HAWKEYE®
V2
VIDEO BORESCOPES

User Guide

Hawkeye® V2
Video Borescope

Gradient Lens Corporation®

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VIDEO BORESCOPES

Hawkeye® V2 Video Borescope

Hawkeye® V2 Video Borescopes are fully portable, finely constructed, and deliver clear, bright high resolution photos and video! The 5" LCD monitor allows comfortable viewing, and intuitive, easy-to-use controls provide photo and video capture at the touch of a button! V2's have a wide, 4-way articulation range, and are small, lightweight, and priced starting at only $8995. V2's are available in both 4 and 6 mm diameters. Optional 90° Prism and Close-Focus adapter tips.

Table of Contents

WARNING:

- This product is not for medical use
- Do not modify or disassemble the unit
- Do not use in explosive atmospheres

CAUTION:

- Keep the device out of the reach of children.
- Do not look directly into the end of the insertion tube. The bright light may damage your eyesight.
- Do not forcibly twist or elongate the insertion tube, or bend it beyond its normal bend radius.
- Strong impact on the insertion tube may break the glass window or the video sensor at the tip.
- Do not use or store the device at a temperature higher than 60°C or lower than -20°C.
- Store the device in a dry and adequately ventilated environment.
- Keep the device away from acid or alkaline solutions, oil or gasoline, and do not use it in an atmosphere containing volatile/flammable vapors.
- Do not remove the SD memory card while data is being saved to the card. This may cause the data to be lost or the card to be damaged.

V2 VIDEO BORESCOPE WARNINGS:

Insertion Tube

All models have a stainless steel monocoil at their center for resistance to accidental crushing, and have a tungsten outer braid to resist damage while sliding over harsh surfaces.

THE INSERTION TUBE IS ELECTRICALLY CONDUCTIVE. DO NOT ALLOW CONTACT WITH ELECTRICALLY LIVE OBJECTS. SERIOUS INJURY OR DEATH MAY RESULT!

Bending Section

The bending section houses the articulating collar assembly. This is the most flexible part of the scope, and the most vulnerable. It cannot tolerate the same rough handling as the insertion tube.

TAKE CARE NOT TO CRUSH OR PINCH THIS AREA.

Articulation Levers

Maximum bending of the tip will be possible when the insertion tube is fully extended.

DO NOT TRY TO FORCE THE TIP TO BEND WITH THE INSERTION TUBE COILED FOR STORAGE.

Articulation Locks

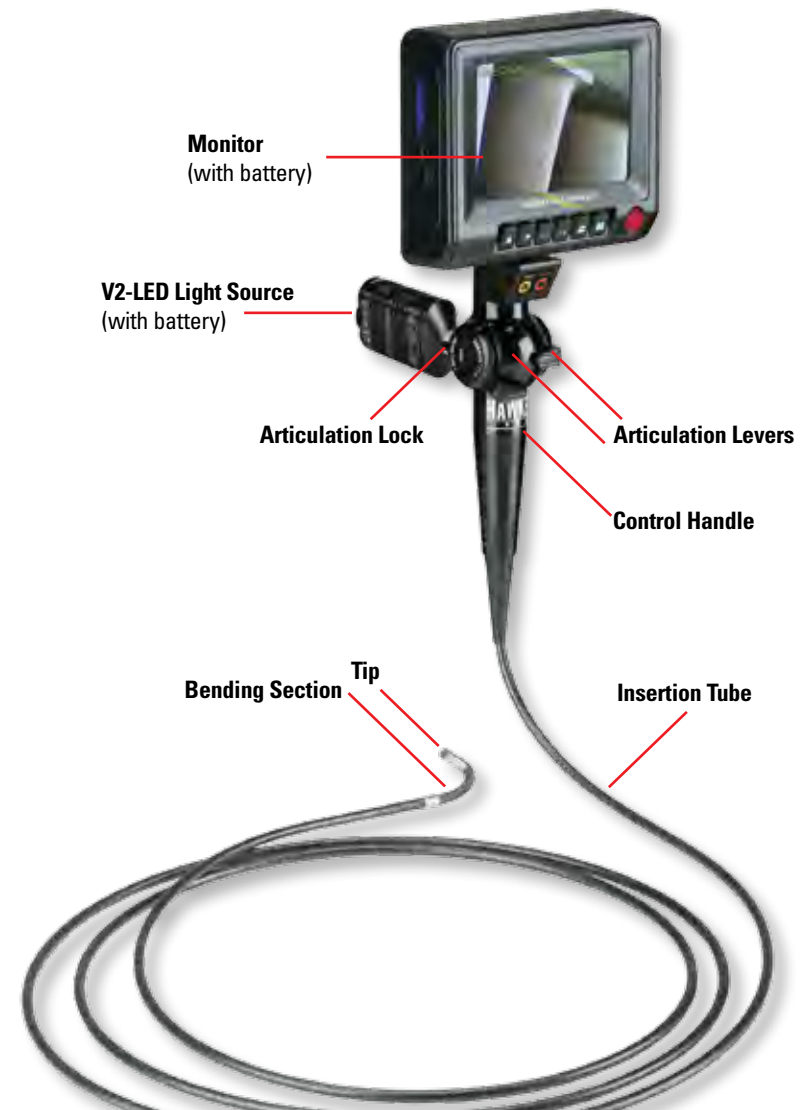When engaged, the articulation locks will prevent the tip from bending.

DO NOT ATTEMPT TO WITHDRAW THE INSERTION TUBE FROM A CAVITY WITH THE LOCKS ENGAGED. DOING SO MAY DAMAGE THE ARTICULATION MECHANISM.

Hawkeye® V2 Video Borescope

The Hawkeye® V2 Video Borescope consists of a CMOS image sensor mounted in the tip of a flexible insertion tube.

The insertion tube is attached to a control handle that allows remote control of the tip position.

The built-in monitor monitors the image in real time. It can also capture and store still images or video clips.

Monitor (with battery)

V2-LED Light Source (with battery)

Articulation Lock   Articulation Levers

Control Handle

Tip

Bending Section   Insertion Tube

Hawkeye® V2 Video Borescope Kit

The Hawkeye® V2 Video Borescope is shipped in an injected molded, protective case.

Optional Rigidizer

Optional Stand

Cables & Adapters

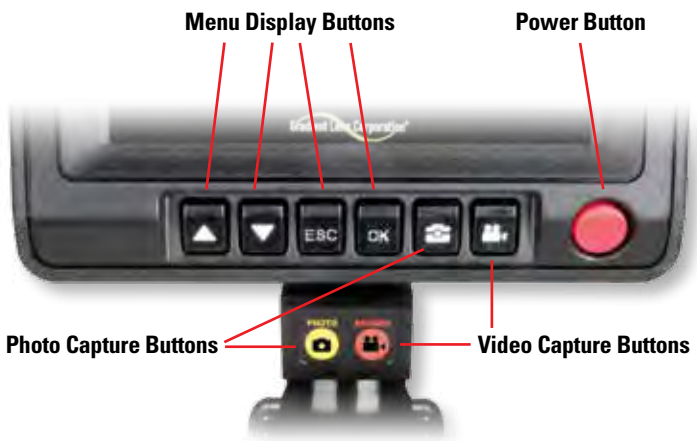Optional 90° & Close Focus Tips

Hawkeye® V2 Video Borescope

Spare Monitor Battery

SD Memory Card
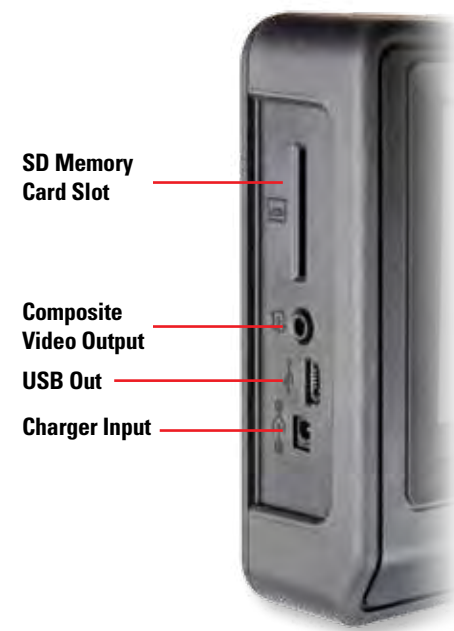
V2 LED Light Source & Batteries

V2 LED Battery Charger

Monitor Charger

Spare Battery Charger

Input/Output Connections

SD Memory Card Slot

Composite Video Output

USB Out

Charger Input

The monitor shows live video and captured still or moving images. It can output live video to an external display via a composite signal connector and the included cable.

Stored images can be downloaded to a computer via the USB port and included cable, or through the removable SD memory card.

Articulation Lock

Articulation Thumb Levers

Menu Display Buttons   **Power Button**

Photo Capture Buttons   **Video Capture Buttons**

Hawkeye® V2 Video Borescope Setup

Install SD Memory Card

Insert the SD Memory Card into its slot as shown. Make sure the gold contacts are facing away from the monitor screen as shown in the photo. Push the card in gently, as far as your finger will allow, and release. DO NOT FORCE THE CARD INTO ITS SLOT WITH THE CONTACTS FACING THE WRONG DIRECTION. The card will remain in place. To remove the card, push it in a little and release. It will spring out far enough to grasp and remove.

⚠️ **CAUTION:** Do not remove the SD memory card during image capture operations; data will be lost and the memory card may be damaged.

Install 90° Prism Tip

If the 90° Prism Tip is needed:

Unscrew the Tip Cap

**Notice the locating
flat on the scope tip**

Thread the knurled portion of the Prism Tip on,
just past the first set of threads on the Tip.

Rotate the Prism Tip until its internal flat engages the locating flat on the scope tip.
Then continue threading the Prism Tip on until there is no side play in the Prism Tip.
STOP threading at that point. FINGER TIGHTEN ONLY OR DAMAGE MAY RESULT.

A small gap will be present when Prism Tip is fully
tightened in place. Do not force beyond this point.

No side play

Always keep the Tip Cap or an adapter installed to protect the tip threads.

Charge Monitor Battery

Connect the monitor charger to the Charger
Input jack as shown. Plug the monitor charger
into a 120/240VAC 50/60Hz outlet and allow the
internal battery to charge. A full charge takes
about 3 hours and will run for 2-3 hours.

Charge Light Source Batteries

Insert the V2-LED batteries into their charger.
Make sure they are oriented correctly, as per
the engraved symbols in the charger slots.
Connect the charger to a 100/240VAC 50/60Hz
outlet. The LCD display on the charger will
show the charge state, voltage, current and
elapsed charge time for each battery. When
charge is complete, charge indicator bars will
glow steadily, and "Chg. Finish" will appear.
Push the SLOT button on the side of the
charger to choose which battery's status to
display. Charging will take about 1.5 hours for
two, fully discharged batteries. Fully charged
batteries will run the V2-LED light for about
1.25 hours at full intensity.

Install Light Source

Install batteries by rotating battery cover dial to position shown, and pulling cover off.

Insert batteries in the correct orientation according to the battery polarity labels on outside and inside of V2-LED.

Reinstall battery cover. **NOTE:** Cover will only fit when oriented correctly. Rotate cover dial until index marks are aligned as shown, to lock the cover in place.
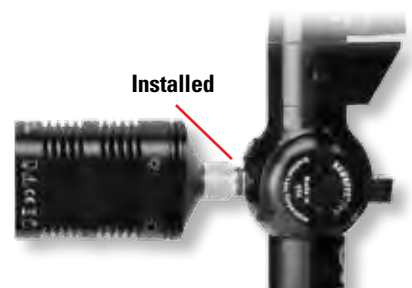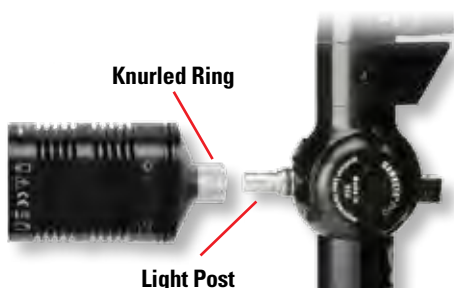
Check the operation of the V2-LED. Press the red power button to turn it ON. Press again to turn it OFF.

Press and hold one or the other of the intensity buttons to brighten or dim the light.

Align the Light Source with the Light Post on the Control Handle and thread them together with the knurled ring. Tighten with fingers only.

Knurled Ring

Installed

Light Post

Power On

Turn the monitor power ON by pressing and holding the power button for 3-5 seconds. The system will start up and go into Normal Mode, displaying a live image from the CMOS sensor .

To turn the unit OFF, push and hold the power button for 1-2 seconds.

Power

Holding the Video Borescope

Hold the Control Handle in one hand in a way that is comfortable and allows you to both look at the LCD display and actuate the articulation thumb lever(s). Use the other hand to hold the insertion tube and guide it toward the inspection area.
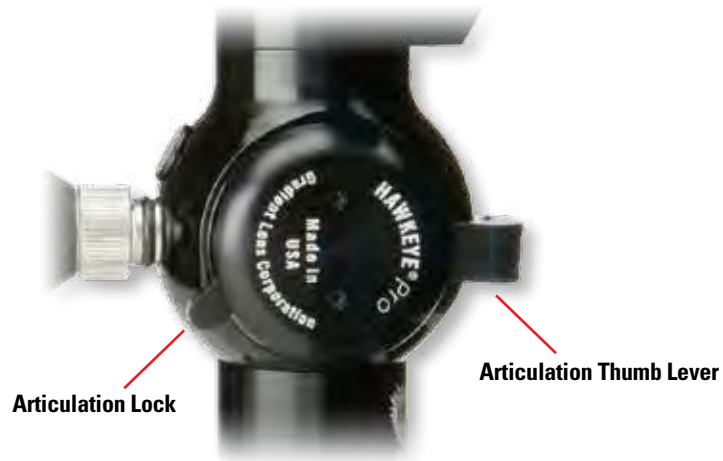
Articulating the Viewing Tip

In the 4-way configuration, one thumb lever controls right - left movement and the other controls up - down. Use caution when bending the insertion tube or bending section; excessive force can cause damage.

Use the articulation locks if necessary to hold the tip in position once the scope is in viewing position.

REMEMBER TO RELEASE THE LOCKS BEFORE WITHDRAWING THE INSERTION TUBE.

Articulation Lock

Articulation Thumb Lever

Inserting the Video Borescope

Before inserting the Video Borescope into equipment, ensure that the bending section is straight and the articulation lock is not engaged. The tip should move freely when the articulation thumb levers are moved.

The more the insertion tube is coiled or bent, the less the tip can articulate. Maximum articulation is possible when the insertion tube is relatively straight.

When the locks are not engaged, their levers are loose and will move freely. Pushing the lever until resistance is felt will lock the corresponding thumb lever.

REMEMBER TO RELEASE THE LOCK BEFORE WITHDRAWING THE INSERTION TUBE.

Inserting the Video Borescope (cont'd)

Turn the light source on to maximum brightness.

With the tip in the straight-ahead position, slowly begin to insert the scope into the cavity to be viewed. Watch the image to see where the scope is pointed as you guide the tip to the inspection area.

If a bend must be negotiated, articulate the tip in the direction of the bend to keep the tip from buckling. If the scope is obstructed by objects or bends, rotate the tube back and forth while moving it forward.

This twisting motion helps to overcome snags on equipment edges. Continue guiding the scope forward until the target area is visible in the display.

Withdrawing the Video Borescope

When the inspection is completed, or the scope needs to be repositioned, BE SURE TO RELEASE ALL ARTICULATION LOCKS PRIOR TO WITHDRAWAL to prevent damage to the articulation system. Move the articulation thumb levers back and forth to ensure they are in the loose neutral position and the tip is free to bend as needed during withdrawal.

Pull out the scope slowly, and be ready to catch the viewing tip when it exits to prevent possible damage to the tip. If the scope snags on equipment edges, try rotating the tube back and forth.

Display / Image Capture

Operating Modes

There are three operating modes:

Normal Mode
Displays live camera image and date/time if so enabled.
From this mode still pictures and video are captured.

Image Review Mode
Displays captured still pictures and video.

Menu Mode
File maintenance, system settings, etc.

The unit powers up in **Normal Mode**.

From **Normal Mode:**

Enter **Image Review Mode** by pressing ▲ or ▼

Enter **Menu Mode** by pressing OK.

Return to Normal Mode from any other mode by pressing **ESC**.

Normal Mode

Memory & Battery Charge Indicators: In Normal Mode, press **ESC** to display the memory and battery indicators. Each is displayed as a bar. A fully charged battery is shown as a full bar. A partial charge is shown as one to four segments inside the battery bar. The memory bar is filled in as the memory fills up.
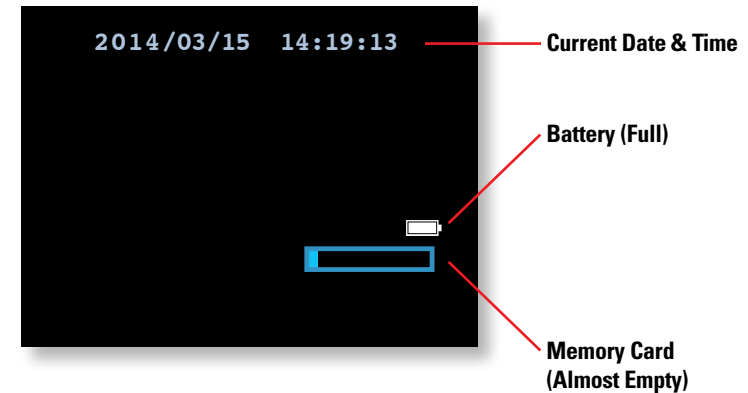
Capture a Still Photo: In Normal Mode, press the 📷 button on the control handle (or on the display). Still photo files are saved as .JPG.

Capture a Video Clip: In Normal Mode, press the 📹 button on the control handle (or on the display) to start recording. The elapsed time display will be visible in the lower left of the image to indicate that you are recording. Press the 📹 button again to stop recording and save the clip. Pressing the 📷 button will capture and store a still image during the video recording while recording continues. Video files are saved as .ASF.
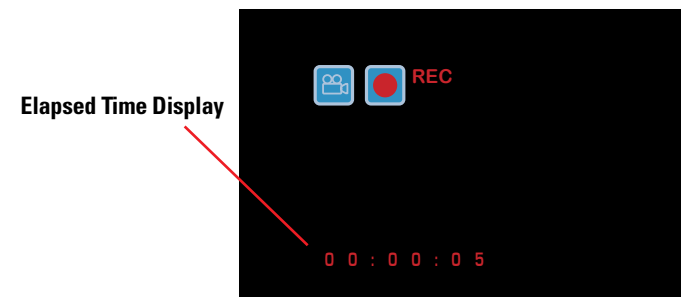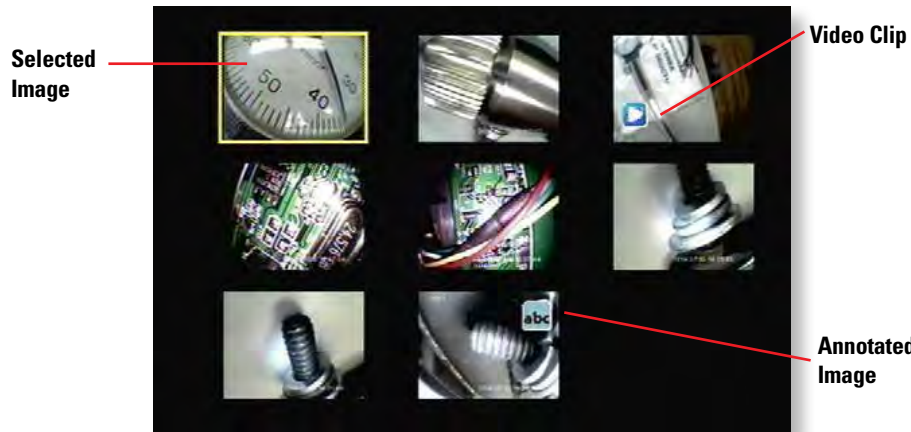
Image Review Mode

View Captured Photos or Video Clips: Push the ▲ or ▼ button to enter Image Review mode. Stored images and videos are displayed in a grid. The selected image has a yellow outline around it.

Indicates a video clip.

Indicates a still image with added annotation.

Selected Image

Video Clip

Annotated Image

You can change the selection using the ▲ or ▼ buttons. Upon reaching the last image on a page, another button press will display the next page, if any.

To see a full-screen view of the selected image or video, press **OK**.

A full screen view of a still image will have this symbol:

A full screen view of a video clip will have this symbol:

Pressing the ▲ or ▼ buttons while viewing a full screen image will scroll

Image Review Mode (cont'd)

While in full screen view, a video clip in can be played, paused and resumed by pressing the 🎥◄ button. Pressing the 📷 button while a video is playing will capture and store the currently displayed frame from the video. To exit Image Review mode, press **ESC**.

Video Playing   **Video Paused**

Delete a Single File: While in Image Review mode (either grid view or full screen view), the selected image or video clip can be deleted by pressing and holding **OK** for a few seconds. A delete confirmation menu will appear as shown below.

Grid View   **Full Screen View**

Select YES with ▲ or ▼ and press **OK** to confirm.

Full Screen View

Menu Mode

Display Main Menu: In Normal Mode, Press the OK button to display the Main Menu. Scrolling through the menu using the ▲ and ▼ buttons will reveal more functions.

Menu and sub-menu items are selected by using the ▲ and ▼ buttons to highlight the desired item and then pressing **OK**.

Pressing **ESC** will usually exit out of a menu choice. (Exceptions will be noted.)
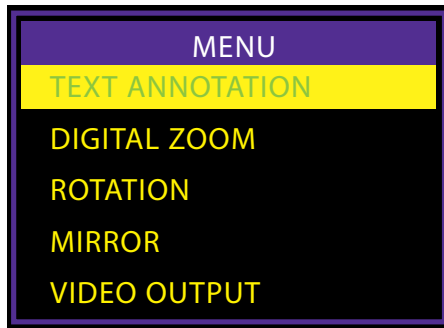
MENU
- TEXT ANNOTATION
- DIGITAL ZOOM
- ROTATION
- MIRROR
- VIDEO OUTPUT
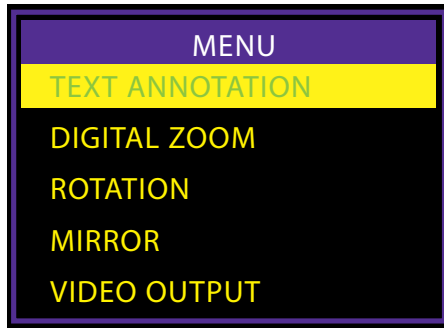
The Main Menu Functions Are:

TEXT ANNOTATION	DATE / TIME
DIGITAL ZOOM	VIDEO FORMAT
ROTATION	LANGUAGE
MIRROR	DELETE ALL
VIDEO OUTPUT	AUTO POWER OFF

Text Annotation

A single line of text may be added to images as they are captured. The line is limited to about 30-50 characters in length, depending on the number of blank spaces in the text string. Select **TEXT ANNOTATION** from the main menu and press **OK**.

MENU
- TEXT ANNOTATION
- DIGITAL ZOOM
- ROTATION
- MIRROR
- VIDEO OUTPUT

The current default text is displayed – "TEST" in this example. To edit the default text, select **EDIT TEXT** and press **OK**.

TEXT ANNOTATION
- EDIT TEXT
- TEST
- TEXT COLOR

Menu Mode (cont'd)

Text Annotation (cont'd)

The text editing window will appear, with the current default text displayed, if any.

The selected yellow key on the virtual keyboard is indicated by an orange outline.

The black function keys at the bottom of the virtual keyboard are activated by pressing the corresponding button on the real display, as indicated by the arrows in the adjacent photo. So SPACE is the **ESC** button, ENTER is the **OK** button, left arrow is the 📷 button, and so forth.

Selected Key

Use the UP, DOWN, LEFT and RIGHT virtual keys (▲,▼, 📷 , 🎥 real keys) to select the desired yellow key on the virtual keyboard, then press ENTER (OK).

Select ⟨X⟩ and press **OK** to delete one character to the left of the cursor.

Select ⟨X⟩ and press **ESC** to delete one character to the right of the cursor.

← moves the cursor one space to the left, → moves it one space to the right.

The abc key toggles between upper and lower case.

Pressing **ESC** will *not* exit this screen. The SAVE key exits the keyboard screen and saves the edited default text. The CANCEL key exits the screen without saving any edits.
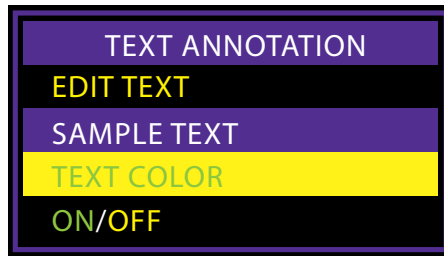
Menu Mode (cont'd)

Text Annotation (cont'd)

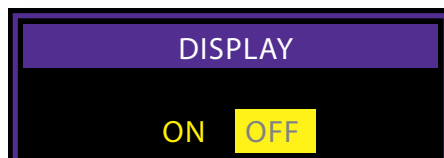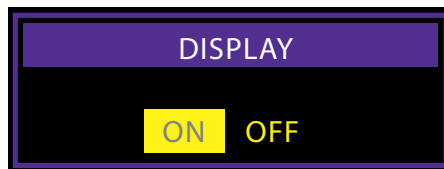Select TEXT COLOR and press **OK** to change the color of the user-defined text.

```
         TEXT ANNOTATION
  EDIT TEXT
  SAMPLE TEXT
  TEXT COLOR
  ON/OFF
```

Select the desired text color from the list and press **OK**.

```
           TEXT COLOR
  WHITE
  GREEN
  YELLOW
```

Select **ON/OFF** to turn text annotation on or off.

```
         TEXT ANNOTATION
  EDIT TEXT
  SAMPLE TEXT
  TEXT COLOR
  ON/OFF
```

```
            DISPLAY

           ON    OFF
```

Choose **ON** or **OFF** and press **OK**.

```
            DISPLAY

         ON    OFF
```
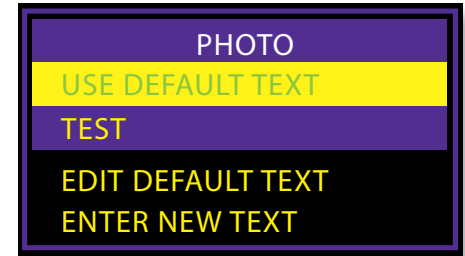
Menu Mode (cont'd)

Text Annotation (cont'd)

If DISPLAY has been set to ON, the PHOTO screen appears when the 📷 button is pressed to capture an image.

Press **OK** to capture the image with the default text included on the image.

```
              PHOTO
  USE DEFAULT TEXT
  TEST
  EDIT DEFAULT TEXT
  ENTER NEW TEXT
```

Or, select **EDIT DEFAULT TEXT** or **ENTER NEW TEXT** to make the text editing screen appear and change the default text.

If DISPLAY has been set to ON, the VIDEO RECORDING screen appears when the 🎥◄ button is pressed to capture a video clip.

With WITHOUT TEXT highlighted, press **OK** to begin capturing video with no annotation.

Choose WITH DEFAULT TEXT to begin recording video with the default text included on the image.

```
          VIDEO RECORDING
  WITHOUT TEXT
  WITH DEFAULT TEXT
  TEST
  EDIT DEFAULT TEXT
```

Choose EDIT DEFAULT TEXT to display the text editing screen and edit the default text.

Digital Zoom

Select this function by pressing the **OK** button. Use the ▲ and ▼ buttons to select the digital magnification of the live display image from 1.0 to 2.0 in increments of 0.1. The selected magnification is shown on the display.

```
              MENU
  TEXT ANNOTATION
  DIGITAL ZOOM
  ROTATION
  MIRROR
  VIDEO OUTPUT
```
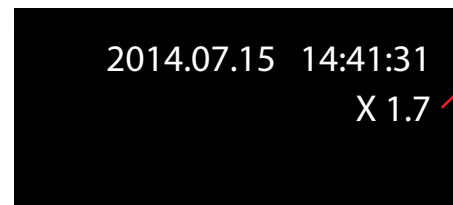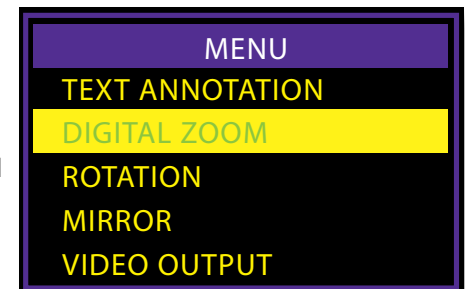
```
   2014.07.15  14:41:31
                 X 1.7
```
Magnification

Menu Mode (cont'd)

Rotation

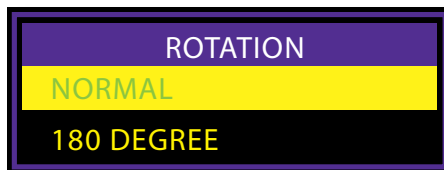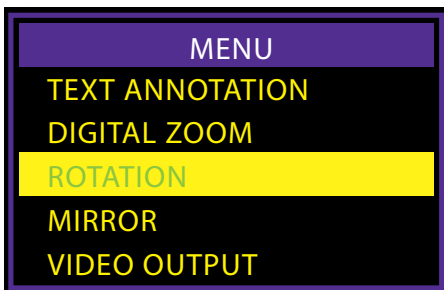Rotate the live image by 180 degrees or returned it to normal by entering the ROTATION sub-menu, selecting the desired option and pressing **OK**.
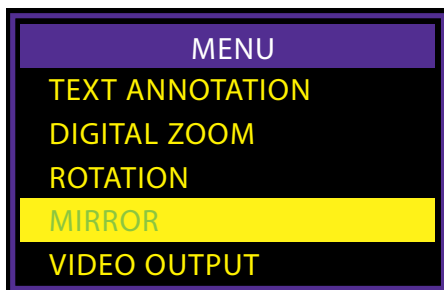
MENU
TEXT ANNOTATION
DIGITAL ZOOM
ROTATION
MIRROR
VIDEO OUTPUT

ROTATION
NORMAL
180 DEGREE

Normal

180 Degree

Mirror

The image may be mirrored horizontally or vertically by opening the MIRROR submenu…

MENU
TEXT ANNOTATION
DIGITAL ZOOM
ROTATION
MIRROR
VIDEO OUTPUT

…and choosing from these options:

(note – Folding gives the same result as Rotating 180 degrees)

MIRROR
DISABLE
HORIZONTAL
VERTICAL

Menu Mode (cont'd)

Original Image   Horizontal   Vertical   Folding

Video Output

This function transfers the video signal to the composite input of an auxiliary display using the supplied cable. The unit will automatically revert to the built in display when the cable is disconnected. This function will allow you to toggle between displays if both are connected. Simply press **OK** while this function is selected to toggle between displays.

MENU
TEXT ANNOTATION
DIGITAL ZOOM
ROTATION
MIRROR
VIDEO OUTPUT
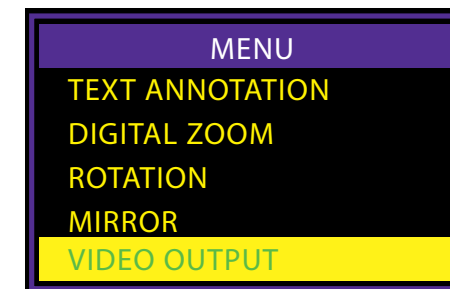
Date/Time

Selecting the Date/Time menu item and pressing **OK** …
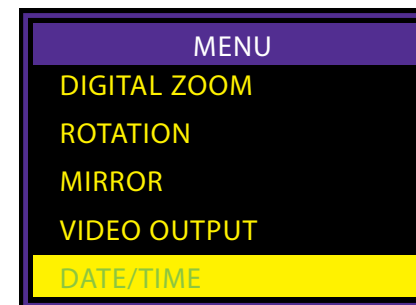
… brings up this sub-menu:

MENU
DIGITAL ZOOM
ROTATION
MIRROR
VIDEO OUTPUT
DATE/TIME

DATE / TIME
DATE FORMAT
TIME FORMAT
SETUP
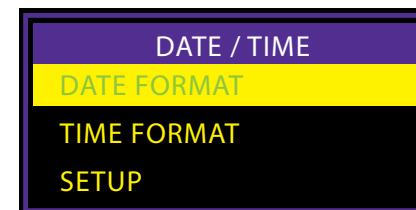
Menu Mode (cont'd)

Date/Time (cont'd)

Selecting Date Format lets you choose the desired date display format from a list:
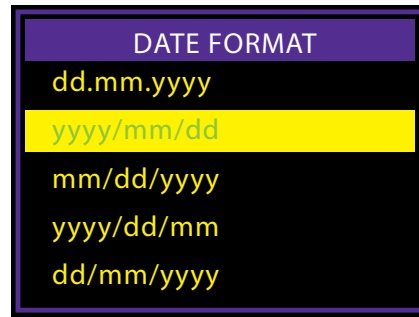
```
        DATE FORMAT
  dd.mm.yyyy
  yyyy/mm/dd
  mm/dd/yyyy
  yyyy/dd/mm
  dd/mm/yyyy
```

The Time Format sub-menu allows you to display time in a 12 or 24 hour format.

```
        TIME FORMAT
  24-HOUR CLOCK
  12-HOUR CLOCK (AM/PM)
```

Selecting Setup from the Date/Time sub-menu brings up this window, where the date and time can be set, and the date/time display turned on or off:

In this window, the selected field may be incremented or decremented with the ▲ and ▼ buttons. The **OK** button will step to the next field until the ON/OFF field is selected. The next press of the **OK** button will then return the display to Normal Mode. If "DISPLAY" indicates "ON" status, the date and time will be displayed on the screen in Normal Mode. Captured images and videos will always include a time/date stamp.

```
            SETUP
    yyyy · mm · dd
       2014 · 07 · 15
          14 : 45 : 24
       DISPLAY   ON
```
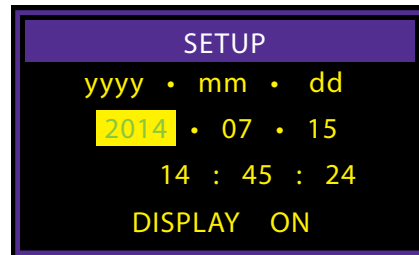
Instant Picture Review

INSTANT PICTURE REVIEW will automatically display an image after it is captured.

Select INSTANT PICTURE REVIEW from the main menu and press **OK**.

```
            MENU
  ROTATION
  MIRROR
  VIDEO OUTPUT
  DATE / TIME
  INSTANT PICTURE REVIEW
```
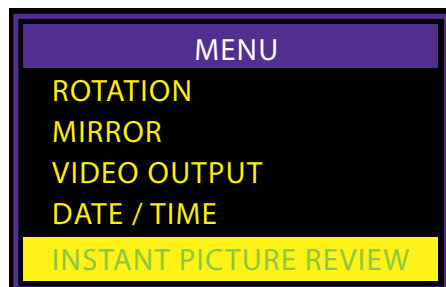
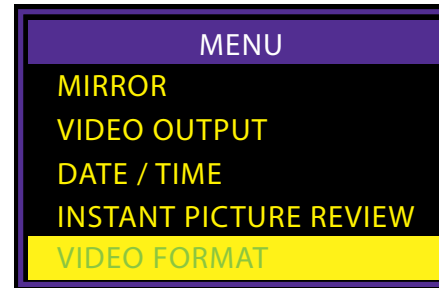## Menu Mode (cont'd)

Instant Picture Review (cont'd)

Choosing ENABLE will cause captured still images to remain on the display screen. ESC must then be pressed to return the display to a live image.

Choosing 3 SECONDS will cause captured images to be displayed for three seconds before reverting back to a live image.

```
    INSTANT PICTURE REVIEW
  DISABLE
  ENABLE
  3 SECONDS
```
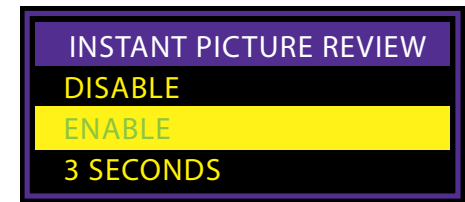
Video Format

This function allows you to choose the format of the video output signal for an external display. The options are NTSC and PAL. Use the ▲ and ▼ buttons to select and press **OK** to confirm.

```
            MENU
  MIRROR
  VIDEO OUTPUT
  DATE / TIME
  INSTANT PICTURE REVIEW
  VIDEO FORMAT
```

```
          TV FORMAT
  NTSC
  PAL
```

While the TV FORMAT sub-menu is displayed, pressing the 📷 button will display the DISPLAY SETTING sub-menu. Here the factory settings for the monitor may be changed or reset. Use ▲ and ▼ and press OK to select the property to be changed. Then use ▲ and ▼ to change the setting and OK to confirm. Each unit is optimized from the default settings by Gradient Lens Corp. prior to shipping. These optimized settings appear on a label on the rear of the display, should they need to be re-entered.

```
        DISPLAY SETTING
  BRIGHTNESS        100
  CONTRAST          140
  HUE                 0
  SATURATION         68
  DEFAULT 1
```
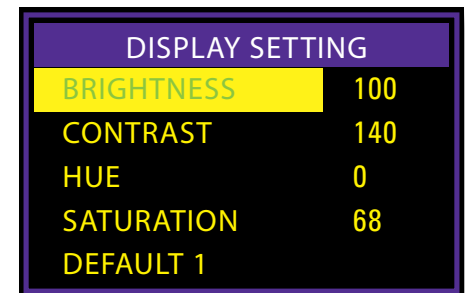
Menu Mode (cont'd)

Language

Choose the Language item in the main menu to scroll through the language choices.

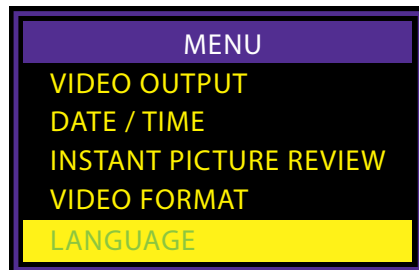There are 26 languages available. Use ▲ and ▼ to select and press OK to confirm.
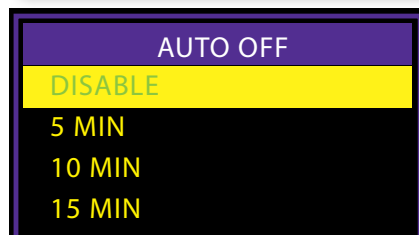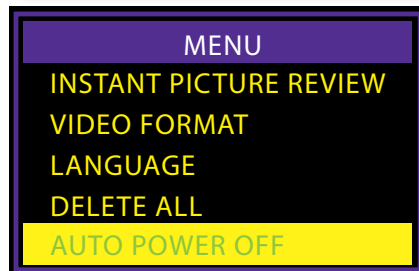
Delete All

Select this item to delete all saved still photo, and video files. Use ▲ and ▼ to select "Yes" or "No" and press OK to confirm.

Auto Power Off

Use the ▲ and ▼ buttons to select time for auto power off or to disable the auto power off function. Press OK to confirm.

MENU
- VIDEO OUTPUT
- DATE / TIME
- INSTANT PICTURE REVIEW
- VIDEO FORMAT
- LANGUAGE

LANGUAGE
- English
- Deutsch
- Français
- Español
- Italiano

MENU
- DATE / TIME
- INSTANT PICTURE REVIEW
- VIDEO FORMAT
- LANGUAGE
- DELETE ALL

MENU
- INSTANT PICTURE REVIEW
- VIDEO FORMAT
- LANGUAGE
- DELETE ALL
- AUTO POWER OFF

AUTO OFF
- DISABLE
- 5 MIN
- 10 MIN
- 15 MIN

Connecting to an External Display

Use the included AV cable to connect your external display to the jack on the side of the monitor. (**Note:** The external display must accept a composite input). Use the VIDEO FORMAT item on the main menu to choose the correct format (NTSC or PAL) for the external display. Use the VIDEO OUTPUT function on the main menu to direct the output to the external display, or to switch between displays. The monitor and the external display cannot be viewed at the same time. The monitor will automatically become active when the cable is disconnected.

AV Cable   Video Out

Transferring Image Files to a Personal Computer

Transferring image files to a personal computer Images stored on the SD memory card can be downloaded to a computer via the USB port. Plug in the Mini USB 1.1 connector to the USB port and open the drive associated with the USB port on your computer. The stored images are contained in the location "X:\DCIM\100DSCIM" where X is the drive letter. JPGs can be viewed with Windows Picture Viewer and .asf video files play in Windows Media Player.

USB Cable   USB Out

Alternatively, images from the SD memory card may be transferred to your computer by removing the card from the monitor and inserting it into your computer's card reader.

Changing the Monitor Battery

To change the monitor battery, remove the screw from the battery cover and remove the cover.

Battery Cover Screw

Battery Cover

Carefully expose the battery wires and connector. Pull the connector apart and connect new battery. Replace the battery in its compartment and replace the cover and screw.

Charge Spare Monitor Battery

The Spare Monitor Battery may be charged when not installed in the monitor, by connecting it to the Spare Battery Charger as shown here. After connecting the charger to the battery, plug the charger into a 100-240VAC, 50-60Hz outlet. Adapters are included for several different international outlet configurations.

When plugged in, the charger LED will change from red to green when charging is complete.

The following troubleshooting hints should help you to solve some performance problems on site. If a problem is not solved using these suggestions, call the Service Center at the number listed under the SERVICE section of the Warranty page and arrange to return your videoscope for evaluation and repair.

⚠️ **NEVER Attempt to Disassemble the V2 Video Borescope**

If Image is Not Clear and Sharp:

- If using a detachable tip adapter, the tip may not be properly attached. Detach tip adapter and reinstall.

- Lenses or glass windows may be dirty. Clean glass surface on insertion tube tip with alcohol and cotton swab (or soft cloth). Also clean detachable tip if being used.

- Light may be insufficient. Increase light source intensity or move viewing tip closer to object.

If the Monitor is Not Working Properly:

- **Nothing on LCD screen:** Battery power too low. Recharge battery.

- **Cannot capture photos or video:** No SD card inserted.

- **Shut down:** Battery has discharged below operating threshold. Recharge battery.

- **!!! No functions working!!!** If all functions freeze or fail, first try to power the unit off and restart. If the unit does not recover, remove the battery compartment cover. Move the battery to reveal the reset hole. Insert a toothpick, or other non-conducting probe, into the reset hole and push the reset button to perform a system reset.

Reset

If Articulation is Difficult:

- Articulation locks may be fully or partially engaged. Release locks.

- Articulation cable movement may be hindered by bends in the insertion tube. Keep tube as straight as possible during inspection.

- Viewing tip movement may be blocked due to its position inside equipment. Try to reposition tip by rotating tube or moving tip forward or backward.

⚠️ **Do Not Apply Excessive Force on Articulation Controls**

If Image is Not Bright Enough:

- Light source intensity may be at a low setting. Turn to maximum intensity.

- Light source battery may be low or discharged. Charge battery.

- Viewing tip may be too far from object. Move tip closer to object.

- If using a detachable tip adapter, the tip may not be properly attached. Detach tip adapter and reinstall.

- Optical surfaces may be dirty. Clean glass surfaces on viewing tip, and Light Post with alcohol and cotton swab (or soft cloth). Also clean detachable tips if being used.

- Light source capacity may be insufficient for application.

Notes:

- Do not remove the SD memory card during capture operations, data will be lost and the memory card may be damaged.

- We recommend 80X SD card or faster for best quality video clips.

- Use cotton swabs and lens cleaning solution or isopropyl alcohol (rubbing alcohol) to clean the tip optics.

- Clean the monitor with a damp cloth only. Do not use chemical solvents.

Button	Normal Mode	Image Review Mode	Menu Mode
▲	Switches to Image Review mode and scrolls in reverse through still images and videos.	Scrolls to previous still image or video.	Scrolls up through selections.
▼	Switches to Image Review mode and scrolls forward through still images and videos.	Scrolls to next still image or video.	Scrolls down through selections.
OK	Enters Main Menu.	To delete current image or video.	Confirm selection.
ESC	Displays battery and memory status.	Returns to Normal Mode and displays 'CAMERA' and battery and memory status.	Returns to Normal Mode and displays 'CAMERA' and battery and memory status.
📷	Captures a still image (JPG). While recording a video clip, pressing this button will stop the recording process.	While viewing a video file this button will capture the current video frame in a still photo.	Displays firmware version.
🎥	Pressing this button starts / stops video recording.	Starts / stops video playback.	(No function)

Warranty

Gradient Lens Corporation warrants that all Hawkeye borescopes and accessories will be free of defects in materials and workmanship for one year from the date of first retail purchase.

Video and lighting products have manufacturer's warranties for one year.

This warranty does not cover breakage or failure due to tampering, misuse, neglect, accidents, improper installation, modification, shipping, or to improper maintenance, service and cleaning procedures. This warranty is also void if the instrument is not used in accordance with the manufacturer recommendations or if required service is performed by anyone other than an Gradient Lens Corporation authorized agent. NO OTHER EXPRESS OR IMPLIED WARRANTY IS GIVEN.

CE Declaration

Declaration of Conformity

Application of Council Directive: 2004/108/EC

Standards To Which Conformity Is Declared:	EN61326-1: 2013
	EN55011 Class A Group 1
	EN61000-4-2: 2009
	EN61000-4-3: 2010
	EN61000-4-4: 2012
	EN61000-4-5: 2006
	EN61000-4-6: 2008
	EN61000-4-8: 2010
	EN61000-4-11: 2004

Manufacturer's Name:	Gradient Lens Corp
Manufacturer's Address:	4647 Jackson Lane, Unit D
	Phelan, CA 92371
	585-235-2620
Equipment Description:	Borescope
Equipment Class:	Electrical Equipment Measurement, Control & Laboratory Use - Industrial
Model Numbers:	Hawkeye V2 Series

I the undersigned, hereby declare that the equipment specified above, conforms to the above Directive(s) and Standard(s).

Place:	Rochester, NY 14608 USA
Signature:	
Full Name:	Leland Atkinson
Position:	Vice President

FCC Statement / CAN ICES-3 (A) / NMB-3(A)

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with part 15 of FCC Rules. Operation is subject to the following two