

penelope

by Aaton

Aaton 35mm motion picture camera 2 & 3 Perf

User's guide version V1.1

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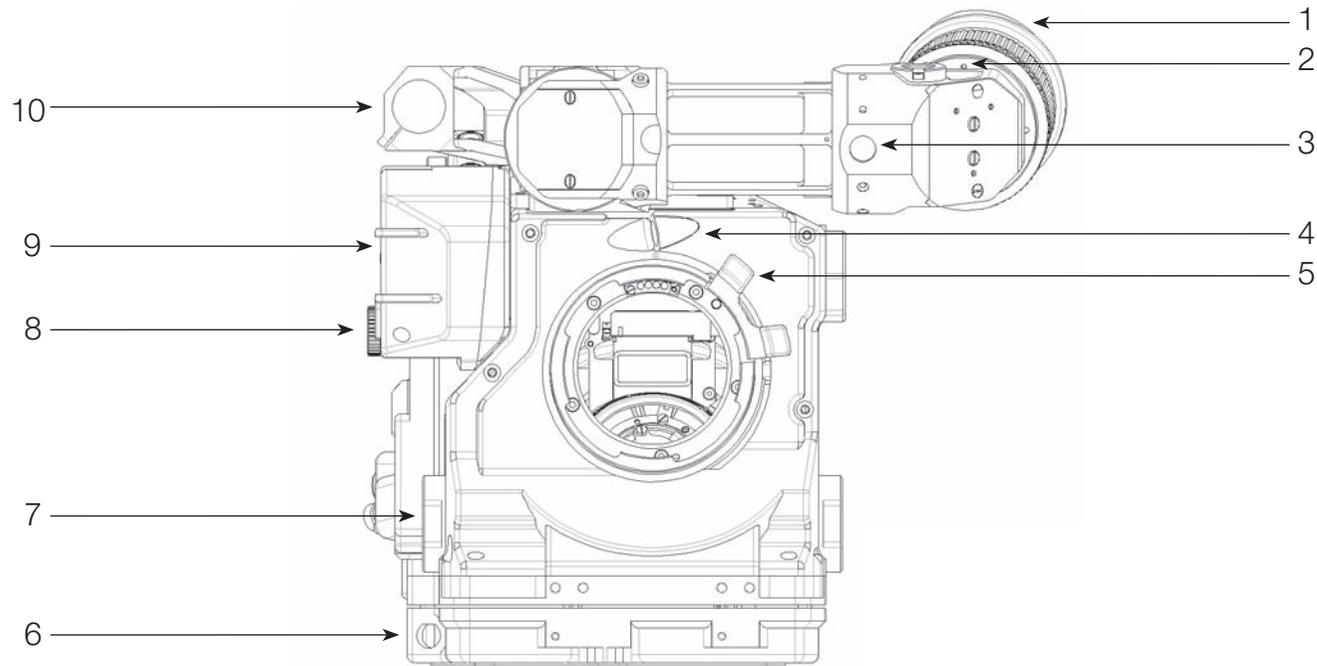
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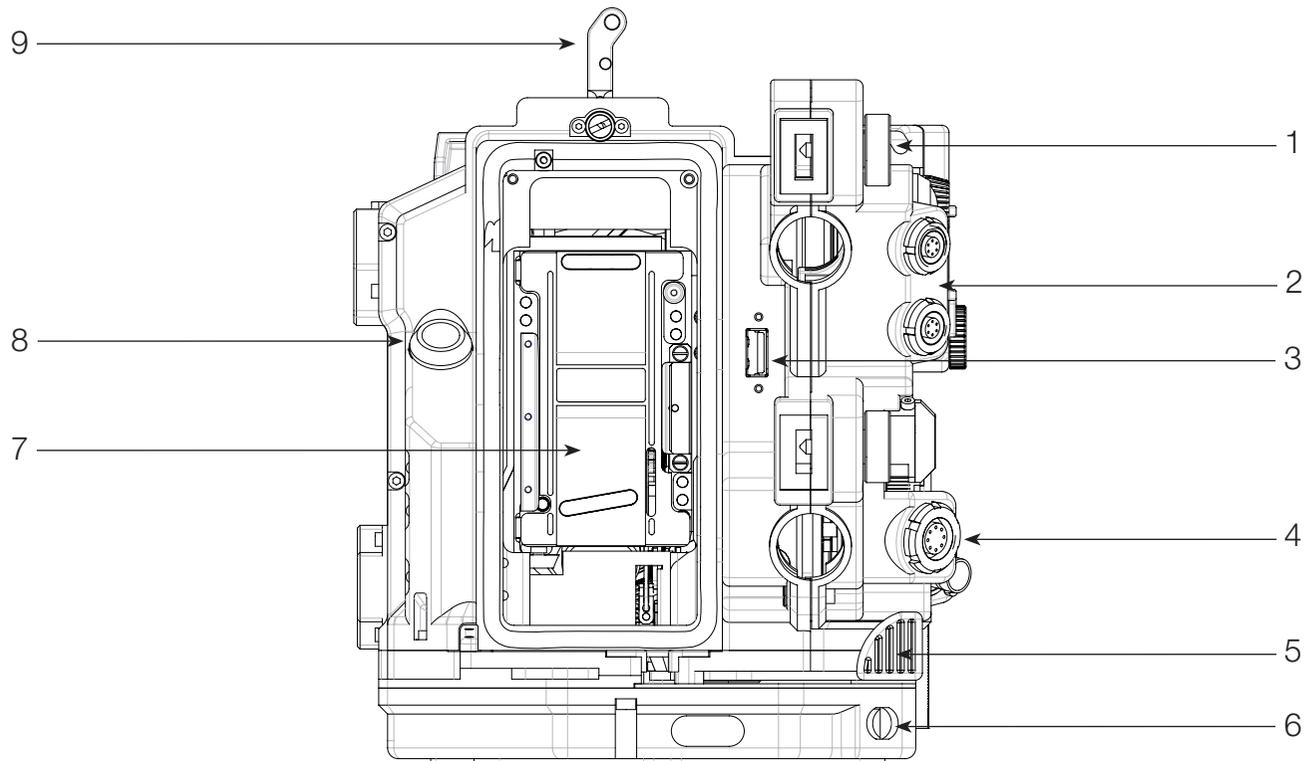
General overview





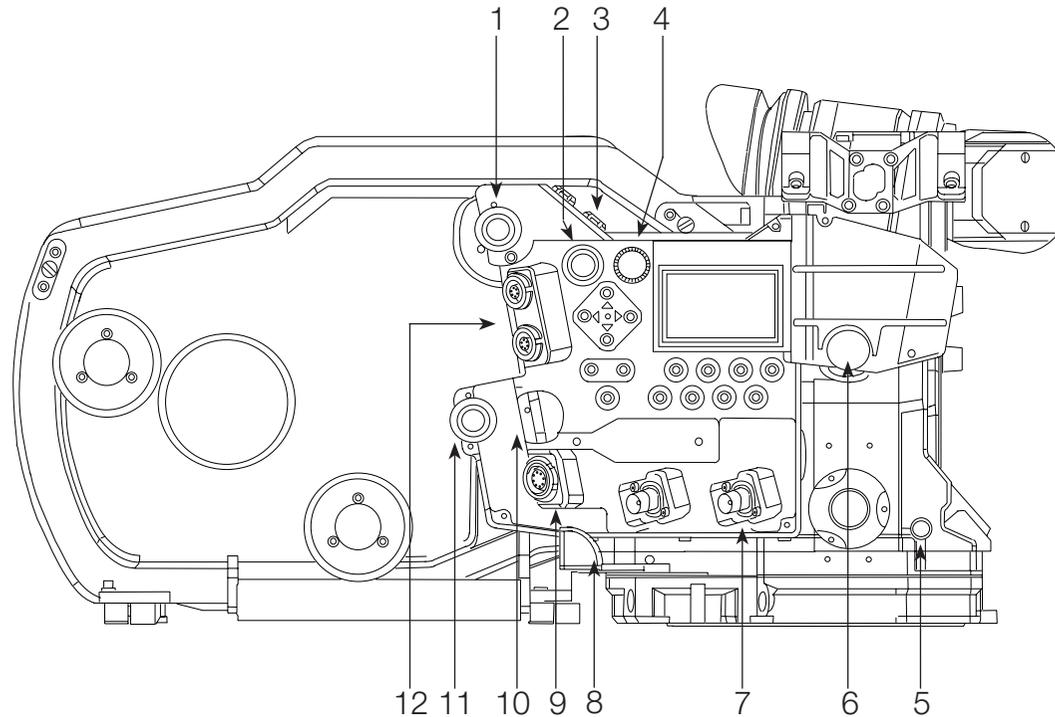
Front view

- | | |
|----------------------------------|--|
| 1 Short eyepiece | ----- |
| 2 Horizon setting knob | To adjust the image horizon |
| 3 Friction adjusting ring | To adjust the tension of the eyepiece swivel |
| 4 Fischer-2 connector | Eyepiece heating cable connector |
| 5 PL mount locking ring | Lock ring for 35mm PL mounted lenses |
| 6 LEMO 2 connector | Start/Stop cable connector |
| 7 Arri rosette | For accessories equipped with Arri rosette |
| 8 Video (VHR) iris ring | To adjust the video iris aperture |
| 9 Video housing | Protects the CCD unit |
| 10 Top rod holder | To install a rod (15-15,8 or 19mm) |



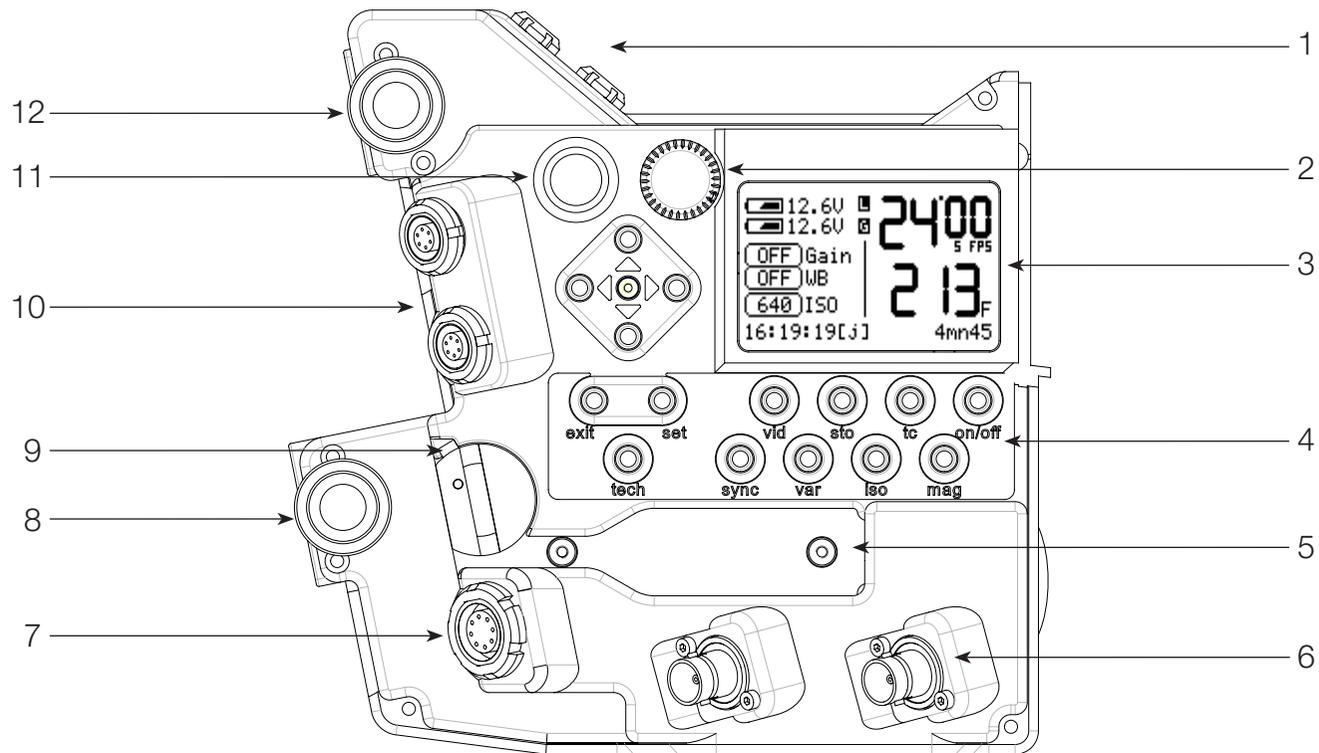
Rear view

- | | |
|--|---|
| <p>1 Upper battery locking screw</p> <p>2 LEMO 6 connectors</p> <p>3 USB connector</p> <p>4 LEMO 8 connector</p> <p>5 Magazine release lever</p> <p>6 LEMO 5 connector</p> <p>7 Gate</p> <p>8 On/Off button</p> <p>9 Magazine upper top lever</p> | <p>Fastens the upper on-board battery</p> <p>Provide 12V, Start and ground for accessories</p> <p>Used to connect USB key</p> <p>Provides 12V, Start, Sync pulse and ground for accessories</p> <p>Used to release the magazine from the camera body</p> <p>Timecode communication</p> <p>Removable gate, 2-Perf or 3-Perf</p> <p>Used to start and stop the camera</p> <p>Used to secure the magazine on the camera body</p> |
|--|---|



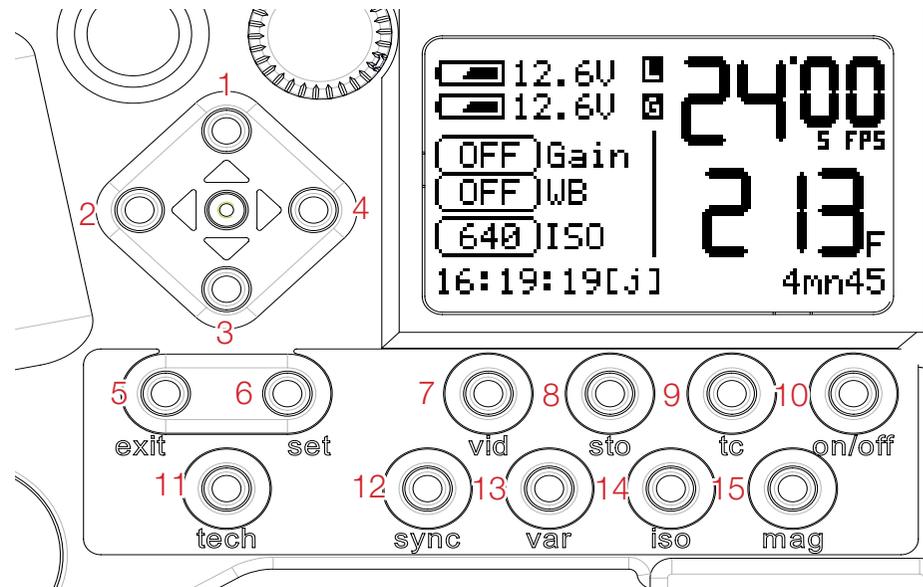
Assistant side

- | | |
|---|--|
| <p>1 Upper battery locking screw</p> <p>2 Start/Stop button</p> <p>3 Fischer-4 connectors</p> <p>4 Jog wheel</p> <p>5 Pitch control</p> <p>6 Video (VHR) iris ring</p> <p>7 BNC connectors</p> <p>8 Magazine release lever</p> <p>9 LEMO 8 connector</p> <p>10 Ethernet cable locking lever</p> <p>11 Lower battery locking screw</p> <p>12 LEMO 6 connectors</p> | <p>Fastens the upper on-board battery</p> <p>To start and stop the camera</p> <p>Provide power and composite video signal for MiniMonitors</p> <p>Quick camera parameters settings</p> <p>Accurate claw pulldown stroke adjustment</p> <p>To adjust the video iris aperture</p> <p>Provide video output</p> <p>To remove the magazine from the camera body</p> <p>Provides 12V, Start, Sync pulse and ground for accessories</p> <p>To lock the Ethernet cable when connected</p> <p>Fastens the lower on-board battery</p> <p>Provide 12V, Start and ground for accessories</p> |
|---|--|



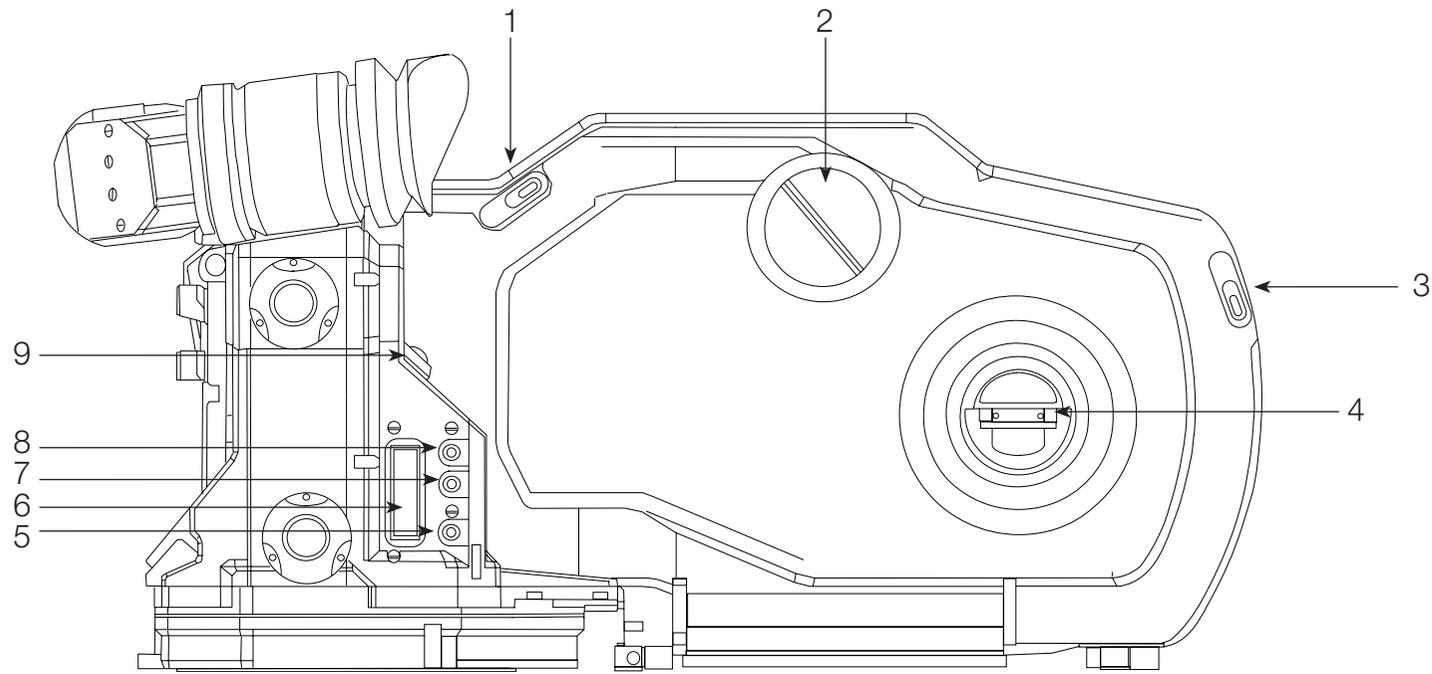
Assistant side details

- | | |
|---------------------------------------|--|
| 1 Fischer-4 connectors | Provide power and composite video signal for MiniMonitors |
| 2 Jog wheel | Quick camera parameters settings |
| 3 LCD screen | Displays camera and video parameters |
| 4 Setting keys | Allows access to camera and video adjustments |
| 5 Ethernet connector | For camera and computer communication (under cover) |
| 6 BNC connectors | Provide video output |
| 7 LEMO-8 connector | Provides 12V, Start, Sync pulse and ground for accessories |
| 8 Lower battery locking screw | Fastens the lower on-board battery |
| 9 Ethernet cable locking lever | To lock the Ethernet cable when connected |
| 10 LEMO-6 connectors | Provide 12V, Start and ground for accessories |
| 11 Start/Stop button | To start and stop the camera |
| 12 Upper battery locking screw | Fastens the upper on-board battery |



Assistant side details

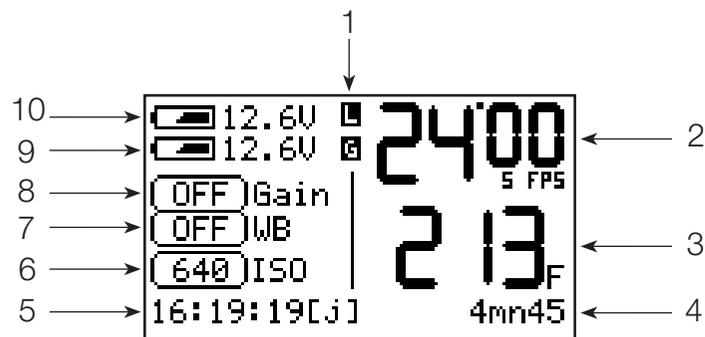
- | | |
|------------------------|--|
| 1 «up» key | To scroll through the setup menu and direct access to video Gain Control |
| 2 «left» key | To position video inserted characters and setup inserted frame lines |
| 3 «down» key | To scroll through the setup menu and direct access to video Gain Control |
| 4 «right» key | To position video inserted characters and setup inserted frame lines |
| 5 «exit» key | To exit setup menu |
| 6 «set» key | To select functions |
| 7 «vid» key | To access the video setup menu (displayed on monitor) («set» + «vid») |
| 8 «sto» key | To access the frame store and image comparison function |
| 9 «tc» key | To access the TimeCode menu |
| 10 «on-off» key | To turn off and on both camera and video |
| 11 «tech» key | To access the camera technical menu |
| 12 «sync» key | To access synch speeds setting («set» + «sync») |
| 13 «var» key | To access variable speeds setting («set» + «var») |
| 14 «iso» key | To access ISO setting («set» + «iso») |
| 15 «mag» key | To access magazine footage setting («set» + «mag») |



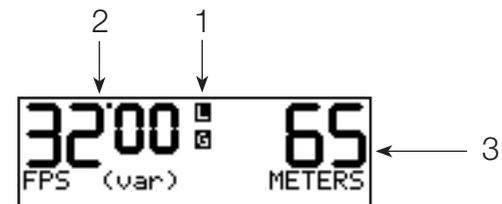
operator side

- | | |
|--------------------------------------|--|
| 1 Magazine door locking lever | To lock/unlock magazine door |
| 2 Magazine footage counter | To check magazine remaining footage |
| 3 Magazine door locking lever | To lock/unlock magazine door |
| 4 Loop adjustment lever | Loop size adjustment (while loading the mag) |
| 5 Lower display key | To modify camera parameters |
| 6 Cameraman LCD display | Displays camera speed and magazine remaining footage |
| 7 Middle display key | To modify camera parameters |
| 8 Upper display key | To modify camera parameters |
| 9 Start/Stop button | To start or stop the camera |

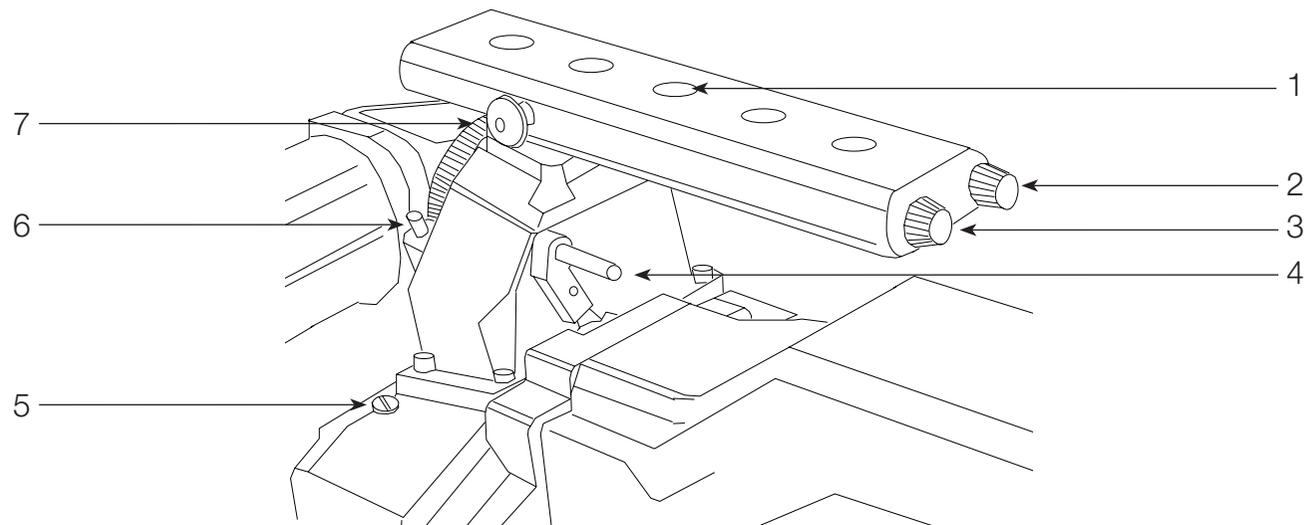
LCD display - Assistant side



LCD display - Cameraman side



- | | | |
|----|--|---|
| 1 | L (mag upper lever) and G (gate) signs | Symbols blink - error (magazine upper lock or gate) |
| 2 | Selected speed | Selected speed mode (Synch or Variable) |
| 3 | Magazine remaining footage | Footage in feet or meters |
| 4 | Remaining time (minutes and seconds) | Magazine remaining running time |
| 5 | Time Code | Hour/minute/seconds - (J) shows an external TC jam |
| 6 | ISO selection | Selected ISO exposure for Timecode |
| 7 | Video tap white balance | 5600°K, 3200°K and manual adjustment |
| 8 | Video gain | Current gain setting |
| 9 | Lower battery level | Lower battery voltage |
| 10 | Upper battery level | Upper battery voltage |



Top view

- | | |
|------------------------------------|---|
| 1 3/8 inserts | To install accessories, brackets.... |
| 2 «Sh» tool | Variable shutter tool |
| 3 «Pitch» tool | Pitch control tool |
| 4 Magazine upper lock lever | To secure the magazine on the camera body |
| 5 Collimation cap | To access ground glass collimation adjustment |
| 6 Viewing friction screw | To adjust the viewfinder friction |
| 7 Tape hook | To attach a measurement tape |

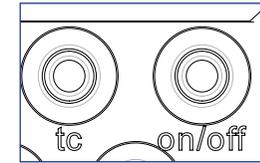
1

Getting started



Power up the camera

To turn ON the camera, press the «On/Off» key.



Power up the video (VHR)

To turn ON the video, press the «Set» key and then the «On/Off» key.



Power down the camera and video

Press the «On/Off» key. A window appears on the LCD screen. Hold the «On/Off» key. Two bargraph timers start counting down, faster for the Video and slower for the Camera. This allows you to power down the Video without powering down the camera.



The «Set» key

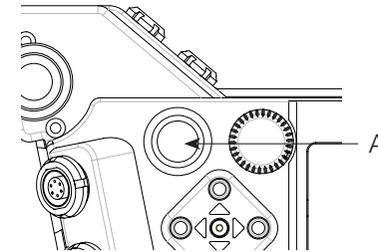
The «Set» key allows you to access the camera's settings. While pressing the «Set» key, a window appears for a few seconds allowing you to access the desired parameters.



TEST mode

TEST mode allows you to open the shutter and keep it protected inside the camera body. This mode is used to check the gate cleanliness and to find the image while doing a steadiness test (which allows you to find the correct film position for the second exposure).

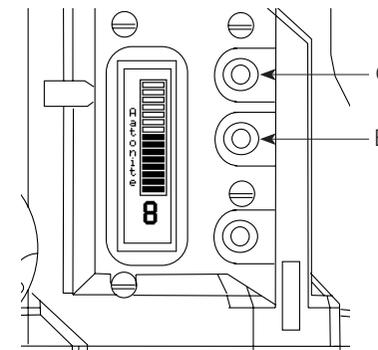
To access **TEST** mode, press the «Start/Stop» button (A) - located on the assistant side of the camera - and hold it pressed for 3 to 4 seconds. When the shutter opens, you can release the button. If you need to inch the camera frame by frame, press the middle display key (B) located on the cameraman side. When you need to leave the **TEST** mode, press the «Start/Stop» button again for 3 to 4 seconds.



Adjusting the Aatonite (glow)

Penelope features a viewing screen with illuminated markings referred to as Aatonite. The level of illumination is user adjustable using the «middle» (B) and «upper» (C) display keys located on the cameraman side. The configuration of illuminated markings will differ slightly from one screen to another. Refer to the screen illustration of the ground glasses list, for a specific description of each screen type, along with its corresponding Aatonite markings.

Note : the illumination level can also be adjusted while the camera is running.



Display colors, camera status

The camera shows its status by modifying both LCD screen's color. This function allows the cameraman and camera crew to be immediately informed of the camera's status.

Pale blue screen

-> camera is in **STANDBY** mode.



Orange screen

-> camera is in **RUN** mode, but has not reached the selected speed.



Green screen

-> camera is in **RUN** mode and sync.



Purple screen

-> end of film



Red screen

-> problem detected (out of phase, film jam...)



Warning messages

Penelope LCD screens display a warning when a crucial parameter has a problem.

Gate position (Gate)

The camera gate is removable for an easy 2 to 3 Perf format switching. The correct positioning of the gate is mandatory for proper camera functioning and focused pictures. The camera gate holder is equipped with 4 sensors to check the gate position. If it is not properly positioned, the camera displays the message «**GATE MISPLACED**» and refuses to start. Remove the gate and reinstall it.



Magazine upper lock lever

The magazine top locking lever, located on top of the camera body, insures the magazine's proper positioning. It is equipped with a position sensor which does not allow the camera to start if this lever is unlocked. If it is, the message «**MAG NOT LOCKED**» is displayed. Lock the lever and start the camera.



Magazine footage adjustment

Press the «Set» key, then the «Mag» key to access the **MAG** menu. If a full 400ft roll has been loaded, adjust the footage to 400ft (122m) by pressing the «up» or «down» key. If you load a short end in the magazine, check the length with the magazine footage counter and enter the same value into the **MAG** menu (assistant or cameraman screen and keys can be used).

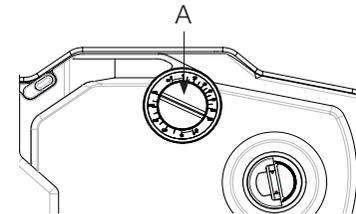


Feet or meter setting

While in the **Mag** menu, press the «left» or «right» key to select the desired measuring unit.

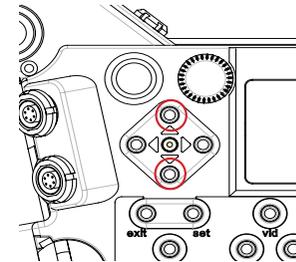
Magazine footage counter lock

Lock the magazine footage counter (A - located on the mag door) while the camera is running.



Video gain (Direct access control panel)

All of the video adjustments are accessible through the **VIDEO** page. The video gain can also be adjusted through the control panel. Press the “up” or “down” key to change the video gain. The adjustment range is -10dB to +12dB, in 1dB steps.



2

Camera body



2.1 Lenses

The Arri PL lens port

The Arri PL lens port is the standard mounting system delivered with Penelope and allows the use of all 35mm Arri PL mounted motion picture lenses. This lens port is ideal for rental facilities, where a mounting system compatible with other 35mm cameras is often requested.

The Panavision PV lens port

The PV lens port is the standard mounting system for the Panavision cameras. This lens port can easily be installed in the Penelope lens holder.

Installing the lens

To install the lens on the camera body, turn the outer locking ring counter-clockwise. If the port cap is on, remove it. Align the four protruding flanges on the lens with the four corresponding cutaways in the locking ring and insert the lens into the camera port so that its flanges rest evenly against the lens seat. Tighten the locking ring by turning it clockwise until the lens is secured and the locking ring is set firmly. Make sure the locking ring is tight enough so that it cannot be inadvertently unlocked.

Flange focal distance.

Refers to the critical distance from the lens seat to the film plane. With the PL port, the precise FFD of Penelope is 52mm -30 to -40 microns as measured with a depth gauge in the lens port. With the PV port, the FFD is 57.15mm -60 to -70 microns

It is recommended that these tolerances be checked and maintained by a qualified technician. The combination of FFD and back focus distance of a lens directly affect the precise focus (and resulting image sharpness). Make sure these critical measurements are strictly upheld. When using an unfamiliar lens for the first time, check that the eye focus matches the tape-measured focus marks on the lens, and/or shoot a focus test.

2.2 Viewing System

Viewfinder options

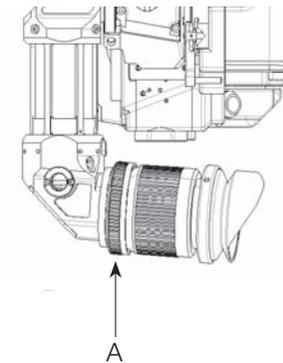
Penelope viewfinder is designed to be fully orientable, providing left or right side viewing and upright image in any position. The viewfinder is equipped with a standard short eyepiece that can be used for handheld and tripod-mounted operation. For more comfortable tripod and studio applications, an finder extension (280 mm) can be fitted between the finder arm and the short eyepiece.

Both short and long extension finders can be equipped with a heating system. This heating system uses a cable which supplies power through the Fisher 2 socket, located on the camera front body, near the lens mount.

Note: the Penelope viewfinder is equipped with a mini Arri PL port which makes it compatible with a wide range of Arri viewfinder accessories.

Attaching the finder extension

In order to use an extension finder, first remove the eyepiece by rotating the eyepiece locking ring (A) clockwise until it reaches its stop and gently pull the eyepiece. To install the finder extension, align its four protruding flanges with the four corresponding cutaways in the viewfinder locking ring and insert it into the viewfinder port so that its flanges rest evenly against the lens seat. Tighten the locking ring by turning it counter-clockwise until the extension finder is secured in place and the locking ring is firmly set. Re-install the eyepiece.



Viewfinder tension adjustment

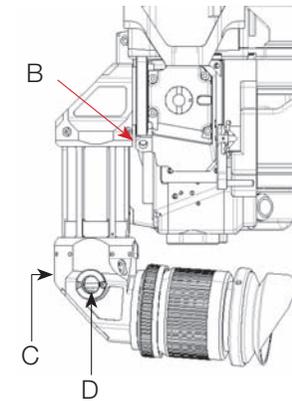
The screw (B) at the base of the viewfinder, allows you to modify the viewfinder left/right lateral friction. Turn counter-clockwise to increase the friction. Turning this screw until it reaches its stop locks the viewfinder left/right movement.

The friction adjusting knurled screw (C), located on the front of the viewfinder, can be used to adjust the tension of the eyepiece swivel, depending on the operator's preference and on the type of viewfinder being used. When using the standard eyepiece, tension should be relatively light to allow for movement with a moderate amount of pressure. When using a finder extension, tension should be increased to support the additional weight.

To adjust the tension of the swivel, rotate the knurled screw (C). To increase the tension of the eyepiece swivel, rotate the knurled screw clockwise; to decrease the tension, rotate the knurled screw counter-clockwise.

Adjusting the viewing horizon

If the rotation of the image seen through the camera's viewfinder does not exactly match what is seen with the naked eye, there is a fine adjustment that can be made to the image's relative horizon. Locate the knurled knob (D) located on the top of the viewfinder. While looking through the viewfinder, turn the knob in order to adjust the image upright position. Note that the knob needs to be turned 180° when installing an eyepiece extension.



Adjusting the diopter

Before shooting, the diopter setting of the viewfinder should be adjusted to the operator's eye. To set the diopter, locate the diopter set ring (E) located on the short eyepiece.

Look through the viewfinder while rotating the diopter set ring until the edge of the cross-hair is in sharp focus. It is recommended that, for easiest setting, this adjustment be performed with the port cover off and no lens on the camera.

Note that the diopter set ring is engraved with numbers and dots. Use them to quickly recall your particular setting when more than one person will be looking through the viewfinder.

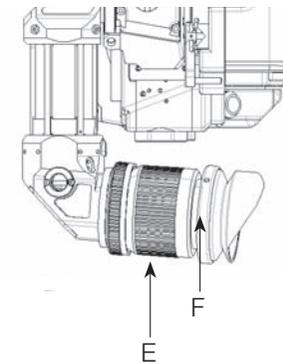
The eyepiece shutter

To prevent light leakage through the viewfinder, the eyepiece shutter must be closed any time the camera is running film and the operator's eye is away from the viewfinder.

Locate the small silver lever located on the eyecup ring (F). To close or open the eyepiece shutter, push this lever.

Viewing screen

Penelope utilizes an interchangeable viewing screen (or "ground-glass") system which allows the cinematographer to install the screen which best suits his particular application. Aaton offers several viewing screens for 2-Perf and 3-Perf formats (see section Viewing Screens in the Technical Specifications chapter).



Changing the viewing screen

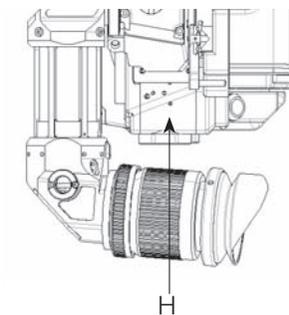
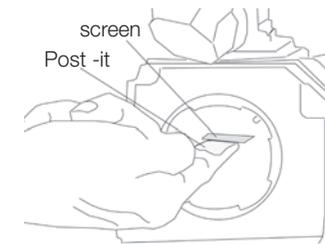
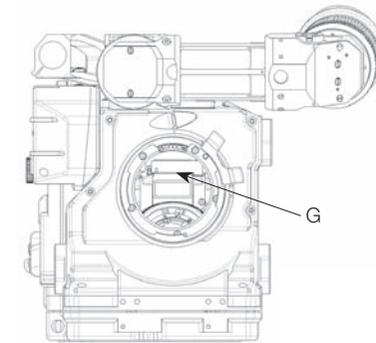
The viewing screen is designed to be easily removed by the user for the purposes of changing or cleaning. To remove the screen, first remove the port cap. Remove the battery (s) and clear the mirror shutter so that it is positioned safely inside the body by rotating at the base of the shutter with your finger. Look into the port and locate the screen directly above the aperture opening. To operate, use a piece of Post-it, that will take the viewing screen without dirtying it. Put the Post-it on your forefinger, the sticking part of it facing up. Smoothly put your finger on the viewing screen, and remove it.

To reinstall the screen, look into the port and locate the right and left lip of the viewing screen holder. Gently push the screen straight into the holder, aligning the two white marks of both holder and screen. Proceed as before, with a piece of Post-it on your finger.

Adjusting the viewing screen

The image focus on the viewing screen (or “ground-glass”) should match the lens barrel focus mark and the focus on the film. Before adjusting the viewing screen, be certain that the flange focal distance of the camera is set according to the manufacturer specifications

To proceed, you must first unscrew and remove the circular cap (H) located on the upper side of the camera body. Inside the access hole, locate the screen holder that you can move by turning its Allen screw (Allen key 2mm). Set your focusing chart at a measured distance. Set the focus mark of the lens at the exact same distance (Adjust the diopter !). You can now focus the ground-glass, moving the holder up or down by turning the Allen key. Double check the focus of the viewing screen using the focus ring of the lens. If the image is still not sharp, perform this operation again.



2.3 The variable shutter

Concept

The reflex mirror shutter is designed to block the optical path from the lens to the viewfinder while the claw movement moves the film to the next frame. The shutter features a four-position user-adjustable opening

- Standard 180° for filming
 - under 50Hz HMI lighting at 25 fps w/o flicker
 - under 60Hz HMI lighting at 24 fps w/o flicker
- 172.8° for filming
 - under 50Hz HMI lighting at 24 fps w/o flicker
- 150° for filming
 - under 60Hz HMI lighting at 25 fps w/o flicker
- 144° for filming
 - to minimize the roll bar while filming NTSC broadcast monitor at 24 fps

Adjusting the shutter

To adjust the shutter opening, unscrew the shutter tool marked “Sh” located in the hollow at the rear of the camera’s carrying handle. Make sure that the battery is off the camera and remove the port cap.

Locate the tool guiding hole to the lower right of the inside lens holder. Gently rotate the shutter at its base with your finger until the brass driving gear is centered underneath the tool guiding hole.

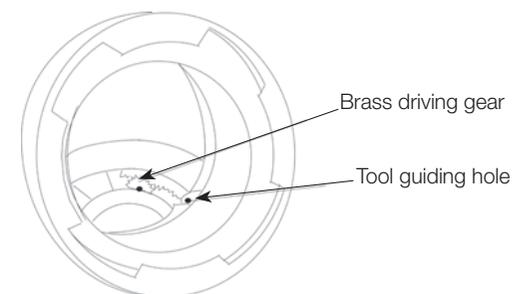
Warning : always Remove the Battery (s)

Each time you need to go inside the camera body, you must first remove the battery. If, by mistake, the camera starts running while you finger is rotating the mirror shutter, the mechanism of the camera body could be seriously damaged.

Insert the shutter tool through the guiding hole and into the brass gear. Rotate the tool until the appropriate notched shutter setting is reached ; turning counter-clockwise will reduce the shutter opening, turning clockwise will increase the opening.

When setting the opening to 172.8°, 150° or 144°, a shutter blade indicating these settings will be visible from behind the left edge of the mirror. Make sure the white line to the immediate right of the 172.8°, 150° and 144° markings meet the left edge of the mirror.

When the adjustment is complete, remove the tool and store it back in the hollow of the carrying handle.



2.4 Film gate and pulldown claw

Adjusting the pitch

To adjust the pitch, use the «Pitch» tool located at the rear of the camera carrying handle.

First remove the pitch protector cap (A), located on the assistant side of the camera body, near the «pitch» engraving. Insert the tool inside the opening. You will feel a screw that you will turn counter-clockwise until it stops. The length of the pulldown is now at its maximum.

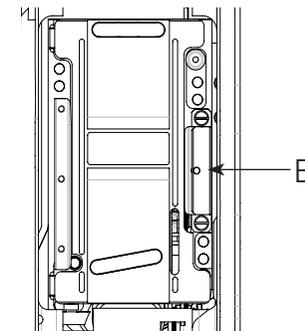
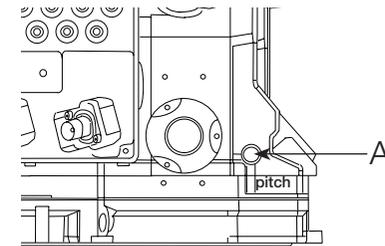
Put the loaded magazine on the camera, and keeping the tool in position, inch and run the camera. The camera will run with a clicking noise, due to the perf being hit by the claw. Turn the tool clockwise until you reach a more pleasant noise, like a loud purring. Once you reach the proper setting, it is recommended to turn the tool counter-clockwise, approximately 20°, to accommodate any variation of the film pitch that occurs between different film stocks or under humid or hotweather conditions. While doing this adjustment, use the film stock you are most likely to use.

The side pressure bar

The film gate also features a side pressure bar which is recessed into the claw-side rail at the point of image exposure to insure maximum lateral stability.

The film gate

Penelope has 2-Perf and 3-Perf capabilities.



2.5 Camera power

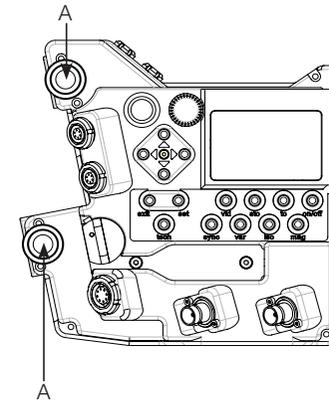
Penelope only requires a 12 VDC power source. One standard Aaton onboard (12V, 3.5 Ah, rechargeable, NiMh) will power the camera, CCD and accessories which are connected to the body's accessory inputs (such as zoom controls, speed controls, etc.) through a standard 4-pin XLR connector. Nevertheless, Aaton suggests using two batteries in parallel if you need to power external accessories.

Installing the batteries on the camera

The batteries fit at the rear of the camera body, on the assistant side. In order to install, loosen the blue knurled screw (A) approximately four or five turns. Push the batteries evenly onto the XLR connectors of the camera body. When snug, tighten the knurled screws onto the battery tabs to hold each in place.

When running Aatoncode (timecode), think about having a fresh battery on hand. Even a low battery (below 10V) has enough voltage to keep accurate timekeeping.

Thanks to a super capacitor, built into the camera electronic, you will have approximately 10 mins to change the battery before time is lost. After replacing the batteries, confirm that time is still counting by checking the control panel.



Charging the batteries

The Aaton battery can be recharged with an appropriate 12V NIMH battery charger. For the best results, use a microprocessor-controlled charger or a standard trickle charger with a charging output of at least 200mA, both of which prevent overheating and mistreating your NiMH cells. Always follow the specific guidelines of the charger manufacturer. You can use the Aaton CHA-3, designed to charge two standard batteries in 6 hours, without any risk.

Beware of older chargers manufactured when 1.2 and 1.4Ah batteries were the norm; these chargers were most likely rated for the lower amperage batteries of that time and will consistently undercharge the higher rated NIMH cells of today.

Other power options

Since Penelope power inputs are the standard 4-pin XLR type, a great variety of 12 to 14 VDC sources can be used to power the camera. This includes AC power supplies, battery blocks, Lithium cells and car batteries.

Get into the habit of carrying a standard XLR-4 powercable in your package in case an alternative power source is required.

Regarding AC power supplies, it is recommended that the unit you use be at least 5A and 60W. Before connecting any non-standard source, always make sure that the pin configuration of the unit is correct. See the Technical Specifications chapter for wiring details.

Motors

Penelope is equipped with three independent motors: one runs the claw mechanism, one runs the magazine, one runs the shutter. These tri-phased motors consume less power and provide improved stability at high speed. Penelope is capable of speeds between 1 and 50 fps with a standard 12V battery.

Camera speeds

Penelope provides both preset crystal speeds (**SYNC** mode) and specific crystal speeds (**VAR** mode) in .001 increments, all accessible from the LCD control panel.

Available preset speeds are : 6, 12, 18, 20, 23.98, 24, 25, 29.97, 30, 33.33, 36, 40, 48 and 50 fps. The «sync» key allows for quick access to these frequently used speeds.

If any other speed is desired, or if the camera speed must match the frequency of a monitor to eliminate a rolling bar, the «var» key should be employed. The specific speed selector enables the body to run at any speed between 1 and 50 in .001 frame steps. A phase adjustment of the variable speed is accessible from the VAR selector and jog wheel.

The camera speed can also be adjusted while the camera is running in either sync or variable mode. For more information on these speed functions, refer to section LCD Control Panel and Jog of this chapter.

Using external speed devices

Penelope can be driven externally from devices such as film/video synchronizers, speed aperture computers and external speed controls. In these situations, the camera «var» selector must be set to EXT mode. If such a device is connected and the selector is not set to EXT, the camera will run at the speed indicated on the display.

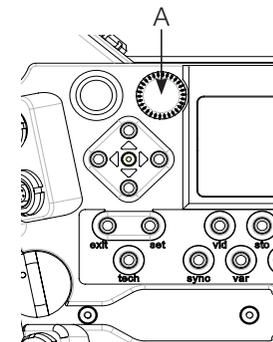
Keep in mind that, with certain manufacturer's speed controls, it may be possible to run the camera at speeds higher than the 50 fps factory limitation. Overcranking in such a way, however, will increase mechanism wear, increase noise and compromise image registration. Aaton urges to avoid such usage at all cost and will not be responsible for the resulting damages that will occur. This top speed cap of 50 fps has been designated by Aaton because it is the limit at which the camera can run safely without any adverse effects to its mechanics.

2.7 LCD control panel and «jog» wheel, assistant side

Penelope utilizes a straightforward and intuitive control panel structure in conjunction with a small jog wheel to access and adjust all operator functions.

The Aaton «jog» wheel (A)

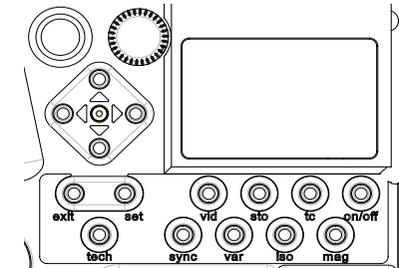
Located to the immediate left of the LCD screen the «jog» is a small wheel designed to simplify many user functions. The «jog» allows quick adjustment of some of the otherwise time-consuming parameters (such as the setting of a precise 5-digit speed or a film short end).



Basics : «sync», «var», «iso», «mag»

The control panel operates in two modes :

- in default mode, the standard mode, the LCD screen shows the camera main adjustments
- the **SET** mode allows camera settings. Press the «set» key, then go to the appropriate function. Information is changed by either toggling the «up» and «down» keys, or by rotating the «jog» wheel, depending on the parameter. Afterward, pressing the «set» or «exit» key will validate your selection.

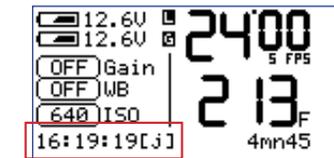


Aatoncode (timecode) reading

As a standard feature, Penelope is equipped with the capability of recording AatonCode in-camera timecode. Timecode information is exposed onto the film by optical projection of seven micro-diodes into the gate.

These micro-diodes flash rapidly to form the code as the film rolls through the gate between exposures.

If AatonCode has been initialized in the camera, you can see it in the left bottom corner of the LCD display, as «hour : minutes : seconds» form. The «J» sign indicates that the timecode has been jammed from an external signal. The «A» sign indicates that the timecode has been jammed from the Aaton OriginC+ master clock.



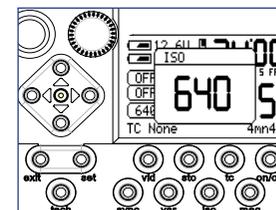
ISO setting

When using AatonCode in Penelope, the ISO setting must be adjusted to the exposure index of the film stock being used. The ISO selection will insure that the timecode matrix recorded on the edge of the film in the gate will be exposed at an appropriate and useable level.

If AatonCode is not running in the camera, the setting of the ISO will have no effect.

Press the «set» and then the «iso» key to adjust the **ISO** setting. Make your selection between 25 and 1000 **ISO**, by rotating the «jog» wheel, or by toggling the «up» or «down» key.

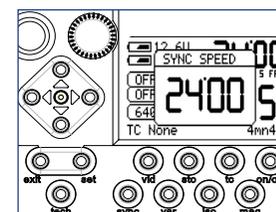
If the **ISO** selector is adjusted while the camera is in **TEST** or **RUN** mode, the correction will not take place until the next camera start.



Camera preset (SYNC) speed

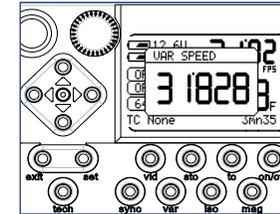
The default mode of the control panel will automatically display the camera speed selection, whether it be in **SYNC** or **VAR** mode, when the camera is powered but not running. When the camera is turned on, the actual running speed to the .01 frame is displayed.

To adjust the preset speed, press the «set» key, then the «sync» key. Make your selection of stepped crystal speed between 6 and 50 fps by rotating the «jog» wheel, or by toggling the «up» or «down» key. Afterward, pressing the «set» or «exit» key will validate your selection.



Camera variable (VAR) speed

To choose a specific speed, press the «set» key, then the «var» key. Make your selection of any .001 incremented crystal speed between 1.000 and 50.000 fps via the «jog» wheel. Afterwards, pressing the «set» or «exit» key will validate your selection.

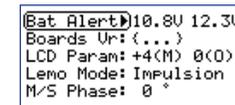


Adjusting the battery warning levels

Penelope displays a warning level when the battery voltage falls below a preset level. The thresholds set for Batt.1 and Batt.2 do not override the cameras default minimum levels.

To adjust these levels, press «set» key then «tech» key to open the **technical** menu. Select the **Bat Alert** sub-menu and press «right» key to access. Select a value between 10.8V and 14V for battery 1 by rotating the «jog» wheel, or by toggling the «top» and «down» keys. Follow the same procedure to adjust battery 2 level.

Aaton suggests a value of 10.8V when using NIMH batteries and a value between 13.2V and 14V when using Lithium-Ion batteries. Press the «set» or «exit» keys to validate your selection.

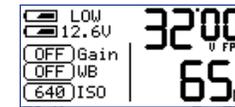


Low battery alerts

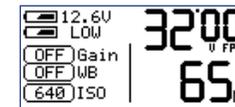
If Batt.1 or Batt.2 reach the minimum level an alert is shown on both LCD screens and a red LED blinks in the camera viewfinder.

The camera continues to run properly and **Low** is displayed in front of the battery icon.

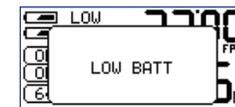
If both batteries are too low, the alert is displayed on both assistant and cameraman screens.



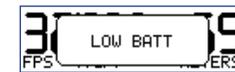
Low batt 1



Low batt 2



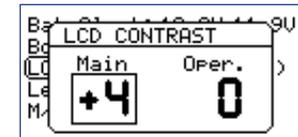
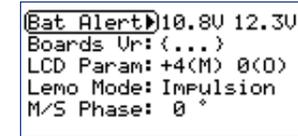
Low power



Low power (cameraman LCD)

LCDs' contrast ajustement

You can modify and adjust the LCDs contrast. To adjust these levels, press «set» key then «tech» key to open the **technical** menu. Select the **LCD Param** sub-menu and press «right» key to access. Select Main LCD contrast level by rotating the «jog» wheel, or by toggling the «top» and «down» keys. Press «right» key to access the cameraman LCD and follow the same procedure. Press the «set» or «exit» keys to validate your selection.



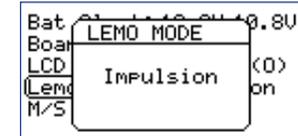
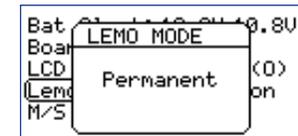
Lemo connectors modes

Penelope has two start stop modes for accessories with Lemo connectors.

IMPULSION for accessories using pulse signal.

PERMANENT for Aaton wooden handgrip, Run switches and cables from existing Aaton cameras 35-III, Xtera, XTRProd etc....

To choose one of these modes press «set» key then «tech» key to open the **technical** menu. Select the **Lemo mode** sub-menu and press «right» key to access. Select modes by rotating the «jog» wheel, or by toggling the «top» and «down» keys. Press the «set» or «exit» keys to validate your selection.

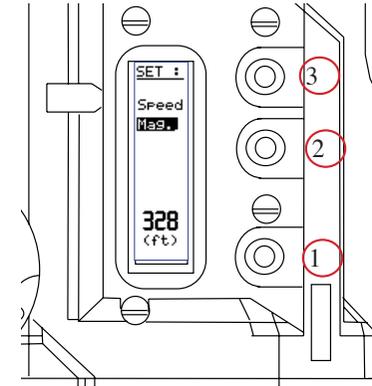


2.8 Accessible settings on the cameraman side

Three buttons are located on the cameraman side, near the LCD screen. Press the «middle» (2) or «upper» (3) display key to adjust the Aatonite level (see Getting started).

You can also modify the camera running speed (only in **SYNC** mode) and the magazine footage.

Press the «lower» (1) display key, then the «middle» (2) or «upper» (3) display key to select **SPEED** or **MAG** modes. When selected, press the «lower» (1) display key. The selected parameter starts to blink. Use the «middle» (2) or «upper» (3) display key to modify the value. Press the «lower» (1) display key to validate.



3

Magazine



3.1 Concept

The Aaton magazine has been designed to be instantly installed or removed, and to be loaded quickly. The magazine loading has to be done in the dark. The magazine sprockets are driven by the camera motor through a magnetic clutch. A magnetic wheel (on the inner side of the camera body) is coupled with a similar wheel on the throat of the magazine to transport the film. A magnetic drive system decreases noise and power consumption, and prevents mechanical stress during misloads. The remaining footage can be easily checked through the mechanical footage counter located on the magazine door. This footage can also be adjusted in the camera setting (see Getting started chapter). The magazine handles up to 400 ft (122m) loads of 35mm film stock, maximum.

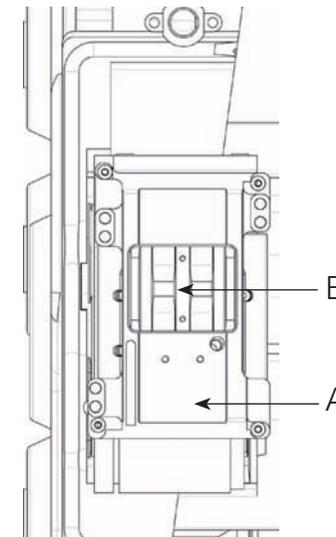
3.2 Pressure plates system

The gate plate (A)

The long plate, called the gate plate, is located at the front of the nose of the magazine. When the loaded magazine is installed on the camera body, its main function is to stabilize the film as the claw engages the film perf between exposures. Proper tensioning and functioning of the gate plate contribute to reliable transport and quiet operation.

The picture plate (B)

The striped pressure plate, called the picture plate, is positioned at the camera's aperture opening and is designed to hold the film steady at the point of exposure. Proper setting and functioning of the picture plate assures the precise focus of each image.

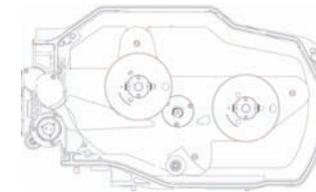
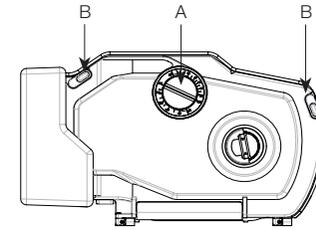


3.3 Loading

The magazine design allows a quick and easy loading procedure and reduces to the absolute minimum the number of operations to be carried out in the dark.

Part of the loading can be done in the daylight: prepare the mag to receive the film.

- Place the magazine on a table, its throat facing left.
- Turn the mechanical footage counter (A) clockwise until it locks in place.
- Unfasten the two blue mag locking levers (B), turning them counter-clockwise
- Open the door.
- Check the magazine loading system.
- Then, put the magazine in a dark room or changing bag.

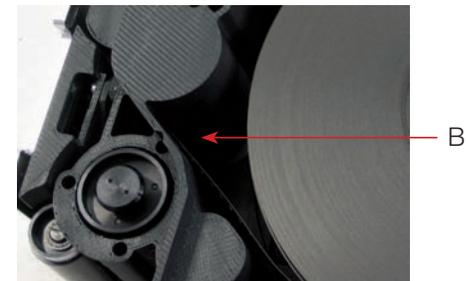


Loading in the dark

- Remove the film from its can and bag. Place the film on the feed spindle with its winds clockwise and press the center of the core lock mechanism to lock the core in place (A).



- Push the film head into the center slot (B), until it engages the inner sprocket wheel.



- Guide the film with your left forefinger and turn the take-up core holder clockwise, making sure the film perforations engage the sprocket teeth.

- When the film comes out of the sprocket assembly, gently pull on it.

- Pull approximately 20 cm (8 inches) of film and insert it in the bottom slot until it meets the lower sprocket teeth.



- Guide the film with your left thumb (A) and forefinger and turn the take-up core holder clockwise until the film goes out of the sprocket assembly (B). Continue to turn the take-up core holder until the film reaches the bottom roller (C).

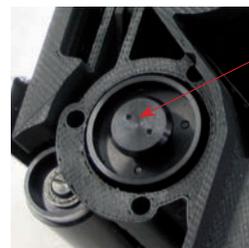
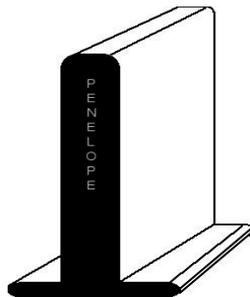


- Place a core on the take-up side spindle, press the center of the core holder to lock the core in place. Fit the film end into the plastic take-up core and wind on a few turns clockwise with the emulsion in. Close the door.



Once the magazine is closed, the following operations can be done in daylight.

- Release the loop adjustment knob by pulling it up.
- Push the loop release button and hold it pressed. Turn the loop adjustment knob clockwise (while pressing on it) to shorten the loop size until the loop adjustment tool is held between the loop and the pressure plate.



- Use the loop adjustment tool to determine the ideal loop size (corresponding to approximately 37 visible perfs).

Installing the magazine

To install the mag, situate yourself at the rear of the camera body on the operator side.

Place your right hand underneath the magazine while your left hand is firmly holding it at the midway point of its rear. Rest the nose of the magazine on the camera base, hold the camera body with your left hand while pushing the mag in the bottom dovetail and into the aperture area with your right hand. Make sure that the top of the nose of the mag is parallel to the camera as you guide the mag in place. Push firmly and evenly until you feel and hear that the mag snaps against the aperture area.



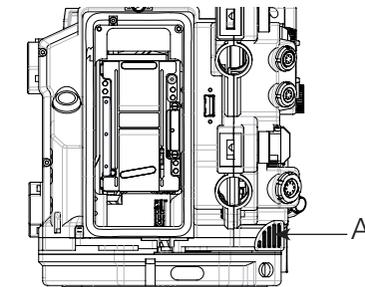
Don't forget to lock the magazine by pushing the magazine upper lock lever.



Removing the magazine

To remove the magazine, situate yourself at the rear of the camera body on the operator side. Unlock the magazine upper lock lever and push the magazine release lever (A) toward the front of the camera with your fingers.

The mag is now free to be pulled off the camera.



4

Video



With the camera body powered up, turn on the video by pressing the “Set” key followed by the “on/off” key.

- To access the **Video menu** press the “set” key then the “vid” key.
- A warning message is displayed on the camera LCD screen (assistant side).
- Use the “up” and “down” keys to select the sub-menus and “left” and/or “right” to access them.

Note : the camera status information is as follows : **RUN** in red color when the camera is running, **STOP** in green color when the camera is stopped.

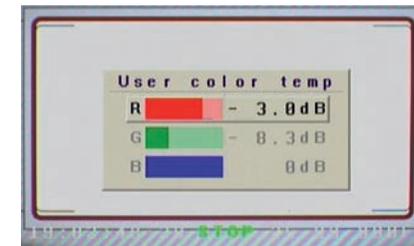


4.1 Video Menu

- Use the “up” or “down” keys to select the desired parameters. Once selected, enter the parameters setting with the “left” or “right” key and use the “up” and “down” keys to modify them, then press the “exit” key to validate the data and return to the previous level.
- The **Video menu** allows you to set up the following video image parameters: Gain level, Output (color or Black and White), Color temperature, Color saturation, Color Bar output and User color temperature (note that this mode is only accessible if **USER** mode has been chosen in the Color temperature mode).

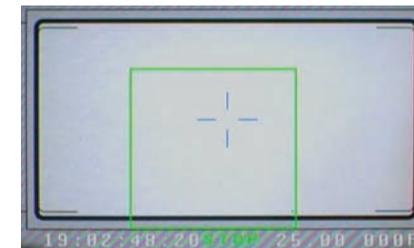


- **Gain** : use “up” and “down” keys to modify the gain value, this parameter can also be modified using the direct access function.
 - **Output** : Color or Black & White.
 - **Color temp** : USER, 3200 or 5600. Both 3200 and 5600 are factory presets, USER can be set using the Auto White Balance function.
 - **Color saturation** : a highly saturated color image has a vivid, intense color, while a less saturated image will appear more muted and grey. With no saturation at all, the hue becomes a shade of grey. Adjustment ranges from 0 to 200%
 - **Color Bars** : generates color bars which can be used to calibrate a monitor.
 - **User color temp** : this menu is activated if the Color temp menu is set to **USER**. Use the “left” and “right” keys to select the three primary colors Red, Green and Blue, use the “up” and “down” keys to modify them.
- Note** : the values shown are the RGB values previously set by the **Auto White Balance** function of the VHR.



4.2 Frame Menu

- The VHR can insert four (4) different frames in the video image. Each frame can be electronically set in size and position to perfectly match the camera viewing screen markings. The color and transparency of each frame can be individually set. The area outside the frame can also be filled with a chosen color and darkened or brightened.
- From the main **Video menu**, use the “down” key to select the **Frame sub-menu** and press the “right” key to enter. You can deactivate the inserted frame by selecting **OFF** in the line frame. If you select **ON**, you have the choice of four different frames labeled frame 1, 2, 3 and 4. Each frame will have to be set individually. Use the “up” and “down” keys to move to the line frame color and press the “right” key to access the RGB parameters of the selected frame. Play with the RGB values to modify the frame color then press the “exit” key to return to the **Frame menu**.
- Use the “up” or “down” keys to select the sub-menu **Frame top left** press the “right” key to enter and modify the “top and left frame” marking position using the “up”, “down”, “left” and “Right” keys. Press the “exit” key to return to the **Frame menu**.
- Proceed in the same way to modify the position of the **Bottom** and **Right** lines of the frame markings. With no restriction, the inserted frame can be set in size and position to match the viewing screen layout but it can also be used to outline an object in the picture during a product shot.



The sub-menu **Frame move** allows you to position the inserted frame in the picture without affecting its size. To fill the outside area of the frame with a colored shade, move to the **Edge** sub-menu and press the “left” or “right” keys to turn the edge **On** or **Off**. If set to **On**, press “exit” key to return to the **Frame Menu** and move to the **Edge color** sub-menu to modify the RGB parameters of the frame outside area. Darkening and brightening this area can be done by modifying the transparency parameter.



4.3 Logo

- The VHR allows you to insert a **Logo** in the monitor picture. This **Logo** can be created and uploaded in the VHR through a “Lemo 5” - “Serial” port cable.
- From the **Video menu**, use the “down” key to select the **Logo** sub-menu and press the “right” key to enter. Once the **Logo** has been generated, you can modify the **transparency** (Opacity) and its **position** on the screen.
- To upload a new **Logo**, connect your computer to the “Lemo 5” - “Serial” port cable.



4.4 Technical Menu

- The **Technical** sub-menu allows you to modify the following parameters : Timecode (displayed on screen or not), Font , Auto Power Off (allows you to choose between an automatic (On) or manual (Off) power off, of the VHR), delay to Power Off, VITC (video time code) position and Parity.



Time Code Menu

- **Time Code Off/On** allows you to choose to insert **ON** or not **OFF** AatonCode information, which consists of Time, Date and Camera equipment number ID. Use the “left” and “right” keys to proceed.



Font Menu

- **Font** allows you to choose the font of the displayed information. Two fonts are available, **0** and **1**. Use the “left” and “right” keys to proceed.



Auto Power Off

- **Auto Power Off** allows you to choose between an automatic **ON** or manual **OFF** power off, of the camera.
- **Power off** (modifiable only if the **Auto Power Off** mode has been chosen) allows you to choose an automatic power off, of the video assist, from 10 to 60 minutes. Use the “left” and “right” keys to proceed.



VITC Position

- **Vitc Position** allows you to choose the position of the VITC lines. Choice from 10 to 23 in PAL (Aaton recommends line 19), or from 13 and 19 in NTSC.
- **Parity** allows you to select the parity of the VITC lines **ODD** and **EVEN**.

Make sure that your Post Production tools run properly with the selected value.



Time & Cam position

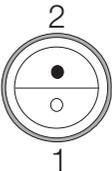
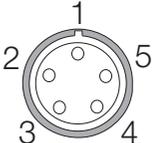
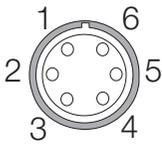
- The VHR inserts the camera speed and magazine footage, as well as time-code information in the video image. These sub-menus allow you to position the information anywhere on the monitor. Use the “up”, “down”, “left” and “right” keys to move, press “exit” to return to the **Main menu**.

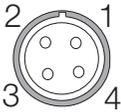
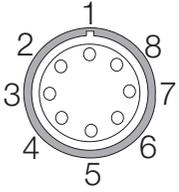
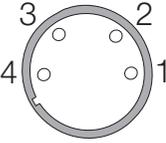


5

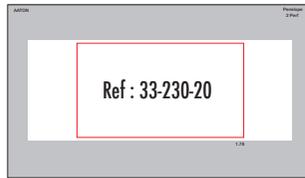
Technical specifications



Type	Functions	Diagram	Pin descriptions (from user's side)
LEMO-2	On/Off		1 Ground 2 Start
Fischer-2	Heating cable		1 Ground 2 + Batt
LEMO-5	TimeCode		1 Ground 2 SMPTE In 3 Ascii In/out 4 Not used 5 Not used
LEMO-6	Power		1 Ground 2 Not used 3 Not used 4 + batt 5 Not used 6 Start

Type	Functions	Diagram	Pin descriptions (from user's side)
Fischer-4	Video output		<ul style="list-style-type: none"> 1 Ground 2 Video ground 3 Video output 4 + Batt
LEMO-8	Speed Controllers		<ul style="list-style-type: none"> 1 Ground 2 Top Tour (one pulse per frame) 3 Ascii In/Out 4 + Batt 5 Tachy out 6 Start 7 Tachy in 8 Ground
XLR-4	Power In		<ul style="list-style-type: none"> 1 Ground 2 Not used 3 & 4 (linked) + Batt

2 Perf S35 centered



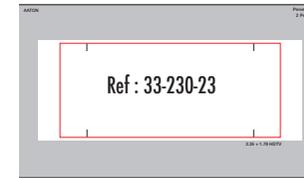
1.78



1.85



2.35



2.35 + 1.78 (HDTV)

3 Perf ANSI S35 centered



1.78 Transmitted (16:9)



1.78 + TV Safe



1.85



2.35 Centric



2.35 + 1.78 Transmitted (16:9) offset