rifle lining it up with the scope as close as possible.

Looking through the scope as though you were going to shoot you should see (2) two sets of crosshairs. One set is a plain crosshair (this is the one in the scope itself) and another set which is graduated or on a grid (this is the one in the boresighter). These crosshairs should line up with each other vertically, horizontally and in complete alignment. If the vertical and horizontal crosshairs are not parallel with each other, adjust the boresighter in the direction it needs to turn in order to achieve this.

Make sure the crosshairs cross or meet at precisely the same location. Proceed to adjust your scope right, left, up, or down until the cross-hairs match. **Remove the boresighter from the muzzle.**



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PRACTICE SAFE FIREARM HANDLING AT ALL TIMES.

#### 4.) ZEROING

The next step is to test ammunition. No two ammunitions will behave in the same manner when fired from the same rifle. This may be one of the most important steps in sighting in any firearm and is the one that is most frequently omitted. **DO NOT bypass this step.**

- Holding the crosshairs steady on the target, squeeze off a round.
- Repeat this two more times to get a three shot group.
- Retrieve your target and triangulate the shots to get an average point of impact. Measure from that POI to the bulls eye where you aimed.
- This measurement can now be adjusted with adjusting screws located on each turret knob.



- The arrows on the dial show which direction they will move the bullet.  
Turn the adjusting screws according to the MOA scale on the dial.

The Sweet 17™ is 1/4 MOA, that means one click will move the bullet 1/4" at 100 yards. (Note, if you zero at a different yardage, say 50 yards, one click will move the bullet only 1/8" at 50 yards.)

Once you have adjusted the windage and the elevation, you are now ready for another 3 shot group. Repeat this process until you are satisfied with the results.

**Note:** It is important to allow the barrel to cool down in between the three shot groups as heating of the barrel can cause bullet flight to vary. It is also recommended to swab the bore between shots with a dry patch to reduce buildup. DO NOT use any cleaning fluid or oil on the swab as this can affect bullet flight. If you are sighting in the firearm for hunting deer, you may want to adjust the elevation an inch or two above bulls eye at 100 yards. This will give your firearm extended range and still keep you in the kill zone at 100 yards and less. After zeroing use the hex wrench provided to remove the windage and elevation drums and reposition them so the that the ("0") lines up with the indicator line on the spindle. Any further windage and elevation adjustments can be made more precisely by calculating the amount of clicks from the zero point.

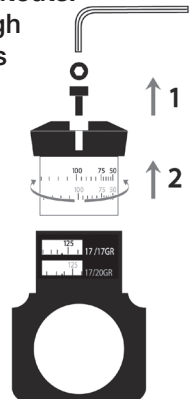
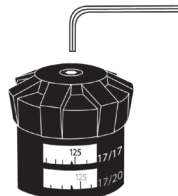
### 5.) BULLET COMPENSATION

The Sweet 17™ is designed using similar technology applied in the sniper trajectory compensation scopes. The elevation drum increments are precisely calculated to compensate for the elliptic drop of a .17gr and .20gr bullet. Once zeroed at 100 yards you can easily compensate the trajectory of the bullet at any given distance between 100 and 300 yards (275 yards for .20gr bullet) by turning the elevation drum to the desired distance.

The elevation turret has an outer fixed wall with two window cutouts. Compensation markings for the bullet weight are shown through these cutouts. The elevation turret has an inner drum that turns when adjusted. The outer portion of the turret is fixed with the window cutouts which will always face the shooter directly when the scope is mounted.

Windage turret has an inner drum with markings. Only inner drum turns when adjusted. Outer turret is fixed with a window cutout. Window is always facing shooter.

**SWEET 17™  
COMPENSATION DRUM  
17/20 gr.**



## 6.) ILLUMINATED MODELS

Located in the turret housing opposite the windage there is a rheostat knob, which controls the degree of illumination. The lower the number the dimmer the setting. The "0" position indicates the illumination is off. Included with illuminated models is a 3V lithium battery, type 2032. To install remove the battery cover and insert the battery positive side up. Replace the cover. (Note: If the reticle dims or does not light at all, replacing the batteries may be necessary).



*On models with illuminated reticles, the Rheostat Switch is positioned on the saddle, opposite to the windage knob. The Parallax adjustment is then positioned on the objective.*

## 7.) PARALLAX CORRECTION

Parallax is a condition that occurs when the image of the target is not focused precisely by misalignment of shooter's eye on the reticle plane. This condition exists in all scopes and accounts for more enlarging of rifle group sizes than anything else. Parallax is visible as an apparent movement between the crosshairs and the target when a shooter moves their head and changes eye alignment in the scope. The higher the magnification the more visible this is.

The side parallax knob is located opposite the windage knob on the other side of the scope. The parallax has an inner drum with adjustment markings, and a fixed outer turret with a window cutout. Only the inner drum will move when the knob is turned.

(On models with Illumination the rheostat battery knob will be located in this position and the parallax will be located on the objective.)

Without touching the rifle, move your eye around behind the scope. Do the crosshairs appear to move on the target? If they do, the parallax is not set for the range of the target you are using. Your Sweet 17™ rifle scope has an adjustable parallax knob to correct this at all yardages.

If your crosshairs move to the right on the target's image when you move your head to the left, the image plane must be further away than the crosshairs. Pull the image plane in by turning the knob clockwise and the objective moves closer to you. In this set up, the image is essentially tied to the objective so moving the parallax knob 0.1 mm moves the image 0.1 mm. Adjust outward (counter-clockwise) to pull back.

## 8.) MAINTENANCE

DO NOT ATTEMPT TO DISSASSEMBLE OR CLEAN THE SCOPE INTERNALLY. IF THE SCOPE REQUIRES REPAIRS OR ADJUSTMENT, SEE WARRANTY CARD FOR INSTRUCTIONS.

Start by brushing away dust and dirt particles from the lenses of the scope. Using the included lens cloth designed to clean optical surfaces brush dust or dirt particles away from the center of the lens towards the outside edges.

To remove minor smudges or fingerprints, start in the middle of the lens and using a circular motion clean towards the outside edges of the lens. If more aggressive cleaning is needed put a few drops of liquid lens cleaner on the cloth. Store the rifle scope in a moisture-free environment.

(Note: Not all cloth material like a handkerchief will remove smudges or fingerprints. Round fibers found in many cloth materials will tend to spread smudges and fingerprints. Use cleaning tools specifically designed for rifle scope cleaning).

## BALLISTIC CHART FOR 17HMR .17 and .20 GRAIN WEIGHT AMMUNITION

*BSA Sweet Series are different from any rifle scope on the market. They are engineered for multiple grain weight bullet trajectory compensation by caliber.*

SWEET 17 SP™				YARDS								Drop (in.)
Caliber	Bullet	Bullet Type	WT (Gr)	100	125	150	175	200	225	250	300	
.17 HMR	Federal V-Shok	V-Max	17	0	0.95	2.63	5.15	8.66	13.34	19.37	36.36	
Muzzle Velocity: 2530		BC: .125										
.17 HMR	Hornady Varmint Express	HP Varmint	20	0	1.15	3.14	6.11	10.22	15.68	22.68		
Muzzle Velocity: 2375		BC: .125										

First zero at 100 yards. Once the scope is zeroed, loosen the top elevation drum screw and rotate the drum until the 100 yards marking matches the zero marking (vertical line under drum). **Once this is done, the screw must be retightened.** After these simple steps you can easily compensate the trajectory of the bullet to any given distance between 100 and 300 yards by turning the elevation drum to the desired distance.

## WARRANTY REGISTRATION INSTRUCTIONS

To register your BSA product, please visit [bsaoptics.com](http://bsaoptics.com)

Send any correspondence to:

**BSA OPTICS CUSTOMER SERVICE, BSA Optics, Inc., PO Box 220, Rogers, AR 72757**

or visit us at [www.bsaoptics.com](http://www.bsaoptics.com)

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