# micro CA-150

RIDGID




RIDGE TOOL COMPANY

# Table of Contents



*Original Instructions - English

# micro CA-150 Inspection Camera


**⚠ WARNING!**
**Read this Operator's Manual carefully before using this tool. Failure to understand and follow the contents of this manual may result in electrical shock, fire and/or serious personal injury.**

| micro CA-150 Inspection Camera | |
|---|---|
| Record Serial Number below and retain product serial number which is located on nameplate. | |
| Serial No. | |

## Safety Symbols

In this operator's manual and on the product, safety symbols and signal words are used to communicate important safety information. This section is provided to improve understanding of these signal words and symbols.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**⚠ DANGER** DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**⚠ WARNING** WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ CAUTION** CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

**NOTICE** NOTICE indicates information that relates to the protection of property.


This symbol means read the operator's manual carefully before using the equipment. The operator's manual contains important information on the safe and proper operation of the equipment.


This symbol means always wear safety glasses with side shields or goggles when handling or using this equipment to reduce the risk of eye injury.


This symbol indicates the risk of hands, fingers or other body parts being caught or wrapped in gears or other moving parts.


This symbol indicates the risk of electrical shock.

## General Safety Information

**⚠ WARNING**

**Read all safety warnings and instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.**

**SAVE THESE INSTRUCTIONS!**

### Work Area Safety

- **Keep your work area clean and well lit.** Cluttered or dark areas invite accidents.
- **Do not operate equipment in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Equipment can create sparks which may ignite the dust or fumes.
- **Keep children and by-standers away while operating equipment.** Distractions can cause you to lose control.

### Electrical Safety

- **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electrical shock if your body is earthed or grounded.
- **Do not expose equipment to rain or wet conditions.** Water entering equipment will increase the risk of electrical shock.

### Personal Safety

- **Stay alert, watch what you are doing and use common sense when operating equipment. Do not use equipment while you are tired or under the influence of drugs, alcohol or medication.** A moment of inattention while operating equipment may result in serious personal injury.
- **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
- **Use personal protective equipment.** Always wear eye protection. Protective equipment such as dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.

### Equipment Use and Care

- **Do not force equipment. Use the correct equipment for your application.** The correct equipment will do the job better and safer at the rate for which it is designed.

- **Do not use equipment if the switch does not turn it ON and OFF.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- **Disconnect the batteries from the equipment before making any adjustments, changing accessories, or storing.** Such preventive safety measures reduce the risk of injury.
- **Store idle equipment out of the reach of children and do not allow persons unfamiliar with the equipment or these instructions to operate the equipment.** Equipment can be dangerous in the hands of untrained users.
- **Maintain equipment.** Check for misalignment or binding of moving parts, missing parts, breakage of parts and any other condition that may affect the equipment's operation. If damaged, have the equipment repaired before use. Many accidents are caused by poorly maintained equipment.
- **Use the equipment and accessories in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the equipment for operations different from those intended could result in a hazardous situation.
- **Use only accessories that are recommended by the manufacturer for your equipment.** Accessories that may be suitable for one piece of equipment may become hazardous when used with other equipment.
- **Keep handles dry and clean; free from oil and grease.** Allows for better control of the equipment.

### Service

- **Have your equipment serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the tool is maintained.

## Specific Safety Information

**⚠ WARNING**

**This section contains important safety information that is specific to the inspection camera.**

**Read these precautions carefully before using the micro CA-150 Inspection Camera to reduce the risk of electrical shock or other serious injury.**

**SAVE THESE INSTRUCTIONS!**

A manual holder is supplied in the carrying case of the micro CA-150 Inspection Camera to keep this manual with the tool for use by the operator.

### micro CA-150 Inspection Camera Safety

- **The micro CA-150 imager head and cable are waterproof to 10'. The hand-held display unit is not.** Do not expose the display unit to water or rain. This increases the risk of electrical shock.
- **Do not place the micro CA-150 Inspection Camera anywhere that may contain a live electrical charge.** This increases the risk of electrical shock.
- **Do not place the micro CA-150 Inspection Camera anywhere that may contain moving parts.** This increases the risk of entanglement injuries.
- **Do not use this device for personal inspection or medical use in any way.** This is not a medical device. This could cause personal injury.
- **Always use appropriate personal protective equipment while handling and using the micro CA-150 Inspection Camera.** Drains and other areas may contain chemicals, bacteria and other substances that may be toxic, infectious, cause burns or other issues. **Appropriate personal protective equipment always includes safety glasses and gloves**, and may include equipment such as latex or rubber gloves, face shields, goggles, protective clothing, respirators and steel-toed footwear.
- **Practice good hygiene.** Use hot, soapy water to wash hands and other exposed body parts exposed to drain contents after handling or using the micro CA-150 Inspection Camera to inspect drains and other areas that may contain chemicals or bacteria. Do not eat or smoke while operating or handling the micro CA-150 Inspection Camera. This will help prevent contamination with toxic or infectious material.
- **Do not operate the micro CA-150 Inspection Camera if operator or device is standing in water.** Operating an electrical

device while in water increases the risk of electrical shock.

The EC Declaration of conformity (890-011-320.10) will accompany this manual as a separate booklet when required.

If you have any question concerning this RIDGID® product:

– Contact your local RIDGID distributor.
– Visit  to find your local RIDGID contact point.
– Contact Ridge Tool Technical Service Department at

# Description, Specifications and Standard Equipment

## Description

The micro CA-150 Inspection Camera displays live color video from an imaging sensor and light source that's connected to a 3' flexible cable. It can be used to look into tight spots and beam back real-time video to a color LCD. It comes with a 11/16" (17mm) camera head for general use.

## Specifications

| | |
|---|---|
| Display | 3.5" Color LCD (320 x 240 Resolution) |
| Lighting | 4 Adjustable LEDs |
| Cable Reach | 3' (1m) (30' (9m) with Optional Extensions) Waterproof to 10' (3m) (IP67) |
| Camera Head | 11/16" (17mm) |
| Video Output | RCA (3' Cable Included) |
| TV-Out | PAL/NTSC |
| Operating Temp | 0° C ~ 50° C |
| Storage Temp | -20° C ~ 60° C |
| Storage Humidity | 15% ~ 85% RH |
| Depth of Field (DOF) | 10mm ~ • (infinity) |
| Internal Memory | Save up to 20 images |
| Power Source | 4 x "AA" Alkaline or Rechargeable |
| Attachments | Hook, Magnet, Mirror |
| Weight (tool w/ batteries) | 1.7 lbs (0.77 kg) |

## Standard Equipment

The micro CA-150 Inspection Camera comes with the following items:

• micro CA-150
• 17mm Imager
• 3' RCA Cable
• Hook, Magnet, Mirror Attachments
• 4 x "AA" Batteries

**Figure 1 – micro CA-150**

## Controls


**Figure 2 – Controls**

# FCC Statement

This equipment has been tested and found to

comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio/-TV technician for help.

## Electromagnetic Compatibility (EMC)

The term electromagnetic compatibility is taken to mean the capability of the product to function smoothly in an environment where electromagnetic radiation and electrostatic discharges are present and without causing electromagnet interference to other equipment.

**NOTICE** The RIDGID micro CA-150 Inspection Camera conforms to all applicable EMC standards. However, the possibility of it causing interference in other devices cannot be precluded.

## Tool Assembly

**⚠ WARNING**

**To reduce the risk of serious injury during use, follow these procedures for proper assembly.**

### Changing/Installing Batteries

The micro CA-150 is supplied without batteries installed. Remove the batteries prior to long term storage to avoid battery leakage.

1. Squeeze the battery clips *(See Figure 3)* and remove battery compartment from the micro CA-150 Inspection Camera *(See Figure 4)*. If needed, remove batteries.

**Figure 3 – Battery Compartment Cover**

2. Install 4 new AA alkaline batteries (LR6), observing the correct polarity as indicated on the battery compartment. Only replace in sets to help prevent battery leakage.
3. Squeeze the clips and firmly insert into inspection camera. The holder will only go in one way. Do not force. Confirm securely attached.

**Figure 4 – Battery Compartment**

### Installing the Imager Head Cable or Extension Cables

To use the micro CA-150 Inspection Camera, the imager head cable must be connected to the handheld display unit. To connect the cable to the handheld display unit, make sure the key and slot (Figure 5) are properly aligned. Once they are aligned, finger tighten the knurled knob to hold the connection in place.


**Figure 5 – Cable Connections**

3' and 6' cable extensions are available to increase the length of your cable up to 30' in length. To install an extension, first remove the camera head cable from the display unit by loosening the knurled knob. Connect the extension to the handheld as described above *(Figure 5)*. Connect the keyed end of the camera head cable to the slotted end of the extension and finger tighten the knurled knob to hold the connection in place.

### Installing An Accessory

The three included accessories, (mirror, hook and magnet) *(Figure 1)* all attach to the imager head the same way.

To connect, hold the imager head as shown in *Figure 6*. Slip the semicircle end of the accessory over the flats of the imager head as shown in *Figure 6*. Then rotate the accessory a 1/4 turn so the long arm of the accessory is extending out as shown *(Figure 6)*.

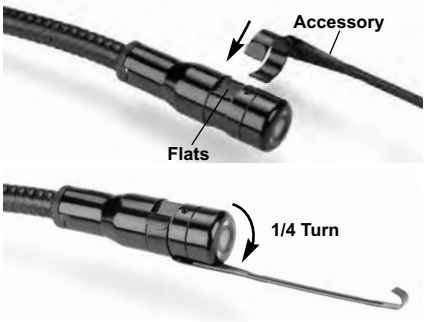


**Figure 6 - Installing An Accessory**

## Pre-Operation Inspection

**⚠ WARNING**

**Before each use, inspect your inspection camera and correct any problems to reduce the risk of serious injury from electric shock and other causes and prevent tool damage.**

1. Make sure the unit is OFF.
2. Remove the battery holder and inspect it and batteries for signs of damage. Replace batteries if necessary. Do not use inspection camera if batteries are damaged.
3. Clean any oil, grease or dirt from the equipment. This aids inspection and helps prevent the tool from slipping from your grip.
4. Inspect micro CA-150 Inspection Camera for any broken, warn, missing, misaligned or binding parts or any condition which may prevent safe and normal operation.
5. Inspect the camera head lens for condensation. To avoid damaging the unit, do not use the camera if condensation forms inside the lens. Let the water evaporate before using.
6. Inspect the full length of the cable for cracks or damage. A damaged cable could allow water to enter the unit and increase the risk of electrical shock.
7. Check to make sure the connections between the handheld unit, extension cables and imager cable are tight. All connections must be properly assembled for the cable to be water resistant. Confirm unit is properly assembled.
8. Check that the warning label is present, firmly attached and readable.


**Figure 7 – Warning Label**

9. If any issues are found during the inspection, do not use the inspection camera until it has been properly serviced.
10. With dry hands, re-install the battery holder making sure to fully insert.
11. Press and Hold the Power Button for 2 seconds. A splash screen will appear. Once the camera is ready, the live view

will be seen. Consult the *Troubleshooting* section of this manual if problems arise.

12. Press and Hold the Power Button for 1 second to turn the unit OFF.

## Tool and Work Area Set-Up

**nic sp era and work area according to these procedures to reduce the risk of injury from electrical shock, entanglement and other causes and prevent tool and system damage.**

1. Check work area for:
   - Adequate lighting
   - Flammable liquids, vapors or dust that may ignite. If present, do not work in area until sources have been identified and corrected. The micro CA-150 Inspection Camera is not explosion proof and can cause sparks.
   - Clear, level, stable, dry place for operator. Do not use the inspection camera while standing in water.
2. Examine the area or space that you will be inspecting and determine if the micro CA-150 Inspection Camera is the correct piece of equipment for the job.
   - Determine the access points to the space. The minimum opening the camera head can fit through is approximately 3/4" (19mm) in diameter for the 17mm camera head.
   - Determine the distance to the area to be inspected. Extensions can be added to the camera to reach up to 30' (9m).
   - Determine if there are any obstacles that would require very tight turns in the cable. The inspection camera cable can go down to a 2" (50mm) radius without damage.
   - Determine if there is any electrical power supplied to the area to be inspected. If so, the power to the area must be turned off to reduce the risk of electric shock. Use appropriate lock out procedures to prevent the power from being turned back on during the inspection.
   - Determine if any liquids will be encountered during the inspection. The cable and imager head are waterproof to a depth of 10' (3m). Greater depths may cause leakage into the cable and imager and cause electric shock or damage the equipment. The handheld display unit is not water resistant and should not be exposed to wet conditions.
   - Determine if any chemicals are present, especially in the case of drains. It is important to understand the specific safety measures required to work around any chemicals present. Contact the chemical manufacturer for required information. Chemicals may damage or degrade the inspection camera.
   - Determine the temperature of the area and items in the area. The working temperature of the inspection camera is between 32 and 122 degrees F (0°C - 50°C). Use in areas outside of this range or contact with hotter or colder items could cause camera damage.
   - Determine if any moving parts are present in the area to be inspected. If so, these parts must be deactivated to prevent movement during inspection to reduce the risk of entanglement. Use appropriate lock out procedures to prevent the parts from moving during the inspection.

If the micro CA-150 Inspection Camera is not the correct piece of equipment for the job, other inspection equipment is available from RIDGID. For a complete listing of RIDGID products, see the RIDGID catalog, online at

3. Make sure the micro CA-150 Inspection Camera has been properly inspected before each use.
4. Install the correct accessories for the application.

## Operating Instructions

**⚠ WARNING**

**Always wear eye protection to protect your eyes against dirt and other foreign objects.**

**Follow operating instructions to reduce the risk of injury from electrical shock, entanglement and other causes.**

1. Make sure that the inspection camera and work area have been properly set up and that the work area is free of bystanders and other distractions.


**Figure 8 – Controls**

2. **Power On:** Press and Hold the power button for 2 seconds. A splash screen will appear. Once the camera is ready, the live view will be seen.

   If the display does not turn ON, the batteries need to be changed or the unit needs service.

3. **Pre-Form The Cable:** If needed for the area to be inspected, pre-form the cable. Do not try to form bends with a radius of less than 2" (50mm), this can damage the cable.

4. **LED Brightness Adjustment:** The imager head is equipped with four white LEDs to aid inspection. Use the + and – buttons to turn ON and adjust the brightness of the LEDs.

5. **Inspection:** Insert the imager head and cable into the space to be inspected. Do not use the imager head or cable for anything other than an inspection device. Do not use the imager head and cable to clear a path. Do not force the imager head and cable through tight bends or spaces. These uses can damage the unit and the area to be inspected.

6. **Image Capture:** During inspection, press this button to record an image to internal memory. Up to 20 images can be captured by the CA-150 internal memory. **Once 20 images are captured, subsequent image captures will overwrite existing images in memory, starting with the first.**

7. **Image Playback:** Pressing this button will display the most recent image captured in internal memory. Press this button again or the + and – buttons to navigate through saved images. Press Image Capture to return to the live view.

8. **Image Delete:** To delete the captured image shown on the display, hold the Image Playback button for 3 seconds. Continue to hold the Image Playback button to delete subsequent images, if desired.

9. **Image Rotation:** If needed, the image seen on the screen can be rotated 180 degrees by pressing the rotate image button.

10. **Power Off:** When the inspection is complete, carefully withdraw the imager and cable from the inspection area. Press and Hold the power button for 1 second to turn the unit OFF. The unit will automatically turn OFF 30 minutes after the last button press or if the batteries drop too low.

### Viewing

The micro CA-150 Inspection Camera can be connected to a television or other monitor for remote viewing or recording through the included RCA cable. Open the rubber cover on the side of the grip and insert the RCA cable into the TV-OUT jack.

Insert the other end into the Video In jack on the television or monitor. The television or monitor may need to be set to the proper input to allow viewing.


**Figure 9 – TV-OUT Jack/Reset Button**

## Maintenance

**⚠ WARNING**

**Remove batteries before cleaning.**

### Cleaning

- Always clean the imager head and cable after use with mild soap or mild detergent.
- Gently clean the LCD with a clean dry cloth. Avoid rubbing too hard on the LCD.
- Use only alcohol swabs to clean the cable connections.
- Wipe the hand held display unit down with a clean, dry cloth.

### Reset Function

If the unit stops functioning and does not operate, press the Reset Button. *(See Figure 9.)* The unit may recover to normal operation when restarted.

## Accessories

**⚠ WARNING**

**To reduce the risk of serious injury, only use accessories specifically designed and recommended for use with the RIDGID micro CA-150 Inspection Camera such as those listed below. Other Accessories suitable for use with other tools may be hazardous when used with the micro CA-150 Inspection Camera.**

**micro CA-150 Inspection Camera Accessories***

| Catalog No. | Description |
|---|---|
| 31128 | 3' Cable Extension |
| 31133 | 6' Cable Extension |
| 37103 | Imager Head and Cable - 17mm |

(*List subject to change.)

## Storage

The RIDGID micro CA-150 Inspection Camera must be stored in a dry secure area between -20°C (-4°F) and 60°C (140°F).

Store the tool in a locked area out of the reach of children and people unfamiliar with the micro CA-150 Inspection Camera.

Remove the batteries before any long period of storage or shipping to avoid battery leakage.

## Service and Repair

**⚠ WARNING**

**Improper service or repair can make the RIDGID micro CA-150 Inspection Camera unsafe to operate.**

Service and repair of the micro CA-150 Inspection Camera must be performed by a RIDGID Independent Authorized Service Center.

For information on your nearest RIDGID Independent Service Center or any service or repair questions:

- Contact your local RIDGID distributor.
- Visit  to find your local RIDGID contact point.

## Disposal

Parts of the RIDGID micro CA-150 Inspection Camera contain valuable materials and can be recycled. There are companies that specialize in recycling that may be found locally. Dispose of the components in compliance with all applicable regulations. Contact your local waste management authority for more information.

**For EC Countries:** Do not dispose of electrical equipment with household waste!

According to the European Guideline 2012/19/EC for Waste Electrical and Electronic Equipment and its implementation into national legislation, electrical equipment that is no longer usable must be collected separately and disposed of in an environmentally correct manner.

## Battery Disposal

For EC countries: Defective or used batteries must be recycled according to the guideline 2012/19/EEC.

## Troubleshooting

| SYMPTOM | POSSIBLE REASON | SOLUTION |
|---|---|---|
| **Display turns ON, but does not show image.** | Loose cable connections. | Check cable connections, clean if required. Re-attach. |
| | Imager is broken. | Replace the Imager. |
| **LEDs on imager head are dim at max brightness, display switches between black and white, color display turns itself OFF after a brief period.** | Battery low on power. | Replace batteries. |
| **Unit will not turn ON.** | Dead batteries. | Replace batteries. |
| | Unit needs to be reset. | Reset unit. *See "Maintenance" Section.* |