Kamasa-TOOLS®

Portable Inspection Camera

K 12170

INTRODUCTION

The K 12170 is a high performance industrial endoscope with a high resolution five-inch colour LCD display. This is a fully-featured instrument, ergonomically designed so that the main function buttons can be controlled with one hand. The extremely flexible, semi-rigid camera probe is 1 metre long an d just 3.9mm in diameter. The inspection camera has numerous applications from inspecting engines and engine components, inspecting cables or pipes in or behind walls, to locating lost keys, etc, in drains. For example, the very narrow diameter of the camera probe makes it ideal for inspecting combustion chambers in diesel-engined vehicles using the glow plug aperture for access. Read the part number of a component buried in the engine-bay without dismantling.

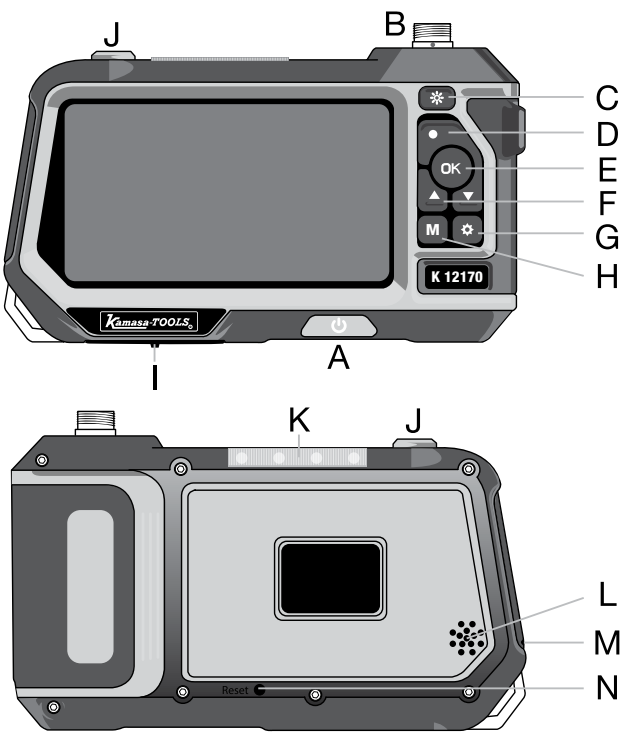
The instrument is fitted with a 32 GB Micro SD card which enables still images and video recordings to be saved. Sound is also recorded. The still image or video files can be transferred to a PC or laptop via the supplied USB lead or by removing the Micro SD card from the inspection camera and connecting to the PC via a card reader.

The instrument features a four-LED torch and the button controls are back-lit. The tip of the camera probe features six LEDs with three brightness settings for use in dark environments.

The internal battery is charged via the USB lead (supplied); plug the lead into a suitable USB port on a PC or 5V USB mains adaptor (not supplied).

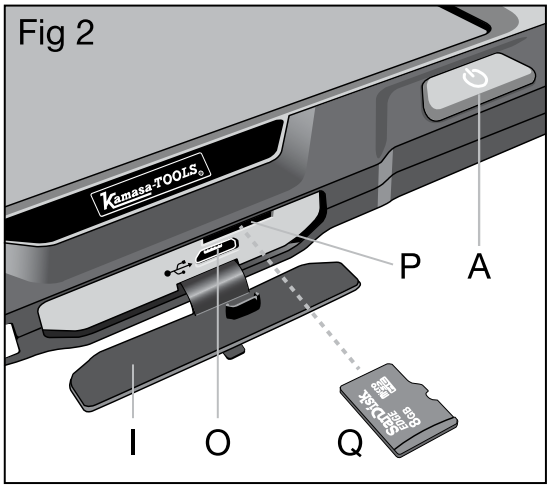
CONTROLS

Fig 1



Ref.	Description
A	Power button (ON / OFF)
B	Camera probe socket
C	Camera probe LED control
D	Record (take photo or start/ stop video)
E	OK Enter button (confirm selection)
F	UP and DOWN selection
G	Settings (enter or exit settings menu)
H	Mode button (switch between photo / video / playback)
I	Charging port cover
J	LED torch switch (ON / OFF)
K	LED torch
L	Speaker
M	Microphone
N	Reset button
O	Micro-USB socket
P	Micro SD card socket
Q	Micro SD card (supplied)

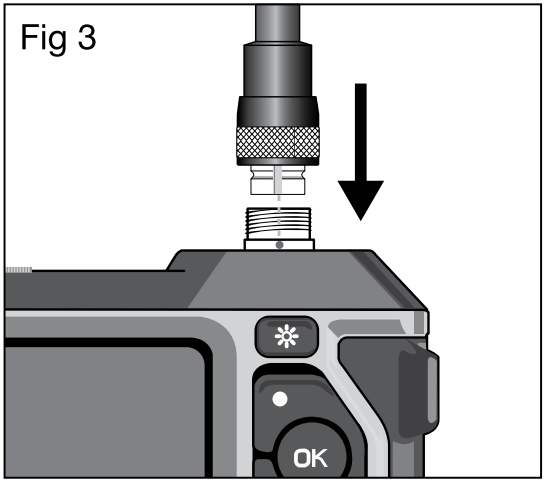
INSTRUCTIONS



Set-up:

- **Refer to Figure 2:** pull back the charging port cover (**I**) and carefully insert the Micro SD card in socket (**P**). (32 GB Micro SD card is provided with instrument). **Do not remove or refit** the Micro SD card if the instrument is switched ON. Power OFF the instrument before removing or refitting the Micro SD card. Failure to carry out this advice will damage the instrument.
- Connect camera probe to the socket (**B**) on the top of the instrument. **Refer to Figure 3:** carefully align channel on the probe connector with the red marker dot on the instrument socket and push fully home. Screw locking ring until tight.

INSTRUCTIONS



Charging:

The internal battery is charged via the USB lead (supplied). **Refer to Figure 2:** pull back the charging port cover (**I**) and plug the micro-USB connector of the lead into the micro-USB socket (**O**). Now connect the USB connector of the lead into a suitable USB port on a PC or 5V USB mains adaptor (not supplied). The ON/OFF symbol on the power button (**A**) flashes RED while the internal battery is being charged. When the battery is fully charged, the ON/OFF symbol on the power button is not lit. When the instrument is switched on, the state of battery charge symbol is displayed on the top right of the screen (refer to **Figure 4:** symbol **5**).

INSTRUCTIONS

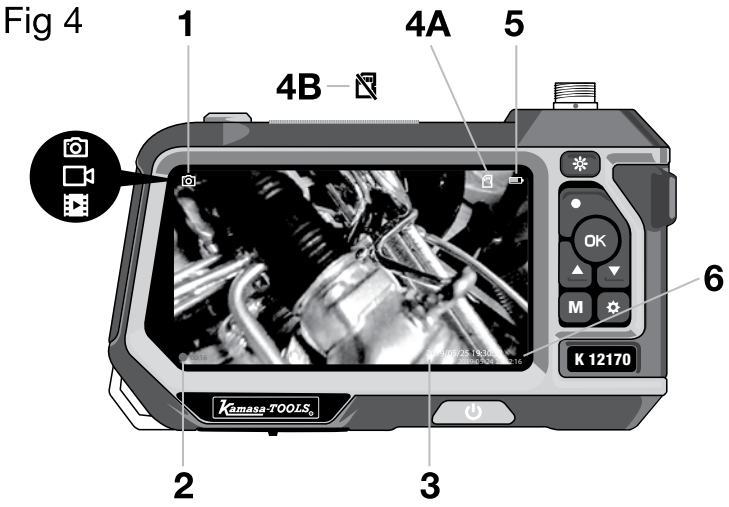
Switch On:

Press and hold (for approximately 2 seconds) the ON / OFF power button (**A**).

The current time and date is displayed, refer to **Figure 4:** symbol (**3**); if the Micro SD card is present, symbol (**4A**) is displayed. If the Micro SD card is not present, symbol (**4B**) is displayed.

The instrument has three separate modes of operation: **photo**, **video** and **playback**. These are selected by pressing the Mode button (**H**). **Refer to Figure 4:** The mode symbol (**1**) on the top left of the screen displays the selected mode.

Fig 4



INSTRUCTIONS

Recording a still photo image:

When the instrument is in **photo** mode, press the Record button (**D**) to take a still photo of the camera probe image currently being displayed on the screen. The image will be stored on the Micro SD card.

Video recording:

When the instrument is in **video** mode, press the Record button (**D**) to start video recording. **Refer to Figure 4:** The recording symbol (**2**) will flash and the current length of the recording will be displayed. Press the Record button (**D**) again to stop the recording. The video recording will be stored on the Micro SD card.

Playback:

When the instrument is in **playback** mode, the previously recorded still images or videos are displayed on the screen, starting with the most recent image or video. Use the UP and DOWN selection keys (**F**) to scroll between images and/or videos. Press the OK enter button (**E**) to play the selected video.

Brightness settings for Camera Probe LEDs:

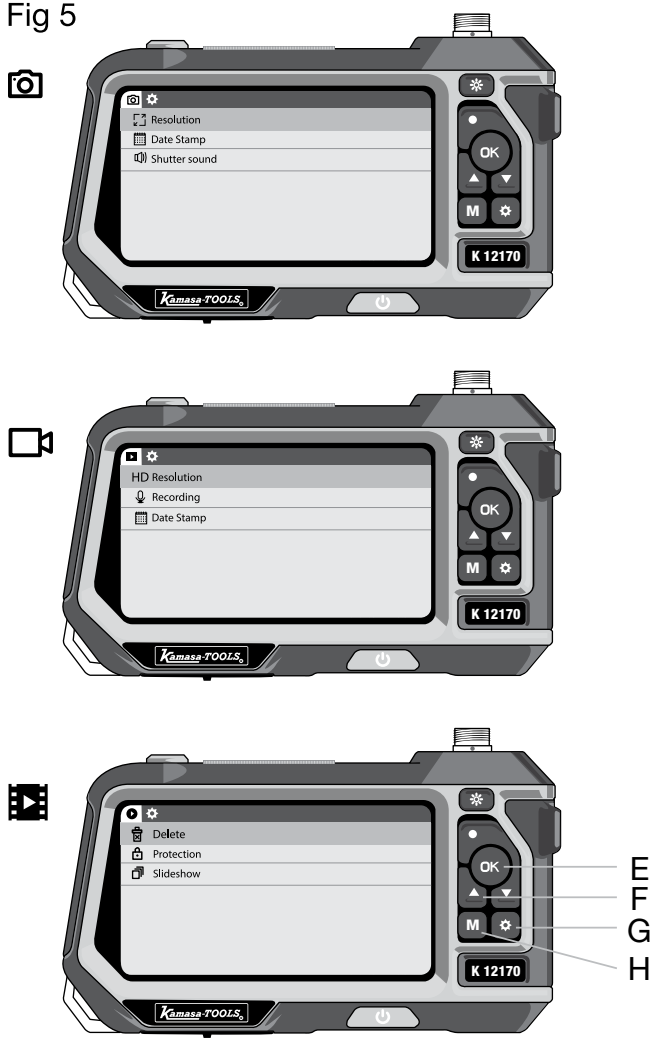
The tip of the camera probe features six LEDs with three brightness settings for use in dark environments. Press the Camera probe LED control button (**C**) to cycle between brightness settings.

INSTRUCTIONS

Settings:

As well as the main Settings Menu, there are also separate setting menus for the three modes (**photo** / **video** / **playback**). For example, to access the photo settings menu, the instrument must be in **photo** mode; to access the video settings menu, the instrument must be in **video** mode, etc. Then refer to **Figure 5** and follow the instructions below to access the specific mode settings menu.

Fig 5



INSTRUCTIONS

Refer to Figure 5:

1 Press Setting Button (**G**) to enter the Setting Menu pages. The specific mode settings menu is displayed: (**photo** / **video** / **playback**).

2 Use UP and DOWN selection buttons (**F**) to navigate through the menus.

3 Confirm the selection by pressing the OK enter button (**E**).

4 Press the mode button (**H**) to move to the Main Setting Menu, then navigate through the menus and confirm selections as detailed above.

5 When your main setting preferences have been confirmed, move out of the setting menu by pressing the mode button (**H**) again.

Available Settings:

Photo Mode:

- **Resolution:** (1920 x 1080p)
- **Date Stamp:** switch the date stamp watermark on saved photos (OFF / ON). Refer to **Figure 4** — symbol **6**.
- **Shutter sound:** (OFF / ON)

Video Mode:

- **Resolution:** (1280 x 720p)
- **Recording:** switch the microphone (OFF / ON)
- **Date Stamp:** switch the date stamp watermark on saved videos (OFF / ON). Refer to **Figure 4** — symbol **6**.

Playback Mode:

- **Delete:** Delete **current file** (image or video), or delete **all files**. Press mode button (**H**) to exit without deleting any files.
- **Protection:** Lock or unlock files
- **Slideshow:** Select interval between slides (2 sec, 5 sec or 8 sec). Press OK to start or stop slideshow.

INSTRUCTIONS

Main Settings Menu:

Fig 6

- **Auto Power Off:** Off / 3 minutes / 5 minutes / 10 minutes.
- **Language:** Default is English, but seven other languages can be selected: Chinese, German, Japanese, Spanish, French, Italian and Russian.
- **Date / Time:** Set the default date and time for the instrument.
- **Format:** Formats the Micro SD card. Caution — all data will be deleted.
- **Default Setting:** Sets the instrument to factory default settings.
- **Version:** Displays current firmware version.

INSTRUCTIONS

Copying image and video files to the PC or Laptop:

There are two methods of transferring files from the instrument to your PC or laptop:

1 Remove the Micro SD card (instrument switched OFF), and using a suitable card reader, transfer the files to the PC or laptop.

2 With the instrument switched ON, connect the USB lead (supplied) to the instrument and the PC; a window will open on the PC screen displaying the files on the Micro SD card fitted to the instrument.

Reset Button:

Refer to Figure 1: If the system software freezes or the instrument fails to respond to button input, including the power button (**A**), then the system can be reset and powered OFF by pressing the Reset Button (**N**).

Accessories included:

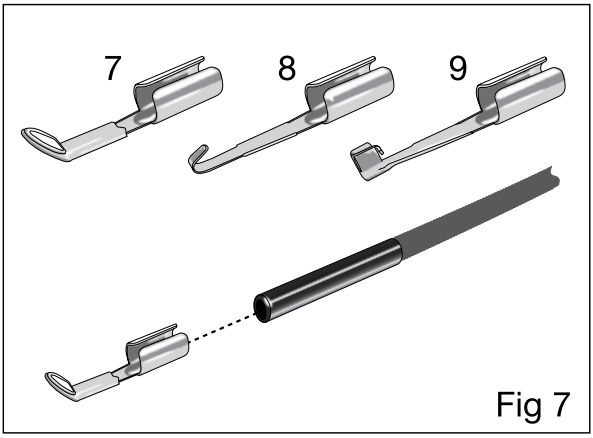


Fig 7

7 Mirror attachment (90°)

8 Hook attachment

9 Magnet attachment

Refer to Figure 7: the three attachments supplied are simply clipped over the end of the camera probe.

SPECIFICATIONS

Screen	5-inch colour LCD
Screen resolution	1280 x 720
Probe resolution	1280 x 720
Saved image resolution	1920 x 1080
Video recording resolution	1280 x 720
Ports	Micro USB (charging port) + Micro SD card port
LED torch	4 LED torch
Battery	3500mAh rechargeable Lithium battery
Operating temperature	0° - 45°C (32° - 113°F)
Charging duration	Approximately 3 - 4 hours
Operating duration	Approximately 2 - 4 hours
Certificates	CE, FCC, RoHS
Languages	English, Chinese, German, French, Spanish, Italian, Russian, Japanese
Included	Instrument, camera probe, Micro USB charging cable, storage case, instruction manual. Mirror, hook & magnet attachments.

PRECAUTIONS

- Always refer to instructions before use.
- **Do not remove or refit** the Micro SD card if the instrument is switched ON. Power OFF the instrument before removing or refitting the Micro SD card. Failure to carry out this advice will damage the instrument.
- Main Settings Menu — **Format: CAUTION:** this will erase all data on the Micro SD card! Any previously saved images or video recordings will be erased.
- **Do not use excessive force** when connecting probe to instrument — carefully align the channel on the probe connector with the red spot on the instrument socket and push fully home before tightening the locking ring (refer to **Figure 3**).
- Observe standard workshop safety procedures when using the instrument. Do not let children or other unqualified personnel use the instrument.
- If operating the inspection camera on a vehicle, make sure the engine is not running. If working under a vehicle, make sure that it is fully and safely supported.
- When checking a vehicle's engine internals, the engine or parts to be inspected **must be cold** — the camera probe is not heat-resistant.
- **Do not** put the camera probe into anything or near anywhere that may contain a live electrical charge.
- Keep the instrument dry, clean, free from oil, water and grease. Use a mild detergent on a clean cloth to clean the outside of the instrument when necessary. Keep in the supplied storage case when not in use.
- If the instrument is not to be used for a period of time, ensure that it is charged at least once every three months to prevent damage to the Lithium battery (excessive discharge).
- Do not carry the instrument by the probe.
- The instrument is not shock-resistant. Do not use it as a hammer or drop it.
- Protect the camera lens (on end of probe) from dirt and corrosive substances.
- Do not let the camera get wet or use in damp or wet conditions.
- The instrument is an industrial endoscope and is not intended for medical use.

K 12170

www.kamasatools.com