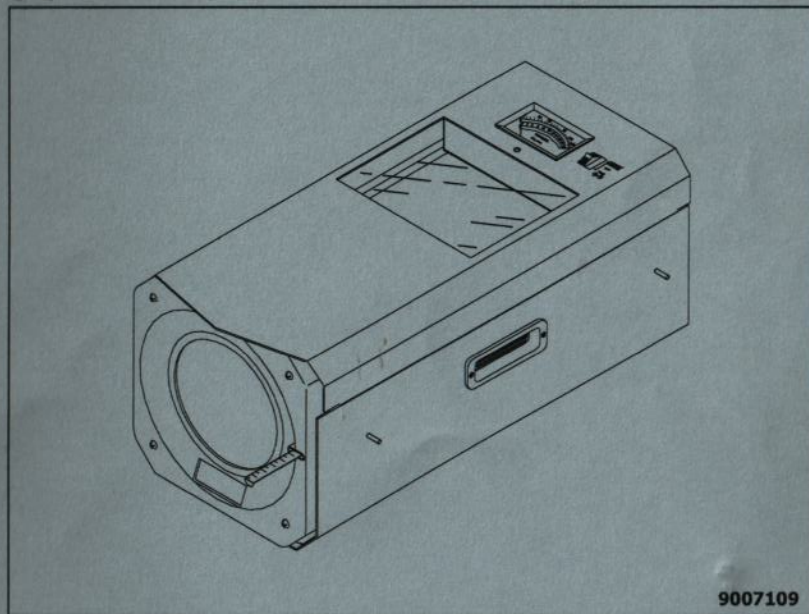


Headlight centering device

mod 447 ST ATL

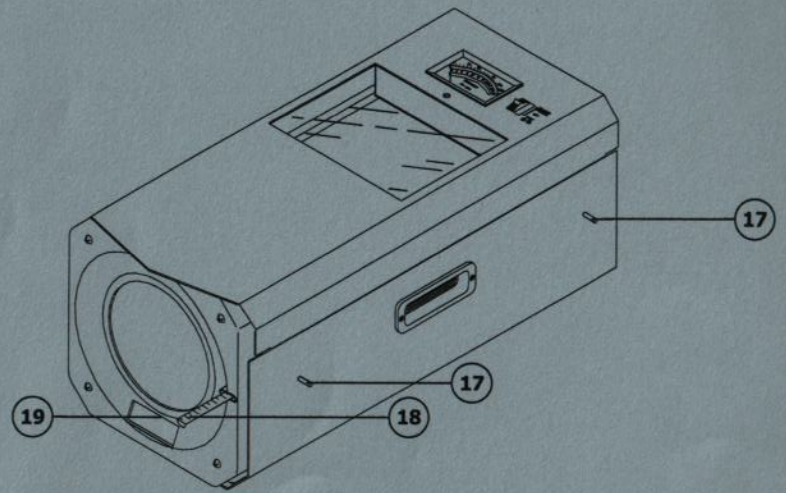
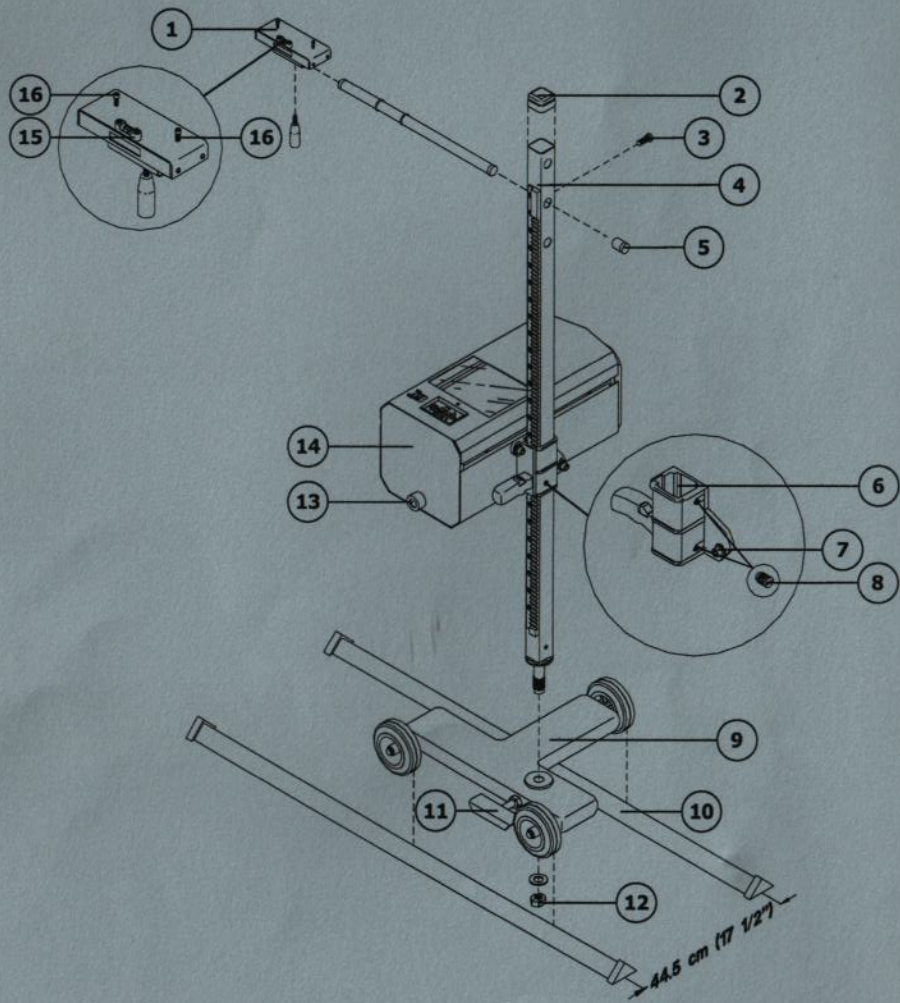
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Operating instructions

Rel. 0 03/06



Dear garage owner,

Thank you for having chosen one of our instruments for your workshop. We are certain that it will give the utmost satisfaction and be a notable help on the job.

Please become fully familiar with the instructions in this user's manual. It should be kept ready to hand for consultation whenever required.

The Tecnotest Headlight centering device is designed to provide rapid and accurate testing of car, motorcycle and commercial vehicle headlamps in accordance with Vehicle Inspectorate requirements.

The optical testing unit is mounted on a vertical column and height is controlled by a handle and ratchet. The column is mounted on a three wheel base unit which traverses along two fixed rails lying parallel to the front of the vehicle. The unit is locked in position by means of a pedal fitted to the base.

The optical unit consists of a collecting lens and a calibrated screen incorporating a light intensity meter, this is viewed through a perspex panel built into the top of the unit. Alignment of the unit with the headlamp is obtained by means of one optical collimator.

The unit also has the ability to find the hot spot of the headlamp through use of the light intensity meter which displays an analogue reading on the top of the unit.

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- It is forbidden to even partially copy this handbook in any way unless prior written authorisation has been obtained from the manufacturer.
- The data and characteristics indicated in this handbook are not binding. The manufacturer reserves the right to make all those modifications as are considered necessary without being obliged to give advance warning or make replacements.
- All the names of brands and products and the trade marks are the property of the respective owners.

GENERAL REGULATIONS FOR OPERATOR SAFETY

Read carefully the installation, operating and maintenance instructions in the Operator's manual.

Do not allow unqualified persons to use this equipment. This will prevent injury to persons and damage to the equipment and its instruments.

The work place must be dry, sufficiently lit and well ventilated.

In particular, car diagnostic operations that require the engine to be run, must be done in work areas equipped with a gas exhausting system.

Don't forget that breathing carbon monoxide (odourless) can cause serious damage. Put the handbrake on.

When working on engines or other vehicle parts:

- Wear suitable clothing and act in such a way as to prevent industrial accidents.
- Before starting, check to be certain the gear shift is in neutral (or in PARK (P) if the transmission is automatic), put the handbrake on and check to be sure the wheels are completely braked.
- Do not smoke or light flames when working on a vehicle.
- Check to make sure that all electric connections are isolated and tight.
- Keep hands and hair away from moving parts. Do not wear ties, loose garments, bracelets or wrist watches when working on a vehicle especially if the engine is running.
- Keep out of the fan's contact range; the cooling fan is controlled by a thermic switch activated by the temperature of the cooling liquid. Always disconnect a wire from the fan whenever you have to work on a vehicle whose engine is still hot. This is to prevent the fan from starting suddenly even when the engine has been turned off.
- Never pour fuel directly into the carburettor to help start the engine.
- Do not touch the high voltage wire when the engine is running.
- Handle portable lights carefully and only use them if their metal guards are in place.
- Don't forget that the catalytic converter reaches very high temperatures that can cause serious burns or start fires.
- Make sure that there are no oil stains, rags, paper or other easily inflammable material near the catalytic converter.

TO USE THE HEADLIGHT CENTERING DEVICE CORRECTLY

Follow these instructions to use your Headlight centering device correctly:

- The instrument should be used in a place possessing the following characteristics: it must not be exposed to direct sunlight; it must not be subjected to sudden changes in temperature or humidity; it must not be subject to vibrations; it must be not be splashed by water or other liquids.
- When using the Headlight centering device, check that the surfaces on which the instrument and vehicle stand **are well levelled**.
- The headlight tester is self-supplied by 2 × 1.5 Volt Stilo batteries.
- Do not rest any objects on the optic chamber.
- Only use water based substances when cleaning the control panel, the lens and the other parts of the instrument.
- Always cover the optic chamber when use of the Headlight centering device has terminated.

ATTENTION:

Never subject the optic chamber to impact. If this occurs, consult an after-sales service center for functional checks as to whether the symmetries of the instrument are still accurate.

Keep all the packing material. You will need this if you have to move the unit without risk of damage.

1.0 - DESCRIPTION AND ASSEMBLY OF THE HEADLIGHT CENTERING DEVICE

1.1 - Overall view

1. Collimator.
2. Column cover.
3. 8 × 40 hex screw.
4. Column.
5. Rubber plug.
6. Brake handle.
7. Horizontal level adjuster nut.
8. 8 × 11 plastic plugs.
9. Dolly.
10. Rails.
11. Locking pedal.
12. 24 mm self-locking nut.
13. Sight for calibration.
14. Optic chamber.
15. Level.
16. Adjuster screws.
17. Headlamp centre sighting device.
18. Measuring tape.
19. Calibrating crosswires.

1.2 - Headlight centering device assembly

ATTENTION:

Where the Headlight centering device is to be used for MOT vehicle testing in the UK, it must be sited and installed in accordance with the Vehicle Inspectorate's requirements.

Strictly comply with the instructions on how to assemble the Headlight centering device.

The two rails (10) supplied are 450 cm long and should be positioned at right angles to the vehicles line of travel, 44,5 cm apart. The rails must be level with each other, and, if used for MOT testing the levelness must meet the accuracy required by the Vehicle Inspectorate. Shim the rails as necessary and re-check the levelness after tightening them down. Place the base on the rails and check for smooth operation.

- Slacken the locking pedal (11), insert the column (4) into the dolly (9) and fix it in place by means of the washer and nut (12).
- Remove screw (3) and insert the optic chamber (14) into the column (4) after having slackened the two plugs (8) on the brake handle (6).
- Locate the bubble level (15) on the top side of the collimator unit (1).
- Insert the collimator unit (1) into the column (4).
- Insert the screw (3) into the relative hole in the collimator unit (1) and tighten it strongly in place.
- Position the appliance on the tracks (10).
- Check that the pedal (11) is in the locking position and that the matching unit (1) is tightly clamped to the column (4).
- Align the collimator (1) using the two adjuster screws (16) and the level (15) on the collimator itself.
- As a last operation, it is necessary to eliminate any tolerance play between the column (4) and the sliding handle (6).
- To achieve this, just tighten the two dowels (8) so as to eliminate play without preventing the regular sliding of the optic unit (14) in the column (4).

2.0 - CALIBRATION

The final procedure to be carried out is calibration. This is to confirm that the angle of the optical unit is parallel with the designated vehicle standing area.

The following procedure has been approved by the V.I. to be used on site. Your local V.I. Inspector will require a demonstration of an operators competence in calibration of the unit using the stands provided.

- Make the lights setter slide along the column (4) and position the sight centre (13) at the same height of the calibrating device locating plates, that is, position the lights setter at 110 cm of height on the graduated rod of the column.
- Set the calibrating stands on the designated floor area. Target (20) should be placed approximately where the vehicles front wheel would be. Target (21) should be placed approximately where the vehicles rear wheels would be, shaded section facing the optical unit.
- View the targets through the calibration sighting device at the rear of the optical unit (13) release the catch on the sliding handle (6) and slacken the securing bolt (7). Adjust the height and tilt of the optical unit until the calibration cross-wires align with the top of calibration stand (20) and the black horizontal line of stand (21), then tighten the securing bolt (7).
- Repeat this exercise across the full width and length of the MOT bay, trying to cover as many variations in vehicle wheelbase as realistically possible. The unit is now calibrated to the floor on which it stands.

NOTA BENE

Any discrepancy in excess of Vehicle Inspectorate levelness requirements must be corrected by either re-surfacing the floor or by adjusting any error in the Headlight centering device rails.

3.0 - OPERATION OF THE HEADLIGHT CENTERING DEVICE

3.1 - Testing the Headlight centering device for correct aim (mot or non mot)

- Park the vehicle to be tested with its longitudinal centre line at 90 degrees to the beam setter tracks and the vehicles front wheels in the straight ahead position.
- The distance from the headlamp lens to the Headlight centering device lens must be 43,5 cm \pm 3 cm. This distance can be checked using the measuring tape located in the front of the optical unit (18).
- Adjust the vehicle position as necessary.
- Move the headlight centering unit to the center of the vehicle and, gripping the ends of the collimator (1), with both hands, release the column with the pedal (11) so that the optical chamber (14) can turn horizontally.
- Align the horizontal line inside the optical collimator with the ends of the two headlights of the vehicle, or with the windshield or with other significant points that enable a good alignment with the vehicle to be tested.
- Lock the column by means of the pedal (11) once alignment has been achieved.
- Using the sliding handle, lower or raise the optical unit until it is aligned with the centre of the headlamp in the horizontal plane.
- Now align the optical unit in the vertical plane with the centre of the headlamp by moving the Headlight centering device left or right on the rails.
- Decide whether the headlamp should be tested on main or dipped beam.

- Switch on the headlamps and determine whether the pattern thrown on to the aiming screen (see HEADLIGHTAIMING SCREEN figure) conforms to the V.I. requirements detailed below:
 - a. European E beam (checked on dip).
 - ✓ The **break point** must not be to the right of the aiming screen vertical 0% line.
 - ✓ The beam image horizontal top edge must be below the aiming screen horizontal 0,5% line.
 - b. British American (checked on dip).
 - ✓ The **hot spot** right side edge must not be to the right of the aiming screen vertical 0% line.
 - ✓ The **hot spot** uppermost edge must not be above the aiming screen horizontal 0% line.
 - c. British American (checked on main beam).
 - ✓ The **hot spot** centre must not be to the right of the aiming screen vertical 0% line or above the horizontal 0% line.

NOTA BENE:

The lights testing procedure and the positioning of the lights setter do not vary according to the different models of lamps, including Xenon lights.

IN ADDITION TO THE ABOVE:

The dipped beam on vehicles with headlamp centres lower than 850 mm should fall between the red bands (0,5 – 2,0%).

The dipped beam on vehicles with headlamp centres higher than 850 mm should fall between the blue bands (1,25 – 2,75%).

Repeat the operation on all remaining headlamps on the vehicle, do not move the vehicle or release the lock pedal until all the headlamps have been tested.

Make any adjustments necessary until out of tolerance headlamps conform to the V.I. requirements.

4.0 - MAINTENANCE

Very little maintenance is required. The unit should be kept clean and covered when not in use.

The vertical guide should be smeared lightly with SAE 30 oil at regular intervals or when any stiffness develops.

Any play between the column and the handle can be corrected by adjusting the black plastic dowels (8).

5.0 - TECHNICAL FEATURES

Column height:

135,89 cm (53 1/2 ")

Base:

58,5 × 58 cm (23" × 23 ")

Track length:

289 cm (9'9")

Rail centres:

44,5 cm (17 1/2 ")

Range of height from centre of lens:

20,32 (8") min - 127 cm (50") max.

Proximity of tester lens to headlamp:

43,5 cm ± 3 cm (19 3/4" ± 1 1/4")