

3380

Handheld Borescope



OWNER'S MANUAL

**Real-Time
Visual Inspection**

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SAFETY FIRST!

To avoid personal injury, instrument damage and/or damage to your vehicle; do not use the Borescope before reading this manual.

This manual describes common test procedures used by experienced service technicians. Many test procedures require precautions to avoid accidents that can result in personal injury, and/or damage to your vehicle or test equipment. Always read your vehicle's service manual and follow its safety precautions before and during any test or service procedure. **ALWAYS** observe the following general safety precautions:



- The Borescope is intended for use by adults or under adult supervision **only**.
- The Borescope **is not** designed for use in medical applications.
- Use the Borescope only in a clean, well-ventilated area with adequate illumination.
- Do not operate the Borescope in an environment where temperature exceeds 140°F (60°C).
- Fuel and battery vapors are highly flammable. To prevent an explosion, do not use the Borescope near flammable liquids, gasses or dust.
- Do not use the Borescope near corrosive chemicals. These substances can damage the tool's protective coating and reduce the working life of the tool.
- To protect your eyes from propelled objects as well as hot or caustic liquids, **always** wear **approved** safety eye protection.
- DO NOT allow the snake camera to bend at an angle greater than 60 degrees.
- Do not allow liquid or foreign matter to enter the Borescope. If condensation is present, allow it to evaporate before using the tool.
- Store the Borescope in a dry, well-ventilated area.
- Clean the Borescope housing with a 70% alcohol solution and lint-free cloth. Clean the LCD display by wiping gently with a clean, dry lint-free cloth.

PURPOSE AND USE

The Borescope is a handheld digital camera that lets you perform non-destructive visual inspections of small space, limited access, or low light areas.



The Borescope supports real-time inspections only. The Borescope DOES NOT support the capture and storage of images.

SPECIFICATIONS

Borescope

- **Display Size:** 2.7 in. (68.6mm)
- **Operating Current:** $\leq 500\text{mA}$
- **Battery Size:** AA (qty 4)

Snake Camera

- **Image Sensor:** CMOS sensor
- **Effective Pixels:** 720 X 480 pixels
- **Focus Distance:** 1.18 in. to 3.15 in. (30mm to 80mm)
- **View Angle:** 60 degrees
- **Camera Length:** 37.8 in. (960mm)
- **Camera LEDs:** 6 X 0603; 6 X 0402
- **Camera Lens:** IP67 Rated Submersible Lens

Accessories Included:

- 90-Degree Mirror
- Magnet
- Hook

CONTROLS AND INDICATORS

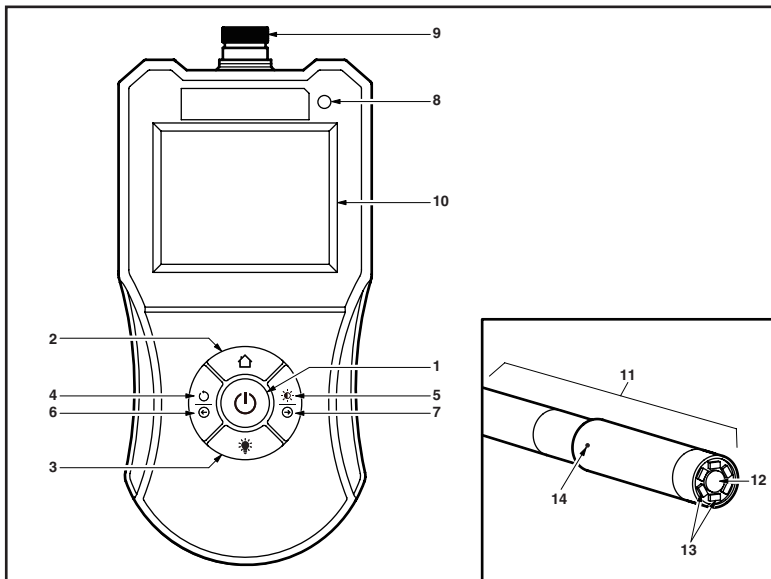


Figure 1. Controls and Indicators

See Figure 1 for the locations of items 1 through 10, below.

1. **⏻ POWER button** - Turns the Borescope “ON” and “OFF”.
2. **🏠 HOME button** – When pressed while in display mode, lets you adjust LCD color balance using the **⬅** and **➡** buttons. When pressed while rotating the displayed image or adjusting display brightness, returns the Borescope to display mode.
3. **☀ LED button** – When pressed, lets you adjust LED brightness using the **⬅** and **➡** buttons.
4. **🔄 ROTATE IMAGE button** - When pressed, lets you rotate the image shown on the LCD display using the **⬅** and **➡** buttons.
5. **☀ BRIGHTNESS button** – When pressed, lets you adjust LCD display brightness using the **⬅** and **➡** buttons.
6. **⬅ LEFT/DECREASE button** – Depending on the selected operating mode (see items 2 through 5 above), rotates the displayed image to the left or decreases color balance, LED brightness or LCD display brightness, as appropriate.
7. **➡ RIGHT/INCREASE button** – Depending on the currently selected operating mode (see items 2 through 5 above), rotates the displayed image to the right or increases color balance, LED brightness or LCD display brightness, as appropriate.

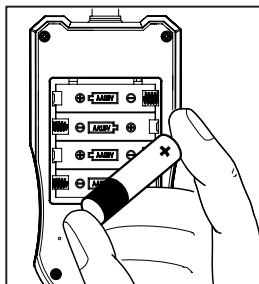
Borescope Controls

BATTERY REPLACEMENT – CAMERA INSTALLATION

8. **POWER indicator** – Lights when the Borescope is turned ON.
9. **Camera Connector** – Connector for the snake camera.
10. **LCD Display** – Displays the video feed from the snake camera.
11. **Snake Camera** – Routes camera to areas of limited access.
12. **Camera** – Supplies video feed to the LCD display.
13. **LEDs** – Provide illumination in low-light areas.
14. **Accessory Slot** – Attachment point for Borescope accessories.

BATTERY REPLACEMENT

1. Locate the battery cover on the back of the Borescope.
2. Slide the battery cover off (use your fingers).
3. Replace batteries with four AA-size batteries (for longer life, use Alkaline-type batteries).
4. Reinstall the battery cover on the back of the Borescope.

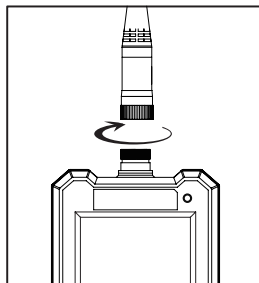


CAMERA INSTALLATION




Thread the snake camera onto the camera connector and tighten finger-tight.



To prevent thread damage to the camera connector or snake camera, DO NOT OVERTIGHTEN.



OPERATION

1. Press and hold the **POWER**  button for approximately two seconds, then release.
 - The **POWER** indicator lights to indicate the unit is powered on.
 - The LCD display shows the image from the snake camera.
2. Carefully route the snake camera into the location to be observed.
 *DO NOT allow the snake camera to bend at an angle greater than 60 degrees.*
3. Adjust the camera LED brightness, LCD display brightness and color balance, and/or image orientation as necessary (see **ADJUSTMENTS AND SETTINGS**, below, for more information).
4. When finished viewing, carefully extract the snake camera. Press and release the **POWER**  button to turn the Borescope off.

ADJUSTMENTS AND SETTINGS





The Borescope lets you make several adjustments and settings to configure the tool to your particular needs or to suit environmental requirements. You can:

- Adjust brightness of the camera LEDs for optimal image quality in low light conditions
- Adjust LCD display brightness and color balance
- Adjust image orientation by rotating the displayed image left or right




Adjustments to the Borescope remain active until subsequently changed, or until the unit is powered off.

Adjusting LED Brightness

1. With the Borescope powered ON, press the **LED**  button.
 - The Borescope enters the “setting” mode.
2. Adjust the LED brightness as desired:
 - Press the **LEFT/DECREASE**  button to decrease the LED brightness.
 - Press the **RIGHT/INCREASE**  button to increase the LED brightness.
3. When the desired LED brightness is obtained, press the **LED**  button to save your changes and exit the “setting” mode.

Adjusting Display Brightness

1. With the Borescope powered ON, press the **BRIGHTNESS**  button.
 - The Borescope enters the “setting” mode.

2. Adjust the display brightness as desired:
 - Press the **LEFT/DECREASE** ⬅ button to decrease display brightness.
 - Press the **RIGHT/INCREASE** ➡ button to increase display brightness.
3. When the desired display brightness is obtained, press the **HOME** ⏪ button to save your changes and exit the “setting” mode.

Adjusting the Color Balance

1. With the Borescope powered ON, press the **HOME** ⏪ button.
 - The Borescope enters the “setting” mode.
2. Adjust the color balance as desired:
 - Press the **LEFT/DECREASE** ⬅ button to decrease the color balance.
 - Press the **RIGHT/INCREASE** ➡ button to increase the color balance.
3. When the desired color balance is obtained, press the **HOME** ⏪ button to save your changes and exit the “setting” mode.

Adjusting Image Orientation

1. With the Borescope powered ON, press the **ROTATE IMAGE** ↻ button.
 - The Borescope enters the “setting” mode.
2. Adjust the image orientation as desired:
 - Press the **LEFT/DECREASE** ⬅ button to rotate the displayed image to the left.
 - Press the **RIGHT/INCREASE** ➡ button to rotate the displayed image to the right.
3. When the desired image orientation is obtained, press the **HOME** ⏪ button to save your changes and exit the “setting” mode.

LIMITED ONE YEAR WARRANTY

The Manufacturer warrants to the original purchaser that this unit is free of defects in materials and workmanship under normal use and maintenance for a period of one (1) year from the date of original purchase.

If the unit fails within the one (1) year period, it will be repaired or replaced, at the Manufacturer's option, at no charge, when returned prepaid to the Service Center with Proof of Purchase. The sales receipt may be used for this purpose. Installation labor is not covered under this warranty. All replacement parts, whether new or remanufactured, assume as their warranty period only the remaining time of this warranty.

This warranty does not apply to damage caused by improper use, accident, abuse, improper voltage, service, fire, flood, lightning, or other acts of God, or if the product was altered or repaired by anyone other than the Manufacturer's Service Center.

The Manufacturer, under no circumstances shall be liable for any consequential damages for breach of any written warranty of this unit. This warranty gives you specific legal rights, and you may also have rights, which vary from state to state. This manual is copyrighted with all rights reserved. No portion of this document may be copied or reproduced by any means without the express written permission of the Manufacturer. **THIS WARRANTY IS NOT TRANSFERABLE.** For service, send via U.P.S. (if possible) prepaid to Manufacturer. Allow 3-4 weeks for service/repair.

SERVICE PROCEDURES

If you have any questions, require technical support or information on UPDATES and OPTIONAL ACCESSORIES, please contact your local store, distributor or the Service Center.

USA & Canada:

1 (800) 544-4124 (6:00 AM-6:00 PM PST, Monday through Saturday)

All others: (714) 241-6802 (6:00 AM-6:00 PM PST, Monday through Saturday)

FAX: (714) 241-3979 (24 hr.)

Web: www.innova.com



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1 800 544 4124
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INNOVA[®]
Innova Electronics Corp.
17352 Von Karman Ave.
Irvine, CA 92614

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