User guide

for *Gen-Eye2* PIPE INSPECTION/LOCATION SYSTEM

The Gen-Eye2 System provides a means of viewing the internal condition of pipes, conduits, small ducts and similar passages.
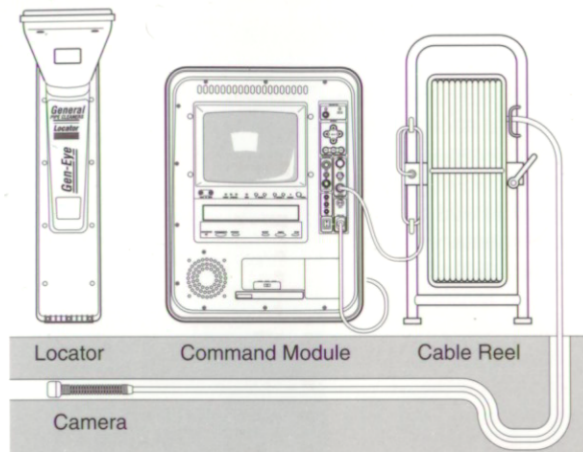
A rugged, versatile Command Module has full monitoring, control and recording functions in a single box. Accurate camera location and depth measurement are made possible with the Gen-Eye Locator.

Color or monochrome cameras may be fitted together with a variety of skids to assist deployment.

Capabilities and Features

Locator   Command Module   Cable Reel

Camera

System Capabilities:

1. Allows viewing, recording and playback of camera image.
2. Generates titles, time, date and deployed cable length for on-screen display.
3. GRAPHICS controls allow full editing of on-screen text, plus cable length reset.
4. CAMERA illumination & image invert controls.
5. MICROPHONE (integral or external) for audio commentary.
6. TITLER external connections.
7. TRANSMITTER ON/OFF control to allow camera location from surface using Gen-Eye Locator.
8. Power input from 110V AC supply, or 12V DC vehicle supply, via inverter.

Cameras/Cable Reels:

9. Three Camera options: Standard, Color and Mini.
10. Two Cable reel sizes: Standard and Mini, with cables up to 400ft (120m) long.
11. Standard and P-Trap skids assist movement of camera in pipe and center the camera for best picture.
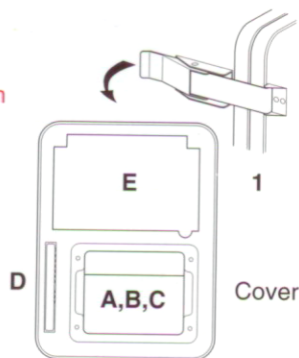
Connecting the System

1. Remove the Command Module cover.

   **Caution:** Take care when releasing the catches.
   The cover contains:
   A - Power Cable
   B - Inverter (optional)
   C - Screen Visor
   D - Remote Control
   E - External Titler (optional)

Cover

2. Choose Camera/Cable Reel (see *Camera Deployment*).
   Connect the Interface Cable from the Cable Reel to the Command Module.

   Recommendation: Push fit the Interface Cable into the CABLE REEL socket – Do Not Tighten – This allows easy release of the cable if accidentally pulled.

Cable Reel
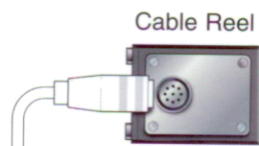
To AC Supply

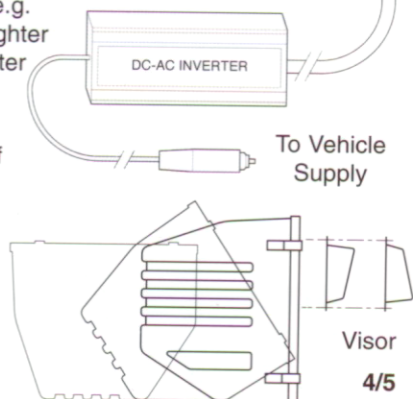3. Connect the Command Module Power Cable (or optional Inverter) to a suitable power supply:
   - 110V AC supply
   OR
   - 12V DC supply, e.g. vehicle cigarette lighter socket, if the Inverter is used.

To Vehicle Supply

4. Push fit the Visor if required to reduce screen reflections.

5. Three viewing angles are available.

Visor

Camera Deployment

1. Choose Camera and Cable Reel:
   Standard Reel with Standard or Color camera for 2 to 12in (50 to 300mm) diameter pipe. Cable lengths 200, 300 or 400ft (60, 90 or 120m).
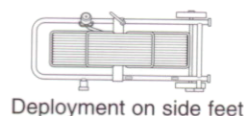   **Mini Reel** with Mini camera for $1\frac{1}{4}$ to 6in (30 to 150mm) diameter pipe. Cable lengths 100 or 200ft (30 or 60m).

Standard Reel and Camera
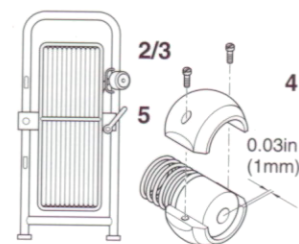
Push on and tighten grub screws
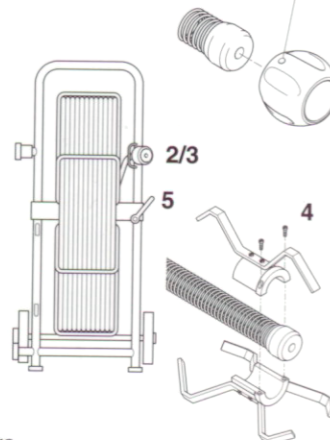
2. Check camera operation (see *Camera Image Controls*) and ensure the Command Module is configured for correct Reel size (see *Editing Configuration*).

Deployment on side feet

3. Always deploy cable through the Reel opening provided.

Mini Reel and Camera

4. SKIDS - Fit largest skid that will allow the camera to be pushed down the pipe. If the camera stops, remove and fit smaller skid. Keep skid runner numbers and holes to the front of assembled camera. Whenever possible deploy with skid fitted for camera protection.

0.03in (1mm)

5. BRAKE - The brake may be fully OFF/ON or tensioned to prevent camera runaway.

Brake OFF

Pull to adjust travel

Brake ON
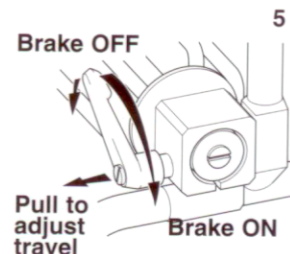
Camera Image Controls

Power ON procedures:

1. Switch Command Module Power ON.

2. At the Monitor/VCR switch Power ON and TV/AV to AV (Audio Visual) (see *Typical Monitor and VCR Controls overleaf*).

3. Switch OFF TRANSMITTER unless locating the camera position and depth (see *Locating the Camera overleaf*).

Display/Camera Controls:

4. To switch text ON/OFF (except cable length) press Down arrow.

5. INVERT - Press to invert displayed image (optional feature).

6. DIMMER - Adjust to reduce glare (adjust brightness). This control increases or decreases light from camera LEDs.
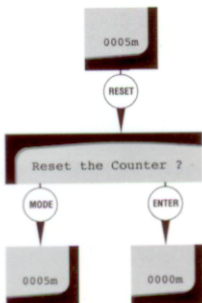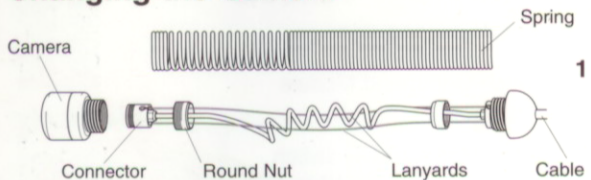
LEDs
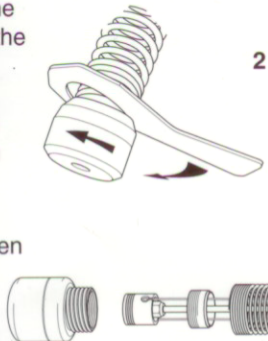
Reset of Displayed Cable Measurement

1. Press RESET to zero cable length displayed.

2. "Reset the Counter?" is displayed.

3. Press ENTER to confirm, OR...

4. Press MODE to cancel.

Changing the Camera

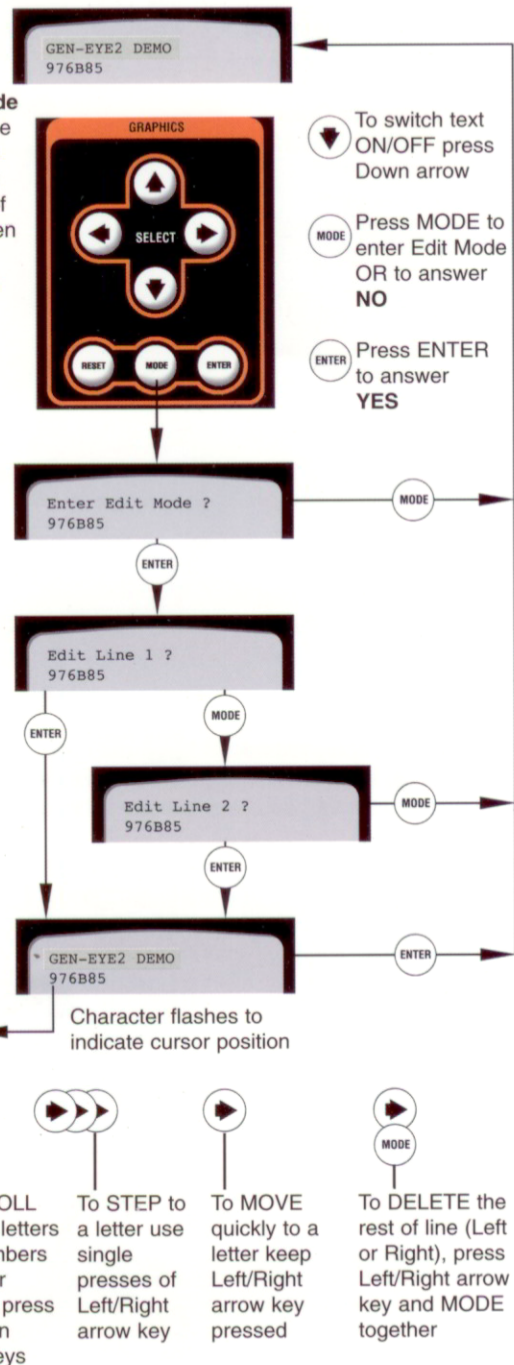Camera — Spring — Connector — Round Nut — Lanyards — Cable

1

2

3-6

1. Ensure that the camera and spring are clean and dry.

2. Locate the C wrench at the end of the spring so that the camera can be removed. Holding the C wrench so that it tends to loosen the spring, turn the camera in the opposite direction to unscrew it.

3. When the camera has been released from the spring, remove the round nut at the rear of the camera. This nut holds the two lanyards in place and secures the connector at the rear of the camera.

4. Release the lanyards and pull the connector at the rear of the camera to remove it.
   Caution – The camera is not waterproof when the rear connector has been removed.

5. Fit the replacement camera to the connector.

6. Ensure the lanyards are straight and locate them in the connector slots. Screw the round nut into the camera until hand tight.

7. Align the camera and the spring keeping the lanyards straight. Before screwing the camera onto the spring turn the camera counterclockwise approximately 2¹/₂ turns. This twists the lanyards so that they end up straight when the camera has been fully screwed onto the spring (clockwise). Screw the camera onto the spring until hand tight, the C wrench is not required.

Editing Titles

GEN-EYE2 DEMO
976B85

Edit Mode allows the two lines of text at the top of the screen to be updated.

To switch text ON/OFF press Down arrow

Press MODE to enter Edit Mode OR to answer **NO**

Press ENTER to answer **YES**

Enter Edit Mode ?
976B85

Edit Line 1 ?
976B85

Edit Line 2 ?
976B85

GEN-EYE2 DEMO
976B85

Character flashes to indicate cursor position

To SCROLL through letters and numbers at cursor position press Up/Down arrow keys

To STEP to a letter use single presses of Left/Right arrow key

To MOVE quickly to a letter keep Left/Right arrow key pressed

To DELETE the rest of line (Left or Right), press Left/Right arrow key and MODE together

Editing Configuration

```
10:59:41  01-02-99  0000m
```

Configuration Mode
allows setting of Date
and Time, and selection
of the Cable Reel type
(used for cable length
calculations).

Press and release
MODE and Up arrow
keys together to enter
Config Mode

(▲) (MODE)

```
Enter Config Mode ?
976B85
```
→ (MODE) →

(ENTER)

```
Enter Reel Type ?
976B85
```

(ENTER)   (MODE)

```
Press Up/Down to change
Standard Reel 400 FT
```

(ENTER)

```
SET DATE ?
```

(ENTER)   (MODE)

```
Enter the Date : YYMMDD
-05900
```

(ENTER)

```
SET TIME ?
```
→ (MODE) →

(ENTER)

```
Enter the Time : HHMMSS
-05900
```
→ (ENTER)

To move Picture ← → not together (handwritten note)
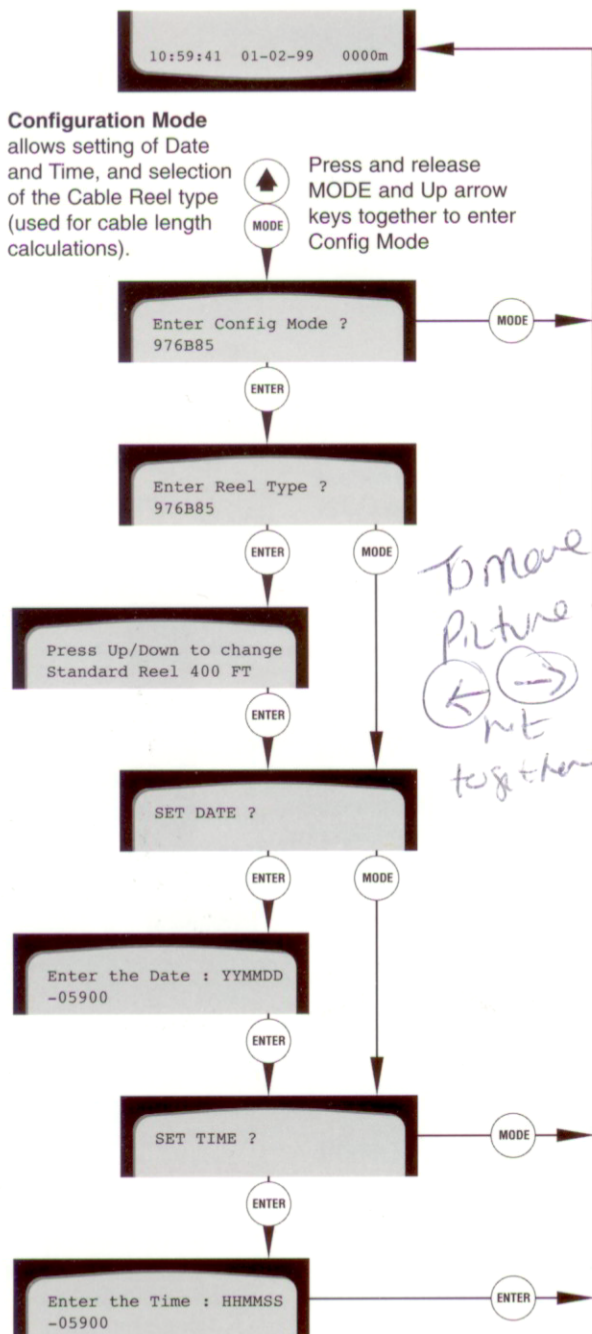
Use arrow keys to change Date and
Time in same way as when editing text

Recording and Playback

Voice Over and External Titler

1. MICROPHONE - The
   integral microphone,
   or an external
   microphone, may be
   used to add a
   commentary to the
   video recording.
   **Note: To prevent
   feedback tones,
   reduce the VOLUME
   (or MUTE the
   speaker) on the
   Monitor / VCR.**

   - Microphone ON/OFF
   - Integral Microphone
   - External Microphone

2. TITLER - An external
   Titler may be
   connected as shown.
   This provides an
   alternative method
   for adding titles to
   the displayed and
   recorded picture.

   In | Out
   Power | Video
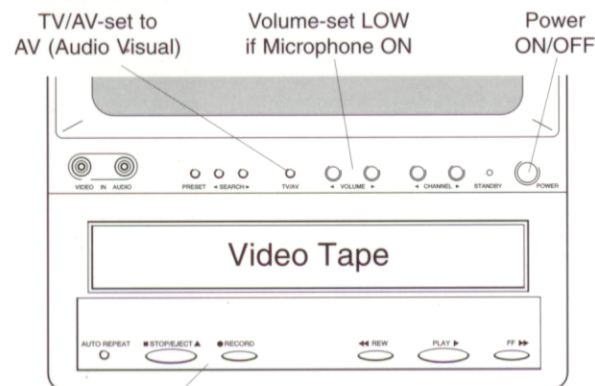
   External Titler
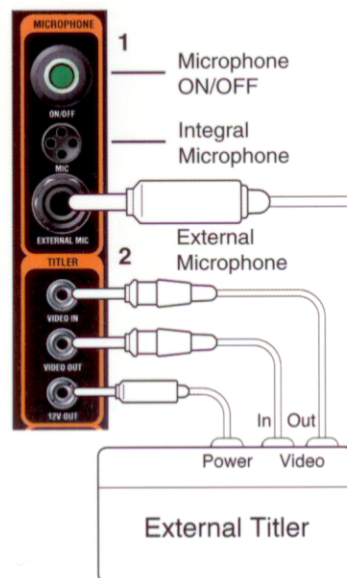
Typical Monitor and VCR Controls

Refer to the Monitor/VCR User Manual for detailed
operating instructions.
(The actual Monitor/VCR installed may change subject to availability.)

Monitor Controls

TV/AV-set to
AV (Audio Visual)

Volume-set LOW
if Microphone ON

Power
ON/OFF

Video Tape

VCR Controls

**Note: Remote Control Unit
is stowed in the cover**
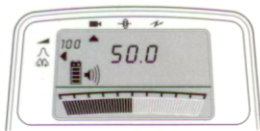
Locating the Camera

1. Press the Camera Transmitter button once to activate. Ensure the light is ON.
Note: To prevent interference on the picture, switch OFF the Transmitter when not required for locating the camera.

2. Switch the Locator ON. Select the Camera Mode and Peak detection. (Check battery status and, if required, initiate a self test.)


3. Locate the camera at regular intervals, starting at 3 to 5ft (1 to 1.5m) into the pipe.
Note: The camera must be stationary to pinpoint its position precisely.

4. Hold the Locator blade in line with the camera head and move it forward and back along the camera path to obtain a peak response on the Locator bargraph display. A ghost signal may appear before and behind the peak.
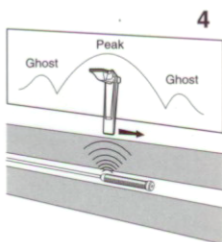
5. Move the Locator from side to side (across the camera path) to obtain a second peak response on the Locator bargraph display.
Note: It may be necessary to adjust the Locator Receiver gain to keep the bargraph at approximately 50% - 70%.
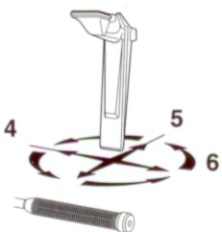
6. Rotate the Locator to obtain a third peak response. This ensures that the Locator blade is in line with the camera head.

7. **Depth Measurement**

Rest the Locator on the ground over the pinpointed position of the camera head. Holding the Locator vertical, press the Depth key.