

WEAVER®

Safety Lane

Electric Eye Headlight Tester Manual

Model Year 1937

DISCONTINUED No Parts Are Available

Section One – Operating Instructions

Section Two – Manual of Headlight Service

Section Three – Headlight Service and How to Sell It

Visit www.castleequipment.com and view the Weaver History Page for additional details

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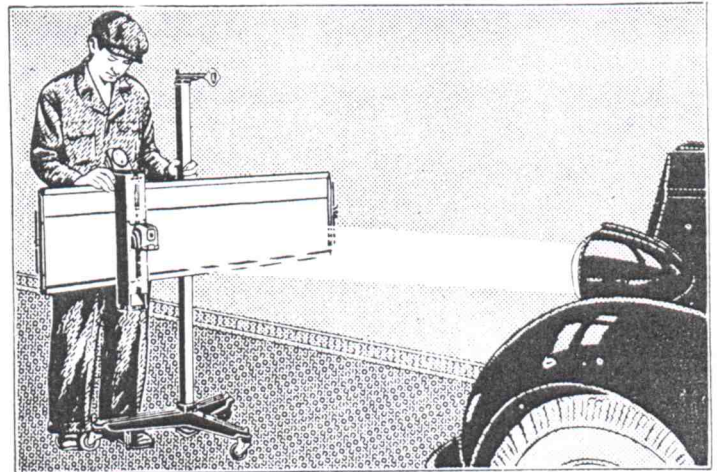
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OPERATING INSTRUCTIONS

for Using

Weaver Electric Eye Headlight Tester

IMPORTANT —
ESTABLISH A
**HEADLIGHT SERVICE
DEPARTMENT**
IN YOUR SHOP
WHERE ALL TESTS CAN BE MADE
WITH ASSURED ACCURACY



Headlight adjustment is one of the most exacting services from a standpoint of accuracy. Variation of just one degree from proper aim means deflection of the beam 3 1/2 feet out of line at a distance of 200 feet — enough perhaps to throw the "hot spot" off the road and seriously reduce the distance of effective illumination and vision.

Under such circumstances it is obvious that your Weaver Electric Eye Headlight Tester, or any other device, should not be used "just anywhere" on the garage floor. Precautions should be taken to see that the Tester stands on a PERFECTLY flat place, and that both car and Tester are in the same plane — preferably level. The Testers are calibrated at the factory for a perfectly level floor, and before attempting to service headlights, test the floor where Tester is to be used as to its suitability for headlight work. First make sure that the spot where the Tester is to stand is quite smooth — enough so that the Tester wheels may move wherever necessary without meeting bumps or hollows that will tilt the screen. Then place the Tester in this smooth area, and drive a car to suitable working distance. Adjust the Tester screen up or down until both images on the ground glass are squarely centered on the horizontal cross hair with white image squarely centered on vertical cross hair, as in Fig. 1. Measure carefully the height of headlight center above floor and out

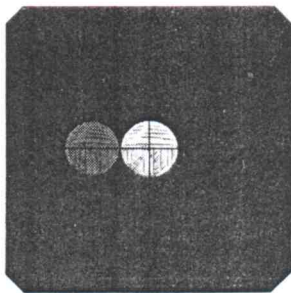


FIG. 1

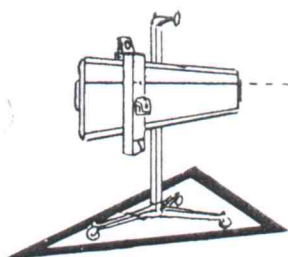
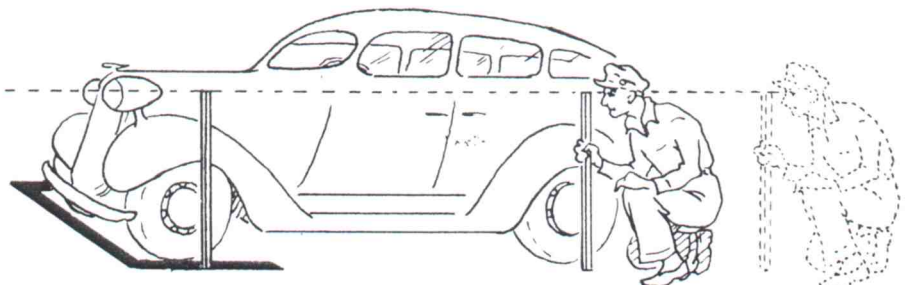


FIG. 2



two sticks to this exact length. Place beside front and rear wheels (as in Fig. 2) and sight along their tops. They should line up exactly with the black line on the screen panel. If not in line, move Tester screen up or down until the black line lines up with sticks, and adjust screws at back of screen so that the image comes on cross hair. (See Fig. 3).

Having found a suitable location for headlight service, we earnestly recommend that you mark it by painting lines on the floor, using the dimensions shown in Fig. 4. Note

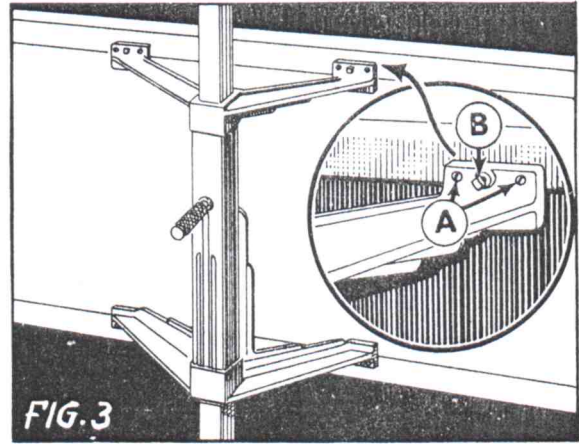


FIG. 3

that the inner

edge of the car guide line should indicate the correct location of the headlight lenses — cars to be tested should be stopped with lenses directly over the near edge of the line. Such markings not only serve to keep your headlight testing accurate, but will departmentalize and dress up your headlight service.

Most shops find it a real help to use a portable cabinet with drawers for their headlight work. It will be found convenient to hold tools, cotton, metal polish, bulbs and other parts. Those who really "do a job" of headlight service will mount a voltmeter in their cabinet, and be prepared to test the actual voltage delivered to the headlights. Weaver does not make such a cabinet — we merely recommend it as a great convenience.

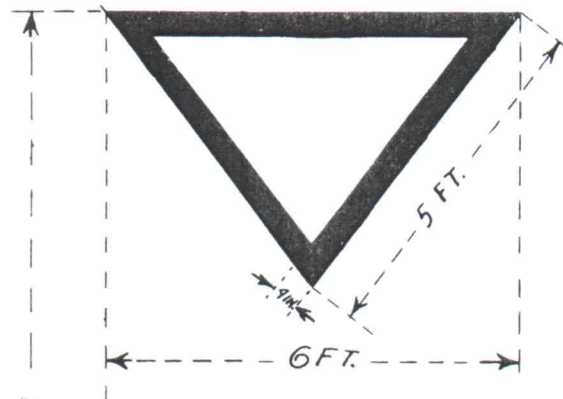


FIG. 4

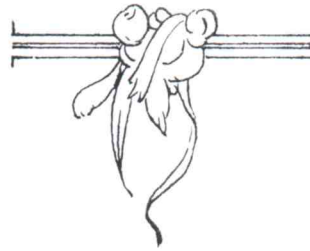
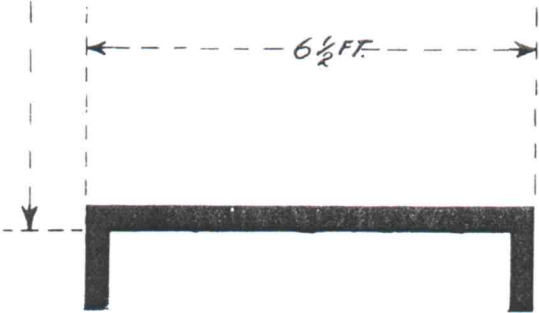


FIG. 5

Diagrammatic cross section showing how the Optoscope works

HOW TO USE THE ELECTRIC EYE TESTER

1. PLACING THE TESTER

(a) Set the Tester about ten feet in front of the car (avoid direct sunlight) and with the car lights turned off, adjust the meter to zero using the knob on the face of the dial. This eliminates the effect of daylight on the meter, so that the entire reading represents the illumination of the headlights alone.

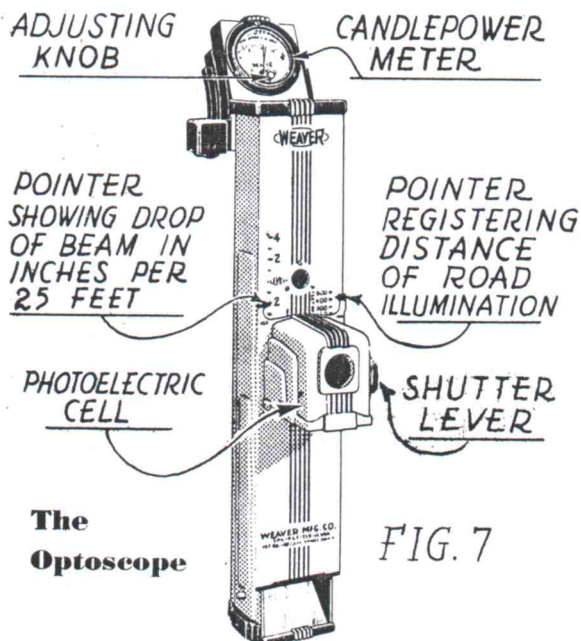
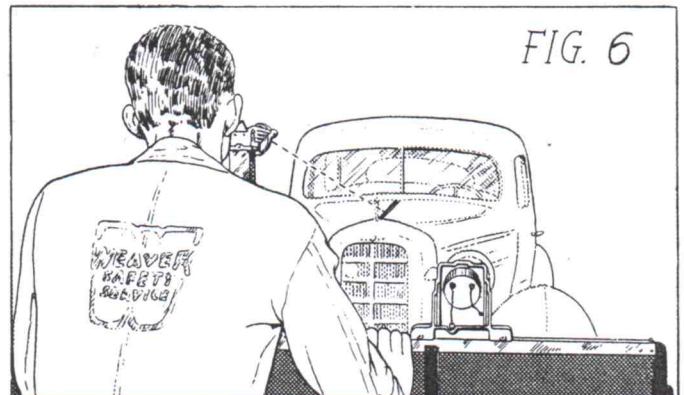
(b) Turn on the car headlights to the highest and brightest beam. You can easily tell which beam is which by the pattern on the screen of the Tester. Most modern cars change from the high beam to passing lights by means of a foot switch, usually placed at the left of the clutch pedal. In adjusting to the high beam, watch the pattern on the screen and make sure the wiring is not crossed (see NOTE to instruction (k)).

(c) Place the Optoscope approximately straight in front of one of the headlights. As you look in the top of the Optoscope you will see a ground glass (see Fig. 1) on which appear two images of the headlight — one white and the other red. Move the screen up or down until the white image is centered on the horizontal cross line (the line parallel with the screen). It is easy to center this image since the exact center will either show the bright spot of the bulb filament, or a dark spot if the filament is shielded.

(d) Next move the Tester toward or away from the car until the red image is also centered on the horizontal cross line. This places the Tester exactly ten feet from the headlight.

(e) Sight over the Tester to line it up squarely with the car, using the sights to aim as if to shoot a bullet straight along the hinge of the hood (see Fig. 6).

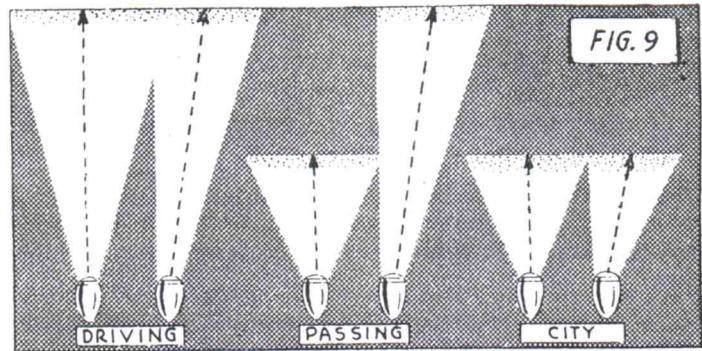
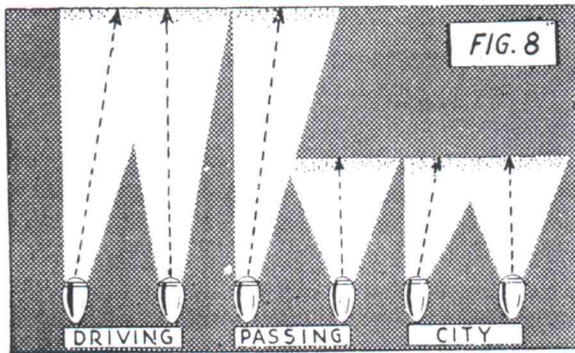
(f) Lock the Tester in place by pressing the foot lock at the rear of the Tester. Check at once with the Optoscope to make sure you have not changed the distance of the Tester from the car.



2. TESTING THE AIM OR BEAM ANGLE

(g) Adjust the screen again exactly for height, same as in instruction (c) above. This places the line on the screen and the word "LEVEL" on the Optoscope at the same height above the floor as the headlight center. Next slide the Optoscope to right or left along the screen until the white image is centered on the vertical cross line (the line at right angles to the screen). This places the Optoscope squarely in front of the headlight.

(h) Move the photoelectric cell up or down on the face of the Optoscope until the highest possible reading is obtained on the meter. Note: Keep the glass face of the Photoelectric Cell free from dust by polishing occasionally with a soft cloth.



IMPORTANT: If headlights are so bright that they overtax capacity of the candlepower meter, use the shutter (see Fig. 7) before the photoelectric cell, which cuts the aperture approximately in half. With shutter in use, lights will have about double the candlepower registered on the meter.

The pointer at the left now indicates the elevation or drop of the beam in inches for each 25 feet. (See Fig. 7). Thus if the pointer registers 2 below level on the Optoscope, the beam drops 2 inches in 25 ft. The pointer at the right gives the approximate distance of effective road illumination in feet — an exclusive patented feature of the Weaver Electric Eye Headlight Tester. Move the Optoscope to right or left on the screen and see if it is possible to increase the reading on the meter. The point of the highest reading indicates the beam center. If it is slightly to the right of straight ahead, read instruction (k) carefully before making adjustment.

3. TESTING AND ADJUSTING FOCUS

(i) After placing the Optoscope in position to secure the highest possible reading on the meter (or in other words, at beam center) turn the focus adjusting screw slightly forward or backward to increase if possible the reading on the meter. The point of highest reading shows the correct focus of the light. Note that most newer cars are equipped with headlights having fixed focus, hence adjustment is unnecessary.

4. ADJUSTING THE AIM

(j) The actual mechanical operation of changing the aim of the headlight is so simple as to require no description here. The requirements of different State Laws are so varied that they cannot be summarized in these pages. The operator is urged to familiarize himself with the requirements of his own State — and to use the standards contained in instruction (m) when no State or local ordinance applies. On page 5 are shown locations of adjusting screws on the various types of headlights in common use today.

5. ASSYMMETRIC OR "CROSS BEAMS"

(k) Asymmetric headlights are coming into more general use year after year, and the mechanic who would render efficient headlight service must learn to recognize and identify them. Most such headlights have lenses marked "RIGHT" and "LEFT", since they are not interchangeable and must be used on the side where they belong. When servicing cars with which you are not familiar, this RIGHT-LEFT marking will immediately lead you to suspect asymmetric headlights. To determine for sure if they are asymmetric, watch the beam pattern on the screen of the Headlight Tester as you change from driving to passing beam and back again. With asymmetric type headlights, only one beam changes, the other remaining in the same position for both driving and passing.

There are two types of asymmetric or cross beam lights in common use today. One is shown in Fig. 8, used on Chevrolet, Oldsmobile, Buick, etc. Note that the left headlight beam is aimed $2\ 1/2^\circ$ to the right, and does not drop for passing. The right beam is aimed straight ahead, and drops for passing.

