ELD





























HASSELBLAD

555 ELD

Instruction manual

Hasselblad 555ELD – the studio 'workhorse'

Thank you for choosing Hasselblad. A wise move, if we may say so, considering the more than fifty years of continuous research and development that have produced the finest and most wide ranging medium-format camera system in the world. As a Hasselblad owner, you have in your possession a camera of exceptional quality, the product of an internationally renowned tradition of excellence in the world of photography. The quality and reliability of Hasselblad equipment was clearly endorsed when it was chosen by NASA for the lunar missions.

The 555ELD is a further development of the 553 ELX. Improvements have been made to increase performance, handling and versatility. There is an IR remote control facility to improve freedom in the studio and film sensitivity has been upgraded to encompass the new film emulsions. The mirror mechanism has been improvement for even longer life and reliability and stray-light has been reduced even further to meet the increased requirement of digital photography. Of course, in keeping with the latest demands, there is a control connector on the camera body ready to conform with digital backs to provide automatic information transfer,

For the modern studio photographer, the 555 ELD is in a class of its own. The 555 ELD will reliably continue to produce the results that professionals demand, conventionally or digitally, time after time. Simply put, a solid and completely dependable professional tool that repeatedly produces results to place the photographer in the foremost position in a competitive market. A range of accessories affords limitless flexibility and the potential for successful photography in any application. The realisation of this potential is of course dependant upon the skill, care and judgement of the photographer.

The Hasselblad 555ELD is a motorized single lens reflex camera featuring lens, magazine, viewfinder, and focusing screen interchange ability. It is capable of TTL/OTF ('Through The Lens/Off The Film) flash metering, providing direct full control of the D-Flash 40 or non-dedicated flash units that conform to European Systems SCA 300 with a Hasselblad flash adapter SCA 390. All C/CB/CF/CFi and CFE lenses can be used with the 555ELD providing a very wide range of lenses to meet all needs.

This instruction manual describes in detail how to operate your 555ELD, so please read it carefully. If you have a query do not hesitate to contact your dealer - we want you to be 100% satisfied! Your dealer can also provide you with the latest in news and technical developments from Hasselblad. A guarterly magazine – FORUM – is published with the emphasis on photographic imagery featuring photographers from all over the world to provide you with inspiration! Our internet site – www.hasselblad.com – is a source of general and technical information and you can e-mail us - info@hasselblad.se - for further inquiries.

Your new 555ELD provides access to the Hasselblad potential. The realization of this potential is only dependant upon your skill, care and judgement as a photographer.

Congratulations on a fine choice !

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Parts & Components

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In the text, positions of components and orientation are described in relation to the camera as seen when taking a photograph, i.e. the lens at the front, the viewfinder on the top and the mode selector on the right hand side, unless otherwise stated.

The relevant illustrations to each section are indicated by the figures beside the small headings in the text.

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*Acute-Matte designed by MINOLTA

Getting Started

This section describes the steps you must take to make the camera ready to use. You will find comprehensive information on how to operate the camera in later sections. Unless otherwise stated, operating instructions concern the use of film magazines. Although most of the instructions apply to camera operation with a digital back as well, special note should be taken of the 'Digital photography'section for the minor differences. Also, for safety reasons, please read the relevant warning sections concerning studio flash units and digital backs before connecting them.

Do not attempt to attach a lens to a camera without batteries. Please read 'Attaching a lens' first.

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Batteries and fuse

You cannot operate the camera until you have inserted the batteries and the fuse into the battery compartment. To access the battery compartment you have to remove the cover on the left hand side of the motor housing, i.e. the lower section of the camera body. Unlock the cover by inserting a small coin or something similar into the cover locking button slot and turning it counter-clock wise into a vertical position. Now you can remove the cover by opening the rear end outwards and disengaging the hooks at the front end.

The battery compartment

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When you have removed the cover, the battery compartment will be exposed. You will see that two of the battery compartments are red in colour signifying the two batteriesthat should have their positive ends uppermost. On the front face of the compartment is a moulded representation of a battery, indicating the positive and negative ends and the various different designations of the required battery type.

Fitting the batteries and fuse

You will need five 1.5V alkaline batteries size AA (alternative designations are LR6 or AM-3). Fresh batteries should give you up to 4000 exposures at ambient temperatures above 32°F (0°C). See 'Battery types'regarding use of other battery types.

Fit the batteries into the compartment in accordance with the colouring. Once fitted the positive (+) ends of the two uppermost batteries and the negative (-) ends of the other three, should be visible, as in fig 5.

The fuse is a $5 \ge 20$ mm instrument fuse rated 1.6A medium slow-blow (semi time-lag). A red circle marks its position in the illustration. Fit the fuse into its holder at the top right hand side of the battery compartment (a). It is always advisable to have a spare fuse, which can conveniently be carried in the hole directly below the fuse receptacle (b).

Refitting the battery cover

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When you refit the cover you must ensure that the two hooks in the front of the cover positively engage in the corresponding slots in the front of the motor housing. Firmly holding the hooks in place, insert the coin in the lock button slot. Keeping the slot strictly vertical you push the cover against the resistance of the contact springs until the lock pin engages in the slot in the motor housing. While pushing you turn the lock button clockwise until it stops (approximately 1/4 turn) and the cover will be locked in place.

If the camera has been released using the lock/time (LOT) lever without batteries inserted, the mechanism remains in the released state. When the cover is positioned after batteries have been inserted the power circuit is closed and the camera will start and complete the rewind cycle.

While setting up the camera as described in this section, it is important that both the mode selector dial and the 'LOT' lever are set in the 'O' position. You will find detailed information about these items in the section under "Time exposure and locking 'LOT' lever' and 'Mode selector dial'.

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Front protective cover

Turn the cover (bayonet fitting) in the direction of the arrow and lift it out. Do not remove it until you are ready to attach a lens.

 $\ensuremath{\Delta}\xspace^{\ensuremath{\mathsf{The}}\xspace}$ The front protective cover can only be removed when the camera is fully wound.

Rear cover MultiControl

Depress the catch, tilt the cover backwards, and lift it off, revealing the two auxilliary shutter flaps. Do not remove the cover until you are ready to attach a magazine.

Always replace the it to protect the auxiliary shutter when storing the camera body without a magazine attached. See later section under 'Accessories' concerning the additional use of the Rear cover MultiControl regarding flash exposure determination and vignette checking facilities.

Attaching a lens 10, 11, 12

Do not attach a lens to a camera without functioning batteries.

Make sure that both camera and lens are cocked. If the camera is not fully cocked (it may have been accidentally pre-released), press the release button. The camera will then wind on and be fully cocked. Fig. 10 shows the correct relationship between the drive shaft, the lens drive coupling and their indexes. If the lens is not wound, you can insert a coin or similar in the coupling slot and rotate it clockwise until it locks (about 4/5 of a turn)

You will probably find that holding the camera in your left hand and the lens in your right hand, as shown in fig 11, is the easiest way of attaching the lens.

When you have aligned the red index on the lens with the one on the camera as shown in fig 12, the lens will drop easily into the bayonet fitting. You can then rotate it clockwise until it stops with a faint click as the lens catch locks it in place.

Removing a lens

Depress the lens release button and rotate the lens counter-clockwise until it stops and lift it out of the mount. You can only remove the lens when the camera is fully wound and not in the pre-released mode (see 'S- pre-release' under 'Mode selector dial').

Attaching and removing a magazine

Ensure that the magazine slide is fully inserted with the hinge towards the front of the camera (see detail in fig 23) and that the magazine status indicator is white. If the indicator is red then see 'Magazine status indicator'. It is also advisable to have the camera fully wound.

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Rest the magazine on the magazine supports making sure that the lugs are properly engaged in the recesses. Carefully swing the magazine towards the camera body and check that the camera's upper support hooks fit into the slots in the magazine.

Push the magazine gently but firmly against the hooks while sliding the magazine catch to the right. Release the button when the magazine has made contact with the camera body, and then push the button to the left to ensure that it has reached the locked position. Remove the slide to positively lock the magazine to the camera body. The camera is now ready to use.

Removing the magazine is simply the reverse of the attaching procedure. Just as when attaching the magazine, it is advisable to have the camera fully wound and the magazine indicator displaying white.See 'Magazine operation' for a general explanation of these magazine features.

Insert the magazine slide fully with the hinge towards the front of the camera. Slide the magazine catch to the right, swing the magazine back and lift it off the lower supports.

Note also that the camera cannot be operated when a magazine, with slide inserted, is attached to the camera.

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See 'Magazine operation' for further information

The magazine status indicator

The magazine indicator shows whether the film has been advanced (white) or not (red). When the magazine is attached to a camera body, it can also be used to determine whether the camera has been released but not wound on (red) or is ready to be operated (white). The exception is when the magazine has been removed to produce a multiple exposure, see 'Multiple exposure'. If the magazine indicator shows red, the film has to be advanced to change the indicator to white. This can be carried out in two different ways. The procedure below has to be used for frame no. 1 and can be used on all consecutive frames.

- 1. Set the 'LOT' lever from the O (normal position), to the T (time exposure) position.
- 2. Attach the magazine to the camera, leaving the magazine slide in place.
- Return the lever to the O position. The camera will now start to wind the film on and the magazine status indicator will change to white.

A simpler method to advance the film on all frames except frame No. 1 is described under 'Changing the magazine status indicator'.



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A Do not attach a magazine showing white to a camera that is not rewound! Ensure the camera is wound or you will lose a frame.

▲ Do not attach a magazine showing red to a fully wound camera! This could result in a double exposure.

Opening the focusing hood

Lift the lid by firmly gripping the tab on its rear edge, and swing it up to a vertical position. The hood unfolds automatically and locks in the open position.

The built-in magnifier

The magnifier flips up into the viewing position when the oval button inside the lid is moved to the right, as in the illustration. To fold the magnifier down simply press it back down towards the lid until it locks into place.

It can easily be exchanged to suit individual eyesight (see 'Changing the magnifier').

Focusing screen and viewfinder image

The 555ELD is fitted with an Acute-Matte D focusing screen featuring unrivalled brightness and high resolution. The centre of the screen is indicated by a hairline cross.

The screen can easily be exchanged for others specially designed for various applications (see 'Changing the focusing screen').

Closing the	he focusing	hood
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Fold away the magnifier by pressing it back down towards the lid until it locks into place. 'Pinch' in the side plates at the hinge points and then push the lid lightly backwards. The hood then automatically folds back down.

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(2h)

Strap attachment and removal

Place the main body of the strap clip over one of the camera's strap lugs. Press the tip of the clip towards the camera while pulling back on the strap so that the clip slides over the lug and locks into position.

To remove the strap, lift the clip locking plate high enough to be able pass over the camera lug. Slide the clip in the direction away from the strap until it is free.

Left hand grip

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You may find that holding the camera in your left hand is the most convenient grip; operating the exposure release button with your index finger. Your right hand is then free for focusing, setting the exposure and changing the lens or magazine.

Exposure release

Before you can take a photograph, you must first remove the magazine slide. The magazine will then be locked on the camera body, and the camera release button will be operational.

After exposure, the viewfinder remains dark until the camera has been wound and the film advanced.

Digital Photography

The inherent stability of the 555ELD provides the perfect platform for both one-shot and multi-shot digital imaging. The further development of straylight reduction in the 555ELD camera body producing an increase in image quality is of particular interest to digital users. The 555ELD has an integral control connector to ensure automatic and direct communication between camera body and digital back. This direct interface facility does away with the necessity for connecting cables and so improves working efficiency. There are a number of digital backs available produced by leading manufacturers to suit most needs.

Most of the operational instructions in this manual also apply when a digital back is fitted. The major differences concern certain procedures regarding film magazines and exposure determination. For example, the need to remove the magazine slide before being able to press the shutter button no longer applies and neither of course does magazine status regarding film transport. As methods differ slightly between the various backs as well as various software programmes, you should follow the suggestions for exposure procedure in the specific user guide for your particular model and computer configuration.

The Magnifying Hood 4 x 4 DPS (72534) has been specifically designed for use with digital backs to match and enlarge the view of the smaller image area naturally characteristic of digital sensors in the medium format. It has been optimized to suit a maximum CCD size of 40×40 mm (56 mm diameter circle) and provides a magnification of 5.5x with a continuous dioptre adjustment from +0.5 D to -2.5 D.

Please check carefully before using a digital back together with a flash unit as some studio flash units have a sync cord that is not electrically insulated. This may in certain circumstances interfere with or damage a digital camera back. Consult the manufacturer of the flash unit before attaching the digital back and if in any doubt, use a radio link instead of a sync cord. See also the relevant section under 'Troubleshooting'.

Magazine Operation

Hasselblad film magazines provide the opportunity to vary format, length and type of film used. They can be quickly and easily switched mid-film without the loss of a single frame.

Operation of the magazines is not difficult but pay particular attention to the section on loading. Go through the procedure one step at a time and practice a little until you feel confident. Note especially which way round the spool of film is placed and the positioning of the backing paper under the clamp bar.

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The film is automatically advanced frame-byframe in the magazine by the camera winding mechanism and consequently only when attached to the camera body. Therefore when separated, the magazine and camera body could become unmatched. This can be determined by checking the magazine status indicator or by the camera status.

Try to adopt a routine that suits you regarding winding and removal as well as checking on the status of each item. This will ensure that the camera/lens/magazine combination status is always fully operative.

Part	s&	cor	npo	one	nts

- 1. Magazine slide
- 2. Film load indicator
- 3. Film holder key
- 4. Magazine slide holder 5. Film tab holder
- 6. Film winder crank
- 7. Frame counter
- 8. Film advance indicator
- 9. Film take-up spool
- 10. Grooved take-up knob
- 11. Film clamp
- 12. Film holder number
- 13. Spool clamp bar
- 14. Film supply spool
- 15. Film load index

Loading the magazine

The magazine can be loaded on, or off the camera. If it is to be loaded off the camera, then the magazine slide must be inserted first. In either case, when inserting the slide ensure that its flat side is towards the rear (see detail in illustration) as this facilitates the removal of the film holder.

Step-by-step film loading

Follow the procedure below in the correct order.

- 23. Fold out the film holder key.
- 24. Turn the key counter-clockwise and withdraw the film holder (magazine insert).
- **25.** Place an empty take-up spool under the grooved knob of the spool clamp bar. Insert a roll of film under the other end of the bar, turned the same way as in the illustration. Be sure to remove all of the paper band surrounding a new roll of film.
- **26.** Turn the film holder key clockwise to open the film clamp. Pull 8 -10 cm (3 4 in.) of paper backing off the film roll and slide the edge under the clamp.
- **27.** Insert the tongue of the backing paper into the slot in the take-up spool.
- **28.** Turn the grooved knob clockwise until the arrow on the paper backing is aligned opposite the triangular index on the spool clamp bar, but no further.
- 29.Turn the film holder key counter-clockwise and insert the film holder into the magazine. Ensure that it is correctly positioned. Turn the film holder key clockwise to lock the film holder in the magazine and then fold the key back into place.
- **30.** Fold out the film crank and rotate it clockwise about ten turns until it stops. Then turn it counter-clockwise and fold it in. The figure (1) will now be displayed in the automatic frame-counter window indicating that the magazine is loaded and ready for use.

- The magazine's film winding crank is only blocked at frame 1. A partially exposed film may be wound off at any frame afterwards.
- Do not put the film holder down on an unclean surface or where it can attract dust.
- Clean out the magazine housing regularly removing not only dust and particles but also any scraps of paper from previous rolls that may have remained inside.
- Each magazine housing and film holder form a carefully matched pair. Be careful, therefore, when loading more than one magazine at a time not to switch housings and holders. The last three figures of the housing serial number should correspond with the serial number on the film holder.
- Load and unload the magazine away from direct light sources.

Magazine load status

In the centre of the film holder key there is a crescentshaped indicator window that shows white when the magazine is freshly loaded. It gradually changes to red as the film is wound through. An all red indicator shows that either the film is used up or that the magazine is empty.

Removing film from the magazine

When the last frame has been exposed and wound on, the magazine blocks the camera for further release. Wind off the film by folding out the film winding crank, and rotate it clockwise until you can feel the film leaving the supply spool. You can now withdraw the film holder from the magazine and remove the exposed film.

Place the empty spool into its new position under the



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spool clamp bar and grooved knob to become the new take up spool for the next film.

The frame counter is automatically reset when the film holder is withdrawn from the magazine.

Changing the magazine status indicator

To change the magazine indicator from red to white at any other frame number than at "1", fold out the film winding crank and turn it clockwise. The indicator changes after approx. 3/4 turn, but you should continue for approx. 1/2 turn until the new frame number is centered in the counter window to avoid overlapping frames.

Film tab holder

The end tab of the film pack can be inserted in the holder on the back of the magazine as a reminder of the kind of film that has been loaded into the magazine.

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Film plane position

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In close-up photography the film-to-subject distance can be an important factor when determining an accurate focus setting. The red line in the illustration marks the location on the film magazines that coincides with the film plane position.

Lens and Shutter Functions

The 555ELD is compatible with lenses with integral shutters, namely, the C/CB/CF/CFi and CFE lens series. CFi/CFE lenses are described and illustrated here.

C and CF lenses differ slightly in specification and appearance to CFi /CFE lenses, but are very similar in operation.

CB lenses although similar in specification and appearance to CFi/CFE lenses lack the 'F' setting.

Please see relevant user manuals for your lenses.

Since F series lenses have no integral shutters they are not suitable for use with the 555ELD.

Shutter speed and aperture

The shutter speed ring is located closest to the front of the lens. The desired shutter speed is set against the central index. The white scale shows the shutter speeds, and the orange scale the exposure values (EV).

The F setting is used only when the lens is attached to a Hasselblad focal plane shutter camera of the 2000 series. When using the 555ELD, the F setting will cause exposure errors since the shutter remains open.

The aperture ring is second closest to the front of the lens, the value also being set against the central index. The aperture diaphragm is automatic and stops down to the preset working aperture immediately prior to exposure.

Warning mark



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will terminate the exposure prematurely if you relax the pressure on the button too soon. With the 555ELD, however, you should extend this recom mendation to include also 1/8 and 1/15 s due to the fast reaction of the camera's motorized rewind operation. The auxiliary shutter – the two flaps that cover the rear

opening of the camera body – protects the film from light fogging since the lens is always open except just before exposure. The auxiliary shutter remains open only while the release button remains depressed. Listen to the buzzing sound of the delay escapement in the lens' shutter and maintain the pressure on the release button until the sound stops.

Exposure values

The aperture and shutter speed combination set opposite the central lens index determines the exposure. Every combination of shutter speed/ aperture has an equivalent exposure value (EV) which you can read and set against the red EV index on the right hand side of the lens.

Interlocked shutter speed / aperture

If you want to change the shutter speed or aperture while still keeping the same shutter speed/aperture combination (EV), you can interlock the speed and aperture setting rings by holding down the interlock button which is on the right of the aperture scale. When interlocked, the rings move together, thereby automatically increasing or decreasing the aperture to compensate for a decrease or increase of speed respectively.

Focusing and depth-of-field

The focusing ring is the ring with the rubber grip positioned closest to the camera body. The distance scales appear on this ring. Focus the lens by rotating the focusing ring until a sharp image of the subject is obtained in the viewfinder or the measured distance between the subject and the film plane is set opposite the lens index. The distance scale is marked in both metres and feet.

In the image, objects closer or further away than the selected distance will appear sharp, within certain limits. This range of sharp focus, namely depth-of-field, varies with the aperture.

The depth-of-field available at any given aperture can be read off the depth-of-field scale on both sides of the central index.

As an example, the lens in the illustration has been set at f/11 and focused at a little over 10 m. By reading the two f/11s' on the depth-of-field scale on both sides of the central index you can see that they align with approximately 5.5 m and infinity resp. on the focusing scale. The depth-of-field therefore extends from approximately $5.5m - \infty$.

Depth-of-field preview

Depth-of-field can be visually checked on the focusing screen. The diaphragm can be stopped down to the preset aperture from its normally wide open position simply by pushing the depth-of-field preview lever downwards until it locks.

To reopen the diaphragm, depress the lower part of the lever.

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Flash synchronization

The CB, CF/CFi/CFE series lenses have built-in leaf shutters with speeds from 1s to 1/500s and B. Flash synchronization occurs at full shutter opening via the PC flash terminal. Suitable electronic flash units can be used at all shutter speeds from 1s -1/500s as well as B.

Infrared photography

Infrared (IR) rays (wavelengths longer than 800 nm) form an image on a plane further away from the lens than the image plane for visible light. To compensate for this difference you have to align the chosen distance against the red IR index and not the normal central index. Proceed as follows:

- 1. Focus as usual on the focusing screen.
- 2. Note the distance on the focusing scale that is opposite the central index line.
- 3. Now rotate the focusing ring to set this distance opposite the red IR index line instead of the central index line.

Operating Details

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Exposure

As a general rule for all shutter speed settings except B, with the '**LOT**' lever in the '**O**' position you should keep the release button depressed until the lens shutter has completed the exposure. This is especially important at shutter speeds from 1s to 1/15s, see 'Warning mark'.

Time exposure and locking ('LOT') lever

The lever located toward the rear of the motor housing allows you to selectlocking (L), normal operation (0) or time exposure (T).

(L) - In the L-mode, release is blocked to prevent inadvertent exposures.

(**0**) - Normal operating position.

(T) - For time exposures, you should set the lens at B and the mode selector at **O**, **S**, or **RS**. The camera shutter is mechanically opened when the 'L**OT**' lever is shifted from **O** to **T**. The shutter then remains open without any drain on the batteries. When the lever is returned to the **O** setting the shutter closes, the film is advanced, and the shutter is cocked automatically.

Release cords and remote control

There are basically three separate ways to release the shutter on the 555ELD – manually, electrically and by IR transmission.

There are three sockets on the front of the motorhousing - the upper 'digital' release socket, the lower 'film' socket and the IR Release unit mounting socket. The lower release socket should be used for the release button or an FK type release cord when using a film magazine. The upper socket, however, is intended only for use in conjunction with digital backs and acts as the trigger for the back to start the exposure. Please note that if there is no digital back attached or the back is not ready to make an exposure, the camera will not operate.

At the rear of the camera on the right hand side there is 5-pole DIN-socket (fig 48) intended for electrical remote release via an LK or SK cord.Digital camera backs that are not equipped with the 555ELD interface also use this DIN-socket as their connection.

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Manual release socket

This is the lower socket on the front of the motorhousing. The regular release button is simply inserted for use. The jack from an FK type release cord is inserted in a similar manner.

Mhen using a release button, use only the round release button (46120) supplied and not a square release plate (46345).

IR Remote release unit

This unit (46349) provides wireless shutter release with a distance of up to 10 m via signals from the compact IR Remote control (44113). After removing the release button or cord, the unit is inserted into the three sockets on the front of the motor housing. A separate switch on the IR unit controls whether the digital or film socket is triggered. See separate instructions for use. The IR Release unit is powered by the camera batteries. Be sure to switch the unit off when the camera is not in use or the camera batteries will be drained.

Remote control socket

At the rear of the motor housing on the right hand side is a 5-pole DIN-socket. You can use this to operate the camera by means of SK and LK release cords, a timer, or any means that closes the circuit between connectors 1 and 3 (see illustration at end of 'Accessories'). The external resistance should not exceed 6 ohms and the circuit should remain closed at least 0.1sec for reliable triggering.

Mode selector dial

The selector dial provides five release modes for the camera:

0 - NORMAL MODE

Exposure occurs when the release is depressed. The film is advanced, the shutter cocked and the mirror returned to viewing position when the pressure on the release is removed.

S - SINGLE PRE-RELEASE

When the dial is moved to this position the lens shutter is closed, the diaphragm stops down to the pre-selected aperture, the mirror swings up and the auxiliary shutter opens. This leaves only the actual operation of the shutter to take place when the release is pressed. Since most of the camera operations are pre-released, the camera's reaction time between release and exposure is reduced to a minimum, as is camera induced vibration. The selector dial is not retained in the S-position but returns to the O position when released.

RS - PEPEATED PRE-RELEASE

The camera is pre-released when the mode selector is moved to RS where it is held, and continues to pre-release after each exposure until the mode selector is returned manually to the 0 or A position.

A - AUTOMATIC

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The camera makes a continuous sequence of exposures as long as the shutter release remains depressed and unexposed film remains in the camera. The sequential exposure rate in this mode is about 1 frame/sec.

AS - AUTOMATIC SEQUENTIAL

The camera is pre-released in AS and exposes sequentially as long as the shutter release is kept depressed. At the end of the sequence the camera remains in a pre-released state. The exposure rate is slightly faster than in the A position.

If you are in RS or AS mode and want to return to O mode afterwards, you can switch back to O mode for the last exposure in the series. This way you will still have the benefits of the up-swung mirror for the last shot and have the mirror returned automatically for the next session in the new mode without losing a frame. Alternatively you can remove the magazine, set the mode to O orA, press the shutter release and refit the magazine.

Multiple exposure

The camera has been designed to prevent accidental double or multiple exposure. Intentional double and multiple exposures on the same frame can be carried out as follows:

- 1. Depress the release button and keep it depressed. The magazine status indicator now shifts to red.
- 2. Move the LOT lever to the L position and relax the pressure on the release button.
- 3. Insert the magazine slide and remove the magazine from the camera.
- 4. Return the lever to the O position. The camera will wind on.
- 5. Replace the magazine and remove the slide. The unit is now ready to make a second exposure on the same frame even though the magazine indicator is red. You can make additional exposures in the same manner. The magazine status indicator remains red until the magazine is left on the camera and wound on.

Battery types

The five AA size batteries used can either be nonrechargeable alkaline (LR-6, AM-3), or rechargeable nickel-metalhydride (NiMH) types, but must all be of the same type and in similar condition. Rechargeable nickel-cadmium (NiCd) may also be used but are environmentally hazardous and are therefore not recommended. Fresh alkaline batteries should give up to 4000 exposures at ambient temperatures above freezing while freshly loaded NiMH batteries have a similar capacity. Rechargeable NiCd batteries, however, have less than half this capacity when fully charged. Common zinc-carbon batteries can be used but have a considerably shorter life span and should be avoided because they may leak and cause serious damage to the interior of the camera. Lithium type batteries can be used on condition they are of the correct voltage. NiCd batteries can be recharged in a standard recharge unit for AA size batteries but NiMH

can be inadvertantly overcharged. Read the instructions for the respective batteries and charger units.

The batteries should always be removed when the camera is not in use for long periods.

Please note that for environmental reasons alkaline batteries should not be disposed of with ordinary rubbish.

Checking the batteries

When the battery check button is depressed, the green lights indicate the remaining battery power. The following indications are valid for alkaline batteries.

Two lights: – Good One light: – Fair

No lights: - Replace

The battery check circuitry cuts off the lights after 1 – 1.5 sec. in order to conserve battery power.

Rechargeable batteries cannot be checked in this way since alkaline batteries and rechargeable batteries have different discharge characteristics.

The Viewfinder System

The Hasselblad SLR viewfinder system on the 555ELD provides a through-the-lens laterally reversed image. The 555ELD is supplied with a light, compact and foldable focusing hood which is easily interchangeable with alternative viewfinders including the prism finders, which produce a laterally corrected image. The focusing hood has a built-in 4.5x magnifier for accurate focusing and this can easily be changed to suit individual eyesight.

The 555ELD is equipped with an Acute-Matte D focusing screen which produces an exceptionally bright and sharp image. While this covers most needs, the Hasselblad system offers a range of alternative screens for various specific applications.

Each item is easily and quickly interchangeable without the need for special tools or facilities.

Changing the focusing hood or viewfinder

To remove the focusing hood so as to attach any other viewfinder in the Hasselblad system, proceed as follows:

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1. Detach the magazine.

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- 2. Fold down the focusing hood to protect it from damage and remove it by sliding it to the rear in its guide slots.
- 3. Slide the replacement viewfinder into the slots and push it forward until it stops.

When fully inserted the viewfinder is retained in position by a spring-loaded catch until you have reattached the magazine

Changing the magnifier

Mounted lenses with dioptre correction from +3 to -4 are available, and are easily interchanged as follows:

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- 1. Remove the focusing hood from the camera and open it by lifting the lid.
- 2. Release the magnifier by pushing the catch to the right.
- 3. Push the magnifier halfway back down to its folded position.
- 4. Grip the lower edge of the magnifier plate (through the underside of the hood), and pull firmly.
- Keep the plate holder halfway down and insert the replacement lens plate with the printed side up. Push the magnifier back down, fold the hood down and replace on the camera.

Changing the focusing screen

- 1. Detach the magazine and viewfinder.
- 2. Push the two screen clips to the side into their recesses.
- 3. Place your hand over the screen, and invert the camera. The screen will now drop into your hand.
- 4. Insert the replacement screen, ensuring that the smooth flat side is uppermost and the sharp-edged corners down. Ensure that all four corners of the screen are positively seated on their supports.
- You need not return the screen latches. This is done automatically when the viewfinder is replaced.

Should the screen refuse to drop out by itself, ensure that the camera is fully wound, remove the lens and check

that the mirror is in the down position. Put a finger through the lens mount and push gently on the screen from underneath, preferably with a soft cloth between the screen and the finger.

PME / PME3 / PME5 / PME51 / PME90 Meter prism viewfinder adjustments

The Hasselblad meter prism viewfinders measure the light level on the focusing screen. They are calibrated at the factory to give an accurate reading with one particular type of screen. If that focusing screen is replaced with another type which gives a different light level under the same ambient conditions, the meter has to be adjusted to compensate for the difference.

The table towards the end of this manual shows the adjustments that should be made with the PME and PME3/PME5/PME51/PME90 meter prism viewfinders to compensate for the light level differences with the different focusing screens.

Please refer to your viewfinder's operating instructions for further information about other functions.

Flash

Automatic flash control is provided by the camera's built-in flash sensor (fig 57) and electronics that measure the light reflected from the central portion of the film surface; a circle with a diameter of 40 mm. The metering system is connected to a selector for setting film speed.

When a Hasselblad D-Flash 40 is attached - or a System SCA 300 flash unit is connected through a SCA390 - the system controls the flash unit and cuts off the flash when the exposure is correct. Under the left hand edge of the focusing screen an indicator light shows when the flash is ready to be operated and also confirms if the flash output was sufficient to give a correct exposure. The flash unit powers the camera's electronics and also the flash adaptor, when that is used.

The operation of the Hasselblad D-Flash is comprehensively described in its own instruction manual.

As always when working with studio flash, please ensure the equipment is in perfect working order before use. Some studio flash units have a sync cord that is not electrically isolated. This may in certain circimstances interfere with, or damage a digital camera back. Consult the manufacturer of the flash unit and if in any doubt use a radio link instead of a sync cord.

Attaching the Hasselblad flash adaptor SCA 390

For hand-held flash units, either adaptor is attached as shown in the illustration:

- the 6-pole contact from the spiral cord is connected to the camera's side socket
- the sync cord is connected from the adaptor to the PC flash terminal of the lens
- · the connecting cord is attached to the hand- held unit

Setting the film speed

The film speed is set via the ISO selector. This is marked in ISO/ASA settings from 64 - 4000. Certain films require compensation for differences in reflection. In these instances, the compensation is made by changing the film speed selector setting. The amount of compensation has to be determined by experiment.

The TTL/OTF metering system is calibrated to be used with film. The system measures the light reflected from the film surface and controls the flash output. It can also be used with digital camera backs, but depending on the size and reflection properties of the sensor used in the digital back the ISO setting may have to be adjusted. First try the nominal ISO setting of the digital back, take some test pictures and adjust the ISO setting on the camera until the desired flash power is reached.

Please refer to your flash unit's instruction manual when using the D-Flash 40 or a flash unit conforming to SCA standards with automatic facility, or with non-automatic flash units.

Viewfinder Indicator

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Flash operation and flash battery-check are indicated by

a red light, located under the left edge of the focusing screen. It is operative only when a dedicated flash is connected to the TTL socket. It indicates three separate states as described below.

Ready Signal

A steady red light indicates that the flash unit is charged and ready to be fired. Absence of any signal indicates the need for fresh batteries.

Confirmation Signal

A flashing red light occurring for just over a second immediately after exposure confirms that the light output was sufficient for a proper exposure. It then remains dark until the flash unit has recharged. The steady red light will then reappear indicating operative status again. The time of reappearance however may vary according to the condition of the batteries.

No Result Signal

Absence of the flashing confirmation signal after exposure indicates that the flash emitted was not sufficient for correct exposure. The aperture must then be opened more or the flash distance to the subject reduced. Changing to a faster film is also a possibility.

See section on Rear cover MultiControl for description of flash exposure check facility.

Accessories

Most accessories made for the 500 series included in the present Hasselblad Product Catalogue can be used on the 555ELD when not specifically stated otherwise. Remember that FE series lenses are not compatible.As the 555ELD is a further development of previous models, it features certain improvements and differences in construction. This means that certain older and now discontinued accessories cannot be used and any forced attempt at mounting them may damage your equipment.

Fig 64 shows the wide range of accessories available within the Hasselblad System. Please refer to the Hasselblad Product Catalogue for more comprehensive information.

Accessory mounts

The coupling plate on the bottom of the camera body has a 1/4 " and a 3/8" tripod thread. It also fits the useful and reliable Hasselblad Tripod quick-coupling S (45144) which provides rapid and secure tripod connection with exactly repeatable positioning.

The front of the lenses have external and internal bayonet mounts for filters, close-up lenses and lens shades.

Other close-up accessories can be attached between the lens and the camera body.

On the left hand side is the accessory rail for the spirit level and the adjustable flash shoe.

Rear cover MultiControl

The Rear cover MultiControl (supplied) has a vignetting control facility in the form of four holes, positioned at each corner of the frame.

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Vignetting can be caused by incorrectly positioned or adjusted accessories such as lens shades, filter holders, etc. It can also occur when shifting the lens as with the PC-Mutar 1.4X Shift Converter, for example.

As a quick and efficient check against such an occurrence, proceed as follows:

- 1. Set up the camera and compose picture.
- 2. Remove the magazine/focusing screen adapter.
- 3. Replace with the Rear cover MultiControl.
- 4. Depress the depth-of-field button on the lens so that the lens stops down to the working aperture.
- 5. Open the shutter set at 'B'.
- Look through each hole in the Rear cover MultiControl in the direction of the lens and compare what you can see with the illustrations.
- 7. If vignetting is occurring, experiment to find whether it is the degree of shift applied and/or an accessory that is causing the problem.

Illustrations:

- a. The aperture is fully open. No vignetting will occur.
- b. The lens has been stopped down to the working aperture producing the ideal situation. No vignetting will occur.
- c. The lens has been stopped down to the working aperture but vignetting is starting to occur. However this amount is acceptable for a vignette free result.
- d. The lens has been stopped down to the working aper-

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ture and more than 50% has been covered. Vignetting will occur and will produce a visible result.

Flash Exposure Control Facility

The Rear cover MultiControl has a flash exposure control aid, for cameras with a TTL/OTF facility, in the form of a grey panel printed on the inside. It simply replaces the magazine temporarily to provide an inexhaustible standard reference for flash exposure testing at no cost in terms of film. It is particularly useful when exposing films with a narrow exposure latitude, such as transparency film.

The camera's flash control system reads light reflected directly off the film plane, and is governed by the reflective characteristics of the film emulsion that the grey panel simulates.

When using a dedicated flash unit proceed as follows:

- Set up the flash unit with the camera normally, using the TTL/OTF function setting.
- Replace the magazine with the Rear cover Multi-Control.
- 3. Make a test exposure.
- 4. Note the exposure indications in the viewfinder. If warned by the camera for underexposure then make the appropriate changes by altering the aperture or flash-to-subject distance. Make further tests until the camera indicates correct exposure.
- Replace the Rear cover MultiControl with a magazine and proceed as normal, using the adjusted exposure settings.

Although this method should provide a generally acceptable exposure, adjustment of the settings may still be required to obtain a result that suits your personal preference. See flash unit's instruction manual for more information.

IR Remote release unit

The IR Remote release unit (46349)provides the option of wireless exposure release control for conventional or digital photography up to a distance of 10 metres in normal conditions. It comes complete with a sturdy and compact IR transmitter to allow for maximum freedom in the studio or on location.

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Digital accessories

The Hasselblad Magnifying hood 4x4 DPS (72534) is optimized for use with digital backs with CCD-sizes smaller than 40x40 mm (ø56mm). It also enlarges the screen image 5.5 times and comes complete with a correction lens mounting kit to suit individual eyesight.



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Action required when combining prism meter viewfinders with Acute-Matte D focusing screens

	PME3 PME5 PME51	PME	Integral Metering PME90	Spot Metering PME90
Acute-Matte D 42204 42207 42210 42213	No restrictions	The exposure should be increased by one EV value.* Note: 1.4X and 2X convert- ers require test exposures.	No restrictions	The exposure should be reduced by one EV value when using lens/teleconverter combinations which reduce the effective aper- ture to f/8 or smaller.
Acute-Matte D 42215 42217 42219	No restrictions	The exposure should be <i>increased</i> by one EV value.* Note: 1.4X and 2X converters require test exposures.	No restrictions	No restrictions within the f/2 - f/5.6 range. Note: Nat recommended for lenses or lens/converter combinations where the maximum effective aperture is smaller than f/5.6

* The easiest way to *increase* the exposure by one EV value is to *reduce* the ASA /ISO setting to *half the film speed* value as indicated on the film package, e.g. 400 ASA film is set at 200 ASA, 100 ASA film is set at 50 ASA, etc. To *reduce* the exposure by one EV value, *increase* the ASA /ISO setting to *double the film speed* value as indicated on the film package, e.g. 400 ASA film is set at 800 ASA, 100 ASA film is set at 200 ASA, etc.

*Acute-Matte D designed by MINOLTA

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Troubleshooting

Your camera is built to give long and trouble-free service. If however you encounter any operating difficulties because you are not familiar with the Hasselblad camera system, the following table may help to resolve them.

Problem	Possible cause	Remedy
The camera does not operate when	 The batteries are exhausted. 	 Load fresh batteries.
the release button is depressed.	 The batteries are incorrectly fitted. 	 Refit the batteries correctly.
	 The magazine slide is still in place. 	 Remove the slide.
	 The film is finished. 	 Load a new roll of film.
	 The LOT lever is in the L position. 	 Set the lever to the 0 position.
	 The fuse has blown. 	 Replace the fuse.
There is no image on the focusing	 The lens cover is on. 	Remove the cover.
screen.	 The camera body is in the pre- 	 Set the mode selector to the 0 posi-
	released position.	tion and release the camera.
	 The LOT lever is in the T position. 	 Set the lever in the 0 position.
You cannot remove or attach the	 The camera body is in the pre- 	 Set the mode selector to the O posi-
lens.	released position.	tion and release the camera.
	 The LOT lever is in the T position. 	 Set the lever to the 0 position.
	 The shutter is released. 	 Cock the shutter.
You cannot remove the magazine.	 The magazine slide is not fully inserted 	 Insert the magazine slide completel
The camera does not operate when released from the digital back.	 Fault with studio flash sync cord 	 If computer software and hardware are operating correctly, the problem may be the sync cord to the studio flash. Remove the cord and try expose
		ing again. If the camera operates cor
		rectly without the sync cord, replace
		the sync cord with a radio link.

Technical Specifications and Equipment – 555 ELD

CAMERA BODY:	One-piece, cast aluminium alloy shell with permanently attached motor hous ing in lightweight magnesium. Tripod socket threads 1/4" and 3/8", and tripod plate for rapid mounting.
FILM FORMATS AND FILM TYPES:	6x6 cm and 6x4.5 cm with different film magazines; 120 and 220 rollfilm, 70 mm perforated long rolls and Polaroid film.
FILM ADVANCE:	Automatic , motorized film advance with simultaneous shutter winding and mirror return. Maximum speed 1.3 frames/s. Remote shutter release via optional cord or IR control.
LENSES:	All CF/CFi/CFE/CB lenses from 30 to 500 mm, Converter 1.4XE, Teleconverter 2XE, Teleconverter APO 1.4XE and PC Mutar 1.4X Shift Converter. Leaf shutters. Speeds from 1 to 1/500 s and B.
SHUTTER:	Five different shutter/mirror modes; single exposure with normal mirror func tion, sequencial exposures with normal mirror function, pre-release of mirror for one single exposure, repeated pre-release for single exposures and pre- release for sequencial exposures.
FLASH:	TTL centre-weighted dedicated system with OTF metering. Measured area Ø 40 mm. Film speed range ISO 64 – 4000. Controls a wide variety of flash units using appropriate adapters (SCA-system). Sync at all shutter speeds up to 1/500 s.
EXPOSURE METERING:	TTL spot metering, centre-weighted TTL integral metering or incident light meter ing with optional meter prism viewfinders.
VIEWFINDER AND FOCUSING SCREEN:	Foldable focusing hood with 4.5x magnification, interchangeable with 90° or 45° prism viewfinders or magnifying hoods. Bright Acute Matte D screen interchange able for other types. Full viewfinder image with all lenses and accessories.
ADAPTION TO DIGITAL BACKS:	Integrated control connections interface directly to leading digital backs. Separate front release port activation.
CAMERA OPERATION:	Electronic front release. Remote release by optional cord or IR control.Selector dial for shutter/ mirror release modes. Film speed selector for TTL/OTF flash metering. Battery check for alkaline batteries.
BATTERIES/CAPACITY:	Five standard 1.5 V AA size alkaline batteries (LR-6 or AM-3) or rechargeable NICd types. Up to 4000 exposures with alkaline batteries, less than 2000 exposures with fully charged NiCd batteries.
FUSE:	5x20 mm 1.6 A medium slow-blow Instrument fuse.
SYSTEM COMPATIBILITY:	All CF/CFi/CFE/CB lenses, film magazines and most viewfinders and other accessories.
DIMENSIONS:	With focusing hood, lens Planar CFE 2.8/80, magazine A12: length 180 mm (7.1"), width 100 mm (3.9"), height 150 mm (5.9"). Body only: length 120 mm (4.7"), width 100 mm (3.9"), height 150 mm (5.9").
WEIGHT:	With focusing hood, lens Planar CFE 2.8/80, magazine A12 and batteries: 2150g (41b 12 oz). Body only: 1125 g (2 lb 8 oz).

Equipment Care, Service and Guarantee

EQUIPMENT CARE

The Hasselblad 555 ELD is designed to withstand the rigours of professional use in most environments. To avoid the possibility of damage however, it should be protected from the following:

Extremes of temperature. High temperatures can have an adverse effect on both film and equipment. Try to avoid frequent and severe temperature changes. Be particularly careful in humid environments. Allow the equipment to acclimatize before disassembly. Try to ensure the storage conditions in such environments are as dry as possible.

Dust and grit. You should take care to prevent dust and grit from getting into your equipment. In coastal areas take measures to protect your equipment from sand and salt water spray. Dust on the lens glass and focusing screen can be removed with a blower brush or very soft lens brush if necessary. Smears on the lens glass should be treated with great caution. In some cases they may be removed with a high quality lens cleaning solution on a tissue but be careful not to scratch the lens or touch any of the glass surfaces with your fingers. If in any doubt, do not attempt to clean lens glass surfaces yourself but allow a "Hasselblad Authorized Service Center" to treat them.

Impact. Your equipment can be damaged by severe physical shocks so practical protective precautions should be taken. When not in use, try to make a habit of storing your camera equipment in some form of protective case or bag to avoid accidental damage.

Loss. Hasselblad equipment is much sought after and you should take obvious steps to prevent theft. Never leave it visible in an unattended car, for example. Separate and specific camera insurance cover should be considered by professional users.

SERVICE

You should return your equipment to a service centre for occasional checking and preventive maintenance to ensure optimal reliability. If your camera is used constantly and intensively, periodic check-ups every six months are recommended at one of the "Hasselblad Authorized Service Centers". They have the expert staff and specialised equipment necessary to ensure that your equipment remains in perfect working order.

GUARANTEE

Provided that you bought your equipment from an authorised Hasselblad outlet, it is covered by an international guarantee for one year. The guarantee document and a registration card are supplied with the camera. Keep the guarantee document carefully, but fill in the registration card and return it to your Hasselblad distributor.

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Catalogue n	o:
chrome:	10277
black:	10279
independent interna	1000

Hasselblad reserve the right to make changes in the published specifications without prior notice.

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555 ELD CAMERA BODY, CHROME supplied with the following equipment:	10277
Focusing hood, chrome	42315
Focusing screen Acute-Matte D	42204
Carrying strap	46140
Front protective cover	51438
Rear cover MultiControl	51070
Fuses, x2	56111
Release button	46120
Release cord FK 30	46043

 555 ELD CAMERA BODY, BLACK
 10279

 supplied as 10277 above, but equipped

 with black Focusing hood 42323