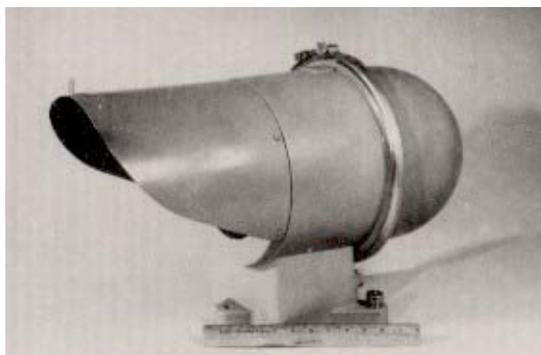


## Ocean Engineering Technical Data Sheet Focusing the FA-240 Range Lantern



The FA-240 Range Lantern must be focused **only** in a properly equipped shop. If for any reason the shop focus settings are disturbed in a fielded operational lantern, the lantern shall be removed from service and replaced with one that has been shop focused. Please follow the procedures outlined below to properly focus a FA-240 Range Lantern:

1. Mount and level the lantern on a workbench located twenty-five to thirty feet (25 to 30 ft.) from a flat, vertical wall in a darkened room.
2. Establish and aim the lantern at a twelve-inch (12-in.) diameter target on the wall, as shown here in Figure 1:

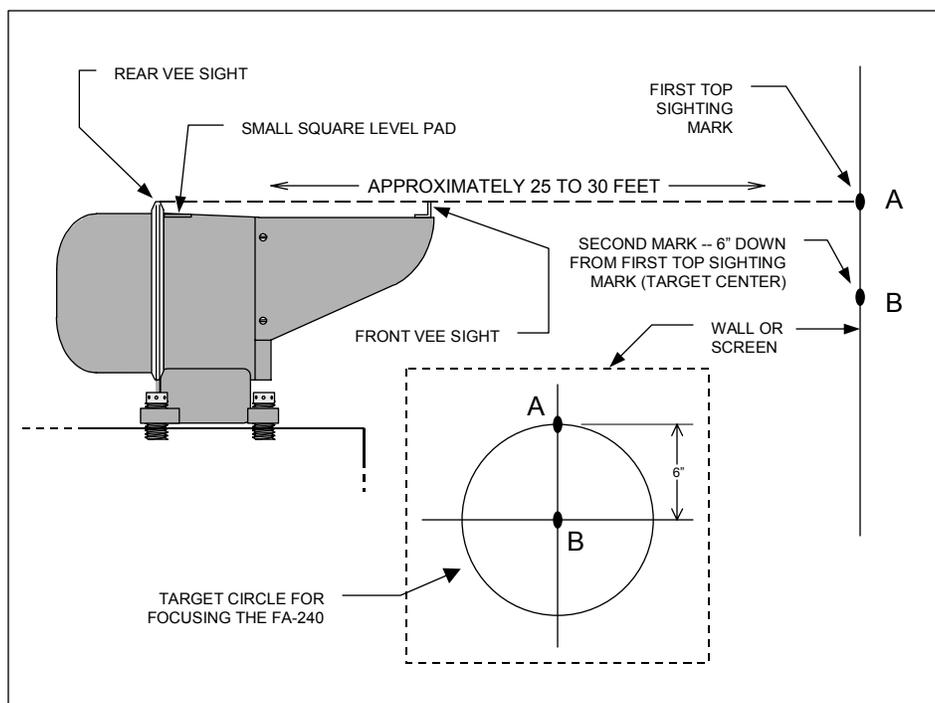


Figure 1.

3. Select a group of lamps that have straight filaments with no obvious flaws. Install one of these lamps in the lantern.
4. Wire the lantern so that the lamp burns “fixed” and the lampchanger does not rotate. This is accomplished by: (1) removing the blue wire from the blue terminal and letting it hang free, (2) removing the red wire from the red terminal, and (3) connecting **both** the red and black wires to the positive terminal on the flasher.
5. Using a screwdriver, fully tighten all four (4) focus-adjusting screws until all focus springs are fully compressed. When this is done, **the light pattern observed on the wall will be an extended star with sharp boundaries around a dark center, which must fall in the center of the target.** This step establishes a beginning point at which the axis of the beam is both horizontal and aligned with the “vee” sights on the lantern.
6. In progressive steps, adjust the filament position toward the focal point, taking extreme care to ensure that **all** focusing screws are turned **exactly** the same amount in each step. Final focus is achieved when the image is the most defined (sharpest) and clear at the edges of the light pattern, and the pattern is centered on the target. Required patterns for the various lenses are:
  - a. **3.5° x 2° Lens:** A pattern of rectangular shape, ten inches high and twenty inches wide (10”H x 20”W).
  - b. **8° x 2° Lens:** A pattern of rectangular shape, ten inches high and forty-two inches wide (10”H x 42”W).
  - c. **30° Lens:** A band pattern approximately 4½ inches high (at 25 feet, this pattern will be very wide, probably immeasurable on the wall or screen being used).

#### 7. Lamp Selection.

DO NOT use S-11 envelope lamps because they will not clear the mirror when mounted and rotated in a standard CG-6P lampchanger (S-11 lamps are 3.05a and all CC-8 incandescent filament lamps). However, all S-8 lamps with C-8 filaments will work properly in the FA-240 lantern.

The FA-240 is so sensitive to proper focus that the lamp manufacturers’ normal tolerances for filament placement are not adequate. For this reason, only those lamps that have been previously hand-selected and bench tested in a lantern shall be used. Each lamp shall produce a pattern that is within ½ inch of the original pattern. At the time lanterns are focused, spare lamps shall be selected and tested, then specially marked and stored, in sufficient number, to meet future field replacement needs. These marked lamps can be used to bench-focus another FA-240 lantern at your shop, which can then be used to select additional lamps. This lamp selection process will increase the stock of usable lamps for future field replacement.

8. The FA-240 Range Lantern must be focused “in-house.” In the field, the only major components that can be replaced without having to refocus the lantern are:
  - a. Previously-selected lamps;



- c. **Mirror.** Inspect the mirror for damage and ensure that it is clean. The mirror is installed with three  $\frac{1}{4}$ " x  $\frac{3}{4}$ " stainless steel screws. The mirror must be oriented such that the larger cutaway is on the right side when *looking forward from behind and through the lantern.*