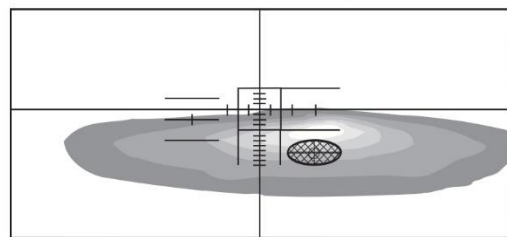
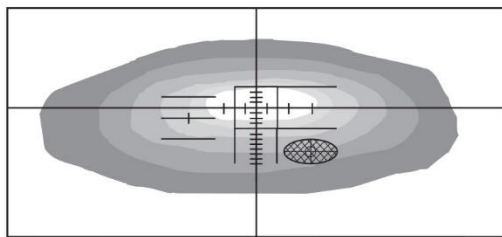


# VA 25 Headlamp Aimer

## INSTRUCTION MANUAL



**American Aimers, Inc.**

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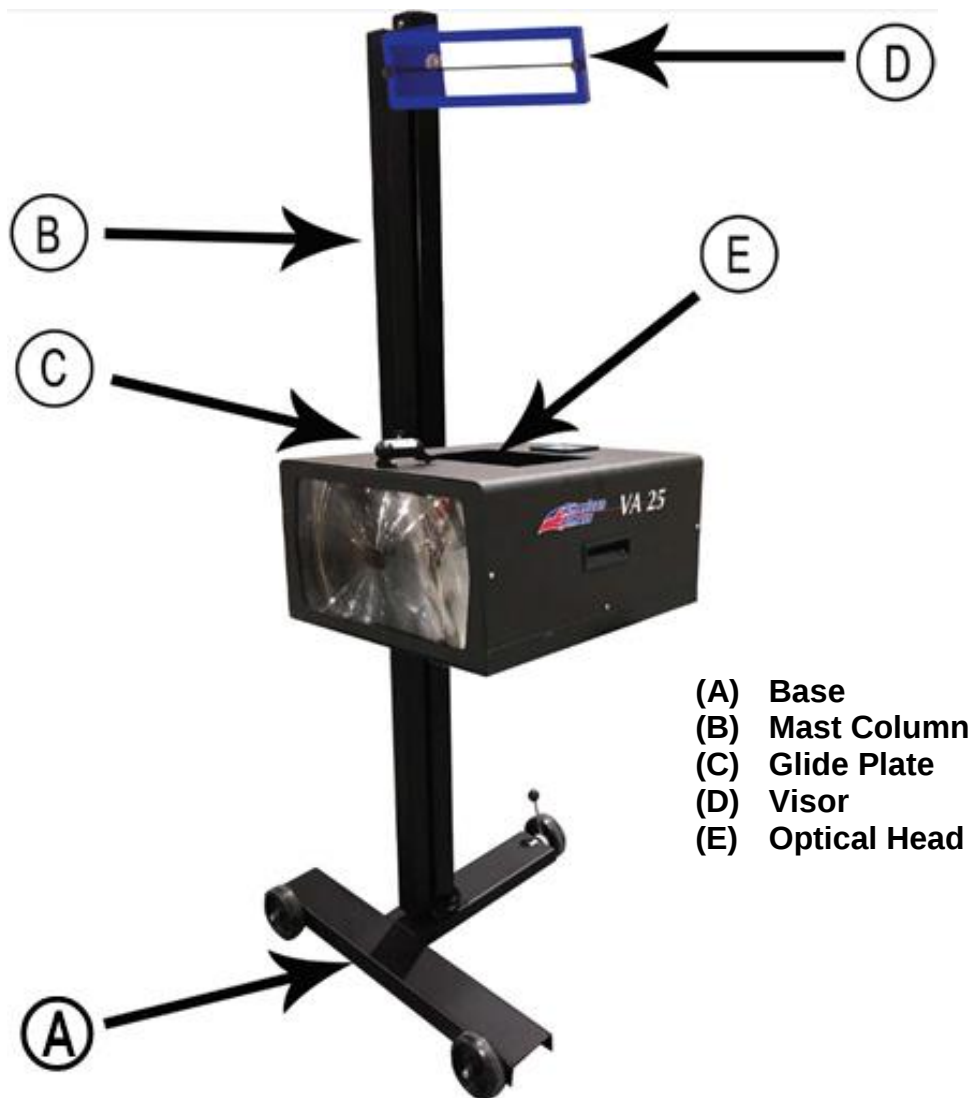
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# VA 25 Headlamp Aimer Operator's Manual

## Table of Contents

|                                      |         |
|--------------------------------------|---------|
| VA 25 Component Description          | Page 2  |
| VA 25 Aimer Assembly                 | Page 3  |
| Sighting Visor Calibration           | Page 5  |
| Vehicle Setup                        | Page 7  |
| Aimer Alignment to Vehicle           | Page 8  |
| Floor Slope Setup                    | Page 9  |
| Aimer Alignment to Lamp and Lamp Aim | Page 10 |
| Aim Guidelines/Internal Aim Screen   | Page 11 |

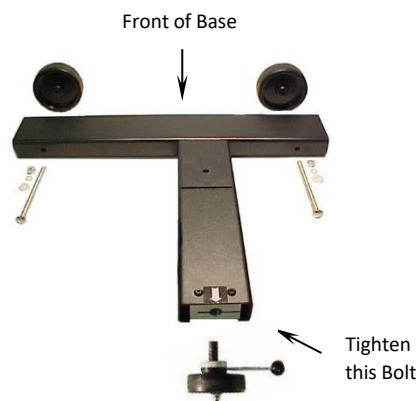


## 1 ASSEMBLY

Inspect all components of the VA 25 system to assure that no damage has occurred during shipment, compare contents of package(s) with that of the exploded view to make sure that no component has been inadvertently left out of the packaging. If a component is missing, contact our customer service department at (816) 600-2484 for an immediate replacement.

### 1.1 BASE / WHEEL ATTACHMENT

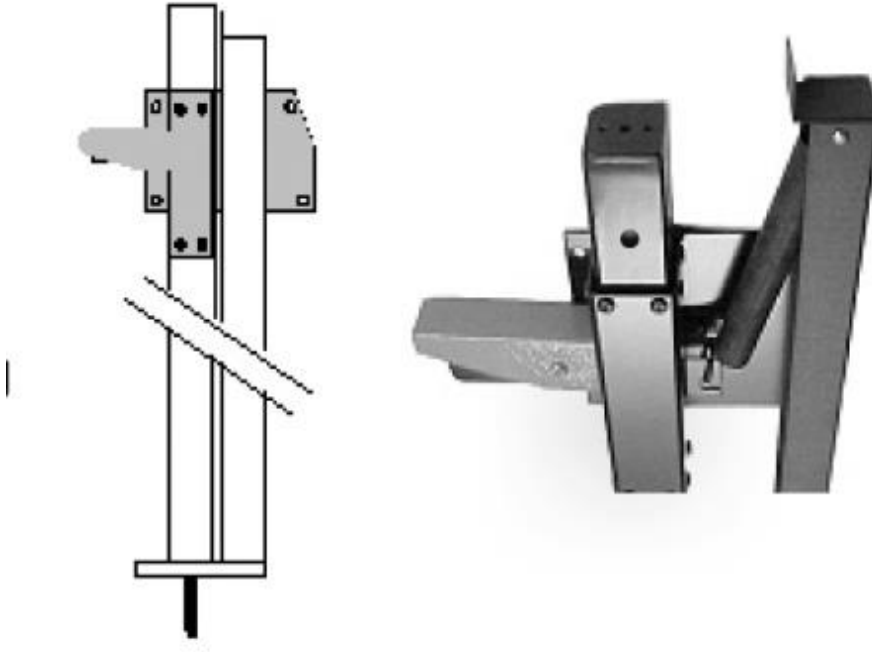
1. Install Floor Slope Eccentric Axle assembly (attached indicator scale & handle) into rear wheel of base. Tighten mounting screws.



2. Install non-eccentric wheels on front of base. Secure bolts in place using a 5/16" steel flat washer and non-locking nut on each wheel. Tighten until bolt is secure. Place one thick 5/16" nylon washer on bolt, followed by a wheel, another nylon washer and 5/16" lock nut. Tighten lock nut until the wheels are snug, but still spin freely.
3. Lay the wheelbase flat on floor. Place the nylon thrust bushing over the hole in the center of the wheelbase. Holding the mast upright, place the stud on the bottom of the mast through the bushing and into the hole in the center of the wheelbase. Tilt the wheel-base and mast together until you can access the large hole on the bottom of the wheelbase. Place the provided 1/2" flat washer and self-locking nut on the stud and tighten to zero tolerance. Loosen 1/16 turn at a time until the mast rotates smoothly with slight resistance.

## 2 MAST / GLIDE PLATE / ROTATIONAL MAST MOUNT

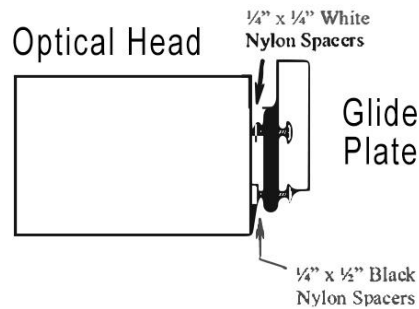
1. The Mast, Counterweight Spring Cover and Spring are packaged as an assembly. Remove attachment screw at top of mast spring cover.
2. Slide Glide Plate over end of mast, between mast and mast spring cover, ensuring that handle is pointed away from spring cover. Slide glide plate down over mast until the spring hook of the glide plate is even with the bottom of the spring inside of the mast spring cover. Place bottom of spring into spring hook and reattach screw at top of mast spring cover.



3. Place rotation bearing over mast stud and insert rotational mast stud into base. Secure mast to base with 1/2" flat washer and 1/2" self-locking nut. Tighten nut securely then back off 1/4 turn, or until mast rotates freely with minor resistance.
4. Move glide plate up and down the mast through its full motion, by depressing handle.

## 3 OPTICAL ALIGNMENT HEAD

1. Remove optical alignment head from shipping carton. Inspect for any damage that may have occurred during shipment i.e. lens, case, etc.
2. Attach optical alignment head to the mast glide plate by aligning mounting holes of glide plate with the holes in the optical head. Insert 5/16" x 1" allen head screws through glide plate, place one (1) 5/16" nylon spacer on each screw, attach optical head and tighten securely.



3. Remove protective paper covering from viewing window on top of optical head. Move optical head through the full range of movement to assure of smooth operation.

#### 4 SIGHTING VISOR

The sighting visor is the "L" bracket assembly enclosed in the accessories box.

**NOTE: Mount sighting visor so that unit is located directly over the optical head.**

1. Insert the 5 /16" x 2.5" phillips head machine screw with 5 /16" nylon washer into the sighting unit.
2. Place a thick nylon bushing on the screw and insert screw through the hole provided at the top of the mast, place a thick nylon bushing on screw and self-locking nut.
3. Tighten to a tension that allows for movement of sighting unit but provides sufficient friction to hold unit in place when unattended.

**NOTE: Sighting visor must be calibrated to the optical head prior to alignment of headlamps.**



#### 5 SIGHTING VISOR CALIBRATION

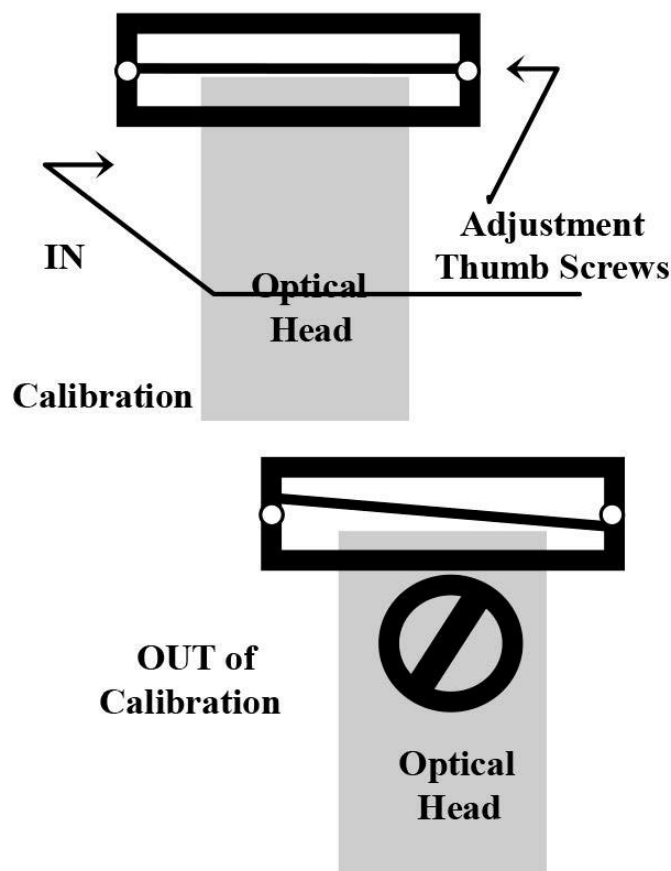
Calibration of the Sighting Visor must be performed prior to alignment of headlamps.

1. Raise Optical Head of VA 25 to the approximate center of the Mast.
2. Turn the Sighting Visor until you can see the front edge of the Optical

Head while looking through the Sighting Visor Lens. The line on the Sighting Visor Lens should line up with the front edge of the Optical Head.

3. If line on Sighting Visor Lens does not line up with the front edge of the Optical Head, loosen the Thumb Screws on the lens and move the lens into alignment. Tighten Thumb Screws.

**It is important the periodical checking of the calibration of the Sighting Visor be performed to assure equipment is calibrated properly.**



## 6 FLOOR SLOPE LASER

The floor slope laser assembly is factory calibrated, **DO NOT** turn the level adjustment set screw. The laser is used for floor slope measurement only.

1. Remove laser after floor slope measurements have been recorded.
2. Remove floor slope laser from packaging and insert front fixture placement pin into

hole on top and at front of the rear area of the optical head, also there is an indentation provided for the height adjustment screw to rest within.

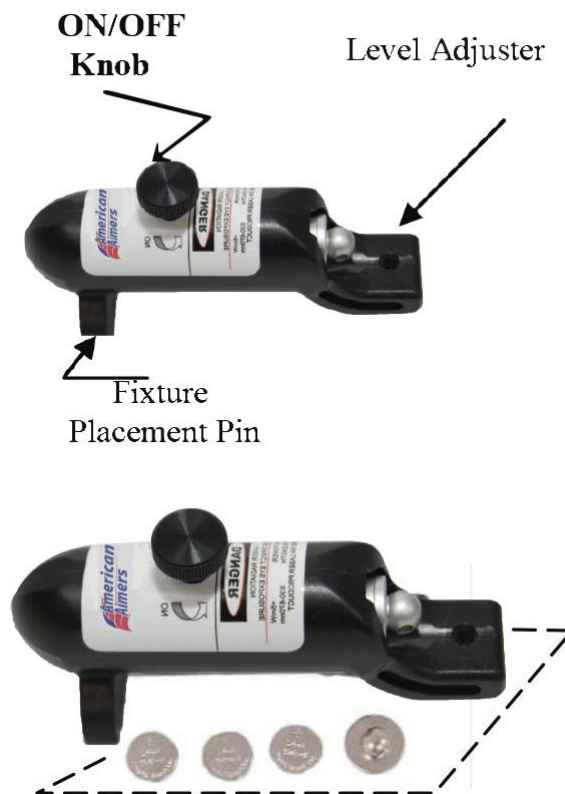
3. Activate the laser by turning the **ON /OFF** knob clockwise. (**CAUTION:** Excessive turning in one direction may damage laser **ON /OFF** mechanism) Turn off laser to assure functionality. No further adjustment is required.

**NOTE:** Should calibration of the laser become necessary in the future, refer to "**LASER CALIBRATION**".

### Laser Battery Replacement

Unscrew back of laser and replace batteries with three (3), LR 44 button batteries or equivalent. Reverse process for assembly.

After battery replacement, **CALIBRATION COULD BE REQUIRED.**



## 7 VEHICLE SETUP

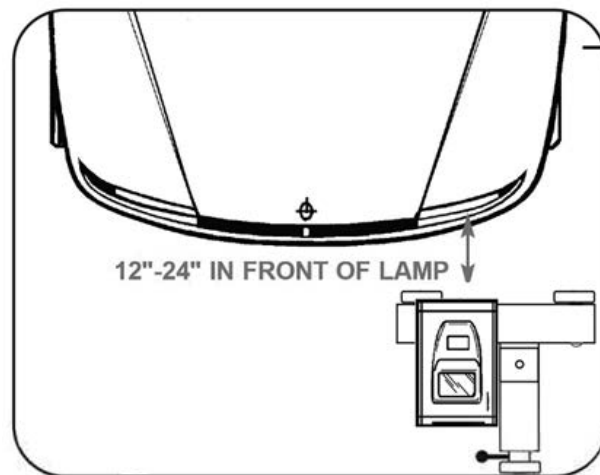
The aiming floor should be relatively clean and dry with no unusually uneven areas that could affect the positioning of the vehicle or aimer.

Drive the vehicle to be checked into the aiming area, set the parking brake. Vehicle preparation should include the following:

- Remove ice or mud from under the fenders.
- See that no tire is noticeably deflated.
- Check for sagging or broken springs.
- See that there are no unusual loads in the vehicle.
- Check function of "level ride control", if applicable.
- Clean lamp lenses.
- Check for lamp burn-out, proper beam switching, and moisture condensation. Replace lamp if moisture is present.
- Stabilize suspension by rocking vehicle.
- The vehicle headlamps must be turned on to aim the lamps.
- Locate the horizontal and vertical adjustment screws. For many vehicles, the hood must be raised to gain access to the adjustment screws.

## 8 AIMER ALIGNMENT

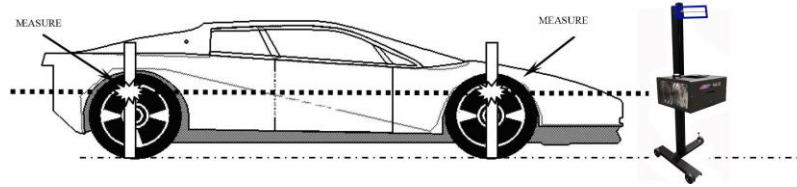
Prior to alignment, insure that the VA 25 floor slope is set for the bay it is being used in. Set the VA 25 approximately two (2) feet in front of and parallel to the front of the vehicle.



## 9 ALIGNMENT TO VEHICLE

Place the two front wheels of the VA25 facing the vehicle as shown above so that the aimer head is in front of a lamp. The aimer should be positioned so that the front of the aimer head is approximately 12- 24 inches from the lamp. The aimer should be positioned so that the aimer can move from side to side, lamp to lamp.

## 10 SET FLOOR SLOPE



1. Lower the optical head to the bottom of the mast.
2. Place a level on the aim head, front to back and adjust optical head by rotating eccentric wheel at rear of base until level vial registers level.



3. Place the guide pin of the laser in the hole on top of the head at the front.
4. Turn the laser on.
5. At the center point of the front wheel of the vehicle measure the distance from the floor to the point where the laser strikes the tape measure, RECORD.
6. Move to the center point of the rear wheel of vehicle and measure the point where the laser strikes the tape measure, RECORD.
7. If the measurements at the front and rear wheels are not equal, the bay has a slope.
8. Rotate the floor slope handle on rear wheel until equal measurements are registered at the front and rear wheels.

**NOTE: When rotating eccentric axle on VA 25, both measurements will change at front and rear vehicle wheels, to achieve equal measurements, more than one eccentric axle change may be required.**

Note the number on the floor slope gauge and record that number along with the bay designate on floor slope sticker provided. Repeat procedure for other bays and record.

**NOTE: After measurements have been taken, remove laser and store in a secure place**

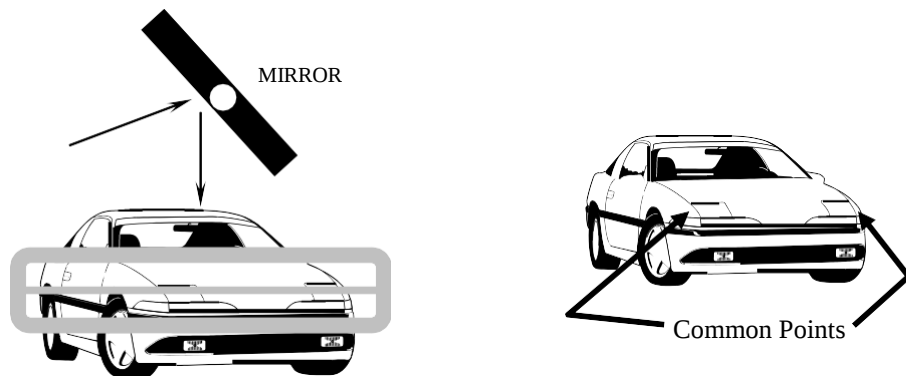
## 11 ALIGNMENT OF OPTICAL HEAD TO VEHICLE

1. Place the VA 25 in front of the first headlamp to be aligned. Once the VA 25 is in place, the lens of the optical head should be approximately 12 inches (+/- 6 inches) from the face of the headlamp.
2. Set the floor slope of the eccentric wheel for the bay in which the vehicle has been parked.
3. Looking through sighting visor, locate two (2) common points on or under the hood to align the line in the sighting visor on.

**NOTE: Points can be hood stops, radiator supports, points of fender, etc.**

4. While looking through sighting visor, align the line of the sighting visor on the two common points by rotating the optical head.

The VA 25 is now aligned with the vehicle. Repeat the alignment process for each lamp.



## 12 CENTERING ON THE HEADLAMP

Turn headlamps on. Move optical head up, or down to the center of the headlamp. Position of center of the headlamp is approximate; a 2" allowance is acceptable.

**TRICK:** A method to determining if position is greater than 2" is by observing the "Visual Assist" meter for highest reading while moving VA 25 left/right and up/down in front of the headlamp to be aligned.

## 13 HEADLAMP ALIGNMENT

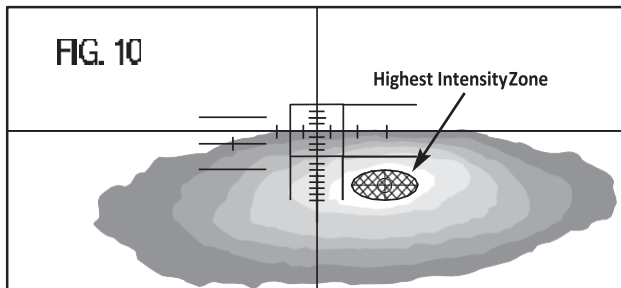
### 1. SETTING THE BEAM PATTERN

Not all headlamps are created alike, different vehicles may have different design patterns. To be certain of the lamp pattern, a designate is located on the lamp at the bottom of the lens. Patterns of lamps that may be aligned with the VA 25 are listed below.

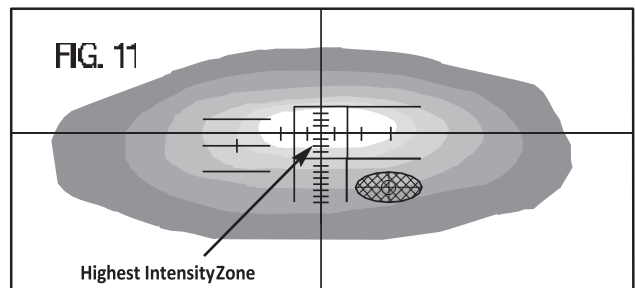
### 2. VEHICLES WITH 4 HEADLAMP SYSTEMS

When high beams are not located in the same assemblies as low beams (older 4 headlamp system) high beam test must be done using the method per Fig. 11.

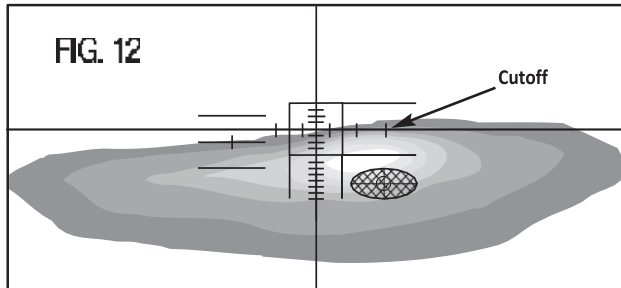
INTERNAL SCREEN: LOW BEAM PATTERN



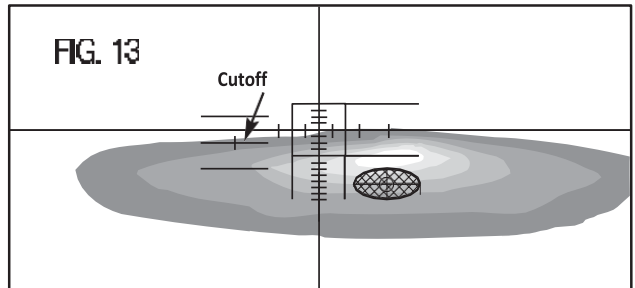
INTERNAL SCREEN: HIGH BEAM PATTERN



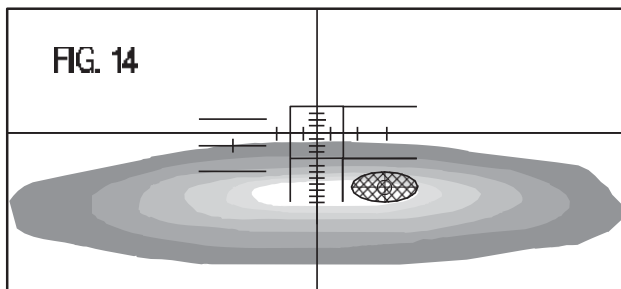
INTERNAL SCREEN: VOR BEAM PATTERN



INTERNAL SCREEN: VOL BEAM PATTERN



INTERNAL SCREEN: FOG LAMP BEAM PATTERN



VO headlamps are set with the upper beam cutoffs, not the highest intensity zone.

VOR headlamps use the right side of the beam pattern (Fig. 12).

VOL headlamps use the left side of the beam pattern (Fig. 13)

NOTE: The vertical aim scale is provided with graduated increments in steps of 50mm (2 inches) at 25 feet, both above and below the horizontal line.

The horizontal aim scale is provided with graduated increments in steps of 50mm (2 inches) at 25 feet, both left and right of the vertical line.

**This manual should be read in its entirety before operating the VA25. If you have questions, please contact American Aimers Technical Support at 1-816-600-2484.**